AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

BUILDING BACK BETTER: INVESTING IN IMPROVING SCHOOLS, CREATING JOBS, AND STRENGTHENING FAMILIES AND OUR ECONOMY

HEARING

BEFORE THE

COMMITTEE ON EDUCATION AND LABOR
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

HEARING HELD IN WASHINGTON, DC, APRIL 28, 2021

Serial No. 117–9

Printed for the use of the Committee on Education and Labor



Available via: edlabor.house.gov or www.govinfo.gov

U.S. GOVERNMENT PUBLISHING OFFICE
44–333 PDF WASHINGTON : 2022

COMMITTEE ON EDUCATION AND LABOR

ROBERT C. "BOBBY" SCOTT, Virginia, *Chairman*

RAÚL M. GRIJALVA, Arizona
JOE COURTNEY, Connecticut
GREGORIO KILILI CAMACHO SABLAN, Northern Mariana Islands
FREDERICA S. WILSON, Florida
SUZANNE BONAMICI, Oregon
MARK TAKANO, California
ALMA S. ADAMS, North Carolina
MARK DE SAULNIER, California
DONALD NORCROSS, New Jersey
PRAMILA JAYAPAL, Washington
JOSEPH D. MORELLE, New York
SUSAN WILD, Pennsylvania
LUCY MC BATH, Georgia
JAHANA HAYES, Connecticut
ANDY LEVIN, Michigan
ILHAN OMAR, Minnesota
HALEY M. STEVENS, Michigan
TERESA LEGER FERNÁNDEZ, New Mexico
MONDAIRE JONES, New York
KATHY E. MANNING, North Carolina
FRANK J. MRVAN, Indiana
JAMAAL BOWMAN, New York, *Vice-Chair*
MARK POCAN, Wisconsin
JOAQUIN CASTRO, Texas
MIKIE SHERRILL, New Jersey
JOHN A. YARMUTH, Kentucky
ADRIANO ESPAILLAT, New York
KWEISI MFUME, Maryland

VIRGINIA FOXX, North Carolina, *Ranking Member*
JOE WILSON, South Carolina
GLENN THOMPSON, Pennsylvania
TIM WALBERG, Michigan
GLENN GROTHMAN, Wisconsin
ELISE M. STEFANIK, New York
RICK W. ALLEN, Georgia
JIM BANKS, Indiana
JAMES COMER, Kentucky
RUSS FULCHER, Idaho
FRED KELLER, Pennsylvania
GREGORY F. MURPHY, North Carolina
MARIANNETTE MILLER-MEEKS, Iowa
BURGESS OWENS, Utah
BOB GOOD, Virginia
LISA C. MC CLAIN, Michigan
DIANA HARSHBARGER, Tennessee
MARY E. MILLER, Illinois
VICTORIA SPARTZ, Indiana
SCOTT FITZGERALD, Wisconsin
MADISON CAWTHORN, North Carolina
MICHELLE STEEL, California
JULIA LETLOW, Louisiana
Vacancy

VÉRONIQUE PLUVIOSE, *Staff Director*
CYRUS ARTZ, *Minority Staff Director*

CONTENTS

Page

Hearing held on April 28, 2021 1

Statement of Members:
- Scott, Hon. Robert C. "Bobby", Chairman, Committee on Education and Labor 1
  - Prepared statement of 4
- Foxx, Hon. Virginia, Ranking Member, Committee on Education and Labor 6
  - Prepared statement of 7

Statement of Witnesses:
- Filardo, Mary W., Founder and Executive Director, 21st Century School Fund 61
  - Prepared statement of 64
- Lanter, Bob, Executive Director, California Workforce Association 40
  - Prepared statement of 42
- McCluskey, Neal, Ph.D., Director, Center for Educational Freedom, Cato Institute 17
  - Prepared statement of 20
- Malik, Rasheed, MPP, Senior Policy Analyst, Early Childhood Policy Center for American Progress 10
  - Prepared statement of 12
- Mitsui, Mark, President, Portland Community College 31
  - Prepared statement of 33
- Riedl, Brian, Senior Fellow in Budget, Tax, and Economics, The Manhattan Institute 50
  - Prepared statement of 52

Additional Submissions:
- Chairman Scott:
  - Report, "State of Our Schools 2016: America's K–12 Facilities" 130
  - BlueGreen Alliance letter dated April 28, 2021 176
  - Paper from *Child Development*, "Impacts of a Prekindergarten Program on Children's Mathematics, Language, Literacy, Executive Function, and Emotional Skill", Nov-Dec 2013 178
  - Executive Summary, "Investing in Our Future: The Evidence Base on Preschool Education", Society for Research in Child Development 197
  - Report, "A public investment agenda that delivers the goods for American workers needs to be long-lived, broad, and subject to democratic oversight", Economic Policy Institute 201
  - Report, "Condition of America's Public School Facilities: 2012–13", National Center for Education Statistics, March 2014 219
  - Research Brief, "Untangling the Evidence on Preschool Effectiveness: Insights for Policymakers", Learning Policy Institute, January 2019 259
  - Rebuild America's Schools letter dated April 28, 2021 271
  - American Federation of Teachers letter dated April 28, 2021 272
  - Link: GAO Report 20-494 dated June 4, 2020, "K-12 EDUCATION—School Districts FrequentlyIdentified Multiple Building Systems Needing Updates or Replacement" 273
- Wilson, Hon. Frederica S., a Representative in Congress from the State of Florida:
  - Article from Communities In Schools, "3 Million Kids Missing From School Because of COVID-19 Is a Travesty", March 5, 2021 274

Page

Additional Submissions—Continued
Wilson, Hon. Frederica S., a Representative in Congress from the State of Florida—Continued
Article from *The 74*, "Report Estimates 1 to 3 Million Students Missing From School Since March, But Data on Disrupted Learning is 'At Best a Moving Target'" October 21, 2020 277
Article from *The Washington Post*, "Unprecedented numbers of students have disappeared during the pandemic. Schools are working harder than ever to find them." February 25, 2021 280
Grothman, Hon. Glenn, a Representnative in Congress from the State of Wisconsin:
"The Drawbacks of Universal Pre-K: A Review of the Evidence" 286
Wild, Hon. Susan, a Representative in Congress from the State of Pennsylvania:
Prepared statement from SMART and NEMIC 300
Questions submitted for the record by:
Fulcher, Hon. Russ, a Representative in Congress from the State of Idaho 303, 308
Responses to questions submitted for the record by:
Mr. McClusky 304
Mr. Reidl 309

BUILDING BACK BETTER: INVESTING IN IMPROVING SCHOOLS, CREATING JOBS, AND STRENGTHENING FAMILIES AND OUR ECONOMY

Wednesday, April 28, 2021

HOUSE OF REPRESENTATIVES,
COMMITTEE ON EDUCATION AND LABOR,
Washington, DC.

The Committee met, pursuant to notice, at 12:12 p.m., via Zoom, Hon. Robert C. "Bobby" Scott (Chairman of the Committee) presiding.

Present: Representatives Scott, Courtney, Sablan, Wilson of Florida, Bonamici, Takano, Adams, DeSaulnier, Norcross, Jayapal, Wild, McBath, Hayes, Levin, Stevens, Leger Fernández, Jones, Manning, Mrvan, Bowman, Pocan, Sherrill, Yarmuth, Espaillat, Mfume, Foxx, Grothman, Allen, Fulcher, Miller-Meeks, Owens, Good, Harshbarger, Miller, Spartz, Fitzgerald, Cawthorn, Steel, and Letlow.

Staff present: Melissa Bellin, Professional Staff; Katie Berger, Professional Staff; Jessica Bowen, Professional Staff; Ilana Brunner, General Counsel; David Dailey, Counsel to the Chairman; Paula Daneri, Professional Staff; Rashage Green, Director of Education Policy; Christian Haines, General Counsel; Joe Herrbach, Professional Staff; Eli Hovland, Policy Associate; Ariel Jones, Policy Associate; Andre Lindsay, Policy Associate; Katie McClelland, Professional Staff; Richard Miller, Director of Labor Policy; Kota Mizutani, Staff Writer; Max Moore, Staff Assistant; Kayla Pennebecker, Staff Assistant; Veronique Pluviose, Staff Director; Lakeisha Steele, Senior Education Policy Advisor; Banyon Vassar, Deputy Director of Information Technology; Claire Viall, Professional Staff; Joshua Weisz, Communications Director; Cyrus Artz, Minority Staff Director; Kelsey Avino, Minority Professional Staff Member; Courtney Butcher, Minority Director of Member Services and Coalitions; Rob Green, Minority Director of Workforce Policy; Amy Raaf Jones, Minority Director of Education and Human Resources Policy; Hannah Matesic, Minority Director of Operations; Audra McGeorge, Minority Communications Director; Carlton Norwood, Minority Press Secretary; Chance Russell, Minority Legislative Assistant; Mandy Schaumburg, Minority Chief Counsel and Deputy Director of Education Policy; Brad Thomas, Minority Senior Education Policy Advisor.

Chairman SCOTT. The Committee on Education and Labor will come to order and welcome everyone. I apologize for the delay, but

the Committee is hearing testimony today on Building Back Better: Investing in Improving Schools, Creating Jobs and Strengthening Families and our Economy.

This is an entirely remote hearing. All microphones should be kept muted as a general rule to avoid unnecessary background noise. Members and witnesses will be responsible for unmuting themselves when they are recognized to speak, or when they seek recognition.

I will also ask Members to be please identify themselves before they speak. Members should keep their cameras on while in the proceeding. Members shall be considered present in the proceeding when they are visible on camera, and they shall be considered not present when they are not visible on camera.

The only exception to this is if they are experiencing technical difficulties and they should inform the Committee staff of such difficulties. If any Member experiences technical difficulties during the hearing he should stay connected on the platform, be sure you are muted, and use your phone immediately to call the Committee's IT director whose number was provided in advance.

Should the chair experience any technical difficulty, or need to step away from the floor, another majority Member will be hereby will be authorized to assume the gavel in the Chair's absence.

This is an entirely remote meeting. And as such the Committee's hearing room is officially closed. Members who choose to sit with their individual devices in the hearing room must wear headphones to avoid feedback, echoes and distortion resulting from more than one person on the software platform sitting in the same room.

Members are also expected to adhere to social distancing, and safe healthcare guidelines including the use of masks, hand sanitizer and wiping down their areas, both before and after their presence in the hearing room. In order to ensure that the Committee's five-minute rule is adhered to, staff will be keeping track of time using the Committee's field timer.

The field timer will appear in its own thumbnail picture on screen and will be named 001__timer. There will be no one minute remaining warning. The field timer will sound its audio alarm when the time is up. Members and witnesses are asked to wrap up promptly when their time has expired.

While a roll call is not necessary to establish a quorum in official proceedings conducted remotely or with remote participation,—I've been advised that the livestream is experiencing another problem and I've been asked to pause very briefly.

We about to restart, five, four, three, two, one. In order to ensure the Committee's five-minute rule is adhered to staff will be keeping track of time using the Committee's field timer. The field timer will appear in its own thumbnail picture and be named 001__timer. There will be no one minute remaining warning. The field timer will sound its alarm when the time is up. Members and witnesses are asked to wrap up promptly when their time has expired.

While a roll call is not necessary, in light of the delay we'll skip the roll call and get to opening statements.

Pursuant to Committee Rule 8(c), opening statements are limited to the Chair and the Ranking Members. This allows us to hear

from our witnesses sooner and provides all Members with adequate time to ask questions.

I recognize myself now for the purpose of making an opening statement.

Today we are gathered to discuss how substantial investments in the infrastructure of our schools, workforce and communities will overcome the COVID–19 pandemic and build back a better economy for all Americans.

We're finally starting to defeat this deadly pandemic. Roughly 3 million people are getting vaccinated every day, and most people can now get a vaccine in less than 24 hours. The economy created more than 900,000 jobs in March. 95 percent of schools are open either full-time for either full-time, in-person instruction or a hybrid of in-person and remote schooling.

And despite the many reasons for optimism about America's future, we cannot ignore the ongoing risks that this pandemic is posing for students and workers. Millions of displaced workers remain unemployed without skills needed to find good paying jobs. Schools are unable to ensure the safety of students and staff due to hazardous, outdated facilities.

Families are finding it even more difficult to find safe and affordable childcare, and the rising costs of higher education continues to restrict opportunities for competent students. These challenges have hit some communities harder than others. This is particularly true for low-income individuals and people of color who entered the pandemic with inadequate access to quality childcare, education, healthcare, and workplace protections.

Over the last year the Committee has worked to protect the lives and livelihood of our constituents, but we cannot be satisfied with the return to pre-pandemic status quo. We have the responsibility to build back an even better economy.

Last month President Biden unveiled the American Jobs Plan which proposes a range of investments to improve the infrastructure of our Nation's childcare centers, schools, and workforce. This plan invests in our chronically underfunded public workforce systems by providing 100 billion dollars for apprenticeships, pre-apprenticeships, sector-based training and programs to help displaced workers build the skills for new careers.

And it ensures a more equitable recovery for workers with barriers to employment by expanding re-entry programs and subsidizing employment especially for disconnected youth. This proposal reflects key elements of the Relaunching America's Workforce Act which would invest 15 billion dollars to help workers quickly re-enter the workforce, as well as the National Apprenticeship Act of 2021 which the House passed earlier this year.

The President's proposals ensures that school facilities are safe for students and staff, and investing 100 billion dollars to repair outdated and hazardous infrastructure at high-need schools. This reflects the Reopen and Rebuild America's Schools Act, which would provide 130 billion dollars to address the deteriorating conditions in our Nation's schools and create more than 2 million jobs.

In my district some school staff are concerned about returning to campus, not just because of COVID–19, but also because some

school buildings have had mold and other serious health hazards since even before the pandemic.

We must invest in school infrastructure that the students and school staff can learn and work safely. The President is also proposing to expand access to safe and affordable child care. Operating child care facilities and increasing our Nation's child care capacity.

Moreover, we expect the President to soon propose a robust plan that would lower the cost of child care for families. Even before the pandemic too many families could not afford childcare, and more than half of all families did not even have access to quality childcare.

Last week Congressman Sablan joined Senator Murray and me in reintroducing the Child Care for Working Families Act which would increase childcare capacity, support childcare workers, and ensure that all working families can afford quality care.

Finally, the President is seeking to boost our Nation's community colleges which play a critical role in helping underserved students access job training and higher education. Unfortunately, these institutions face severe enrollment declines and funding cuts. In response the President's proposal to modernize this community college infrastructure will ensure that they have the capacity and resources needed to serve students and job seekers.

We further expect the President to release a proposal to make community college tuition free and incentive State reinvestment in higher education. This mirrors the America's College Promise Act Which Congressman Levin, and I introduced this week. Today my republican colleagues may argue that these proposals are unnecessary, or unrelated to infrastructure, or maybe too expensive.

But these arguments are unrelated to the actual needs of the American people. Working parents do not care if access to childcare is labeled as infrastructure, they care about having a safe, enriched place for their children to grow and learn while they work.

Unemployed and underemployed workers do not care if job training programs are branded as infrastructure. They care that investments in job creation are made to investments and training they will need to access those good jobs.

A student's parents and school staff do not care if school buildings, or community colleges are called infrastructure. They care about whether or not all students have access to a quality education. So today I hope we can come together to discuss solutions that will improve the quality of life in our communities and help build back a better economy.

With that I thank the witnesses for being with us today. I'm pleased to yield to Ranking Member Dr. Foxx for her opening statement.

[The statement of Chairman Scott follows:]

STATEMENT OF HON. ROBERT C. "BOBBY" SCOTT, CHAIRMAN,
COMMITTEE ON EDUCATION AND LABOR

Today, we are gathered to discuss how substantial investments in the infrastructure of our schools, workforce, and communities will help overcome the COVID–19 pandemic and build back a better economy for all Americans.

We are finally starting to defeat this deadly pandemic. Roughly three million people are getting vaccinated every day and most people can get a vaccine in less than 24 hours; the economy created more than 900,000 jobs in March; and 95 percent

of schools are open for either full-time, in-person instruction or a hybrid of in-person and remote schooling.

Despite the many reasons for optimism about America's future, we cannot ignore the ongoing risks that this pandemic is posing for students and workers.

Millions of displaced workers remain unemployed without the skills needed to find good-paying jobs; schools are unable to ensure the safety of students and staff due to hazardous and outdated facilities; families are finding it even more difficult to find safe and affordable child care; and the rising cost of higher education continues to restrict opportunities for countless students.

These challenges have hit some communities harder than others. This is particularly true for low-income individuals and people of color who entered the pandemic with inadequate access to quality child care, education, health care, and workplace protections.

Over the last year, the Committee has work to protect the lives and livelihoods of our constituents. But we cannot be satisfied with a return to the pre-pandemic status quo. We have the responsibility to build back an even better economy.

Last month, President Biden unveiled the American Jobs Plan, which proposes a range of investments to improve the infrastructure of our Nation's child care centers, schools, and workforce.

This plan invests in our chronically underfunded public workforce systems by providing $100 billion for apprenticeships, pre-apprenticeships, sector-based training, and programs to help displaced workers build the skills for new careers. It ensures a more equitable recovery for workers with barriers to employment by expanding re-entry programs and subsidizing employment, especially for disconnected youth.

This proposal reflects key elements of the Relaunching America's Workforce Act, which would invest $15 billion to help workers quickly re-enter the workforce, as well as the bipartisan National Apprenticeship Act of 2021, which the House passed earlier this year.

The President's proposal ensures school facilities are safe for students and staff by investing $100 billion to repair outdated and hazardous infrastructure at high needs schools. This reflects the Reopen and Rebuild America's Schools Act, which would provide $130 billion to address the deteriorating conditions in our Nation's schools and create more than 2 million jobs. In my district, some school staff are concerned about returning to campus—not just because of COVID–19—but also because school buildings have had mold and other serious health hazards since even before the pandemic.

We must invest in school infrastructure so that students and school staff can learn and work safely.

The President is also proposing to expand access to safe and affordable child care by upgrading child care facilities and increasing our Nation's child care capacity.

Moreover, we expect the President to soon propose a robust plan that will lower the cost of care for families. Even before the pandemic, too many families could not afford child care and more than half of all families did not even have access to quality child care. Last week, Congressman Sablan joined Senator Murray and I in reintroducing the Child Care for Working Families Act, which would increase child care capacity, support child care workers, and ensure that all working families can afford quality care.

Finally, President Biden is seeking to boost our Nation's community colleges, which play a critical role in helping underserved students access job training and higher education. Unfortunately, these institutions have faced severe enrollment declines and funding cuts. In response, the President's proposal modernizes community college infrastructure to ensure they have the capacity and resources needed to serve students and jobseekers. We further expect the President to release a proposal to make community college tuition-free and incentivize State reinvestment in higher education. This mirrors the America's College Promise Act, which Congressman Levin and I introduced this week.

Today, my Republican colleagues may argue that these proposals are unnecessary, unrelated to infrastructure, or maybe too expensive. These arguments are unrelated to the actual needs of the American people.

Working parents do not care if access to child care is labeled as infrastructure—they care about having a safe, enriching place for their children to grow and learn while they work.

Unemployed and underemployed workers do not care if job training programs are branded as infrastructure—they care that investments in job creation are paired with investments in the training they will need to access those good jobs.

Our students, parents, and school staff do not care if school buildings or community colleges are called infrastructure—they care about whether or not all students have access to a quality education.

Today, I hope we can come together to discuss solutions that will improve the quality of life in our communities and help build back a better economy.

With that, I thank our witnesses, again, for being with us today. I am now pleased to yield to the Ranking Member, Dr. Foxx, for her opening statement.

Ms. FOXX. Thank you, Mr. Chairman. And I thank our witnesses for being here today also. When President Biden first announced that his administration was working on an infrastructure plan, I was cautiously optimistic. Why? Because republicans and democrats agree that investment in American infrastructure is vitally important.

But here is where democrats get it wrong. When republicans talk about infrastructure, we actually mean it. We want to invest in roads, buildings, bridges and highways. For democrats? infrastructure is anything that appeases their left-wing based and union allies. That's not an exaggeration.

Ninety-five percent of the Biden administration's American Jobs Plan and American's Families Plan funds a socialist wish list. The left may be trying to further twist the English language to suit their political aims, but let's call these bills what they are—democrat power grabs disguised as infrastructure with little real help for struggling Americans.

These bills wrongly assume the Federal Government is the solution to the challenges facing the Nation, rather than the cause. Our country will exceed 100 trillion dollars in budget deficits by 2050. Expensive partisan promises are driving that number to record highs.

President Biden's solution tax job creators and taxpayers, the same people who are driving our economic recovery in COVID–19. We cannot balance our spending sprees on the backs of hard-working American taxpayers, and our children and grandchildren.

Nor can we continue to blindly throw money at our education system and call that a solution. Despite allocating trillions in education spending over the last several decades, student outcomes are underwhelming.

Remote learning and the COVID–19 pandemic have only driven home the importance of targeting local intervention in student's success. If our students, particularly students of color, who have been disproportionately impacted by democrats shut down politics, are going to bounce back from months of learning loss, and compete in an increasingly global economy, we need fundamental reform to our education system, not a few extra zeroes at the end of a budget request.

Yet despite evidence that more spending alone will not measurably improve student outcomes, democrats are attempting to dive even deeper into taxpayer's pockets to shell out billions in additional education funding.

One hundred billion dollars will be allocated to school buildings even though only 3 percent of our Nation's permanent school buildings were in immediate need or repair according to Federal data. This is a failure to assess accurately the problem. A failure to come up with an adequate solution, and a failure to protect the taxpayers? funds we've been entrusted with when we were elected to the people's house.

These problems aren't limited to K–12 education. Government overreach and easy universal access to taxpayer funds have contributed to exorbitant college tuition rates and the student debt crisis. The democrat's plan doubles down on failed policies of the past, wildly assuming that more spending and more government mandates are the solution to our languishing educational system.

Democrats love to tell us that offering free college is the answer to skyrocketing tuition rates, but the cost of post-secondary education doesn't simply disappear. It means someone else is on the hook for the bill.

Increasing student aid will only drive up tuition prices even further. Once again, more money is a far cry from the sensible solution. The Biden administration's failure to address the root cause of our inadequate education system also hampers our ability to cultivate a qualified workforce for the 21st Century.

While our workforce economic recovery ensues, the Biden administration is ushering in policy that will limit opportunities for workers and job creators, while providing political favors to enrich democrat's big labor allies.

The American Jobs Plan calls for all construction projects to utilize project labor agreements, and government mandating, prevailing wages, which discourages non-union contractors from bidding on taxpayer funded construction contracts and will drive up construction costs by more than 20 percent.

This is far from a win for the American people, rather it's another win for union bosses. Republicans support policies that harness the power of the free market to create jobs and improve the Nation's education and workforce development systems. These proposals fall embarrassingly short of that goal.

Instead of delivering targeted aid that will affect real change, democrats are once again throwing money at a problem under the guise of relief. American deserve better. I look forward from hearing from our witnesses today and I yield back Mr. Chairman. Thank you.

[The statement of Ranking Member Foxx follows:]

STATEMENT OF HON. VIRGINIA FOXX, RANKING MEMBER,
COMMITTEE ON EDUCATION AND LABOR

When President Biden first announced that his administration was working on an infrastructure plan, I was cautiously optimistic. Why? Because Republicans and Democrats agree that investment in American infrastructure is vitally important.

But here is where Democrats get it wrong. When Republicans talk about 'infrastructure,' we actually mean it. We want to invest in roads, bridges, buildings, and highways. For Democrats, 'infrastructure' is anything that appeases their left-wing base and union allies. That's not an exaggeration—95 percent of the Biden administration's American Jobs Plan and American Families Plan funds a socialist wish list.

The left may be trying to further twist the English language to suit their political aims, but let's call these bills what they are: Democrat power grabs disguised as infrastructure with little real help for struggling Americans.

These bills wrongly assume the Federal Government is the solution to our Nation's woes rather than the cause. Our country will exceed $100 trillion in budget deficits by 2050. Expensive, partisan promises are driving that number to record highs. President Biden's solution? Tax job creators and taxpayers, the same people who are driving our economic recovery from COVID–19.

We cannot balance our spending sprees on the backs of hardworking Americans and our children and grandchildren.

Nor can we continue to blindly throw money at our education system and call that a solution. Despite allocating trillions in education spending over the last several

decades, student outcomes are underwhelming. Remote learning and the COVID–19 pandemic have only driven home the importance of targeted, local intervention in student success. If our students, particularly students of color who have been disproportionately impacted by Democrats' shutdown politics, are going to bounce back from months of learning loss and compete in an increasingly global economy, we need fundamental reforms to our education system, not a few extra zeros at the end of a budget request.

Yet despite evidence that more spending alone will not measurably improve student outcomes, Democrats are attempting to dive even deeper into taxpayers' pockets to shell out billions in additional education funding. One hundred billion dollars will be allocated to school buildings even though only 3 percent of our Nation's permanent school buildings were in immediate need of repair according to Federal data.

This is a failure to accurately assess the problem, a failure to come up with an adequate solution, and a failure to protect the taxpayer funds we have been entrusted with when we were elected to the people's house.

These problems aren't limited to K–12 education. Government overreach and easy, universal access to taxpayer funds have contributed to exorbitant college tuition rates and the student debt crisis. The Democrats' plan doubles down on failed policies of the past, wrongly assuming that more spending and more government mandates are the solution to our languishing education system.

Democrats love to tell us that offering free college is the answer to sky-rocketing tuition rates. But the cost of postsecondary education doesn't simply disappear, it means someone else is on the hook for the bill. Increasing student aid will only drive up tuition prices even higher. Once again, more money is a far cry from the sensible solution.

The Biden administration's failure to address the root causes of our inadequate education system also hampers our ability to cultivate a qualified workforce for the 21st century. While our workforce and economic recovery ensues, the Biden administration is ushering in policies that will limit opportunities for workers and job creators while providing political favors to enrich Democrats' Big Labor allies.

The American Jobs Plan calls for all construction projects to utilize project labor agreements and government mandated prevailing wages which discourages non-union contractors from bidding on taxpayer-funded construction contracts and will drive up construction costs by more than 20 percent. This is far from a win for the American people. Rather, it's another win for union bosses.

Republicans support policies that harness the power of the free market to create jobs and improve the Nation's education and workforce development systems. These proposals fall embarrassingly short of that goal. Instead of delivering targeted aid that will affect real change, Democrats are once again throwing money at a problem under the guise of relief. Americans deserve better.

Chairman SCOTT. Thank you. And without objection all Members who will to enter written statements into the record may do so by submitting them to the Committee Clerk electronically in Microsoft Word format by 5 p.m. on May 12, 2021.

I will now introduce our witnesses. Rasheed Malik is a Senior Policy Analyst for Early Childhood Policy at the Center for American Progress. His work focuses on childcare infrastructure and supply, the economic benefits of childcare and bias and discrimination in early childhood policy.

He holds a master's degree in public policy from the Gerald R. Ford School of Public Policy at the University of Michigan and a bachelor's degree in public affairs from Baruch College.

Dr. Neal McCluskey serves as the Director for the Center for Educational Freedom at the Cato Institution where he focuses on K through 12, higher education, and educational issues at large. He has written and co-edited a number of books focusing on topics such as school choice and the U.S. higher education system.

He holds an undergraduate degree from Georgetown University, a master's degree in political science from Rutgers University at Newark, a Ph.D. in public policy from George Mason University.

I'll now yield to the gentlelady from Oregon Ms. Bonamici to introduce our next witness.

Ms. BONAMICI. Thank you, Chairman Scott. I am very honored to introduce a friend who is a leader in education in Oregon and nationally. Portland Community College President Mark Mitsui as a witness today. He has served as a President of PCC, the largest postsecondary institution in Oregon since 2016. Prior to that President Mitsui served in the Department of Education under President Obama as the Deputy Assistant Secretary for Community Colleges.

Before that he was President of North Seattle College in Washington State. President Mitsui has long been focused on equity in higher education, and his leadership at PCC, both before and throughout the pandemic will certainly inform his testimony before the Committee today. I look forward to hearing from him. Thank you very much Mr. Chairman, and I yield back.

Chairman SCOTT. Thank you. Our next witness after that will be Bob Lanter. He's currently Executive Director of the California Workforce Association. He's held various positions at local workforce investment systems from case manager to Executive Director of the Contra Costa County Workforce Board.

He previously worked for the U.S. Department of Labor's Employment and Training Administration as a Federal Project Officer. He's a graduate of California State University East Bay with a bachelor's degree in business personnel administration, and industrial relations.

He is adjunct faculty at the California State University system teaching workforce development.

Brian Riedl is a Senior Fellow at the Manhattan Institute where he focuses on Budget, Tax, and Economic Policy. He previously served as a Chief Economist for Senator Portman of Ohio, and as Staff Director of the Senate Finance Subcommittee on Fiscal Responsibility and Economic Growth. He served as the Heritage Foundation's lead research fellow on the Federal budget and spending policy from 2001 to 2011. He holds a bachelor's degree in economics and political science from the University of Wisconsin, and a master's degree in public affairs from Princeton.

Mary Filardo is the Founder and Executive Director of the 21st Century Fund. She is a leading national authority and advocate for improving the equity, efficiency and quality of public-school buildings and grounds.

She founded the 21st Century's School Fund in 1994 to improve the crumbling public school facilities in the District of Columbia. She also helped State PK through 12 public facilities, public education facilities, at the Council on School Facilities where she is the founder of the Rebuild America's Schools Infrastructure Coalition, known as RASIC.

She has a BA in philosophy and mathematics from St. John's College, a master's in public policy from the University of Maryland, and she is a 1979 Truman Scholar from the District of Columbia.

And we appreciate the witnesses for participating today and look forward to your testimony. Let me remind the witnesses that we've

read your written statements and they will appear in full in the hearing record.

Pursuant to Committee Rule 8(d) and Committee practice, each of you is asked to limit your oral presentation to a five-minute summary of your written statement.

Before you begin your testimony please remember to unmute your microphone. During your testimony, staff will be keeping track of your time and a timer will sound when your time is up. Please be attentive to the time and wrap up when your time is over and then remute your microphone.

If you experience any technical difficulties during your testimony or later in the hearing, you should stay connected to the platform, make sure you are muted and then use your phone to immediately call the Committee's IT director, whose number was provided to you in advance.

We will let all the witnesses make their presentations before we move to Members questions, and when answering a question, please remember to unmute your microphone. The witnesses are aware of their responsibility to provide accurate information to the Committee, and therefore we will now proceed to their testimony.

And I will first recognize Mr. Malik.

STATEMENT OF RASHEED MALIK, MPP, SENIOR POLICY ANALYST, EARLY CHILDHOOD POLICY CENTER FOR AMERICAN PROGRESS

Mr. MALIK. Thank you, Chairman Scott, Ranking Member Foxx, and Members of the Committee. I appreciate the opportunity to testify today. I'd like to begin my testimony by applauding the relief funding for childcare providers that Congress included in the recent American Rescue Plan.

The childcare industry was among the hardest hit sectors of the economy during the COVID–19 pandemic, and without these much-needed funds, many more programs would have permanently closed.

I'm also heartened to see that 25 billion dollars has been included in the President's American Jobs Plan, a timely infrastructure investment that will help upgrade child care facilities so that provides can meet important health and safety protocols that can then reduce the risk of coronavirus transmission.

But what I'm really excited to discuss with you all is the prospect of a once in a generation investment that would dramatically transform our childcare system. For far too long childcare has been an economic barrier for families and consequently, a restraint on our Nation's economic growth.

Parents are rarely prepared for the high costs of childcare. And on the provider's side a broken childcare funding model means many early educators earn poverty wages. The primary source of revenue funding our childcare providers right now are the tuition and fees that parents pay, but only the richest families earn enough to cover what it costs to provide high quality childcare.

And decades of public underinvestment has resulted in a market based system where families with higher incomes have better child care choices available to them, and we've allowed something that should be narrowing opportunity gaps to become an engine of in-

equality, with the early care and education workforce paying a price at every stage.

Here are the facts. The childcare development block grant program that's supposed to make care affordable, only reaches 1 in 7 eligible children. Head Start serves fewer than half of those eligible children. State funded preschools only enroll 34 percent of four-year old and 6 percent of three-year old. And more than half of American families live in childcare deserts where there simply aren't enough licensed providers nearby.

This puts middle class families in a precarious position with childcare issues forcing millions of parents, almost always mothers, to reduce their hours worked, to leave school, or leave the labor force. My research has shown that in 2018 more than 2 million parents experienced some kind of childcare related job disruption.

And I think it's safe to say that number was much higher in 2020. But as surely as there are costs from this problem, there are huge benefits that come from policy solutions. Childcare gaps may mean fewer women in the labor force but solving this problem will allow for more women to join the labor force.

A recent Harvard study analyzing more than 125 policy interventions found that the most cost-effective policies, from a public standpoint, invested in the education and health of young children.

The basic inputs for economic growth are the size of the labor force, and the productivity of that labor force. By providing the stability and economic relief that comes from a well-funded broadly accessible childcare system. We should expect positive effects on both of those inputs.

Investing in the potential of the American workforce has never failed to yield positive returns. I'll finish by highlighting the bold childcare legislation introduced last week by Chairman Bobby Scott.

The Child Care for Working Families Act would finally establish a comprehensive birth to five childcare system. This bill would move to an entitlement approach to childcare funding, which is the most sustainable path to a system that can serve all the families that need it.

It would build upon the current childcare market, preserving parental choice, and investing in a variety of models, including home-based childcare and family friend and neighbor care. It would make child carefree for low-income families, and truly affordable for the middle class, with a typical family paying about $9.00 a day.

It would raise wages for early educators, but it would also fund professional development, establish scholarships for credentials, and partner with higher education institutions to develop a pipeline of qualified future early educators. And this bill would do all of this while keeping the focus on equity—expanding access first for low-income families, children with disabilities, dual language learners, children from underserved ethnic and racial groups, and for geographic areas with low access.

I want to thank you again for inviting me to this hearing, and I look forward to answering any questions.

[The prepared statement of Mr. Malik follows:]

PREPARED STATEMENT OF RASHEED MALIK

"Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and Our Economy"
U.S. House of Representatives
Committee on Education and Labor
April 28, 2021

Written Testimony of Rasheed Malik,
Sr. Policy Analyst, Early Childhood Policy
Center for American Progress

Chairman Scott, Ranking Member Foxx, and Members of the Committee – Thank you for the opportunity to testify today.

I'd like to begin my testimony by applauding the relief and rescue funding for child care providers that Congress included in the recent American Rescue Plan. The child care industry was among the hardest hit sectors of the economy during the COVID-19 pandemic, and without these much-needed resources many programs would have permanently closed, severely hampering any hopes of a complete and equitable economic recovery.

But it is my honor to appear before you today to discuss the promise and the prospect of a once-in-a-generation investment in the child care infrastructure that buttresses our modern-day economy. In my testimony I hope to provide context and data points that outline the scale of the problem, clear evidence of why public investment would be sensible – highly productive, even – and, finally, I will discuss the merits of comprehensive legislation that I hope may come before this committee.

The Child Care Problem Will Not Fix Itself

For far too long, the child care problem has been a limiting factor on our country's economic growth. Parents are rarely prepared for the high costs of child care, with one survey finding that 20 percent of parents go into debt to manage these expenses.[1] On the provider side, a difficult child care business model results in far too many early educators earning poverty wages for their valuable, high-skilled work. Decades of public underinvestment has produced a situation in which families with higher incomes, and often more education and economic opportunity, have a better set of child care choices available to them. The cost of our inaction over these many years has been to allow something that *should be narrowing* opportunity gaps to become an engine of inequality, with the early care and education workforce paying a price at every stage.

The primary revenue source funding our child care providers right now are the tuition and fees that parents can afford to pay. I say, "afford to pay," because this reliance on parental fees has

[1] https://www.nytimes.com/2020/04/17/parenting/day-care-cost-yougov-survey.html

its limit. Very few families have enough resources to cover what it costs to provide high-quality child care on a per-child basis.[2] As a result, the typical child care worker makes less than the typical parking lot attendant[3], even though numerous long-term studies have shown high-quality early care and education has strongly positive effects on children and families in addition to producing broadly shared social and macroeconomic benefits in the long run.[4]

We mustn't forget that these early years are a crucial developmental period, when children are continuously learning, forming more than a million neural connections every second during the first three years of life. Guaranteeing that young children have access to the best possible care when they aren't with their parents is an investment in their safety, health, and cognitive development during an important stage in life. Both high-quality child care and high-quality preschool or pre-K has been shown to have lifelong positive effects, particularly for children from disadvantaged backgrounds.[5]

However, the Child Care Development Block Grant (CCDBG), one of the primary policy responses to the problem of child care access and affordability, now serves only 1 in 7 eligible children.[6] Head Start serves fewer than half of eligible children.[7] State-funded preschools only enroll 34% of 4-year-olds and 6% of 3-year-olds.[8] My research, which has focused on the cost of child care to families and the child care supply shortages across the country, tells a consistent story: modern American families face a multitude of challenges, but child care issues are one of the biggest economic barriers confronting those with young children.

Most families live in "child care deserts," where the lack of licensed child care options often means months- or years-long waiting lists, particularly when looking for infant or toddler care.[9] This puts many young parents in an untenable financial situation, forcing many to reduce their hours worked, seek out unlicensed care that may not meet minimum standards of safety, or as is often the case, leave the labor force entirely. In recent years, more than 2 million parents *each year* experienced some kind of child care-related job disruption.[10]

Those job disruptions are inordinately experienced by mothers, pushing millions out of the paid workforce and millions more to work fewer, or inconvenient, hours. This is one major example of how child care is foundational to our economy. The $25 billion proposed in the American

---

[2] https://www.americanprogress.org/issues/early-childhood/reports/2018/02/14/446330/child-care-dollar-go/
[3] U.S. Bureau of Labor Statistics, "May 2020 National Occupational Employment and Wage Estimates" available at https://www.bls.gov/oes/current/oes_nat.htm#00-0000. Child care workers are listed under the occupational code 39-9011. Parking lot attendants are listed under the occupational code 53-6021.
[4] https://jamanetwork.com/journals/jamapediatrics/fullarticle/2668645
[5] https://evidencebasedprograms.org/programs/abecedarian-project/
[6] https://aspe.hhs.gov/system/files/pdf/264341/CY2017-Child-Care-Subsidy-Eligibility.pdf
[7] https://www.clasp.org/head-start-missing-population-it%E2%80%99s-designed-serve
[8] https://nieer.org/state-preschool-yearbooks/yearbook2020
[9] https://www.americanprogress.org/issues/early-childhood/reports/2018/12/06/461643/americas-child-care-deserts-2018/.
[10] https://www.americanprogress.org/issues/early-childhood/news/2020/02/18/480554/child-care-crisis-causes-job-disruptions-2-million-parents-year/

Jobs Plan is a critical investment that will help states upgrade child care facilities and increase the supply of child care in child care deserts. Many child care providers need to upgrade their physical environments – whether they be child care centers, family child care homes, or Head Start grantees – so that they can meet important health and safety protocols that can reduce the risk of coronavirus transmission.[11] In addition, these dollars would help establish a Child Care Growth and Innovation Fund that states could use to build up the supply of infant and toddler care in high-need areas, recognizing that child care is essential to economic growth.

But even when parents can find reliable, quality child care, the financial impact is on an order of magnitude similar to housing costs, health care, or significant student loan debt. Unfortunately, too many young families are dealing with all four of these expenses, and child care costs are at their highest for infant care, when many parents may still be recovering from income losses stemming from a lack of paid leave – not to mention all the other new expenses that a young child brings.[12] Investing in these young families means providing economic security and stability during a pivotal stage in family life.

The Economic Benefits to Investing in Child Care Infrastructure

But just as clearly as there are costs from this problem, there are huge potential benefits to comprehensive policy solutions. The United States led the world in the growth of women's labor force participation in the decades following World War II, helping to power the greatest expansion of the middle class in this country's history. But as our economic peers invested greater public resources in early care and education, the U.S. failed to make these necessary investments. In recent years, the U.S. has ranked near the bottom of all OECD countries in terms of public spending on child care and early education.[13] Consequently, among developed economies we now have one of the lowest employment rates for mothers, especially for those with young children. Add on to that the disproportionate impact of the pandemic on women, and we are now at recent historic lows for maternal labor force participation and employment.

Though fewer investments in child care leads to fewer women in the labor force, larger public investments in child care access and affordability are associated with more women in the labor force. My research has shown that child care deserts are directly correlated with maternal labor force participation. I've also studied the labor effects of a major universal preschool expansion right here in the District of Columbia, where preschool has been free to everyone beginning in 2009. Using a variety of methods, I found that full-day, universal preschool for three- and four-year-olds, when accompanied by sizeable investments in teacher compensation, produced a 10 percentage point increase in the labor force participation rate for mothers with young children. As a result, Washington, D.C. now has the highest maternal labor force rate in the county.

---

[11] https://bipartisanpolicy.org/explainer/child-care-center-facility-covid19/
[12] https://www.americanprogress.org/issues/early-childhood/reports/2019/10/21/475867/investing-infant-toddler-child-care-strengthen-working-families/
[13] OECD Family Database, "Public spending on childcare and early education" available at https://www.oecd.org/els/soc/PF3_1_Public_spending_on_childcare_and_early_education.pdf

Economists will tell you that the fundamental inputs for economic growth are the size of the labor force and the productivity of that labor. By providing the stability and economic relief that comes from a well-funded, broadly accessible child care system, we should expect positive impacts on both of those inputs. Removing or reducing the choice constraints on parents with young children will unlock the kind of inclusive, equitable growth that will prove valuable over time. Investments in the potential of the American workforce have never failed to yield positive returns, and this set of policies is no different.

Last year, the Center for American Progress published an open letter to policymakers, signed by more than 100 prominent economists who support the idea that child care is a crucial element of our economic infrastructure.[14] A recent Harvard study reviewed more than 125 economic and social policy interventions over the past half-century, comparing their long-term benefits and costs to assign each policy a "Marginal Value of Public Funds." Far and away, the most cost-effective policies were those that invested in the education and health of young children.[15]

The exciting part of this hearing today is that it appears we are finally listening to these data, acknowledging the expert consensus, and considering child care investments in the manner that many of our global competitors did decades ago. Building back a better, more inclusive economy that provides good-paying child care jobs and frees up parents to optimize work-life choices for their family means building a solid economic foundation for a modern, competitive workforce in a challenging global economy. Investing in our child care sector has an obvious multiplier effect; child care is one of those industries that supports the labor behind all other industries. Business leaders have acknowledged this problem for their workforce, especially during the pandemic, which has laid bare the economic importance of child care.[16]

The Child Care for Working Families Act and Other Policy Solutions

As you all know, last week saw the reintroduction of major legislation by Committee Chair Bobby Scott that is meant to address these problems with the goal of building back a better, more inclusive economy for American families. This newest version of Child Care for Working Families Act is an implementable, comprehensive approach to establishing a modern child care system that preserves parental choice and raises early educators' wages. I'd like to take this portion of my testimony to discuss key elements of the bill's structure, as well as to note some of the new additions that improve upon past iterations of the bill.

Fundamentally, it is important to note that this legislation addresses the three core components that any comprehensive policy solution needs to tackle: (1) Access, (2)

---

[14] Center for American Progress, "An Open Letter from Economists in Support of Child Care" (Washington: Center for American Progress, 2020), available at https://cdn.americanprogress.org/content/uploads/2020/06/18140211/Economists-letter.pdf.
[15] https://scholar.harvard.edu/hendren/publications/unified-welfare-analysis-government-policies
[16] https://www.wsj.com/articles/manufacturing-recovery-stymied-as-workers-juggle-child-care-11600261107

Affordability, and (3) Quality. This is important because merely addressing one or two components could, and likely would, lead to unintended consequences for the other(s). Therefore, comprehensive legislation is needed for this investment to work in the long-term.

The most transformational aspect of this bill is that it works toward an entitlement approach to child care funding, which is the most sustainable path to a child care system that serve all the families that need it.[17] This manner of funding would ensure that states can finally make quality child care free for low-income working families and truly affordable for the middle-class. If child care were structured as an individual child entitlement, we would finally have a real child care system as opposed to the status quo, which has been holding back families, child care providers, and the economy.

Just as importantly, this legislation would increase the wages of nearly all child care workers and early educators, bringing their compensation in line with their social and economic value. The Child Care for Working Families Act does much more than increase wages though. It also funds professional development activities, establishes scholarships for educational credentials, and partners with institutions of higher education to develop a pipeline of qualified future early educators. For those with similar credentials as teachers in elementary education, it would establish pay parity to reflect the similar value of the work. And all these investments include plans to engage current child care providers and provider organizations so that changes in compensation acknowledge the underpayments the workforce has endured for too long.

This legislation is wisely designed to couple investments in preschool with investments in infant and toddler child care, recognizing that we need a birth-to-five approach to avoid unintended consequences across the rest of the early learning system. It gives parents the choice and flexibility to find the right child care program to meet their schedule and needs. This is not a one-size-fits-all approach, and it funds home-based child care and even neighbor or relative care that meets certain health, safety, and educational standards.

Finally, the bill has thoughtfully embedded equity reviews in both the child care and preschool expansion, so that these systems can be brought to scale with an initial focus on equitable access. The programs would expand most for children from low-income families, children with disabilities, dual language learners, children from underserved ethnic and racial groups, and for geographic areas with low access. States would be instructed to collect disaggregated data so that access gaps can be addressed properly.

We can make the most of these improvements by coupling these investments with commitments to complimentary programs, such as the USDA Child and Adult Care Food Program (CACFP), which provides snacks and meals to more than 3 million children at child care centers, family child care homes, Head Start programs, after-school programs, and homeless

[17] https://edlabor.house.gov/imo/media/doc/CCWFA_FINAL.pdf

shelters. A few key changes to this vital service could allow the program to deliver even more nutritious meals to children, allowing three instead of two meals per day.[18]

Meeting This Moment in History

The inadequacies of our current system are coming at the expense of women who have been hit hard by the COVID crisis - losing a net of 4.63 million jobs during the recession, more than the 3.72 million net jobs lost by men.[19] The losses for low-income women, women of color, and single mothers -- all of whom are more likely to be breadwinners who play a vital role in supporting their families' economic security -- have been even worse. And yet, these same families are also least able to afford care in the current system, threatening to prolong their detachment from the workforce. Studies have shown that the longer women are out of work, the lower their wages are when they return.[20]

I'd like to close by noting that this year is the 50th anniversary of the bipartisan passage of the Comprehensive Child Development Act. It is the closest we have ever come to establishing an accessible national child care system. While President Nixon vetoed the bill, using harsh language that compared well-intentioned legislation with Soviet-style indoctrination, we must remember how close we've come in the past to acknowledging the importance of child care as a public benefit to society. A half-century ago, that bill was introduced in the Senate by a Senator from Minnesota, Walter Mondale, who would go on to become our Vice President and the Democratic nominee for President in 1984. Mr. Mondale recently passed away at the age of 93, following an inspiring life of dignified public service. I can't help but think that one small way of honoring his legislative legacy would be to finally enact a national child care system.

Thank you again for inviting me to this hearing and I look forward to answering your questions.

[18] https://talkpoverty.org/2015/07/21/hunger-child-care-connection/
[19] https://nwlc.org/wp-content/uploads/2021/04/March-Jobs-Day-2021-v1.pdf
[20] https://www.aauw.org/issues/equity/motherhood/

6

Chairman SCOTT. Thank you. Dr. McCluskey.

STATEMENT OF MR. NEAL MCCLUSKEY, PH.D., DIRECTOR, CENTER FOR EDUCATIONAL FREEDOM, CATO INSTITUTE

Mr. MCCLUSKEY. Chairman Scott, Ranking Member Foxx, Members of the Committee thank you for inviting me to speak with you today. My name is Neal McCluskey, and I am the Director for the Center of Educational Freedom at the Cato Institute, a non-profit, non-partisan public policy research organization. My comments are my own, and do not represent any position of the Institute.

Now since the onset of COVID–19 the Federal Government has significantly increased its spending on education, and with new proposals that would increase it even more, it is important to ask whether there's good reason to expect significant new spending to result in commensurately better outcomes.

I start though by noting that the vast majority of Federal education spending is unconstitutional. Federal Government has only specific enumerated powers and authority to broadly spend on education is not among them. That said, moving on from Constitutionality, does performance today give good reason to believe very large increases in spending will produce commensurate improvements in outcomes.

In elementary and secondary education, the national data suggests not. Looking at the Federal national assessment of educational progress long-term trends exam, results for 17 years old's, sort of the final products of the K through 12 system, show large

increases in spending, and not been accompanied by commensurate increases in learning, at least as judged by these exams.

Between 1959, so looking 12 years before the first long-term trend reading test, so as to capture 17-year old's full education, between 1959 and 2012 real per pupil funding rose from about $4,000.00 to roughly $13,500.00. In contrast, the share of 17-year old's meeting or exceeding the middle performance level of math rose from just 52 percent to only 60 percent.

In reading, between 1971 and 2012 there was no improvement for this more than tripled funding. Looking at other tests, and breaking scores down by proxies for income, the outcomes were sometimes somewhat better, but not commensurate with spending.

This is especially true since by most measures child welfare greatly improved, including with real income for the lowest percentile of earners rising from about $19,000.00 in 1979 to $36,000.00 by 2017 after accounting for transfers and taxes.

In higher education Federal spending rose from about 23 billion adjusted for inflation, 1965, to more than 107 billion in 2012, as well as greatly increasing student loan volume. This no doubt helped to increase degree attainment, but also increased prices substantially.

Much evidence suggests it did not increase learning commensurately, including two assessments of literacy that showed literacy among degree holders dropping appreciably as degree attainment grew.

We seem to get more pieces of paper called diplomas, but not greater skills and knowledge. We also found employers increasingly asking for degrees for jobs that did not previously require them.

In light of the data showing hallowing out degrees, there's reason to be concerned about "free" college proposals. Such proposals are certainly well-intentioned, especially considering the astonishing sticker price at some colleges and universities. But the root problem remains.

When the consumer does not pay with their own money, or money they receive voluntarily from others, they will tend to overconsume.

Making college free would likely make matters worse than status quo, limiting any of the discipline inducing requirement that consumers pay for school at least using some of their own money. It would also hurt what is good about higher education in America.

It must respond to students driving schools to provide better experiences. Making college responsive only to government would change incentives toward lobbying and navigating bureaucracies. It could also lead to rationing, as institutions might find themselves without the resource to expand and greatly accommodate greatly increased demand.

Community colleges are relatives easy to make free to students with average tuition fees costing less than the average Pell grant. What we see in those schools are very low completion rates.

According to the National Student Clearinghouse, the students that started a 2-year public college in 2014, only 40.2 percent have completed a program of study within 6 years.

Making public colleges free would likely kill also many private colleges, often religious, which public institutions cannot be.

Finally, a bit about school's physical condition. Again, worry is understandable, but some data suggests the overall conditions of the school may not be bad. As recently as the 2012–13 school year, a Federal report found districts reporting that only 3 percent of current buildings were in poor condition.

Other data suggests that districts tend to use facility's money for building new schools, or other sort of flashy projects. Such basics as maintaining HVAC systems get lower prioritization.

The desire to put as much money as possible into education is certainly understandable, but evidence suggests that increased spending in the past did not translate into commensurate increases, and skills and knowledge, thank you.

[The prepared statement of Mr. McCluskey follows:]

PREPARED STATEMENT OF NEAL MCCLUSKEY

Statement
of
Neal McCluskey, Ph.D.
Director, Center for Educational Freedom
Cato Institute

before the

Committee on Education and Labor
United States House of Representatives

April 28, 2021

RE: Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy

Chairman Scott, Ranking Member Foxx, members of the committee, thank you for inviting me to speak with you today. My name is Neal McCluskey and I am the director of the Center for Educational Freedom at the Cato Institute, a nonprofit, non-partisan public policy research organization. My comments are my own, and do not represent any position of the institute.

Introduction

From the Coronavirus Response and Relief Supplemental Appropriations Act, to the American Recovery Plan Act, to the American Jobs Plan, to the information reported as of the time I am preparing my testimony on the American Families Plan, to President Biden's 2022 budget proposal, it is clear that the president wants to direct considerable new dollars to education. My rough estimate is the increase in federal education spending would be in the neighborhood of $120 billion per year over the next several years, with different laws and plans having different timelines. Considering that in 2019 total on-budget federal support for education was about $246 billion, that is a very large increase.[1] We need to ask two key questions about such spending: (1) Is it constitutional, and (2) is it likely to be an effective use of taxpayer resources? I will briefly address (1) and spend more time on (2) based on what we can tell about previous spending increases. I will also address "free" college and improving physical conditions of schools – two aims of present, and likely upcoming, legislation.

Constitutionality

The federal government has only specific, enumerated powers, primarily found in Article 1, Section 8 of the Constitution, and authority to spend money on education outside of federal lands

---

[1] "Table 401.10: Federal support and estimated federal tax expenditures for education, by category: Selected fiscal years, 1965 through 2019," Digest of Education Statistics, National Center for Education Statistics, August 2020, https://nces.ed.gov/programs/digest/d19/tables/dt19_401.10.asp?current=yes.

or territories is not among them. Importantly, the "general welfare" clause does not authorize such expenditures. As James Madison explained in *Federalist* no. 41:

> For what purpose could the enumeration of particular powers be inserted, if these and all others were meant to be included in the preceding general power? Nothing is more natural nor common than first to use a general phrase, and then to explain and qualify it by a recital of particulars.

Similarly, Alexander Hamilton, writing about the taxation and "necessary and proper" clauses in *Federalist* no. 33, noted that the federal government is only given specific powers:

> [I]t may be affirmed with perfect confidence that the constitutional operation of the intended government would be precisely the same, if the clauses were entirely obliterated, as if they were repeated in every article. They are only declaratory of a truth which would have resulted by necessary and unavoidable implication from the very act of constituting a federal government, and vesting it with *certain specified powers* [italics added]. This is so clear a proposition, that moderation itself can scarcely listen to the railings which have been so copiously vented against this part of the plan, without emotions that disturb its equanimity.

Finally, records of the 1787 constitutional convention include almost no mention of education save for some discussion of authorizing creation of a national university. Of course, the authority to create a national university has never been among the enumerated powers, but not due to an assumption that it would fall under the "general welfare" clause. No, because a different *enumerated power* could cover it. As James Madison recorded Gouverneur Morris of Pennsylvania explaining, enumerating "it is not necessary. The exclusive power at the Seat of Government, will reach the object."[2]

Outcomes and Spending

"Is it constitutional" should always be the first question asked of federal legislation. But if satisfied that it is, likely effects of legislation should be next. So, will very large increases in spending produce commensurate improvements in education? Contrary to what may be a common impression, funding for American education has risen appreciably over time, and we can look at corresponding achievement results to attempt to gauge whether the country has seen commensurate improvements in learning outcomes.

Elementary and Secondary

In elementary and secondary education, according to inflation-adjusted federal data, total spending per public-school student in Fall enrollment has increased from $646 in the 1919-1920 school year – the first year listed in the federal *Digest of Education Statistics* – to $4,893 in

---

[2] *The Records of the Federal Convention of 1787*, Vol. II, Max Farrand, ed., (New Haven, CT: Yale University Press, 1966), p. 616.

1965-66 – basically the beginning of major federal funding – to $14,891 in 2017-18, which is the last year with available data.[3] During just the period of federal involvement, real spending has *tripled*.

What has happened to student achievement in that time? First a proviso: What people want out of education, and how to measure achievement, are much less clear than one may commonly assume. Some people think education is primarily about shaping character. Others, good citizens. Yet others, about providing students with the skills and knowledge to earn enough money to live comfortably as adults. Many of these outcomes do not lend themselves to clear-cut measures. Meanwhile, those goals that seem like they could be clearly measured – literacy, numeracy – are not easy to test reliably, with outcomes impacted by test wording, exam length, testing room conditions, consequences attached to test performance, and more. As a result, there is no single metric that can tell us how well our public school system is working.

That said, the federal government established the National Assessment of Educational Progress (NAEP) to conduct assessments of different types and on numerous subjects to gauge how the country's K-12 system is working. What those scores suggest – in particular the mathematics and English/language arts scores that address the core of education – is that spending increases do not translate into commensurate, lasting improvements, with the proviso that "commensurate" is a subjective term; your mileage may vary.

Most basically, we have seen very little movement on the average scores on the Long-Term Trend (LTT) NAEP exam for 17-year-olds, basically the "final products" of the nation's elementary and secondary education system.[4] The LTT endeavors to keep the test consistent from its first to its most recent year in order to have a seamless measure of achievement.

The average score in math in 1978 – the first year the exam was given – was 300 out of 500.[5] As of 2012, the last year the exam was given, it was only 6 points higher, at 306. In reading the results are even less encouraging, with the average score in 1971 at 285, and in 2012 only 2 points higher at 287. Between 1959 – 12 years before the first LTT reading test, which captures the 17-year-old's full education – and 2012, real per-pupil funding rose from $3,852 to $13,554, a 252 percent increase.

To put the scores in context, the LTT also identifies performance levels with cutoff scores. The second highest is a score of 300 and above, and seeing the change in the share of students surpassing it may give a slightly different perspective on changing achievement. Here the news

---

[3] "Table 236.55: Total and current expenditures per pupil in public elementary and secondary schools: Selected years, 1919-20 through 2017-18," Digest of Education Statistics, National Center for Education Statistics, August 2020, https://nces.ed.gov/programs/digest/d20/tables/dt20_236.55.asp?current=yes.

[4] National Center for Education Statistics, "1970-2012 Trends (Long-Term Trend Assessment)," https://nces.ed.gov/nationsreportcard/ltt/.

is only slightly better than averages, and again it seems very hard to say we have gotten much bang for our buck. In 1978, 52 percent of 17-year-olds met or exceeded the 300 mark in math. By 2012 that had risen to only 60 percent. In 1971, 39 percent hit 300 or above in reading, and the exact same share hit it in 2012 – no improvement for more than tripled funding.

More recent than the LTT scores are "Main" NAEP outcomes. These exams are not intended to be consistent going back to the 1970s but are given more often and provide more recent trend data. They also designate scores as demonstrating "basic" level mastery, "proficient" mastery, and "advanced" performance. The test is also aligned to grade, not age, though there is significant overlap in those two things.

Unfortunately, 12th grade math scores only exist between 2005 and 2019, but the story is similar to the LTT. The average math score in 2005 was 150 – in this case out of 300 – and it was 150 in 2019. No change, while spending rose from $10,472 in 1993 – twelve years before the exam – to $14,891 in 2017-18, again the most recent year with data. In reading, scores go back to 1992 and the average *dropped* from 292 out of 500 to 285. "Proficiency" levels were no more encouraging, dropping from 61 percent proficient in math in 2005 to 60 percent in 2019, and from 40 percent to 37 percent in reading.

Rising spending and dropping performance is clearly not a positive sign for the effect of spending.

Of course, federal elementary and secondary spending is aimed at low-income students. How did those scores change?

Looking at the LTT, we cannot pinpoint students' family income, but can approximate it by breaking scores down by parental education levels and focusing on students with parents who did not finish high school. We will look only at the share of students passing the second-highest scores threshold, which is a bit more concrete than examining average scores.

In math, in 1978, 26 percent of students with parents who did not complete high school equaled or passed the 300 mark. In 2012 that was up to 37 percent. That 11 percentage point increase is not trivial, but it is hard to say that it is commensurate with overall spending more than tripling, and federal funding going from $481 in 1969-70 – as close as the data gets to 12 years before 1978 – to $1,391 in 2012, which is also nearly a tripling.[6] In reading, results by parental education only go back to 2004, and the share of our focus students meeting or exceeding 300 rose from 17 to 19 percent. Overall per-pupil spending in 1992 was $10,472, while the closest year with federal spending data was 1989-90, when it was $635. So overall spending increased from $10,472 to $13,554, or 30 percent, and federal spending rose from $635 to $1,391, or 119 percent – a lot for a 2 percentage point uptick.

---

[6] "Table 235.10: Revenues for public elementary and secondary schools, by source of funds: Selected years, 1919-20 through 2017-18," Digest of Education Statistics, National Center for Education Statistics, August 2020, https://nces.ed.gov/programs/digest/d20/tables/dt20_235.10.asp?current=yes.

On the Main NAEP we can again proxy low-income scores by looking at parental education levels. In math, 7 percent of 12th graders whose parents did not finish high school were "proficient" in 2005. That rose to 9 percent in 2019 but the increase was not statistically significant. Meanwhile, overall spending rose from $10,472 in 1993 to $14,891 in 2017-18, and federal funding from $720 to $1,175. In reading there was no statistical difference between 1992 and 2019, with the share proficient dropping from 21 to 20 percent. Overall spending was $7,586 in 1980 – roughly half the amount in the most recent year – and federal spending was $756, about two-thirds of spending in the last year.

Based on these outcomes it appears we have bought very little meaningful improvement with taxpayer dollars. While spending has grown appreciably, results have essentially stagnated and in some cases even declined. Importantly, we have seen better outcomes in lower ages and grades, and it may be there is something peculiar about 12th grade test-taking. Maybe, for instance, the students just do not care about the test. But unless the level of not caring increased over time we should still see improving outcomes were increased spending an ultimately positive force.

One other thing is important to note: through much of this period we have seen marked increases in household incomes for poorer Americans once transfer payments and taxes paid are considered. Analyzing an October 2020 Congressional Budget Office report, the Cato Institute's Scott Lincicome found that real income for the lowest quartile of earners rose from $19,300 in 1979 to $35,900 by 2017.[7] This substantial improvement in resources should have had a big positive influence on scores, and may explain more about gains in all age categories than spending.

Higher Education

While we do not have national assessments in postsecondary education as we do in elementary and secondary, it may be more reasonable to lay outcomes at the feet of the federal government in higher ed than K-12. While state and local governments certainly play major roles in higher education, establishing and funding public institutions from community colleges to large research universities, Washington provides a large share of funding overall via, especially, federal student aid programs including loans and grants, as well as some institutional aid and major research funding. In 2019 the federal government provided over $91 billion in student loans, $41 billion in research funding, and more than $107 billion in other funds including Pell Grants and aid to institutions.[8] In 1965, in contrast, there were essentially no federal loans, and between research and other funding the federal government supplied only about $23 billion in 2019 dollars.

---

[7] Scott Lincicome, "The Reality of Incomes, Taxes and Redistribution in America," *Cato at Liberty* (blog), October 6, 2020, https://www.cato.org/blog/reality-incomes-taxes-redistribution-america.

[8] "Table 401.10: Federal support and estimated federal tax expenditures for education, by category: Selected fiscal years, 1965 through 2019," Digest of Education Statistics, National Center for Education Statistics, August 2020, https://nces.ed.gov/programs/digest/d19/tables/dt19_401.10.asp?current=yes.

It is reasonable to conclude that hugely increased federal funding, especially student aid that became widespread in the 1960s and 1970s, helped to increase college enrollment and degree attainment, though it also fueled major price inflation.[9] In 1960 only 7.7 percent of Americans 25-years and older had a bachelor's degree or higher. In 2019 that number was 36 percent.[10] The important question is whether this was a net gain for society.

Of course, rampant tuition inflation is a major problem. If much of your aid is burned off in higher prices it has done little good, and one recent estimate found that every dollar in increased loan aid translates into about 60 cents of increased prices.[11] But does the increase in degrees at least represent a significant increase in human capital – many more people able to do many more things that they lacked the knowledge and skills to do before?

We do not have a great deal of evidence on this, but we do have two sets of adult literacy assessments over time that enable us to see the average "literacy" – including the ability to read and comprehend, as well as "do math" – for people with various levels of formal schooling, including bachelor's and advanced degrees. As spending and degree attainment rose, we should have seen scores on these exams holding steady or rising to indicate clearly expanding human capital. If they did not, it suggests that we have been producing more pieces of paper called "degrees" but which have decreasing substance behind them.

The first exam is the National Assessment of Adult Literacy (NAAL), which assessed adults' ability to comprehend prose such as newspaper articles or brochures, documents such as tax forms, and quantitative literacy.[12] It was administered in 1992 and 2003, during which time the share of Americans ages 25 and above with bachelor's degrees rose from 21.4 percent to 27.2 percent.[13] We do not have readily available funding data for those exact years, but the closest

---

[9] This latter point is disputed by some but not only is the logic inescapable – give everyone more money for something and its price will go up – but a great deal of research also supports the conclusion. For a good compilation of studies see Jenna A. Robinson, "The Bennett Hypothesis Turns 30," The James G. Martin Center for Academic Renewal, December 26, 2017.

[10] "Table 104.10: Rates of high school completion and bachelor's degree attainment among persons age 25 and over, by race/ethnicity and sex: Selected years, 1910 through 2019," Digest of Education Statistics, National Center for Education Statistics, August 2020, https://nces.ed.gov/programs/digest/d19/tables/dt19_104.10.asp?current=yes.

[11] David O. Lucca, Taylor Nadauld, and Karen Shen, "Credit Supply and the Rise in College Tuition: Evidence from the Expansion in Federal Student Aid Programs," Federal Reserve Bank of New York Staff Report no. 733, July 2015, Revised February 2017.

[12] "National Assessment of Adult Literacy (NAAL): A First Look at the Literacy of America's Adults in the 21st Century," U.S. Department of Education, Institute of Education Sciences, NCES 2006-470, December 2015.

[13] "Table 104.10. Rates of high school completion and bachelor's degree attainment among persons age 25 and over, by race/ethnicity and sex: Selected years, 1910 through 2019," Digest of Education Statistics, National Center

available – starting in 1989-90 and ending 1999-00 – show real higher education spending per student rising from $20,572 to $28,549.[14]

Unfortunately, high degree attainment and spending were accompanied by *decreasing* literacy for degree holders. The share of adults who ended their formal education with a bachelor's degree who were proficient prose readers in 1992 was 40 percent. By 2003 that had dropped to 31 percent. For document literacy the shares dropped from 37 percent to 25 percent. At least in quantitative results were unchanged, with 31 percent proficient in both years. The direction for adults with advanced degrees was also bad, with those who were prose proficient dropping from 51 percent to 41 percent, document from 45 percent to 31 percent, and quantitative from 39 to 36 percent, though the latter was not statistically significant. The NAAL results pointed toward credential inflation – more sheepskins rather than more human capital – and money poorly spent.

The second exam, which has essentially replaced the NAAL, is the Program for the International Assessment of Adult Competencies (PIAAC), which was administered in 2012/14 and 2017. It is not directly comparable to NAAL, including that it does not designate "proficiency," but it does give us performance levels akin to the NAEP LTT.

In terms of enrollment and spending, between 2012 and 2017 the share of Americans 25 and older with a bachelor's degree rose from 30.9 percent to 34.2 percent, while higher education revenue per-student increased from $28,572 in 2009-10 to $34,606 in 2017-18. The literacy trend moved in the opposite direction. For U.S. Households with members ages 16 to 65 years old, in the 2012/14 administration 68 percent of people with more than a high school education scored in the third literacy level or above. In 2017 only 64 percent did.[15] In numeracy the drop was from 57 to 53 percent. More movement in the wrong direction, though the PIAAC drops fell short of statistical significance.

That higher credentials have become increasingly empty as they have become increasingly numerous is corroborated by more than just assessments of adult literacy, including such measures as time students spend studying. In 1961 full-time students spent 25 hours per-week studying, in 1980 it was 20 hours, and by 2003 it had fallen to 13 hours.[16] Add to this drops in median annual earnings of full-time, year-round workers ages 25 to 34 with bachelor's degrees

---

for Education Statistics, August 2020, https://nces.ed.gov/programs/digest/d19/tables/dt19_104.10.asp?current=yes.

[14] Neal McCluskey calculation using "Table 301.20: Historical summary of faculty, enrollment, degrees conferred, and finances in degree-granting postsecondary institutions: Selected years, 1869-70 through 2017-18," Digest of Education Statistics, August 2020, National Center for Education Statistics, https://nces.ed.gov/programs/digest/d19/tables/dt19_301.20.asp?current=yes.

[15] "PIAAC Results: Explore how U.S. adults compare to their international peers and see the latest 2017 U.S. results," National Center for Education Statistics, https://nces.ed.gov/surveys/piaac/current_results.asp.

[16] Richard Arum and Josipa Roksa, *Academically Adrift, Limited Learning on College Campuses* (Chicago: University of Chicago Press, 2011), p. 3.

and above between 2000 and 2018,[17] as well as long-term underemployment of about a third of four-year degree holders,[18] and the indicators are powerful that we have massively over produced diplomas with our additional spending and enrollment.

Free College

In light of the data we have clearly indicating overconsumption and hollowing out of higher education, there is substantial reason to be concerned about "free" college proposals. Such proposals vary in their specifics – they can include government directly funding colleges so they charge no tuition, no tuition and fees, or even government funding schools directly and supplying students money for shelter and food – but all have the goal of reducing the amount students pay for their education.

Such proposals are well intentioned, especially as one considers the astonishing sticker prices at some colleges and universities. But a root problem remains no matter whether government supplies aid to student or funds colleges directly: When the consumer does not pay the price with their own money, or money they receive voluntarily from others, they will tend to overconsume education and direct more of their resources toward non-educational pursuits – partying, or frills such as on-campus waterparks[19] – instead of efficiently focusing on the education they need to increase their earnings or obtain other core educational ends.

Subsidy-fueled over-credentialing also enables employers to increasingly demand degrees that may signify little about a person's ability to do a job but that are often easy, basic screens for employers to weed some people – those who do not even have increasingly easy to get degrees – out. Indeed, research suggests that just such adding of diploma requirements to unchanged jobs has occurred.[20] That literacy exams have shown decreasing human capital for degree holders also points to the nation's primary higher education problem not being that college is too expensive – though sticker prices are too high – but massively overconsumed, while putting everyone in a

---

[17] "Annual Earnings," *Condition of Education 2020*, National Center for Education Statistics, p. 3, https://nces.ed.gov/programs/coe/pdf/coe_cba.pdf.

[18] "The Labor Market for Recent College Graduates: Underemployment," Federal Reserve Bank of New York, February 12, 2021, https://www.newyorkfed.org/research/college-labor-market/college-labor-market_underemployment_rates.html.

[19] One study indicates that other than for top academic performers, most students when choosing among colleges make their decisions based on amenities. Brian Jacob, Brian McCall, and Kevin Stange, "College as Country Club: Do Colleges Cater to Students' Preferences for Consumption?" *Journal of Labor Economics*, 36, no. 2., (April 2018): 309-348. For a list of college waterparks and recreational facilities see "Best College Waterparks: Top Consensus Ranked Schools with Amazing Aquatic Centers," College Consensus, https://www.collegeconsensus.com/rankings/best-college-waterparks/.

[20] "Moving the Goalposts: How Demand for a Bachelor's Degree Is Reshaping the Workforce," Burning Glass, September 2014, https://www.burning-glass.com/wp-content/uploads/Moving_the_Goalposts.pdf.

vicious cycle: the value of the average diploma is declining as credentials are watered down, but that means if you do not get a credential you will be increasingly behind.

Other things equal, making college free would do little to ameliorate the massive overconsumption problem. Indeed, it would likely make it worse, eliminating any of the discipline-inducing requirement that consumers pay for school at least using some of their own money. It may, though, decrease frills, as schools stopped competing for paying customers. But the same loss of impetus to provide frills could have bigger and more negative impacts.

A need to attract students, while hugely distorted by subsidies to those students, is overall a good thing, driving schools to provide better and better experiences for students, including pleasant campuses, relatively easy access to professors, and more. Making college responsive, essentially, only to government, would change incentives from satisfying students to lobbying and navigating bureaucracies. It could also lead to rationing, as institutions would find themselves without the resources to expand and accommodate greatly increased demand. A recent study of OECD countries found that there are, indeed, negative correlations between subsidy levels and attainment – the greater the degree of government subsidy, the lower the rate of college attainment – and negative relationships between subsidies and higher education resources.[21] Basically, more subsidization of schools is associated with fewer people completing and less well-resourced institutions.

The good news is this might alleviate the diploma glut. But it would do so at the expense of a higher education system that is currently very responsive to students and, compared to postsecondary education in the rest of the world, very dynamic.

Community colleges, which are the least expensive sector of American higher education, are relatively easy to make free to students, with average tuition and fees of $3,377 in 2019-2020.[22] To put this in perspective, the average Pell Grant in 2018-19 for an undergraduate student was $4,418.[23] Of course, students also need food and shelter, but would have those expenses whether they were students or not.

What we see in the low-cost community college sector, however, is what may well be a lot of poorly focused schooling, though there may also be an effect of low resources and quality as the

---

[21] Jason D. Delisle and Preston Cooper, "International Higher Education Rankings: Why No Country's Higher Education System Can Be the Best," American Enterprise Institute, August 2019.

[22] "Table 330.10: Average undergraduate tuition, fees, room, and board rates charged for full-time students in degree-granting postsecondary institutions, by level and control of institution: Selected years, 1963-64 through 2019-20," Digest of Education Statistics, National Center for Education Statistics, August 2020, https://nces.ed.gov/programs/digest/d20/tables/dt20_330.10.asp?current=yes.

[23] National Center for Education Statistics, "Financial Aid: What is the average amount of Pell grants awarded to undergraduate students?" Trend Generator, https://nces.ed.gov/ipeds/TrendGenerator/app/answer/8/36#:~:text=Financial%20Aid%3A%20What%20is%20the,is%20based%20on%205%2C698%20institutions.

sector aims for a low-cost model. Whatever the reason, completion rates for community colleges are very low. According to data from the National Student Clearinghouse, which has data on about 97 percent of total college enrollment, of the cohort of students who started college in 2014 and did so at a two-year public college, only 40.2 percent had completed a program of study within *six* years.[24] To put that in perspective, 76.7 percent of students who had started at a *four*-year not-for-profit private school had completed their program.

Of course, making public colleges free would hurt, and likely kill, many private colleges – often religious in nature, which public institutions cannot be – which would find competing against "free" impossible.[25] Except, that is, for elite institutions such as Harvard, Stanford, Yale, and other rare institutions with big names and large endowments, which would become even more preserves for the rich as others swarmed free schools. Of course, were free public colleges to continue to be allowed to be selective in enrollment we would still see elitism beyond the wealthy being able to pay for high-profile private institutions, including wealthier students likely in K-12 systems in which there is more knowledge about how to work in an increasingly bureaucratic system to gain entry to preferred schools.

Free college would make higher education less expensive for students, and perhaps for society, if it were to replace subsidies to students. But the effects would almost certainly be overall losses, as we either produced more credentials in an already glutted market, in the process requiring even more credentialism just to stay in one place, or forced rationing which would likely favor the well-connected and maybe still not reduce the glut to a reasonable level. And it would almost certainly sacrifice quality in a system which, for all its serious flaws, dominates lists of top institutions in the world.[26]

School Conditions

An emphasis of the Biden administration is fixing the nation's infrastructure such as roads and bridges, to include school buildings. According to a 2020 GAO report, about 41 percent of districts report that at least half of their schools need updates or replacements of the HVAC

---

[24] Completing College National and State Reports, National Student Clearinghouse Research Center, December 2020, p. 4, https://nscresearchcenter.org/wp-content/uploads/Completions_Report_2020.pdf.

[25] A 2016 analysis of presidential candidate Hillary Clinton's plan to eliminate tuition for all in-state students whose families made less than $125,000 per year estimated that the plan would result in an 11 percent enrollment loss for private schools. Anthony P. Carnevale, Martin Van Der Werf, and Cary Lou, "The Enrollment Effects of Clinton's Free College Proposal," Georgetown University Center on Education and the Workforce, 2016, p. 3. That would likely doom many less wealthy, and prestigious, private colleges.

[26] For instance, eight of the top ten universities in the Times Higher Education "World University Rankings 2021" were in the United States, https://www.timeshighereducation.com/world-university-rankings/2021/world-ranking#!/page/0/length/25/sort_by/rank/sort_order/asc/cols/stats.

systems, about 28 percent of their interior light fixtures, and more.[27] That may seem like a desperate situation, but the available evidence suggests that there is no crisis of crumbling schools, and that major federal aid dollars would not largely be used to repair important, but hidden and dull, items such as HVAC units. It would be used for flashy things schools do not list as in need of replacement or repair, such as purchasing and installing new technology.

First, the overall condition of schools may not be especially bad. As recently as the 2012-13 school year, a federal report found school districts reporting that only 3% of permanent buildings were in "poor" condition, meaning they fell short of "minimum requirements for normal school performance." That rose to 9% for portable buildings. Even in poor districts – those with at least 75% low-income students – only 4% of permanent buildings were reported to be in poor condition, and roughly 8% of portables.[28]

Other data suggest that districts tend to use facilities money for building new schools, which can again be "flashy" projects that draw a lot of positive public attention. A survey of readers of the journal *School Planning and Management* found that 59 percent of districts in 2019 completed some sort of construction project, including nearly one-quarter competing construction of new or replacement buildings.[29] 58 percent planned to start new construction projects in 2020. It also seems that, when asked to pay for their own infrastructure, communities are hesitant, with the survey finding that a commonly reported impediment to construction is "community support to pass a bond referendum." People tend to be strict when their money is involved.

The GAO also reported findings suggesting that districts are more willing to put money into high-profile items like technology than nuts-and-bolts such as boilers. "Student access to technology" were districts' second highest priority, after "safety and security (e.g., cameras, alarms, access control)," despite the fact that employers are looking for "soft skills" like good communication rather than technological prowess, which young people tend to have as "digital natives."[30] As GAO investigators reported of a Rhode Island district, "Officials said participants in public forums told them they preferred educational enhancements over facility repairs."[31] Officials in other districts talked about having to bundle more "fun" stuff, like equipment for robotics labs, with HVAC repairs to get the latter passed, which is an inefficient use of funds. Finally, new schools do not tend to be simple replacements, but they keep getting bigger, with

---

[27] "School Districts Frequently Identified Multiple Building Systems Needing Updates or Replacement," GAO-20-494, United States Government Accountability Office, June 2020.

[28] Debbie Alexander, Laurie Lewis, and John Ralph, "Condition of America's Public School Facilities: 2012–13: First Look," National Center for Education Statistics, March 2014.

[29] "2020 Facilities and Construction Brief," Spaces 4learning, January/February 2020, p. 8.

[30] Jeremy Bauer-Wolf, Survey: Employers Want 'Soft Skills' From Graduates, *Inside Higher Ed*, January 17, 2019, https://www.insidehighered.com/quicktakes/2019/01/17/survey-employers-want-soft-skills-graduates.

[31] GAO, p. 31.

data showing that between 1995 and 2014 space increased by 30 square feet for each high school student, 45 square feet for each middle school child, and 80 square feet per elementary school child.[32]

It is not clear that public schools in general are in seriously poor condition, nor that were they to receive large sums of federal money it would be used to address primary, but unglamorous, problems, like updating HVAC systems. It is also worth noting that in contrast to understandable predictions at the beginning of the COVID-19 pandemic, school districts have likely not taken major financial hits. Indeed, state and local tax revenues were higher in calendar year 2020 than 2019, and some states and districts are struggling to determine how to use the federal windfall through the three COVID-19 relief bills: CARES, CRRSA, and ARPA.[33]

Conclusion

The desire to put as much money as possible into schools at all levels is understandable. Education is generally a good thing, and other things equal, when we spend more on something we get more of it, higher quality, or both. But existing evidence suggests that increased spending in the past did not translate into commensurate achievement gains. In elementary and secondary education more spending tended to coincide with small if any achievement gains for those at the end of K-12 schooling, including for the low-income students federal money is supposed to target. At the higher education level, where the federal impact is much greater and, hence, more clear, greater spending would likely create more credentials but less learning per credential, while fueling a vicious cycle of credentialism that forces more and more people to spend precious time in school without much learning. And as we have seen, the more people use other people's money for things, the less efficient expenditures tend to become. For these reasons, and because the Constitution does not authorize any education spending outside of federal lands, Congress should steer clear of major increases in education spending.

---

[32] Paul Abramson, "20th Annual School Construction Report: National Statistics, Building Trends, and Detailed Analysis," *School Planning and Management*, February 2015, p. 29.

[33] State representative Randy Fine (R – Dist. 23) of Florida recently said, "It is an absolute travesty that the federal government has put our children in debt to give us education funding that we simply do not need," quoted in Ana Ceballos, "Billions in federal aid a 'monkey wrench' in Legislature's education budget process," *Miami Herald*, April 21, 2021, https://www.miamiherald.com/news/politics-government/state-politics/article250834734.html#storylink=cpy. Meanwhile, as of the end of February no state had spent more than 26 percent of the COVID-19-related money Congress provided in 2020. From Robert Maranto and Ben Scafidi, "Biden's school plan doubles down on same old failure," *The Hill*, April 22, 2021, https://thehill.com/opinion/education/549107-bidens-school-plan-doubles-down-on-same-old-failure#.YIKoZ_nZ2aA.twitter.

Chairman SCOTT. Thank you. Mr. Mitsui?

STATEMENT OF MARK MITSUI, PRESIDENT, PORTLAND COMMUNITY COLLEGE

Mr. MITSUI. Hello Chair Scott, Ranking Member Dr. Foxx, and Members of the Committee, and again in particular our amazing Representative for Oregon, Suzanne Bonamici than you so much for your kind introduction.

For the record my name is Mark Mitsui, and I'm President of Portland Community College in Portland, Oregon. Thank you for having me here today to speak with you about the role workforce training will play in our recovery, and the critical need for investments in community college infrastructure.

Speaking of infrastructure, in Portland we have a lot of bridges, and I think of Portland Community College as one of them. On one side of our bridge we have hard working people who just need an educational opportunity. And on the other side we have high-skilled jobs that offer living wages that need to be filled.

We, like all community colleges, are the bridge that connects the two. Investments in the students who cross the bridge, and investments in the bridge itself can keep America on the forefront of the world economy and create a more equitable recovery.

That's why we appreciate the President's proposed 12-billion-dollar community college infrastructure investment. Developing lead-

ing edge skills requires leading edge equipment and facilities. That equipment is getting old, and our facilities are as well. Due to inadequate funding, academic facilities have a backlog of infrastructure deferred maintenance projects.

In evaluating facility needs the American Association of Community Colleges estimates that the national total deferred maintenance, renovations and upgrades to be 60 billion dollars. While there is a cost to these needed improvements, the good news is that community colleges are a great investment.

At PCC, for every public dollar that's invested in our college, taxpayers see a $2.70 return. Society has a whole in Oregon, sees a return of $8.20 in reduced social cost and increased earnings. Likewise, a national commitment to education and training is also essential because post-secondary credentials are the new minimum.

According to Georgetown University, 99 percent of jobs created during the last recovery went to those with at least some post-secondary education. According to the Lumina Foundation about half of adults between the ages of 25 and 64 lack a post-secondary credential.

Without upscaling opportunities, half of the adults in this country are at risk of being locked out of the next economy. We also see that COVID is accelerating automation, as employers seek to pandemic-proof their operations. The World Economic Forum estimates that by 2025 on a global basis, automation may displace 85 million jobs, and foster 97 million new roles.

Here in the U.S. this shift will disproportionately impact our most marginalized communities. Clearly, community colleges are a bridge between the old jobs lost, and the new ones gained. Another key barrier to building back better is basic needs and security.

According to a national survey conducted during the pandemic by the Hope Center at Temple University, nearly 60 percent of respondents indicated they experienced either food or housing insecurity with a black/white gap of 60 percent. I applaud components of the America's College Promise Act that could push states to address food and housing insecurity resulting in higher completion rates.

ACP also incentivizes states to reinvest in our colleges, which will reduce tuition and student debt. And I can't over-emphasize the importance of the student success components of this bill, including the establishment of the Student Success Fund.

Finally, support of minority service institutions like on AANAPISI's, HBCU's, and TCU's are essential for bridging equity gaps. In conclusion, I'd like to end with a student's story. Tara Roberts, a single mom with three children came to PCC. She was in tears when she reached for the classroom door for the first time, frightened but determined.

At PCC she found a community that supported and challenged her. Well Dr. Tara Roberts, now holds a doctorate in nursing, and is an administrator at Virginia Garcia Memorial Health Center. All eight of her children completed post-secondary education, two now teach at PCC.

America's College Promise in the infrastructure investments are about helping more people like Tara and their families cross that

bridge to a better life. Thank you for the opportunity to speak with you today.

[The prepared statement of Mr. Mitsui follows:]

PREPARED STATEMENT OF MARK MITSUI

Portland Community College

U.S. House of Representatives Committee on Education and Labor

April 28th, 2021

Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy

Mark Mitsui

Portland Community College President

Hello Chair Scott, Ranking Member Foxx, and members of the House Education and Labor Committee,

For the record my name is Mark Mitsui, I am the President of Portland Community College, in Portland Oregon. Thank you for having me here today to speak with you about the role workforce training will play in our recovery and the critical need for investments in community college infrastructure.

WHY ARE COMMUNITY COLLEGES A GOOD INVESTMENT?

99% of jobs created during the last recovery went to those with at least some postsecondary education.

In Portland, we have a lot of bridges and I think of Portland Community College (PCC) as one of them. PCC is a bridge to opportunity and a better life through education and training. PCC is also a bridge that brings needed talent to local employers. In our community, like communities across this nation, on one side of the bridge are hardworking, talented people who need educational opportunity. On the other side, we have jobs that offer a living wage and keep our

economies growing. The community colleges are the bridge between those sides. By investing in the students who cross the bridge, and by investing in the bridge itself, we can help keep America on the forefront of the world economy and create a more equitable recovery. The community colleges are a key part of a functioning economy. An investment in community college infrastructure is vital to ensuring that our students are prepared for the jobs of the future.

Postsecondary credentials are the new minimum —according to Georgetown University, 99% of jobs created during the last recovery went to those with at least some postsecondary education. [1] As we look to build back better, to create an inclusive economy, we need to create pathways for individuals to develop the skills and earn post-secondary credentials. Unfortunately, about half of adults between the ages of 25 and 64, lack this new minimum, i.e. a postsecondary credential ("postsecondary credentials" include short term credentials, associate's degrees, bachelor's degree or a graduate degree). [2]

In addition, the pandemic and rapid advancements in artificial intelligence are accelerating automation as employers seek to pandemic-proof their operations and increase productivity. For example, robot sales increased in non-automotive manufacturing by 64% in the 4th quarter of 2020.[3] The World Economic Forum estimates that by 2025, on a global basis, the time spent on work by humans and machines will be equal and this shift will displace 85 million jobs and create 97 million new roles within the same time frame.[4] Here in the US, this shift will impact our most marginalized communities[5] because automation will replace low-skill, repetitive tasks that are disproportionately filled by lower-income workers without postsecondary credentials.

Clearly, community colleges are at the intersection of these trends. Old jobs will be lost and new ones gained. The community colleges provide options for existing workers to upskill and new talent to enter into new, quality jobs that offer economic mobility. Workers need the community colleges to get those new skills.

---

[1] https://cew.georgetown.edu/cew-reports/americas-divided-recovery/#:~:text=America's%20Divided%20Recovery%3A%20College%20Haves%20and%20Have%2DNots%20reveals%20that,jobs%20created%20during%20the%20recovery.

[2] https://www.luminafoundation.org/stronger-nation/report/2021/#nation

[3] https://www.seattletimes.com/business/technology/the-spread-of-covid-19-led-to-a-surge-in-orders-for-factory-robots/?utm_source=email&utm_medium=email&utm_campaign=article_inset_1.1

[4] http://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf

[5] https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-in-black-america

The good news is that the nation's community colleges provide an excellent return on investment. For example, for every dollar that taxpayers invest in PCC, they see a $2.70 return (see attachment).

Nationally, the community colleges serve **41%** of all undergraduates, **56%** of Native American undergrads, **53%** of LatinX undergrads, **43%** of African American undergraduates and **38%** of Asian Pacific Islanders.

Investments in the community colleges also make sense if our country wants an economic recovery that is equitable. Community colleges serve a greater share of students of color than 4-year universities at a far lower cost. Nationally, the average community college tuition cost per year is $3,770 vs. $10,560 at a public 4-year university.[6] Nationally, the community colleges serve 41% of all undergraduates, 56% of Native American undergrads, 53% of LatinX undergrads, 43% of African American undergraduates and 38% of Asian Pacific Islanders.[7]

One example of a community college program that is already improving outcomes for first generation students of color is PCC's Future Connect program (a program that offers tuition assistance and wrap-around supports for low income students). For more information please see our video link in the footnote.[8]

WHY ARE NEW CAPITAL INVESTMENTS NECESSARY?

The community colleges are our nation's bridges to the future, a critical part of our nation's human infrastructure.
As the pandemic recedes, we are not looking simply to snap back to the way we were. We are working to emerge better able to meet the future, today.

[6] https://www.aacc.nche.edu/research-trends/fast-facts/
[7] https://www.aacc.nche.edu/research-trends/fast-facts/
[8] https://www.youtube.com/watch?v=34DQTpRSaUI

Written testimony on america's college promise and community college infrastructure investments

PRESIDENT MARK MITSUI
Wednesday April 28th at 12pm EST, 9am PST

Community colleges are enthusiastic, and thankful, for President Biden's Jobs Plan's $12 billion community college infrastructure investment. We believe that this is a welcome and much needed initial investment. The reality on the ground is that deferred maintenance and the need for new or renovated instructional facilities far outweighs this initial amount. The increasing sophistication of technical education, which has a growing virtual component, requires continuous, large-scale capital investments. Nationally there is significant deferred maintenance and a call to refabricate outdated training centers and college buildings to meet the needs of tomorrow. If we want leading-edge workers with leading-edge skills, we need leading-edge equipment and instructional buildings.

In addition, academic facilities across the array of community colleges need modernization. Unfortunately, state and local support falls far short of this need. This results in an increasing backlog of unaddressed infrastructure projects and a mounting number of deferred maintenance needs, with an inevitable impact on educational opportunity. And now, as a result of COVID, buildings not only need to be designed with fires, earthquakes and sustainability in mind, but pandemics as well. Flexible space is needed to meet physical distancing requirements and heating ventilation and air-conditioning systems upgraded to meet airflow requirements.

Furthermore, across the state of Oregon you can see that the infrastructure cannot meet the current demands. Each year millions of dollars worth of requests for upgrades go unanswered from the state. Examples include, bonding capacity for new buildings, delayed safety improvements, transportation accommodations for students, room for profit generating incubators, and investments in classrooms for emerging disciplines.

New instructional technology could also be made possible by a community college infrastructure investment. At Portland Community College, we are pursuing a pilot project using augmented and virtual reality technology (AR/VR). Initiated originally due to the pandemic, we are finding potential post-pandemic applications. We found that the students love it, job opportunities are growing daily, and industry analysis indicates there are measurable benefits in learning outcomes. The main barrier to adopting this teaching modality across multiple programs going forward is the one-time cost of equipment and associated software.

In evaluating facilities needs across all community colleges, the American Association of Community Colleges (AACC) estimates that the national total deferred maintenance, needed renovations and upgrades to be $60 billion. This does not include new construction that colleges hope to undertake in the coming months and year. The President's community college proposal is a great start and desperately needed.

Finally, on April 22, 2021, President Biden announced a new climate target which will create new "green" jobs across many sectors. ACP and community college infrastructure investments can power a transition to a more just and carbon free economy by training workers to fill these new jobs and therefore avoid delays in the adoption of clean technology due to a skills gap. Without this investment, a new skills gap and a bigger equity gap are almost guaranteed.

The community colleges are our nation's bridges to the future, a critical part of our nation's workforce. As the pandemic recedes, we are not looking simply to snap back to the way we were. We are working to emerge better able to meet the future, today.

STUDENT BARRIERS TO SUCCESS

60% experienced either food or housing insecurity

14% experienced houselessness

41% indicated that a close friend or relative was sick with COVID

13% mentioned losing a loved one due to the disease

The other half of the equation for our most vulnerable students is basic needs insecurity. This is a key barrier to access and completion. According to a national #RealCollege survey that was administered after the pandemic began, by the Hope Center at Temple University, nearly 60% of respondents indicated they experienced either food or housing insecurity, and 14% indicated experiencing houselessness. There were also significant disparities in basic needs insecurity. For example the Black – white gap was 16%. Additionally, 41% indicated that a close friend or relative was sick with COVID and 13% mentioned losing a loved one due to the disease. Black, Indigenous and LatinX students were twice as likely to report losing a loved one to COVID than were their white counterparts. Community college students were hit particularly hard by unemployment with 42% of students who were employed part time losing their jobs and 31% of students working full time, losing their employment.[9] What can states do to address critical barriers like basic needs insecurity?

Portland Community College is leading an initiative called Pathways to Opportunity (PTO). All 17

[9] https://hope4college.com/rc2021-bni-during-the-ongoing-pandemic/

of Oregon's community colleges are working with Oregon's Department of Human Services and many community-based organizations to integrate public benefits and wrap-around support services. One component of PTO is our STEP Project, Oregon's SNAP 50/50 program. All 17 community colleges are now part of the SNAP Employment and Training Program. In partnership with the Oregon Department of Human Services and the USDA Food and Nutrition Services division, we are employing a career pathways approach to moving food stamp eligible students out of poverty through education and training (see attachment). This work has inspired Oregon HB 2835, a state bill that if passed, would put a benefits navigator on public community college and university campuses across the state. Legislation like this ensures that all students are able to access the benefits and resources they qualify for, to gain the skills and credentials they need for good jobs (see attachment on PTO).

THE BENEFITS OF AMERICA'S COLLEGE PROMISE

In order to successfully complete training of any kind, **wrap around supports** are essential, particularly supports that address basic needs at the state and institutional level.

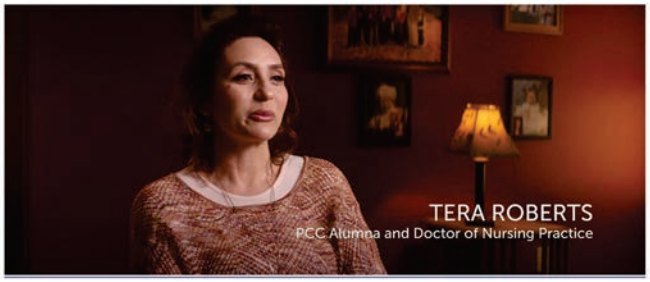
In addition to the need for community college infrastructure is a plan to once again make workforce training and college affordable and accessible. America's College Promise (ACP) creates a federal-state partnership to provide free community college tuition, incentivizes and supports state reinvestment in public higher education, and provides grants to HBCUs, TCUs, and MSIs, such as AANAPISI's to eliminate or reduce the cost of tuition for low-income students. There are a lot of strong policy elements to ACP. For example, it is a first-dollar-in program. This means that additional financial aid will give students a chance to pay for their basic needs and complete faster. ACP incentivizes states to reinvest in our community colleges. After the last recession, tuition prices increased as higher education budget cuts were used as a relief valve for state budgets. Suffice to say, by making tuition $0 and by incentivizing states to improve access to and integration of benefits programs for college students, ACP is addressing key barriers to completion during and after the pandemic.

I cannot overemphasize the importance of the student success components of this bill, including the requirement to address basic needs insecurity and the Student Success Fund grant program. In order to successfully complete education and training of any kind, wrap around

supports are essential, particularly supports that address basic needs at the state and institutional level.

With proper support, our nation's community colleges can meet this challenge. America's College Promise, with its emphasis on incentivizing state support, will be an important strategy to upskill our workers, keep America on the global leading edge of technology and prevent both a skills gap and an equity gap in the coming recovery.

Finally, support for Minority Serving Institutions, HBCUs, and TCUs, are essential for bridging the equity gaps in our country. I'd like to end today with a student story. Tera Roberts was a single mom with eight children when she came to Portland Community College.[10]



She was in tears when she grabbed the Biology classroom door for the first time, frightened but determined. At PCC she found a community that supported and challenged her. Well, she was more than successful. Dr. Tera Roberts, now holds a doctorate in nursing and is the Associate Medical Director of School Based Health Centers at Virginia Garcia Memorial Health Center. All eight of her children have completed postsecondary education and two of her children now teach at PCC. America's College Promise and the Community College infrastructure investments are about helping more people like Tera Roberts make it across that bridge of opportunity,

[10] Tera Roberts Film

leading their family along with them to the other side. I ask that you support these packages and consider the positive, nationwide, and generational impacts of these investments.



Mark Mitsui

President Portland Community College

Chairman SCOTT. Thank you. Mr. Lanter.

STATEMENT OF BOB LANTER, EXECUTIVE DIRECTOR, CALIFORNIA WORKFORCE ASSOCIATION

Mr. LANTER. Good afternoon Chairman Scott, Ranking Member Dr. Foxx and Members of the Committee. My name is Bob Lanter, Executive Director of the California Workforce Association, and I'm honored to join you to discuss the Federal investments needed to create jobs and further stimulate our economy.

The proposed 100 billion Federal investment in the American Jobs Plan would set our country on a sustainable, equitable path, at a severe economic disruption. I will touch on the following policy and funding recommendations to ensure key components of the American Jobs Plan are met.

The Workforce Innovation and Opportunity Act, WIOA, should be directly funded to provide immediate and economic recovery services. Funding must be made available to ensure communities can build equitable recovery. Fund industry, and sector-based training to build talent pipelines that lead to family sustaining wages and invest in proven and effective models.

WIOA's workforce boards, networks of local education, training providers, business, labor management partnerships and economic development organizations invest Federal funds to businesses and individuals that need them most. Increased direct funding through workforce boards allows for these existing partnerships to expand, and addresses significant workforce challenges we face, like long-term unemployment and job losses due to COVID.

The principles for the workforce investments in the American Jobs Plan, come from the Relaunching America's Workforce Act. Legislation led by Chairman Scott and many others on this Committee, which provides additional funding and important flexibilities to WIOA, like funding workforce board and community college partnerships, and increasing the cap on incumbent worker training.

As we know now, impacts of COVID hit the most vulnerable populations earlier and longer. These effects continue to create significant barriers to employment for minorities, women, disabled individuals, out of school use, and ex-offenders, among others. Access

to childcare, transportation, food, and housing often prevent these individuals from enrolling in education, or even getting a job.

We continue to see signs that an economic recovery may not mean everyone will recover equitably. The American Jobs Plan calls for 12 billion dollars to be targeted to build equity in labor markets. We have begun work like this in California as the bipartisan Breaking Barriers Initiative provides 15 million dollars to partnerships between community-based organizations and workforce boards serving vulnerable populations like ex-offenders.

The Initiative focuses on three outcomes, enrollment into post-secondary vocational education, enrollment into apprenticeship programs, or placement into a job that has a career path to self-sufficiency.

Workforce boards are well-positioned to deliver these services at wider scale with the funding proposed. The American Jobs Plan calls for a 40-billion-dollar investment in new dislocated worker programs and sector-based initiatives.

Our nation's training system must allow laid off workers to retool, but also provide necessary supports to complete training programs and obtain quality employment, especially those Americans who are long-term unemployed. In California the High Road Training Partnerships Initiative is a 25-million-dollar demonstration project designed to model sector-based strategies from around the State, ranging from transportation to healthcare to hospitality, the HRTP model exemplifies the focus on industry partnerships that deliver equity, sustainability and job quality.

The American Jobs Plan proposes 48 billion to build the capacity of the workforce development system. One of the key areas for this effort is registered apprenticeship—a proven earn and learn model. Workforce boards could become more active intermediaries in registered apprenticeship, and increased participation from non-traditional industries.

Costs for curriculum development, training for wage subsidies and data collection validation should be allowed and supported through this legislation. Job creation strategies like these will enable us to build our regional economies back stronger.

In closing, the investments in the American Jobs Plan will facilitate thousands of successful workforce and economic development models like the ones I have spoken about in my testimony, providing resources that are desperately needed by workforce stakeholders will lead millions of individuals from unemployment and low-wage, dead-end jobs to careers that will lead them on a path for a positive degree.

Thank you for inviting me Mr. Chairman and Ranking Member, and I look forward to the opportunity to answer questions.

[The prepared statement of Mr. Lanter follows:]

PREPARED STATEMENT OF BOB LANTER

April 28, 2021

House Education and Labor Committee

Full Committee Hearing: ***Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy***

Testimony Provided by: Bob Lanter, Executive Director, California Workforce Association

Introduction

Good afternoon Chairman Scott, Ranking Member Foxx, and members of the Committee. My name is Bob Lanter, Executive Director of the California Workforce Association, a non-profit representing the 45 local workforce development boards across our state. I am honored to join you to discuss the urgent federal investments needed to create jobs and further stimulate the economy. The federal workforce system, established by the Workforce Innovation and Opportunity Act (WIOA), is geared to devote additional resources immediately to those individuals, industries, and communities which need them the most. The proposed $100 billion federal workforce development investment in the Biden Administration's American Jobs Plan would set our country on a sustainable, equitable path out of this severe economic disruption. Combining this workforce development investment with the infrastructure projects and job creation possible in the American Jobs Plan would accelerate the recovery.

I will cover the following policy and funding recommendations to ensure key components of the American Jobs Plan meet the moment.

- **WIOA should be directly funded to provide immediate economic recovery services**. The legislation's ability to directly fund workforce boards and critical recovery activities at the local level will allow Congress and the Administration to take advantage of the established network of local, regional, industry and civic leaders who lead workforce development

boards. These workforce boards and their partners can quickly identify and allocate skill development and job training resources on main street in their communities.

- **Funding must be made available to ensure communities can build an equitable recovery**. The American Jobs Plan calls for $12 billion in investments targeted towards building equity in labor markets, including for ex-offenders and justice involved youth. This funding is critically needed to assist with ongoing efforts to support laid-off workers disproportionately impacted by COVID-19, who are often low-wage and in need of new training, both remedial and vocational, that would lead them on a path out of poverty.
- **Fund industry and sector-based training to build talent pipelines that lead to family sustaining wages**. Initiatives linking industry in a shared labor market with partners like workforce boards, educational institutions, skills-based training providers, economic development organizations, labor and joint-labor management partnerships, and community leadership are critical in addressing skill gaps. Workforce boards already have these partnerships created and additional funding would help meet short- and long-term industry needs.
- **Invest in Proven and Effective Models.**
  Registered apprenticeships are a valuable tool for the workforce development system as well as employers and participants. The increased investment and focus in the American Jobs Plan on scaling apprenticeships will ensure greater access to infrastructure jobs and other non-traditional occupations.

Immediate Impact for Businesses and Job Seekers through Local Investment

One of the advantages of the federal workforce system, as funded and designed in the *Workforce Innovation and Opportunity Act* (WIOA), is the ability to leverage and engage broader stakeholders such as education and training providers, business, labor management partnerships, and economic development organizations. Federal funds, invested locally through workforce boards can be intentionally directed to those regions of our communities where businesses and individuals need them most. State and local workforce boards are truly built to

be silo-busters when led correctly. Increased direct funding through WIOA allows for these existing partnerships to expand and address the significant workforce challenges we face like skills mismatch, long-term unemployment, and jobs vanishing due to COVID-19. The investments in the workforce system found the American Jobs Plan can not only support incredible economic growth looking to the future but be distributed in a way that breaks cycles of racism and inequity in labor markets.

As an example, in California, Stanislaus County provided CARES Act funds to their local Workforce Board to administer grants to over 1,100 businesses negatively affected by COVID-19. With these funds, the businesses retained over 11,750 employees during the height of the pandemic. The existing employer relationships of the workforce board led to the success of this effort, accelerating the speed and precision at which the funds were allocated locally.

The workforce development investments in the American Jobs Plan would enable workforce boards to further develop and expand career services and pathways for the millions of Americans out of work, including those who are long-term unemployed. According to Department of Labor data, there were 4.2 million Americans unemployed for more than 27 weeks through March 2021 and 11.4 million Americans reported being unable to work because their employer closed or lost business due to the pandemic.[1] Studies show that the longer an individual stays unemployed, it becomes increasingly difficult to re-enter the labor market, let alone to achieve the types of jobs and careers that will allow one to become self-sufficient and raise a family in California. This is a significant threat to our economic recovery. Career pathways are developed in partnership with business, labor organizations and education providers, and incorporate in-demand skills into program delivery. Its collaborations like these that lead to better outcomes in job placement, wage gain and skill development. Funding these efforts allow local businesses to directly inform curriculum provided, making skills training more responsive to industry needs, while making that training universally available to unemployed workers. The additional funding the American Jobs Plan would build the capacity in local workforce development boards to support these efforts.

[1] https://www.bls.gov/news.release/empsit.nr0.htm

The principles for the workforce investments in the American Jobs Plan come from the *Relaunching America's Workforce Act*, legislation led by Chairman Scott and many others on this Committee, which provides additional WIOA funding and important flexibilities like creating career pathway programs by aligning career and technical education (CTE) and Adult Education, increasing workforce board and community college partnerships, expanding access to career services, and increasing the cap on incumbent worker training. These flexibilities are key in updating our public workforce investment system. As an example, increasing the cap on incumbent worker training will allow more employers the ability to upskill their current workers, opening entry level positions that then can be filled with the individuals currently participating and receiving services in the workforce system. That helps create and facilitate a robust talent pipeline at the local level.

Equity in the Recovery

Unfortunately, the impacts of COVID-19 hit the most vulnerable populations earlier and longer. These effects continue to create significant barriers to employment for minorities, women, disabled individuals, out-of-school youth, ex-offenders, and others vulnerable communities.[2] Affordable access to childcare, transportation, food, and housing often prevent these individuals from enrolling in education and training programs or even getting a job. Addressing these inequities and providing robust support services for these populations is critical. We continue to see signs that an economic recovery will not necessarily mean everyone will recover equitably. Recent data from the Opportunity Insights Economic Tracker shows that compared with those making over $60,00 per year annually, where employment rates are down 1.6% from pre-pandemic levels, nationally, employment rates for individuals earning less than $27,000 per year annually are still down nearly 30% from pre-pandemic levels.[3] Our rates in California have been mirroring this data month to month. The uneven recovery will continue to push low wage workers further behind.

[2] https://crsreports.congress.gov/product/pdf/R/R46554
[3] https://www.tracktherecovery.org/

As we have seen during the last year, millions of workers in the hospitality, travel and leisure, restaurant, and retail industries were displaced due to COVID. The historic increase in unemployment further reduced opportunities for vulnerable populations like ex-offenders and justice involved youth. President Biden and California's Governor Newsom have stressed that we need to work towards an equitable recovery. The American Jobs Plan calls for $12 billion in investments targeted towards building equity in labor markets. This funding can be leveraged with other dislocated worker funding to support workers who need help the most, including the lower-wage and lower-skill workers, to obtain the needed training, both remedial and vocational, that would lead someone on a path out of poverty into family sustaining wages. In California, the legislature has funded the Breaking Barriers Initiative, which provides $25 million in general funds to support partnerships between community-based organizations and workforce boards designed to target vulnerable populations, including ex-offenders, and bridge them into one of three outcomes; enrollment into post-secondary vocational education, enrollment into pre-apprenticeship or apprenticeship programs, or placement into a job that is has a career path to self-sufficiency. Similarly, California's Prison to Employment Initiative aligns probation, parole, and employer engagement through the local workforce boards to provide job training and wrap-around re-entry supports to individuals exiting incarceration. Programs like this that break cycles of inequities in the labor market can be expanded. Workforce boards are well-positioned with our industry partners to deliver these services at a wider scale with the funding levels in the American Jobs Plan.

Fund Industry and Sector-based Training to Build Talent Pipelines

The American Jobs Plan calls for a $40 billion investment in a new dislocated worker program and sector-based training initiatives. In my 30-year career, there are fewer people served by the workforce system that are more challenged to re-enter the workforce than a dislocated worker. Often, long work history with little reskilling over time is a recipe for long-term unemployment unless there are interventions like lifelong learning. Our Nation's retraining system must allow laid off workers to not only retool but provide the necessary supports to successfully complete

training programs and obtain quality employment. Supports such as stipends while a person is in training, rental and food assistance, childcare, and cost of books and other educational supplies are often the root cause of failure when one does not complete a program. Significant investment in these sector-based training models offer tremendous opportunity for all dislocated workers to enter a career pathway and improve job quality.

In California, the High Road Training Partnerships (HRTP) initiative is a $10 million demonstration project designed to model sector-based strategies from around the state, ranging from transportation to health care to hospitality. The HRTP model exemplifies a focus on industry partnerships that deliver equity, sustainability, and job quality. This unique sector approach simultaneously addresses urgent questions of income inequality, economic competitiveness, and the impact of climate change through regional skills strategies designed to support economically and environmentally resilient communities across the state. The industry-based, worker-focused training partnerships build skills for California's "high road" employers — firms that compete based on quality of product and service achieved through innovation and investment in human capital and can thus generate family-supporting jobs where workers have agency and voice. Essential elements include industry led problem solving, partnership as a priority, worker voice and training solutions. California's Governor and State Labor Agency will continue to invest in this model, and it could be expanded with the workforce development investments from the American Jobs Plan.

Investing in Effective and Proven Models

The American Jobs Plan proposes $48 billion to build the capacity of the workforce development system. One of the key areas for this effort is registered apprenticeship. Registered apprenticeship is an exemplary and proven 'earn and learn' model- programs that provide individuals with excellent training leading to high wage jobs while employers invest in their communities and enjoy years of increased returns on an apprentices' labor. The increased investment in this effort from the American Jobs Plan would allow workforce boards to become more active intermediaries in registered apprenticeships and increase participation from non-

traditional industries. Costs for curriculum development, training wage subsidies for hard to serve populations, data collection and validation should be allowed and supported through this legislation. Funding start-up costs such as these would particularly benefit small businesses as they cannot always support this program development with funding or program administration/supervision. Scaling apprenticeships, to include youth apprenticeships, would dramatically increase skills and wages for millions of workers and provide a better workforce for businesses. Right now, in California we have several successful models of Registered Apprenticeship Programs in industries such as IT, engineering, manufacturing, early childhood education, and aerospace that combine re-training efforts while also lifting vulnerable populations out of poverty. Beyond traditional industries, Registered Apprenticeship is a proven model for non-traditional occupations as well. For example, CWA worked with partners to develop the Nation's first Registered Apprenticeship Program for workforce development professionals. This Workforce Development Apprenticeship Program (WDAP) has enabled over 70 workforce professionals to learn about their critical roles in the workforce development industry while at the same time experience what it is like to be an apprentice. If we are successful, efforts like the ones already underway in California will be expanded.

Increase Access to Lifelong Learning

As the United States moves closer to providing free community college, workforce boards and their education partners can work together to expand to more innovative and technologically advanced workforce programs, providing more offerings to close any gaps in 4-year university offerings, and overall provide more resources to job seekers to navigate vocational education and their return to work. Additionally, expanding funding for non-credit workforce training programs which are currently outside the scope of traditional financial aid is critical to improve the efficacy of these efforts. These programs are often critical to the success of not only workforce programs, but most sector initiatives. The colleges' ability to design curriculum that meets the current needs of employers and industry is greatly increased when utilizing the non-credit system. These non-credit, contract education courses provide higher placement

outcomes because they are usually designed based on local demand. However, these programs are not adequately funded through WIOA, and additional funding through the American Jobs Plan would allow workforce boards to support this vital activity in greater volume. Whether workforce boards are serving adult or youth participants, the cost of training programs is a significant barrier. Postsecondary and industry recognized credentials earned in these programs provide a passport to better jobs; far too often, our most vulnerable workers face multiple barriers to employment, such as not having a high school diploma, which limits their options for further education and career pathways. Workforce boards create and develop 'on-ramps' and programs available to prepare individuals for these pursuits. Greater access to community college and that level of training will open so many doors and create a more stable talent pipeline for industry.

Conclusion

In closing, the investments in the American Jobs Plan will facilitate thousands of successful workforce and economic development models like the ones I have spoken about this afternoon. Providing resources that are desperately needed by workforce stakeholders will lead millions of individuals from unemployment and low wage dead-end jobs to education and careers that will lead them on a path out of poverty.

Recommendations:

- **WIOA should be directly funded to provide immediate economic recovery services**. The American Jobs Plan's ability to directly fund workforce boards and critical recovery activities at the local level will allow Congress and the Administration to take advantage of the established network of local, regional, industry and civic leaders who lead workforce development boards.
- **Funding must be made available to ensure communities can build an equitable recovery**. This funding is critically needed to assist with ongoing efforts to support laid-off workers

disproportionately impacted by COVID-19, who are often low-wage and in need of new training, both remedial and vocational, that would lead them on a path out of poverty.

- **Fund industry and sector-based training to build talent pipelines.** Initiatives linking industry in a shared labor market with partners like workforce boards, educational institutions, skills-based training providers, economic development, labor and joint-labor management organizations, and community leadership are critical in addressing skill gaps.
- **Invest in proven and effective models.**
  Registered apprenticeships are a valuable tool for the workforce development system as well as employers and participants. The increased investment and focus in the American Jobs Plan on scaling apprenticeships will ensure greater access to infrastructure jobs and other non-traditional occupations.

I would like to thank the Chairman and Ranking Member for the opportunity to testify and I look forward to your questions.

Respectfully Submitted,



Executive Director

Chairman SCOTT. Thank you very much. Thank you for your testimony and we will next hear from Mr. Riedl.

STATEMENT OF MR. BRIAN RIEDL, SENIOR FELLOW IN BUDGET, TAX, AND ECONOMICS, THE MANHATTAN INSTITUTE

Mr. RIEDL. Good afternoon Chairman Scott, Ranking Member Foxx, and Members of the Committee. My name is Brian Riedl. I am a Senior Fellow at the Manhattan Institute. I have been invited here to step back and provide a general critique of the American Jobs Plan. I will make four points.

First, the 2.6 trillion-dollar cost is fiscally irresponsible given America's daunting Federal budget outlook. This would be the most expensive non-emergency law in half of a century, and it's coming at a time when the national debt is already projected to double from 17 trillion to 35 trillion between 2019 and 2030.

Overall, Washington is projected to run 100 trillion dollars in budget deficits over the next 30 years according to CBO, and if interest rates exceed the CBO baseline by just 1 percent point, that would add 30 trillion dollars in interest costs over 3 decades, just 1 percentage point.

And even if this 2.6 trillion is mostly paid for in new corporate tax hikes, it is still fiscally irresponsible because we already need every progressive tax proposal just to pay for the current programs we already have in the baseline.

Second, while infrastructure can certainly use some upgrades, lack of funding is not the main problem. Rather, America's infrastructure is among the most expensive bureaucratic and slowly built in the world. Consider that. CBO reports that Federal invest-

ment delivers average returns of just 5 percent, compared to 10 percent for private sector investments.

The per mile cost of highway construction quadrupled between 1960 and 1990 and has continued to grow since then. The David Bacon Act raises wage costs by 22 percent, mandatory project labor agreements add costs too. Our subway systems cost quadruple the world average to build.

Many of these delays are driven by the necessary but slow environmental impact statements, and the historical artifact reviews. Consider that environmental reviews commonly exceed 1,000 pages and require on average 7 years to complete, with several taking more than 17 years.

And no ground can be broken until the project has survived the legal gauntlet, including appeals by any litigant. By comparison, these statements take one to 2 years in Canada, and three and a half years at most in the EU.

Third, despite the title of American Jobs Plan, there is a broad economic consensus that infrastructure policies do not provide short-term stimulus. First, because as I mentioned, you need 7 years to finish the environmental impact statement before you can even break ground.

Additionally, Federal investment is usually offset by State and local investment cuts, which nullifies the effect. Additionally, infrastructure is most needed in the fast-growing communities where the unemployment rate is already lower than typical. Thus, the congressional Research Service has included that the short-term effects of both output and unemployment could be nullified or even negative.

When combining the painful taxes of ineffective spending, the Penn Wharton budget model reports that the American Jobs Plan will over the long-run create no net jobs, reduce wages by 0.8 percent, reduce the capital stock 3 percent, and reduce the GDP by 0.8 percent. And Penn Wharton is not a conservative organization.

Finally, the American Jobs Plan includes a historic expansion of corporate grants, loans, and contracts with little to no congressional oversight. Rather than rely on tax incentives and tightening patents and copyrights, Washington would micromanage the innovation process by sleepily raising corporate taxes and then returning hundreds of billions of dollars in Federal grants to companies that undertake government-approved projects.

The administration is seeking huge discretion in dispensing hundreds of billions of dollars, which risks becoming a budget busting slush fund for favored industries, businesses, and allies, from Cylindra to the now defunded banks technology program, Washington's track record picking winners and losers is not particularly strong, and these programs often invited corruption and collusion between big business and government.

Today's promising companies have no problem securing loans and equity from a financial system, a wash in capital and low interest rates. More corporate wealth there is not necessary.

Therefore, I recommend that Congress pare back the cost of this proposal, encourage State and local governments to use their 500 billion dollars in recent aid, and reform our infrastructure policies to make them more effective and efficient, thank you.

[The prepared statement of Mr. Riedl follows:]

PREPARED STATEMENT OF BRIAN RIEDL

Reform Infrastructure Policy First, and Limit Corporate Welfare

Brian Riedl
Senior Fellow in Budget, Tax, & Economic Policy
The Manhattan Institute for Policy Research

Testimony before the Committee on Education and Labor
United States House of Representatives
April 28, 2021

Good morning Chairman Scott, Ranking Member Foxx, and Members of the Committee. Thank you for inviting me to participate in today's hearing.

My name is Brian Riedl. I am a Senior Fellow in Budget, Tax, & Economic Policy at the Manhattan Institute for Policy Research. The views I express in this testimony are my own, and should not be construed as representing any official position of The Manhattan Institute.

My testimony today will critique President Biden's American Jobs Plan proposal with four main points:[1]

1) The $2.6 trillion cost – what would be the most expensive non-emergency law in half of a century – is fiscally irresponsible given America's daunting federal budget outlook.

2) America's main infrastructure policy challenge is not funding, but rather the slow, bureaucratic, high-cost implementation of the policies. Spending another $1 trillion without making these programs more effective is a poor use of taxpayer dollars.

3) Despite the title of "American *Jobs* Plan," there is a broad economic consensus that infrastructure policies do not provide short-term stimulus, and most new construction jobs are redistributed from other jobs.

4) The American Jobs Plan includes a historic expansion of corporate grants, loans, and contracts with little-to-no Congressional oversight. Federal micromanagement of innovation and research is the wrong approach.

The Daunting Federal Budget Outlook

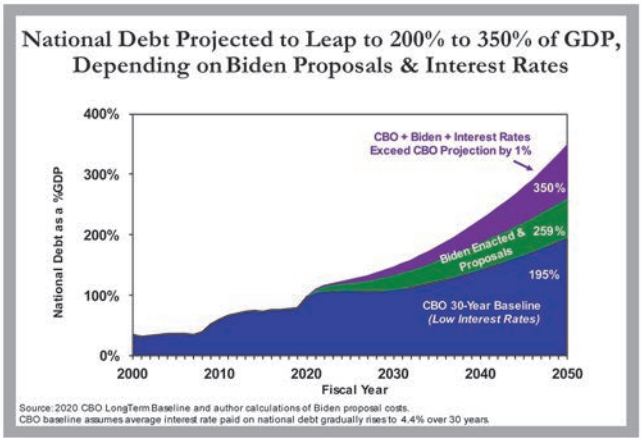
First, we must address the sheer enormity of the President's proposal in the context of Washington's deteriorating fiscal outlook. The cost of the American Jobs Plan – $2.6 trillion over 8 years, an average of 1.25 percent of GDP – would represent the most expensive non-emergency spending bill in at least 50 years.[2] And it follows Washington enacting $5.4 trillion in (mostly-necessary) pandemic spending over the past 12 months – a total that comprises one-fifth of the entire national debt.

The underlying fiscal outlook is unsustainable. The national debt held by the public is already projected to double from $17 trillion to $35 trillion between the end of 2019 and 2030.[3] If President Biden's entire campaign agenda is enacted, it would mean the national debt rising from $17 trillion to $42 trillion over that period.[4] This would leave the national debt at 130 percent of GDP, or one-quarter higher than at the end of World War II.

And it only gets worse thereafter. The Congressional Budget Office projects that – due overwhelmingly to escalating Social Security and Medicare shortfalls – Washington will run $100 trillion in baseline budget deficits over the next 30 years. This would leave the national debt at nearly 200 percent of GDP. At the end of that period, government interest payments will consume half of all tax revenues.[5]

That is the *rosy* scenario that assumes no new legislation is enacted, the 2017 tax cuts expire, no new recessions, and low interest rates. If interest rates exceed the CBO baseline assumption by even one percentage point, it would add $30 trillion in interest costs over three decades. Deficits would reach 18 percent of GDP, the debt would hit 264 percent of GDP, and two-thirds of all tax revenues would merely pay the interest on the debt.[6]

That is simply the CBO baseline, with interest rates rising by an additional percentage point.



And that is why it is shortsighted to assert that low interest rates make this the right time to borrow. Washington is behaving like a subprime homeowner and making long-term debt commitments based on short-term interest rates. The average maturity of the U.S. debt is five years and declining, which means most of the national debt would quickly roll over into any future interest rate increase.

In short, the federal government is essentially gambling our fiscal future on the hope that interest rates never again exceed four percent. Because if they do, simple math shows that combining rising interest rates with a debt approaching 200 or 300 percent of GDP risks a catastrophic debt crisis.

In that context, Washington should focus on paying for our current escalating commitments before undertaking the most expensive non-emergency spending bill in half a century.

Some suggest that fully financing this infrastructure bill with new taxes would make it fiscally responsible. That is not the case. If a family facing a $100,000 credit card debt suddenly finds a $20,000 windfall, spending it all on expensive new furniture would not be a responsible use of that money simply because it is "fully paid for" by the windfall. Similarly, there is a limited universe of plausible tax increases on families and businesses.[7]

Table 1

Leading Progressive Tax Proposals Cannot Even Finance Washington's Current Spending Promises, Much Less Any New Programs

Progressive Tax Proposal & 10-Year Savings ($Billions)	
$1,750	Biden Business Tax Proposals - Infrastructure Proposal
455	Repeal Entire TCJA, Including Low-Income Provisions
189	Impose 70% Tax Rate for Income over $10 Million
224	Cap Deductions at 28% Value Above $400k AGI
2,180	Eliminate Wage Cap for 12.4% Social Security Tax (No Credit for Benefits)
2,000	Tax Capital Gains as Ordinary Income plus Implement Mark-to-Market
1,000	Aggressively Reduce Domestic Corporate Tax Preferences
752	Financial Transactions Tax of 0.1%
103	"Bank Tax" of 0.15% on Large Financial Institutions
2,263	Sanders 8% Wealth Tax
383	Sanders Estate Tax Rate as High as 77%
1,033	Carbon Tax at $25/Metric Ton - No Rebate for Low-Income Households
12,331	**Total Tax Increases (4.6% of GDP)**

Sources: CBO, Tax Policy Center, Tax Foundation, Social Security Administration, and Committee For a Responsible Federal Budget. Net interest savings would approximately offset lost revenue from interactive effects.

Enacting all of these taxes would not even close the current 10-year projected budget deficit of $14.3 trillion, much less finance the President's new spending proposals.[8] And even if they did, the escalating spending levels projected by CBO would re-open large budget deficits in the 2030s and 2040s.

In short, it will take aggressive tax increases – or drastic and painful spending cuts – just to finance Washington's current commitments. Applying the easiest $2 trillion in taxes to a historic spending expansion simply leaves fewer options to close the remaining deficits. The only people left to pay the remaining taxes will be the middle class.

And we still have not even got to the forthcoming release of the "human infrastructure" portion of the that is expected to push the total price tag as high as $4 trillion.[9]

Large spending increases create the difficult financing choice between using up our limited plausible tax increases, and going deeper into debt. The American Jobs Plan includes approximately $1.8 trillion in new corporate taxes that dwarf the $300 billion in net corporate tax cuts (over ten years) enacted in the 2017 Tax Cuts and Jobs Act. That law reduced the corporate tax rate from 35 percent to 21 percent, but offset most of those savings by curtailing key business tax preferences. The president would raise the corporate rate back to 28 percent (33 percent including state taxes) – restoring America to the highest rate in the OECD – while also raising international taxes and retaining the lost 2017 tax deductions. Moreover, the president would severely weaken the 2017 tax reforms that finally gave U.S. multinational corporations a more level playing field when competing internationally. Now, once again, American companies abroad may face higher tax rates than our global competitors.

Additionally, the Tax Foundation estimates that:
"*An increase in the federal corporate tax rate to 28 percent would raise the U.S. federal-state combined tax rate to 32.34 percent, highest in the OECD and among Group of Seven (G7) countries, harming U.S. economic competitiveness and increasing the cost of investment in America. We estimate that this would reduce long-run economic output by 0.8 percent, eliminate 159,000 jobs, and reduce wages by 0.7 percent. Workers across the income scale would bear much of the tax increase. For example, the bottom 20 percent of earners would on average see a 1.45 percent drop in after-tax income in the long run.*"[10]

More broadly, the American Jobs Plan is so poorly-designed that it will *harm* the long-term economy. When combining the painful taxes and ineffective spending, the non-partisan economists at the Penn-Wharton Budget Model have projected that the American Jobs Plan will – over the long run:

- Create no net jobs,
- Reduce wages 0.8 percent,
- Reduce the capital stock 3 percent, and
- Reduce the GDP by 0.8% percent.[11]

Infrastructure: Throwing $1 Trillion at an Unreformed, Broken System

Our infrastructure can certainly use some upgrades, particularly its roads and electrical grid. That said, the crumbling state of American infrastructure has been overstated. A 2019 report of the World Economic Forum ranked the United States' infrastructure *first* among the 10 geographically largest countries (i.e., the countries that likely have the most extensive infrastructure needs).[12]

Similarly, last year a Congressional Research Service report titled "*The Condition of Highway Bridges Continues to Improve*" noted that "the number and share of bridges in poor condition have dropped significantly over the past 20 years. Furthermore, repairing every deficient bridge in just a few years is unrealistic, and not every bridge repair is likely to be justified when considering both the economic benefits and costs. FHWA's own analysis of bridge data suggests a relatively modest increase in spending could substantially reduce or eliminate the backlog of economically justifiable investments if sustained over a 20-year period."[13]

Spending levels remain healthy. Transportation infrastructure spending (adjusted for inflation) rose from $332 to $371 billion between 2008 and 2018.[14] Government spending on transportation and water infrastructure at all levels is 2.3 percent of the GDP ($440 billion), just slightly below the 30-year average of 2.5 percent.[15] That said, there has been a modest shift from capital spending to operations and maintenance. Spending on energy and the electrical grid continues to rise, although challenges remain.[16]

America's main infrastructure challenge is not spending levels, but rather its general ineffectiveness per dollar spent. In 2016, CBO released a report entitled "*The Macroeconomic and Budgetary Effects of Federal Investment*." Economist Scott Hodge succinctly summarizes the reports three leading conclusions:[17]

1. "Federal investments deliver only half the economic returns as private sector investments, 5 percent versus 10 percent.
2. A dollar of federal spending results in only $0.67 worth of actual investment because state, local, and private sector entities reduce their spending in response to the federal dollars.
3. Federal investment financed by debt or taxes could do more economic harm than good because federal borrowing and taxes crowd out private investment. To avoid harming the economy, federal investments should be financed by cuts in other discretionary programs."

Diving deeper, America's transportation infrastructure is among the most expensive, bureaucratic, and slowly built in the world.[18] Consider that:

- The cost of interstate construction spending per mile quadrupled from 1960 through 1990, and has continued to grow since then (adjusted for inflation).[19]
- Labor costs are higher in part because the Davis-Bacon Act, which mandates that those awarded government contracts pay a "prevailing wage," raises wage costs by as much as 22 percent.[20]
- Government-mandated project labor agreements (PLAs) have been shown to significantly raise labor costs as well.[21]
- America requires many more workers to do the same construction work as Europe.[22]
- Most U.S. construction projects are performed only during the workday, while much of Europe has round-the-clock shifts.[23]

- U.S. subway systems are by far the most expensive to build in the world, and in New York City cost quadruple the world average to build. The difference is high labor costs, poor contractor work, poor oversight, and defensive designs meant to avoid a cascade of stakeholder lawsuits related to environmental and historical artifact protection.[24]
- Coordination between various local governments and stakeholders – while often necessary – brings endless delays and veto points, particularly for transportation projects.
- Nearly a century ago, the Empire State Building was built in 410 days. More recently, Boston's Big Dig took 25 years from planning to completion. Today, California's high-speed rail is expected to take nearly 40 years from planning to completion. Some delays are helpful – we want to ensure safety and environmental protection – but the U.S. has become a global outlier.

A major cause of delays are the necessary-but-slow Environmental Impact Statements and Historical Artifact Reviews. Consider that:

- Environmental reviews commonly exceed 1,000 pages and require on average seven years to complete (compared to no more than one to two years in Canada and 3.5 years in the European Union).[25]
- Several environmental impact statements now take more than 17 years to complete – and no ground can be broken until the project has survived the legal process, including appeals by any litigant.[26]
- In America – unlike many other countries – environmental and historical reviews can be challenged in court by a wide range of stakeholders, and these challenges can take years or even decades to be decided. Other countries use faster, non-judicial options to enforce these regulations, rather than expensive and time-consuming lawsuits that essentially become a project veto.[27]
- Megan McArdle cites an egregious example: "**The Southeastern High Speed Rail Corridor was proposed in 1992. You will be thrilled to learn that in September 2017, the Department of Transportation announced the completion of the project's Tier II Draft Environmental Impact Statement.**"[28]

President Biden's physical infrastructure component throws $1 trillion at this broken system. In fact, it would raise costs further by tightening higher-wage requirements and imposing stricter "Buy America" requirements that limit trade and lower-cost options. And it allocates more funding to transit and high-speed rail ($165 billion) than highways, roads, and bridges ($115 billion) despite the surging costs[29] and declining public interest[30] in the former.

There is certainly a case for increasing infrastructure investment. But any new funding should be accompanied by reforms to spend that money more effectively.

The $213 billion proposal to build, rehabilitate, and retrofit millions of homes is expensive and vaguely defined. While public housing should obviously not be left in disrepair, lawmakers should focus more on housing vouchers that provide low-income families with more options to escape public housing if they so choose. Thus, building more private housing and addressing zoning restrictions would be more helpful. That said, local communities must play a lead role. Additionally, the proposal to "build, preserve, and retrofit homes" is vaguely defined, and it is unclear if tax credits will be sufficient to bring such expensive projects – especially given the push for more expensive unionized workers in an industry that is only 13 percent unionized.[31]

Additionally, the proposed $100 billion for K-12 school construction and renovation ($50 billion in direct grants plus $50 billion through bonds) is unnecessary. School construction has long been a responsibility of state and local governments, and federalizing this role engages in mission creep while diminishing the role of the governors, mayors, and school boards closer to these schools. Furthermore, states are flush with $180 billion in K-12 grants from earlier pandemic bills that well exceed their COVID-related expenses (which is why CBO assumes most will not be spent until between 2023 and 2028).[32] If Congress is adamant about disregarding federalism and funding school construction, it could instead clarify that these $180 billion in recent grant funds may be used for broader education expenses. State and local governments may also consider using the $350 billion in recent stimulus grants to close budget deficits that in many states no longer exist.[33]

Historic Expansion of Corporate Welfare – With Seemingly No Congressional Oversight

Yet only half of this proposal is truly about infrastructure. The largest single proposal is $400 billion for long-term care for the elderly and disabled. The rest of the American Jobs Plan largely consists of one of the largest corporate welfare proposals in history.

Specifically, the Biden administration is trying to position itself as the center of scientific innovation. Instead of merely encouraging research, development, and commercialization by providing tax incentives for investment and R&D, and tightening intellectual property and patent laws, Washington would micromanage the innovation process by steeply raising corporate tax rates, and then returning hundreds of billions of dollars in federal grants to companies that undertake government-approved projects. Advocates point to past federal loans to Tesla that were fully repaid by the flourishing company. However, today's promising companies have no problem securing loans and equity from a financial system awash in capital and low interest rates.

The administration's almost limitless discretion in dispensing hundreds of billions of dollars risks becoming a budget-busting slush fund for favored industries, businesses, and allies. The electric vehicle industry would receive $174 billion. Broadband subsidies would total $100 billion, even as the broadband industry already invests more than $50 billion annually in infrastructure.[34] There is a $25 billion "ambitious projects" fund in transportation, $52 billion domestic manufacturing fund, $31 billion venture capital fund, $27 billion "Clean Energy and Sustainability Accelerator," $14 billion commerce competitiveness fund, $35 billion climate innovation fund, and $30 billion "innovation and job creation" fund.

Central planning is labor intensive, and distributing all these grants would require a staggering number of new federal offices, boards, and agencies. The Department of Commerce would create a $50 billion office "dedicated to monitoring domestic industrial capacity and funding investments to support production of critical goods." The proposal would also spend "$20 billion in regional innovation hubs and a Community Revitalization Fund." A "technology directorate" would coordinate countless new initiatives lavishing money on the computing, communications, energy, and biotech sectors. Another program would "bring together industry, academia, and government to advance technologies and capabilities critical to future competitiveness."

But when Washington chooses the wrong winners and losers, the taxpayers pay. The last similar corporate welfare push was in the 2009 stimulus. Back then, a *Washington Post* investigation revealed that President Obama's energy grant programs were so "infused with politics at every level" that the White House reportedly ignored red flags and expedited approval of a questionable $535 million loan guarantee to the well-connected clean energy company Solyndra.[35] It was later revealed that the company brazenly misled the administration on its application, and its subsequent bankruptcy left taxpayers holding the bag for the loan.[36]

More examples abound. The Advanced Technology Program (ATP) was a longstanding Department of Commerce program intended to provide last-resort corporate financing to bring their newest technologies to the market.[37] Several scathing GAO investigations revealed that ATP eventually became a slush fund for Fortune 500 companies, in which federal grant reviewers lacked expertise in the fields they reviewed, and were easily (and purposely) misled by grant applicants seeking easy federal cash with few strings attached.[38]

Consequently, just one-third of ATP grants successfully brought a product to market despite the technologies supposedly being ready to commercialize.[39] Both parties terminated the ATP in 2005 as well as its flawed successor program in 2011. The American Jobs Plan would resuscitate and expand the same failed approach, and give agencies even more money to hand out.

The idea that Washington can successfully pick innovation winners and losers competently and with no political interference reflects the triumph of hope over experience. Yet central planning is popular with those who aspire to do the planning, and with the well-connected industries hoping to cash in on the government spending gold rush.

Economists Agree: Infrastructure is *not* "Stimulus" or Job Creation

Finally, let's address the "jobs" portion of the American Jobs Plan. The Biden Administration and other advocates assert that massive infrastructure spending will stimulate short-term economic growth and create jobs.

Economists across the political spectrum have debunked this myth for the obvious reason that infrastructure projects require several years of planning and regulatory reviews before they begin – at which point the economy has already recovered. In fact, as stated above, environmental impact statements typically take seven years to complete. After allocating $94 billion for mostly "shovel-ready" stimulus projects in 2009, President Obama later joked that "Shovel-ready was not as … shovel-ready as we expected."

Former Obama White House chief economist Jason Furman and former Congressional Budget Office director Doug Elmendorf added that "In the past, infrastructure projects that were initiated as the economy started to weaken did not involve substantial amounts of spending until after the economy had recovered."[40]

Delays are not the only stimulus barrier. Stanford economists John Cogan and John Taylor observed that state and local governments receiving 2009 federal stimulus infrastructure grants simply cut back on their own spending and borrowing almost dollar-for-dollar, completely negating the impact of the federal spending.[41]

The stimulus case is also undermined by Washington distributing spending largely based on politics rather than local economic needs. Harvard economist Edward Glaeser revealed that 2009 stimulus dollars were disproportionately distributed to regions with lower unemployment rates that did not need stimulus. On one level, this makes sense -- many high unemployment regions are rural or losing population, and are thus not the best candidates for widening local highways or adding high-speed rail. However, this approach exposes the disconnect between the goals of infrastructure and job creation. Glaeser also writes that, unlike the past infrastructure projects that relied more on manual labor, today's "big infrastructure requires fancy equipment and skilled engineers, who aren't likely to be unemployed."[42]

Because of these factors, a review of 2009 stimulus highway projects shows no sustained effect on county-level employment.[43] Another study found that half of all new employees hired at firms that received stimulus dollars had peen poached from other firms (rather than coming from the ranks of the unemployed), and many of these companies were forced to turn down other construction projects to accommodate the new "stimulus" projects.[44]

Overall, CRS examined highway spending and concluded that "to the extent that financing new highways [comes from] reducing expenditures on other programs or by deficit finance . . . the net impact on the economy of highway construction in terms of both output and employment could be nullified or even negative."[45]

Adherents to the infrastructure stimulus argument should consider the case of Japan, which responded to a sustained economic downturn with $6.3 trillion in infrastructure investment between 1991 and 2008.[46] One of the largest investments in airports, trains, highways, and tunnels in world history helped push Japan's national debt from 38 percent to 140 percent of GDP, yet its per-capita GDP was roughly the same in 2008 as in 1994.

Third, political considerations can limit the stimulative effect of infrastructure. The geographic distribution of infrastructure spending has historically been driven by the political leverage of lawmakers, as well as political considerations within federal agencies. It is naïve to expect politics remove to be removed from the allocations.

Consequently, Washington has historically over-invested in large vanity projects that provide ribbon-cutting ceremonies. such as high-speed rail, the expansion of interstate highways, and the famous (and eventually cancelled) $223 million "Bridge to Nowhere." However, economist Aaron Renn has shown that "America's infrastructure crisis is local," and repairing local streets, bridges, and potholes is a much higher and more affordable priority. These locally managed projects are often ineligible for federal funding.[47]

State governments face their own mis-aligned incentives with federal dollars. A state funding a $100 million project with its own transportation revenues must convince its taxpayers that the project will provide $100 million in value. By contrast, if the state is required to put up just $20 million of its own funds -- and can use a federal infrastructure grant for the remaining $80 million -- it need only convince its citizens that the project is worth $20 million. In other words, the ability to offload the costs on the federal government makes states more cavalier with how the funds are spent.

Consequently, past infrastructure stimulus bills and reauthorizations have not sufficiently relieved traffic congestion, repaired bridges and roads, or improved waterways. Instead, they brought unfinished high-speed rail projects, cost overruns, a $3.4 million "eco-passage"[48] to help turtles cross a highway in Tallahassee, Fla., and a $54 million "Napa Valley Wine Train."[49] Better to eliminate the federal middleman and empower state and local governments to more easily raise the funds to finance local projects based on local priorities.

Conclusion: Fix the System First, and Be Fiscally Responsible

The laws of economics have not been repealed. Budget constraints still exist. Doubling or tripling the national debt is extraordinarily reckless. There is no guarantee that interest rates will never rise again – indeed such a result is overwhelmingly likely. There are no plausible taxes that can finance the projected spending levels, and counting on the Federal Reserve to monetize much of this debt is a recipe for economic chaos.

More specifically, a $400 billion long-term care expansion – whatever its merits – has no place in an infrastructure bill. Spending $1 trillion on infrastructure without fixing the underlying waste, inefficiencies, and delays in our system represents an extraordinary missed opportunity, and confuses spending levels with outcomes. Giving the administration carte blanche to hand out hundreds of billions of dollars in corporate welfare simply doubles down on past policy mistakes. Lawmakers should first reform the infrastructure costs and delays, and encourage states to use their $530 billion in federal aid to address local infrastructure priorities.

---

[1] White House, "Fact Sheet: The American Jobs Plan," March 31, 2021, at https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/.
[2] Preliminary cost estimate from "What's in President Biden's American Jobs Plan?" Committee for a Responsible Federal Budget, April 2, 2021 at https://www.crfb.org/blogs/whats-president-bidens-american-jobs-plan.
[3] Congressional Budget Office, The Budget and Economic Outlook: 2021 to 2031," February 11, 2021, at https://www.cbo.gov/publication/56970. CBO projected a debt held by the public of $33.3 trillion at the end of FY 2030, before the latest stimulus bill added $2 trillion.
[4] Cost estimates of Biden campaign proposals are at Brian Riedl, "Joe Biden Has an $11 Trillion Spending Plan. Can He Enact It?" The Dispatch, September 3, 2020, at https://thedispatch.com/p/joe-biden-has-an-11-trillion-spending. Most of the $11 trillion spending breakdown comes from the Biden campaign itself, and the $3.5 trillion in taxes comes from the Brookings/Urban Tax Policy Center.
[5] Calculated using Congressional Budget Office, "The 2020 Long-Term Budget Outlook," at September 21, 2020, at https://www.cbo.gov/publication/56516 and the "Long-Term Budget Projections" tab.
For more analysis of these long-term deficits, see Brian Riedl, "Spending, Taxes, & Deficits: A Book of Charts," Manhattan Institute, October 26, 2020, at https://economics21.org/brian-riedl-on-taxes-spending-deficit.
[6] Calculated using Congressional Budget Office, "The 2020 Long-Term Budget Outlook," at September 21, 2020, at https://www.cbo.gov/publication/56516 and the "Long-Term Budget Projections" tab.
[7] For a sample proposal to stabilize the long-term debt, see Brian Riedl, "A Comprehensive Federal Budget Plan to Avert a Debt Crisis," Manhattan Institute, October 10, 2018, at https://www.manhattan-institute.org/html/report-comprehensive-federal-budget-plan-avert-debt-crisis-11497.html.
[8] Congressional Budget Office, The Budget and Economic Outlook: 2021 to 2031," February 11, 2021, at https://www.cbo.gov/publication/56970. CBO projected a $12.3 trillion deficit from FY 2022-2031, before the latest $2 trillion stimulus bill.
[9] Jeff Stein, "White House dramatically increased tax proposal as it sought to address tensions over next big spending plan," Washington Post, March 29, 2021, at https://www.washingtonpost.com/us-policy/2021/03/29/biden-infrastructure-taxes-spending-plan/.
[10] Garrett Watson and William McBride, "Evaluating Proposals to Increase the Corporate Tax Rate and Levy a Minimum Tax on Corporate Book Income," Tax Foundation, February 24, 2021, at https://taxfoundation.org/biden-corporate-income-tax-rate/.

[11] "President Biden's $2.7 Trillion American Jobs Plan: Budgetary and Macroeconomic Effects," Penn-Wharton Budget Model, April 7, 2021, at https://budgetmodel.wharton.upenn.edu/issues/2021/4/7/president-biden-american-jobs-plan-effects.
[12] Klaus Schwab (editor), The Global Competitiveness Report: 2019, World Economic Forum, at http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf. For a discussion, see also Charles Lane, "No, America's infrastructure is not 'crumbling'," Washington Post, April 6, 2021 at https://www.washingtonpost.com/opinions/no-americas-infrastructure-is-not-crumbling/2021/04/06/ab97cc50-9554-11eb-a6d0-13d207aadb78_story.html.
[13] William J. Mallett, "Condition of Highway Bridges Continues to Improve," Congressional Research Service Insight #IN11395, May 19, 2020, at https://crsreports.congress.gov/product/pdf/IN/IN11395.
[14] Bureau of Transportation Statistics, "Transportation Expenditures by Mode and Level of Government From Own Funds, Fiscal Year," Department of Transportation, at https://www.bts.gov/content/transportation-expenditures-mode-and-level-government-own-funds-fiscal-year-current-millions. Figures then adjusted for inflation.
[15] Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2017," October 2018 at https://www.cbo.gov/system/files/2018-10/54539-Infrastructure.pdf.
[16] American Society of Civil Engineers, "2021 Report for America's Infrastructure," Energy chapter, at https://infrastructurereportcard.org/cat-item/energy/.
[17] Summary appears at Scott A. Hodge, "CBO Study: Benefits of Biden's $2 Trillion Infrastructure Plan Won't Outweigh $2 Trillion Tax Hike," Tax Foundation, March 31, 2021, at https://taxfoundation.org/biden-infrastructure-spending-tax-hike/. For full report, see Congressional Budget Office, The Macroeconomic and Budgetary Effects of Federal Investment," June 2016 at https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51628-Federal_Investment.pdf.
[18] For an overview, see Josh Barro, "Why New York Can't Have Nice Things. It costs three times more to build a subway station here than in London or Paris. What if we could change that?" New York Magazine, May 30, 2019, at https://nymag.com/intelligencer/2019/05/new-york-infrastructure-costs.html. Josh Barro, "Here's Why We've Failed to Figure Out Why Infrastructure Costs So Much," New York Magazine, July 24, 2019, at https://nymag.com/intelligencer/2019/07/why-we-cant-figure-out-why-infrastructure-is-so-expensive.html. Alex Marshall, "Why Can't We Build Infrastructure Cheaply, Quickly and Well?" Governing, April 16, 2020, at https://www.governing.com/community/Why-Cant-We-Build-Infrastructure-Cheaply-Quickly-and-Well.html.
[19] Alon Levy, "So You Want to Do an Infrastructure Project," Niskanen Center, March 16, 2021, at https://www.niskanencenter.org/wp-content/uploads/2021/03/levy-infastructure.pdf.
[20] Sarah Glassman, Michael Head, David G. Tuerck, and Paul Bachman, "The Federal Davis-Bacon Act: The Prevailing Mismeasure of Wages," The Beacon Hill Institute at Suffolk University, February 2008, http://www.beaconhill.org/bhistudies/prevwage08/davisbaconprevwage080207final.pdf.
[21] For a background discussion of PLAs, see William F. Burke, BSBA, David G. Tuerck, Ph.D, "The Effects of Project Labor Agreements on Public School Construction in Connecticut," The Beacon Hill Institute, January 2020, at https://beaconhill.org/wp-content/uploads/2020/02/CT-PLA-FinalRev-2020-0211.pdf.
[22] Alex Marshall, "Why Can't We Build Infrastructure Cheaply, Quickly and Well?" Governing, April 16, 2020, at https://www.governing.com/community/Why-Cant-We-Build-Infrastructure-Cheaply-Quickly-and-Well.html.
[23] Alon Levy, "So You Want to Do an Infrastructure Project," Niskanen Center, March 16, 2021, at https://www.niskanencenter.org/wp-content/uploads/2021/03/levy-infastructure.pdf.
[24] Alon Levy, "So You Want to Do an Infrastructure Project," Niskanen Center, March 16, 2021, at https://www.niskanencenter.org/wp-content/uploads/2021/03/levy-infastructure.pdf.
[25] Mitch Daniels, Testimony before Senate Finance Committee, June 25, 2015, at https://www.purdue.edu/president/speeches/2015/150625-infrastructure-testimony.pdf.
[26] Alon Levy, "So You Want to Do an Infrastructure Project," Niskanen Center, March 16, 2021, at https://www.niskanencenter.org/wp-content/uploads/2021/03/levy-infastructure.pdf.
[27] Alon Levy, "So You Want to Do an Infrastructure Project," Niskanen Center, March 16, 2021, at https://www.niskanencenter.org/wp-content/uploads/2021/03/levy-infastructure.pdf.
[28] Megan McArdle, Twitter, February 13, 2019, at https://twitter.com/asymmetricinfo/status/1095787003189309448.
[29] Kerry Jackson, "The Low Spark of High-Speed Rail: California's bullet-train project is still under construction as delays and costs pile up," at February 25, 2021, at https://www.city-journal.org/high-costs-construction-delays-plague-ca-high-speed-rail.
[30] Randal O'Toole, "Transit: The Urban Parasite. The costs of supporting the nation's urban transit industry are rising, yet ridership is declining." Cato Institute, Policy Analysis No. 889, April 20, 2020, at https://www.cato.org/policy-analysis/transit-urban-parasite.
[31] Bureau of Labor Statistics, "Union Members – 2020: Table 3. Union affiliation of employed wage and salary workers by occupation and industry" January 22, 2021, at https://www.bls.gov/news.release/union2.t03.htm.
[32] The most recent stimulus law contained $129 billion that is purportedly for school mitigation measures to accommodate social distancing and pandemic risks. However, the CDC has estimated that school mitigation strategies should cost no more than $23 billion. Moreover, education policy expert Dan Lips notes that state and local governments are still sitting on more than $50 billion in unused K-12 school relief funds from earlier emergency bills. Then what is the purpose of this additional $129 billion? Certainly not to address the pandemic; the CBO calculates that more than two-thirds of this spending would occur between 2023 and 2028.
[33] Committee for a Responsible Federal Budget, "State and Local Governments Do Not Need Half a Trillion in COVID Relief," February 2017, 2021 at https://www.crfb.org/blogs/state-and-local-governments-do-not-need-half-trillion-covid-relief. For one example, the report states that "Though its revenue was flat in 2020, California is now facing a $25 billion surplus (originally $15 billion, with $10 billion more) thanks in part to a windfall from capital gains tax collections."

[34] Michael Mandel and Elliott Long, "Investment Heroes 2020," Progressive Policy Institute, July 24, 2020, at https://progressivepolicy.org/blogs/investment-heroes-2020/.
[35] Joe Stephens and Carol D. Leonnig, "Solyndra: Politics infused Obama energy programs," Washington Post, December 25, 2011, at https://www.washingtonpost.com/solyndra-politics-infused-obama-energy-programs/2011/12/14/gIQA4HlIHP_story.html.
[36] Katie Fehrenbacher, "Why the Solyndra mistake is still important to remember," Fortune, August 27, 2015, at https://fortune.com/2015/08/27/remember-solyndra-mistake/.
[37] For an overview of this boondoggle of a program, see Brian Riedl, "The Advanced Technology Program: Time to End this Corporate Welfare Handout," Heritage Foundation *Backgrounder* July 15, 2003 at https://www.heritage.org/budget-and-spending/report/the-advanced-technology-program-time-end-corporate-welfare-handout.
[38] See General Accounting Office, "Federal Research: Challenges to Implementing the Advanced Technology Program," Report B-278569, March 2, 1998, at https://www.gao.gov/assets/rced/oce-98-83r.pdf. General Accounting Office, Advanced Technology Program: Inherent Factors in Selection Process Could Limit Identification of Similar Research, "GAO/RCED-00-114, April 2000, at https://www.gao.gov/assets/rced-00-114.pdf. General Accounting Office, "Measuring Performance: The Advanced Technology Program and Private-Sector Funding," Report RCED-96-47, January 11, 1996, at https://www.gao.gov/products/rced-96-47.
[39] See Brian Riedl, "The Advanced Technology Program: Time to End this Corporate Welfare Handout," Heritage Foundation *Backgrounder* July 15, 2003 at https://www.heritage.org/budget-and-spending/report/the-advanced-technology-program-time-end-corporate-welfare-handout.
[40] Lori Montgomery, "Critics Say Roads Projects Won't Jump-Start Economy," Washington Post, October 30, 2008 at https://www.washingtonpost.com/wp-dyn/content/article/2008/10/29/AR2008102904125.html.
[41] John Cogan and John Taylor, "The Obama Stimulus Impact? Zero," Wall Street Journal, December 9, 2010, at https://www.wsj.com/articles/SB10001424052748704679204575646603792267296.
[42] Edward L. Glaeser, "If You Build It . . .Myths and realities about America's infrastructure spending," City Journal Summer 2016, at https://www.city-journal.org/html/if-you-build-it-14606.html.
[43] Edward L. Glaeser, "If You Build It . . .Myths and realities about America's infrastructure spending," City Journal Summer 2016, at https://www.city-journal.org/html/if-you-build-it-14606.html.
[44] Garett Jones and Daniel M. Rothschild, "The Limits of Infrastructure Stimulus," Mercatus Center, Policy Brief, March 25, 2020 at https://www.mercatus.org/system/files/rothschild_and_jones_-_policy_brief_-_covid_series_-_lessons_learned_from_arra_for_infrastructure_stimulus_-_v1.pdf.
[45] David J. Cantor, "Highway Construction: Its Impact on the Economy," Congressional Research Service *Report for Congress* No. 93-21E, January 6, 1993.
[46] Edward L. Glaeser, "If You Build It . . .Myths and realities about America's infrastructure spending," City Journal Summer 2016, at https://www.city-journal.org/html/if-you-build-it-14606.html.
[47] Aaron M. Renn, "Beyond Repair: America's Infrastructure Crisis Is Local," Manhattan Institute Issue Brief, October 22, 2015, at https://www.manhattan-institute.org/html/beyond-repair-america%E2%80%99s-infrastructure-crisis-local-7943.html.
[48] Scott Mayerowitz and Nathalie Tadena, "Stimulus Waste? The $3.4 Million Turtle Crossing," ABC News, July 9, 2009, at https://abcnews.go.com/Business/Economy/story?id=8045022&page=1.
[49] Jonathan Karl, Michael Callahan, and Kristina Wong, "Public Stimulus Funds Spent on Private Wine Train," ABC News, February 1, 2010, https://abcnews.go.com/GMA/public-stimulus-funds-spent-private-wine-train/story?id=9721488.

Chairman SCOTT. Thank you. And our final witness will be Ms. Filardo.

STATEMENT OF MARY W. FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND

Ms. FILARDO. Thank you very much. Chairman Scott, Ranking Member Foxx, Members of the Committee thank you for your invitation to participate in this hearing. I'm Mary Filardo, and I'm honored to be here today.

I'm a long-time D.C. resident whose children went to decrepit public schools here in the Nation's capital. Seeing that my children and so many others were spending their school days in classrooms that were baking hot, or too cold, and buildings with leaky roofs, fire code violations, asbestos, and poor air quality, this inspired my life's work.

I founded the 21st Century School Fund to provide research, model policies, and advocacy to eliminate the structural inequities in public school facilities. The success of our efforts in the District of Columbia public schools led to the expansion of this work in other cities, states, and the Federal Government.

Deficiencies in our Nation's public-school facilities have been well-known for decades. We know that lead paint, asbestos, PCB's are harmful, that all schools must be ADA complaint, that schools in severe weather zones must be resilient, that schools must be built to educate a modern workforce, and that antiquated schools need to change to support changing codes and programs.

My job today before this Committee is not to convince you that these conditions are problematic. I do not believe a single Member

would argue that any child or staff should be in unhealthy, unsafe, or educationally deficient buildings.

Rather, I will address the following: Does our country need a Federal program to support school facilities? Is the Reopen and Rebuild America's Schools Act the right Federal solution? And does RRASA belong in a major infrastructure package?

First why do we need a Federal program? Our nation's public-school facilities are critical to ensuring equitable educational opportunities. On average schools are nearly 50 years old, and many have never been fully modernized. But our State and local system for funding public school facilities improvements is broken.

Despite their best efforts, many districts are unable to raise the capital needed to address the shortcomings of their facilities. These challenges have resulted in gross disparities between the wealthy and poor districts. Federal inaction to address these issues is exacerbating the inequalities.

States provided only 18 percent toward district capital construction projects over the 20 years from 1994 to 2013, resulting in nearly half a trillion in long-term debt for local school districts. The solution to these challenges lies in a local, State and Federal partnership with the State at the center.

A Federal role that builds State capacity to meet district's needs in the most underserved areas is absolutely essential to reforming this broken system.

Second, is RRASA the right Federal solution? RRASA was developed over many years, through extensive stakeholder input, including local and State practitioners, industry and labor representatives, and the civic groups working to improve child health, the environment and the quality of public education.

As a formula grant to the states, RRASA would establish a Federal education interest in public school facility issues without putting Federal action in the critical path of State or local decisions. RRASA addresses the structural inequities by requiring targeted Federal funds to the lowest wealth and highest needs school districts, but without mandating specific State program on how to allocate funds.

RRASA gives states the capacity to assist districts, capacity to rural districts that haven't built or modernized a school in over a generation, and capacity for urban districts that are overwhelmed by the monumental scale of their capital needs.

The capacity building that RRASA would support at the State level will help districts meet the increasing complexities of educational facility planning, financing, design and construction. States can reduce burdens on districts and reduce costs for taxpayers.

RRASA is smart public policy and is the right Federal solution for these issues. Finally, does RRASA belong in an infrastructure package? The public works traditionally funded with Federal funds are not traditional infrastructure, it's just infrastructure that traditionally gets Federal funds.

In fact, public school facilities are the second largest capital outlay for State and local governments after highways. In a recent political poll, 70 percent of Americans agree that public schools should be considered part of America's infrastructure.

Roads and bridges get Federal funds for the same reason our public-school infrastructure needs Federal funds. State and local governments can't raise enough revenue to support their capital needs. This is precisely why the Federal Government steps in. Applying this logic, this should be the same for our public-school facilities.

But despite their best efforts, State and local revenues fall short, and our preliminary analysis for the 2021 State of our schools, the gap was 40 billion a year in 2016, and is now 50 billion a year for 2020.

Last, schools belong in the infrastructure package because like most public works projects, school construction projects invigorate the economy. RRASA will increase manufacturing, create 2 million jobs, and support building industry services.

In summary, RRASA is good policy, good politics, good business, and good for the future of our country and should be enacted. Thank you very much.

[The prepared statement of Ms. Filardo follows:]

PREPARED STATEMENT OF MARY FILARDO

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

1. DOES OUR COUNTRY NEED A FEDERAL PROGRAM THAT INVESTS IN REBUILDING OUR ELEMENTARY AND SECONDARY PUBLIC SCHOOL BUILDINGS AND GROUNDS? Yes, Because: . 3

A. Public school buildings and grounds are mission critical for the education of children and youth, productivity of families, and the prosperity of our nation. 4

B. States need incentives to support greater equity in facilities condition and quality across school districts. 4

2. IS THE REOPEN AND REBUILD AMERICA'S SCHOOLS ACT THE RIGHT FEDERAL SOLUTION? Yes, because: 6

A. RRASA would establish a federal education interest in the equity and condition of elementary and secondary public education infrastructure. 7

B. RRASA would leverage local and state efforts to provide healthy, safe and educationally adequate school facilities by targeting federal funding to the lowest wealth districts. . . . 8

C. RRASA would create strong incentives for states to develop sustained capacity to advance equity and efficiency in districts' facilities capital programs. 9

D. RRASA would build capacity for states to provide assistance on modern facilities health and safety standards and ensure new construction and full modernizations make schools more resilient and energy neutral. 11

E. RRASA provides process requirements to ensure sound labor, green, and buy American practices for school construction. 12

3. DOES THE REOPEN AND REBUILD AMERICA'S SCHOOL ACT BELONG IN A MAJOR INFRASTRUCTURE PACKAGE WITH ROADS, HIGHWAYS, AND BRIDGES AND OTHER MAJOR PUBLIC WORKS SECTORS? Yes, because: 12

A. Schools are essential infrastructure. 13

B. State and local revenues alone cannot meet the need for adequate facilities, particularly for low wealth and high need districts. 14

C. School construction is labor intensive work and $100 billion in direct grants and $30 billion of bond subsidies will create about 2 million jobs. 17

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

Chairman Scott, Ranking Member Foxx, and Members of the Committee,

Thank you for your invitation to participate in this important hearing. My name is Mary Filardo. I am the founder and Executive Director of the 21st Century School Fund, a non-profit that researches and advocates on behalf of families and communities for healthy, safe, and educationally inspiring public school facilities that are environmentally sustainable and affordable.

I am honored to be here today to discuss our public school facilities infrastructure. Millions of our children and youth are in unhealthy, unsafe, educationally deficient public school buildings and grounds. Educators are teaching where lighting, ventilation, temperature controls, furniture, fixtures, and equipment have gone decades without adequate improvements, making the classroom an unpleasant, uncomfortable, and often unhealthy place to work for eight to twelve hours per day. The importance of facilities on student achievement, teacher performance, or health and community well-being is now becoming soundly established in research.[1] What is abundantly clear is that poor quality school facilities are a barrier to teaching and learning, compromise the health of students and staff, depress property values, are vulnerable in the face of extreme weather events, and are costly to operate.

I come to this issue as a policy wonk, but also as the daughter of public school educators—my mother was a teacher, and my father was a teacher, principal, and superintendent before he ended his career at the U.S. Department of Education. Growing up, I attended rural, town, and suburban public schools. As a mother, I sent my three children to the District of Columbia Public Schools (DCPS) from the 1980s through 2002. They had fabulous teachers, a pioneering dual language immersion elementary school, a good middle school, and excellent high schools. However, their school facilities were each in terrible condition. They also predominantly served students of color —Latino students at the elementary level, and Black students in the junior high and high schools.

It was their 1926 elementary school's decrepit building and grounds that hooked me into problem solving on the issue of school facilities quality and equity. Their school facility was a barrier to teaching and learning. There was only one student bathroom and one drinking fountain for the school, children wasted time lining up and waiting to use the bathroom or get a drink of water. The school regularly blew fuses because the electricity demand could not be met. There were mice and roaches in the multi-purpose room that was used as a cafeteria, kitchen, gym, and after-school space—with food warmers, refrigerators, tables and chairs stacked along the walls. Their outdoor play area was a hard packed dirt lot, that blew clouds of dust on any hot day. Their school, like many others in D.C., was closed at various times for fire code violations, no heat, or being overly hot. The old inventory was full of asbestos and lead

[1] Mary Filardo, Jeffrey M. Vincent, Kevin J. Sullivan, "How Crumbling School Facilities Perpetuate Inequality"; Phi Delta Kappan, April 29, 2019

paint, and eventually the District realized that the water in the fountains had high lead levels and 800 drinking fountains across the school district were turned off.

These conditions were found throughout DCPS—a school system that in the 1980s was 85 percent African American, 10 percent Latino, and 5 percent white or other. I just could not imagine that these conditions would have been tolerated at the suburban, town, or rural public schools I had attended. It looked like racism, pure and simple, to me, and it seemed like this should NOT be tolerated in the nation's capital.

Through extensive engagement, D.C. tackled these conditions, and over the last 25 years the District of Columbia has fully modernized or replaced 70 percent% of its elementary, middle and high schools using local funds. D.C. had the benefit of a strong economy and growing population--including of families--that made this possible. There are many lessons learned here that inform my testimony today.

I will address the following three questions in my written testimony:

1. Does our country need a federal program that invests in rebuilding our elementary and secondary public school buildings and grounds?
2. Is the Reopen and Rebuild America's School Act (RRASA) the right federal program to address these issues?
3. Does the Reopen and Rebuild America's School Act belong in a major infrastructure package with roads, highways, and bridges and other major public works sectors?

1. DOES OUR COUNTRY NEED A FEDERAL PROGRAM THAT INVESTS IN REBUILDING OUR ELEMENTARY AND SECONDARY PUBLIC SCHOOL BUILDINGS AND GROUNDS? Yes, Because:

A. **Public school buildings and grounds are mission critical for the education of children and youth, productivity of families, and the prosperity of our nation;**
B. **States need incentives to support greater equity in facilities condition and quality across school districts; and**
C. **States and local districts need help building their capacity for facilities data, planning, management, funding and oversight.**

The federal government has neglected its duty to support our public school facilities for too long. This inaction makes the federal government complicit in growing the gaping disparities and inequities we have between the low wealth and high need districts and our nation's new and more affluent communities. Given the critical role our nation's public school buildings and grounds play in educating our children and youth and anchoring and supporting communities and neighborhoods, it is beyond time for the U.S. Department of Education to take an interest in and provide leadership on reducing the facilities inequities for the nation's children, youth, and the staff who works with them daily.

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

A. Public school buildings and grounds are mission critical for the education of children and youth, productivity of families, and the prosperity of our nation.

In normal times, our public school facilities house nearly 56 million children, youth and adults during the work week in 100,000 schools encompassing billions of square feet of space. To put it in perspective, one-sixth of the American population enters a school facility every workday.

The educational and social value of in-person schooling is well-established in research and the pandemic made that abundantly clear.[2] The longstanding poor conditions of the buildings and grounds themselves have been barriers to reopening schools.[3] The pandemic has also highlighted that operating school facilities so children and youth can learn in-person is essential to the productivity and prosperity of families and communities.[4] Public school facilities are where educators prepare the modern workforce, educate our children to participate in a civil society, and thrive in a global economy. Further, state constitutions make education compulsory for children and in turn guarantee each child a public education including providing public school facilities for in-person schooling. For these reasons, the federal government should have an acute interest in the condition of its public school facilities.

B. States need incentives to support greater equity in facilities condition and quality across school districts.

There is a structural problem in our public school capital financing system. There were 13,346 districts reporting their fiscal and enrollment data to the U.S. Census of Governments in fiscal year 2018. The median size of these districts was only 988 students. Only 905 of these 13,346 school districts have 10,000 or more students. These small local districts are responsible for raising revenue to build and modernize their facilities, but their low enrollments can make this a problem. This system of mostly tiny districts—expanding with the addition of small charter LEAs— is one reason for the disparity between low wealth and high wealth communities.

---

[2] Closing the Learning Gap: How frontline educators want to address lost learning due to COVID-19. Horace Mann Educators Corporation. March 2021. https://www.horacemann.com/~/media/White%20Papers/2021-03-30-Closing-the-Learning-Gap-White-Paper.pdf

[3] Safia Samee Ali (2021), 'Less than half of Chicago Public School teachers showed up for first day of school reopening'. *NBC News*. Jan. 7, 2021. Available at: https://www.nbcnews.com/news/us-news/less-half-chicago-public-school-teachers-showed-first-day-school-n1252941

[4] Julie Kashen, Sarah Jane Glynn, and Amanda Novello. Oct. 30, 2020. How COVID-19 Sent Women's Workforce Progress Backward. Center for American Progress. https://www.americanprogress.org/issues/women/reports/2020/10/30/492582/covid-19-sent-womens-workforce-progress-backward/

In desperation, poor districts, often the rural districts, sued their states seeking adequate and equitable funding including for their facilities.[5, 6] The successful cases with facilities in them have brought some relief in Wyoming, New Mexico, Arizona, New Jersey, California, Arkansas, West Virginia, and Kentucky, for examples. But the court remedies have often fallen short in the implementation, and even where courts mandated equitable school facilities funding, facilities disparities persisted. Allocating limited funds to disadvantaged districts that lack political power is hard to do. A federal program that offers incentives for greater equity allocation gives standing to communities that have been left out.

C. States and local districts need help building their capacity for facilities data, planning, management, funding and oversight.

The challenges of managing capital planning, financing, design and construction have grown and most districts are small and do not maintain capital planning, budgeting, financing or management capacity in their districts. Even in the large school districts, these functions are typically under-staffed, under-paid, and under-resourced compared to their capital management peers in the private sector. This makes it nearly impossible to secure experienced professional staff to manage the scale of the facilities inventory in the large school districts.

Photo Caption: Repeat flooding from malfunctioning classroom unit ventilator resulting in extensive damage and mold growth to newly installed flooring. The original flooring was replaced for the same reason just a few weeks earlier. An example of what happens if the "root causes" are not addressed.[7]



[5] Ciolino, Max. 2016. The Right to an Education and the Plight of School Facilities: A Legislative Proposal. *University of Pennsylvania Journal of Law and Social Change* 107 (19.2): 107-131. Available at: https://scholarship.law.upenn.edu/jlasc/vol19/iss2/1.

[6] Filardo, Mary, Jeffrey M. Vincent, and Kevin Sullivan. 2018. Education Equity Requires Modern School Facilities. Washington, DC: [Re]Build America's School Infrastructure Coalition. Available at: https://tinyurl.com/2779ak6f

[7] Photo from Jerry Roseman, Philadelphia Teachers Union, Health and Welfare Fund.

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

Some states, like Ohio, Massachusetts, New Mexico, and Wyoming have provided funding and project planning and management services to school districts and can serve as models for ways to build state capacity. However, most state departments of education do not have the capacity to assist local school districts with the essential elements of a well-managed capital program. Well-managed programs need good data, ongoing stakeholder planning, sound governance and decision-making processes, effective capital management, stable and sufficient funding, and regular oversight and accountability. One of the ways to improve state and local capacity is through a well-designed federal role.

2. IS THE REOPEN AND REBUILD AMERICA'S SCHOOLS ACT THE RIGHT FEDERAL SOLUTION? Yes, because:

A. **RRASA would establish a federal education interest in the equity and condition of elementary and secondary public education infrastructure;**
B. **RRASA would leverage local and state efforts to provide healthy, safe and educationally adequate school facilities by targeting federal funding to the lowest wealth districts;**
C. **RRASA would create strong incentives for states to develop sustained capacity to advance equity and efficiency in districts' facilities capital program;.**
D. **RRASA would build capacity for states to provide assistance on modern facilities health and safety standards and ensure new construction and full modernizations make schools more resilient and energy neutral; and**
E. **RRASA would provide process requirements to ensure sound labor, green, and buy American practices for school construction.**

RRASA would provide a practical solution for the federal government to begin addressing an issue it has far too long ignored. The Reopen and Rebuild America's School Act, is a pragmatic program that will build the capacity of the states. If implemented, it will provide for greater facilities equity that will alleviate the disparities in the most underserved communities. RRASA will create a framework of state and local capital practices that will improve the health, resiliency, and safety of our nation's public schools.

State capacity is critical to addressing the deteriorated conditions in our nation's public schools. The road forward will include local school districts, state departments of education and state facilities authorities, and the U.S. Department of Education working with other local, state and federal agencies to make sure the children now and for generations to come have healthy, safe, and educationally inspiring school facilities that are community centered, environmentally sustainable and affordable.

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

Exhibit 1: Basic elements of the Rebuild America's School Act

U.S. Department of Education	State Departments of Education	Local School Districts
•$100 billion formula to States, D.C., P.R., BIE, Outlying areas •$500 million to Impact Aid •Data Standards •Annual Report •Comptroller General Report •Study on physical conditions of public schools •Information clearinghouse •Program to assist repair of schools with pyrrhotite	•Competitive Grant Program •10% match to federal funds •Online facilities data •State facilities plan •Review standards •Technical assistance to LEAs •State reports and oversight	•Ed facilities master plan •Facilities data •Green practices for new construction/modernization •Buy American •Apply Davis Bacon •Meet Water Sense 42 standards

A. RRASA would establish a federal education interest in the equity and condition of elementary and secondary public education infrastructure. [8]

To date, there is not a single dedicated program or office in the U.S. Department of Education that has technical capacity in the area of public school facilities. In the last decade, a small charter facilities program was the only area of federal interest in elementary and secondary school facilities. There are no data collected on public school facilities by the National Center for Education Statistics (NCES). The Institute for Education Sciences has funded little research on the impact of school facilities on learning, teaching, or student or teacher mental or physical health.

There is more capacity on issues associated with public school buildings and grounds in the Environmental Protection Agency, and recently the Department of Energy announced that it will support a schools office within their commercial buildings division. Fortunately, there have been occasional studies from the Government Accountability Office (GAO) and surveys from NCES on our nation's school facilities, but these have been few and far between.[9]

---

[8] Reopen and Rebuild America's School Infrastructure Act, HR 2, Division K. https://www.buildusschools.org/s/Sections-K-Bonds-Energy-Efficiency-School-Bus-BILLS-116HR2-RCP116-54.pdf

[9] GAO 1995 Report, School Facilities: Condition of America's Schools, U.S. Government Accountability Office, Feb. 1, 1995; GAO 2020 Report, K-12 Education: School Districts Frequently Identified Multiple Building Systems Needing Updates or Replacement, U.S. Government Accountability Office, June 4, 2020; GAO 2020 Report; K-12 Education: School Districts Need Better Information to Help Improve Access for People with Disabilities. U.S. Government Accountability Office, June 2020.

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

Not knowing does not make a problem go away. It generally just makes it bigger and harder to solve. RRASA will provide state capacity to maintain facilities information at the state and local level, so they will be able to fully understand the scale of the land and building portfolio of school districts and have better information with which to engage the public and make decisions that are equitable and strategic.

B. RRASA would leverage local and state efforts to provide healthy, safe and educationally adequate school facilities by targeting federal funding to the lowest wealth districts.

The responsibilities for actual delivery of healthy, safe and educationally adequate public school facilities is primarily on our nearly 14,000 local public school districts, and on each charter operator. The continued disinvestment in public school facilities is not unique to cities. Towns and rural communities across the country also experienced disinvestment in their school facilities — particularly where there was declining enrollment.[10] These were also highly correlated to districts with high percentages of minority students who are far too often suffering in the worst conditions, further diminishing their opportunity to learn.

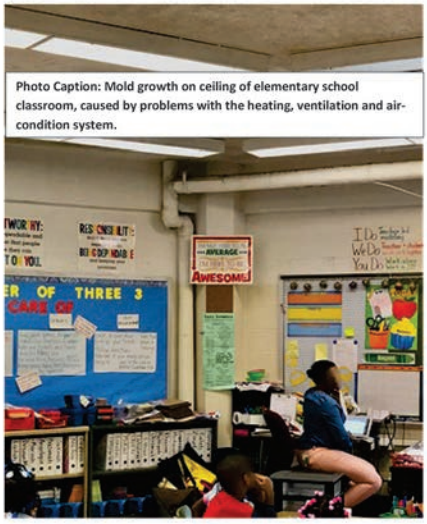


Photo Caption: Mold growth on ceiling of elementary school classroom, caused by problems with the heating, ventilation and air-condition system.

RRASA would enable state and local funds to go further. Because planning is both an allowable use and a requirement for state RRASA funding, districts will be able to either hire planners in their districts or engage planning consultants to ensure they prioritize the right projects and find ways to leverage their federal, state and local funds to modernize their facilities in a fiscally smart manner.

[10] Filardo, Mary; Vincent, Jeff M.; Sung, Ping; Stein, Travis: Growth and Disparity: A Decade of U.S. Public School Construction, the Building Educational Success Together collaborative, October 2006.

In states that provide a state match, the poorest districts often cannot come up with their share, even at 10 percent or 20 percent. With the ability to use federal funding as a local match to state funds, these federal funds will leverage an increase in state funding toward the poorest districts. For districts truly in the worst shape and with the highest costs of repair, this kind of leverage can be the difference between children continuing to sit in freezing classrooms or comfortable classrooms with fully equipped STEAM labs. RRASA would enable this to be a reality for millions of our historically disadvantaged children.

C. RRASA would create strong incentives for states to develop sustained capacity to advance equity and efficiency in districts' facilities capital programs.

State policies around PK-12 public education facilities infrastructure are a patchwork. There are some states with capacity to help their districts improve buildings and grounds, but for most states, it is entirely a matter of district responsibility.[11]

Most states have some facilities division in their departments of education or their legislatures have created building authorities to supplement local efforts to provide healthy, safe, and educationally appropriate buildings and grounds. But the state offices, where they exist, are seldom adequately staffed, funded, or supported to advance the equity or efficiency of district capital programs. Districts need technical assistance from their states and the public needs states to have some capacity for oversight and accountability. As capital financing and design and construction standards become more complex, districts need more legal, financial, and professional capacity that could be efficiently provided by state and federal programs.

In 2012, a small group of innovative state facilities officials started the National Council on School Facilities. They started this organization with the mission to support states in their varied roles and responsibilities and to advocate for support mechanisms and processes that equitably deliver safe, healthy, and educationally appropriate public school facilities that are sustainable and fiscally sound. A first priority of the state facilities officials was to improve data collection on public school facilities.

RRASA has requirements for data standards, and for both the state and local best practice of regular educational facility planning. This requirement will help state, local and federal officials better understand their needs and communicate these to the public, who ultimately pay to support our public education infrastructure. Currently, in most states, the answers to the questions of how much space, or how many or what type of buildings, or how old, and what condition, are school districts responsible for, can only be answered through painstaking outreach to individual districts and to some states that collect this information. For example, in

[11] Filardo, Mary. 2016. State of Our Schools: America's K-12 Facilities 2016. Washington, D.C.: 21st Century School Fund, National Council on School Facilities, and the Center for Green Schools @USGBC. Available at: https://eric.ed.gov/?id=ED581630

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

2014 the Texas Comptroller wrote in her report on Public School Construction Costs: Examining what building schools costs the Texas taxpayers:[12]

> *We have a lot of young minds to educate and an economy that relies upon skilled and educated workers. We need some school construction. Buildings wear down. Enrollment grows. Needs change. Technology improves. That's understandable. But in this era of ballooning public spending, it is important to shine a light on such spending. In this report on public school construction costs, we take a look at new schools built since 2007 — some 873 campuses opened in 370 districts and charter operators. We found construction costs that ranged from $76 per square foot for an elementary school in the Laredo (United ISD) community to $260 per square foot for an elementary school in Port Arthur.* ***Unfortunately, we also encountered plenty of obstacles in our efforts to collect consistent, comparable school construction data. We sent thousands of emails, mailed thousands of letters and made hundreds of phone calls. And though some districts replied promptly, 111 days passed before we had responses from every district in Texas. Imagine trying to track this information down on your own. Instead, we decided to share our results.*** *This report accompanies an online toolkit that allows you to make an array of in-depth cost comparisons (adjusted to account for inflation and regional cost variation). We also make policy recommendations that would allow us to better monitor construction efficiency, build a more robust inventory of existing facilities and let you, the local taxpayer, easily compare construction costs across districts.*—
> Susan Combs, Texas Comptroller

NCES has created a *Forum Guide to Facility Information Management: A Resource for State and Local Education Agencies* that, under RRASA would finally be able to be fully implemented by states and districts.[13]

Another key priority of these officials is to increase state capacity to identify and utilize sound state level facilities management practices and to secure federal funding for the lowest wealth and highest need districts—a mix of rural and urban challenges. The members and participants of this group are geographically diverse and asking for the same thing: federal support for school facilities.[14]

---

[12] Combs, Susan, Texas Comptroller of Public Accounts. Public School Construction Costs, Examining what building schools costs the Texas taxpayers, June 2014.
[13] National Forum on Education Statistics. 2018. Forum Guide to Facility Information Management: A Resource for State and Local Education Agencies. (NFES 2018-156). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Available at: https://nces.ed.gov/pubs2018/nfes2018156.pdf
[14] State members and participants in the National Council on School Facilities.

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

D. RRASA would build capacity for states to provide assistance on modern facilities health and safety standards and ensure new construction and full modernizations make schools more resilient and energy neutral.

The pandemic has highlighted the deficiencies of school ventilation systems and how important they are to healthy and safe indoor environments. School districts have known for decades that lead paint, asbestos, lead in plumbing, and PCBs are harmful to the health of children and all building occupants, but they have not had the resources to remove these harmful materials from their schools. Like all retail and commercial buildings, public schools have been under the requirement to make their schools compliant with the Americans with Disabilities Act (ADA) code. Public schools have not been able to meet this requirement, because they do not have the resources to be able to make the substantial changes that may be involved in complying with ADA standards.

School districts have known for decades that they need to design and build to reduce energy, water, and land use, but poor districts have not had the ability to do more than keep their old buildings minimally adequate. They understand that school yards need to be updated to meet stormwater management codes and that they need to be designed, built and maintained as healthy outdoor learning spaces, as well as for recreation and athletics—but outdoor areas are often low priorities on deficient capital budgets.

School districts know that they need to make their schools more resilient in the face of extreme weather events. School districts in flood plains, tornado alleys, hurricane, tsunami, earthquake and fire zones are well aware of their vulnerabilities, but most have not been able to improve the resiliency of their school buildings. Rather, they must wait for the extreme event and secure Federal Emergency Management Agency (FEMA) funding to rebuild a damaged or destroyed school building.

School districts have long served as community anchors and embraced the community schools model, knowing that the symbiotic relationship with the larger community helps the school support the community. However, without capital investments in their facilities, many school districts have closed schools rather than fix them, as the only way to ensure a minimally adequate school for students and staff.

A federal program with incentives and requirements for modern practices for healthy, safety, and sustainability will accelerate the adoption of modern standards and practices in low wealth and high need school districts.

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

E. RRASA provides process requirements to ensure sound labor, green, and buy American practices for school construction.

While a common theme from local districts and even states is "don't tread on me" there are sound reasons for a federal program to ensure that we are moving this essential infrastructure toward best labor, environmental, and trade practices. Often the small and even the large over-burdened districts do not have the in-house capacity to effectively manage the thousands of decisions that are required in major capital programs. The process requirements in RRASA for construction contracts, green practices, and water quality will ensure low wealth and high-need districts accelerate their adoption of modern labor, health, safety, and sustainable practices—something the wealthy districts do as a matter of course. This program, affecting our nation's most distressed facilities and communities, will be able to use modern facilities design, construction, labor and capital management practices for their schools.

3. DOES THE REOPEN AND REBUILD AMERICA'S SCHOOL ACT BELONG IN A MAJOR INFRASTRUCTURE PACKAGE WITH ROADS, HIGHWAYS, AND BRIDGES AND OTHER MAJOR PUBLIC WORKS SECTORS? Yes, because:

   A. Schools are essential infrastructure.
   B. State and local revenues alone cannot meet the need for adequate facilities, particularly for low wealth and high need districts.
   C. School construction is labor intensive work and $100 billion in direct grants and with $30 billion with interest subsidies will create an estimated 2 million jobs in the construction, manufacturing, and service sectors.

Congress is currently trying to redefine the meaning of infrastructure. There are those in Congress who support a "traditional" interpretation of federal infrastructure and there are those who support a broader definition, like that proposed by the Administration. The public works traditionally funded with federal funds, are not traditional infrastructure, they are just the infrastructure that traditionally gets federal funds. The public infrastructure of roads, bridges, transit, ports and water works is essential infrastructure, just as our public schools are essential infrastructure.

We need to build a new generation of resilient 21st century schools that support best educational practices, public health guidelines, advance climate goals, and provide for the vitality of the entire community. Some communities are able to accomplish this, but school construction public works projects in low-income communities and neighborhoods have fallen way short. Poor families want the same thing that middle class families want: first-class public school facilities that keep their children safe, healthy and learning. RRASA will help get that done.

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

A. Schools are essential infrastructure.

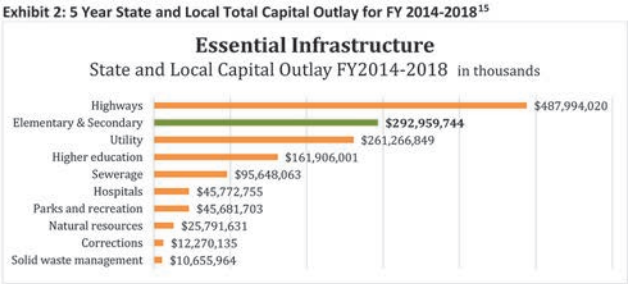
Our public schools are a core civic institution and often the anchor at the heart of community. If you have ever been to a rural community or urban neighborhood that is about to lose its school to consolidation, you know the devastating outcome to these communities if it happens. The COVID-19 pandemic has demonstrated the critical role of public schools in our communities—they are public institutions meant to serve the entire community, and so they do.

They are food security centers for millions of children and families, as we have seen in the last year. They provide emergency shelters when communities are hit by hurricanes, floods or wildfires. In many states, you cannot build a new school without a community safe room. These facilities have to be resilient given new extreme weather patterns, and right now there are thousands of schools that simply do not meet new updated safety codes.

At their best, public schools are community schools that provide space for Pre-K, school based health clinics, afterschool, summer learning and other wrap-around services for children and their families. They are open seven days a week throughout the entire year. They also serve as recreation centers for seniors, adult education centers, class sites for aspiring citizens, and supply space for community arts and theater programs. They are civic places where public town halls, meetings, and hearings are held and where millions of Americans vote. They are multipurpose. They serve everyone in the community. In many communities they are an immense source of civic pride, heritage, and tradition.

Federal funding for public school facilities belongs in the infrastructure package. PK-12 public school facilities are the second largest sector for state and local capital outlay and are publicly owned and accessed.

Exhibit 2: 5 Year State and Local Total Capital Outlay for FY 2014-2018[15]



[15] Source: U.S. Census of Governments F-13 Survey. Data available at: https://www.census.gov/programs-surveys/gov-finances.html

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

Public school facilities are just like other infrastructure in that they are also financed with public debt—local school districts held nearly one half of a trillion dollars in long-term debt at the end of FY2018—and capital improvements for school districts are delivered through private contracts, under public oversight. Bridges, ports, roads, and transit are in the package because like schools, they cannot raise sufficient capital from available local or state sources and need federal funds to provide healthy, safe and modern infrastructure. The difference here is that there is no federal funding program for public school facilities, except through FEMA, following natural disasters.

Unfortunately, during the great recession of 2008 - 2009- the $16 billion that was to have been dedicated to school construction was dropped from the package. Instead, it was an allowable use of the education stabilization funding. NCES collected data on this and found that about $2.3 billion of federal American Recovery and Reinvestment Act (ARRA) funding was used by school districts for capital outlay. School facilities needed dedicated federal funding to address their inequities. Whatever concerns about using federal funding for school facilities was clearly overcome by most states. The states that used over $100 million of these federal funds for capital outlay were Florida, Texas, Arkansas, Illinois, Pennsylvania, and Virginia.

B. State and local revenues alone cannot meet the need for adequate facilities, particularly for low wealth and high need districts.

Critically, this system for school facilities improvements, modernization and construction is broken. On average, during the 20 years from FY1994 - FY2013, states have provided only 18 percent toward district capital funding, and our preliminary analysis for FY2018 suggests that the state share is dropping. With few exceptions, districts are on their own to meet the demands for healthy, safe, educationally appropriate schools that are resilient, environmentally sustainable, and yet still affordable. If your district has wealth and the will, it likely has the capacity to keep the conditions of its schools in good shape. If it does not have wealth, it likely does not have the capacity to maintain facilities in good condition.[16]

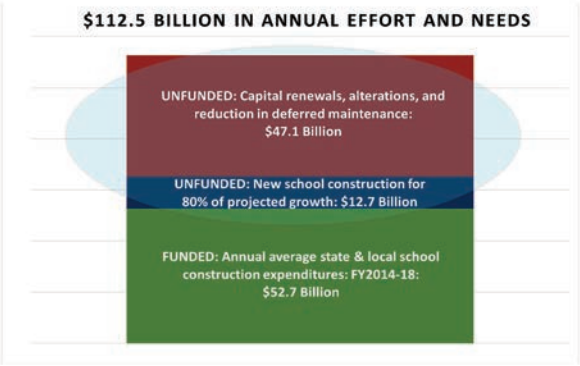
Together, despite the best efforts to raise the capital needed to improve its facilities, state and local funding falls short. Simply put, school districts need more funding from the federal government to be able to truly modernize schools, not just patch and repair schools that are obsolete and beyond their designed life. States need incentives to do more and RRASA provides them.

[16] Vincent, Jeffrey M. and Liz S. Jain. 2015. Going it Alone: Can California's K-12 School Districts Adequately and Equitably Fund School Facilities? Berkeley, CA: University of California, Center for Cities + Schools Available at: https://citiesandschools.berkeley.edu/uploads/Vincent__Jain_2015_Going_it_Alone_final.pdf

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

Our preliminary estimates for the 2021 State of our Schools Report for good stewardship of the 2020 inventory of public elementary and secondary school buildings and grounds indicates that nationally we should be spending about $112 billion per year to renew old systems and components; reduce deferred maintenance and make alterations to modernize schools so they support current education programs and meet appropriate standards for health, safety and resiliency; and, build new schools to meet 80 percent of projected enrollment growth.

Over the last five years, districts and states spent about $52.7 billion per year (2020$) on school construction replacement, new construction, system renewals, alterations and reductions in deferred maintenance. However, this is about half of what is needed, leaving an annual gap of $47.1 billion for our existing facilities, and nearly $12.7 billion for new school construction **for** projected growth.[17] The gap is not evenly shared. Low wealth and high need districts, without the credit or cash to pay for essential facilities improvements must squeeze their instructional budgets to cover emergency repairs, higher utility costs, and lost federal and state revenue due to enrollment declines caused by poor conditions. As stated, the $100 billion in RRASA would directly assist the poorest communities and districts with the oldest and most deteriorated schools that cannot find a path forward.



[17] Preliminary analysis of U.S. Census of Government Fiscal Data, data collected from state facilities offices, and application of industry standards forthcoming in State of our Schools 2021, from the 21st Century School Fund, National Council on School Facilities, International WELL Building Institute and the Center for Cities + Schools at UC Berkeley, June 2021.

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

There appears to be some confusion about whether the recent funding from the COVID relief packages essentially solves the PK-12 infrastructure problem. **The ARP and COVID-19 funds should help address maintenance and operational budget shortfalls, but do not address the need for long term capital investments. Table 1: COVID Funds for School Districts – How does 15% for facilities stack up against 10 year capital needs?** Table 1 on page 16 shows that allocating 15 percent of the COVID relief funding for PK-12 (after taking out the 20 percent learning loss set-aside) could absolutely help by reducing deferred maintenance so the district can better follow the Centers for Disease Control school operations guidance to cope with the fallout from COVID-19, **but this level of funding (about $23 billion nationally) would not substitute for a federal facilities funding program that could provide stable funding to states over 10 years.**[18]

Table 1: COVID Funds for School Districts – How does 15% for facilities stack up against 10 year capital needs?[19]

State/Entity	IF 15% of COVID Relief LEA $$ are spent on capital improvements (1)	One year of Capital Needs Estimate for Good Stewardship (2)	Avg Annual Capital Outlay FY14-18 (3)	10 Year Capital Needs in 2020$	% of 10 Year Capital Need Estimate
Alabama	$391,942,765	$1,409,930,000	$576,613,200	$14,099,300,000	2.8%
Alaska	$68,725,493	$437,588,525	$220,430,400	$4,375,885,246	1.6%
California	$2,934,015,276	$15,185,593,902	$7,117,186,600	$151,855,939,019	1.9%
Colorado	$223,876,484	$2,302,784,195	$1,147,625,800	$23,027,841,954	1.0%
Delaware	$79,848,997	$331,042,425	$127,190,800	$3,310,424,254	2.4%
D.C.	$75,835,027	$410,142,912	$376,910,200	$4,101,429,120	1.8%
Florida	$1,371,028,932	$4,753,389,883	$1,951,117,400	$47,533,898,832	2.9%
Georgia	$823,254,482	$2,127,902,782	$1,858,244,200	$21,279,027,815	3.9%
Hawaii	$79,848,997	$650,160,000	$202,095,400	$6,501,600,000	1.2%
Idaho	$85,314,406	$638,090,096	$100,753,000	$6,380,900,960	1.3%
Maine	$79,848,997	$489,409,882	$109,003,600	$4,894,098,822	1.6%
Maryland	$376,997,978	$2,204,522,607	$1,210,459,800	$22,045,226,067	1.7%
New Mexico	$191,039,007	$782,223,017	$553,040,400	$7,822,230,170	2.4%
North Carolina	$702,732,755	$2,410,845,200	$946,409,000	$24,108,452,000	2.9%
Oregon	$218,025,703	$1,671,323,232	$672,532,800	$16,713,232,320	1.3%

[18] Letter from the National Council on School Facilities recommending that districts work to secure 15% of the LEA relief funds to meet CDC requirements and reduce deferred maintenance of their facilities.
[19] Data collected from state facilities officials and analyzed by 21st Century School Fund and the National Council on School Facilities for the upcoming State of our Schools 2021, June 2021.

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

State/Entity	IF 15% of COVID Relief LEA $$ are spent on capital improvements (1)	One year of Capital Needs Estimate for Good Stewardship (2)	Avg Annual Capital Outlay FY14-18 (3)	10 Year Capital Needs in 2020$	% of 10 Year Capital Need Estimate
Rhode Island	$81,300,436	$490,934,389	$77,751,600	$4,909,343,888	1.7%
Virginia	$415,063,152	$2,582,653,676	$1,163,404,600	$25,826,536,757	1.6%
Washington	$368,925,013	$2,562,242,891	$2,138,079,200	$25,622,428,914	1.4%

To see district by district data, by state on using 15% of COVID relief funding for facilities go to: https://www.facilitiescouncil.org/covid19-general-guidance . On this site you can compare one year of operational funding for operations and maintenance of plant with a 15% allocation from COVID relief funds for Healthy & Safe School Facilities.

C. School construction is labor intensive work and $100 billion in direct grants and $30 billion of bond subsidies will create about 2 million jobs.



The jobs created through a $130 billion school construction public works program ($100 billion in grants and $30 billion in bond interest subsidies) is estimated to create over 2 million jobs. These jobs include direct construction jobs, and supplier jobs—from the fixtures, furniture, equipment, materials and supplies manufactured for construction projects. Additionally, this estimate includes induced jobs—those jobs that are possible because of the employment of related to the construction projects.[20] In a federal funded state program for public school facilities, the jobs for public school construction will not be focused on just a few major public work projects. These jobs will be available in communities across the country—in urban, rural, town, and suburban communities.

[20] Updated employment multipliers for the U.S. Economy, Josh Bivens, January 23, 2019, Economic Policy Institute, and A public investment agenda that delivers the goods for American workers needs to be long-lived, broad, and subject to democratic oversight. December 8, 2016. https://www.epi.org/publication/a-public-investment-agenda-that-delivers-the-goods-for-american-workers-needs-to-be-long-lived-broad-and-subject-to-democratic-oversight/

WRITTEN STATEMENT OF MARY FILARDO, FOUNDER AND EXECUTIVE DIRECTOR, 21ST CENTURY SCHOOL FUND, WASHINGTON DC
BEFORE THE HOUSE COMMITTEE ON EDUCATION AND LABOR ON APRIL 28, 2021

To the honorable members of this committee, if I were to leave you with one request, it is to understand that the problems outlined today are the result of decades of treating the problem as someone else's, and not one we share. There are many benefits to public investments in our public school buildings and grounds. Modern facilities will help close achievement gaps; they will revitalize struggling communities and neighborhoods; they will bring jobs to every state in the nation and to rural, town, urban, and suburban locales, they will reduce our consumption of natural resources, and improve the health of students and staff alike. The task seems tremendous, but I know from the work we have done in DCPS that facing the challenge together, agreeing on a vision, making plans, and supporting plans with stable funding and regular oversight can get you there. There will be setbacks and problems, but we will move steadily forward.

My three children went to PK through 12th grade never attending a modern D.C. public school. By contrast, my four D.C. grandchildren will all attend modern public schools, because the public will and the governmental capacity combined to sustain this decades long effort, started by advocates who wanted better for our children and our communities—something I know is shared by all of us in this room.

For these reasons, I urge the committee to help ensure the Reopen and Rebuild America's Schools Act's passage into law along with the $100 billion in funds it would appropriate via the infrastructure package being considered by Congress now.

Respectfully, Mary Filardo

Chairman SCOTT. Thank you very much. Under Committee Rule 9(a), we will now question the witnesses under the five-minute rule. I will be recognizing Committee Members in seniority order.

And again, to ensure that the Members' five minutes is adhered to, the staff will be keeping track of time and the timer will sound when your time is expired. Please be attentive to the time and wrap up when your time is over and then remute your microphone.

As chair, I will recognize the gentleman from Connecticut Mr. Courtney to begin the questions.

Mr. COURTNEY. Thank you, Mr. Chairman, and thank you to all the witnesses. And again, I think this hearing could not be more timely, I mean partly because obviously we have a President who is really serious about doing more than just announcing infrastructure week, but actually but an infrastructure plan on the table for Congress that has it paid for, which is you know long overdue.

It's also timely because you know the economy certainly is beginning to recovery, but we're already seeing that the sort of post-pandemic profile, this economy is going to be different than what existed even just a year and a half ago when the pandemic first struck.

The New York Times today has an article in the business section as the economy rebounds manufacturers face new hurtles. And it describes very powerfully what I think probably all of us know in our districts which is that trying to get workforce that's got the right skillset to take on jobs right now is a big problem and a big issue for employers.

So we have this situation that I think Mr. Lanter sort of alluded to it where we have large numbers of dislocated workers who are from sectors like retail and service industries, restaurants, who may not be coming back either any time soon or at all.

And at the same time, we have a new demand for workers who don't have the skillset to connect to those opportunities. And then

you overlay that with the infrastructure bill which is talking about investing in critical new activities such as semi-conductor and chip manufacturing, which I think frankly, anyone who looks at that issue in terms of the fragility of the supply chain into this country, we understand that's really as much a national security issue as it is an economic issue.

The same with production of off-shore wind turbines. And in my district in the one in Connecticut, we're going to have wind turbine assembly platforms that are going to be taking place that again is a whole new skillset in the building trades, and we actually have this venture that's now been spearheaded by Vestas which is a Danish company that's the largest wind turbine manufacturer in the world, that's a project labor agreement, incorporating the building trades associations, electric cars, I mean the list goes on and on.

So Mr. Lanter, I guess you know I would just you talked about how the workforce boards need to sort of you know take on a new level, if not new task in terms of being the interface with apprenticeship programs. Can you again, just sort of walk through that process because you know the WIOA Program again takes people who are sort of the pre-apprenticeship level in making sure that they actually get inside you know, a new employer's front gate.

I think it's still sort of a connection that we probably need to strengthen at a time like this. I think you need to unmute sir, yes.

Mr. LANTER. Yes. Thanks Congressman. I appreciate your question and yes, workforce boards are quite poised to really assist with the expansion of the apprenticeship model. You know the apprenticeship model, you mentioned it, is really a unique model that will enable individuals to not only receive the education and training that they need to get into a career path that will allow them to raise and support a family.

But it enables individuals who haven't been successful in the traditional education system to learn while they earn, and more importantly, it allows individuals who are at the lower end of our economic spectrum, those low-wage, low-skilled workers who need income to support a family.

Oftentimes they can't afford to go to school. It enables them to get that key income while they're training. And so, here's the role of the workforce boards. They really play a key role as intermediaries, really bringing together the industry demand with the critical education partners, and then they can also market that work to the community, and really recruit from the most vulnerable populations, key candidates who will be successful in the training programs.

Right now, in California we have several successful models of registered apprenticeship programs in industries. Some of the ones you mentioned IT, engineering, manufacturing, aerospace, early childhood education, and these apprenticeships also include youth and that's really key to dramatically increasing skills and wages for millions of American workers, and for turning profits for business.

And I would just say this last thing. You know in the America's Job Plan we can fund cost for curriculum development, training wage subsidies for these hard to serve populations, data collection

and validation to make sure we're accountable, and this is really critical to our Nation's largest business, our small and medium businesses.

They often cannot afford these startup costs, and the administration costs that come with earn and learn models like apprenticeship, but this is the key to unlock a more equitable recovery. Thank you.

Mr. COURTNEY. Thank you I yield back.

Chairman SCOTT. Thank you. Next there are questions from the distinguished Ranking Member of the Committee, gentlelady from North Carolina, Dr. Foxx.

Ms. FOXX. Thank you, Mr. Chairman. Dr. McCluskey thank you for talking about the Constitution in your testimony. I don't want to get too far into the details of these proposals without bringing the conversation back to that core issue.

We can all clearly see that education is not included in the Constitution and was in fact among the many powers delegated to the states by the founding father's envisioned keeping power concentrated at the most local level possible.

Mr. MCCLUSKEY. Well because they knew that there were only a few specific things that a national government would be good at and that it should do, and those were basically relations with other countries, other national level things, and then making sure that for instance, states didn't do things like set up trade barriers against each other.

Otherwise, people know their own needs, and communities know their own needs much better than the national government would, and the Federal Government, and it was really not even a thought that the Federal Government would be involved in something like education.

And then there was mention of a national university, and it was decided that well you know that could fall under a specific power, which was control over the District of Columbia. So the founders, and for most of our history we recognize that education was something that's very important to individuals, and the families, and to specific communities, and they should be in charge of both funding it, and how it runs.

And of course, when the Federal Government funds something, it ultimately ends up instituting a lot of control.

Ms. FOXX. Thank you Dr. McCluskey. I'm deeply concerned with employers requiring a college degree for work that does not require that level of education because it acts as another hurdle preventing people from climbing the socioeconomic ladder.

Why might credential inflation be partially the fault of the Federal Government, and the democrat's proposal for "free" college exacerbate this phenomenon. What can Congress do or stop doing to encourage more skill-based irony.

Mr. MCCLUSKEY. Yes if we look historically you could sort of see where several Federal laws greatly increased aid that went to students, and that led to massive additional consumption of higher education, which of course was the intention, but that had huge unintended consequences which you have more and more people attaining something called a degree, but the degree as the national assessment of adult literacy, the P Act test has shown us that.

The average degree keeps losing more and more as time has gone on of the skills and knowledge that it represents. And what's made that even tougher is that increasingly it will enable employers to ask for a degree when people come for a job, not because that degree signifies that you have specific skills and knowledge, but it's becoming more and more a signal that if you don't have that degree, well maybe there is something that's not quite right with you.

And so, we've made it sort of a floor, instead of a meaningful signal of things that you can do, and that you know because you have received an education.

Ms. FOXX. Thank you. Mr. Riedl, Riedl excuse me, you covered the daunting Federal budget outlook in your testimony. In your written statement you called double or triple the national debt "extraordinarily reckless." What would the real-world consequences be, the economy of doubling or tripling the national debt?

Mr. RIEDL. Thank you. The numbers are scary. According to the Congressional Budget Office doubling the national debt would reduce the GNP by $6,000.00 per person relative that if we don't double the debt. $6,000.00 per person lower GNP by the end of 30 years per person.

So, a family of four that's $24,000.00 a year less income. Because there's less investment, less productivity, less growth, and more of the returns go to the international investors who are purchasing our debt. There's also the interest costs you know. The CBO basement assumes that in 30 years just under the baseline, half of your taxes go to interest on the debt.

And if we go up to 250 or 300 percent of GDP, like if interest rates rise, or the President's plan is implemented, two-thirds of all of your taxes will go toward interest on the debt in 30 years. And the problem of course is you don't feel this while it's building. It's like the termites in the foundation.

And then when the debt crisis hits and interest rates are up and you have to raise taxes, it's too late to pull it back very easily. You have to double taxes, slash spending, or print money. Better to avoid the problem in the first place.

Ms. FOXX. Absolutely. And I want to point out Mr. Chairman that Mr. Lanter talks about the apprenticeship programs, and as you know you have said before we have a 43 percent graduation rate for apprenticeship programs, and you've called it the gold standard, others have called it the gold standard.

I hardly think we hold up any institutions with a 43 percent apprenticeship—with a 43 percent graduation rate as a gold standard, pushing more people into apprenticeships is not the way we go if they're controlled by the unions.

I was talking about registered apprenticeships. So, we don't need to be doing that. Thank you very much to our witnesses again and I yield back.

Chairman SCOTT. Thank you. Next Member for recognition is the gentleman from Northern Mariana Islands Mr. Sablan.

Mr. SABLAN. Yes. Thank you very much Chairman for holding this hearing. I want to thank all the witnesses also for joining us and for sharing of their opinions, their comments on this hearing. I want to take special—Mr. Chairman I'll be bouncing between our hearing and other Committee where we're having a 5 hour markup,

but I'd be remiss if I don't thank Mr. Mitsui and his college community and of course all the people of Oregon for hosting Mariana's residents who relocated to attend school in Oregon and other parts of the mainland.

And some, like my own daughter has decided to become full-time residents of Portland. Ms. Filardo. I want to thank you for your resounding support of RRASA, so I'm going to followup with a question.

You, according to the GAO 5 percent of school districts rely on local revenue as their primary source of funding for school infrastructure. Can you describe the unique challenges that high poverty schools and districts face in financing school construction projects and how does this perpetuate inequity?

Ms. FILARDO. Yes. That's a really good question, and it's one that face poor districts have been wrestling with. Because if you don't have high property value, if you don't have sales tax revenue, if you don't have any other form of public revenue to borrow against, you can't actually do major projects in your schools.

So, part of what happens to these districts is rather than having a million dollars to replace a roof, they keep patching, patching, patching, but then eventually it gets so bad that it's a problem. So, they really end up spending more on the maintenance side, disinvesting on the capital side, but they have little choice.

Just one other point on that even in states where there is a State role to help fund, like in Massachusetts, or in Georgia for example, the State will only do so much, and so sometimes the poorest districts can't even raise their 10 percent in order to get their State matches.

So, it's very difficult for these low wealth districts.

Mr. SABLAN. Thank you, thank you very much. Mr. Malik research suggests that high quality early care and education, including high-quality preschool can be a key point in reducing achievement gaps. I was just in a conversation with Committee staff earlier before this hearing about early care and education.

So, could you please tell us what does research show about the emergence of racial and income achievement gaps? When during development do these gaps emerge and grow wider between children?

Mr. MALIK. Yes, and thank you for the question. The fact is as children enter the educational system in kindergarten, there are already well-documents gaps in their educational experience that by that point send them on trajectories toward even wider achievement gaps.

You know there have been numerous studies that show investments in early childhood education. Don't just have those educational benefits, but they have you know provide a stability to families that lowers stress, that has a kind of cumulative benefit, that has you know not just those early educational benefits for children, but that stability really does produce greater long-term outcomes and the kind of safety and security that young children need economically within the family.

Mr. SABLAN. OK. So, does the current childcare system which we have and which access to quality care is largely predicated on parental income then itself too narrowing, or closing achievement

gaps? And why would it be important that all children, regardless of race or income, have access to high-quality childcare?

Mr. MALIK. Yes, right now we know that you know childcare deserts disproportionately impact Hispanic and Latino communities.

Mr. SABLAN. Like my district in the islands.

Mr. MALIK. Very much so there. There is also just this market-based reality for early childhood education means that children in families with the highest incomes are four times as likely to be going to a licensed childcare program than children in the lowest income quintile.

So right now, we have just vast inequalities that we need to solve for.

Mr. SABLAN. All right. Thank you very much Mr. Chairman my time is up. I yield back.

Chairman SCOTT. Thank you. The gentleman from Wisconsin Mr. Grothman I think is next. Mr. Grothman.

Mr. GROTHMAN. Hi. A couple of questions. First of all, I kind of want to reiterate what the Chairman said. I'm a little bit disappointed. We have so many people from the education background here looking for the Federal Government to be very involved, and of course it's unconstitutional.

And one of the reasons why our country is so in debt right now is people don't study the Constitution. They think the Federal Government should take care of everything. So, I'm disappointed that so many people in the field of education feel that way.

But I am going to lead off with Mr. Brian Riedl. Brian, I know there's a lot in here for preschool. I know—I'm sorry did someone say something? I wondered if you could comment on the ideas of sending children to preschool. Is it successful, or is it in some cases it's even counter-productive?

Mr. RIEDL. It's tough for me to comment specifically on research that would have been done by my colleagues. I did not do the preschool. I know in terms of Head Start there have been studies that have shown that Head Start isn't as successful as some would like.

There have been studies that have shown I believe the Department of HHS that some of the effects of programs like Head Start end up being more short-term, rather than long-term and that we need to find you know more creative, interesting ways to help younger children.

Mr. GROTHMAN. I believe you'll find, and I'm sorry you didn't read it, but I believe you'll find that preschool can even be counterproductive, that frequently it's better for children to be with their parents. I know a lot of people are hostile to their parents, you know, spending a lot of time with their children, becoming a little bit more hostile, but I think some of these programs not only are not helpful, but are even counterproductive.

But I'll move over to Dr. McCluskey then. We talked about more money for four-year degrees. Could you comment on say the number of people in four-year institutions today, and I certainly in my district, again and again, run into people who feel like they're ripped off.

They feel like they have a big college debt, or that they spent four or 5 years of their life on getting a four-year degree and it

didn't get them a job other than a job they would have been qualified for when they were 16 years old anyway.

Could you comment on what you think would be an ideal number of people, percent of our population involved in a four-year degree program as opposed to what currently are there today?

Mr. MCCLUSKEY. I am sort of hesitant to pick an ideal percentage because I don't know all the different needs of different people. And I think part of the problem we've had is the Federal Government said, 'Well we're going to put our thumb on the scale to get people to consume four-year degrees.?

And what I can say is the data clearly shows we have too many four-year degrees. Data from the fed shows that about a third of people with a bachelor's degree for their career are in jobs that do not require that credential.

So, you may say well we should reduce the percentage of people with a degree by a third. The other problem we have though because all of this is dynamic, is that the more we subsidize people going to college, the more we have jobs that call for degrees.

So, we would say well, these people are not underemployed right now because this job now calls for a degree, but it may not have before. And so, it's hard to peg the right percentage. The way we find out what's right is it's from the bottom up—people paying for education themselves, or with money they get voluntarily from others because that's what focuses us on what do we need, how much are we willing to pay for it, what do we get along with it.

Maybe we don't need the waterparks and lazy rivers we see in universities. So, I think the thing we can say most clearly is probably about a third of people with certainty got bachelor's degrees and are not using them right now.

Mr. GROTHMAN. How do you feel, and I'm just saying because there's so many good jobs out there that don't require, particularly skilled jobs that don't require bachelor degrees? It would be a mistake. Not only a mistake because the Federal Government is spending money they shouldn't have to spend, but for individuals spending time going to school that would be better off either training or getting a very well compensated job in the construction field and manufacturing field what have you. Do you feel that's true?

Mr. MCCLUSKEY. Yes. I think a lot of that change needs to happen at the K through 12 where we have very little school choice and we need a lot more, so people who don't want to be in that go to the four-year school track can start to seek out apprenticeships and other sort of education earlier than that.

But I certainly think if you look at the history of degrees in this country, we have massively over produced them, and driven the price higher because it's all sort of fueled by subsidies that mainly come from the Federal Government.

Mr. GROTHMAN. I think my time is about up, but we'll show here to the other witness masking the drawbacks of universal pre-K. And I would suggest that for everybody on the Committee to read, because not only is it sometimes not helpful, its counterproductive.

And I know you know people don't like you know going back, they want additional family and are very hostile right now, but it's something everybody should familiarize themselves with before we

put any more Federal money into pre-K. Thank you very much. And that's all my time.

Chairman SCOTT. The gentleman from Wisconsin offer that for the record?

Mr. GROTHMAN. Sure. We'll put it in there for the record. Absolutely.

Chairman SCOTT. No problem without objection I enter it into the record. Thank you. The gentleman's time is expired.

Chairman SCOTT. The next witness is the gentlelady from Florida Ms. Wilson.

Ms. WILSON. Thank you, Mr. Chairman. And before I start asking my questions, I just want to give a thumbs up for Head Start and that's where I started my educational career, and also universal pre-K. I don't know what kind of studies show that universal pre-K does not close the achievement gap between African-American children and children of color and white children.

So, when we begin to talk about a once in a generation American Families Plan, we've got to consider universal pre-K. I want to say to Mr. Mitsui from Oregon and Ms. Bonamici. I can say that you stand as a textbook example of where we're trying to go as far as free community college for our communities.

And I want to know what has the Portland Community College, what kind of recommendations can you give to the community colleges around the Nation who are going to benefit from the American Families Plan, this once in a generation plan, and what can you or Ms. Bonamici as you talked about American Promise Grant and what can you say today to these other counties, my county, Dade County, Broward County, to offer free community college to students?

And what do we do with that second 2 years that's not in the American Families Plan.

Mr. MITSUI. Thank you Congresswoman Bonamici, would you like me to answer or?

Ms. WILSON. Oh no this is for you not Ms. Bonamici.

Mr. MITSUI. OK thank you, sorry. Just getting used to the protocol. So, thank you for the question. You know I think the America's College Promise will help generations of students access community college in a more equitable way.

And one of the biggest barriers that our students run into, in fact two-thirds of our students according to the real college survey are basic needs insecurity. And so, in addition to assisting with tuition, there are parts of the American College Promise Act that incent the states to change some policies in order to improve access to public benefit programs while students are going to college.

So that they don't have to worry about what they're going to eat, where they're going to sleep, or other barriers that they have. You know one of the big reasons some students dropped out was because they were care givers, either they were taking care of their kids, they're taking care of parents, or they're taking care of siblings.

And to the extent that there's support for them while they're going to school they're going to finish. They're more likely to be able to complete. And it's when they complete and they earn that

certificate, or they earn that associate's degree that they achieve escape velocity out of poverty.

Also basic needs insecurity is an equity issue because in the history of our country it's communities of color that's disproportionately impacted by poverty, by food insecurity, by housing insecurity, and being able to improve access to post-secondary education is also an equity issue and it's an anti-poverty measure.

And you can't once somebody earns that credential like Dr. Tara Roberts, you cannot take that away. I mean they have the knowledge. They have the skill, and they're more likely to be able to earn a living wage, and then their children are more likely to graduate as well.

So, what we do is something called Pathways to Opportunity. And this is a project led by PCC, and we work with the Oregon Department of Health Services, and we're working on integrating benefit programs and wrapping around students while they're in school and helping them to graduate.

So, when you add America's College Promise on top of that you know, graduation rates are going to increase. Students are going to be able to focus on school. It's really, it's just so hard to focus on school when you're hungry, or when you're not sure where you're going to sleep. That makes it really, really hard to finish, or how your kids are going to be taken care of, especially now during the pandemic when everybody is at home.

For the last 2 years for that transfer work at the State level is also very critical. And so, I know there's work going on across the country and regionally, which either Western InterState Commission of Higher Education has something called the InterState Passport that helps to reduce credit wastage during the transfer process.

In Oregon we're doing transfer mapping, and so there are strategies that can be employed to facilitate transfer and make sure those credits are not wasted, and that students graduate from a four-year as well.

Ms. WILSON. Thank you so much. My time is up Mr. Chair, but I want to put in the record some articles I have. One says 3 million kids missing from school because of COVID–19 is a travesty. The other one says report estimates 1 to 3 million students missing from school since March, and the other unprecedented numbers of students have disappeared during the pandemic. Schools must work harder than ever to find them.

Chairman SCOTT. Thank you without objection those will be entered into the record, and that gives us some issues to use our oversight responsibilities to make sure that the schools districts are using the money we sent them from the Rescue Plan to take care of that problem. Thank you.

Chairman SCOTT. Next Member to be recognized is the gentleman who appears to have landed in his office. The gentleman from Georgia Mr. Allen.

Mr. ALLEN. Yes, sir thank you. Thank you, Mr., Chairman and I want to thank all the witnesses for being here. Mr. Riedl, I appreciate your data related to the current spending levels. One of the big issues in my district is workforce, and as I understand it, we still have about 10 million people on unemployment, and we've got

about 20 million work capable people trapped in poverty on government programs.

And we can't seem to get those folks to go to work. And so, but at the same time we're throwing all this money at the problem, and the big issue—and you know, is there some data out there that I mean employees and employers are telling me that the problem is the enhanced, well one is the stimulus checks.

And of course, let me say that Georgia's economy is only off about .6 percent right now. We've had an amazing comeback, and of course we opened early, and under CDC requirements and you know did all the things that we could do to do it right under our Governor's leadership.

But you know what bothers me is you know all this money we spent for stimulus checks and for enhanced unemployment, yet what's keeping the economy going is the workforce, which we've all admitted to here today.

You know why do intellectuals in Washington, DC. think they know more about what a State or a county or a city need to do to fix those problems?

Mr. RIEDL. Yes, I mean that's a great question. The enhanced unemployment, especially it was originally $600.00, now it's $400.00 Federal bonus. It made a lot more sense back when we didn't want people to go to work. I don't think it was a major disincentive a year ago, or 8 months ago when for the most part we wanted people to stay home.

But now that the economy is reopening, now that people are getting vaccinated, we want people to go back to work. All of a sudden, the $400.00 bonus can become a disincentive. There's an economic consensus that overly generous unemployment benefits do provide disincentives to work.

The $400.00 bonus right now is more than the median unemployed person earns in the short-term. So again it wasn't a big problem when you didn't want people to work, but as the economy reopens over the next couple months, that's going to become a bigger barrier that Congress is going to need to look at possibly before it expires, because otherwise you're going to see a lot of help wanted signs, and a lot of people saying well, maybe I should wait until August or September because I might actually lose money.

Mr. ALLEN. Yes, but my colleagues just a month ago passed a highly partisan, we viciously opposed this stimulus bill that has created the problem. I mean two trillion. Now we're looking at another two trillion. I mean you know the taxpayer is going to get very tired of this.

Tell me something on the scale of where this debt is going, and then let me tell you republicans and democrats both are responsible for. I'm not laying it on my friends, you know, but the bottom line is you know it's not sustainable. We've seen what it's done to other countries, and we see where our position is right now.

And also from a national security standpoint it increases our security risk enormously because all of a sudden if a country said OK we're pulling all of our investments out of the United States, people aren't standing in line to buy our debt anymore, we've got a big problem.

So, tell me about your work with that, and if we don't stop this what could possibly happen?

Mr. RIEDL. Yes, I mean we're on course to have the debt go from 17 trillion to 35 trillion dollars in a decade. This is remarkable. If the entire President's campaign agenda was enacted, the debt would hit 42 trillion dollars at the end of the decade, up from 17 trillion.

At that point it's 130 percent of the economy, or one-quarter bigger than at the end of World War II. At least World War II ended, and the debt came down. We right now are facing 100 trillion dollars in baseline debt over the next 30 years. You don't want the debt to go to 200—300 percent of the economy. That's too much for China and Japan to bail out even if they want to.

At that point you really have to start to run the printing press and monetize it. Again, this is dangerous ground for us, and the danger is once the debt gets that big it's really hard to reverse it.

Mr. ALLEN. Yes, yes, I mean it would take under a mortgage if you went to mortgage this debt it would take 500 years to pay it off. Those folks are not going to be happy with it. Thank you Mr. Chairman I yield back.

Chairman SCOTT. Thank you. The gentlelady from Oregon, Ms. Bonamici.

Ms. BONAMICI. Thank you, Mr. Chairman and Ranking Member Foxx, and thank you to our witnesses, especially President Mitsui. In response to Representative Wilson's question. Representative Allen I think you need to mute, thank you.

In response to Representative Wilson's question I just want to add that PCC has a program called Future Connect. This wonderful program and I know President Mitsui you did submit some materials about it to support low income first-generation students, and that really makes a difference.

So I'm actually really glad we passed the American Rescue Plan, which my colleague was just talking about because among other things it's made vaccinations more widely available, it's helped schools and businesses get the support they need to reopen safely, but families and the economy are still struggling, and I'm very grateful that President Biden heeded my call for a 100 billion dollar investment in the workforce funding, that he also included support for child care and school buildings in the proposed American Jobs Plan.

And I look forward to working with my colleagues on this Committee to advance the plan so our communities cannot just rebuild but build back better. President Mitsui thank you for your meaningful testimony. I recently joined Chairman Scott in reintroducing the Relaunching America's Workforce Act which includes a 2-billion-dollar investment to revive the trade adjustment assistance community college and training grant program, an important program with a long name.

Which supports, as you know, community college and industry partnerships in developing workforce programs. So how would this funding help community colleges like PCC scale up workforce programs, especially to support displaced, dislocated and under employed workers?

Mr. MITSUI. Thank you Representative Bonamici. Yes, the TAACCT program was a landmark program that catalyzed systems change across the country. In particular I think about the State consortia, and how it made a huge difference in Oregon around career pathways.

And career pathways as you know are short-term certificates that are stackable credentials with wrap around support services. And our career pathway program at Portland Community College has a 90 percent plus completion rate, and of course high placement rates, and individuals are experiencing wage progression.

Also, we have almost eliminated the equity gap and so our students of color graduate at nearly the same rate as the average rate. When I was in Washington State at North Seattle Community College, we were part of Air Washington. That was a TAACCT grant with a State consortia.

I can remember us being—there were several community colleges with avionics programs. We were all in the same room with a large major aerospace employer and we all got on the same page on the curriculum, and we compared the knowledge, skills, and abilities for the different avionics positions.

And then the employer calibrated their job titles so that when students graduated, they knew which jobs to apply for. We found that we needed to actually truncate our curriculum, make it more efficient, and that saved students time and effort. Multiply that times 50 states, and you know that's the kind of impact that TAACCT had.

So, we you know, having another version of that you know at the same time where we have an infrastructure investment, it's really important to have a human infrastructure investment.

Ms. BONAMICI. Absolutely.

Mr. MITSUI. So that we don't have a skills gap.

Ms. BONAMICI. Thank you. And I want to use my last remaining time to ask Mr. Malik, thank you for your comments about childcare, and for highlighting the importance of solving the childcare crisis.

We know that when the pandemic hit schools and communities got together and made sure that students could get meals during the day even though the school building was closed. I'm really grateful for everyone in Oregon who worked on getting those meals to students.

So, I chair the Civil Rights and Human Services Subcommittee, and I'm working on an update to the Child and Adult Care Food Program to better address child hunger issues for early learners and their families. So, Mr. Malik you mentioned the importance of CACFP in your testimony.

It currently provides up to two nutritious meals per day for children in care. So I'm now working on reintroducing my legislation to expand access to nutritious meals during the additional time that children are in care, so how would children who are in care for 8 hours a day or more benefit by receiving a third meal or snack, and how in general would this help working families, Mr. Malik.

Mr. MALIK. Thank you for the question. The CACFP, Child Adult Care Program is so crucial. It delivers as you said billions of meals

per year. Right now I think it could really benefit from a few key changes to allow those three meals per day, to meet the modern structure of the child care system, and as well potentially to kind of change those reimbursement rates I think for sites which may be out of step with rising food costs, especially as child care programs are starting to serve really healthy meals, which young children need.

Ms. BONAMICI. Thank you and I see my time is expired. I yield back, thank you Mr. Chairman.

Chairman SCOTT. Thank you. The next person thank you, the next person I have on my list is the gentleman from Idaho, Mr. Fulcher, is he still on the screen? There he is.

Mr. FULCHER. Yes.

Chairman SCOTT. Mr. Fulcher, OK.

Mr. FULCHER. Thank you, Mr. Chairman, and a comment and a question just briefly, but in terms of the comment I just want to share a perspective on the so-called free community college for the first 2 years.

I know the intention is good. I know the intention is good. The only problem is it just doesn't work. And we've all, or at least most of us have children, or have had children or grandchildren, and if you don't have some skin in the game, if they're not somehow invested in this process, they're just not as serious about it.

There's not the reward. If you offer something as a gift, if you will, then there's just simply not the same response, the same ownership. And that also carries over to what happens in the classroom with these instructors. They now would have a large group of students who just simply don't care.

Now that's not always going to be the case, but that's certainly going to be a trend. And as we all know there is no such thing as free. I'm asking you all to pay for my children's education, and you're asking me to pay for yours. That's how this really does work. There is nothing for free on that front.

Also, what's bothersome, and what leads to my question has to do with the Federal and State match, the one dollar for every three and so on. In our State we don't have the benefit of a broad-based property tax, which many states use as a mechanism to fund their education system and other things.

The reason for that is we don't own the land. It's a Federal State. We're a tenant in the State, the Federal Government has two-thirds of the land mass. And so that's got continuous struggle. Other states have similar issues if they've got large percentages of Federal land.

So, to that end, I'd just like steer a question now to Mr. McCluskey on that front. If there is such a piece of legislation that says hey the Federal Government is going to kick in three dollars, or whatever that number is, but the State needs to kick in a dollar, what is the assurance that we may have, that the Federal Government being 30 plus trillion dollars in debt, will we continue to be able to do that because the State is on the hook after that. Mr. McCluskey?

Mr. MCCLUSKEY. Yes that is really a very real problem. The first thing I'd say of course we have way too much money in higher education right now. If we break it down by per pupil, we've seen huge

increases in the total amount spent for decades, so there's a lot of money there.

But what we've seen in other countries when you compare OECD countries, the more that you get direct subsidies through schools, so not as we've done it through students, but directly to schools, and we're talking about public colleges and universities here.

The amount of money, the share of money comes from the government, the fewer resources there actually are in the schools as we look at the trend for these countries. Because there is a limit to how much you can spend. And when you make something free you incentivize more and more people to consume it because it's not their money, so you run into a big problem.

There's only finite resources in the world, no matter how many good things we'd like to do with them, there's a limit. And you run into the problem of you incentivize people to go to school and you hit that limit on how much you can spend, and that's when you see things like rationing, and sort of becoming you have systems where you have to pass a test to access the university, and I don't think we want to go in that direction.

Mr. FULCHER. Thank you for that. And that makes sense to me. I have just one followup question just because the benefit of the drawback of serving our State legislation, and particularly on the finance Committee, but I've seen this happen before.

When the Federal Government offers a program, or offers money, oftentimes there are strings attached that come with it, and those strings don't necessarily reflect the local value system, or the local priorities that come along with it.

If this were to be put into place what would you envision as to be some of those strings that the Federal Government may want to put on those dollars as a prerequisite for them being offered?

Mr. MCCLUSKEY. Well the things I've seen suggested in the past are where you would put limits on what schools can spend their money on. And partially that's well-intended. You don't actually want colleges and universities to have those water parks. But it would also be quite possibly, rules about well you can only have so nice a student union, or your food can only be so good, and certainly we have extreme expenditures on that with the subsidies to students.

But it's very dangerous of the Federal Government to get money to run a school and start saying well here are the sort of things that you cannot make better. What's really good about our system and what probably makes it the best in the world in higher ed is that schools do have to respond to students, and in many ways that makes them better, including access to professors, nice campuses, and lots of things like that.

Mr. FULCHER. Mr. McCluskey thank you. I'm out of time. Mr. Chairman I yield back.

Chairman SCOTT. Thank you. Our next Member is the gentleman from California who made quite a sacrifice to get here. Thank you, Mr. Takano, for being here today. I understand you had to take the red eye and you're with us today at noon, so thank you so much. The gentleman from California Chairman Takano.

Mr. TAKANO. Thank you, Chairman Scott. I'll do my best not to be grumpy. My first question is to Mr. Malik. Mr. Malik some of

my colleagues across the aisle have suggested that Federal investments in preschool would be harmful for children, a claim that I believe is false.

As you and Mr. Riedl, one of the republican witnesses stated, there is a vast literature demonstrating that preschool yields favorable short-term outcomes for young children. Moreover, there is growing literature showing that preschool benefits last up to adulthood.

Children who attend preschool are more likely to graduate from high school and earn higher wages than their peers who do not attend preschool. Can you confirm my claims Mr. Malik?

Mr. MALIK. Yes Congressman there's a vast and very strong literature in economics and public policy research showing that Head Start broad based investments in early childhood education, in preschool, universal preschool, all have benefits in the short-term educationally, and in the long-term.

And I think the reference to harmful outcomes is referring to the Quebec universal pre-K program that was instituted in the 1990's. And what I would say to that is that there's a lesson to be learned there, and that lesson is integrated into the Child Care for Working Families Act, which is you do not do this on the cheap.

Doing that will only shuttle lower income families into low-quality programs. And this approach that is outlined in the Child Care for Working Families Act does quite the opposite.

Mr. TAKANO. Mr. Malik by high-quality we mean there's many elements to it, but an essential element is that we have well-trained teachers that these instructors we just can't—it's not babies today, that there is learning going on.

Mr. MALIK. Yes you know quality has two components. There's the physical things that you need for a good educational program, and that's important to invest in—the physical infrastructure. But I would argue more importantly, especially for early childhood education, it's those interpersonal interactions, it's those important moments of hearing and understanding and listening to children of developing those social, cognitive emotional skills.

Mr. TAKANO. Well thank you. So that means trained teachers. We've already spent 39 billion dollars for childcare under the American Rescue Plan. How are those funds helping the childcare sector?

Mr. MALIK. Yes. Those dollars were crucial because the childcare sector suffered an unprecedented set of losses last year. About half of programs reported going into debt, personal debt in some cases, to try and keep the doors open. Enrollment dropped by 50 percent and more, even after programs opened up after being closed for months.

So, the childcare programs were already on super slim margins. Their operating costs went up with all the safety and health protocols necessary, enrollments went down, and they were in the red. And so those dollars were crucial.

Mr. TAKANO. My time is short. Why do we need to spend more under the American Families Plan?

Mr. MALIK. What we need is a permanent long-term fix for what got us into this situation in the first place. We need to invest in the workforce as you mentioned. Quality comes from those early

educators. And right now, with an average childcare educator making $12.00 an hour, I mean that leads to high turnover, that leads to economic stress for those educators.

It does not set us up for success.

Mr. TAKANO. Thank you. Mr. Mitsui I only have 30 seconds left, but you made a comment that really struck me. You said that one of the things impacting completion rates among community college students is lack of access to childcare. So, we're talking here about enabling people to get back to work into jobs, accepting you need childcare for that.

But you also need childcare to help students complete their programs, is that right?

Mr. MITSUI. Absolutely. Gallup has indicated a high percentage of care givers stopped out because they needed to take care of their children, siblings or parents. And that means they can't complete their training and education that they need to fill these jobs.

Mr. TAKANO. So, we also need elder care as well. We spoke about childcare, but people who are older in their 30s and their 40s need to take care of their aging parents, that's also an issue. I yield back Mr. Chairman, sorry I went over, and I hope I wasn't grumpy.

Chairman SCOTT. Thank you so much you did well. Next, we have the gentlelady from Iowa Ms. Miller-Meeks.

Ms. MILLER-MEEKS. Thank you so much Chairman Scott, Ranking Member Foxx and to all of our witnesses. I think it's vastly interesting listening to this topic of conversation. I'm from a family of 8 children. Neither of my parents were college educated, and so I find it interesting that listening to this discussion.

My parents and siblings would not be trained teachers and would not have been able to somehow produce a child that's a first-generation college graduate, the only one in their family to ever go to medical school and graduate.

So I think we should be cautious on what we consider to be trained and adequate child care because there are millions of parents out there with no college education and no training who raise phenomenal children, children who have done amazing things to put men on the moon, develop airplanes, develop educational systems and help start businesses that are Fortune 500 companies all from very little resources.

And because of that, that is the genesis of my question. There has been so much I think, especially in K through 12 and in our society that really is funneling students toward a bachelor of arts degree program, and for me it is their sole focus, but there are others of us who advocate for a variety of post-secondary options for students.

Mr. McCluskey in your written testimony you write in 1960 only 7.7 percent of Americans 25 years and older had a bachelor's degree or higher. In 2019 the number was 36 percent. The important question is whether this was a net gain for society? And if you can very briefly elaborate on what you mean by whether this is a net gain for society?

Mr. MCCLUSKEY. Sure. So, we often talk about education and the shorthand for are we getting more education, do we have more degrees? Do we have more attainment? But what we really want to

know is, are people getting more skills and knowledge that are of value to them and in the economy.

And that's why unfortunately in higher ed we don't have a lot of standardized tests, but we do have two. We have again the National Assessment of Adult Literacy, 1992–2003, and then more recently we have the P ACT. Both of them had two administrations. And you could see that the literacy levels—this is post-literacy, you know can you read a newspaper article? There was document literacy, can you read a tax form and understand it?

And there was also sort of whether you were literate in math, you know whether you were numerate. And what we saw was prose and document literacy had been dropping consistently as we've increased credentials.

The sort of good news as we just stated sort of flat when it comes to numeracy, but what this strongly suggests is that we're not actually creating more knowledge, more skills, we're creating more pieces of paper called diplomas, and that isn't what we should be aiming for, and we're doing it for a lot more money for each one of those diplomas.

Ms. MILLER-MEEKS. Thank you so much and Mr. Riedl I believe incentives matter. And as a State Senator we often address this when we are looking at healthcare professions, and when I would meet with colleges would talk to them, you know, we can do other loan programs, we can do scholarships, but what are you doing to lower prices.

So, you know Congress I think well intended, has wanted to make college accessible and affordable. That was the point of government backed student loans, and now direct Federal student loans. While this is an admirable policy goal, colleges and universities were able to increase their prices because students had easy access to credit, and you know in essence a guaranteed payment program.

So, it would cover that higher balance. So, this in turn created more risk of going to college, more risk of indebtedness. And I think if you could just address that in the brief time, I have left remaining I would appreciate it thank you.

Mr. RIEDL. That's a great question. I mean it makes sense theoretically. Colleges will charge as much as their target students are willing to pay, and as financial resources rise with student aid, colleges will capture that aid. We see the same thing happen in healthcare.

Since 1978 the price of college tuition and fees has increased 1,335 percent with the CPI inflation of 293 percent, so it's growing four times faster than inflation. And there is a link. The New York Federal Reserve confirmed a few years ago that each dollar in subsidized student loans brings a 60 cent rise in sticker price tuition, which even goes to the people who don't get the loans.

So, you give the loans to one group, another group gets a higher tuition as well. Even Pell grants raise tuition by 37 cents on the dollar. And so, we have to be careful. We mean well when we do increase student aid, but if the colleges are just going to raise tuition to capture it, we're not really helping with affordability.

Ms. MILLER-MEEKS. Thank you so much. I yield back my time Chair.

Chairman SCOTT. Thank you. Next the gentlelady from North Carolina Ms. Adams.

Ms. ADAMS. Thank you, Mr. Chair, and thank you for holding this meeting today, for the witnesses, thank you for sharing your expertise as well. President Biden's American Jobs Plan commits among other things to address critical infrastructure needs at our K–12 schools, early childcare facilities, and community colleges, and to provide needed support for workforce training and development.

I'm pleased as well that the plan mentions investing in research infrastructure and research and development, at Historically Black Colleges and Universities and other minority-serving institutions. However, I think that HBCU and MSI deserve an even greater commitment to adjust their overall infrastructure needs and to support their efforts to build facilities in order to prepare students for 21st Century jobs.

I'm working with colleagues on both sides of the aisle in both chambers on legislation right now to address this. And I look forward to seeing it considered by this Committee in the near future as part of our efforts to advance this American Jobs Plan.

Now for my questions Mr. Mitsui, can you explain on the—can you expand, excuse me, on the infrastructure needs of community colleges across the country? And beyond renovation and maintenance, can you explain how additional funding would help community colleges purchase the up to date technology and equipment necessary to provide students with the education they deserve?

Mr. MITSUI. Absolutely. Thank you for the question. So advanced manufacturing is a good example of a sector that requires very expensive equipment. And in order to stay on the leading edge internationally, we need a big turning machines, we need additive manufacturing laser centering machines. We need equipment that is quite expensive if we're going to train and educate students to move into high wage jobs, actually where there are a lot of openings.

And so, take aviation science as an example. Jet engines are kind of expensive. And they're really important. You know our air freight and power plant students need to get it right, and they're great jobs waiting for them when they complete. As we transition also to electric vehicles, we're going to need to install a lot of electric charging stations across the country.

And how do you do that? How do you train that? If you're an automotive tech, how do you repair and all electric vehicle without electrocuting yourself? That's a really important basic skill, right?

So, all of these are skills that do require equipment, and by being able to invest in the leading-edge equipment, we're going to have leading edge workers.

Ms. ADAMS. Thank you, sir. You know this investment in community colleges is critical and I know our HBCU's need it as well. Mr. Lanter in your testimony you discuss some of the challenges that individuals face in accessing affordable childcare, transportation, food, and housing, which often prevent them from enrolling in education and training programs, or even getting a job.

So how important is it to provide equitable access to supportive services through WIOA? And should we be considering expanding access to these supports through the American Jobs Plan?

Mr. LANTER. Yes, thank you Congresswoman for the question. You know this is so critical really, these basic support services. We don't need you know reports and studies to tell us that an individual will really not be successful finding and obtaining a job if their basic needs are not met as well.

These support services you mentioned are all basic needs that hinders one success in obtaining education and finding a job. Things like childcare, housing, food, medication, tools, license fees, these are things that people making less than $27,000.00 a year just cannot afford and will keep them out of education.

And so, the second part of your question yes, we should expand the uses to support services in many different ways. The dollars should be available in amounts so that they're not rationed. In my career I've seen support services rationed because there's just not enough money to meet the demand and the need.

We need to expand the types of services that are allowable so that we can really break cycles of inequities. Things like car repairs, and purchases for cars, grooming for homeless individuals, housing are really critical and often overlooked support services, and then last really critical, support services need to be offered early in job training programs, and later in job training programs.

So, for example, after somebody obtains a job, we can provide support services so that they can keep a job and then get a better job moving to quality jobs and moving them out of poverty thank you.

Ms. ADAMS. I'm out of time. Thank you, sir. Mr. Chairman I yield back.

Chairman SCOTT. Thank you. The gentleman from Utah Mr. Owens.

Mr. OWENS. Thank you. Thank you, all the witnesses, for your participation today. Dr. McCluskey one of the central arguments you made against free college proposal is it would likely make post-secondary education less responsive to students. This sounds very familiar to me.

I'm the Ranking Member of the K through 12 Subcommittee, and I can tell you one of the witnesses of our public education system is how unresponsive parents can be. We've seen that frustration being the forced closing of our schools, yet democrats want to convert our current Federal student aid system in post-secondary education to something that looks more like the K through 12 model.

All the thoughts at least Federal students aid generally goes to students and follows those students to the institution they choose. Is there some reason to think that funding educational systems rather than the students, will give us better results if we put it into post-secondary level that is now in the elementary and secondary level?

Mr. MCCLUSKEY. Right. I think one of the things we've seen actually very clearly, more clearly than even before with COVID–19 is that public schools often are not very responsive to parents, and it can be hard because you may be trying to serve different kinds

of parents, but we've seen a lot of parents say I want my school to be open. I want it to be in person.

What we've seen from CDC reporting and research is it's safe to be there, but these schools will not open for us. On the other side, private schools are very responsive with in-person education, they are very responsive at providing sort of substantive education right very soon after lockdowns began, and there is a fundamental difference of incentives for public schools, although local, and that's often good, they still don't respond directly to parents.

Parents don't get to decide whether the money comes or goes, and so they tend to be less responsive to what parents want. In higher education we do have a lot of excess because there's so many subsidies that come to the students. But there's no question that lots of college universities are very responsive to what students what, what they desire.

It's that sometimes those desires are kind of excessive because they're paying for college with so much money that actually comes from other people, and those other people are taxpayers.

Mr. OWENS. Thank you so much. Mr. Riedl you mentioned in your testimony that the middle class will have to pay the taxes to cover our Federal Government's spending commitments. Why is that? And what are the estimated tax increases on the middle class that will be needed to be covered with our current commitments and those proposed by the democrats?

Mr. RIEDL. Thank you for that question Congressman. Let's assume that we can pay for the entire President's agenda on tax hikes for the wealthy and corporations. It's pretty unlikely, but let's just assume we can. You still have an underlying 100 trillion dollars in 30-year budget deficits, and at that point you've already maximized taxes on enriching corporations for other priorities.

So how are you going to close that 100 trillion-dollar shortfall? Forget balance the budget. Let's just try to stabilize the debt at its current share of GDP. To do that you would need to close a budget gap rising to 6 percent of GDP. If you were to do that with taxes, you would need either an 18 percent increase in the payroll tax, or a 35 percent value added tax.

You'd basically have to double taxes on the middle class just to pay for the programs in the current baseline over 30 years. And again, you have to do that because we've already used up all your upper income tax hikes to pay for all the new spending. That's the danger.

Once you use up all those tax hikes the middle class is all that's left to pay for the rest, and that's what Europe does. Europe finances their big government on value added taxes and payroll taxes on the middle class.

Mr. OWENS. Thank you so much. In the little bit of time I have left Dr. McCluskey my next question relates to the first one. It interesting you use the NAEP scores to discuss the lack of progress we're seeing in educational outcomes. Spending has exploded.

The Department of Education at the University of Arkansas recently released a study that compared the NAEP scores to the level of educational freedom available in the states. And the study concluded that, "Higher levels of education freedom are significantly

associated with higher NAEP achievement levels, and higher NAEP achievement gains."

Dr. McCluskey given this, should we shift the K through 12 funding to a more student-focused model?

Mr. MCCLUSKEY. Yes. I mean I hesitated to say that the Federal Government should do it. I don't think the Federal Government should be involved. But clearly, what we've seen in that study and many others is the more that parents are able to make decisions about where their kids and the money to educate them go, the better the outcomes because then the schools have to respond to those families.

It's not about how well they lobby or negotiate a bureaucracy. The parents will leave if we don't provide what they want. And interestingly that study also showed it controlled for a lot of different variables, and it showed actually negative correlations between the amount of spending and NAEP scores.

Mr. OWENS. Thank you so much and I yield back my time. Thank you.

Chairman SCOTT. Thank you. The gentleman from California, Mr. DeSaulnier.

Mr. DESAULNIER. Thank you, Mr. Chairman. Thanks to the panelists. I want to say hello to someone I've known for many years, Bob Lanter. Nice to see you Bob. I just maybe an observation and welcome the panelists to make any comment. Having spent a good deal of time in the last few months around infrastructure while serving on the Transportation Committee, it strikes me obviously that infrastructure changes.

The foundation of this country infrastructure was very different. And as we struggle to define that under the purview that this Committee and how much infrastructure needed as I understand it, and I look at the definition, the dictionary definition.

The support system that helps for productive households and individuals. So clearly, in my mind's eye, education, preschool, vibrant preschool, after school programs and another hearing right now about hunger in America, and we're focusing a lot on youth hunger.

The infrastructure has to be efficient and effective, so maybe we're having the wrong argument as I listen to these debates in Congress about what the Federal Government's role is. I think the Federal Government's role should be helping the states and local—and here I agree with the Ranking Member, to facilitate the conversation about what the client needs.

And in this instance, it's that productive citizen in America who needs early education, who needs the kids to be well-fed and connected to the private sector as somebody who used to be in the food industry.

So as we try to define infrastructure, maybe we need more performance standards, but less—all of us to be less ideologically driven about delivering the infrastructure and the support system to two-income households, to single parent households who are under a lot of stress everywhere in this country, and an area like I represent in the San Francisco Bay Area where housing costs are so difficult, but our transportation costs are so difficult because people

have to spend a lot of time commuting as we see commutes starting to go back up as gratefully we get out of COVID.

So, if any of you wanted to comment on that. Could we change the conversation maybe Mr. Scott and the Ranking Member, we could try to change that conversation about the appropriate role to help a very different social model where we've got two incomes in households driving a long way, changing careers often, as we look at traditional transportation infrastructure there clearly needs to be more, and public education is part of that.

And if we can make public education perform better and be more client-driven, the client being the individual student and their families, let's all focus on that. So, Mr. Chairman I look forward to the discussion. If any of the panelists want to respond to that observation, I'd like to have their insights.

Mr. LANTER. Thank you. I'd like to respond. Thanks Congressman DeSaulnier. It's really nice to see you back in action. You know your words I think are critically—should be critically listened to because you know I think we have really realized that the workforce development services are needed in this country by millions of individuals.

And it sounds cliché to say that there's just not enough funding and workforce development, but our system public workforce development was built in a time where our economy was humming along. We had very low unemployment, and individuals weren't really struggling to find work except those that we serve in the public workforce system.

Those kind of that you mentioned Mark and painted a picture of that are struggling to make ends meet. And I think we realize now today that the interventions that are needed are going to come at a cost.

And these services need to be funded not only to workforce boards, but the network of workforce stakeholders, and that they really need to think innovative about how to expand access to services more, so that we don't think about brick and mortar as infrastructure, but we think about access and equity as infrastructure. That's what I will say to that thank you.

Mr. DESAULNIER. Since my time's almost up Mr. Chairman, the definition of infrastructure is the capital infrastructure, but also the organizational infrastructure that goes to support productive workers from my perspective, and people who are struggling to be productive workers.

So, I look forward to having this discussion when we're back together with the Ranking Member and some of my colleagues across the aisle, because I think it's a good one. Thank you Mr. Scott I yield back.

Chairman SCOTT. Thank you. The next Member to be recognized is my distinguished colleague from Virginia, Mr. Goode.

Mr. GOODE. Thank you, Mr. Chairman. And thank you to all of our guests. Doctor McCluskey this discussion is a continuation of the democratic philosophy that No. 1, more money is the answer to everything. Two, the Federal Government should be intimately involved in every aspect of our lives, and three, it's the responsibility of the Federal Government to provide womb to the tomb care for its citizens.

The fact is many American families sacrifice from one parent to provide the ideal at-home care for young children. And my wife and I actually did this as a young, lower middle-class family many years ago.

Why should these families be penalized and taxed to fund those who are making other choices? Furthermore, why are we incentivizing and subsidizing single parenting versus the ideal two parent family structure? And what's the evidence for the results achieved to justify the trillions we've invested in K to 12 and higher education?

And as with higher education, would not greater Federal spending on childcare serve to drive up our costs? So, Dr. McCluskey if you could please comment further on the Constitutional justification with the Federal Government being involved in providing childcare, and the demonstrated connection, demonstrated connection between more Federal spending and better outcomes in terms of cost and quality.

Mr. MCCLUSKEY. Sure. Well so again the Constitution doesn't authorize Federal spending on education, and it's important to understand that the Federal Government is supposed to be limited to specific and numerate powers.

But as sort of an impact, a policy impact, what we see in higher education, and what we see in K through 12 is that more money doesn't seem to correlate with the commensurate improvements on outcomes. Sometimes they are negative outcomes.

And I do think it's important that we understand that there's been mention of well it is pre-K, early childhood, can those programs be damaging? And in fact, there is research that suggests it can be. That the best place for a child, if possible, is that they are you know with one parent all the time, and that we don't have them in a childcare situation.

Now obviously, some people will need to work. And it is a very serious concern that we would put money into maybe in the hands of people to pay for childcare and that drives up the price of childcare.

And it's also really important to understand that actually research shows that there is—very often, research has shown a fade out, that there are early years of some improvements, but that it fades out over time to the point where for instance, Head Start ends up not making a difference.

And some of those long-term studies that are often cited were of two very specific programs, Abecedarian and the Peri pre-school—hyper intensive, treated only about 57 kids each. So, I don't think when I look at the early childhood research that it is sort of a homerun showing that we know it works.

In fact, once you dig into it, it gets pretty murky and one of the things we see regularly is a fade out problem.

Mr. GOODE. Yes. Thank you, sir. And I want to direct my next question to Mr. Riedl. As you mentioned the Davis Bacon Act is incredibly wasteful, drives up costs by billions of dollars, and it is in fact a holdover from the Jim Crow era and was enacted in 1931 solely to disadvantage minority contractors.

That's why I introduced H.R. 2218 the Davis Bacon Repeal Act, unfortunately had no democrat cosponsors. Mr. Riedl can you

please comment further on the increased costs from Davis Bacon, how it represents favoritism for the small percentage of unionized workers in the construction industry, and how much we would save from its repeal?

Mr. RIEDL. Yes. I mean if we want our infrastructure dollar to go further, you can't have a policy that raises wage costs by 22 percent, the overall cost of construction by 9 percent. And also, it costs jobs. We could add 155,000 construction jobs for the same cost by repealing Davis Bacon, 155,000.

It's also terribly designed. Most of the formulas to determine the prevailing wage in most regions haven't been updated since the 1970's, so in some places like New York, you have to pay double the market wage. In other places the Davis Bacon is lower than the minimum wage.

So, I'll give another example, at GAO investigation found that the formulas for determining the prevailing wage were wrong in 100 percent of localities sampled. So, it's an out of date, poorly run program that hikes wages 22 percent and raises costs by 10 percent.

We could save about 12 to 15 billion dollars by pulling this program back, and you'd still be paying good construction wages for good construction work. This should be a no brainer to be more productive.

Mr. GOODE. Thank you, Mr. Riedl, thank you Dr. McCluskey and I yield back my time Chairman.

Chairman SCOTT. Thank you. The gentlelady from Washington Ms. Jayapal.

Ms. JAYAPAL. Thank you, Mr. Chairman. This is exciting to be talking about the Build Back Better Plans of the President. And let me just remind my colleagues that the 2 trillion-dollar infrastructure proposal, the President's proposal had enjoyed 68 percent support across the country.

The upcoming plan, the Families Plan enjoys 65 percent support. So, these are intensely popular. People want the government to be involved in helping to build their lives and to build their opportunity. I just want to start by adding a personal welcome to President Mitsui.

We were so sorry to lose you from Seattle, but it's wonderful to have to still not so far away and bringing your voice to this forum. As you may remember it was 2016 when I first introduced the Washington Promise into the State Senate to make community college free for everyone in our State, and how great it is that we see that proposal in the President's Family Plan even as we do more to cancel student debt and address 4 years colleges as well.

If we want a successful job's bill that creates union jobs with living wages, we have to include in the same single package this comprehensive support for families, including support for working parents, domestic workers, paid leave, as well as real reforms to healthcare.

Today I want to focus my questioning on just two pieces that I've been focusing a lot on regarding childcare. And the first is that we do not put up unnecessary barriers in the way with onerous work requirements, and that we ensure that we expand the income

threshold cap to include the wide swath of middle-class folks who also need these benefits.

So Mr. Malik, it's good to see you. Let me start with you. Childcare is essential infrastructure but work requirements do impose unnecessary restrictions on access. The requirements on subsidies are arbitrary. They vary in both definition and enforcement State to State, and according to recent CRS estimates if we expand the childcare subsidies with work requirements in place, it would automatically exclude half of children under 75 percent of State median income.

In your article from last year you wrote that women, especially women of color, face higher unemployment rates and racial discrimination and hiring, and yet need to access childcare in order to remain in the labor force.

Would you say that work requirements can be unfair barriers to otherwise qualified families, even applying for, or accessing childcare? You can just give me a short yes or no answer.

Mr. MALIK. Yes, thank you Congresswoman. Yes, just simple work requirements are not really the way to effectively connect families with what they need in terms of childcare.

Ms. JAYAPAL. Thank you so much. And in your testimony you had said that child care access needs to come before people can start looking for work, so if we were to remove work requirements, don't you think it would help the neediest of families access child care?

Mr. MALIK. I mean I think from what I've looked at with the Child Care for Working Families Act, what it does really importantly in this new version is it makes—expands the entitlement to people looking for jobs which kind of removes that friction from I'm out of work, I'm looking for work, I'm getting back into work.

And really it has in the current status quo eject families out of the childcare system that they need. It also though expands to parents seeking education. There are more than four and a half million student parents who really, really need childcare in order to continue and to complete that educational framing, as well as you know when there's these other provisions in there.

So I'm encouraged. I think that ultimately getting to universal coverage is where we want to get to. And this gets us a big part of the way there.

Ms. JAYAPAL. Thanks Mr. Malik. I agree there is some important provisions that help us expand. My concern is that working parents are already struggling to come up with thousands of dollars, and you know I think the CRS estimates that half of children from low and middle-income families would be left out is very troublesome.

I want to call to people's attention the work that's been done on scarcity. Research and behavioral science has consistently shown that work requirements are very tough and small hassles can have a disproportionately large impact on whether and how people complete any process.

So just for us to be successful with these benefits that care is so essential to families across the country, we need to minimize the hassle and complexity and not have enormous forms and administrative costs that come from administering those complex work requirements.

Let me just quickly spend a minute on actually I have even less than that, just on the cap. You know the Family Child Care expenses are 47 percent higher now than it was before the pandemic. In Washington State on average, Washington households are already spending 14 percent of their income on childcare.

And middle-class families, especially those in my district whose median income exceeds the State level by 50 percent. In districts that are housing poor, where people are spending up to 50 percent of their income on housing, they're really feeling this blow.

And so I'm hoping that as we move forward with this bill we can make sure to expand the income cap because as costs continue to rise I think we need to stick to the HHS recommendation in 2016 that no families spend more than 7 percent of their income on child care. We don't want to exclude some very critical families at the middle-income range, particularly in our income you know, high income families.

So thank you so much for that testimony today, and Mr. Chairman thank you for your leadership on all these bills. Important hearing. I yield back.

Chairman SCOTT. Thank you. The gentlelady from Tennessee Ms. Harshbarger. Gentlelady is still on mute.

Mrs. HARSHBARGER. So sorry, can you hear me now? Are you good? OK. Thank you, Mr. Chairman and Ranking Member Foxx and all the witnesses. I had a story similar to Dr. Miller-Meeks. I was the first one to graduate from college and then went on and got a post-doctorate degree. My parents never graduated from high school.

You know I've worked full-time. I went to school full-time. And I raised a family full-time, and I paid every bit, every loan that I had back until they were completely paid, so it can be done. And that just strengthened my character as a matter of fact where I could become a freshman Member in Congress and take on the world it looks like.

But this is for Mr.—Dr. McCluskey. Canceling the student debt hasn't been mentioned in the infrastructure package, but that doesn't mean that it may not be included in the legislation when the text is passed. Let me ask you a question. Would canceling the student debt fix the underlying problems that lead students to borrow over 1.5 trillion to fund post-secondary education sir?

Mr. MCCLUSKEY. The only thing I think, and thanks for your question, I think canceling would increase the willingness of people to take out debt, and more debt to pay for higher education because the assumption would be well I can take on this debt.

And just as we just saw I won't actually have to pay it back. And so why not take more? Why not go to a more expensive school that may have you know, the nicer food, the nicer buildings, the lazy rivers. And so if anything, it would exacerbate the problem to say you know I'll take on the debt. There's a good expectation it will be forgiven.

Mrs. HARSHBARGER. Yes. Well the second question is what could Congress do to create space for the private marketplace to re-enter the higher education sector and how would that benefit students?

Mr. MCCLUSKEY. Sure. So the Federal Government is by far the biggest lender in higher education. It's like 90 percent of the mar-

ket or more. And that means it's crowded out lots of private lenders. The Federal Government should begin to reduce how heavily involved it is in student lending. You might start with the PLUS loans. There's parent PLUS loan, graduate PLUS loans, but they are not targeted at all toward low-income families who are the ones who need the most help.

So you start by reducing all those programs that funnel money to people who clearly do not need the assistance in order to pay for college. But that is, you know, it's counter intuitive, but that's how we turned rationality—not just to college pricing, which is incredibly inflated prices, but to college consumption where we no longer have our thumb on the scale saying you should all go get a four-year credential, whether it represents actual learning or not because we're going to give you the money to do it.

We want people to do it as efficient and as effective an education as they can get, not just another piece of paper.

Mrs. HARSHBARGER. Absolutely. Well you know you have those loans too you're going to do your best to make a good grade, get out and get a good job. And this next question, thank you sir, is for Mr. Riedl. Let's stay along those lines sir and say that Congress were to pass legislation canceling that student loan debt.

Is there any evidence to suggest this possibly would act as a stimulus to the economy?

Mr. RIEDL. It would not be a stimulus to the economy at all for three reasons. First, the 1.5 trillion dollars in benefits for borrowers would be off-set by lenders receiving 1.5 trillion dollars less in repayments that now cannot be spent or lent out.

So it's a zero transfer from one group to another. Second, any benefits to the borrowers were to accrue gradually over the life of the repayment period. It's not like you get a huge cash windfall at your door for the amount of your loan.

And third, student loan forgiveness we have not determined this for sure, but student loan forgiveness may be taxable as income, meaning that if you get $50,000.00 forgiven, you may get a tax bill having to pay taxes on that $50,000.00 immediately in the current year which would mean it actually hurts the short-term economy.

So in that way it's certainly at best it's not a stimulus. In worse, depending on tax law it could be harmful.

Mrs. HARSHBARGER. Well one last question. Who would benefit the most from the Federal Government wiping that debt away?

Mr. RIEDL. According to the Urban Institute, 544 billion dollars in benefits would go to the highest earning quarter of people and only 192 billion would go to the bottom earning quarter of earners. And that's because half of all student loan debt is held by graduate degrees, doctors, lawyers, MBA's, that's who benefits.

Mrs. HARSHBARGER. Yes. Thank you, sir. I yield back.

Chairman SCOTT. Thank you. The gentlelady from Connecticut, gentlelady from Connecticut Mrs. Hayes.

Mrs. HAYES. Thank you, Mr. Chair, for holding this hearing today. The communities hardest hit by COVID are also the communities that have schools in the worst physical condition. A 2014 study by the U.S. Department of Education estimated that it would cost 197 billion to bring all public schools into good condition.

It's been 7 years since that study. Ms. Filardo does your current research show any data about the cost it would take today to bring schools into good condition?

Ms. FILARDO. Yes. Thank you for the question. It's a little bit tricky because there is not a national data base, or there's not really great data on some of this. What we know is what it takes to keep schools in good repair. And it takes about 100 billion dollars a year.

And we know we've been spending about 50 billion a year, so we're running a deficit of about 50 billion a year. So you could do the math, in 10 years you're at a trillion-dollar deficit.

Mrs. HAYES. Well thank you. I don't have any scientific evidence, but if only 3 percent of our schools were in disrepair, they must have all been in my school district. In 15 years I can tell you that we've had so many buildings with problems.

So I can tell you from first-hand knowledge that many of our schools are in desperate need of attention and we need to revisit. I mean it's over a decade and this pandemic has only further exacerbated these problems and shown us how the air quality, the physical space, mold, mildew, things that we've talked about how it's so critical that we address these issues, so thank you.

We've also seen not just in the physical infrastructure, but gaps in our childcare system. We couldn't reopen the economy without thinking about how our children would be taken care of. And I would be remiss as a classroom educator if I didn't comment on the fact that I know for sure that children benefit from preschool.

We can disagree on what that looks like. We can disagree on how it's paid for. But in this Committee, I want the record to reflect that Congresswoman Hayes does not believe that preschool is counterproductive.

Mr. Malik according to Professor Taryn Morrisey at American University, on average the early care and education settings attended by many young children, particularly low-income children, or children of color, provide quality at levels too low to adequately promote children's learning and development.

My question for you is how does a parent identify what is high-quality in a childcare system? And then what affects does the lack of high-quality childcare have for children, communities, and our country?

Mr. MALIK. Thank you, Congresswoman, that's a very good question. And unfortunately, right now it's very hard for parents to get all the information that they need on what programs are high-quality, what quality does indeed look like, what the future of that program that they're enrolling their child or children in may be.

Because childcare programs have high turnover, have severe challenges in you know emergency situations such as pandemics, are very vulnerable to drops in enrollment and don't get the adequate funding that they need.

Now the second part of your question I'm sorry if you could repeat.

Mrs. HAYES. What effects does the lack of high-quality childcare for children have on communities and our country?

Mr. MALIK. Yes, yes, so you know the quality comes from the trained professional, hard-working workforce of more than 90 per-

cent women, disproportionately women of color who have operated this industry on a shoestring budget for decades. And I just want to State here that this year they worked through this pandemic to serve all of the essential workers, the front-line healthcare workers.

They were there when we needed them. They deserve an investment in the work that they have provided to our families and to the children that they have taught through the years. And those quality investments pay for themselves many times over, in terms of not just the educational outcomes, but the social and economic outcomes for children, and for as I've said before, the security of those family units.

Mrs. HAYES. Thank you. I'll just close by saying educating my children doesn't only help my family, it helps your family, and it helps our community. It is a public good, and Mr. Chair with that I yield back.

Chairman SCOTT. Thank you. Next the gentlelady from Illinois Ms. Miller. The young lady from Illinois Ms. Miller?

Mr. LEVIN. You've got to unmute.

Mrs. MILLER. I would like to thank all of our witnesses for their testimonies. As the mother of seven and as an educator that has spent time in public, private and home school educational situations, school is very dear to my heart, and strengthening our families also.

I believe that every child deserves a high-quality education that meets our unique needs and gifts. I also believe that it's best handled at the local level. As we consider proposals related through K through 12 education, I hope that we consider how to keep D.C. bureaucrats out of the classroom, and instead empower State and local educational officials to improve their schools.

So my question is for Dr. McCluskey. You demonstrated that pumping more money into our current K through 12 system hasn't done much to improve our math and reading scores. I share your doubts about being able to spend our way to better education.

What reforms do you think would be effective in improving academic outcomes for American students?

Mr. MCCLUSKEY. Thanks. I mean the No. 1 reform is we need school choice. We need to fundamentally change how we deliver K through 12 education from a model where we fund—the government funds the schools, and you are essentially assigned to a school, we've moved away from that somewhat, but that's still the norm.

To a model where the money follows the student to the school, where the other educational arrangement, you know now we have pandemic pods, we have home schooling, we have lots of other options. But it follows to what works best for that family and for those children because all children are different. But that should not be a Federal thing, other than in Washington, DC.

Certainly, for people in the military you can deliver school choice, otherwise it should be State and local, and the job of the Federal Government should be to stay out of the way, not to put rules and regulations on how K through 12 education functions.

Mrs. MILLER. And I have another comment. So you know I have the seven children, and we encourage them to seek merit scholar-

ships and/or to work. So they either work part-time or full-time their entire way through school, but I have to say that we observed because we had close relationships with some of our children's friends, that my children's peers that received free school were the ones in our experience, that didn't graduate.

They were the ones that moved out of their homes. They upgraded their vehicles, and they spent their time partying and flunked out. And so my question to you Dr. McCluskey is so many of these people that are getting full tuition assistance end up dropping out.

It turns out that only 60 percent of those that enroll in bachelor programs have completed their degrees 6 years after enrollment. Dr. McCluskey what do you make of our abysmal 6-year graduation rates, and do you think free college proposals would have any effect on graduation rates?

Mr. MCCLUSKEY. Well there's certainly a problem when someone, when you're consuming something, where you're going to college using money that comes from somebody else, and typically not somebody you know, so it's not family. You are less incentivized to finish, and to finish as quickly and as efficiently as possible.

So there's I think little question that the existence of subsidies have incentivized people to do a lot of other things in college, then focus on completing a program as quickly as possible in an area that's in demand.

But there is another problem to this which is that it has made it expensive, much more expensive than education should be, so there are certainly people who do have to work because the price that they are presented with is so high, and it's so high because it's been artificially inflated by student aid.

So now rather when the problem is that you're not incentivizing people to get education as efficiently as possible, and to complete it, or that the price has become so high it's very difficult for some people to afford, it's that aid that's at the root of those problems.

Mrs. MILLER. Yes and Dr. McCluskey you've pointed out that many issues with the free college proposals, but you rightly acknowledge that college tuition costs are out of control. Can you recommend any policy proposals for the Committee that would reduce the cost of higher education without the unintended consequences of free college?

Mr. MCCLUSKEY. Right. So instead of saying we make it free, we reduce those subsidies that the student aid program, especially those student loan programs that aren't well targeted. Start with those. I think the parent PLUS loan and the grad PLUS loan in particular, are good places to begin to add rationality to consumption and pricing by saying we're not going to provide money to the people who don't need it. Let's at least focus our aid on those who do need it.

Mrs. MILLER. And I do have to add if I may, that the experience of my children having to work and go to school at the same time did keep them out of some of the traditional landmines that college students fall into, and gave them experience in the workforce while they were going to school.

So that's very valuable too and I don't think it should be discounted. And I don't think we should look at it as all bad, people

have to scramble and work, or even be concerned about what they're going to eat or where they're going to live, because that's part of entering into adulthood. And I yield back my time.

Chairman SCOTT. Thank you. The gentlelady's time has expired. The gentleman from Michigan Mr. Levin.

Mr. LEVIN. Thank you so much Mr. Chairman for convening this important hearing today and thanks for the witnesses. I can't begin to count how many priorities I'm excited to work to include in President Biden's Infrastructure and Jobs Plan.

But I want to take a moment first to focus on the idea of tuition-free community college which bears little relationship to some of what I've been hearing here. As a former Chief Workforce Officer for my home State of Michigan, I created a free community college program called No Worker Left Behind, and we put 162,000 un and underemployed workers back to school. And we had waiting lists in every one of Michigan's 83 counties.

And now recently my Governor Gretchen Whitmer created a tuition free benefit for front line workers who have kept our country running during the pandemic. But there's an important difference between the proposals before us today including the America's College Promise Act that I introduced yesterday with you Chairman Scott, and many of the recently created State level programs.

Unlike many state-run programs, America's College Promise would provide what's called a first dollar benefit, meaning that benefits are not reduced when a student receives other financial aid like the Pell grant. So President Mitsui let me ask you this, can you talk about how this type of first dollar structure helps to ensure that students can use other financial aid to cover basic needs?

What would it mean for their ability to stay enrolled and complete a degree which many people have you know talked about today?

Mr. MITSUI. It is vitally important. Thank you, Congressman Levin, for the question. As I mentioned earlier, and as research points out two-thirds of our students in the community colleges struggle with basic needs insecurity.

And you know I do want to point out that the survey that we conducted at Portland Community College, almost 19 percent of respondents indicated experience with houselessness.

Mr. LEVIN. Yes.

Mr. MITSUI. And this is not a rite of passage. This is living in a car. This is couch surfing or living in a tent. Not being housed. Out in the cold during the winter and trying to study and trying to complete school.

Mr. LEVIN. So in other words if we cover their tuition and books or whatever, then they would really need the money to be able to live. So I just think that that's so important. Let me turn quickly to Mr. Lanter. It's good to see you too.

I'm worried about the 4.2 million Americans who are long-term unemployed, especially given the additional challenges these workers face re-entering the labor market right now. The American Jobs Plan calls for new dislocated worker program and a subsidized job program for the long-term unemployed and underemployed.

Our Committee is considering ways to expand dislocated worker supports through WIOA and last week I introduced a bicameral bill

with Senator Chris Van Hollen to create a targeted subsidized job program for long-term unemployed workers. So from your experience in California, what additional supports do you think long-term unemployed individuals need to reenter the workforce successfully?

Mr. LANTER. Yes. Thank you, Congressman. Great question it's nice to see you. Look in my almost 30-year career working in the front lines of the public workforce development system there are fewer people served by our system that are more challenged than the dislocated worker.

Often long work history and coupled with a lack of reskilling over time is a recipe for long-term unemployment. So you asked what can we do. Well look, our Nation's retraining system must allow these laid off workers to not only receive education but receive the necessary supports that we were just talking about that will help them complete the education and obtain employment.

In California we've started a critical program called Breaking Barriers where we use 25 million dollars of general fund money for partnerships between community-based organization and workforce boards to enable the most vulnerable populations to receive the supports and have their remedial education necessary to complete their programs. That's the type of expansion we need.

Mr. LEVIN. That sounds outstanding. All right. Well before I yield back Mr. Chairman, I want to highlight the importance of the Build America's Libraries Act. You know I'm all about the libraries, and the Reopen and Rebuild America's School Act.

I'm a proud advocate for investing in our school and library infrastructure, and I look forward to working with you to ensure they're both included in the American Jobs Plan. We need to create great union jobs rebuilding our infrastructure so that our kids and our communities have safe spaces to learn and grow. Thanks Mr. Chairman, I yield back.

Mr. SABLAN. Mr. Levin this is Sablan. Could you add me on to your Build Library Act?

Mr. LEVIN. Yes sir. You've got it.

Chairman SCOTT. No problem. Next Member we recognize is the gentlelady from Indiana, Ms. Spartz.

Ms. SPARTZ. Thank you, Mr. Chairman, Members of the Committee. It's a very good discussion. You know someone who went through a lot of education, worked on education Committee in the State senate in Indiana, I would have a lot of discussion, we have lots of problems.

So I'll make a comment and then I have a quick question. You know my observation within our educational system is really broken and it creates with a lot of incentives that's happening, with low outcomes. We're not ready for life-long learning, and now that you know the pace of change is getting stronger, faster and faster, and we calculated in our State of Indiana less than half of the money goes to classroom, and I think putting more money in fancy buildings is not going to improve education.

I went to a pretty bad building. Wouldn't you know it back in Ukraine and had very good education. My father-in-law studied in one class, one room class, one room school, and he became very successful. Like we can spend a lot of money on education, buildings, but that's not what the quality of education. It's not going to get

kids better and ready for this very difficult world with a lot of changes.

And if you look at our country spends pretty much almost the most per child on education, and in a lot of areas. We have like somewhere a tenth, twentieth, and now it's common where we are. So I think it's unacceptable, it's very disturbing and it's very bad.

So my question is how we can—and maybe I'll ask Mr. McCluskey because Cato Institute is sometimes more like a libertarian. It can find a common ground between republicans and democrats and some criminal justices for example. Because we're having discussions and debate, we talk about it, we all understand that something has to change, but we'll never come up with any solution if we actually don't look at restructuring the system.

How we can provide fundamental skills in a better way, eliminate perverse incentive, have more skin in the game for institutions of learning, and get our kids ready for life-long learning. We have the whole world to compete, and our kids are not ready.

So I don't know Mr. McCluskey, do you have any observations and thoughts or any policy that we actually could agree on and move forward, not just continue debating.

Mr. MCCLUSKEY. Sure. Thanks for the question and thanks for saying that. Maybe be able to bring democrats and republicans together. I'm going to try the best I can do here. The first thing I'd say is I do think that there may be a chance if a lot of the people look at the PLUS loans, parent PLUS and grad PLUS. That may be an area that a lot of people could agree.

This is very poorly targeted aid, and the less well we target the higher education aid to those who need it most to lower income families, the worse we make this price inflation problem. So maybe in higher education that is a place where people can start looking at some of those programs that are not well targeted.

And another area I think that there may be a—where we could get widespread agreement, not necessarily do I think it should be Federal, but is at apprenticeships. But apprenticeships where we start with school choice at the K through 12 level, where we don't sort of constantly push people and say really if you want to be a full you know, person that everybody will respect, you have to get a four-year degree.

I think it's terrible how much we emphasize four-year degrees, but we also don't want to track people, and track students against their will. So we see charter schools for instance that do work toward apprenticeships, where people who want to learn, you know really valuable skills that aren't necessarily done in the college classroom, where they can choose that early on.

And I think that's somewhere that a lot of people could agree is let's make those kinds of apprenticeships, something that's a much more viable easy to access option for people while maybe they're still in high school.

Ms. SPARTZ. Right. And I think we're working the State of Indiana. And ultimately, it's not about four-year degree. You can actually attain your bachelor's degree much faster. You can you know I mean in 10 years you can really get you know primary education. Your secondary and post-secondary education could be done at high school.

And you can actually already have an associate degree. I had my master's degree in 15 years, back in Ukraine, and here for 13 years you're still in school. You know, so I think it could be done faster, and maybe looking at how we can integrate.

And I don't know if you ever look to integrate some of these technical skills and maybe some degrees that some people just want to have a piece of paper, although that really doesn't matter. But at least they can get a piece of paper faster and get done and get to work and be a productive Member, maybe get another one.

But I appreciate if you have any other ideas please reach out and I yield back, thank you.

Chairman SCOTT. Thank you. The gentlelady from North Carolina Ms. Manning.

Ms. MANNING. Thank you, Mr. Chairman. I do represent Gilford County, North Carolina. We recently had an outside evaluation done on what it would cost to do the necessary repairs and upgrades through our K through 12 schools, and the cost was in excess of 2 billion dollars.

Ms. Filardo school districts can you coded relief funds for school facility repairs and improvements, thank goodness. In your testimony you reference a letter from a National Council on School Facilities that recommends school districts use 15 percent of funds to meet CDC requirements and reduce deferred maintenance of their facilities.

Can you describe the need that remains beyond just my community, and how the Reopen and Rebuild America's Schools Act can build on this investment for schools across the country, not just North Carolina?

Ms. FILARDO. Yes, thank you. I know there's some confusion about sort of that maybe the money there is there to solve all the problems of our crumbling schools. And there's no question that if we actually took 15 percent, that there could be some progress made against deferred maintenance.

But I calculated it for about 12 states that had given me their most recent data, and it's still about 3 percent. If they got the 15 percent for schools, it was about 3 percent of their need. I mean I think one of the things that's really hard for people to appreciate is that the scale of this infrastructure is really enormous and complex.

We really operate industrial sized operations when you're talking about high schools and middle schools with you know complex mechanical systems, and you know, heating plants of you know all different sorts that are used on buildings that may be half a million square feet.

So it's fantastic what we're getting from the Rescue Plan for our school districts, but it just in no way makes progress against the really long-term issues that we're facing for resilient schools, for energy efficient schools, for you know schools that we really need to meet the workforce and early childhood requirements that we know are a part of the responsibilities of our communities.

Ms. MANNING. Thank you so much. Mr. Lanter as I've been meeting with people from across my district, I have been hearing from a lot of the businesses in my State that they're having trouble find-

ing a supply of qualified workers. Amid the COVID–19 pandemic, but even before that.

For many the ability to hire trained and qualified workers has been a long-standing challenge that was simply exacerbated by the pandemic. Can you help explain the investments in the Federal workforce system made through the American Jobs Plan and how those could address the long-term workforce challenges that I am hearing about and help us improve equity in our labor markets?

Mr. LANTER. Yes. Thank you, Congresswoman, excellent question. And you know you're absolutely right. The skills mismatch, and our country has been around long before the pandemic. You know the thing about it is the pandemic is only going to exasperate the challenges that individuals in our country had faced as we were going into the pandemic. And I think you know the skills mismatch really is at the heart of everything we're talking about today.

We have employers that are struggling to find talent and struggling to find individuals. And we have individuals who cannot see the path to those jobs. And this is where the America's Job Plan really helps. It can enable us to really retool the workforce development system.

This is the place for that retooled sector strategy. In California we've launched over 50 sector partnerships that bring industry, labor, workforce, and community-based organizations to the table. And you know what's really important about these partnerships is that it's driven by the demand of industry, and they're convened all over the State by intermediaries, by organizations who understand the challenge in these industries.

And more important, understand that job quality is more than just wages. For individuals that you're talking about Congresswoman, we're talking about set schedules. We're talking about career pathways. We're talking about childcare and benefits.

So these partnerships can really help. The America's Job Plan can fund industry sector partnerships across the country that are industry-led, where partnership is a priority, for long-term sustainability in an industry where worker voice is incorporated so that we can ensure quality jobs beyond wages, thank you.

Ms. MANNING. Thank you and I yield back.

Chairman SCOTT. Thank you. Thank you. The gentleman from Wisconsin, Mr. Fitzgerald.

Mr. FITZGERALD. Thank you, Mr. Chair. Interesting discussion, especially I think my perspective as a former State legislator. I'll just say I mean my position is still to decentralize education, allow the Governors of our states, and the State legislatures and the school boards, the school boards, handle the vast majority of these issues.

Everything from curriculum to infrastructure. In Wisconsin if a local school district wants to rebuild the high school, they put the question on a referendum and let the taxpayers vote on it. And right now in Wisconsin over the last decade or so there's been a record number of referendums that have passed because there's been in excess of 50 percent of the people that vote in that school district say yes, we need a new high school, or no, we don't need a new high school or baseball field, or swimming pool, or whatever it might be.

So it makes me nervous whenever I heard Congress stepping in the middle of that and saying we know better, and we can figure out a better way of doing this, and we're going to make sure that we're going to fund these things because we all know strings are attached and that's alarming.

I'd also say I think it's almost insulting the way it's come up numerous times today that infrastructure is extended beyond what we would traditionally define it as. And the reason it's troubling I think is because you're trying to put people in that definition, so you're talking about teachers.

You're talking about school staff. You're talking about families and you're talking about the actual students, the children. That's insulting to throw them in that mix and say this is also infrastructure. No it's not. And that's why the polling that you see is so wildly popular is because it's got to be that the people that are being polled are saying you know we know what infrastructure is, an infrastructure is bricks and mortar, it's roads, it's bridges.

And if you try and redefine it like I know is going on right now, you know you're undermining people that they make a difference in our educational system. I just want to talk a little bit about and Congressman Goode talked about this a little bit too Bacon Davis.

But Mr. Riedl I was going to ask you the question on project labor agreements. It kind of falls under the same area as Bacon Davis, but you know certainly every dollar spent on schools, whether it is done at the local level, or whether it's some type of Federal money that might make its way down to a school district.

You know a lot of times these PLA's they eat away at the amount of revenue that's actually available to finish a project, and you know in Wisconsin we did away with project labor agreements, and especially when it comes to any of the municipal projects going on, and it's really helped us a lot. I was wondering if you had a comment on that?

Mr. RIEDL. Sure thank you Congressman. And I'll say that when I was in Wisconsin building on your point, we built Appleton North High School when I was in high school without any Federal help. It was decided locally, and they built it and it's a great high school and, so I agree with that.

Project labor agreements absolutely raise costs. They have been shown to raise school construction costs by anywhere from 13 to 30 percent in various states. And so you know money is limited, so when you're doing these infrastructure projects you can do less. You can't build as big of a school, you can't build as nice of a school, or you can build fewer schools, because 13 to 30 percent is a huge increase in costs.

Mr. FITZGERALD. Yes and I'd just say you know in the PLA's that sometimes are involved in some of these projects as well, you know they kind of push the project in a specific direction that otherwise you know probably wouldn't happen, and again it increases costs.

So interesting discussion today, and I would yield back Chairman Scott.

Chairman SCOTT. Thank you. Next gentlelady from New Mexico, Ms. Leger Fernández.

Ms. LEGER FERNÁNDEZ. Thank you so much Chairman Scott as well as Ranking Member Foxx for having this important hearing

today. We're here today to talk about the actions we can take to strengthen our economy by creating jobs, investing in what we believe, and we believe in investing in our children and supporting families.

But we can't do that without acknowledging disparity and the hardships Americans have faced right. So women in our country have lost a net 5.4 million jobs during the pandemic. Nearly 1 million more job losses than men. Women of color were hit the hardest.

Mr. Malik I was a Head Start baby, which is where I fell in love with learning, and appreciate your testimony about the importance of funding quality early child care, both to improve women's ability to return to the workforce, but also to invest in our children because we know that is how we create a future for our communities.

But when I meet with constituents they tell me that the lack of affordable, reliable child care holds then back, especially moms from accepting well-paying jobs, and becoming financially independent, and they want their children to be in those quality early child care situations that has been talked about today.

We also know that poor families don't always participate in programs like the free school lunches if the application process is difficult. So my question is what can we do in Congress to make sure that all families can access early childcare, including the poorest who might not be comfortable with complicated application processes?

And how can we make sure that families don't pay more than 7 percent of their income on childcare?

Mr. MALIK. Thank you for that question Congresswoman. I think we absolutely need to expand our investment in early childhood education as a public and consider all of the spillover benefits that we accrue throughout the K through 12 system and throughout society.

Those are well-documented. You know and I think we also have to prioritize making sure that low-income families are the target population that we want to make sure gains access to these programs. Now that might you know, a lot of that is the devil is in the details there, and I think that the Child Care for Working Families Act that we have now, the new version that's just come out.

I want to note that there's a whole slew of eligibility categories that are aiming for the greatest hiccup to try and really make sure that families who have been left out of the system are brought in first, and that those dollars prioritize low-income, middle class families for whom child care is an economic necessity, but one that has just been too far out of reach.

Now in terms of capping the amount spent on childcare, I think right now there is this 7 percent number. Of course that HHS set as kind of the ceiling for affordability. The only families that are spending 7 percent on quality childcare right now are really high-income families, and I've run the numbers on this.

And you've got to be making six times the Federal poverty level, so if you're over $150,000.00 a year in family income, on average that group is the group that's only paying 7 percent. Everybody else is at 20 percent, 15 percent, 10 percent of their gross income

spending on childcare among working families that are paying for it right now.

So I think the way that the bill is structured we're talking about making it free for low-income families, capping it at 2 percent for those who are making the State medium income.

Ms. LEGER FERNÁNDEZ. Thank you, Mr. Malik. I did want to get a quick question in with regards to the funding of school construction. And so, Ms. Filardo I think I wanted to see if you could talk quickly about the benefits that new school construction can have in addressing not just the need for schools, but schools that have access to the technology that we need, and that also by building schools that are more resilient and environmentally conscious that also attacks the other pandemic problem we have with regards to our global-type crisis, our climate crisis.

Ms. FILARDO. Yes so than different from your colleague from Indiana mentioned, it really does make a difference the quality of the environment that we're in. And we do better in better environments, so we are under-performing in part because of the environment that we're in. And that's true from an academic level. It's true from an energy perspective, it's true from the resilience perspective.

That our schools can be more resilient. They can be more energy efficient. They can be healthier. And all of these things you know it takes money. And again to counter some of the other you know I think really misinterpretations of RRASA is it is not a takeover.

It is really a program to strengthen the states, and their ability and capacity to do this. And the National Council on School Facilities who I work with, these fantastic State officials, you know, from Alabama, from Georgia, from Maine, from Alaska, from New Mexico, these folks are really doing some fabulous work, but the states need more incentives to be able to do more to help the local districts.

The decisions will still be local. They'll still be done at the State level. This is not a program where the Federal Government gets in between those decisions as referendums will still take place.

Ms. LEGER FERNÁNDEZ. Thank you, Ms. Filardo. My time has expired. And we will welcome additional funding in New Mexico. I yield back.

Chairman SCOTT. Thank you. Gentlelady from California Ms. Steel.

Mrs. STEEL. Thank you, Chairman Scott, and thank you Ranking Member Doctor Foxx. Congress has increased funding for K to 12 schools, colleges and universities over the last several decades, yet student's outcomes have not improved.

We have heard from parents who spoke to this Committee that the pandemic reeked-havoc on their child's education. We have sent teacher unions, elected officials kept classroom closed. We are seeing in California that parents are frustrated and ready for reform, in favor of more school choice.

According to the Public Policy Institute of California in 2020 school vouchers are very popular with parents, but California seems to be slow to implement new school choice and voucher options.

We asked so many questions and answers since I am one of the last ones. So I have a simple question to Dr. McCluskey. Do you think that providing parents with more options for their children for example, charter schools, virtual school, home schooling and vouchers for private schools, do you think it would improve educational outcomes?

Mr. MCCLUSKEY. Oh I think it definitely would improve educational outcomes. In fact there are 29 or so studies on the competitive effects of having school choice. I think it's 27 of those have found that the more options parents have around a public school the better that public school does because you need those incentives of people being able to take their money elsewhere to really focus on the outcomes that parents want.

So the research very much supports the idea that the more choice there is, the better the outcomes. And of course there was the study that was mentioned earlier at the University of Arkansas that found that NAEP scores are better, they get higher when people have more choice in their states.

Mrs. STEEL. Thank you Dr. McCluskey. Thank you, all the witnesses who came today, and Chairman I yield back.

Chairman SCOTT. Thank you. The gentleman from Indiana Mr. Mrvan.

Mr. MRVAN. Thank you Mr. Chairman and I'd like to thank all the witnesses for joining us today. With that being said Mr. Chairman, before I ask my question, I wanted to point out that the Davis Bacon or prevailing wage provisions do not increase construction costs.

The argument that prevailing wage laws increase construction costs relies on the flawed assumption that only the way the contractor can minimize labor costs is by paying workers less. This is false. In any industry an employer can also reduce labor costs by reducing turnover and using wages to attract and hire the industry's most productive of workers.

That being said I would like to address my support for the Buy American provisions. I strongly believe that Buy American policies ensure that we are not missing out on good-paying job opportunities and manufacturing across a range of industries in our community.

Chairman Scott's Reopen and Rebuild America's School Act has a strong Buy American provision, including a melted and poured standard for iron and steel. The melted and poured standard is extremely important for the steel producers and steel workers of Indiana's First congressional District, as well as workers across the country.

I thank the Chairman for recognizing the importance of the strong Buy American requirements. Mrs. Filardo can you share why Buy American requirements, along with prevailing wage and project labor agreements are important to the Reopen and Rebuild America's School Act?

Ms. FILARDO. Yes. Thank you for that question and I've been really mystified by the negative comments about it. It's you know proper wages and the quality that we get from our school construction from the project labor agreements, and frankly from union builders is just not—is well-known.

And we also know from building that was done under ARRA where you know in Texas and Arkansas and Georgia and California as well, spent money using the Federal dollars that they did not have a problem with Davis Bacon.

And in fact in Georgia they reluctantly explained to me that they thought maybe it was a little bit higher, maybe 7 percent that they had paid on a premium, but I would argue that you actually get something. You know there might be a little premium, I don't care if you get something for it.

And we know that in this country we didn't have schools fall down on top of kids like they did in China during an earthquake right. So we have really safe schools. We have schools that are done at very high quality with our project labor agreements, and I think we should be proud of those and I don't think we should be lowering those standards at all.

And certainly in terms of Buy American. One of the amazing things and wonderful things about our public schools is that they do have you know equipment and supplies and materials in them that are really—they're full of them frankly, with their furniture and equipment.

And if we could be manufacturing more of that in this country we'd be very, very well-off. In Indiana I know there's locks on doors and hardware that comes out of Indiana, and all of this is really important to our schools. We need a lot of materials and equipment, and we should be manufacturing it here.

Mr. MRVAN. I thank you very much. And I just wanted to close with saying that the Reopen Rebuild America's School Act along with the Buy American provision, one of my colleagues, Congresswoman Spartz asked what we can do together.

And what I believe can unite our country is bring workers together and make sure that we're uplifting workers' ability to make a wage and a family sustaining income, along with health benefits, and along with a secured pension.

And as we go forward, I just want to thank everyone for your participation. This ties everything together with early childhood development along with community college and dislocated workers and making sure we get our workforce back on track and being able to provide for their families.

I thank you Mr. Chairman and I yield back.

Chairman SCOTT. Thank you. And our next Member to be recognized is the gentlelady from Louisiana, Ms. Letlow.

Mrs. LETLOW. Chairman Scott, Ranking Member Foxx, Members of the Committee and witnesses. Thank you for taking the time to discuss President Biden's new legislative proposals, the American Jobs Plan, and American Families Plan.

While I believe Congress should invest in education and workforce development efforts, we also must be mindful in evaluating four important areas before we start spending hard earned taxpayer dollars. First, how much we spend and the effect it will have on our children and grandchildren.

Two, the regulatory burden that Congress puts on the use of funds, less government intervention, not more. Three, if we are addressing the root cause of the problem, throwing money at a pro-

gram without addressing the challenges, or how we can measure the success is not a wise use of taxpayer dollars.

And fourth, that the role of State and local governments for education spending. Most education spending is funded locally. Congress has already spent billions of dollars for education with the last several COVID–19 relief packages and stimulus bills. While some of the President's new proposals hold merit, like expand broadband access to rural areas. I have serious concerns about piling on additional spending when many of the already appropriated funds have yet to be allocated and sent out by the Federal Government.

My question is for Dr. McCluskey. Do you know where the United States falls in comparison to other countries in terms of elementary and secondary education spending? And where do we fall in comparison to other countries in terms of our outcomes for these students?

Mr. MCCLUSKEY. Yes. We spend more than almost any other country, certainly Luxemburg spends more an a few others. And if you look at international exams like the Tim's exam, or the PISA exam, especially if you look at math is where we struggle the most, it doesn't appear at least relative to other countries, they seem to generally spend less than we do.

And they typically have better scores. Especially again if you look at the math. It's a little bit less when you look at reading, but it doesn't appear that we're getting the bang for the buck that we would like to get.

Mrs. LETLOW. Thank you. And finally there seems to be a perception that we are vastly underfunding education. Why do you think that perception persists?

Mr. MCCLUSKEY. I think it's because a lot of the times we hear that well our schools of course are underfunded. It's repeating it as if is a given truth. And what's interesting is there's polling, often polling that's been done in the last few years, asking whether people think we spend enough on education. And it's usually you know maybe 60-some percent or so say no. We don't spend enough.

And then when they're presented with the amount that we actually spend, that goes down by about 20 percentage points. So I think we're accustomed to hearing that we don't spend enough and that we're always cutting, but if you look at the numbers only after the Great Recession, if you go back to the 1920's, only then did we see a dip in per pupil spending, adjusted for inflation, and it has since come back and was back in record levels.

Mrs. LETLOW. Thank you so much Dr. McCluskey and to the rest of the witnesses. Thank you for your time. Mr. Chairman I yield back the remainder of my time.

Chairman SCOTT. Well thank you so much. The gentleman from New York Mr. Jones.

Mr. JONES. Thank you, Mr. Chairman, for holding this hearing and of course to the witnesses for testifying today. As I have listened to some of the questions and testimony, I am disappointed in some people at the lengths to which they will go to shortchange our students and teachers.

One of the witnesses here today, Mr. McCluskey has made the argument that we should not increase our investment in education

because the average score on the National Assessment on Educational Progress has only seen a nominal increase. I would like to just note that while it's true that the average score has only seen a slight increase, scores for Black and Hispanic students have increased tremendously.

Between 1975 and 2012 the average reading score for students only increased by one point. But during that same period scores increased by 28 points for Black students, and 22 for Hispanic students, and a similar trend can be seen with math scores.

This shows that investing in students and schools, especially in poor communities and communities of color, improves outcomes and indeed does make a difference. We've also heard from others on this panel today that funding for education outside of Federal lands is somehow unconstitutional.

A deeply embarrassing and unserious argument that I never expected any witness before this body to make, frankly. And of course we've also heard the tired argument that Federal infrastructure investments are somehow inefficient and wasteful.

This runs counter to Ms. Filardo's testimony and what we've heard from stakeholders, constituents, and experts, including the non-partisan Government Accountability Office.

And to Mr. McCluskey, you know, who may or may not have actually read the Constitution, I feel the need to remind him that Congress derives its authority to craft and enact legislation from the spending and general welfare clauses in that very document. The Federal Government provides approximately 8 percent of all funding for K through 12 education. And what we are talking about today is the Federal Government playing a greater role in school infrastructure to improve the conditions of our Nation's public schools.

Ms. Filardo school segregation continues to be a major barrier to educational equity. The legacy of decade's old discriminatory housing policies continues to exacerbate segregation in housing and in our Nation's schools.

According to a 2016 GAO report schools are more segregated today than at any time since the 1960's. How can states and districts support improving school integration through school construction?

Ms. FILARDO. That's a great question and they certainly segregated them through school construction. And I think that in RRASA with the ability to do planning and the requirement to have good data, and have the communities engaged in planning with good data, that there will be a possibility to better plan to have integrated schools.

But I would also like to caution that schools that are 100 percent minority that are in poor condition should be modernized. They should not have to wait to have white students in them before they are modernized. And part of what's happened in many of our urban center city communities is the disinvestment in those schools has pushed enrollments down, so that they've been threatened with closing, and they've been closed rather than fixed up.

And I think that we have to be careful about the frame on what it looks like because I think that we really want to make sure that

this gets the highest needs kids, and then frankly those schools will more than likely to be integrated.

We saw that in Washington, DC. when my kids were in school.

Mr. JONES. Thank you so much. And Mr. Malik, President Biden recently proposed a 25-billion-dollar investment to upgrade childcare facilities and build new supply of childcare, especially in high need areas. At the Center for American Progress, you have written extensively about childcare deserts. Can you please explain what childcare deserts are, and how President Biden's plan would address the issue?

Mr. MALIK. Yes. We were first to collect the locations on all the licensed childcare programs in the U.S. and found most census tracks, there were more than three times as many children as there were licensed childcare slots, which we dubbed childcare deserts.

Those were disproportionately rural areas, low-income areas. And what we really need to think about when we're investing those infrastructure dollars is how can we fill those gaps? How can we innovate to grow the childcare sector in its supply, to find those gaps and to serve those communities that have been underserved and have been left out?

Mr. JONES. Thank you so much. Mr. Chairman I yield back.

Chairman SCOTT. Thank you. Gentleman from New York Mr. Bowman.

Mr. BOWMAN. Thank you, Mr. Chairman. And thank you to our witnesses. Ms. Filardo thank you for your leadership at the 21st Century School Fund. As you already know before I was a Congressman, I was an educator in public schools for 20 years. I know first-hand that the infrastructure needs of our neighborhood schools run deep.

The quality of education we want for every child is only possible if we address the decades of disinvestment in our public schools, and specifically the learning environment we ask our students to learn in, and our educators and school staff to work in.

Incrementalism is a timeline we can't settle for. The President's American Job Plan calls for 50 billion in direct school infrastructure grants, and 50 billion in bonds. RRASA doubles this investment with 100 billion in grants.

Can you explain why 50 billion in bonds would not provide as much support to low-income stores and how RRASA will support the development of zero carbon schools?

Ms. FILARDO. Yes, I can. You know we were delighted to see school infrastructure in the President's plan, but actually quite disappointed in that the raising of the bonds, and the lowering of the grants is really counter to any agenda for greater equity.

Wealthy districts, or even basically middle-income districts can afford to borrow. They can get credit. They don't have to pay high interest rate because they have credit. The poor districts they can't borrow. They don't go out to bond because there's no point. They've got no evidence stream to repay their debt with.

So the lowering of the grant program in half was a real blow to low-income, the lowest income districts and really the highest need cities where they're already burdened with tremendous amount of debt.

And I don't think people really realize but local school districts, you know, I said it earlier in my testimony, about a half a trillion dollars in local school bond debt, and you know, it's not that they're not trying. They really are, but they need the Federal help that RRASA would give.

Mr. BOWMAN. Can you explain how poor school districts became poor in the first place?

Ms. FILARDO. Well there's a lot of different ways right, but part of it is the average size of a school district in this country is 1,000 students—median, I'm sorry, not the average, the median. And only you know a handful of districts that are really large. The small districts in part are small in part because of segregation.

They were carved out to be small, and they don't come necessarily with high tax base or any tax base, whether it's sales tax or property tax. And so they are struggling, and they will not have any capacity to do a comprehensive project without State and Federal help.

Obviously, in the cities you have a different situation where you've got the average age of your infrastructure at 60–70 years old like in Baltimore or Philadelphia, and it's just so big and so old, and so expensive to work in these urban environments that they have had a very hard time meeting the level of needs that they need, as well as you know the challenges with you know the operating costs of operating very old infrastructure.

So it's a very challenging thing and I know this is new. Federal funding for school infrastructure is new. You know they did it in the depression, but it's not been a program, but it's not that we can't solve this problem we can, but we need this Federal, State and local partnership to do it, and RRASA really lays a plan out.

Mr. BOWMAN. Thank you. Mr. Lanter between 2018 and 2028 the direct care workforce is projected to add more than 1.3 million new jobs. Home care will add nearly 1.1 million jobs in that period which represents the largest growth of any job sector in the country, yet nearly a quarter of these workers still rely on public assistance due to low wages and poor benefits.

What can we do as legislators to make sure that we are training enough care workers to meet the growing need, and how can we best ensure all care workers earn a living wage?

Mr. LANTER. Yes. Good question, thanks Congressman. We have to do better. We need to start by acknowledging that the term quality jobs takes on many forms. But in all matters, we need to strive to ensure that individuals have dignity in work, and that they can provide for themselves and families.

Sectors like the one you mentioned and another one we've been talking about here today early childhood education are in demand, and the impact of these industries are enormous. In California *kidsdata.org* reports that even though there are roughly 1 million childcare slots available, it's only one-third of the need.

The cost of business is annually 1.8 billion in absenteeism and turnover among working parents. But there are things we can do Congressman to help these industries.

First, we should fund the development and articulation of career pathways that started entry in mid-range jobs in these industries like the ones we're discussing, and show how individuals can fur-

ther their career and move into an occupation that pays better wages in that field, or into a related industry in a field nearby, a related industry, sorry.

And second, fund the work of workforce intermediaries, organizations that have deep knowledge of the industries in question. They can work with employers to help provide better work environments. They can link education providers to workforce development. They can ensure wages are increased, and finally they can connect partnerships together resulting in models like apprenticeship programs.

And this work can all be scaled by the funding in the American's Job Plan.

Mr. BOWMAN. Awesome. Thank you Mr. Chairman I yield back. Sorry for going so far over.

Chairman SCOTT. Thank you. Our next Member is the distinguished chair of the Budget Committee, the gentleman from Kentucky, Mr. Yarmuth.

Mr. YARMUTH. Thank you very much Mr. Chairman and thanks to all our witnesses. It's been an interesting discussion. I think what I've come away with from the last couple of hours is a pretty stark reminder of why it's difficult to find common ground.

I mean we have some very substantial differences here, not just about whether the Federal Government should be involved in financing our education across our country, but also what the value of education is. And I've been astounded to hear statements. I think basically one from Mr. McCluskey that diplomas are just pieces of paper.

I don't know how many non-college graduates are in responsible positions at the Cato Institute. I suspect that virtually everyone there has a college degree, so there must be some value placed on that. I've heard comments about how early childhood education is not really effective.

And these things are—represent again a stark difference in the—I won't necessarily say parties, but in the perspectives that we have in Congress. I'm particularly interested in early childhood education. We are now in a position in this country where for the first time a majority of children born in this country are not white.

That means that at least on a particularly predictable basis, a larger percentage of our children will be coming from households where fewer resources of lower income levels than has historically been true. But they are the next generation, or two generations from now.

They are our tax force. They are our workforce. And I think this has to be a major national priority. And you know I heard comments like studies show that a young child is better off developmentally with a parent. Well that may be true, but maybe true in a majority of cases. I don't know.

I know it is not true for everyone. I know it is unrealistic because a vast—a huge number of our children are not in households where the parent can spend all of his or her, mostly her time with the child. And so I'll just keep asking where the answer is.

I know what a former republican President said, that was George W. Bush who said we can't afford to allow children to be deprived of the education they deserve because they are in a State or a local-

ity that doesn't want to make the efforts to provide the quality of education for them.

And I think that's a truism, I think it remains true today if not more-true than it was almost 20 years ago. But again, I'm focused on early childhood education. I represent Louisville, Kentucky. You could say Happy Derby Week to me, but we have an institution there called the Keystone Academy.

It's an early childhood development center. It sits in the middle of housing projects. Every child in that facility is a Black or brown child and is coming from lower income households. And they use something called the Reggio method in which the creativity of the kids determines what they do.

The teachers are there to facilitate their wishes. I visited there and I was blown away. It was miraculous. These kids have such superior socialization skills, verbal skills. They are doing things that I could not believe two and 3 year olds could do.

And it seems to me that when you have that unlimited potential, and the reality of the situation that we have literally tens of millions of kids in that position that we at the Federal level would not want to do something about that.

So I fully support those provisions in the American Families Plan and will work very hard to see that that's done. I have one quick question I'd like to ask of Mr. Malik, and maybe somebody else would want to respond to it.

And that is the one thing I worry about if we provide these enormous benefits to a lot of people, whether it's free community college for 2 years, or child care, are we going to have a resourcing problem, and how are we going to handle that resourcing problem. Because if you make a promise to American children that they're going to have access to full-quality and high-quality childcare, are we going to be able to provide that.

Mr. MALIK. Thank you, Congressman. I fully agree that this is a big project before us. I think the encouraging thing is we're talking about—finally talking about the kinds of investments that can get us to scale, but it will take several years, and we will need to prioritize certain regions, certain geographies, and certain categories of families and children as we move up to scale.

Because currently right now we've got a system that is working for the rich and the upper middle class. They can keep paying and that's going to be annoying for them to keep paying, but that is I think doable, and that is the reason that we have the Child Care for Working Families Act scaled to the degree that it is.

Mr. YARMUTH. Thank you for that. Thanks again to all the witnesses and I yield back.

Chairman SCOTT. Thank you. Has any Member not been recognized for questions? I don't see anybody. If not, I'll recognize myself for 5 minutes starting with Ms. Filardo. You had indicated the problem is about 50 billion per year. Is that what we are under investing in school construction?

Ms. FILARDO. It's close.

Chairman SCOTT. And you've talked about the problems State and local governments have in coming up with the money, particularly in low income areas. Can you say a word about why it's so

important to use the Title I formula for distribution of the money, so it will actually go to low-income areas where it's most needed?

Ms. FILARDO. Yes. I mean it's absolutely critical that it's targeted because essentially what RRASA would do, even at 100 billion, it's about not even 10 percent of the need nationally for what we should be spending on our school facilities right. So the 100 billion.

The 50 billion is what we're not doing, it's the gap right roughly, right? So if you've got 10 billion a year to spend out of RRASA over 10 years, you have to target it in order to get to the poorest kids. I mean it's just not going to happen any other way. And you know we know that the politics of even states getting their dollars to the highest need is very tough, and very hard, you know.

It's not easy choices when there's not enough money around, and so this is so important to get it to poor communities.

Chairman SCOTT. Thank you. Mr. Riedl you indicated that this problem in getting people to work if they're getting unemployment, you're aware that if you've been offered a job you're not entitled to unemployment, is that right?

Mr. RIEDL. That is technically what the law has said, although that was relaxed during the pandemic. That was not fully enforced by states during the pandemic.

Chairman SCOTT. But that's the rule. If you're offered a job, you're not entitled to unemployment compensation.

Mr. RIEDL. That is not always the case. If you can make a reason why, whether it's related to the pandemic or childcare, or anything like that you're not required to take the job. In some instances on paper you are, that has not necessarily been enforced however for the past year.

Chairman SCOTT. OK. But the rule is if the employer offers you your job back and you refuse it, you'll just submit that to the Employment Commission and then you will lose your unemployment benefits, not just the $400.00 but the whole thing. Are you aware that you talked about the deficit that's growing over the years?

You are aware that every republican President since Nixon has left office with the worst deficit situation as a percentage of GDP than they inherited, and every democratic administration has left with a better deficit situation than they inherited. Are you aware of that?

Mr. RIEDL. Yes. But that's—those stats can be used misleadingly. For instance, President Bush had a housing crash happen.

Chairman SCOTT. Well—

Mr. RIEDL. President Trump had a pandemic happen at the end of his presidency.

Chairman SCOTT. Whoa, whoa, whoa, whoa. He was on track to have the worst deficit before the pandemic you're aware of that. So you're aware of the trend. You've also talked about the devastating impact on the deficit that this spending would have. Are you aware that there are taxes associated to pay for these programs, so will totally pay for the program within 15 years? Are you aware of that?

Mr. RIEDL. No. These programs are not paid for. In fact, the current one only counts 8 years of spending and takes 15 years of taxes, even though the spending programs would likely continue after 8 years. The Congressional Budget Office is going to show that the taxes do not pay for these programs.

The proposal released today as well is also comes, will be scored by CBO as likely being about a trillion dollars short.

Chairman SCOTT. In the 10-year window, but in 15 years so it will pay for itself.

Mr. RIEDL. But the spending that only assumes the spending stops. Unless the long-term care expansion is actually going to end after 8 years, which I do not believe is Congress's intention, the costs will continue, and the deficits will rise. That's why a lot of the long-term studies such as Penn Wharton have shown higher debt, lower wages, and lower GDP.

Chairman SCOTT. I'll go back to the fact that every democrat since Kennedy has ended up with a better deficit situation than they inherited.

Mr. RIEDL. That's not based on policies, however.

Chairman SCOTT. Just a coincidence. Mr. Lanter in terms of apprenticeships, you didn't mention healthcare, insurance or technology. Is there—can we fashion apprenticeships to cover these untraditional apprenticeship opportunities?

Mr. LANTER. Absolutely Chairman. In fact there are already apprenticeship and pre-apprenticeships in those industries, including the insurance industry in our country and they're modeled off of apprenticeship programs in the European Union.

Chairman SCOTT. Good thank you. And I see my time has expired. So I want to thank all of our witnesses for being with us today. I want to remind my colleagues that pursuant to Committee practice, materials for submission to the hearing record must be submitted to the Committee Clerk within 14 days following the last day of the hearing, so by close of business on May 12 of 2021, preferably in Microsoft Word format.

Materials submitted must address the subject matter of the hearing. Only a Member of the Committee or an invited witness may submit materials for inclusion in the record. Documents are limited to 50 pages each.

Documents longer than 50 pages may be incorporated into the record by way of an internet link that you must provide to the Committee Clerk within the required time but recognize that in the future that link may no longer work.

Pursuant to House rules and regulations, items for the record should be submitted to the clerk electronically by emailing submissions to *edandlabor.hearings@mail.house.gov*. Members are encouraged to submit materials to the inbox before the hearing, or during the hearing at the time the Member makes the request.

Again I want to thank the witnesses for your participation. Members of the Committee may have some additional questions for you that we may ask the witnesses to please respond to these questions in writing. The hearing record will be held open for 14 days in order to receive those responses, and I remind my colleagues that pursuant to the Committee practice, witness questions for the hearing must be submitted to the Majority Committee Staff or Committee Clerk within 7 days and the questions submitted must address the subject matter of the hearing.

The Ranking Member has indicated that she does not have a closing statement, so I just want to thank the witnesses for joining us today and for sharing their expertise with the Committee. To-

day's hearing made clear that the proposals in the American Job's Plan does not just provide immediate COVID–19 relief for our communities, they also make long-term investments to address the lasting consequences of the pandemic and improve the quality of life across the country.

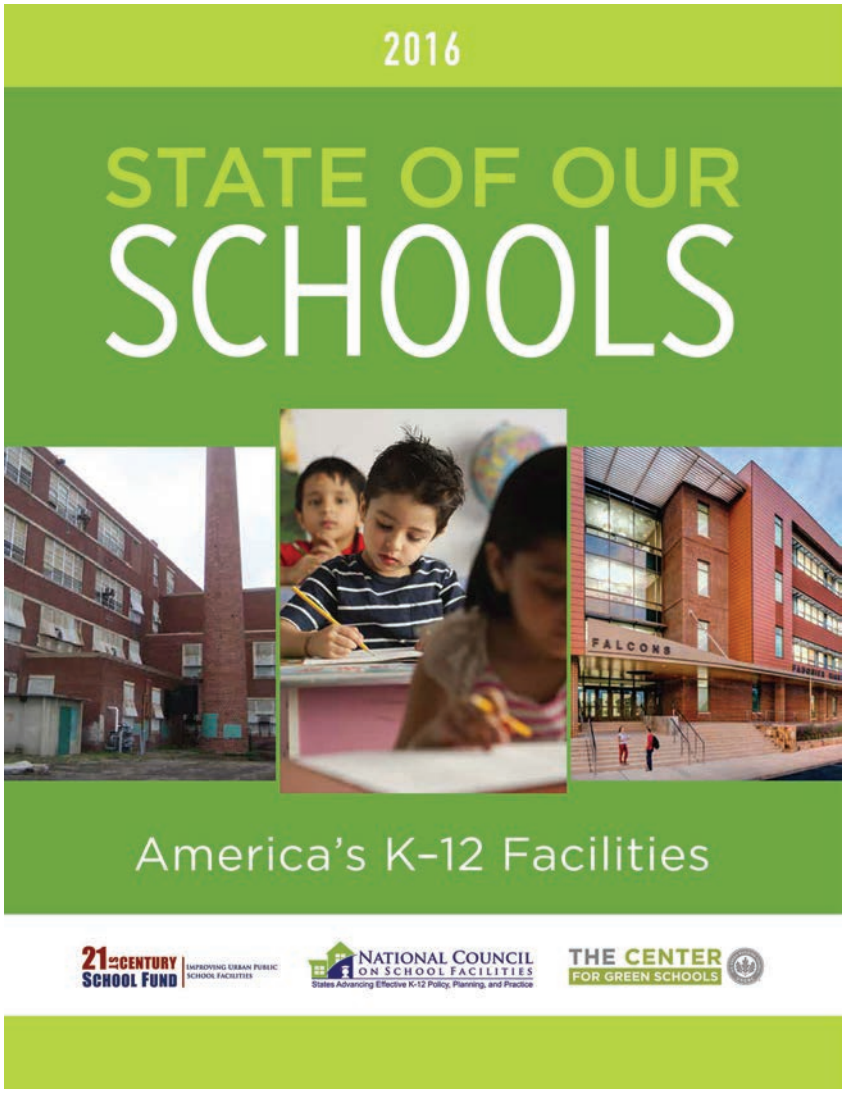
Investments will help millions of displaced workers get the skills they need to find good paying jobs and ensure that students and staff can safely return to the classrooms. They will ensure that working families can afford safe and high-quality childcare. And they will expand access to the lasting benefits of high-quality higher education.

Importantly, today's hearing also established the urgency of these proposals. Nearly all of the consequences of the pandemic are exacerbating disparities that have existed far longer than COVID–19, unless we proactively invest in eliminating these disparities a recovery effort could just bring us back to the status quo that failed too many Americans even before the pandemic.

That proactive investment is what we mean when we say Build Back Better. So again I want to thank our witnesses for their time today, and as we swiftly consider this legislative plan, I want to put aside, hopefully we can put aside our differences and work to build a stronger and more equitable future for all of the people in our country.

If there's no further business before the Committee without objection the Committee stands adjourned. Thank you again for all of the witnesses.

[Additional submissions by Chairman Scott follow:]



Data Sources and Methods

To complete the analysis contained in this report, the authors used a data- and standards-based framework to analyze 20 years of publicly available national and state data on public facilities spending for fiscal years 1994 through 2013.[1] We used the data reported by U.S. K–12 school districts on the U.S. Census of Governments F-33 Fiscal Surveys and published by the National Center for Education Statistics (NCES) as our primary data source. These data include local school district enrollments and annual revenues and expenditures, including those for capital outlay and for maintenance and operations of plant. A compilation of selected key data is provided in the profile for each state (available at stateofourschools.org) and in Appendix A. Additional data used in this analysis are available at stateofourschools.org/data. Note that, due to rounding, some figures cited in the report and profiles may vary slightly from the data cited in the appendices and posted online.

To check the accuracy of this district-level data, we compared them to capital outlay data reported by the states on the U.S. Census of Governments F-13 Fiscal Surveys of State and Local Governments. To further validate that both of these data sets were accurate, we compared the school construction capital outlay on the F-33 to the total statewide construction contract start costs collected and reported by state and year by Dodge Data & Analytics (formerly McGraw-Hill Construction).

The comparison of the state data sets indicate that the capital construction investment data in 18 states may be underreported by school districts on their F-33 surveys either for reasons of classification of the types of capital outlay, or because districts were not reporting spending on their facilities when it was provided by independent state agencies. We provide our comparison data in Appendix B and note these states in the tables, as well in the online profiles. We also adjusted the state share of capital outlay provided to districts based on input from state officials, as documented in Appendix C.

The state-by-state analysis and profiles incorporate the unique history of facilities spending and investment in each state, as well as other factors that vary by state: enrollment projections, the cost of construction, and the amount of school district space in the state. The National Council on School Facilities (NCSF) surveyed states on building and site inventory sizes and the cost of new construction. State offices that oversee and/or report on school facilities in each state were given the opportunity to review the data and offer input and corrections through NCSF; many directors provided valuable insight to both the national picture and the state profiles.

State of Our Schools: America's K–12 Facilities is a joint publication of the 21st Century School Fund, Inc., U.S. Green Building Council, Inc., and the National Council on School Facilities.

©2016 by the 21st Century School Fund, Inc. All rights reserved. Unauthorized use of this document violates copyright, trademark, and other laws and is prohibited.

Filardo, Mary (2016). *State of Our Schools: America's K–12 Facilities 2016.* Washington, D.C.: 21st Century School Fund.

DISCLAIMER: None of the parties involved in the funding or creation of *State of Our Schools: America's K–12 Facilities*, including the 21st Century School Fund, Inc., USGBC, and their members, and its contractors, assume any liability or responsibility to the user or any third parties for the accuracy, completeness, use of, or reliance on any information contained therein, or for any injuries, losses, or damages (including, without limitation, equitable relief) arising from such use or reliance. *State of Our Schools: America's K–12 Facilities* and its contents are provided without warranties of any kind, either express or implied, including but not limited to warranties of the accuracy or completeness of information contained in the suitability of the information for any particular purpose.

Contents

Preface 2

Executive Summary 3

Chapter 1: School Facilities Matter 5
- School Facilities Affect Health and Performance 6
- School Facilities Impact the Environment 6
- School Facilities Are Integral to Equity 6

Chapter 2: A Generation of Facilities Change 8
- Ensuring Healthy and Safe School Environments: Maintenance and Operations 8
- Ensuring Adequate and Equitable School Facilities: Capital Construction 8
  - New School Construction 8
  - Renewing Systems and Components 10
  - Altering Existing Schools 10
  - Addressing Deferred Maintenance 12

Chapter 3: K–12 Public Education Facilities Spending, 1994–2013 13
- Maintenance and Operations: An Average of $46 Billion Per Year 13
- Capital Construction: An Average of $49 Billion Per Year 16
- Paying for K–12 Public Education Infrastructure: An Inequitable System 18
  - Local Districts Carry the Load 18
  - State Funding Support Varies 20
  - Almost No Federal Support for School Facilities 20

Chapter 4: What It Will Take to Meet Educational Facilities Standards 21
- Industry Facilities Spending and Standards 21
- Setting School Facilities Spending and Investment Standards 22
- Annual Maintenance and Operations Spending Needs 23
- Annual Capital Construction Investment Needs 23
  - Capital Renewals 23
  - Alterations 23
  - Deferred Maintenance 23
  - New Construction 24
- Gaps in Delivering Adequate K–12 Facilities 26

Chapter 5: Strategies to Meet Modern Standards 28
- Understand Your Community's Public School Facilities 28
- Engage in Education Facilities Planning 29
- Support New Public Funding 29
- Leverage Public and Private Resources 30
- A Call to Action 30

Appendices 31

Endnotes 39

Acknowledgments 42

Preface

In 1995 the U.S. Government Accounting Office published *School Facilities: Condition of America's Schools* — the last truly comprehensive federal review of our nation's school infrastructure. The report found that half of all schools had problems linked to indoor air quality and an unacceptable 15,000 schools were circulating air deemed unfit to breathe. In the 20 years since the release of this report, states and districts have invested nearly $2 trillion in school infrastructure, but the critical question remains: where do we stand today on our commitment to provide all students a quality education in a healthy and safe environment? At its heart, school facility quality is a matter of equity, and responsible planning for the future requires that we have better information about the condition of our nation's schools.

School facilities represent the second largest sector of public infrastructure spending, after highways, and yet we have no comprehensive national data source on K–12 public school infrastructure. Even at the state level, school facilities information is often scant. The dearth of official data and standards for our nation's public school infrastructure has left communities and states working largely on their own to plan for and provide high-quality facilities.

These realities inspired our three organizations to assemble the best available state-by-state data and propose a standards-based framework by which we can benchmark the nation's investment. We set out to create a common fact base to understand three critical points:

1. the scale of elementary and secondary public school infrastructure;
2. the significant effort that communities are making to provide safe, healthy, and adequate public school facilities; and
3. the future investment needed to ensure adequate and equitable public school facilities for all students, including those in low-wealth communities.

A 2015 national independent poll commissioned by the U.S. Green Building Council found that 92 percent of Americans believe that the quality of public school buildings should be improved. As a nation, we have the will, but we must find the way. We invite problem-solvers from communities, government, industry and academia to use the framework and data in this report to develop creative solutions for improving our K–12 infrastructure. Together, let us secure new revenue streams and leverage public and private resources to provide the best educational opportunities for our nation's students — all of them.



Mary Filardo
Executive Director
21st Century School Fund



Rachel Gutter
Director
Center for Green Schools
U.S. Green Building Council



Mike Rowland
State Facilities Director
Georgia Department of Education

2016 President
National Council on School Facilities

Executive Summary

A large and growing body of evidence demonstrates that school facilities have a direct impact on student learning, student and staff health, and school finances. But too many students attend school facilities that fall short of providing 21st century learning environments because essential maintenance and capital improvements are underfunded. This report compiles and analyzes the best available school district data about U.S. K–12 public school facilities funding into a national and state-level summary. In addition, 50 individual state profiles are available at stateofourschools.org. Together, these documents create a common fact base from which to address three key questions:

1. Do states and districts have adequate operating funds for cleaning, maintenance, and repairs to ensure buildings and grounds are healthy and safe?
2. Are districts and states investing the capital funds necessary to ensure that their public schools are educationally appropriate, energy efficient, and environmentally responsible?
3. Are states and the federal government doing enough to ensure equity in education, so that all students have access to healthy and safe school facilities that support learning?

K–12 School Facilities Matter

The scale of U.S. public K–12 school facilities is staggering: every school day, nearly 50 million students and 6 million adults are in close to 100,000 buildings, encompassing an estimated 7.5 billion gross square feet and 2 million acres of land. In fact, state and local governments invest more capital in K–12 public school facilities than in any other infrastructure sector outside of highways. Research shows that high-quality facilities help improve student achievement, reduce truancy and suspensions, improve staff satisfaction and retention, and raise property values. They also are integral to ensuring equity in educational offerings and opportunities for students. Even so, no comprehensive information about school building conditions or funding is available at the national level, nor in the majority of states, despite the importance of this infrastructure and the enormous investments made by U.S. taxpayers.

K–12 Facilities Spending & Investments Averaged $99 Billion Per Year

School districts worked hard from 1994 through 2013 to operate, maintain, modernize, and meet the enrollment growth of the nation's K–12 public schools. In the span of these 20 years, school facilities changed more rapidly than at any time in recent memory, fueled by improved health and safety standards, stronger accessibility requirements, increased use of technology, and expanded programming within schools. Nationally, states and districts spent a total of $925 billion in 2014 dollars on *maintenance and operations (M&O)*: daily cleaning, grounds keeping, maintenance, utilities, and security of facilities. This amount equaled an annual average of nearly $46 billion per year for M&O over these 20 years. From 2011–2013, spending increased to an average of $50 billion a year.

In addition to M&O spending, states and districts invested $973 billion in 2014 dollars (an average of $49 billion per year), from their *capital budgets* for new school construction and capital projects to improve existing schools. Over the past three years (2011-13), the combined spending and investment totaled nearly $99 billion per year.

Capital Investment Impacted Communities Inequitably

The structure of K–12 school facilities funding in the U.S. is inherently and persistently inequitable. States and the federal government contribute funds towards school districts' annual operating

costs, paying — on average — 45 percent and 10 percent, respectively. Facilities M&O, as part of the operating budget, benefits from state and federal assistance. However, in making the capital investments needed to build and improve school facilities, local school districts bear the heaviest burden. This is the case despite communities' widely disparate levels of wealth and capacity to finance all that their schools need. While five states pay for nearly all their districts' capital costs, 12 states provide no direct support to districts for capital construction responsibilities. In the remaining 33 states, the levels of state support vary greatly. The federal government contributes almost nothing to capital construction to help alleviate disparities.

$145 Billion Per Year Needed for 21st Century Facilities for All Children

Using industry standards adapted to K–12 public school facilities, we estimate that the nation should be spending about $145 billion per year to maintain, operate, and renew facilities so that they provide healthy and safe 21st century learning environments for all children. Applying a 3 percent of current replacement value (CRV) standard for M&O, districts need to spend $58 billion annually to maintain and operate the 2014 inventory of public school facilities so they are clean and in good working order. On the capital side, the nation should be spending an estimated $77 billion per year (4 percent of CRV) to regularly upgrade existing facilities' systems, components, fixtures, equipment, and finishes as they reach the end of their anticipated life expectancy; systematically reduce the backlog of deferred maintenance that has accumulated; and alter existing facilities to respond to changing educational requirements. In addition, projections suggest at least another $10 billion per year is needed for new construction to accommodate growing enrollments over the coming decade. That brings the total annual facilities requirements to $145 billion per year.

The Nation Underinvests in Public School Facilities

		Historic Spending	Modern Standards	Projected Annual Gap
K–12 FACILITIES	Maintenance & Operations	$50 billion	$58 billion	$8 billion
	Capital Construction	$49 billion	$77 billion	$28 billion
	New Facilities		$10 billion	$10 billion
	TOTAL	**$99 billion**	**$145 billion**	**$46 billion**

$46 Billion Per Year Gap in K–12 Facilities Spending & Investment

The nation's current system of facilities funding leaves school districts unprepared to provide adequate and equitable school facilities. Comparing historic spending against building industry and best-practice standards for responsible facilities stewardship, we estimate that national spending falls short by about $8 billion for M&O and $38 billion for capital construction. In total, the nation is underspending on school facilities by $46 billion — an annual shortfall of 32 percent. Gaps vary by state and local district, depending on investments by local communities and the structure of school facilities funding at the state level. Nevertheless, investment levels in all states but three will not meet the standards.

A Call to Action

The American public supports high-quality school facilities. When communities have the means to build and maintain high-quality facilities, they do. This report identifies four key strategies for addressing the structural deficits in the K–12 public education infrastructure. First, understand current facilities conditions. Second, engage communities in planning for adequate and equitable 21st century facilities. Third, find and pilot new innovative sources of public funding. Finally, leverage public and private resources in new ways to assist states and districts in providing healthy, safe, educationally appropriate, and environmentally responsible facilities for their communities.

CHAPTER 1

School Facilities Matter



The U.S. K–12 public school system is intended to give students in all communities the education they need to rise to their greatest potential. The U.S. K–12 public education system serves nearly 50 million students and employs 6 million adults — mostly teachers — in more than 100,000 public elementary and secondary schools in about 14,000 school districts.[2] In every state, each of these students has the right to a public education, no matter his or her family income, race, religion, gender, disability, country of origin, immigration status, or remote residence.

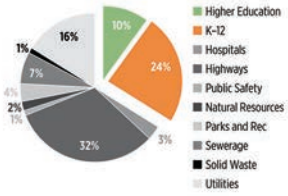
To support this educational mission, K–12 public school districts operate more than 7.5 billion gross square feet of building area, which includes warehouses, bus lots, administrative offices, maintenance facilities, and even teacher housing in some remote rural districts.Public school facilities include an estimated 2 million acres of land.[3] Districts also provide their schools and communities with extensive outdoor spaces that include areas such as playgrounds, outdoor classrooms, athletic fields, tracks, and landscaped and undeveloped green spaces. The square footage of public school district facilities equals almost half the area of all U.S. commercial office space. Next to highways, K–12 public school facilities are the nation's largest public building sector, accounting for about one-quarter of all state and local infrastructure capital projects for 1995 to 2012.[4]

When K–12 and public higher education are combined, public education captures the largest share of state and local capital investments.[5]

With more than one-sixth of the entire U.S. population inside K–12 public school buildings each weekday, school facilities have a major impact on the health and performance of

K–12 Facilities Account for About One-Quarter of State and Local Infrastructure Investments

Percent of total state and local capital outlay, 1995–2012



Source: U.S. Census of Governments, State and Local Government F-13 Fiscal Survey, FY 1995–2012, omitting 1997, 2001, 2003.

students and staff alike. They send a tangible signal of a community's willingness and ability to provide an excellent and equitable education to all its students. Our extensive public education infrastructure also impacts the social and natural environment of their communities.

School Facilities Affect Health and Performance

The importance of facilities to health and performance is well established. In a literature review examining ventilation rates and respiratory illness, for example, researchers at Lawrence Berkeley Labs noted an increase of 50 percent to 370 percent in the incidence of respiratory illness in spaces with low ventilation rates, as are commonly found in schools, compared to spaces meeting industry-accepted standards.[6] Breathing fresh air is not only critical for keeping students healthy but also for keeping them alert. Several studies have linked recirculating air and low ventilation rates in classrooms with lower average daily attendance and slower speed in completing tasks.[7] Studies also have found that poor facilities are strongly associated with student truancy and higher rates of suspensions.[8]

Several studies have linked recirculating air and low ventilation rates in classrooms with lower average daily attendance and slower speed in completing tasks.

Additional research shows that adequate lighting and good acoustics also help students remain alert and ready to learn. Research has examined the connection between daylight and students' ability to focus, retain information, and maintain alertness. These studies found that students without access to daylight had disruptions in their production of hormones essential to learning.[9] At least six major studies have concluded that students' ability to hear their teacher clearly has a substantial impact on their short-term memory and academic performance.[10]

School Facilities Impact the Environment

The location, design, and operation of school district facilities significantly impact communities and the environment. With 2 million acres of land and half the square footage of the entire commercial building sector, school districts play an important role in managing facilities to reduce the use of natural resources, support local ecology and resilience, and protect human health. School districts can save energy and water while reducing utility costs by using integrated teams for designing new buildings, upgrading buildings systems and equipment, and taking advantage of renewable energy generation opportunities. Reusing and adapting existing facilities reduces landfill waste and avoids the energy and cost of extracting or harvesting new natural resources.

The massive scale of school district infrastructure has a major impact on overall municipal infrastructure. One green roof installed on an existing school in New York City, for example, resulted in a reduction in storm water runoff of 450,000 gallons a year, both protecting the city's water treatment systems and promoting wildlife habitats.[11] Districts also have removed hardscape — like asphalt — and used native plants in landscaping, which helps mitigate a community's vulnerabilities from drought and flooding. Locating schools near the homes of students can enhance a community's resilience by providing ready shelter and safety in the event of natural disasters. And it can simultaneously reduce vehicle miles traveled by parents and buses, contributing to healthier air and reduced fuel consumption.

School Facilities Are Integral to Equity

The quality of public school buildings and grounds is a health, educational, and environmental equity issue for families and communities. A growing number of states have established by law the importance of facilities as a factor in equal opportunity in education.[12] The U.S. Department of Education has advised school districts to take "proactive steps" to ensure that educational

resources, including facilities, are allocated fairly.[13] However, a study of more than 146,559 school facilities improvement projects from 1995 to 2004 found that the projects in schools located in high-wealth zip code areas had more than three times more capital investment than the schools in the lowest-wealth zip code areas.[14] Some students attend school in bright, comfortable, and healthy facilities, while others are assigned to dilapidated, obsolete, and unhealthy facilities that pose substantial obstacles to learning and overall well-being. Some communities have modern, high-quality public infrastructure in their neighborhoods and communities. Others do not.

Projects in schools located in high-wealth zip code areas had more than three times more capital investment than schools in the lowest-wealth zip code areas.

A 2015 study of California school districts found that low-wealth districts spent a higher proportion of their total education spending on the daily upkeep, operation, and repair of their facilities than high-wealth districts. But low-wealth districts also spent far less on capital investments for building system renewals such as roof or mechanical system replacements and building alterations such as modernizing science labs.[15] Because it is more difficult for low-wealth districts to borrow the necessary capital to invest in the long-term stability of their facilities, these districts end up making necessary and emergency short-term repairs using their operating budgets — the same funds they need to pay teachers, purchase instructional equipment, and pay for other day-to-day educational necessities. As such, low-wealth districts often get trapped in a vicious cycle; underspending on routine and preventive maintenance in the short term leads to much higher building costs in the long term.



It is not just students who are affected by the quality of the school facilities. Studies also have shown that investing in public school infrastructure increases the value of property beyond the amounts borrowed, boosts enrollments, and helps rebuild confidence in a formerly struggling district or school.[16] But because the vast majority of capital construction is funded by *local taxpayers,* the ability of school districts to pay for major facilities renewals or new construction is tied to the wealth of the community. That reality embeds inequity into a state's school facility conditions, except in the small number of states that have reformed their educational facilities finance policies and practices.

Communities understand. According to a 2015 national poll commissioned by the U.S. Green Building Council, two-thirds of Americans believe it is "very important" to improve public school buildings.[17] When communities can afford to maintain and invest in their public schools, they do.

CHAPTER 2

A Generation of Facilities Change





Maintenance activities have become more complex — and expensive — as new technologies are introduced into building systems and components.

Over the past 20 years, educational environments have undergone enormous change, driven by shifting expectations and requirements from educators, parents, communities, and regulators. As educational demands and building standards have changed, many of the more than 100,000 public school facilities that were once considered to be adequate for teaching and learning now are considered to be woefully inadequate and even unsafe.

These changes have affected every area of school districts' responsibility for their buildings and grounds, including maintenance and operations (M&O) and capital construction.

Ensuring Healthy and Safe School Environments: Maintenance and Operations

To provide learning environments that are safe, healthy, and comfortable for students and staff, a school district must devote substantial funds to maintain and operate its facilities. Proper maintenance also extends the operational efficiency and expected lifespan of facilities and ensures that the school district obtains the maximum possible return on its capital investments. The maintenance and operation of school facilities is labor intensive. Building engineers, custodians, grounds keepers, and repair workers tend to daily maintenance and operations, such as patching roofs and cleaning gutters; changing filters in mechanical systems; refinishing floors; replacing lamps and filters; replacing failed equipment components such as motors, pumps, and switches; monitoring programming controls and settings on equipment; and responding to calls for emergency and non-emergency repairs to furniture, fixtures, doors, and windows. These maintenance activities have become more complex — and expensive — as new technologies are introduced into building systems and components. The amount of space used in education also has increased, giving districts more space to maintain and operate — sometimes with no new funding with which to do so.[18]

Ensuring Adequate and Equitable School Facilities: Capital Construction

A school district is responsible for several aspects of a capital construction program to provide adequate and equitable teaching and learning environments. The district must acquire and build facilities and grounds, renew or replace building systems and components over time, alter facilities to support evolving educational requirements, and manage deferred maintenance backlogs.

New School Construction

FACILITIES ACQUISITION: Activities that result in a facility or asset becoming available in a new or like-new condition to a school district for use as a school or other district facility.

Between 1994 and 2013, U.S. K–12 public school enrollment grew by 4.8 million students, although student population increases were not uniform across states. Eighteen states had double-digit percentage point increases in enrollment. Seventeen states had increases of between 0 percent and 9 percent, and 15 states had declining enrollments.[19]

K–12 Enrollment Grew 4.8 Million Overall, but Declined in 16 States

Percentage gains/declines in enrollment, FY 1994–2013



Source: National Center for Education Statistics, analyzed by 21st Century School Fund

As a result, in that same time period, school districts reported a net total of about 13,000 additional K–12 schools.[20] From 1995 to 2013, new construction accounted for nearly 45 percent of all K–12 public school district capital construction, according to data captured by Dodge Data & Analytics.[21] During this period, school districts in many states had to respond to year-over-year enrollment increases while also catching up on pent-up demand from gains over previous decades.

Not all new schools or construction were driven by growth. Some of the new schools were created within other schools as part of the small schools movement. In some states, new construction was driven by enrollment *declines*. In West Virginia, for example, enrollment decreased 10 percent from 1994 to 2013, and the number of schools declined by 152. At the same time, however, new construction accounted for 55 percent of capital spending — well above the national average — as the state forced low-enrollment schools to close and consolidated new schools to replace the old.

School districts in many states had to respond to year-over-year enrollment increases while also catching up on pent-up demand from gains over previous decades.

In Ohio, a desire to consolidate and replace deteriorated and obsolete facilities with educationally and environmentally modern facilities also fueled the high level of new construction. Ohio's enrollment declined by nearly 11 percent between 1994 and 2013, and the total number of schools declined by 133, but new construction still accounted for 60 percent of the state's capital investments. That is because Ohio undertook a major statewide modernization program to overcome years of deterioration in its school facilities.

Renewing Systems and Components

RENEWAL: Major repair, alteration, and replacement of building systems, equipment, and components that will sustain or extend the useful life of the entire facility.

Even with proper routine maintenance, buildings and grounds deteriorate. In 2012–13, the average age of the main building of a public school was 44 years old.[22] Most building systems, components, equipment, and finishes do not last this long. The foundation and structure of a school will outlast finishes for ceilings, walls, and floors, as well as most building equipment and fixtures. As a result, during a building's life, districts have to replace all of these components: roofs, windows, and doors; boilers, chillers, and ventilation systems; and plumbing and electrical systems.



New Health and Safety Standards

Renewing facilities helps districts meet new standards for health and safety. Most schools built before the 1980s contained building materials now known to be hazardous to human health, such as lead in plumbing and paint; asbestos in plaster, insulation, and flooring; and PCBs in caulking and lighting. Fresh air standards for ventilation have changed. Heating, ventilation, and air-conditioning systems and their controls have been improved significantly over the decades.[23] In response both to expanded knowledge and increasingly stringent health regulations, many districts have abated and remediated facilities to eliminate health hazards in their schools. In some cases, they have replaced entire schools to eliminate the major health and safety problems with the original design and construction.



Increased Environmental Responsibility

Districts have made major investments in school facilities to save energy, curb operating costs, and reduce the impact of facilities on the environment. For example, in 2001 New York City replaced the last of its coal-fired boilers with cleaner, safer, and more efficient gas heating systems. Other school districts have upgraded roof systems to allow for heat-reflective materials, green roofs, and solar arrays. Nationally, a growing awareness of the impact of lighting, ventilation, and noise controls on occupant health and learning outcomes also has begun to alter district construction and renovation standards. Solutions have included better lighting; larger and better-insulated windows and skylights; computerized controls for heating, cooling, and ventilation; and improved building insulation.

Altering Existing Schools

ALTERATIONS: The design, construction, furniture, fixture, and equipment improvements that are made to a fully operating facility to add capacity and make the facility more suitable for education or other district purposes.

In the past two decades, school districts have made complex alterations to existing facilities to meet new code and educational program requirements, as well as to satisfy community concerns and priorities. Alteration projects involved adding space to existing schools and changing the design and relationship of spaces in schools, as well as upgrading the furniture, fixtures, and equipment. Significant drivers for facilities alterations included new requirements for special education and physical accessibility; expansion of early childhood education; integration of technology for instruction and administration; class-size reduction; and heightened safety and security concerns.

Support for Education Reforms

Since the 1960s, changing parent expectations and a better understanding of student needs have driven districts to add classroom space and build additions to reduce class size. Many school systems have redesigned classrooms to support new teaching models and student-directed learning. In the 1950s and 1960s, classes routinely had more than 30 students. Now, the average elementary class in public schools has 21 students, and the average secondary class has 27 students.[24] In response to higher academic standards and developments in the sciences and career technology fields, many districts have modernized labs to support sophisticated and specialized science and technology instruction so that students can pursue studies in fields such as robotics and biotechnology.

In the 1950s and 1960s, classes routinely had more than 30 students. Now, the average elementary class in public schools has 21 students, and the average secondary class has 27 students.

To reduce barriers to students' academic success, districts also have assigned additional administrators and student-support personnel, such as social workers and academic counselors. And they have expanded after-school care and other school-based services and support for families through partnerships with community-based organizations.[25] These added functions require additional space.



Serving Special Needs Students and the Physically Disabled

Since passage of the Americans with Disabilities Act in 1990, districts have modified buildings and grounds so they are fully accessible to children, teachers, parents, and visitors with physical disabilities. Educating students with a wide variety of special needs in the least-restrictive environment possible — required by the federal Individuals with Disabilities Education Act — has meant that school districts have expanded their K–12 facilities to support therapeutic services, small class sizes for autistic and emotionally disturbed students, and other programmatic changes.



Expanded Early Education

When most of the nation's current public school buildings were built, kindergarten was an innovation and rarely more than a half-day program. Now, full-day kindergarten is the norm. And an increased emphasis on early childhood education has further expanded elementary schools and required changes to the design, furniture, and fixtures in classrooms, bathrooms, and outdoor play areas.



Increased Technology

Instructional and administrative technology has had a dramatic impact on school facilities. Increasingly, technology is viewed as integral to learning, teaching, assessment, and management. As a result, districts have needed to pay for new technology and equipment — as well as upgrades to their electrical and other building infrastructure, such as cooling and dehumidification — to support the use of technology in schools.



Increased Safety and Security

In recent years, school districts have invested more in school safety and security in the face of both natural and manmade threats to students, staff, and visitors. Upgrades to better prepare for natural disasters have included building safe rooms for tornados, installing hurricane-resistant windows, and modifying structures to withstand movement from earthquakes. In many cases, school buildings are designated public shelters during catastrophic events, and the facility must be ready to support the needs of the community. Some school districts also have modified entrances and hardware on doors to better control access and enable schools to lock down in case of a threat.



School Grounds as a Community Asset

The land surrounding schools is an important local asset, and school districts have partnered with local communities and municipalities to take advantage of available educational, environmental, and community benefits. Teachers and school leaders have advocated for healthier outdoor places for children to play and learn, and some districts support gardens and farms for use in food service and for health and environmental education. School districts have removed paving to reduce storm water run-off and sedimentation. They have increased native vegetation to reduce maintenance and improve wildlife habitats. Districts have altered outdoor play and athletic facilities to provide both students and community members healthy places to play and to support athletics and physical activity from childhood through adulthood.

Addressing Deferred Maintenance

DEFERRED MAINTENANCE: Maintenance, system upgrades, or repairs that were deferred to a future budget cycle or postponed until funding was available.

Due to a history of national underinvestment in school facilities, school districts have struggled to keep up with basic maintenance and repairs, renewals, and alterations. The delay of these important responsibilities has led to a backlog of critical projects in many districts, which can trigger emergency repairs and higher expenses. Nationally, the lack of data about the condition of school facilities makes it difficult to assess how far behind school districts may have fallen, but recent estimates indicate enormous need. The U.S. General Accountability Office (GAO) last completed a comprehensive survey and study of the condition of K–12 public schools in 1995, when it found that 15,000 schools had indoor air that the EPA classified as "unfit to breathe" and school districts were carrying $113 billion in deferred repairs and maintenance. In the absence of a more recent survey of school facility conditions, the *2013 State of Our Schools* report cited analysis of available 2008 school district M&O spending and capital investment data. It estimated that districts were carrying at least $271 billion in deferred maintenance and repairs. When including requirements for alterations and scheduled renewals of existing facilities, the estimated pricetag doubled to $542 billion.

CHAPTER 3

K–12 Public Education Facilities Spending, 1994–2013

States' and public K–12 school districts' responsibilities for school facilities fall into two main categories: daily maintenance and operations (M&O) and capital construction. School districts pay for M&O activities out of their annual *operating budget* and for capital management activities, such as capital projects and new construction, out of their *capital budget*. The capital accounts hold funds for purchasing multi-year assets, and they are often borrowed (financed by bonds).

Maintenance and Operations: An Average of $46 Billion Per Year

From 1994 through 2013, U.S. K–12 school districts collectively spent $925 billion (in 2014 dollars) on M&O — an average of $46 billion each year. This spending was for utilities (electricity and energy for heating and cooling, water, telecommunications, refuse, and recycling services); building security; and labor, material, and contract services for custodial, grounds keeping, and maintenance.

Between 1994 and 2013, total spending on M&O increased by 29 percent, from $38 billion to $49 billion; the high-water mark was $55 billion in 2009, before the Great Recession.[26] However, in the three years from 2011 to 2013, districts reported spending an annual average of $50 billion a year — nearly 32 percent more, adjusted for inflation, than in 1994. M&O spending is a major cost for school districts; nationally it averaged 10 percent of their annual operating budgets between 1994 and 2013.

The states with the lowest shares of M&O spending were Georgia (7.6 percent), Minnesota (7.7 percent), and North Carolina (8.1 percent). Those with the highest shares were Oklahoma (11.1 percent), Arizona (12.1 percent), and Alaska (12.9 percent). (Appendix A includes detailed state-by-state data.)

ABOUT THE DATA

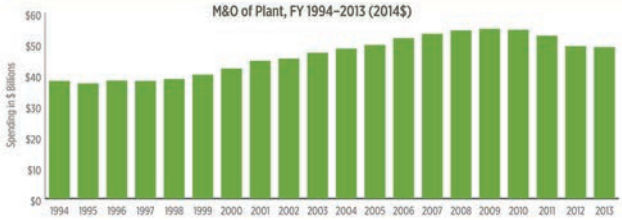
School districts annually report their expenditures for facilities' maintenance and operations (M&O) and capital construction to the U.S. Census of Governments on an annual fiscal survey. The National Center for Education Statistics (NCES) compiles the responses into data tables that are available to the public. These data are the primary source for our analysis.

M&O of Plant: M&O expenditures described in this report include the annual costs for routine and preventive maintenance, minor repairs, cleaning, grounds keeping, utilities, and security, in accordance with the definition used by NCES for "Operation and Maintenance of Plant."

Total Capital Outlay: Capital investments as defined by NCES include all capital costs for school construction, land, buildings, facilities improvements, and equipment.

Capital Construction as defined by NCES includes the direct cost for construction contracts (the "hard" costs) and "soft" costs for architects, engineers, bond counsel, and other fees and administrative costs required to manage building improvements, whether done in-house or contracted out. It does not include the costs for land and existing structures or instructional and other equipment.

$925 Billion in M&O Spending Since 1994



Source: National Center for Education Statistics, analyzed by 21st Century School Fund

Over these 20 years, inflation-adjusted M&O spending increased in every state except Michigan. Average annual M&O spending varied greatly by state, as measured by spending per student and per gross square foot. The states that spent the most for M&O per student were Alaska ($2,096), New Jersey ($1,923), and New York ($1,759). At the other end of the range were Utah ($614), Idaho ($639), and North Carolina ($733). The spending per student and spending per square foot are affected by the labor and material costs in a state and the level of building utilization. For example, the average M&O spending per student in California — where schools are still crowded and labor costs are high — was $806 per student and $8.08 per gross square foot. During this same period, North Dakota school districts reported spending nearly the same amount per student ($862) but only $3.55 per gross square foot.

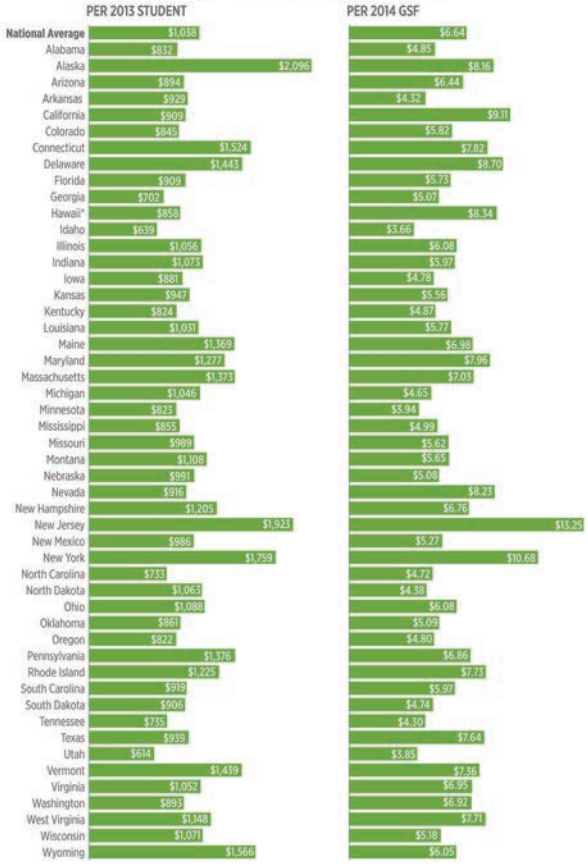
Because the M&O data from NCES include the combined costs for cleaning, routine maintenance, utilities, minor repairs, and security, it is impossible to know which element of the total is driving changes in M&O spending. Expenditures for M&O definitely increased due to expanding square footage for maintenance and operations. But costs could be compounded by a lack of capital investment, which leads to more (and expensive) emergency repairs.

HOW MUCH OF MAINTENANCE AND OPERATIONS IS SPENT ON UTILITIES AND SECURITY?

Because no national data set exists and very few states collect information about the components of M&O spending, we surveyed sample states and districts to estimate that *utilities costs* account for about 30–35 percent of a districts' total reported maintenance and operations (M&O) spending and that *security costs* account for slightly less than 5 percent of the total M&O spending. Utilities costs vary depending on the efficiency of the facilities, the cost of utilities in a given state, and the local climate. Security costs also vary depending on the population density of the districts and the stresses in the student population.

Statewide M&O Spending Varies Greatly from State to State

Average annual M&O spending, FY 2011–13 (2014$)*

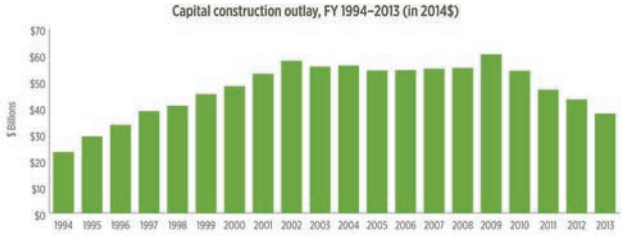


*Statewide spending data can be found in Appendix A and online at Stateofourschools.org.
Source: National Center for Education Statistics, analyzed by 21st Century School Fund

Capital Construction: An Average of $49 Billion Per Year

From 1994 through 2013, school districts spent a total of $973 billion on capital construction — an average of $49 billion per year. Total capital investments amounted to $1.26 trillion, an average of about $63 billion per year, which included capital construction, purchase of instructional and other equipment, and acquisition of land and existing structures. Of total capital outlay during these 20 years, 77 percent was for construction to renew, alter, acquire, and build school facilities; 17 percent was for purchasing instructional and other equipment; and 6 percent was for purchasing land and existing structures.

$973 Billion in Total Capital Construction Investments Since 1994



Source: National Center for Education Statistics, analyzed by 21st Century School Fund

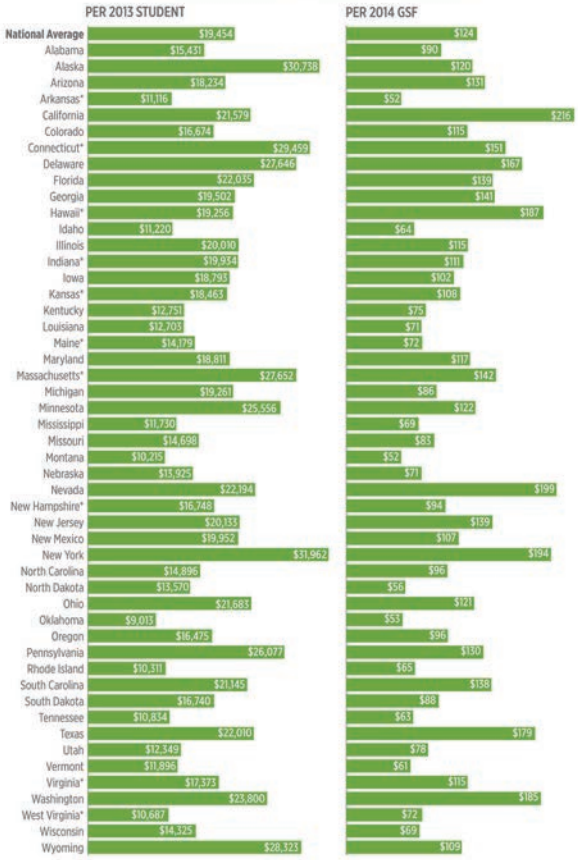
Annual capital construction spending nationally increased from $26 billion in 1994 to a high of $60 billion in 2009. After a relatively stable period from 2003 through 2009, capital construction spending declined by almost 40 percent from 2009 to 2013 as a result of the Great Recession of 2008. Because capital construction is largely financed by local school districts, the poor lending climate and reluctance to burden taxpayers after the recession had a striking impact on spending. This drastic decline in school construction is greater than the decrease in overall education spending since the recession.[27]

Because capital construction is largely financed by local school districts, the poor lending climate and reluctance to burden taxpayers after the recession had a striking impact on spending.

Funding for school district capital construction varied significantly by state over the 20 years analyzed. The lowest-spending states, measured by the total amount of capital construction spending per gross square feet of space, were Arkansas ($38), Maine ($43), and Montana ($52), and the highest-spending states were California ($216), Nevada ($199), and New York ($194). School construction spending per student is another way to measure investment. However, in states with less population density — such as Alaska and Wyoming — and in states that have seen dramatic declines in enrollment — such as Pennsylvania and New York — measuring spending on a per-student basis can overstate how the spending correlates to actual conditions in the schools.

Total Statewide Capital Investments Vary Greatly from State to State

Total school-construction capital outlay, FY 1994–2013 (2014$)

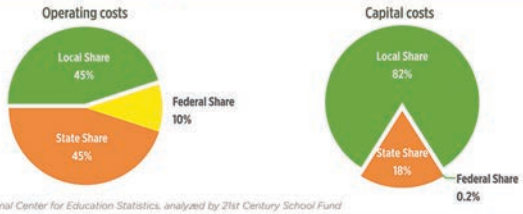


*District data may be underreported, see Appendix A.
Source: National Center for Education Statistics, analyzed by 21st Century School Fund

Paying for K–12 Public Education Infrastructure: An Inequitable System

With the nation's 14,000 public school districts ranging from small rural districts of fewer than 100 students to mega-urban districts of more than 1 million students, the U.S. system of public education has a strong emphasis on local control. This is especially true for funding school construction. Localities and states each contribute, on average, 45 percent of the annual operating budget,[28] which includes the annual costs for the maintenance and operation of facilities. The federal government contributes the remaining 10 percent toward the annual operating budget of the districts.[29] However, of the $1.26 trillion in K–12 total capital outlays between 1994 and 2013, about 81 percent came from local sources, and 19 percent came from the states. Districts reported almost no federal revenue for capital construction.

Local Communities Support the Majority of Costs for School Facilities



Source: National Center for Education Statistics, analyzed by 21st Century School Fund

Because the large majority of capital construction is funded by local taxpayers, the ability of school districts to pay for major renewals or new construction is tied to the wealth of their community, perpetuating inequity in school facility conditions. Additionally, while funding to support facilities M&O combines local, state, and federal sources, M&O competes with other essential aspects of school district operations, such as salaries and instructional equipment, which also need to be paid for through the same general operating budget. Therefore, school districts, especially those low-wealth districts that have not been able to spend needed capital construction funds to make major repairs to their buildings, are put in a position where they must stretch their general operating funds to try to make up the difference.

Local Districts Carry the Load

Because capital projects are big-ticket items and are needed periodically, local districts usually finance them, rather than pay for them with annual operating funds. Voters make these financing decisions through bond referenda, or, in fiscally dependent school districts, county or city representatives vote on funding measures as part of their municipal capital budgets. Financing the costs for school construction is considered good practice because the costs of facilities improvements are shared across the generations of those who will use them.

At the end of 2013, districts reported that they were carrying $409 billion in long-term debt, largely from capital spending on facilities. The national average debt per student was $8,465. During 2013, school districts reported paying $17 billion in interest on their long-term debt. States that help fund districts' capital investments also often borrow to finance their contributions. However, state debt dedicated for K–12 capital outlays is not differentiated from other state debt in the U.S. Census of Government State Fiscal Survey.

Average Long-Term Debt Per Student Ranges From $700 to $17,000 by State

District long-term debt, FY 2013, per 2013 student

■ $15,000 and up ■ $11,001–$15,000 ■ $6,701–$11,000 ■ $3,401–$6,700 ■ $0–$3,400

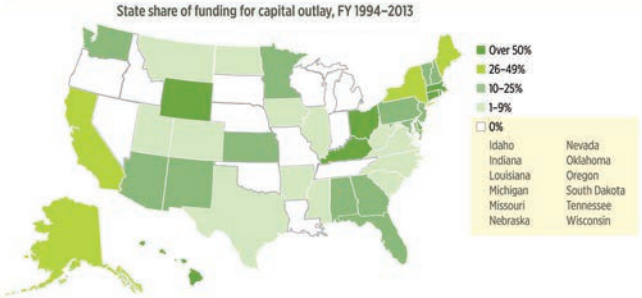


Source: National Center for Education Statistics, analyzed by 21st Century School Fund

The average amount of local district facilities long-term debt also varies greatly by state and district. The states with the lowest amount of local district debt per student are Wyoming ($674), West Virginia ($1,497), and Oklahoma ($2,402). The states with the highest amount of debt per student are South Carolina ($16,948), Pennsylvania ($15,638), and Texas ($13,297). In general, states in which local debt is highest are the ones that did not have a state program to help local districts pay for their facilities capital investments. High-wealth districts have the capacity to borrow what they need, and the state averages mask the fact that very wealthy communities can and do borrow at high levels, whereas many low-wealth districts (particularly small, rural districts) cannot borrow at all.

12 States Pay Nothing Toward District Capital Construction

State share of funding for capital outlay, FY 1994–2013



Source: National Center for Education Statistics, analyzed by 21st Century School Fund

State Funding Support Varies

State funding roles and responsibilities for facility adequacy and equity vary widely. Nationally, states covered an average of 19 percent of K–12 public school facilities capital investments over the last 19 years. But in 2015, 12 states provided *no* direct funding or reimbursements to school districts for capital spending. At the other extreme is Hawaii, a unique state-level education district, which pays for all capital improvements using state funds. In addition, Wyoming has paid for 63 percent of its construction capital costs with state funding as a consequence of a series of state Supreme Court decisions and action on the part of the state legislature.[30] Connecticut (57 percent), Delaware (57 percent), Massachusetts (67 percent), and Rhode Island (78 percent) also have assumed the responsibility for most capital investments. Among the other states, the state contribution for capital investments ranges from 1 percent to 37 percent.

The share of state revenue for public school construction has increased over the past two decades. For example, the average state share rose from a low of 11 percent in 1999 to 20 percent in 2013. These increases in funding from the states were largely the result of legal challenges to the equity of states' funding systems, which tie public school funding to the wealth of the local school districts.[31]

Almost No Federal Support for School Facilities

The federal government helped build the country's public education infrastructure with funding through the Works Progress Administration in the 1930s and then again in the post–World War II era with funding from the National Defense Education Act. But during the two decades studied in this report — except for a $1.2 billion emergency school repair initiative in the 2001 federal budget directed to high-need districts and public schools with high concentrations of Native American students — the federal government provided virtually no support for states' and districts' capital responsibilities for public K–12 school facilities.[32]

In a study of the federal role in school facilities, researchers found that between 2004 and 2010, the federal government provided less than .02 percent of U.S. school districts' total capital spending in direct grants for school facilities, mostly awarded through the Federal Emergency Management Agency for schools affected by natural disasters.[33] By contrast, in 2014, the federal government funded a full 38 percent of the nation's capital investment in wastewater and transportation infrastructure.[34]

CHAPTER 4

What It Will Take to Meet Educational Facilities Standards

There are no national standards for K–12 public school facilities conditions, spending, and investment. Rather, communities use annual school district operating budgets, educational facilities master plans, bond referenda, and capital budgets to determine what they need for their public school facilities, and then they set priorities based on what they can afford. These are important and critical local processes. However, without standards it is impossible to measure the adequacy of facilities spending and investments.

Industry Facilities Spending and Standards

Building science professionals use maintenance and capital renewal standards to guide facilities managers in keeping facilities in good repair.[35] These standards are derived by estimating the lifespan of the facility and the cost to build a new one, referred to as the Current Replacement Value (CRV), and then calculating the annual depreciation of the facility as a percentage of the CRV.

The CRV is derived by multiplying new construction costs per gross square foot (GSF) by the total gross square footage of the facilities.

The CRV of the nation's total K–12 public school inventory was $1.937 trillion in 2014, based on an average new construction cost of $256 per GSF and 7.5 billion GSF of public school district facilities.

The expected lifespan of facilities is derived by averaging the life of a building structure, systems, components, furniture, fixtures, and equipment — all of which depend on the original design, construction, location, usage, and preventive maintenance of the facility.

A building expected to be maintained in good repair for 50 years depreciates at 2 percent per year. The number of years a facility is expected to fully support programs and services will vary, depending on the quality of the design, materials, and construction. Given all of this possible variation, actual requirements for spending will necessarily vary from the standards.

Current Replacement Value of U.S. K–12 Public Schools



Note: For state-level current replacement value, we multiplied the average regional cost for new-school construction (or average state cost, when state officials provided data for their states) by the total gross square footage of school buildings in their state, either reported by the state or estimated based on comparable states.

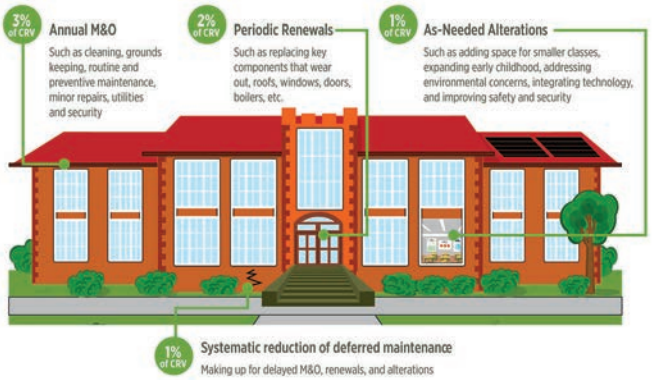
Setting School Facilities Spending and Investment Standards: A New Stewardship Framework

To apply building industry standards to educational facilities necessitates going beyond general industry practice, which applies only to basic maintenance and renewals. Good practice calls for enhancing these basic building standards so they also extend to the responsibilities of states and districts to reduce the accumulation of deferred maintenance in school buildings and deliver facilities that support changing instructional methods, technologies, and community needs. States and districts can incorporate their unique local costs, conditions, and inventories into the following framework, using the educational facilities spending and investment standards included, to evaluate their current and future spending.

It is important to note that investments in one area can have a major impact elsewhere. For example, if a district does not undertake the cleaning or the required routine and preventive maintenance, then major building systems and components will not last as long as designed. If school districts do not renew their building systems and components on a timely schedule, then deferred maintenance will accumulate, costs for annual maintenance and repairs will rise, and poor basic building conditions will compromise the benefits of alterations for program or capacity adjustments.

Modern Standards for Maintaining and Upgrading Current K–12 Public School Facilities

The following proposed national standards for school facilities are based on building industry best practice. The percentages refer to the percentage of facilities' current replacement value that should be invested annually to maintain school buildings in good condition. Local conditions will vary. For example, school facilities in very poor condition will need more than 1 percent a year toward their deferred maintenance. But in general, if communities have stable funding at these levels, they should be able to deliver healthy, safe, educationally appropriate, and environmentally sustainable school facilities.



Annual Maintenance and Operations Spending Needs

A general industry standard for facility M&O (all facilities, not just schools) indicates that building owners should expect to spend a minimum of 2 percent of the CRV annually. This covers routine and preventive facilities maintenance, minor repairs, custodial services, and grounds keeping. Expenditures for these services are closely dependent on many factors, including the current square footage of school buildings. This 2 percent industry standard for M&O *does not* include costs for utilities and security. However, because these utilities and security costs average 35–40 percent of a school district's reported spending on M&O, the 2 percent industry standard is too low for schools. Instead, 3 percent of CRV is a better standard for school facilities' M&O budgets, so the additional costs of utilities and security are covered. **Meeting this standard requires spending $58 billion annually.**

Annual Capital Construction Investment Needs

Many factors affect capital budget needs, including the quality of routine and preventive maintenance, the amount of deferred maintenance that has already accumulated, and projected changes in enrollment. To improve accountability and plan for future spending, states and districts need to fully understand what is currently being spent on renewals, alterations, and acquisitions separately. However, school districts are asked to combine capital construction expenditures together when reporting spending data, so our understanding of the specific areas of underspending is incomplete. Nevertheless, the combined figures point to substantial and consistent underinvestment in capital construction.

Capital Renewals

School district facilities managers typically expect to maintain facilities already in good condition by spending 2 percent of CRV annually on building and grounds systems, components, finishes, furniture, and equipment replacements, upgrades, and major repairs. **Meeting this standard requires spending $39 billion annually.**

Alterations

Even if school districts address routine facilities renewals and take care of their deferred maintenance, they also can expect regular flux in popular school design trends, changing educational models, and new classroom requirements. Investments in alterations to accommodate and support these changes can be costly and difficult to predict. Although the specific alterations themselves will not be fully predictable, that there will be necessary alterations is certain. Again, an additional 1 percent of CRV annually is modest but realistic. **Meeting this standard requires spending $19 billion annually.**

Deferred Maintenance

Given historic underinvestment in school buildings, standards for this sector need to include a systematic approach for reducing deferred maintenance and altering facilities to meet changing educational and community requirements. With a 2008 backlog of deferred maintenance estimated conservatively at $271 billion and as high as $542 billion, many public school buildings will have to make up a deficit before they can be considered in "good condition."[36] To systematically reduce the accumulation of deferred maintenance, states and districts will have to spend at least an additional 1 percent of CRV on

With a 2008 backlog of deferred maintenance estimated conservatively at $271 billion and as high as $542 billion, many public school buildings will have to make up a deficit before they can be considered in "good condition."

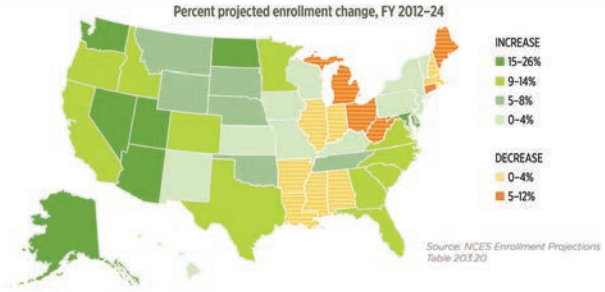
deferred maintenance annually over the next 10 years in the highest-need schools. **Meeting this standard requires spending at least $19 billion annually.** At the end of 10 years, this steady level of spending, coupled with adequate capital renewals, would reduce the estimated deferred maintenance burden from $271 billion to $81 billion. In order to fully resolve the backlog of deferred maintenance, further investment beyond 1 percent of CRV annually will be required.

New Construction

In addition to taking care of the facilities already in their inventory, states and districts have to plan for building new schools to handle enrollment growth. Nationally, enrollment is projected to increase by 3.1 million students between 2014 and 2024.[37]

States will first work to absorb enrollment growth into existing facilities, whether through portable classrooms or by better utilizing space. However, considering that there were nearly 600,000 portable classrooms in use in U.S. schools in 2011[38] — many well past their healthy lifespans — many districts will need to build new schools. The estimate assumes that only states with enrollment increases will add space for new enrollments and that each growth state will absorb 20 percent of its projected enrollment into existing facilities. Assuming that new facilities will be built at the state's average GSF per student and at the state's average new construction cost per square foot, **states and districts will need to spend nearly $10 billion (2014$) on capital construction annually over the next 10 years.**

Enrollment Projected to Grow by 3.1 Million Students by 2024



While this estimate uses nationally available data from NCES for enrollment growth projections, NCES projections will vary widely from state or local projections. For example, both the Maryland Department of Planning and NCES project enrollment increases for Maryland; however, the state projects an 8 percent increase, whereas NCES puts it at 15 percent, which would have a dramatic impact on capital construction estimates.

Some States Are Projected To Have Significant Future Costs for New Construction



Note: This chart includes only the states with projected enrollment increases between FY 2012 and 2024.
Source: 21st Century School Fund calculations based on U.S. Department of Education, National Center for Education Statistics, 2014 Digest of Education Statistics, Table 203.20.

Gaps in Delivering Adequate K–12 Facilities

A thorough analysis of 20 years of M&O spending and capital investment reveals that most states and districts do not have what they need to take care of the facilities they already have — or to build new facilities. According to the stewardship framework and standards described above, districts will fall short by $46 billion a year. Despite the average $99 billion annual investment over the past 20 years, the nation needs *an additional $8 billion a year for M&O and an additional $38 billion a year for capital construction* to catch up on deferred maintenance, to renew and alter existing facilities to address changing educational requirements, and to cover new construction based on NCES projections for rising student enrollments.

Breaking Down the Estimated Gaps

	Responsibilities	Modern Standards	Historic Spending	% of Standard	Projected Annual Gap
EXISTING K–12 FACILITIES	Maintenance & Operations at 3% CRV	$58 billion	$50 billion[1]	86%	$8 billion
	Capital Construction at 4% CRV	$77 billion	$49 billion[2]	63%	$28 billion
	TOTAL at 7% CRV	$135 billion	$99 billion	73%	$36 billion

	New Seats[3]	GSF for New Seats	Cost per GSF	10-Year Estimate	Annual Estimate
NEW K–12 FACILITIES	2.7 million	393 million	$254	$100 billion	$10 billion

		Modern Standards	Historic Spending	Projected Annual Gap
TOTAL K–12 FACILITIES	Maintenance & Operations	$58 billion	$50 billion	$8 billion
	Capital Construction	$77 billion	$49 billion	$28 billion
	New Facilities	$10 billion		$10 billion
	TOTAL	$145 billion	$99 billion	$46 billion

CRV (current replacement value) of $1.937 trillion for all U.S. public schools
(1) FY2011-13 average; (2) 20-year (1994–2013)average includes NEW construction; (3) Seats for 80% of the projected enrollment

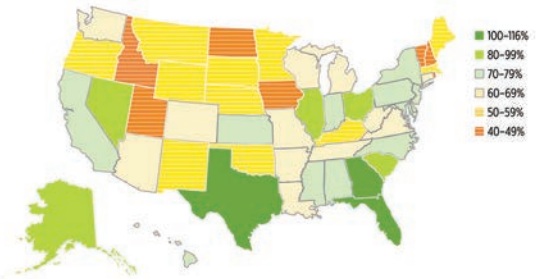
To fully meet the best practice M&O standard, school districts should be spending at least $58 billion per year for M&O to ensure healthy, safe, and efficient facilities. This equals an annual average of about $1,200 per student and nearly $8 per gross square feet for cleaning, maintenance, utilities, and security. Over the past three fiscal years, however, states and districts together spent an annual average of $50 billion, or only 86 percent of the M&O standard. Continuing to spend at this level for the current facilities inventory will result in a gap of $8 billion per year.

According to the stewardship framework and standards described above, districts will fall short by $46 billion a year.

Across fiscal years 2011–13, seven states met or exceeded the minimum spending standard for *M&O* of their facilities. The highest-spending states were Texas (125 percent), New Jersey (117 percent), and Alaska (114 percent). The states with the largest gap between M&O spending and the standard were Minnesota (48 percent), Idaho (51 percent), and Utah (55 percent). In some cases, high spending on M&O is driven by under-investment in capital construction and higher-than-average costs associated with utilities, security, custodial and maintenance services. Alternatively, low spending may reflect efficiencies and not necessarily neglect of the maintenance and operations of schools.

Three States Exceed the Standard, Six Are Below 50 Percent

Percentage of standard met by historic M&O spending and capital construction investment, FY 2015



To fully meet the best practice standard for capital construction, school districts should be spending at least $77 billion per year to ensure healthy, safe, and efficient facilities. And they will need to spend an additional $10 billion a year to meet 80 percent of the projected enrollment growth.

Across fiscal years 1994–2013, three states met or exceeded the minimum spending standard for *capital construction* investments. The three states with the highest investment in capital construction compared with the standard were Texas (110 percent), Georgia (103 percent), and Florida (101 percent). States with the lowest capital construction spending compared with the standard were Vermont (21 percent), Rhode Island (23 percent), and Montana (28 percent). In most cases, states with high capital construction spending compared to the standard reach or exceed the standard because they build new schools to respond to enrollment growth. However, these states will need to continue to spend at the same levels to take care of what they have built.

When historic M&O spending and capital investments are combined and compared to standards, only three states' average spending levels met or exceeded the combined standards for M&O and capital investment: Texas, Florida, and Georgia.

CHAPTER 5 Strategies to Meet Modern Standards

Providing healthy, safe, educationally appropriate, and environmentally sustainable facilities for our nation's students is a complex and challenging responsibility. As the world changes and understanding of health, safety, education, and the environment grows, teaching and learning environments necessarily evolve. Although many states and school districts have made significant improvements and investments in their public education infrastructure, the nation overall is not prepared to deliver on its responsibility to provide all students access to an excellent education. As a nation, we need to close the gap between what has been spent for public school facilities and what is needed going forward to fulfill this promise.

Most troubling is the inequity of K–12 public school facilities from community to community. Some children learn in state-of-the art school buildings, with the most modern labs, classrooms, and computer centers available. But too many students suffer in buildings that were out of date decades ago and are an embarrassment in the world's richest country. Because local wealth is the primary source of capital construction funds, underinvestment disproportionately affects children from low-income families. The results affect both students' well-being and their educational opportunities.

Effectively addressing the shortfalls and inequities will require disrupting traditional approaches to planning, managing, and funding public school facilities. Encouragingly, a number of states and communities already have begun this work. Instances of innovation and inspiration abound — within the K–12 sector and beyond. They point to a rich landscape of opportunities, if communities can harness their will to address these common challenges.

While this report provides a national overview of the issues, challenges, and opportunities, decisions about school facilities are ultimately local. We encourage communities across the country to use the information contained in this report (and the state-level supplemental online data) to do their own analyses and host their own conversations. The goal: ensure that every student in every community has the opportunity to attend K–12 public schools that provide a quality education in facilities that are healthy, safe, and conducive to learning. Below are four ideas to help prompt constructive discussions.

1. Understand Your Community's Public School Facilities

Addressing the nationwide funding gap requires that the American public and policymakers better understand the conditions in their own schools and how these facilities impact student and teacher health and performance, the environment, the local economy, and overall community vitality. A key requirement is to have better data on public school infrastructure. The data need to be up-to-date, comprehensive, accurate, and accessible to citizens and officials. The lack of common definitions and inconsistent spending and investment data nationally and in most states present challenges. Appendix A offers a state-by-state table showing the data discrepancies that raise questions about data accuracy, classification, and reporting. Communities must insist on getting access to accurate data on their schol facilities.

2. Engage in Education Facilities Planning



Ultimately, the power to decide whether and how to deliver quality public educational facilities rests with taxpayers and voters. Education leaders need to better understand the power of facilities in advancing education quality and equity and must clearly and consistently communicate to the general public the value of safer and healthier environments for learning. The solutions to fixing poor facilities conditions and inequities should be planned systematically. Gaps cannot be closed overnight. Priorities must be established. Learning from best practices across the country, local communities can develop creative and practical plans to improve their public school facilities. In our democratic society, community members and school-based personnel both need to be a part of this integrated planning process.

3. Support New Public Funding



Adequate public funding is required to make it possible to meet the country's responsibilities to the generation of students currently in schools and the generations to come. If we as a nation continue to rely primarily on the local property tax, we cannot expect better results.

States are critical partners to their local districts. In the 12 states that provided no capital construction funding to districts, along with the 13 other states that provided less than 10 percent, a critical step is to identify state-level solutions to ensure equitable educational opportunities for all. Many states have been working to find dedicated revenue to support facilities in their local districts. New Mexico uses revenues from oil and gas reserves and Wyoming uses revenues from coal lease bonuses for their school facilities. Ohio dedicated its tobacco settlement revenue to pay for its statewide school construction program. The Georgia Legislature enabled its counties to pass a special option sales tax that can be dedicated to school construction. Iowa and Massachusetts have dedicated a portion of their state sales taxes for school construction. South Carolina recently established a statewide property tax to ensure adequate and equitable schools, including facilities.

However, even the most creative state and local partnerships leave some districts behind. It is time to explore how the federal government can help eliminate extreme inequities in school facilities conditions. It is time for a non-partisan dialogue on the appropriate federal role for helping states and districts meet our collective responsibilities.

4. Leverage Public and Private Resources

Innovative solutions will be necessary to sustain the scale of investment required to provide the schools that every student in every community deserves. To more fully leverage public facilities investment, a new generation of structures, funding streams, and partnerships will be needed. Leveraging these investments means finding ways to use land and building assets to raise and save funds, such as public-private and public-public development partnerships, revolving loan funds, social impact investing, and other scalable and sustainable financing solutions.

Private sector partners have an important role to play in identifying and maximizing opportunities. With private support, school districts can leverage staff and contractors toward their highest possible value, using proper controls, transparency, and oversight of decisions. Whether implementing financing solutions, structuring joint use of buildings and grounds, or locating improvements to maximize building efficiency, school districts and their state-level partners need technical and regulatory support in solving their investment shortfalls.

A Call to Action

Federal, state, and local stakeholders — from senators to state legislators to superintendents, community leaders to impact investors — must collaborate to create, pilot, and scale new solutions and document successful strategies. Community and investment partners must come to the table.

Five states already have created separate agencies dedicated to school facilities. Some are focused primarily on state allocation of capital funds. Others are engaged in planning and project management and construction itself. One — New Mexico Public School Authority — is involved in the continuum of facilities from M&O to design and construction. However, the current reality is that most districts in most states must deliver 21st century school facilities on their own.

Thought leaders from education, government, industry, and communities are invited to use and improve on the data and standards framework presented in this report to brainstorm, share, and pilot creative new solutions to these common facilities challenges. Successful strategies that emerge from these pilots must be documented, refined, and adapted for scale. The result: school facilities that meet the needs of today's students, in every community, and for generations to come.



APPENDIX A State Data Tables

	ENROLLMENT FY 2013			SCHOOLS FY 2013		20-YEAR M&O TOTALS FY 1994–2013 (2014$)				20-YEAR CAPITAL OUTLAY TOTALS FY 1994–2013 (2014$)						
	Enrollment SY 1993–94	Enrollment SY 2012–13	Enrollment change	Schools	Area of district bldgs in millions of GSF	Total education operating expend ($ billions)	Total M&O expend ($ billions)	M&O as % of total educ operating expend	Avg ann M&O expend ($ millions)	Capital outlay ($ billions)	School-construction cap outlay ($ billions)	School-construction cap outlay per 2013 student	School-construction cap outlay per GSF	New construction as % of all construction starts	Total district cap outlay revenue from the state ($ billions)	State share of total cap outlay
Alabama	734,288	744,548	1.4%	1,637	127.7	$122	$11	8.9%	$541	$14.0	$11.5	$15,431	$90	58%	$3.06	22%
Alaska	125,948	131,091	3.9%	509	33.7	$37	$5	12.9%	$240	$5.3	$4.0	$30,738	$120	39%	$1.96	37%
Arizona	709,453	941,726	24.7%	2,267	130.7	$141	$17	12.1%	$849	$24.0	$17.2	$18,234	$131	59%	$4.94	21%
Arkansas[1]	444,271	477,716	7.0%	1,102	102.7	$78	$7	9.2%	$360	$9.8	$5.3	$11,116	$52	54%	$1.12	12%
California	5,327,231	6,208,733	14.2%	10,315	620.0	$1,124	$100	8.9%	$5,007	$166.0	$134.0	$21,579	$216	47%	$46.67	28%
Colorado	625,062	851,063	26.6%	1,825	123.6	$134	$13	9.6%	$643	$20.3	$14.2	$16,674	$115	53%	$0.69	3%
Connecticut[1]	496,298	517,812	4.2%	1,148	100.9	$154	$14	9.3%	$714	$17.8	$15.3	$29,459	$151	31%	$10.13	57%
Delaware	105,547	129,026	18.2%	224	19.7	$29	$3	10.0%	$144	$3.7	$3.3	$25,430	$167	42%	$2.11	57%
Florida	2,040,763	2,680,074	23.9%	4,269	425.4	$431	$47	10.9%	$2,345	$78.4	$59.1	$22,035	$139	56%	$11.74	15%
Georgia	1,235,304	1,682,620	26.6%	2,387	233.2	$284	$22	7.6%	$1,078	$41.4	$32.8	$19,502	$141	59%	$4.84	12%
Hawaii [1,2]	180,410	184,760	2.4%	286	19.0	$39	$3	8.1%	$160	$4.1	$3.6	$19,256	$187	37%	$4.99	100%
Idaho	236,774	272,070	13.0%	719	47.5	$37	$3	9.3%	$172	$3.9	$3.1	$11,220	$64	70%	$0.00	0%
Illinois	1,893,078	2,069,823	8.5%	4,266	359.5	$434	$43	9.8%	$2,125	$53.8	$41.4	$20,010	$115	36%	$2.14	4%
Indiana[1]	965,633	1,002,772	3.7%	1,925	180.1	$196	$22	11.0%	$1,085	$30.2	$20.0	$19,934	$111	34%	$0.00	0%
Iowa	498,519	499,489	0.2%	1,390	92.0	$94	$8	8.7%	$408	$12.8	$9.4	$18,793	$102	35%	$4.48	35%
Kansas[1]	457,614	488,590	6.3%	1,351	83.3	$88	$9	10.4%	$460	$13.7	$9.0	$18,463	$108	44%	$1.10	8%
Kentucky	655,265	685,009	4.3%	1,568	115.8	$116	$10	8.9%	$515	$12.4	$8.7	$12,751	$75	42%	$4.13	33%
Louisiana	800,560	671,156	-19.3%	1,407	119.8	$131	$12	9.3%	$605	$12.2	$8.5	$12,703	$71	40%	$0.00	0%
Maine[1]	216,995	184,682	-17.5%	617	36.2	$47	$5	10.0%	$233	$4.0	$2.6	$14,179	$72	48%	$1.15	28%
Maryland	772,638	859,252	10.1%	1,449	137.9	$204	$19	9.4%	$957	$21.1	$16.2	$18,811	$117	40%	$5.47	26%
Massachusetts[1]	877,726	922,848	4.9%	1,854	180.3	$251	$23	9.3%	$1,165	$22.2	$25.5	$27,652	$142	45%	$14.79	67%
Michigan	1,599,377	1,381,167	-15.8%	3,550	310.8	$364	$38	10.4%	$1,885	$41.7	$26.6	$19,261	$86	33%	$0.02	0%
Minnesota	810,233	802,454	-1.0%	2,403	167.6	$174	$13	7.7%	$673	$26.1	$20.5	$25,556	$122	37%	$5.84	22%
Mississippi	505,907	492,847	-2.6%	1,063	84.4	$74	$7	9.7%	$362	$8.6	$5.8	$11,730	$69	48%	$0.20	2%
Missouri	866,378	897,224	3.4%	2,406	158.0	$165	$16	9.8%	$813	$19.6	$13.2	$14,698	$83	39%	$0.00	0%
Montana	163,009	142,797	-14.2%	824	28.0	$29	$3	10.3%	$148	$2.1	$1.5	$10,215	$52	36%	$0.03	1%
Nebraska	285,097	303,242	6.0%	1,090	59.1	$58	$5	9.0%	$259	$7.8	$4.2	$13,925	$71	35%	$0.00	0%
Nevada	235,800	431,776	45.4%	664	48.1	$61	$6	10.2%	$309	$12.3	$9.6	$22,194	$199	71%	$0.00	0%
New Hampshire[1]	185,360	187,703	1.2%	481	33.5	$44	$4	8.7%	$191	$4.4	$3.1	$16,748	$94	38%	$0.83	19%
New Jersey	1,151,307	1,338,657	14.0%	2,598	194.3	$435	$45	10.3%	$2,230	$34.1	$27.0	$20,133	$139	28%	$10.89	32%
New Mexico	322,292	327,209	1.5%	877	61.3	$56	$6	10.4%	$294	$10.1	$6.5	$19,952	$107	41%	$2.02	20%
New York	2,733,813	2,629,805	-4.0%	4,822	433.0	$923	$79	8.5%	$3,936	$98.2	$84.1	$31,962	$194	17%	$34.95	36%
North Carolina	1,133,231	1,468,228	22.8%	2,557	228.1	$227	$18	8.1%	$923	$27.5	$21.9	$14,896	$96	57%	$2.07	8%
North Dakota	119,127	101,025	-17.9%	517	24.5	$20	$2	8.8%	$87	$2.3	$1.4	$13,570	$56	50%	$0.04	2%
Ohio	1,807,319	1,613,718	-12.0%	3,685	288.8	$384	$36	9.3%	$1,779	$46.4	$35.0	$21,683	$121	60%	$12.67	27%
Oklahoma	604,076	671,445	10.0%	1,784	113.5	$100	$11	11.1%	$554	$9.7	$6.1	$9,013	$53	35%	$0.03	0%
Oregon	516,611	564,006	8.4%	1,251	96.5	$109	$9	8.7%	$470	$11.2	$9.3	$16,475	$96	45%	$0.00	0%
Pennsylvania	1,744,082	1,623,694	-7.4%	3,127	325.7	$436	$43	9.9%	$2,156	$48.9	$42.3	$26,077	$130	30%	$7.20	15%
Rhode Island	145,676	136,401	-6.8%	304	21.6	$39	$3	8.2%	$162	$1.4	$1.4	$10,311	$65	39%	$1.12	78%
South Carolina	643,696	722,249	10.9%	1,239	111.0	$122	$11	9.1%	$559	$21.2	$15.3	$21,145	$138	57%	$1.74	8%
South Dakota	142,825	130,296	-9.6%	697	24.9	$21	$2	10.0%	$107	$3.1	$2.2	$16,740	$88	41%	$0.00	0%
Tennessee	866,557	992,461	12.7%	1,817	169.8	$145	$13	9.1%	$661	$15.7	$10.8	$10,834	$63	57%	$0.00	0%
Texas	3,608,262	4,897,523	26.3%	8,731	602.0	$744	$82	11.0%	$4,093	$131.2	$107.8	$22,010	$179	57%	$12.21	9%
Utah	471,365	562,315	16.2%	995	89.6	$64	$6	9.2%	$293	$12.8	$6.9	$12,349	$78	65%	$0.80	6%
Vermont	102,755	89,426	-14.9%	318	17.5	$26	$2	8.2%	$108	$1.6	$1.1	$11,896	$61	11%	$0.31	19%
Virginia[1]	1,045,471	1,264,880	17.3%	2,182	191.4	$241	$24	9.8%	$1,182	$33.0	$22.0	$17,373	$115	52%	$1.67	5%
Washington	915,952	1,050,901	12.8%	2,370	135.6	$189	$17	9.2%	$872	$32.3	$25.0	$23,800	$185	47%	$4.50	14%
West Virginia[1]	314,383	282,310	-11.4%	755	42.1	$60	$6	10.0%	$303	$5.2	$3.0	$10,687	$72	55%	$0.44	9%
Wisconsin	844,001	863,737	2.3%	2,238	178.4	$195	$18	9.3%	$906	$18.2	$12.4	$14,325	$69	35%	$0.00	0%
Wyoming	100,899	91,533	-10.2%	364	23.7	$22	$2	10.4%	$116	$3.8	$2.6	$28,323	$109	67%	$2.39	63%
TOTALS	43,384,238	48,265,889		98,224	7,551	$9,699	$925		$46,236	$1,261	$973	$20,157	$129		$227.46	18%

	20-YEAR ANNUAL AVERAGES FY1994–2013 (2014$)					DEBT END OF FY2013		CURRENT REPLACEMENT VALUE, FY 2014			FY2011–13 (2014$)	
	School-construction cap outlay ($ millions)	School-construction cap outlay per 2013 student	School-construction cap outlay per GSF	M&O expend per 2013 student	Avg ann M&O expend per GSF	District long-term debt, end of FY 2013 ($ billions)	District long-term debt, end of FY 2013 per 2013 student	GSF of district bldgs (millions)	Avg cost per GSF for new construction	Current replacement value of district facilities ($ billions)	Avg ann M&O expend per 2013 student	Avg ann M&O expend per GSF
Alabama	$574	$772	$4.50	$727	$4.24	$5.12	$6,872	127.7	$171	$21.8	$832	$4.85
Alaska	$201	$1,537	$5.98	$1,833	$7.13	$1.32	$10,080	33.7	$239	$8.0	$2,096	$8.16
Arizona	$859	$912	$6.57	$902	$6.50	$4.27	$4,534	130.7	$276	$36.1	$894	$6.44
Arkansas[1]	$266	$556	$2.59	$753	$3.50	$3.66	$7,671	102.7	$150	$15.4	$929	$4.32
California	$6,699	$1,079	$10.80	$806	$8.08	$54.63	$8,799	620.0	$400	$248.0	$909	$9.11
Colorado	$710	$834	$5.74	$755	$5.20	$7.73	$9,087	123.6	$273	$33.7	$845	$5.82
Connecticut[1]	$763	$1,473	$7.56	$1,379	$7.08	$2.93	$5,655	100.9	$360	$36.3	$1,524	$7.82
Delaware	$164	$1,271	$8.33	$1,117	$7.32	$0.55	$4,601	19.7	$338	$6.6	$1,443	$8.70
Florida	$2,953	$1,102	$6.94	$875	$5.51	$15.43	$5,756	425.4	$171	$72.9	$909	$5.73
Georgia	$1,641	$975	$7.04	$640	$4.62	$4.52	$2,684	233.2	$171	$40.0	$702	$5.07
Hawaii[1,2]	$178	$963	$9.36	$865	$8.41	$0.00	$0	19.0	$350	$6.7	$858	$8.34
Idaho	$153	$561	$3.22	$632	$3.62	$1.30	$4,795	47.5	$239	$11.3	$639	$3.66
Illinois	$2,071	$1,001	$5.76	$1,027	$5.91	$20.96	$10,128	359.5	$204	$73.3	$1,056	$6.08
Indiana[1]	$999	$997	$5.55	$1,082	$6.02	$11.31	$11,280	180.1	$211	$37.9	$1,073	$5.97
Iowa	$469	$940	$5.10	$816	$4.43	$3.34	$6,688	92.0	$263	$24.2	$881	$4.78
Kansas[1]	$451	$923	$5.42	$942	$5.52	$4.63	$9,486	83.3	$213	$17.7	$947	$5.56
Kentucky	$437	$638	$3.77	$751	$4.45	$5.56	$8,112	115.8	$192	$22.3	$824	$4.87
Louisiana	$426	$635	$3.56	$901	$5.05	$3.84	$5,717	119.8	$204	$24.5	$1,051	$5.77
Maine[1]	$131	$709	$3.61	$1,262	$6.44	$0.85	$4,588	36.2	$300	$10.9	$1,369	$6.98
Maryland	$808	$941	$5.86	$1,114	$6.94	$4.20	$4,894	137.9	$258	$35.6	$1,277	$7.96
Massachusetts[1]	$1,276	$1,383	$7.08	$1,263	$6.46	$5.14	$5,565	180.3	$369	$66.5	$1,373	$7.03
Michigan	$1,330	$963	$4.28	$1,365	$6.07	$17.31	$12,533	310.8	$211	$65.5	$1,046	$4.65
Minnesota	$1,025	$1,278	$6.12	$838	$4.01	$10.34	$12,889	167.6	$275	$46.1	$823	$3.94
Mississippi	$289	$586	$3.43	$734	$4.29	$1.71	$3,461	84.4	$171	$14.5	$855	$4.99
Missouri	$659	$735	$4.17	$906	$5.14	$6.65	$7,415	158.0	$213	$33.6	$989	$5.62
Montana	$73	$511	$2.60	$1,039	$5.30	$0.49	$3,428	28.0	$235	$6.6	$1,108	$5.65
Nebraska	$211	$696	$3.57	$855	$4.39	$2.08	$6,867	59.1	$213	$12.6	$991	$5.08
Nevada	$479	$1,110	$9.97	$716	$6.43	$4.39	$9,711	48.1	$276	$13.3	$916	$8.23
New Hampshire[1]	$157	$837	$4.70	$1,020	$5.72	$0.82	$4,348	33.5	$360	$12.0	$1,205	$6.76
New Jersey	$1,348	$1,007	$6.94	$1,666	$11.48	$9.30	$6,950	194.3	$377	$73.3	$1,923	$13.25
New Mexico	$326	$998	$5.33	$899	$4.80	$1.95	$5,962	61.3	$299	$18.3	$986	$5.27
New York	$4,203	$1,598	$9.71	$1,497	$9.09	$30.62	$11,643	433.0	$411	$177.9	$1,759	$10.68
North Carolina	$1,094	$745	$4.80	$628	$4.05	$8.23	$5,607	228.1	$192	$43.8	$733	$4.72
North Dakota	$69	$679	$2.80	$862	$3.55	$0.35	$3,442	24.5	$235	$5.8	$1,063	$4.38
Ohio	$1,750	$1,084	$6.06	$1,102	$6.16	$9.36	$5,803	288.8	$211	$60.8	$1,088	$6.08
Oklahoma	$303	$451	$2.67	$825	$4.88	$1.61	$2,402	113.5	$204	$23.2	$861	$5.09
Oregon	$465	$824	$4.82	$834	$4.88	$6.49	$11,511	96.5	$239	$23.0	$822	$4.80
Pennsylvania	$2,117	$1,304	$6.50	$1,328	$6.62	$25.39	$15,638	325.7	$271	$88.3	$1,376	$6.86
Rhode Island	$70	$516	$3.25	$1,189	$7.50	$1.04	$7,628	21.6	$360	$7.8	$1,225	$7.73
South Carolina	$764	$1,057	$6.88	$774	$5.03	$12.24	$16,948	111.0	$192	$21.4	$919	$5.97
South Dakota	$109	$837	$4.38	$818	$4.28	$0.77	$5,900	24.9	$235	$5.9	$906	$4.74
Tennessee	$538	$542	$3.17	$666	$3.89	$5.18	$5,216	169.8	$192	$32.7	$735	$4.30
Texas	$5,390	$1,101	$8.95	$836	$6.80	$65.12	$13,297	602.0	$204	$123.0	$939	$7.64
Utah	$347	$617	$3.88	$522	$3.28	$2.78	$4,940	89.6	$235	$21.1	$614	$3.85
Vermont	$53	$595	$3.04	$1,207	$6.18	$0.30	$3,333	17.5	$360	$6.3	$1,439	$7.36
Virginia[1]	$1,099	$869	$5.74	$935	$6.18	$8.38	$6,624	191.4	$271	$51.8	$1,052	$6.95
Washington	$1,251	$1,190	$9.23	$829	$6.43	$9.54	$9,078	135.6	$333	$45.2	$893	$6.92
West Virginia[1]	$151	$534	$3.59	$1,072	$7.19	$0.42	$1,497	42.1	$247	$10.4	$1,148	$7.71
Wisconsin	$619	$716	$3.47	$1,049	$5.08	$4.54	$5,260	178.4	$204	$36.4	$1,071	$5.18
Wyoming	$130	$1,416	$5.47	$1,270	$4.91	$0.06	$674	23.7	$295	$7.0	$1,566	$6.05
TOTALS	$48,644	$1,008	$6.44			$409		7,551		$1,937		

	M&O GAP PROJECTION ANALYSIS						CAPITAL CONSTRUCTION GAP PROJECTION ANALYSIS					
	3% standard for ann M&O spending ($ millions)	M&O expend in millies FY 2011–13 (2044)	M&O expend as % of 3% standard	Projected M&O expend gap in millions	M&O expend gap per 2015 student	M&O gap per GSF	4% standard for cap investment in existing facilities ($ millions)	Cap construction expend gap ($ millions)	Cap construction as % of 4% standard	Cap construction expend gap per GSF	Cap construction expend gap per student	4% standard for cap investment in existing facilities per GSF
Alabama	$655	$620	95%	$35	$47	$0.28	$873	$299	66%	$2.34	$401	$6.84
Alaska	$241	$275	114%	-$34	-$259	-$1.00	$322	$121	63%	$3.58	$919	$9.56
Arizona	$1,084	$842	78%	$242	$257	$1.85	$1,446	$587	59%	$4.49	$624	$11.06
Arkansas[1]	$462	$444	96%	$18	$38	$0.18	$616	$350	43%	$3.41	$734	$6.00
California	$7,440	$5,646	76%	$1,794	$289	$2.89	$9,920	$3,221	68%	$5.20	$519	$16.00
Colorado	$1,012	$719	71%	$293	$344	$2.37	$1,350	$640	53%	$5.18	$753	$10.92
Connecticut[1]	$1,089	$789	72%	$300	$579	$2.97	$1,452	$689	53%	$6.83	$1,331	$14.39
Delaware	$199	$171	86%	$28	$217	$1.41	$266	$102	62%	$5.18	$790	$13.51
Florida	$2,187	$2,437	111%	-$250	-$93	-$0.59	$2,917	-$36	101%	-$0.08	-$13	$6.86
Georgia	$1,199	$1,182	99%	$17	$10	$0.07	$1,599	-$42	103%	-$0.18	-$25	$6.86
Hawaii[1,2]	$200	$159	79%	$42	$222	$2.18	$266	$88	67%	$4.64	$477	$14.00
Idaho	$340	$174	51%	$166	$610	$3.50	$454	$301	34%	$6.35	$1,108	$9.57
Illinois	$2,199	$2,186	99%	$13	$6	$0.04	$2,933	$862	71%	$2.40	$417	$8.16
Indiana[1]	$1,138	$1,076	95%	$62	$62	$0.35	$1,517	$518	66%	$2.87	$516	$8.42
Iowa	$726	$440	61%	$286	$573	$3.11	$968	$499	48%	$5.42	$998	$10.52
Kansas[1]	$531	$463	87%	$68	$139	$0.82	$708	$257	64%	$3.09	$526	$8.50
Kentucky	$668	$564	85%	$104	$152	$0.90	$890	$453	49%	$3.92	$662	$7.69
Louisiana	$734	$692	94%	$42	$63	$0.35	$979	$553	44%	$4.61	$824	$8.17
Maine[1]	$326	$253	78%	$73	$395	$2.02	$435	$304	30%	$8.40	$1,646	$12.01
Maryland	$1,067	$1,097	103%	-$30	-$35	-$0.22	$1,423	$615	57%	$4.46	$716	$10.32
Massachusetts[1]	$1,996	$1,267	63%	$729	$790	$4.04	$2,661	$1,385	48%	$7.68	$1,501	$14.76
Michigan	$1,964	$1,445	74%	$519	$376	$1.67	$2,618	$1,288	51%	$4.14	$932	$8.42
Minnesota	$1,383	$660	48%	$723	$901	$4.31	$1,843	$818	56%	$4.88	$1,019	$11.00
Mississippi	$434	$421	97%	$13	$26	$0.15	$578	$289	50%	$3.42	$586	$6.85
Missouri	$1,008	$888	88%	$120	$134	$0.76	$1,344	$685	49%	$4.33	$763	$8.51
Montana	$198	$158	80%	$40	$280	$1.42	$264	$191	28%	$6.82	$1,338	$9.42
Nebraska	$377	$300	80%	$77	$254	$1.30	$503	$292	42%	$4.94	$963	$8.51
Nevada	$399	$396	99%	$3	$7	$0.07	$531	$52	90%	$1.08	$120	$11.05
New Hampshire[1]	$361	$226	63%	$135	$719	$4.03	$481	$324	33%	$9.68	$1,725	$14.38
New Jersey	$2,198	$2,574	117%	-$376	-$281	-$1.94	$2,930	$1,582	46%	$8.14	$1,182	$15.08
New Mexico	$550	$323	59%	$227	$694	$3.71	$733	$407	45%	$6.64	$1,243	$11.96
New York	$5,336	$4,625	87%	$711	$270	$1.64	$7,115	$2,912	59%	$6.73	$1,107	$16.43
North Carolina	$1,315	$1,076	82%	$239	$163	$1.05	$1,754	$660	62%	$2.90	$450	$7.69
North Dakota	$173	$107	62%	$66	$653	$2.68	$231	$162	30%	$6.63	$1,608	$9.42
Ohio	$1,825	$1,756	96%	$69	$43	$0.24	$2,433	$683	72%	$2.37	$424	$8.42
Oklahoma	$695	$578	83%	$117	$174	$1.03	$927	$624	33%	$5.50	$930	$8.17
Oregon	$691	$464	67%	$227	$402	$2.36	$922	$457	50%	$4.74	$811	$9.56
Pennsylvania	$2,649	$2,234	84%	$419	$256	$1.27	$3,532	$1,415	60%	$4.34	$871	$10.85
Rhode Island	$233	$167	72%	$66	$484	$3.05	$311	$241	23%	$11.13	$1,765	$14.38
South Carolina	$641	$664	104%	-$23	-$32	-$0.20	$854	$90	89%	$0.81	$125	$7.69
South Dakota	$176	$118	67%	$58	$445	$2.33	$234	$125	47%	$5.02	$959	$9.40
Tennessee	$980	$729	74%	$251	$253	$1.48	$1,306	$768	41%	$4.52	$774	$7.69
Texas	$3,689	$4,598	125%	-$909	-$186	-$1.51	$4,918	-$472	110%	-$0.78	-$96	$8.17
Utah	$632	$345	55%	$287	$510	$3.20	$843	$496	41%	$5.53	$882	$9.41
Vermont	$188	$129	68%	$59	$660	$3.40	$251	$198	21%	$11.32	$2,212	$14.37
Virginia[1]	$1,554	$1,331	86%	$223	$176	$1.17	$2,072	$973	53%	$5.08	$769	$10.82
Washington	$1,355	$938	69%	$417	$397	$3.08	$1,807	$556	69%	$4.10	$529	$13.33
West Virginia[1]	$312	$324	104%	-$12	-$43	-$0.29	$416	$265	36%	$6.30	$939	$9.89
Wisconsin	$1,092	$925	85%	$167	$193	$0.94	$1,455	$836	43%	$4.69	$968	$8.16
Wyoming	$210	$143	68%	$67	$732	$2.81	$279	$149	46%	$6.31	$1,632	$11.78
TOTALS	$58,111	$50,138		$7,973			$77,480	$28,836				

	COMBINED GAP PROJECTION ANALYSIS			NEW CONSTRUCTION PROJECTIONS FY 2013–2024							
	Combined share of 7% standard ($ billions)	Total Annual Avg Facilities Spending (M&O + cap const) ($ billions)	% of 7% standard	% Enrollment Change 2012–24	Projected enrollment change	New seats to serve 80% of projected growth	Avg cost of new construction per GSF in 2014	Avg GSF per student	GSF required to serve 80% of projected growth	Est total cost of new construction required for growth
Alabama	$1.5	$1,195	78%	-2.8	(20,737)			171		$0
Alaska	$0.6	$476	85%	17.0	22,311	17,849	$239	257	4,586,615	$1,095,650,612
Arizona	$2.5	$1,701	67%	21.2	230,616	184,493	$276	139	25,609,147	$7,080,416,960
Arkansas[2]	$1.1	$710	66%	-0.7	(3,357)			215		$0
California	$17.4	$12,345	71%	8.5	533,749	426,999	$400	100	42,639,860	$17,055,943,878
Colorado	$2.4	$1,429	61%	11.3	97,639	78,111	$273	145	11,343,010	$3,096,641,832
Connecticut[1]	$2.5	$1,552	61%	-4.8	(26,554)			195		$0
Delaware	$0.5	$335	72%	7.2	9,274	7,419	$338	153	1,132,174	$382,108,675
Florida	$5.1	$5,390	106%	13.0	348,738	278,990	$171	159	44,287,108	$7,590,219,743
Georgia	$2.8	$2,823	101%	9.1	154,968	123,974	$171	139	17,183,516	$2,945,025,552
Hawaii[1,2]	$0.5	$337	72%	2.5	4,540	3,632	$350	103	373,501	$130,725,265
Idaho	$0.8	$327	41%	9.9	28,166	22,533	$239	174	3,931,012	$939,040,141
Illinois	$5.1	$4,257	83%	-1.7	(35,880)			174		$0
Indiana[2]	$2.7	$2,075	78%	-1.1	(11,569)			180		$0
Iowa	$1.7	$909	54%	1.3	6,575	5,260	$263	184	968,830	$254,802,328
Kansas[1]	$1.2	$914	74%	2.2	10,757	8,606	$213	170	1,466,640	$311,866,265
Kentucky	$1.6	$1,001	64%	0.6	4,033	3,226	$192	169	545,287	$104,838,615
Louisiana	$1.7	$1,118	65%	-0.5	(3,503)			179		$0
Maine[2]	$0.8	$384	50%	-6.8	(12,639)			196		$0
Maryland	$2.5	$1,905	77%	15.1	130,162	104,130	$258	160	16,707,935	$4,310,647,305
Massachusetts[1]	$4.7	$2,543	55%	-1.1	(10,773)			195		$0
Michigan	$4.6	$2,775	61%	-5.2	(80,770)			225		$0
Minnesota	$3.2	$1,685	52%	13.7	116,196	92,957	$275	209	19,413,244	$5,338,642,172
Mississippi	$1.0	$710	70%	-3.0	(14,750)			171		$0
Missouri	$2.4	$1,547	66%	0.1	1,100	880	$213	176	154,983	$32,955,649
Montana	$0.5	$231	50%	7.8	11,192	8,954	$235	196	1,757,033	$413,330,404
Nebraska	$0.9	$511	58%	4.2	12,895	10,316	$213	195	2,010,465	$427,505,347
Nevada	$0.9	$875	94%	25.8	115,193	92,154	$276	111	10,256,946	$2,835,840,521
New Hampshire[2]	$0.8	$383	45%	-2.1	(3,974)			178		$0
New Jersey	$5.1	$3,922	76%	0.1	1,997	1,598	$377	145	231,885	$87,420,825
New Mexico	$1.3	$649	51%	0.8	2,580	2,064	$299	187	386,445	$115,547,192
New York	$12.5	$8,828	71%	1.9	51,597	41,278	$411	165	6,796,398	$2,791,947,435
North Carolina	$3.1	$2,170	71%	13.1	199,435	159,548	$192	155	24,782,220	$4,764,712,274
North Dakota	$0.4	$176	44%	22.9	23,089	18,471	$235	243	4,483,190	$1,054,640,640
Ohio	$4.3	$3,506	82%	-4.5	(78,016)			179		$0
Oklahoma	$1.6	$881	54%	5.6	38,017	30,414	$204	169	5,139,698	$1,049,766,340
Oregon	$1.6	$929	58%	10.6	62,336	49,869	$239	171	8,530,851	$2,037,849,766
Pennsylvania	$6.2	$4,351	70%	0.1	1,023	818	$271	201	164,345	$44,483,422
Rhode Island	$0.5	$237	44%	-3.3	(4,681)			159		$0
South Carolina	$1.5	$1,428	96%	9.4	69,402	55,522	$192	154	8,536,711	$1,641,296,587
South Dakota	$0.4	$227	55%	7.8	10,129	8,103	$235	191	1,547,926	$364,139,215
Tennessee	$2.3	$1,267	55%	7.9	78,404	62,723	$192	171	10,733,615	$2,063,680,550
Texas	$8.6	$9,988	116%	13.6	688,641	550,913	$204	123	67,715,674	$13,830,700,760
Utah	$1.5	$692	47%	17.3	106,121	84,897	$235	159	13,525,605	$3,181,808,291
Vermont	$0.4	$182	41%	3.6	3,276	2,621	$360	195	512,042	$184,137,173
Virginia[2]	$3.6	$2,430	67%	9.7	122,681	98,145	$271	151	14,854,772	$4,020,097,381
Washington	$3.2	$2,189	69%	15.7	165,206	132,165	$333	129	17,048,748	$5,680,301,891
West Virginia[2]	$0.7	$475	65%	-11.4	(32,344)			149		$0
Wisconsin	$2.5	$1,544	61%	2.3	19,864	15,891	$204	207	3,282,495	$669,432,127
Wyoming	$0.5	$273	56%	4.1	3,767	3,014	$295	259	779,767	$230,051,382
TOTALS	$133	$98,787			3,146,122	2,788,535			393,419,496	$98,158,194,313

1. Where a comparison with data on hard-cost construction-contract starts provided by Dodge Data & Analytics showed the district-reported figures for school-construction capital outlay to have been underreported (see Appendix B), we adjusted those figures.
2. Where additional data from state officials showed the district-reported figures for maintenance and operations expenditures to have been underreported, we adjusted those figures accordingly.

APPENDIX B

K–12 Capital Outlay and Construction FY 1995–2011* (2014$)

	State-Reported K–12 Total Capital Outlay (F-15)	District-Reported Total Capital Outlay (F-33)	F-33 Total Cap. Outlay as % of F-15 Total K–12 Cap. Outlay	District-Reported K–12 School Construction Outlay (F-33)	School Construction Outlay (F-33) as % of F-15 State-Reported Total Cap. Outlay	Dodge-Reported K–12 Public School Construction Contract Costs	Dodge Reported Construction Contract Costs as % of School Construction Outlay	Adjusted K–12 School Construction Outlay
National Average			**100%**		**74%**		**71%**	
Alabama	$12,970,544,848	$12,268,245,357	95%	$10,131,862,068	83%	$7,480,227,682	74%	
Alaska	$4,867,298,569	$4,695,964,963	96%	$3,648,116,583	78%	$2,876,525,652	79%	
Arizona	$21,528,125,663	$21,446,835,821	100%	$15,637,553,181	73%	$9,778,487,250	63%	
Arkansas[1,3]	$7,202,616,805	$8,647,572,335	120%	$3,038,728,574	35%	$3,732,642,090	123%	$4,479,170,508
California	$149,721,433,097	$148,759,434,000	99%	$118,162,491,453	79%	$57,910,284,392	49%	
Colorado	$18,744,368,557	$18,273,633,415	97%	$13,162,229,537	72%	$8,024,147,643	61%	
Connecticut[1]	$10,182,835,951	$15,076,176,839	148%	$8,000,559,868	53%	$10,342,545,703	129%	$12,411,054,844
Delaware	$3,250,578,798	$3,244,176,002	100%	$2,903,083,571	89%	$2,166,512,386	75%	
Florida	$72,754,670,016	$71,781,768,073	99%	$54,519,475,706	76%	$30,699,647,261	56%	
Georgia	$37,431,596,750	$36,779,861,259	98%	$29,159,879,069	79%	$20,359,080,116	70%	
Hawaii[1,3]	$3,404,961,851	$3,489,973,452	102%	$1,552,482,000	44%	$2,665,559,151	172%	$3,198,670,981
Idaho	$3,606,910,599	$3,573,352,031	99%	$2,878,553,209	81%	$2,132,619,665	74%	
Illinois	$50,768,183,046	$48,674,693,200	96%	$37,414,499,340	77%	$25,571,395,170	68%	
Indiana[1,3]	$20,562,747,494	$26,888,191,312	131%	$10,470,271,172	39%	$15,220,203,070	145%	$18,264,243,684
Iowa	$10,752,502,629	$10,712,987,917	100%	$7,820,100,593	73%	$5,742,796,256	73%	
Kansas[1,3]	$8,677,629,106	$11,494,063,385	132%	$4,300,876,696	37%	$6,361,368,630	148%	$7,633,642,356
Kentucky	$10,967,976,011	$10,584,071,604	96%	$7,390,889,104	70%	$7,018,857,034	95%	
Louisiana	$10,405,508,418	$10,312,360,583	99%	$6,988,055,907	68%	$5,625,619,592	81%	
Maine[1,3]	$2,729,969,228	$3,723,581,912	136%	$1,331,642,418	36%	$1,987,837,513	149%	$2,385,405,016
Maryland	$18,866,386,470	$18,150,589,962	96%	$13,901,497,395	77%	$9,701,460,862	70%	
Massachusetts[1,3]	$15,942,961,253	$18,275,574,362	115%	$9,256,570,389	51%	$17,187,516,440	186%	$20,625,019,728
Michigan	$38,262,466,968	$38,003,887,872	99%	$24,907,519,828	66%	$18,921,837,283	76%	
Minnesota	$22,900,285,168	$22,881,215,071	100%	$17,888,922,186	78%	$9,519,584,419	53%	
Mississippi	$7,917,048,021	$7,681,590,871	97%	$5,320,419,180	69%	$3,961,476,188	74%	
Missouri	$17,578,888,352	$17,043,857,212	97%	$11,501,126,731	67%	$7,993,207,536	69%	
Montana	$1,841,145,771	$1,809,470,544	98%	$1,217,724,370	67%	$789,057,469	65%	
Nebraska[2]	$7,074,416,440	$6,823,162,184	96%	$3,640,547,023	53%	$3,146,382,764	86%	
Nevada	$11,458,259,596	$11,398,410,130	99%	$8,846,248,698	78%	$5,832,526,939	66%	
New Hampshire[2]	$3,533,622,013	$4,018,515,705	114%	$2,317,686,426	58%	$2,448,398,092	106%	$2,938,077,710
New Jersey[2]	$37,824,132,926	$31,518,597,544	83%	$24,622,003,568	78%	$19,365,102,124	79%	
New Mexico	$8,759,252,214	$8,638,839,015	99%	$5,616,981,340	65%	$4,664,805,501	83%	
New York	$88,073,848,986	$86,717,953,647	98%	$75,429,748,122	87%	$46,397,296,110	62%	
North Carolina	$25,500,053,498	$25,175,107,047	99%	$20,180,544,374	80%	$15,913,544,247	79%	
North Dakota[2]	$1,807,013,275	$1,761,778,348	97%	$1,030,108,654	58%	$801,659,662	78%	

*The data set analyzed did not include hard-cost construction-contract data for FY 1994 or state-reported total capital outlay data for FY 2012–2013.

	State-Reported K-12 Total Capital Outlay (F-13)	District-Reported Total Capital Outlay (F-33)	F-33 Total Cap. Outlay as % of F-13 Total K-12 Cap. Outlay	District-Reported K-12 School Construction Outlay (F-33)	School Construction Outlay (F-33) as % of District-Reported Total Cap. Outlay	Dodge-Reported K-12 Public School Construction Contract Costs	Dodge Reported Construction Contract Costs as % of School Construction Outlay	Adjusted K-12 School Construction Outlay
Ohio	$41,831,416,336	$40,573,902,929	97%	$30,411,212,874	75%	$23,890,164,384	79%	
Oklahoma	$8,500,710,026	$8,304,397,347	98%	$5,164,146,725	62%	$4,522,465,829	88%	
Oregon	$10,037,646,759	$9,910,516,812	99%	$8,281,327,486	84%	$5,417,391,684	65%	
Pennsylvania	$44,210,005,960	$43,728,205,630	99%	$37,871,484,390	87%	$26,146,648,230	69%	
Rhode Island[1]	$873,567,909	$1,347,145,702	154%	$1,347,145,702	100%	$1,204,338,493	89%	
South Carolina	$19,267,928,237	$18,928,879,958	98%	$13,864,109,815	73%	$10,584,459,432	76%	
South Dakota	$2,675,123,862	$2,638,153,736	99%	$1,859,367,406	70%	$1,216,256,612	65%	
Tennessee	$15,384,028,518	$13,970,218,178	91%	$9,670,963,675	69%	$8,961,234,912	93%	
Texas	$116,776,988,300	$116,393,977,498	100%	$95,825,342,911	82%	$65,347,354,854	68%	
Utah[2]	$10,694,856,128	$10,983,521,924	103%	$5,957,954,140	54%	$5,163,280,365	87%	
Vermont[1]	$1,433,846,001	$1,417,843,732	99%	$934,832,615	66%	$813,613,642	87%	
Virginia[2,3]	$24,703,530,667	$28,521,682,684	115%	$14,156,713,624	50%	$15,315,298,441	108%	$18,378,358,129
Washington	$30,018,147,985	$27,566,330,805	92%	$21,302,451,410	77%	$13,631,982,872	64%	
West Virginia[2,3]	$3,908,373,222	$4,475,652,822	115%	$1,900,148,543	42%	$1,915,672,096	101%	$2,298,806,515
Wisconsin	$16,805,680,750	$16,240,913,224	97%	$11,275,229,183	69%	$7,924,929,373	70%	
Wyoming	$3,305,028,645	$3,261,369,963	99%	$2,257,216,340	69%	$1,505,889,355	67%	

In order to identify potential data-accuracy issues regarding the data reported by states and school districts on the U.S. Census of Governments Fiscal (F-13 and F-33) Surveys, we calculated the annual averages for each state on four key data points for test years FY 1995–2011 and compared them to the national averages or, in the case of total capital outlay, an expected figure of 100%. This process identified the outliers against the national averages and raised the following concerns about the accuracy of the publicly available data sets:

1 In states where district-reported and state-reported figures for total capital outlay differ by more than 10%, district-reported capital construction data may be misreported.

2 In states where school-construction outlay was less than 60% of the district-reported total capital outlay versus the national average of 75%, some districts may have misclassified some school construction outlay and therefore underreported it.

3 In states where hard-cost construction-contract amounts reported by Dodge Data Analytics are more than 85% of the district-reported figures for school-construction outlay (which include hard and soft costs), school-construction outlay figures may be underreported; however, adjustments were only made for states where hard cost school construction contract amounts exceeded 100% of district reported capital construction outlay.

Sources: National Center for Education Statistics, U.S. Census of Governments, Dodge Analytics

APPENDIX C

Adjustments to State Share of Funding for Capital Outlay FY 1994–2013

(Data Field C11 of F-33 Fiscal Survey)

	DISTRICT-REPORTED (2014$)		ADJUSTED	
	Total Capital Outlay ($ billions)	Revenue from the State for Capital Outlay ($ billions)	Adjusted Revenue from the State for Capital Outlay ($ billions)	State Share of Total Capital Outlay
United States	**$1,261**	**$177.26**	**$227.46**	**18%**
Alabama	$14	$3.05	$3.06	22%
Alaska	$5	$1.87	$1.96	37%
Arizona	$24	$4.94	$4.94	21%
Arkansas	$10	$0.52	$1.12	12%
California	$166	$45.07	$46.67	28%
Colorado	$20	$0.69	$0.69	3%
Connecticut	$18	$9.87	$10.13	57%
Delaware	$4	$2.06	$2.11	57%
Florida	$78	$10.61	$11.74	15%
Georgia	$41	$4.51	$4.84	12%
Hawaii	$4	$4.87	$4.99	122%
Idaho	$4	$0.00	$0.00	0%
Illinois	$54	$2.14	$2.14	4%
Indiana	$30	$0.00	$0.00	0%
Iowa	$13	$0.50	$4.48	35%
Kansas	$14	$1.09	$1.10	8%
Kentucky	$12	$4.05	$4.13	33%
Louisiana	$12	$0.00	$0.00	0%
Maine	$4	$1.04	$1.15	28%
Maryland	$21	$5.22	$5.47	26%
Massachusetts	$22	$11.96	$14.79	67%
Michigan	$42	$0.00	$0.02	0%
Minnesota	$26	$5.38	$5.84	22%
Mississippi	$9	$0.18	$0.20	2%
Missouri	$20	$0.00	$0.00	0%
Montana	$2	$0.03	$0.03	1%
Nebraska	$8	$0.00	$0.00	0%
Nevada	$12	$0.00	$0.00	0%
New Hampshire	$4	$0.80	$0.83	19%
New Jersey	$34	$8.41	$10.89	32%
New Mexico	$10	$1.47	$2.02	20%
New York	$98	$0.41	$34.95	36%
North Carolina	$28	$2.07	$2.07	8%
North Dakota	$2	$0.04	$0.04	2%

	DISTRICT-REPORTED (2014$)		ADJUSTED	
	Total Capital Outlay ($ billions)	Revenue from the State for Capital Outlay ($ billions)	Adjusted Revenue from the State for Capital Outlay ($ billions)	State Share of Total Capital Outlay
Ohio	$46	$12.75	$12.67	27%
Oklahoma	$10	$0.03	$0.03	0%
Oregon	$11	$0.00	$0.00	0%
Pennsylvania	$49	$6.86	$7.20	15%
Rhode Island	$1	$1.09	$1.12	78%
South Carolina	$21	$1.72	$1.74	8%
South Dakota	$3	$0.00	$0.00	0%
Tennessee	$16	$0.00	$0.00	0%
Texas	$131	$12.21	$12.21	9%
Utah	$13	$0.77	$0.80	6%
Vermont	$2	$0.29	$0.31	19%
Virginia	$33	$1.65	$1.67	5%
Washington	$32	$4.19	$4.50	14%
West Virginia	$5	$0.44	$0.44	9%
Wisconsin	$18	$0.00	$0.00	0%
Wyoming	$4	$2.36	$2.39	63%

District-reported figures in yellow were adjusted with input provided by state officials.

Sources: National Center for Education Statistics, F-33 Fiscal Surveys FY 1994–2013.

Endnotes

1. Primary sources:

   (1) The U.S. Census of Governments F-33 Fiscal Surveys as published by the National Center on Education Statistics (NCES). These data include annual revenues and expenditures of local school districts, including those for capital outlay and for maintenance and operations of plant.

   (2) The U.S. Census of Governments F-13 Fiscal Surveys as published by NCES. These data include figures for capital outlays by state and local governments on public elementary and secondary school facilities.

   (3) Proprietary data from Dodge Data & Analytics on the costs at contract start of public school districts' school construction projects by project type and state and year. Dodge Data & Analytics (formerly McGraw-Hill Construction) is a private company that collects information as a service to industry subcontractors and suppliers.

   (4) Inventory data from state-level school facilities offices and agencies that are members of the National Council on School Facilities.

2. U.S. Department of Education, National Center for Education Statistics. Digest of Education Statistics, Tables 216.20 (2015); 213.10 (2014); 216.10 (2014); and 214.30 (2014).

3. Because no national data source for this information exists, the National Council on School Facilities collected school facilities inventory information from state facilities officials and other state organizations. It obtained data for 26 states and 21st Century School Fund estimated the inventories for the remaining states based on the square-footage-per-student figures reported by comparable states.

4. See U.S. Department of Energy, 2012 Commercial Building Energy Consumption Survey (CBECS), Table B1, U.S. Department of Energy (March 2015) http://www.eia.gov/consumption/commercial/data/2012/xls/b1.xlsx (accessed Feb. 1, 2016). More than half of all office buildings are 5,000 gross square feet or smaller. U.S. Department of Energy, 2012 Commercial Building Energy Consumption Survey (CBECS), Table B6, U.S. Department of Energy (March 2015) http://www.eia.gov/consumption/commercial/data/2012/xls/b6.xlsx (accessed Feb. 1, 2016).

5. U.S. Census of Governments, F-13 survey data, 1995–2012.

6. E.O. Lawrence Berkeley National Laboratory, "Health and Economic Impacts of Building Ventilation" (2016) http://eetd.lbl.gov/ied/sfrb/ http://energy.lbl.gov/ied/sfrb/vent-summary.html (accessed Feb. 1, 2016).

7. Wyon, D., and Wargocki, P. (2007). Indoor environmental effects on the performance of school work by children. (1257-TRP) *ASHRAE*. See also Shendell, D. G., et al. (2004). Associations between classroom CO2 concentrations and student attendance in Washington and Idaho. *Indoor Air,* 14(5), 333–341; Allen, J.G., et al. (2015). Associations of cognitive function scores with carbon dioxide, ventilation, and volatile organic compound exposures in office workers: a controlled exposure study of green and conventional office environments. *Environ Health Perspect* DOI: 10.1289/ehp.1510037.

8. See 21st Century School Fund, "Research on the Impact of School Facilities on Students and Teachers: A Summary of Studies Published Since 2000" (September 2010) www.21csf.org/best-home/docuploads/pub/210_ResearchontheImpactofSchoolFacilitiesSince2000-Reformatted2016.pdf; Buckley, J., Schneider, M., and Shang, Y., "The Effects of School Facility Quality on Teacher Retention in Urban School Districts," National Clearinghouse for Educational Facilities (February 2004).

9. Kuller, R., and Lindsten, C. (1992). Health and behavior of children in classrooms with and without windows. *Journal of Environmental Psychology,* 12, 305–317; Figueiro, M., and Rea, M. S. (2010). Lack of short-wavelength light during the school day delays dim light melatonin onset (DLMO) in middle school students. *Neuroendocrinology Letters,* 31(1).

10. Berg, F., Blair, J., and Benson, P. (1996). Classroom acoustics: the problem, impact and solution. *Language, Speech, and Hearing Services in Schools,* 27, 16–20; Crandell, C., and Smaldino, J. (2000). Classroom acoustics for children with normal hearing and with hearing impairment. Language, Speech, and Hearing Services in Schools, 31(4), 362–370; Knecht, H. A., et al. (2002). Background noise levels and reverberation times in unoccupied classrooms: predictions and measurements. *American Journal of Audiology,* 11, 65–71; Feth, L., and Whitelaw, G. (1999). Many classrooms have bad acoustics that inhibit learning. Columbus, Ohio: Ohio State; Sato, H., and Bradley, J. S. (2008). Evaluation of acoustical conditions for speech communication in working elementary school classrooms. *The Journal of the Acoustical Society of America,* 123(4), 2064; and Klatte, M., et al. (2010). Effects of classroom acoustics on performance and well-being in elementary school children: a field study. *Environment and Behavior,* 42(5), 659–692.

11. New York City Department of Environmental Protection, "Green Roof at Historic Bishop Loughlin Memorial High School in Brooklyn Will Absorb Nearly 450,000 Gallons of Stormwater Annually and Help to Improve the Health of the East River" (press release, Nov. 8, 2013), http://www.nyc.gov/html/dep/html/press_releases/13-109pr.shtml#.Vq-6eVLYHcs (accessed Feb. 1, 2016).
12. See Sciarra, D.G., Bell, K.L., and Kenyon, S. (2006). Safe and Adequate: Using Litigation to Address Inadequate K–12 School Facilities, Education Law Center http://www.edlawcenter.org/assets/files/pdfs/publications/Safe_and_Adequate.pdf (accessed Feb. 1, 2016).
13. Lhamon, C.E., Assistant Secretary for Civil Rights, "Dear Colleague Letter: Resource Comparability," U.S. Department of Education (Oct. 1, 2014) http://www2.ed.gov/about/offices/list/ocr/letters/colleague-resourcecomp-201410.pdf (accessed Feb. 1, 2016).
14. See 21st Century School Fund, "Growth and Disparity: A Decade of U.S. Public School Construction," (October 2006) http://www.21csf.org/best-home/docuploads/pub/100_GandDReportFinal-UpdatedVersion3-10-08.pdf (accessed Feb. 1, 2016).
15. Vincent, J.M. and Jain, L.S., "Going It Alone: Can California's K–12 School Districts Adequately and Equitably Fund School Facilities? Center for Cities and Schools, University of California, Berkeley (November 2015). http://citiesandschools.berkeley.edu/uploads/Vincent__Jain_2015_Going_it_Alone_final.pdf (accessed Jan. 13, 2016).
16. See Neilson, C., and Zimmerman, S., "The Effect of School Construction on Test Scores, School Enrollment, and Home Prices," Institute for the Study of Labor (November 2011) http://ftp.iza.org/dp6106.pdf (accessed Jan. 13, 2016).
17. See Josh Lasky, Ninety-two percent of Americans agree: Where we learn matters, Center for Green Schools at the U.S. Green Building Council (Dec. 3, 2015), http://www.usgbc.org/articles/ninety-two-percent-americans-agree-where-we-learn-matters (accessed Feb. 1, 2016).
18. See Council of the Great City Schools, "Reversing the Cycle of Deterioration in the Nation's Public School Buildings (October 2014) http://cgcs.org/cms/lib/DC00001581/Centricity/Domain/87/FacilitiesReport2014.pdf (accessed Feb. 1, 2016).
19. 21st Century School Fund calculation from National Center for Education Statistics enrollment data.
20. 21st Century School Fund calculation from U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, Tables 95 (1995) and 216.70 (2014).
21. Proprietary data licensed from Dodge Data & Analytics. This figure is consistent with survey data from the National Center for Education Statistics, which found in 2012 that 59 percent of all "main instructional buildings" were less than 15 years old. See U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, Table 217.10 (2014).
22. U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013 (Table 217.10, prepared June 2014) https://nces.ed.gov/programs/digest/d14/tables/dt14_217.10.asp (accessed Feb. 1, 2016).
23. American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., "Ventilation for Acceptable Indoor Air Quality" (2003) http://www.ashrae.org/File%20Library/docLib/Public/200418145036_347.pdf (accessed Feb. 1, 2016).
24. U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, 2013 (NCES 2015-011), Introduction and Chapter 2 (2015).
25. For examples of and resources for partnerships between school districts and community-based organizations, see the Coalition for Community Schools, http://www.communityschools.org/ (accessed Feb. 1, 2016).
26. 21st Century School Fund calculation based on National Center for Education Statistics data.
27. See Leachman, M., et al., "Most States Have Cut School Funding, and Some Continue Cutting," Center for Budget and Policy Priorities (January 2016) http://www.cbpp.org/sites/default/files/atoms/files/12-10-15sfp.pdf (accessed Feb. 1, 2016).
28. 21st Century School Fund calculation based on National Center for Education Statistics data.
29. 21st Century School Fund calculation based on National Center for Education Statistics data.
30. See Wyoming School Facilities Department, "Strengthening Wyoming Schools and Our Communities: Wyoming School Facilities Program, 1998–2016" (Fall 2015) http://legisweb.state.wy.us/InterimCommittee/2015/SSF1028Appendix7.pdf (accessed Feb. 1, 2016).

31. See Sciarra, D.G., Bell, K. L., and Kenyon, S., "Safe and Adequate: Using Litigation to Address Inadequate K-12 School Facilities," Education Law Center (2006) http://www.edlawcenter.org/assets/files/pdfs/publications/Safe_and_Adequate.pdf (accessed Feb. 1, 2016).
32. Cornman, S.Q., "Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2011-12 (Fiscal Year 2012), First Look, National Center for Education Statistics (January 2015) http://nces.ed.gov/pubs2014/2014301.pdf (accessed Jan. 13, 2016).
33. See 21st Century School Fund, "Federal Spending on PK-12 School Facilities" (November 2010) www.21csf.org/best-home/docuploads/pub/222_FederalSpendingonPK12PublicSchoolFacilities2010.pdf (accessed February 1, 2016).
34. Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2014," Congress of the United States (March 2015) https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49910-Infrastructure.pdf (accessed Feb. 1, 2016).
35. See Bello, M.A., and Loftness, V., "Addressing Inadequate Investment in School Facility Maintenance," Carnegie Mellon University (May 2010).
36. Center for Green Schools at the U.S. Green Building Council, 2013 State of Our Schools Report, U.S. Green Building Council (2013) http://www.21csf.org/best-home/docuploads/pub/249_2013StateofOurSchoolsReport.pdf (accessed Feb. 1, 2016).
37. U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, Tables 203.20 (2014).
38. E.O. Lawrence Berkeley National Laboratory, "Improved Energy Efficiency and Indoor Air Quality for Relocatable Classrooms (2011) http://eetd.lbl.gov/12m2/classrooms.html (accessed Feb. 1, 2016).

Acknowledgments

The 21st Century School Fund, The Center for Green Schools at the U.S. Green Building Council, and the National Council on School Facilities wish to thank the staff, members, and volunteers from our organizations who have reviewed data and contributed to this report.

We also would like to recognize the millions of parents, volunteers, facilities professionals, teachers, and administrators who support students every day by ensuring healthy, safe, inspiring school environments in their communities. In addition, we acknowledge and thank the brave people who have spoken out about school facilities conditions and called attention to the issue of equity in our education system – sometimes at great expense to their own careers.

Finally, we appreciate the generosity of our sponsors who helped make the production of this report possible:

- The Achieving America Family Foundation
- The Turner Foundation
- United Technologies Corporation

21st CENTURY SCHOOL FUND | IMPROVING URBAN PUBLIC SCHOOL FACILITIES

21csf.org

21st Century School Fund is a not-for-profit organization founded in 1994 to build the public will and the public capacity for modernized public school facilities. 21CSF is a well-respected and relied-upon source of research, policy analysis and technical assistance for communities, school districts and states on the public engagement, policies and practices that support the delivery of healthy, safe and educationally appropriate K–12 public school facilities.

NATIONAL COUNCIL ON SCHOOL FACILITIES
States Advancing Effective K-12 Policy, Planning, and Practice

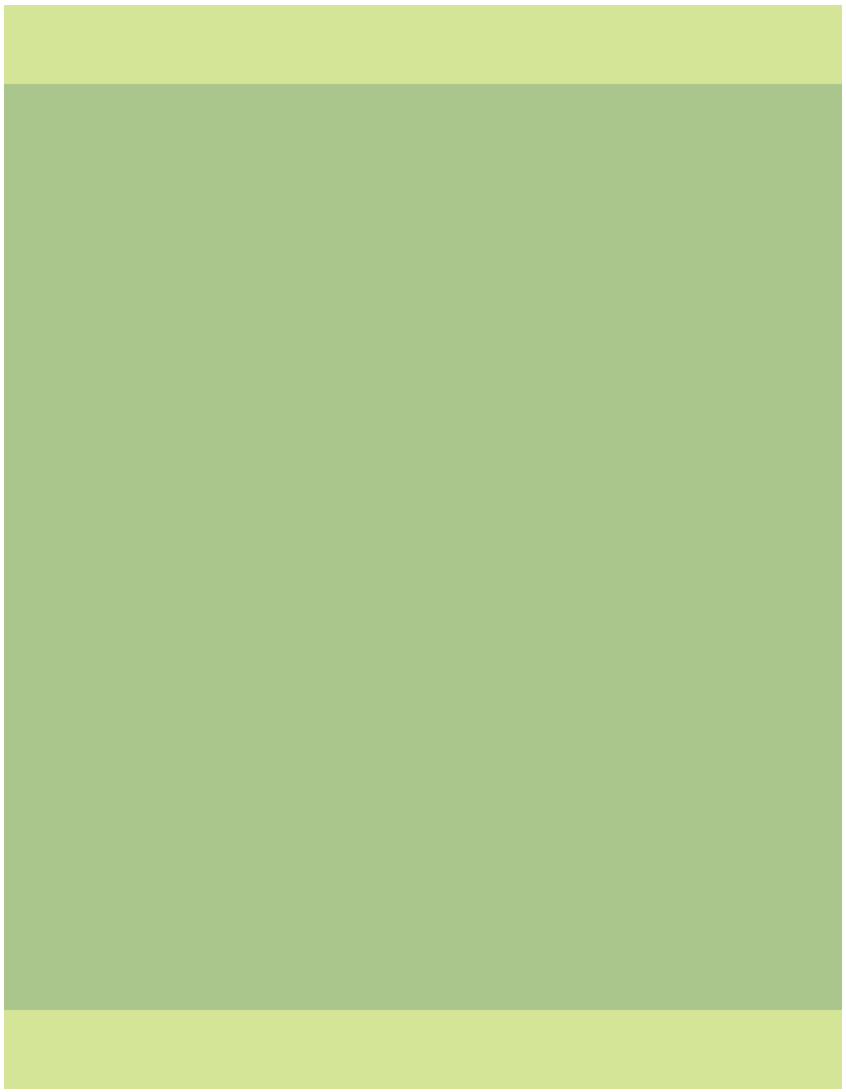
FacilitiesCouncil.org

The National Council on School Facilities is the nonprofit association of state K–12 public school facilities leaders. Its mission is to support states in their varied roles and responsibilities for the delivery of safe, healthy, and educationally appropriate school facilities that are sustainable and fiscally sound. NCSF engages in research and development and works to represent the states' perspectives and experience regarding effective policy, planning, practice, regulation, finance, and management of school facilities. By leveraging state knowledge through collaboration and the elimination of duplicate efforts, the Council saves time and public resources.

THE CENTER FOR GREEN SCHOOLS

CenterForGreenSchools.org

The Center for Green Schools at the U.S. Green Building Council's mission is to ensure that every student has the opportunity to attend a green school within this generation. The Center sits at the intersection of buildings, curriculum and community and works directly with teachers, students, administrators, elected officials and communities to transform all schools into healthy, safe and efficient learning environments. High-performing schools result in high-performing students, and green schools go far beyond bricks and mortar. The Center advances opportunities to educate a new generation of leaders who are sustainability natives, capable of driving global market transformation. To learn more please visit http://www.centerforgreenschools.org.




stateofourschools.org
21st CENTURY SCHOOL FUND
IMPROVING URBAN PUBLIC SCHOOL FACILITIES
NATIONAL COUNCIL ON SCHOOL FACILITIES
States Advancing Effective K-12 Policy, Planning, and Practice
THE CENTER FOR GREEN SCHOOLS

BLUEGREEN ALLIANCE

CREATING GOOD JOBS, A CLEAN ENVIRONMENT, AND A FAIR AND THRIVING ECONOMY

April 28, 2021

Representative Bobby Scott
Chairman
Education & Labor Committee
U.S. House of Representatives
2328 Rayburn House Office Building
Washington, D.C. 20515

Representative Virginia Foxx
Ranking Member
Education & Labor Committee
U.S. House of Representatives
2462 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Scott and Ranking Member Foxx,

As a coalition of some of the nation's largest labor unions and environmental groups, collectively representing millions of members and supporters, we write to express the BlueGreen Alliance's support for H.R. 604, Reopen and Rebuild America's Schools Act of 2021 (RRASA).

The American Society of Civil Engineers (ASCE)'s 2021 Report Card gives America's schools a "D+" grade, unchanged from the last report card four years ago. In the United States, some 50 million K-12 students and 6 million faculty and staff occupy 100,000 public schools. These school buildings are estimated to have a cumulative $380 billion in deferred maintenance costs. The condition of school facilities affects student attitudes, health, and achievement, and can also affect staff morale and retention. As students, staff and teachers transition back into schools following COVID-19, it is more important than ever that schools are safe and healthy places for learning.

Many of these facilities have maintenance issues that seriously affect student performance, and may have lasting, negative health impacts on their occupants. One major issue with aging building stock is lead exposure from drinking water and paint. A report issued by the U.S. Government Accountability Office in July of 2018 found that 43 percent of surveyed school districts had tested for lead in the prior two years, and 37 percent of those schools found elevated lead in their drinking water. Even very low levels of lead exposure can cause damage to the brain and other organs, resulting in developmental delays, IQ loss, and behavioral issues.

Public schools are largely funded by property taxes, with major disparities between schools in high and low income neighborhoods. For example, facilities in low income areas are often the least efficient. Modernizing school facilities provides opportunities to reduce energy costs and greenhouse gas emissions, and also improve the quality of indoor learning environments. The second-highest operating expenditure for schools is

energy, with schools spending more than $8 billion on energy every year. Green schools, which achieve the maximum level of water and energy efficiency and are built with the health of occupants in mind, utilize an average of 33 percent less energy and 32 percent less water, lowering utility costs of a typical green school by around $100,000 annually. Therefore, not only will greening facilities impact achievement and attendance, it will also dramatically lower energy costs, freeing up much needed money.

Clearly, there is a major opportunity to overhaul our school infrastructure. The Reopen and Rebuild America's Schools Act provides this opportunity with a $130 billion investment to address critical infrastructure needs in schools. Recently, President Biden's American Jobs Plan proposed reducing the grant program from $100 billion to $50 billion. It is imperative that Congress restores this funding to a full $100 billion in any infrastructure package. Bonds are heavily reliant on local property values, putting low-income areas are at a disadvantage in this funding stream. This $100 billion in grant funding is absolutely necessary for the low-income schools that need it the most to afford infrastructure repair.

Importantly, the Reopen and Rebuild America's Schools Act also includes a Buy America provision in Section 305, which requires projects funded under H.R. 604 use American iron, steel, and manufactured products. Additionally, Section 304 of the bill requires educational agencies funded by the legislation use a percentage of the funding on "green practices," like ensuring LEED certification. These critical elements of RRASA ensure any school infrastructure project covered under the bill follow crucial high-road standards. BlueGreen Alliance research has found that with these standards, this legislation would create upwards of 1.9 million jobs and put Americans back to work.

The state of America's schools is dire, and we need a robust set of solutions to repair our educational infrastructure, improve the health and safety of our students, strengthen our communities, reduce greenhouse gas emissions, and create quality, family-sustaining jobs. The Reopen and Rebuild America's Schools Act is a critical step in moving these priorities forward. For these reasons, BlueGreen Alliance urges Congress to swiftly pass this legislation.

Thank you for your consideration.



Jason Walsh
Executive Director BlueGreen Alliance

2701 University Ave. SE, Suite 209
Minneapolis, MN 55414

1020 19th Street NW, Suite 600
Washington, D.C. 20036

369 Pine Street, Suite 700
San Francisco, CA 94104

CHILD DEVELOPMENT

Child Development, xxxx 2013, Volume 00, Number 0, Pages 1–19

Impacts of a Prekindergarten Program on Children's Mathematics, Language, Literacy, Executive Function, and Emotional Skills

Christina Weiland and Hirokazu Yoshikawa
Harvard Graduate School of Education

Publicly funded prekindergarten programs have achieved small-to-large impacts on children's cognitive outcomes. The current study examined the impact of a prekindergarten program that implemented a coaching system and consistent literacy, language, and mathematics curricula on these and other nontargeted, essential components of school readiness, such as executive functioning. Participants included 2,018 four and five-year-old children. Findings indicated that the program had moderate-to-large impacts on children's language, literacy, numeracy and mathematics skills, and small impacts on children's executive functioning and a measure of emotion recognition. Some impacts were considerably larger for some subgroups. For urban public school districts, results inform important programmatic decisions. For policy makers, results confirm that prekindergarten programs can improve educationally vital outcomes for children in meaningful, important ways.

High-quality early childhood education equips children with the cognitive skills required for success in elementary school and beyond. Studies show that intensive preschool interventions can be highly cost effective and have positive impacts into adulthood (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010; Reynolds, Temple, White, Ou, & Robertson, 2011). From a developmental science perspective, this makes much sense; children's cognitive skills are malleable at a young age, and thus supporting their early development builds a strong foundation for later educational and intellectual success. Children with higher levels of early vocabulary, reading, mathematics, and executive functioning consistently have greater levels of academic success in elementary and middle school (Duncan et al., 2007; McClelland, Acock, & Morrison, 2006; National Early Literacy Panel, 2008). While the evidence is more mixed for emotional outcomes, both developmental theory and some empirical evidence suggest similar links to later academic outcomes for that domain (Entwisle, Alexander, & Olson, 2005; Pianta & Stuhlman, 2004).

Such findings have helped motivate the recent expansion of state- and locally funded prekindergarten programs in the United States. As of 2010, 40 states had implemented prekindergarten programs, enrolling 27% of the nation's 4-year-olds (Barnett et al., 2010). Evaluations of these programs with the strongest research design to date (regression discontinuity) have confirmed that children enrolled in these programs have higher language, literacy, and mathematics outcomes, on average, at scale (Gormley, Gayer, Phillips, & Dawson, 2005; Gormley, Phillips, & Gayer, 2008; Hustedt, Barnett, Jung, & Goetze, 2009; Hustedt, Barnett, Jung, & Thomas, 2007; Wong, Cook, Barnett, & Jung, 2008). Findings on impacts of public prekindergarten on children's socioemotional skills come from two quasi-experimental (and nonregression discontinuity) studies and findings were mixed (Gormley, Phillips, Newmark, Perper, & Adelstein, 2011; Magnuson, Ruhm, & Waldfogel, 2007).

While overall these results are encouraging, research suggests that many preschool programs struggle to attain good instructional quality (Burchinal, Kainz, & Cai, 2011; Peisner-Feinberg & Burchinal, 1997). Accordingly, there have been many efforts to increase preschool quality, including interventions

This study is funded by the Institute of Education Sciences. Thanks to the Boston Public Schools; Jason Sachs; the BPS Department of Early Childhood; participating coaches, principals, teachers, and children; John Willett; Richard Murnane; Nonie Lesaux; John Papay; and members of the Harvard RD Methodology in Prekindergarten Studies Working Group (particularly Howard Bloom, Jens Ludwig, Doug Miller, Guido Imbens, and Thomas Lemieux). Special thanks to our research assistants Kjersti Ulvestad, Carla Schultz, Julia Hayden, Michael Hurwitz, Hadas Eidelman, Kam Sripada, Ellen Fink, Julia Foodman, Deni Peri, Caitlin Over, and John Goodson.

Correspondence concerning this article should be addressed to Christina Weiland, Harvard Graduate School of Education, 14 Appian Way, Room 704, Cambridge, MA 02139. Electronic mail may be sent to Christina_weiland@mail.harvard.edu.

© 2013 The Authors
Child Development © 2013 Society for Research in Child Development, Inc.
All rights reserved. 0009-3920/2013/xxxx-xxxx
DOI: 10.1111/cdev.12099

that use curricula, teacher professional development, or both as quality supports. Many such interventions have shown efficacy when implemented on a small scale or in research demonstration trials. When such interventions are taken to scale, it is widely recognized that achieving positive impacts is more challenging. The intervention's creators, for example, cannot be as heavily involved, and maintaining quality of implementation is more difficult (Shadish, Cook, & Campbell, 2002).

This study, which used data on approximately 2,000 students enrolled in the Boston Public Schools (BPS) public prekindergarten program, represents an intersection of the literature on the effects of public prekindergarten programs and the literature on quality-support interventions in preschool. Regarding the former, as in the strongest of the prekindergarten studies, we used a quasi-experimental regression-discontinuity (RD) design, with the birthday cutoff for entry into the program providing exogenous treatment eligibility, to estimate the effects of public prekindergarten on children's developmental outcomes. Relevant to the quality-support literature, the BPS program combined two features that are prominent in the literature on preschool quality improvement: research-based (mathematics, language, and literacy) curricula, paired with a coaching system for preschool teachers. Curricula were chosen by the district and implemented at scale without involvement of the curriculum developers. The coaching system was developed by the district. Conditions accordingly represent those more typically encountered in public school districts than in research demonstration trials. Although we were not able to identify causally which of these inputs—curricula, coaching, or simply attending prekindergarten—constituted the most "active" ingredients in the intervention, we are nonetheless able to provide domain-specific and policy-relevant information regarding the pedagogical conditions under which impacts were achieved.

Within this context, we examined impacts of the BPS program on children's language, literacy, mathematics, and emotional development, domains that were directly targeted by the district-chosen curricula. One of our mathematics assessments is new to the literature and addresses some of the content limitations of more commonly used preschool mathematics assessments. We also present impacts on executive function (EF) skills, a developmentally important component of school readiness (Blair & Razza, 2007). EF was not directly targeted by the intervention, but theory and empirical work suggest that there may be spillover effects of cognitively focused curricula on this domain. In addition, we collected detailed data on the care type experienced by control-group children. Thus, we were able to specify what the program is being compared to, which is crucial given that the counterfactual for early childhood program attendance has changed substantially since landmark studies of preschool implemented in the 1960s and 1970s (Campbell et al., 2002; Schweinhart, Barnett, & Belfield, 2005). We also tested for statistically significant differences in impacts by gender, free or reduced lunch status, and race or ethnicity. The previous literature suggests that the effects of preschool may differ by these demographic characteristics. Finally, we present evidence that our results are robust to a set of threats to internal validity. Many of these sensitivity analyses—such as robustness of estimates to attrition from and late entry into the prekindergarten program, different start rules by age on certain measures, differences in reactivity to the testing situation in the treatment and control groups, and use of extant data to aid in the interpretation of produced estimates, as only children who took up an offered seat were tested—are new to the RD prekindergarten literature. Carefully examining these threats is important for advancing research methodology in future evaluations.

Short-Term Effects of Prekindergarten

Many previous studies have summarized the literature on the effects of preschool programs on children's developmental outcomes in great detail (Barnett, 1995; Currie, 2001; Gormley et al., 2005; Wong et al., 2008; Yoshikawa, 1995). In brief, prekindergarten appears to have positive, small-to-large effects on children's cognitive development and small effects on children's prosocial and problem behaviors, although the direction of the latter differs by study.

Focusing specifically on the public prekindergarten studies that share this study's research design (RD), researchers have found statistically significant positive impacts on children's mathematics scores in five of seven examined contexts (one city and six states; effect size range = 0.16–0.50) and on children's receptive vocabulary scores in four of eight examined contexts (one city and seven states; effect size range = 0.17–0.36). On assessments not shared across this body of studies, there was evidence of moderate-to-large effects on children's early literacy skills in six of eight examined contexts (Gormley et al., 2005; Gormley et al., 2008; Hustedt et al.,

2007; Hustedt et al., 2009; Wong et al., 2008). In addition, in studies of the Tulsa program (the only program in this body of literature to date for which subgroup impacts have been reported), Hispanic children and children raised in poverty, who generally have poorer outcomes than their White and higher income peers, appeared to enjoy greater benefits from enrollment in prekindergarten (Gormley et al., 2005, 2008).

Socioemotional and executive functioning outcomes have not been examined to date in the set of RD studies of the immediate impacts of prekindergarten. However, a recent study that used propensity score methodology found that public prekindergarten produced small reductions in children's timidity and increases in attentiveness (Gormley et al., 2011). A quasi-experimental study found that public prekindergarten increased children's aggression and decreased their self control (Magnuson et al., 2007). However, there were no statistically significant socioemotional effects for children who attended prekindergarten and kindergarten in the same public school.

Curricula and Coaching in Prekindergarten Settings

Curricula. Theory suggests that implementing explicit, intentional curricula in preschool programs may be effective for several reasons. Such curricula may ensure a continuing emphasis on the skills necessary for children's early school success, may help keep children engaged and challenged in the classroom, and may also help maintain classroom quality (Klein & Knitzer, 2006). Empirical evidence supports the effectiveness of some language, literacy, mathematics, EF, and socioemotional curricula on directly targeted child developmental domains (Barnett et al., 2008; Bierman et al., 2008; Clements, Sarama, Spitler, Lange, & Wolfe, 2011; Domitrovich, Cortes, & Greenberg, 2007; Fischel et al., 2007). Effective curricula in prekindergarten may also improve children's outcomes in nontargeted domains. For example, a reading and behavior management curriculum improved children's EF skills (Bierman, Nix, Greenberg, Blair, & Domitrovich, 2008), and a mathematics-focused curriculum improved children's oral language and literacy skills (Sarama, Lange, Clements, & Wolfe, in press).

Similarly, EF may be impacted by exposing children to prekindergarten curricula that have an explicit cognitive focus. There are hypothesized to be three distinct but related components of EF—working memory, inhibitory control, and attention shifting (Blair & Razza, 2007). Each is associated with language and math skills among preschool-aged children (Blair & Razza, 2007; Bull & Scerif, 2001; Diamond, Carlson, & Beck, 2005; Gathercole & Pickering, 2000). From a Vygotskian perspective, improved language may support children's EF skills by enhancing children's outer and then inner speech, which in turn may then improve EFs as children become better able to plan and monitor their behavior (Vygotsky, 1978). Furthermore, early mathematics, language, and literacy tasks all make demands on children's working memory, cognitive flexibility, and inhibitory control (Welsh, Nix, Blair, Bierman, & Nelson, 2010). There is uncertainty about the causal direction of the relation between EF and these cognitive skills, but it is plausible that implementing effective cognitively focused curricula in preschool could improve EF.

Coaching. Coaching is an ongoing professional development model in which an expert (the coach) models instruction, observes teachers' practice, and provides teachers with constructive feedback on their pedagogy (Neuman & Cunningham, 2009). Coaching may or may not involve supporting teachers' implementation of specific curricula (Aikens & Akers, 2011). Coaching can produce gains in preschool classroom quality, teacher instructional practices, and children's cognitive and behavioral development (Aikens & Akers, 2011; Bierman et al., 2008; Neuman & Cunningham, 2009; Raver et al., 2009). Thirteen of 14 studies have found that coaching improves preschool teachers' curriculum implementation (see Aikens & Akers, 2011). Monthly coaching was also part of the professional development model in a randomized controlled trial of Building Blocks, the mathematics curriculum implemented in the current study (Clements & Sarama, 2008). These researchers found large gains in children's mathematics skills at the end of prekindergarten, as well as high levels of curricular fidelity and higher quality mathematics instruction in treatment classrooms.

Subgroup Effects

Do the effects of preschool education differ by sociodemographic factors, such as socioeconomic status, race or ethnicity, or child gender? Large-scale preschool education in the United States emerged from the desire to reduce gaps between the academic performance of children from poor versus better-off homes (Zigler & Styfco, 2010). Nearly all of the literature evaluating the impacts of preschool education on children is based on low-income populations (the median percentage of

families in poverty in rigorous preschool evaluations identified in a recent meta-analysis was 91%; Leak et al., 2012). There are some hints in the studies conducted on national data sets that the effects of preschool and center-based care on cognitive outcomes are stronger for lower income families (Brooks-Gunn, Gross, Kraemer, Spiker, & Shapiro, 1992; Currie, 2001). In recent years, there has also been strong interest in whether preschool education might reduce related gaps in cognitive performance by race or ethnicity (Magnuson & Waldfogel, 2005). The national Head Start Impact Study found significantly stronger positive effects of the program on a range of Latino children's developmental outcomes, compared to those of other racial or ethnic groups, in its follow-up to first grade (U.S. Department of Health & Human Services, 2010). The Tulsa prekindergarten study found particularly strong cognitive effects among Latino children (Gormley et al., 2005). Gender has also been of interest as a moderator of preschool impacts. A recent study pooling the Perry, Abecedarian, and Early Training Project data found stronger benefits for girls than boys (Anderson, 2008). However, a meta-analytic study covering a broader range of preschool evaluations did not find this pattern (Kelchen et al., 2012).

In our sample, a substantial proportion of families were not low income, due to the public prekindergarten system not being means tested. We therefore have an opportunity in this study to examine whether the effects of public prekindergarten differ by family socioeconomic background, as well as by race or ethnicity and gender.

In the current study, we address two research questions:

1 What is the impact of the prekindergarten program on children's early mathematics, language, literacy, EF, and emotional development?
2 Do some child subgroups (as defined by family income, race or ethnicity, or child gender) benefit statistically significantly more from the prekindergarten program than others?

Method

Intervention

Setting. In 2008–2009, the BPS 4-year-old prekindergarten program served approximately 2,045 children in 69 elementary schools. Any child within the city of Boston who turned 4 by September 1 could apply for the program; unlike many public prekindergarten programs in other districts and states (Barnett et al., 2010), children's access was not limited by their family income or other restrictions. There is no perfect metric to determine how many of the city's 4-year-olds are enrolled in the BPS prekindergarten program. One metric relies on the U.S. Census's 2010 estimate of the percentage of children under age 5 in Boston (U.S. Census Bureau, 2012). Based on those numbers, about 34% of the city's 4-year-olds were enrolled in the BPS prekindergarten program in 2008–2009. A second estimate is based on the number of children who ultimately enroll in BPS kindergarten. In 2009–2010, among children enrolled in kindergarten, 43% of those children had attended prekindergarten in BPS in the previous year (excluding those in special education-only classrooms, as these children would have been served by the district even in the absence of the prekindergarten program due to federal requirements).

Treatment condition. Children who attended the program in the treatment year (2008–2009) received a year of free full-day prekindergarten in an urban public school setting. The evaluation year was the 2nd year of full implementation of the literacy and language curriculum Opening the World of Learning (OWL; Schickedanz & Dickinson, 2005) and the mathematics curriculum Building Blocks (Clements & Sarama, 2007a). The theory of change in BPS was that implementing explicit, intentional, and uniform curricula across classrooms with professional development supports would improve and maintain the quality of support provided to teachers and optimize resource allocation (e.g., through the streamlining of teacher training; Sachs & Weiland, 2010). In a fidelity study conducted the year treatment children were enrolled in prekindergarten, coaches trained on fidelity measures for each curriculum reported that they were implemented with moderately high fidelity (Weiland, Eidelman, & Yoshikawa, 2012).

Curricula background and implementation. The OWL curriculum targets children's early language and literacy skills and includes a social-skills component embedded in each unit, in which teachers discuss socioemotional issues with children and integrate emotion-related vocabulary words. The Building Blocks curriculum targets early mathematics skills, particularly (a) number and simple arithmetic and (b) geometry, measurement, and spatial sense. Three mathematical themes—patterns, data, and sorting and sequencing—are woven into these two main areas. In addition, many activities are intentionally child directed, with children making

up their own problems or creating their own geometric designs (Clements & Sarama, 2007a). Its pedagogical approach has a heavy focus on language, as it requires children to explain their mathematical reasoning verbally. Neither curriculum targets children's EF skills directly.

OWL and Building Blocks have shown positive effects on children's outcomes in other studies (Ashe, Reed, Dickinson, Morse, & Wilson, 2009; Clements & Sarama, 2007b; Clements et al., 2011). However, the evidence base for Building Blocks is stronger than that for OWL. Children in eight programs that implemented OWL showed consistently positive effects in studies that used pre–post designs with no control group (Wilson, Morse, & Dickinson, 2009). However, a recent randomized controlled trial in Head Start centers (Dickinson, Freiberg, & Barnes, 2011; Dickinson et al., 2011) found no impacts of OWL on children's language and literacy outcomes at the end of preschool, and some negative effects at the end of kindergarten and the end of first grade. However, these latter results are somewhat difficult to interpret, as the fidelity of implementation in the treatment groups was relatively low and control classrooms had partially implemented OWL. Teachers were also on average better educated in the eight programs that showed positive effects than in the RCT (65% vs. 17% with a bachelor's degree [BA], respectively).

Teacher qualifications and professional development supports. All BPS prekindergarten teachers are subject to the same educational requirements and pay scale as K-12 teachers. All prekindergarten teachers must have at least a BA and must obtain a masters degree within 5 years. Placing BPS within the national context, in 2010, 27 of 40 states required a BA for teachers in state-funded prekindergarten programs (Barnett et al., 2010). During the treatment year, 78% of program teachers held masters degrees and 75% had at least 5 years of teaching experience. Prekindergarten teachers received a variety of supports in the year prior to our evaluation and in the evaluation year itself, including curriculum-specific training and weekly to biweekly on-site support from an experienced early childhood coach trained in both curricula. In the 1st year of implementation, teachers were offered 2 days of curricular training in Building Blocks and 5 days in OWL. During the school year, teachers were offered 4 days of training in Building Blocks and 2 days of training in OWL. In the 2nd year of implementation, all teachers new to the prekindergarten program were offered 5 days of curricular training before the start of the school year and 6 days of training during the school year. For more on teacher background characteristics, see online supporting information Appendix S4, Table S1.

Coaching sessions were tailored to address the individual needs of each teacher in implementing the curricula and managing the classroom. All early childhood coaches held masters degrees. On average, early childhood coaches had themselves taught previously in early childhood classrooms for 8.8 years (range = 2–20 years, SD = 4.9 years) and had worked as a district early childhood coach an average of 3.3 years (range = 0.5–7 years, SD = 2.2 years).

Sample

In fall 2009, children in the BPS prekindergarten program and all children who attended the program in the previous year were eligible for the study. Children in special-education-only classrooms were excluded due to concerns about the appropriateness of the assessment battery for children who were not mainstreamed. For a child to participate in the study, the principal, classroom teacher, and parent (or guardian) of the child all had to consent to participate. In fall 2009, all eligible principals and teachers were invited to participate. Of 79 elementary schools with eligible children, 12 principals declined to participate (15%). Approximately 93% of eligible teachers in participating schools agreed to participate in child-level data collection in fall 2009 (N = 250 out 270), an average of 3.7 teachers per participating school. Participating schools and teachers were representative of district schools and teachers (see online supporting information Appendix S3).

We translated parent consent forms into five languages and forwarded them to the child's home up to three times. Within participating classrooms in the 67 participating schools, 69% of 2,938 eligible children returned consent forms, for a total sample size of 2,018. This represents 54% of eligible children enrolled in the district in fall 2009. Compared to nonparticipants on 14 characteristics, study participants were more likely to live in the east attendance zone (44% vs. 35%; one of three attendance zones; $p < .001$), less likely to live in the north attendance zone (28% vs. 35%; $p < .001$), more likely to have special needs (9% vs. 6%; $p < .01$), more likely to be White (18% vs. 15%; $p < .01$), more likely to be Asian (11% vs. 9%; $p < .05$), and less likely to be Hispanic (41% vs. 46%; $p < .01$). Participating children were nested in 238 classrooms (the difference between this

figure and the 250 consented teachers is due to 7 classrooms having two teachers and 5 teachers agreeing to participate, but with very few students eligible for the study and none who ultimately returned consent forms). The number of participating children per classroom ranged from 1 to 22 (average of 8.5, $SD = 5.2$).

The final sample of 2,018 is racially, linguistically, and socioeconomically diverse. Forty-one percent of the children were Hispanic, 26% were Black, 18% were White, 11% were Asian, and 3% were of mixed, or other, race. Fifty percent of the sample spoke only English, 28% spoke Spanish, and 22% spoke a language other than English or Spanish. Sixteen languages were represented in the "other" category; within this category, the most commonly spoken languages were Vietnamese (30%), Haitian (12%), and Cape Verdean Creole (8%). Approximately 69% of sampled children were eligible for free or reduced lunch.

Child Assessment Procedures

Children were tested by study-trained child assessors. These assessors had to establish target reliability on the full battery of tests and show good rapport and child management skills in both simulated and real testing situations. All assessors were college educated and approximately one third held masters degrees. On average, the complete battery of nine tests took 45–50 min to administer. Children were tested in a single session if possible, with the session divided into smaller segments if the child showed signs of fatigue. We randomized the order of tests to limit the possibility of biasing results systematically due to child fatigue. The assessors visited classrooms in fall 2009, as close to the start of the school year as teacher and school schedules and study staffing would allow. Assessors were first allowed into schools 2 weeks after the start of school (end of September). Approximately 33% of the data were collected by the end of October, 88% collected by the end of November, and 98% collected by the end of December. Children were assessed in English.

Outcome Measures

Receptive vocabulary. Children's receptive vocabulary was measured using the Peabody Picture Vocabulary Test III (PPVT–III; Dunn & Dunn, 1997), a nationally normed measure that has been used widely in diverse samples of young children (U.S. Department of Health and Human Services, 2010). The test has excellent split-half and test–retest reliability estimates, as well as strong qualitative and quantitative validity properties (Dunn & Dunn, 1997). It requires children to choose (verbally or nonverbally) which of four pictures best represents a stimulus word. In our analysis, as in other prekindergarten RD studies (Hustedt et al., 2007; Hustedt et al., 2009; Wong et al., 2008), we used the raw score total as our outcome measure.

Prereading and reading skills. The Woodcock–Johnson Letter-Word Identification subscale (Woodcock, McGrew, & Mather, 2001) is a nationally normed, widely used measure (Gormley et al., 2005; Peisner-Feinberg et al., 2001). Children are asked to identify and pronounce isolated letters and entire words fluently. According to the developers, the estimated test–retest reliability of the Letter-Word subscale for 2- to 7-year-olds is 0.96. Consistent with other prekindergarten RD studies (Gormley et al., 2005; Gormley et al., 2008), we used the raw score total as an outcome in our analysis.

Numeracy and early math. The Woodcock–Johnson Applied Problems subscale (Woodcock et al., 2001) is a numeracy and early mathematics measure that requires children to perform relatively simple calculations to analyze and solve arithmetic problems. Its estimated test–retest reliability for 2- to 7-year-old children is 0.90 (Woodcock et al., 2001) and it has been used widely with diverse populations of young children (Gormley et al., 2005; Peisner-Feinberg et al., 2001; Wong et al., 2008). In our analysis, as in other prekindergarten RD studies (Gormley et al., 2005; Gormley et al., 2008; Hustedt et al., 2007; Hustedt et al., 2009; Wong et al., 2008), we used the raw score total as an outcome.

The Applied Problems subtest does not measure geometric and spatial capacities and researchers have raised some concerns regarding the test's comprehensiveness, appropriateness, and sensitivity in use with young children (Clements, Sarama, & Liu, 2008). Therefore, we also assessed children's mathematics skills using a subset of 19 items from the Research-Based Elementary Mathematics Assessment (REMA; Clements et al., 2008), as this measure assesses a wider range of early numeracy, geometry, and spatial skills. We used Rasch modeling and other psychometric analysis to assess the shortened REMA's psychometric properties and confirmed that it was a valid measure of children's early mathematics skills (Weiland et al., 2012). In all analyses, we used the Rasch-estimated child ability scores as the outcome.

EF skills. Our battery of tests included assessments that tapped three principal dimensions of EF:

working memory, cognitive inhibitory control, and attention shifting. Forward Digit Span and Backward Digit Span (FDS and BDS, respectively; Gathercole & Pickering, 2000; Wechsler, 1986) tapped different components of working memory. BDS measures the central executive component, while FDS measures phonological loop. In both tasks, the assessor reads aloud a string of numbers to the test child, with approximately a 1-s pause between digits. The child then either has to repeat back exactly what the assessor said (in FDS) or reverse the string of numbers (in BDS). Before items are administered, the child must pass a practice trial, demonstrating that he or she understands the directions of the task. FDS is scored from 1 to 6, while BDS is scored from 1 to 5. The score represents the child's digit span memory (i.e., a 2 represents a digit span memory of two digits).

For attention shifting, we used the Dimensional Change Card Sort (DCCS) and a subset of items from the Task Orientation Questionnaire (TOQ; Smith-Donald, Raver, Hayes, & Richardson, 2007). In the DCCS (Frye, Zelazo, & Palfai, 1995), children were shown target cards that differed along dimensions of color and shape (e.g., red and blue, rabbits and boats). Children learned to sort the cards according to one dimension (shape or color) and then were asked to sort the cards on the other dimension. After practice trials to confirm that children understood the rules, the assessor administered up to 10 trials on the DCCS. After 6 trials, if a child had missed more than 1 trial, the testing was discontinued. If the child had missed only 1 or 0 trials, the assessor continued until Trial 10. The final DCCS total score was the number of trials (out of 10) in which the child managed to shift attention from the prior criterion and sort the cards according to the new criterion correctly.

The full TOQ assesses the child's emotional state and capacity to sustain focus on a set of tasks during a testing session. After administering the child assessment battery, assessors rated each child on 13 items reflecting his or her capacity to sustain attention to the tasks, demonstrate self-regulation, and engage actively to achieve a goal. Each item was rated on a 4-point scale, with clear behavioral descriptors provided for each point on the scale. Using the full sample of children, we conducted a confirmatory factor analysis on the full set of TOQ items and confirmed the presence of three distinct constructs—positive emotion, attention shifting, and impulse control. The fit of the factor model was good (comparative fit index [CFI] = .976, root mean square error of approximation [RMSEA] = .058, standardized root mean square residual [SRMR] = .048). The four items that measured attention shifting included "Pays attention to instructions and demonstration," "Careful, interested in accuracy," "Sustains concentration—willing to try repetitive tasks," and "Cooperates, complies with tester's requests." In our analyses, we used a unit-weighted average of responses to these four items as our attention-shifting outcome.

To assess children's cognitive inhibitory control, we used Pencil Tapping (Diamond & Taylor, 1996). The child was asked to tap twice if the evaluator tapped once and tap once if the evaluator tapped twice. Assessors first administered a set of practice trials to ensure that children understood the rules of the task. Children who passed the practice were then administered 16 total trials. The task measures children's cognitive inhibitory control and, to a lesser degree, working memory and fine motor activity (Bierman, Nix, et al., 2008). Scores recorded the correct number of trials out of 16 that children achieved. Because of concern that tapping a pencil could prove difficult for preschoolers and might conflate cognitive inhibitory control with fine motor skills, we substituted larger plastic kitchen spoons for pencils in this task.

Emotional development. Our chosen emotional development outcomes are all derived from either direct testing or assessor ratings of children. Commonly used measures of children's behavior in preschool often rely on parent and teacher reports. However, parents and teachers may have different expectations of children based on whether they are entering preschool versus kindergarten, a problem discussed in Gormley et al.'s (2011) evaluation of the Tulsa prekindergarten program's impacts on children's socioemotional outcomes. Because our RD design compares preschool children with kindergarten children across an age cutoff, intervention effects on outcomes measured by parent and teacher reports could have been confounded with differences in reporters' expectations based on the child's age.

We used three measures of emotional development: the Emotion Recognition Questionnaire (ERQ; Ribordy, Camras, Stefani, & Spaccarelli, 1988), TOQ Positive Emotion, and TOQ Impulse Control (Smith-Donald et al., 2007). The ERQ assesses children's ability to identify emotions. In the ERQ, children listened to 16 stories that described characters in different situations and were shown a picture corresponding to the situation. They were then asked to identify the character's feeling by pointing to pictures of happy, mad, sad, or scared faces. The

faces shown matched the gender of the child (i.e., boys were shown boy faces and girls were shown girl faces). Children received 2 points for identifying the correct emotion, 1 point if they misidentified the emotion but identified the valence correctly, and 0 points if they identified neither emotion nor valence correctly, for a maximum score of 32. Before administering the test, the assessor first established that the child could identify the happy, mad, sad, or scared faces correctly. The ERQ has been used with children in Head Start and has demonstrated sensitivity to intervention effects (Bierman et al., 2008).

The confirmatory factor analysis described previously on the TOQ identified three items for positive emotion: "alert and interactive; is not withdrawn," "shows pleasure in accomplishment and active task mastery," and "confident"; and three items for impulse control: "can wait during and between tasks," "remains in seat appropriately during test," and "modulates and regulates arousal level in self." In our analyses, scores on our Positive Emotion and Impulse Control outcomes were unit-weighted averages of children's responses to the position emotion and impulse control factors, respectively.

Predictors

Forcing variable. Using district administrative records, we constructed a continuous predictor to measure how many days from the cutoff the child's birthdate fell, centered on September 1. This predictor was the "forcing variable" in our RD analysis—the clear cutpoint that is the exogenous determinant of children's eligibility for treatment (Lee & Lemieux, 2010). Positive integer values indicated that the child was born before September 1 and negative, after. A value of 0 indicated that the child was born on September 1.

Treatment variable. We also created a dichotomous variable that recorded whether children were in the treatment group (set equal to 1, when centered child age was 0 or greater) or the control group (set equal to 0, when centered child age was less than 0).

Covariates and Descriptive Characteristics

Administrative data. From district administrative records, we obtained information on children's race or ethnicity, home language, free and reduced lunch status, gender, and special needs status. We used a vector of dichotomous indicators to represent child race or ethnicity, each coded 1 when the child was from the particular racial or ethnic group, 0 otherwise. Racial or ethnic groups were Asian, Black, Hispanic, Other, and White. Similarly, we used a vector of dichotomous indicators to represent children's home language (English, Spanish, or Other), each coded 1 when the requisite language was the child's home language, 0 otherwise. We also constructed dichotomous indicators to represent child free and reduced lunch status, gender, and special needs status, each coded 1 if the child fell into a demographic category and 0 otherwise. These covariates have been shown to predict children's early cognitive and educational outcomes in other studies, and there is a consensus in the early childhood education literature that these should be controlled in impact analyses (Clements et al., 2011; Wong et al., 2008).

Preprogram Child-Care Types

We were also able to obtain parent-reported information on the primary type of child care that children experienced before entering the 4-year-old district prekindergarten program. When registering their children for prekindergarten, parents were asked about the child's last child-care experience, including the name of the provider, and were asked to choose one from the following care types: Head Start, private preschool, public preschool, licensed family day care, family day care, and other or none. Because parents often disagreed about program type for the same program name, we cleaned and recoded these data extensively, confirming the type for each named program so that codes are consistent across children. We verified the program type via extensive web searches and through lists of programs and types obtained from the Massachusetts Department of Early Education and Care, the Boston Early Education Quality Improvement Project, and the National Association for the Education of Young Children. Information was often unavailable regarding whether a family day-care provider was licensed and parents frequently disagreed regarding the same provider's licensing status. Thus, we collapsed licensed family day care and family day care into one category in our analysis. Other or none almost always refers to relative care, such as parental care or care by an immediate relative.

Data Analytic Strategy

Impacts: Basic framework. For the impact estimates, we capitalized on the exogenous variation in program receipt created by the use of the district's age cutoff to determine children's entry

into the program. The RD approach is useful when there is a clear cutpoint on a "forcing variable," such as child age, that is the exogenous determinant of children's eligibility for treatment. On one side of the cutoff, participants are assigned to a particular treatment, whereas on the other side of the cutoff, they are not (Imbens & Lemieux, 2008; Shadish et al., 2002; Thistlethwaite & Campbell, 1960; Trochim, 1984). In our case, children must have turned 4 years old on or before September 1, 2008 to attend the prekindergarten program (the treatment) in the 2008–2009 school year (Year 1). Any differences in average school-readiness outcomes in fall 2009 (the beginning of the 2009–2010 school year, or Year 2) between children who fell just to one side, or the other, of the cutoff, provided unbiased estimates of the causal impact of the program for children of this age. Under the standard RD design, we capitalize on the data of children remote from the birthday cutoff to estimate the treatment effect for those target children whose birthdays fell in the immediate vicinity of September 1, on one side or the other. As is common in RD studies, our results only generalize to students right at the cutoff.

Interpretation of the impact estimates. A standard application of the RD methodology, provided all assumptions are met, provides an unbiased estimate of the average effect of assignment to the treatment condition (vs. control) for participants immediately on either side of the cutoff (Bloom, 2012; Murnane & Willett, 2010). This estimate is known as the intent-to-treat (ITT) estimate as it summarizes the average difference between participants who were assigned to the treatment and control conditions, whether they end up taking up their assigned place in either the treatment or the control group. In our study, however, the only children tested are those who actually showed up in the schools at the point of testing (fall 2009). As such, the treatment estimate is not a classic ITT estimate. It also does not meet the definition of a treatment-on-the-treated (TOT) estimate, or the effect of the intervention on those who actually took up the treatment, as TOT estimates are derived from ITT estimates (Angrist & Pischke, 2008). As such, estimates produced by our study and by previous prekindergarten RD with age cutoff studies are neither pure ITT nor pure TOT estimates. Previous such studies have left this problem unresolved (Gormley et al., 2005; Wong et al., 2008).

We took several steps to address this problem (for details concerning our strategies and results, see online supporting information Appendix S1). In brief, we contend that our RD estimates are definitionally ITT estimates with potential selection bias. However, simulations and analysis using administrative data suggest that the magnitude of our estimates is closer to TOT than ITT. As such, we interpret them as representing effects for those who enrolled in the program. Later in this article, and more fully in the online supporting information Appendices S1, S2, and S4, we provide evidence that detected effects are robust to a multitude of sensitivity analyses.

Adjusting for attrition and late enrollment. To adjust for children who were missing outcome data due to attrition or late enrollment, we used propensity score weighting. Using administrative records from enrollment applications, we identified students who participated in the prekindergarten program in Year 1 but attrited from the district by time of testing (Year 2; $N = 209$). We also identified control-group children who were not included in our tested sample because they either attrited before testing ($N = 63$) or enrolled after the testing period ($N = 54$). Previous such studies have not accounted for these additional groups of children. Adjusting for them is key, given that they technically should be included in our analysis of those who took up the program. Because we had administrative data for these attriter and late-entry children, we were able to adjust for observed differences between our child assessment (impact) sample of 2,018 and the larger sample including them. Illustrating the importance of this adjustment, in Table S2 in online supporting information Appendix S4, we present descriptive statistics on the demographics of both the tested sample and the attriter and late-entry sample. As shown in the table, there are statistically significant differences between the two samples on 6 of 14 examined demographic characteristics.

To conduct the required adjustments, our propensity score model was as follows:

$$PS_{ijk} = \Pr(\text{child_tested} = 1 | \sum X_{ijk}) = \frac{1}{1 + e^{-(\beta_0 + \beta_i X_{ijk})}} \quad (1)$$

where PS is the probability that the *i*th student, in the *j*th classroom of the *k*th school would be tested, conditional on X, a vector of student-level covariates (race or ethnicity, gender, home zone, language, and siblings). We fitted this model, obtained predicted values of these propensity that

a child would be tested, and then inverted these propensities to obtain an inverse probability weight (IPW) that we could use in our subsequent RD analysis to counteract selection into testing (Imbens & Wooldridge, 2009; Murnane & Willett, 2010). Conceptually, our IPW approach upweights children whose entry into the tested or untested condition was not predicted well by the selection model in Equation 1 and for whom we then assume that the endogenous contribution of self-selection plays less of a role in the determination of the RD estimate.

RD impact approach. We incorporated the IP weights into our RD analyses using weighted least squares regression, in the sample of tested children who did possess values on the empirical outcomes. Our impact equation was as follows:

$$\begin{aligned}\text{OUTCOME}_{ijk} = {} & \beta_0 + \beta_1 \text{TREAT}_{ijk} + \beta_2 \text{CAGE}_{ijk} \\ & + \beta_3 \text{TREAT}_{ijk} * \text{CAGE}_{ijk} + \beta_4 Y_k + \varepsilon_{ijk}\end{aligned} \quad (2)$$

where OUTCOME is a generic representation of the child-level test score, TREAT is a dichotomous indicator of treatment or control-group status, CAGE is the child's age centered on the September 1 cutoff, Y is a vector of school fixed effects, and ε is a student-level error term. We estimated robust standard errors to account for the clustering of children within classrooms. We did not include student demographics in Equation 2, as they had already been accounted for through the IPW.

Our analytical strategy and robustness checks for our RD analyses were informed by Lee and Lemieux (2010) and *What Works Clearinghouse* guidelines (Schochet et al., 2010). We first conducted a graphical analysis, displaying and smoothing the relation between the outcome child age on either side of the cutoff, by superimposing a fitted linear regression line and a smoothed, locally weighted nonparametric regression line on a scatter plot of the raw data. These empirical plots suggested the functional form of the outcome and forcing variable relation and revealed whether there was indeed a discontinuity in the average value of the outcome between the groups assigned to the treatment and control conditions, at the cutoff. Second, because specifying the correct functional form of the relation between outcome and the forcing variable is one of the chief challenges in RD analysis (Imbens & Lemieux, 2008; Ludwig & Miller, 2007), when we specified a linear relation between the two variables, we did so within a window, or bandwidth, on either side of the age cutoff, within which one might reasonably argue that the functional form of the outcome and forcing variable relation was "locally" linear. This approach is a flexible method that allows for the inclusion of covariates, and gives equal weight to all observations that fall into a local bandwidth (Imbens & Lemieux, 2008). This approach also has better boundary properties than other standard nonparametric smoothing strategies (Hahn, Todd, & Van der Klaauw, 2001). A nearly identical version of the method was used to estimate successfully the impacts of Head Start on child mortality rates and educational attainment, in another RD-designed evaluation (Ludwig & Miller, 2007).

Third, as a check on the specification of our local linear regression models, we also fitted a series of additional models in which we replaced the linear specification of the outcome and forcing variable relation with polynomial specifications and interaction terms of the necessary order between the treatment and forcing variables. We compared fit statistics across models and overspecified the models as a robustness check. Although less efficient than when models are underspecified, overspecification yields less biased estimates (Trochim, 1984) and has been used as a strategy in other early childhood RD designs (Gormley et al., 2005; Wong et al., 2008).

As a fourth step, we examined the sensitivity of our results to choice of bandwidth (Lee & Lemieux, 2010). Within selected bandwidths, we reestimated the IP weights from Equation 1, using the sample of observations corresponding to that bandwidth. To provide easy comparisons with other RD prekindergarten studies (Gormley et al., 2005; Wong et al., 2008), we adopted a bandwidth of 6 months on either side of the age cutoff and fitted our different specifications of the RD model (Equation 2) to data within this window. We also employed the cross-validation procedure of Lee and Lemieux (2010) and Imbens and Lemieux (2008) to estimate an "optimal" bandwidth, by minimizing the mean squared error of prediction at the cutoff. Within each bandwidth choice, we repeated the modeling steps outlined above and obtained additional estimates of the treatment effects.

Subgroup analysis. We extended our basic approach to estimate treatment effects for selected subgroups. The subgroups of interest included those defined by race or ethnicity (Black, Latino, White, and Asian), free and reduced lunch status, and gender. Due to the paucity of data for the Other race or ethnicity group, we did not fit models that included this subgroup. Our primary model for estimating these subgroup effects was as follows:

$$\begin{aligned}\text{OUTCOME}_{ijk} = &\beta_0 + \beta_1\text{TREAT}_{ijk} + \beta_2\text{CAGE}_{ijk} \\ &+ \beta_3\text{TREAT}_{ijk} * \text{CAGE}_{ijk} \\ &+ \beta_4\text{SUBGROUP}_{ijk} \\ &+ \beta_5\text{TREAT}_{ijk} * \text{SUBGROUP}_{ijk} \\ &+ \beta_6\text{SUBGROUP}_{ijk} * \text{CAGE}_{ijk} \\ &+ \beta_7\text{TREAT}_{ijk} * \text{SUBGROUP}_{ijk} \\ &* \text{CAGE}_{ijk} + \beta_8 Y_k + \varepsilon_{ij},\end{aligned} \quad (3)$$

where ε is a student-level error term. In this model, we represent the different sets of subgroups with a generic predictor, SUBGROUP. The predictors whose associated slope parameters represent the treatment effects for the different subgroups are as follows: (a) the dichotomous predictor SUBGROUP, indicating membership in a subgroup of interest; (b) the interaction term TREAT*SUBGROUP; (c) the interaction term SUBGROUP*CAGE; and (d) the three-way interaction term SUBGROUP*CAGE *TREAT. We also tested whether it was necessary to include higher order quadratic and cubic terms, adding in the necessary higher order terms for SUBGROUP*CAGE and TREAT*SUBGROUP*CAGE. In each analysis, we included IPW as previously explained to adjust for children who were not tested because of attrition or late enrollment. Equation 3, like Equation 2, does not include a vector of other student characteristics, as they were accounted for through the IPW. Also, for a given subgroup model, the IPW does not include the subgroup characteristic of interest. This is because including the subgroup in the weight prohibits us from including a fixed effect for the subgroup of interest (it would "double count" the subgroup effect). We reported here only those subgroup effects that are robust across bandwidth (see Figures 1 and 2). Results including all statistically significant subgroup effects across all bandwidths are available upon request.

In fitting all our regression models, we used the method of multiple imputation (with 50 imputations) to account for missing data, following Graham (2009). In Table 1, we present summary statistics on the child outcomes, including the percent missing for each outcome.

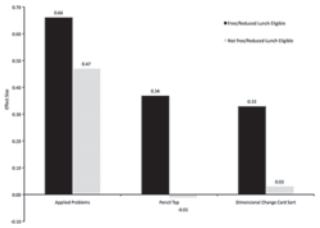


Figure 1. Estimated effect sizes of the prekindergarten program on selected outcomes, by children's free or reduced lunch status. Effect sizes were estimated from fitted regression-discontinuity models within a bandwidth of 365 days on either side of the age cutoff and with a linear relation specified between the achievement outcomes and age.

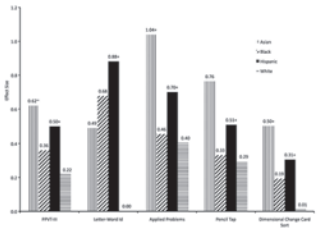


Figure 2. Estimated effect sizes of the prekindergarten program on selected outcomes, by children's race or ethnicity. + denotes that the effect for the racial or ethnic group was larger than that for White children ($p < .05$), and the effect was robust to bandwidth and functional form. ~ denotes that the effect for a racial or ethnic group was larger than that for Whites with a bandwidth of 365 days but that the effect was not robust to bandwidth and functional form. Effect sizes were estimated from fitted regression-discontinuity models within a bandwidth of 365 days on either side of the age cutoff and with a linear relation specified between the achievement outcomes and age. Subgroup effects were estimated from statistically significant interactions between race or ethnicity and treatment status ($p < .05$). Other statistical interactions between race or ethnicity, distance from the age cutoff, and treatment status were included as needed.

Results

Descriptive Statistics on Control-Group Care Types

Parents of children in the control group reported the following care types in the year in which their children were too young to enter the BPS program: Head Start (16%), public centers (12%), private centers (29%), nonrelative home-based care (10%), and relative care (33%). Two thirds of control children thus experienced some kind of nonrelative care in 2008–2009 and 57%, center care or preschool.

Main Impacts

Participation in the prekindergarten program led to statistically significant improvements in mathematics, literacy, and language skills (Table 2). Effect sizes were as follows: 0.45 for receptive vocabulary (PPVT), 0.62 for early reading (Letter–Word Identification), 0.58 for numeracy (Applied Problems), and 0.49 for numeracy and geometry (REMA Short). We also found statistically significant, positive impacts on most measures of EF and on one measure of emotional development (Tables 3 and 4). Effect sizes were 0.23 for working memory (both FDS and BDS), 0.20 for inhibitory control (Pencil Tap), 0.27 for attention shifting (DCCS), and 0.18 for emotion recognition (Emotion Recognition Questionnaire). Results for outcomes from the TOQ—attention shifting, positive emotion, and impulse control—were positive in sign but were not statistically significant. Effect sizes were very similar in models with and without the IPW correction for attrition and late entry (online supporting information Appendix S4, Table S3).

Subgroup Impacts

We also found that some subgroups of children benefited more from the program than did others. For instance, children who were eligible for free or reduced lunch benefited statistically significantly more than those who were ineligible on numeracy (Applied Problems), inhibitory control (Pencil Tap), and attention shifting (DCCS; see Figure 1). For numeracy, effect sizes for both groups were in the moderate-to-large range (0.66 and 0.47, respectively). For inhibitory control and attention shifting, the benefits of the treatment accrued nearly entirely to the children who were free or reduced lunch eligible, with a very small or zero effect at the cutoff for the children who were not free or reduced lunch eligible. For all other outcomes, impacts did not vary by free- and reduced lunch status.

In Figure 2, we display our estimates of effect size by children's race or ethnicity. Impacts were statistically significantly larger for Hispanic children than for White children on 8 of 12 assessments. These differential effects were robust to sensitivity analyses for five assessments: PPVT, Letter-Word ID, Applied Problems, Pencil Tap, and DCCS outcomes (measures across nearly the full range of domains assessed). Effects for Asian children were statistically significantly larger than those for White children on 8 of 12 assessments, but the estimated differences were robust to sensitivity analyses for only the Applied Problems and DCCS outcomes, in part due to the small size of the Asian sample. Effects for Black children were statistically significantly larger than those for White children on 3 of 12 assessments, but these differences were not robust to sensitivity analysis. All outcomes for which there were statistically significant race or ethnicity effects that were robust across bandwidth and functional form also passed general linear hypothesis (GLH) tests. That is, we found that the joint effect of the relevant subgroup characteristics multiplied by the treatment variable was not zero (e.g., F statistic $p < .10$). The exception was the

Table 1
Sample Means (Standard Deviations) for Selected Child Outcomes (N = 2,018)

	Full sample	Born before cutoff; attended prekindergarten in 2008–2009	Born after cutoff; attended prekindergarten in 2009–2010	% missing total
PPVT–III	58.26 (21.84)	69.16 (17.65)	48.08 (20.44)	5.40
W–J Letter-Word Id	12.44 (7.18)	15.99 (7.03)	9.18 (5.59)	3.87
W–J Applied Problems	13.74 (5.30)	16.54 (4.35)	11.16 (4.75)	3.87
REMA Short Form	−0.08 (1.31)	0.62 (1.12)	−0.73 (1.13)	4.36
Pencil Tap	10.77 (6.00)	12.94 (4.56)	8.69 (6.47)	6.94
Dimension Change Card Sort	6.64 (4.26)	8.01 (3.46)	5.37 (4.54)	4.61
Backward Digit Span	1.53 (0.79)	1.78 (0.87)	1.29 (0.62)	9.56
Forward Digit Span	4.15 (1.28)	4.46 (1.18)	3.86 (1.31)	5.60
TOQ Attention	3.47 (0.66)	3.61 (0.57)	3.34 (0.71)	5.15
TOQ Positive Emotion	3.24 (0.56)	3.34 (0.52)	3.15 (0.59)	5.20
TOQ Impulse Control	3.62 (0.61)	3.70 (0.56)	3.54 (0.64)	5.05
Emotion Recognition Questionnaire	25.80 (5.08)	27.52 (3.24)	24.20 (5.90)	5.70

Note. PPVT = Peabody Picture Vocabulary Test; W–J Letter-Word Id = Woodcock–Johnson Letter-Word Identification; W–J Applied Problems = Woodcock–Johnson Applied Problems; REMA = Research-Based Early Mathematics Assessment; TOQ = Task Orientation Questionnaire.

Table 2
Estimated Treatment Impact (Standard Errors) on Language, Literacy, and Mathematics Outcomes, for Samples of Children Within Selected Bandwidths Around the Age Cutoff on the Forcing Variable

	PPVT–III		W-J Letter-Word ID		W-J Applied Problems		Research-Based Early Mathematics Assessment Short Form			
BW (in days)	**365 +**	180	**365 +**	180	**365**	180	**365**	180		111 +
Treatment	**9.00*** (1.81)**	7.85** (2.60)	**3.45** (0.55)**	2.61** (0.78)	**2.81*** (0.46)**	2.59*** (0.62)	**0.57*** (0.12)**	**0.49** (0.15)**		0.37* (0.19)
Effect size	**0.44**	0.38	**0.62**	0.47	**0.59**	0.55	**0.50**	0.43		0.33
Functional form of hypothesized outcome and child-age relation	**Linear**	Linear	**Linear + int.**	Linear	**Linear**	Linear	**Linear**	**Linear + int.**		Linear + int.
N	**2,018**	969	**2,018**	969	**2,018**	969	**2,018**	969		627

Note. All fitted regression models include the fixed effects of schools and standard errors are corrected for the clustering of children within classrooms. For all outcomes, we fitted regression models using only samples of observations that fell within 365 and 180 days of the cutoff. We also fit models in samples of children that fell within the optimal bandwidth (BW) determined via the cross-validation procedure (+ denotes the optimal bandwidth). For outcomes where the optimal bandwidth was 365 or 180 days, we fitted two models. Within each analysis, we modeled the outcome as a linear, quadratic, and cubic function of the forcing variable, and we also fit models that included interactions between the child-age variable and the treatment indicator. Preferred models are listed in bold. Effect sizes are expressed in terms of the standard deviation of the control group. PPVT = Peabody Picture Vocabulary Test; W-J Letter-Word Id = Woodcock-Johnson Letter-Word Identification; W-J Applied Problems = Woodcock-Johnson Applied Problems.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 3
Estimated Treatment Impact (Standard Errors) on Executive Functioning Outcomes, for Samples of Children Within Selected Bandwidths Around the Age Cutoff on the Forcing Variable

	Pencil Tap			Backward Digit Span			Forward Digit Span			Dimensional Change Card Sort			TOQ Attention		
BW (in days)	**365**	180	287+	**365**	180	221+	**365**	180+	**365**	180	300+	**365**	**180**		147+
Treatment	**1.39***	1.33†	1.49**	**0.15***	0.16†	0.19*	**0.31****	0.46*	**1.25****	1.34*	1.21**	**0.08**	0.05		0.06
	(0.54)	(0.79)	(0.57)	**(0.07)**	(0.10)	(0.08)	**(0.12)**	(0.18)	**(0.40)**	(0.54)	(0.43)	**(0.07)**	(0.09)		(0.10)
Effect size	**0.21**	0.21	0.23	**0.24**	0.26	0.31	**0.24**	0.35	**0.28**	0.30	0.27	**0.11**	0.07		0.08
Functional form of hypothesized outcome and child-age relation	**Linear + int.**	Linear	Linear + int.	**Linear**	Linear	Linear	**Linear**	Linear	**Linear**	Linear	Linear	**Linear**	Linear		Linear
N	**2,018**	969	1,439	**2,018**	969	1,199	**2,018**	969	**2,018**	969	1,610	**2,018**	969		799

Note. All fitted regression models include the fixed effects of schools and standard errors are corrected for the clustering of children within classrooms. For all outcomes, we fitted regression models using only samples of observations that fell within 365 and 180 days of the cutoff. We also fit models in samples of children that fell within the optimal bandwidth (BW) determined via the cross-validation procedure (+ denotes the optimal bandwidth). For outcomes where the optimal bandwidth was 365 or 180 days, we fitted two models. Within each analysis, we modeled the outcome as a linear, quadratic, and cubic function of the forcing variable and we also fit models that included interactions between the child-age variable and the treatment indicator. Preferred models are listed in bold. Effect sizes are expressed in terms of the standard deviation of the control group. TOQ = Task Orientation Questionnaire.
†$p < .10$. *$p < .05$. **$p < .01$.

Table 4
Estimated Treatment Impact (Standard Errors) on Emotional Development Outcomes, for Samples of Children Within Selected Bandwidths Around the Age Cutoff on the Forcing Variable

	Emotion Recognition Questionnaire			TOQ Positive Emotion			TOQ Impulse Control		
BW (in days)	**365**	180	293+	**365**	180	332+	365	180	**129+**
Treatment	**1.12* (0.50)**	1.22† (0.70)	0.84 (0.58)	**0.02 (0.05)**	0.01 (0.07)	0.08 (0.06)	0.05 (0.11)	0.09 (0.08)	**0.13 (0.09)**
Effect size	**0.19**	0.21	0.14	**0.03**	0.02	0.01	0.07	0.14	**0.20**
Functional form of hypothesized outcome and child-age relation	**Linear**	Linear	Linear	**Linear + int.**	Linear + int.	Linear + int.	Cubic + int.	Linear	**Linear**
N	**2,018**	969	1,582	**2,018**	969	1,795	2,018	969	**724**

Note. All fitted regression models include the fixed effects of schools and standard errors are corrected for the clustering of children within classrooms. For all outcomes, we fitted regression models using only samples of observations that fell within 365 and 180 days of the cutoff. We also fit models in samples of children that fell within the optimal bandwidth (BW) determined via the cross-validation procedure (+ denotes the optimal bandwidth was to 365 or 180 days, we fitted two models. Within each analysis, we modeled the outcome as a linear, quadratic, and cubic function the forcing variable and we also fit models that included interactions between the child-age variable and the treatment indicator. Preferred models are listed in bold. Effect sizes are expressed in terms of the standard deviation of the control group. TOQ = Task Orientation Questionnaire.
†$p < .10$. *$p < .05$.

effect of Letter-Word Id for Hispanics: In a GLH test, we could not reject the null hypothesis that the joint effect of the interactions between the race or ethnicity variables and the treatment indicator was zero, $F(3) = 1.86$, $p = .14$. We found no differences in impacts of the program by gender.

Robustness Checks

We followed best practices as described in the RD literature and conducted extensive sensitivity analyses to confirm the robustness of our findings (Imbens & Lemieux, 2008; Lee & Lemieux, 2010). Threats to the internal validity of our results included: (1) treatment misallocation at the cutoff; (2) nonsmooth or discontinuous variation in observed and unobserved student characteristics around the cutoff; (3) discontinuities in the outcomes at points other than the cutoff; (4) incorrect specification of the functional form of the relation between outcome and forcing variable; (5) sensitivity of results to the choice of bandwidth around the age cutoff; (6) inflated estimates of treatment effect due to treatment-group children being more familiar with, and comfortable in, testing situations than control-group children; (7) the accumulation of Type I error as a result of multiple tests being conducted; (8) sensitivity of results to use of different start rules on the PPVT–III; and (9) sensitivity of results due to use of raw scores rather than IRT-based *W* scores on the Woodcock–Johnson Letter-Word Identification and Applied Problems subscales. Threats 1 to 5 and Threats 8 and 9 could result in either an over- or underestimation of the true impact of the treatment, whereas Threat 6 could lead to an overestimate of the true impact and Threat 7 could lead to an overstatement of the statistical significance of our findings. We examined each of these threats in turn and found no evidence that suggested any threats to the internal validity of our identifying assumptions (see online supporting information Appendix S2 for details).

Discussion

We found that a prekindergarten program that combined evidence-based curricula with trained BA- and masters-level teachers and coaching support produced positive effects on multiple domains of school readiness. We detected substantial and statistically significant effects of the prekindergarten program on educational outcomes both in domains that were targeted directly by the prekindergarten curriculum—literacy, language, mathematics, and

emotional development—and in a related but nontargeted domain (EF).

Language, literacy, and mathematics impacts were in the moderate-to-large range (effect sizes 0.45–0.62), whereas EF impacts were in the small range (0.20–0.27). From a developmental perspective, the small positive impacts on children's EF dimensions—working memory, inhibitory control, and attention shifting—are particularly interesting. Small impacts on EF are consistent with the "spillover" hypothesis described earlier in this article; that is, mathematics, language, and literacy curricula that are cognitively focused may also improve other cognitive developmental domains like EF, even without directly targeting them. For example, evidence suggests that mathematics skills such as number composition and decomposition are quite closely related to working memory (Geary, Hoard, Byrd-Craven, Nugent, & Numtee, 2007). Furthermore, preschool numeracy and geometry activities make demands on children's ability to shift attention appropriately among problem elements, and to inhibit automatic or prepotent responding to only one aspect of a given problem (Welsh et al., 2010). Language skills such as expressive and receptive vocabulary are associated with better performance on inhibitory control and attention shifting among young children (Fuhs & Day, 2011). The curricula implemented in Boston aimed to enhance these particular mathematics, language, and literacy skills and therefore may have led to simultaneous impacts on EF dimensions. The possible mathematics-EF spillover is particularly promising, given that the optimal approach for promoting EF skills in prekindergarten is unknown and given that early mathematics skills are a robust predictor of later academic achievement in both math and reading (Duncan et al., 2007).

Although we cannot pinpoint specific active ingredients that led to detected effects, we believe the combination of curricula and coaching, implemented with majority masters-level teachers, likely played a major role. The OWL and Building Blocks curricula have shown promising results to date in other studies (Ashe et al., 2009; Clements & Sarama, 2007b; Clements et al., 2011) and we found that teachers implemented them moderately well. Furthermore, it is possible that implementing both a mathematics curriculum and a language and literacy curriculum created a synergistic effect, as both evidence and theory suggest that stronger literacy and language skills can support children's learning of mathematics skills, and vice versa (Duncan et al., 2007; Harrison, McLeod, Berthelsen, & Walker, 2009; Wagner, Venezky, & Street, 1999).

The mix of children from lower and higher income families in the BPS prekindergarten program may also have contributed to the detected impacts. Boston and Tulsa are the only public prekindergarten contexts examined to date in which applications were not restricted by family income requirements, and both achieved particularly strong results. Among older students, having higher achieving peers from higher income families can affect individual children's achievement, particularly for lower ability students or those from poorer backgrounds (Zimmer & Toma, 2000). The positive effects of having higher ability peers also occur among preschoolers (Henry & Rickman, 2007). Across the 40 states with prekindergarten programs, only 8 did not have requirements prioritizing lower income families (Barnett et al., 2010).

The counterfactual care options in Boston are worth considering as a potential alternative explanation of detected effects. Strong results in Boston could have been a function of lower quality alternative care in the control group. Approximately two thirds of control-group children were enrolled in nonrelative care and nearly half were enrolled in center care, proportions that roughly mirror national trends (Haskins & Barnett, 2010). Making this alternative explanation unlikely, relative to other states, child-care regulations in Massachusetts are among the most stringent in the nation (National Association of Child Care Resource & Referral Agencies, 2011).

In terms of subgroups, we found that impacts on most outcome measures were not statistically significantly different when comparing children from more affluent versus less affluent households. Likewise, focusing on results that were robust to bandwidth and functional form, effects for Hispanic and Asian children were not statistically significantly higher than those of White children for the majority of outcomes. Our findings run counter to some studies that suggest that the positive benefits of preschool accrue mostly or entirely to poorer and minority children (see Currie, 2001). As in the Tulsa prekindergarten program (Gormley et al., 2005), more affluent and White children also benefited from the BPS prekindergarten program.

Nonetheless, findings for Hispanic children versus their White peers should be highlighted, as we found the largest number of statistically significant effects for Hispanics (5 of 12 measured, encompassing all examined cognitive domains). A limitation of our study is that children were tested in English only. However, our findings align with those from the Head Start Impact Study (U.S.

Department of Health and Human Services, 2010) and from the Tulsa prekindergarten evaluation (Gormley et al., 2005), which also found larger impacts on cognitive outcomes for Hispanic children. Evidence suggests that Hispanic children may be particularly likely to benefit from high-quality, supportive instructional contexts (Han, 2008). Furthermore, the rates of growth of children from lower income Spanish-speaking homes can surpass that of native-born children in both word reading and oral language skills (Mancilla-Martinez & Lesaux, 2011). Nationally, Hispanic children are underrepresented in preschool programs and their enrollment rates in recent years have even declined (Fuller & Kim, 2011). In Boston, among Hispanic children entering regular education kindergarten in fall 2009, 39% had experienced the BPS prekindergarten in the previous year, compared to 42% of Blacks, 51% of Whites, and 58% of Asians. Policy-level efforts to increase the enrollment of Hispanic children in prekindergarten programs may be particularly beneficial from both developmental and cost–benefit perspectives.

Ultimately, our study cannot unpack the causal mechanisms behind the detected effects. Our results concern the effects of the combination of these particular prekindergarten curricula and coaching, in the context of Boston's prekindergarten teaching workforce, on children's developmental outcomes. Identifying the causal active ingredients should be a priority in future research on the impact of prekindergarten programs. Likewise, due to the RD design, our results generalize only to students at the cutoff. Future research should prioritize using other research designs, such as randomized controlled trials, to inform the degree to which impacts in our study and similar studies generalize to those farther away from the cutoff. An additional limitation of our study is that children were tested in English due to concerns about the psychometric validity of combining scores from the English and Spanish versions of the same measure (e.g., the PPVT and its Spanish-language counterpart, the Test de Vocabulario en Imagenes Peabody use different norming populations, as well as different stop rules).

Despite these limitations, our results provide further evidence on the benefits of public prekindergarten programs for children. In particular, the combination of evidence-based curricula and coaching supports implemented at scale in the context of Boston's public schooling system brought about educationally and statistically significant improvements in multiple domains of school readiness. As such, the results contribute to the literatures on preschool quality improvement as well as public prekindergarten evaluations.

References

Aikens, N., & Akers, L. (2011). *Background review of existing literature on coaching*. Washington, DC: Mathematica Policy Research.

Anderson, M. (2008). Multiple inference and gender differences in the effects of early intervention: A reevaluation of the Abecedarian, Perry Preschool, and Early Training projects. *Journal of the American Statistical Association, 103*, 1481–1495. doi:10.1198/016214508000000841

Angrist, J. D., & Pischke, J. S. (2008). *Mostly harmless econometrics*. Princeton, NJ: Princeton University Press.

Ashe, M. K., Reed, S., Dickinson, D. K., Morse, A. B., & Wilson, S. J. (2009). Opening the World of Learning: Features, effectiveness, and implementation strategies. *Early Childhood Services, 3*, 179–191.

Barnett, W. S. (1995). Long-term effects of early childhood programs on cognitive and school outcomes. *The Future of Children, 5*, 25–50. doi:10.2307/1602366

Barnett, W. S., Epstein, D. J., Carolan, M. E., Fitzgerald, J., Ackerman, D. J., & Friedman, A. H. (2010). *The state of preschool 2010*. National Institute for Early Education Research. Retrieved February 28, 2013, from http://nieer.org/yearbook/

Barnett, W. S., Jung, K., Yarosz, D. J., Thomas, J., Hornbeck, A., Stechuk, R., et al. (2008). Educational effects of the Tools of the Mind curriculum: A randomized trial. *Early Childhood Research Quarterly, 23*, 299–313. doi:10.1016/j.ecresq.2008.03.001

Bierman, K. L., Domitrovich, C. E., Nix, R. L., Gest, S. D., Welsh, J. A., Greenberg, M. T., et al. (2008). Promoting academic and social-emotional school readiness: The Head Start REDI program. *Child Development, 179*, 1802–1817. doi:10.1111/j.1467-8624.2008.01227.x

Bierman, K. L., Nix, R. L., Greenberg, M. T., Blair, C., & Domitrovich, C. E. (2008). Executive functions and school readiness intervention: Impact, moderation, and mediation in the Head Start REDI program. *Development and Psychopathology, 20*, 821–843. doi:10.1017/S0954579408000394

Blair, C., & Razza, R. P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten. *Child Development, 78*, 647–663. doi:10.1111/j.1467-8624.2007.01019.x

Bloom, H. S. (2012). Modern regression discontinuity analysis. *Journal of Research on Educational Effectiveness, 5*, 43–82. doi:10.1080/19345747.2011.578707

Brooks-Gunn, J., Gross, R. T., Kraemer, H. C., Spiker, D., & Shapiro, S. (1992). Enhancing the cognitive outcomes of low birth weight, premature infants: For whom is the intervention most effective? *Pediatrics, 89*, 1209–1215.

Bull, R., & Scerif, G. (2001). Executive functioning as a predictor of children's mathematics ability: Inhibition,

switching, and working memory. *Developmental Neuropsychology*, *19*, 273–293.

Burchinal, M., Kainz, K., & Cai, Y. (2011). How well do our measures of quality predict child outcomes? A meta-analysis and coordinated analysis of data from large-scale studies of early childhood settings. In M. Zaslow, I. Martinez-Beck, K. Tout, & T. Halle (Eds.), *Quality measurement in early childhood settings* (pp. 11–31). Baltimore, MD: Brookes.

Campbell, F. A., Ramey, C. T., Pungello, E., Sparling, J., & Miller-Johnson, S. (2002). Early childhood education: Young adult outcomes from the Abecedarian Project. *Applied Developmental Science*, *6*, 42–57. doi:10.1207/S1532480XADS0601_05

Clements, D. H., & Sarama, J. (2007a). *SRA real math, PreK-building blocks*. Columbus, OH: SRA/McGraw-Hill.

Clements, D. H., & Sarama, J. (2007b). Effects of a preschool mathematics curriculum: Summative research on the Building Blocks project. *Journal for Research in Mathematics Education*, *38*, 136–163.

Clements, D. H., & Sarama, J. (2008). Experimental evaluation of the effects of a research-based preschool mathematics curriculum. *American Educational Research Journal*, *45*, 443–494. doi:10.3102/0002831207312908

Clements, D. H., Sarama, J. H., & Liu, X. H. (2008). Development of a measure of early mathematics achievement using the Rasch model: The Research-based Early Math Assessment. *Educational Psychology*, *28*, 457–482. doi:10.1080/01443410701777272

Clements, D. H., Sarama, J. H., Spitler, M. E., Lange, A. A., & Wolfe, C. B. (2011). Mathematics learned by young children in an intervention based on learning trajectories: A large-scale cluster randomized trial. *Journal for Research in Mathematics Education*, *4*, 127–166.

Currie, J. (2001). Early childhood education programs. *Journal of Economic Perspectives*, *15*, 213–238. doi:10.1257/jep. 15.2.213

Diamond, A., Carlson, S. M., & Beck, D. M. (2005). Preschool children's performance in task switching on the Dimensional Change Card Sort Task: Separating the dimensions aids the ability to switch. *Developmental Neuropsychology*, *28*, 689–729. doi:10.1207/s15326942dn2802_7

Diamond, A., & Taylor, C. (1996). Development of an aspect of executive control: Development of the abilities to remember what I said and to "do as I say, not as I do." *Developmental Psychobiology*, *29*, 315–344. doi:10.1002/(SICI)1098-2302(199605)29:4%3c315:AID-DEV2%3e3.0.CO;2-T

Dickinson, D. K., Freiberg, J. B., & Barnes, E. (2011). Why are so few interventions really effective? A call for fine-grained research methodology. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. III, pp. 337–357). New York: Guilford Press.

Dickinson, D. K., Kaiser, A., Roberts, M., Hofer, K. G., Darrow, C. L., & Griffenhagen, J. B. (2011). *The effects of two language focused preschool curricula on children's achievement through first grade*. Paper presented at the Society for Research in Educational Effectiveness, Washington, DC.

Domitrovich, C. E., Cortes, R., & Greenberg, M. T. (2007). Improving young children's social and emotional competence: A randomized trial of the Preschool PATHS Program. *Journal of Primary Prevention*, *28*, 67–91. doi:10.1007/s10935-007-0081-0

Duncan, G. J., Claessens, A., Huston, A. C., Pagani, L. S., Engel, M., Sexton, H., et al. (2007). School readiness and later achievement. *Developmental Psychology*, *43*, 1428–1446. doi:10.1037/0012-1649.43.6.1428

Dunn, L. M., & Dunn, L. M. (1997). *Peabody Picture Vocabulary Test* (3rd ed.). Bloomington, MN: Pearson Assessments.

Entwisle, D. R., Alexander, K. L., & Olson, L. S. (2005). First grade and educational attainment by age 22: A new story. *American Journal of Sociology*, *110*, 1458–1502. doi:10.1086/428444

Fischel, J. E., Bracken, S. S., Fuchs-Eisenberg, A., Spira, E. G., Katz, S., & Shaller, G. (2007). Evaluation of curricular approaches to enhance preschool early literacy skills. *Journal of Literacy Research*, *39*, 471–501.

Frye, D., Zelazo, P. D., & Palfai, T. (1995). Theory of mind and rule-based reasoning. *Cognitive Development*, *10*, 483–527. doi:10.1016/0885-2014(95)90024-1

Fuhs, M. E., & Day, J. D. (2011). Verbal ability and executive functioning development in preschoolers at Head Start. *Developmental Psychology*, *47*, 404–416. doi:10.1037/a0021065

Fuller, B., & Kim, A. Y. (2011). *Latino access to preschool stalls after earlier gains*. Berkeley, CA: Institute of Human Development at the University of California. Retrieved February 28, 2013, from http://ihd.berkeley.edu/Latino%20preschool%20decline%20-%20NOLA-NJLC-Brief-2011-FINAL.pdf

Gathercole, S. E., & Pickering, S. J. (2000). Working memory deficits in children with low achievements in the national curriculum at 7 years of age. *British Journal of Education Psychology*, *70*, 177–194. doi:10.1348/000709900158047

Geary, D. C., Hoard, M. K., Byrd-Craven, J., Nugent, L., & Numtee, C. (2007). Cognitive mechanisms underlying achievement deficits in children with mathematical learning disability. *Child Development*, *4*, 1343–1359. doi:10.1111/j.1467-8624.2007.01069.x

Gormley, W. T., Gayer, T., Phillips, D., & Dawson, B. (2005). The effects of universal pre-K on cognitive development. *Developmental Psychology*, *41*, 872–884. doi:10.1037/0012-1649.41.6.872

Gormley, W. T., Phillips, D. A., & Gayer, T. (2008). Preschool programs can boost school readiness. *Science*, *320*, 1723–1724. doi:10.1126/science.1156019

Gormley, W. T., Phillips, D. A., Newmark, K., Perper, K., & Adelstein, S. (2011). Social-emotional effects of early childhood education programs in Tulsa. Center for Research on Children in the United States. Retrieved February 28, 2013, from http://www.crocus.georgetown.edu/reports/CROCUSworkingpaper15.pdf

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, *60*, 549–576. doi:10.1146/annurev.psych.58.110405.085530

Hahn, J., Todd, P., & Van der Klaauw, W. (2001). Identification and estimation of treatment effects with a regression-discontinuity design. *Econometrica*, *69*, 201–209.

Han, W. J. (2008). The academic trajectories of children of immigrants and their school environments. *Developmental Psychology*, *44*, 1572–1590. doi:10.1037/a0013886

Harrison, L. J., McLeod, S., Berthelsen, D., & Walker, S. (2009). Literacy, numeracy, and learning in school-aged children identified as having speech and language impairment in early childhood. *International Journal of Speech-Language Pathology*, *11*, 392–403. doi:10.1080/17549500903093749

Haskins, R., & Barnett, W. S. (2010). *Investing in young children: New directions in federal preschool and early childhood policy*. Washington, DC: Center on Children and Families at Brookings and the National Institute for Early Education Research.

Heckman, J. J., Moon, S. H., Pinto, R., Savelyev, P. A., & Yavitz, A. (2010). The rate of return to the HighScope Perry Preschool Program. *Journal of Public Economics*, *94*, 114–128. doi:10.1016/j.jpubeco.2009.11.001

Henry, G. T., & Rickman, D. K. (2007). Do peers influence children's skill development in preschool? *Economics of Education Review*, *26*, 100–112. doi:10.1016/j.econedurev.2005.09.006

Hustedt, J. T., Barnett, W. S., Jung, K., & Goetze, L. D. (2009). *The New Mexico PreK evaluation: Results from the initial four years of a new state preschool initiative—Final report*. National Institute for Early Education Research. Retrieved September 13, 2010, from http://nieer.org/pdf/new-mexico-initial-4-years.pdf

Hustedt, J. T., Barnett, W. S., Jung, K., & Thomas, J. (2007). *The effects of the Arkansas Better Chance Program on young children's school readiness*. State of Arkansas. Retrieved September 9, 2010, from http://www.arkansas.gov/childcare/abc/pdf/longreport.pdf

Imbens, G. W., & Lemieux, T. (2008). Regression discontinuity designs: A guide to practice. *Journal of Econometrics*, *142*, 615–635. doi:10.1016/j.jeconom.2007.05.001

Imbens, G. W., & Wooldridge, J. M. (2009). Recent developments in the econometrics of program evaluation. *Journal of Economic Literature*, *47*, 5–86. doi:10.1257/jel.47.1.5

Kelchen, R., Magnuson, K. A., Duncan, G. J., Schindler, H. S., Shager, H., & Yoshikawa, H. (2012). *Do the effects of early childhood education programs differ by gender? A meta-analysis*. Manuscript under review.

Klein, L., & Knitzer, J. (2006). *Effective preschool curricula and teaching strategies*. National Center for Children in Poverty. Retrieved February 28, 2013, from http://www.nccp.org/publications/pdf/text_668.pdf

Leak, J., Duncan, G., Li, W., Magnuson, K., Schindler, H., & Yoshikawa, H. (2012). *Is timing everything? How early childhood education program cognitive and achievement impacts vary by starting age, program duration and time since the end of the program*. Manuscript submitted for publication.

Lee, D. S., & Lemieux, T. (2010). Regression discontinuity designs in economics. *Journal of Economic Literature*, *48*, 281–355. doi:org/10.1257/jel.48.2.281

Ludwig, J., & Miller, D. L. (2007). Does Head Start improve children's life chances? Evidence from a regression discontinuity design. *Quarterly Journal of Economics*, *122*, 159–208. doi:10.1162/qjec.122.1.159

Magnuson, K., Ruhm, C., & Waldfogel, J. (2007). Does prekindergarten improve school preparation and performance? *Economics of Education Review*, *26*, 33–51. doi:10.1016/j.econedurev.2005.09.008

Magnuson, K. A., & Waldfogel, J. (2005). Early childhood care and education: Effects on ethnic and racial gaps in school readiness. *The Future of Children*, *15*, 169–196. doi:10.1353/foc.2005.0005

Mancilla-Martinez, J., & Lesaux, N. K. (2011). Early home language use and later vocabulary development. *Journal of Educational Psychology*, *103*, 535–546. doi:10.1037/a0023655

McClelland, M. M., Acock, A. C., & Morrison, F. J. (2006). The impact of kindergarten learning-related skills on academic trajectories at the end of elementary school. *Early Childhood Research Quarterly*, *21*, 471–490. doi:10.1016/j.ecresq.2006.09.003

Murnane, R., & Willett, J. (2010). *Method matters: Improving causal inference in educational research*. New York: Oxford University Press.

National Association of Child Care Resource & Referral Agencies. (2011). We can do better: NACCRRA's ranking of state child care center regulation and oversight. Retrieved February 28, 2013, from http://www.naccrra.org/about-child-care/statechildcarelicening/we-can-do-better-state-child-care-center-licensing

National Early Literacy Panel. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: National Institute for Literacy.

Neuman, S. B., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy practices. *American Educational Research Journal*, *46*, 532–566. doi:10.3102/0002831208328088

Peisner-Feinberg, E. S., & Burchinal, M. R. (1997). Relations between childcare experiences and concurrent development. The cost, quality and outcomes study. *Merrill-Palmer Quarterly*, *43*, 451–477.

Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., et al. (2001). The relation of preschool child-care quality to children's cognitive and social development trajectories through second grade. *Child Development*, *72*, 1534–1553. doi:10.1111/1467-8624.00364

Pianta, R. C., & Stuhlman, M. W. (2004). Teacher-child relationships and children's success in the first years of school. *School Psychology Review*, *33*, 444–458.

Raver, C. C., Jones, S. M., Li-Grining, C. P., Zhai, F., Metzger, M. W., & Solomon, B. (2009). Targeting children's behavior problems in preschool classrooms: A cluster-randomized controlled trial. *Journal of Consulting and Clinical Psychology*, *77*, 302–316. doi:10.1037/a0015302

Reynolds, A. J., Temple, J. A., White, B., Ou, S., & Robertson, D. L. (2011). Age-26 cost benefit analysis of the Child-Parent Center Early Education Program. *Child Development*, *82*, 379–404. doi:10.1111/j.1467-8624.2010.01563.x

Ribordy, S. C., Camras, L. A., Stefani, R., & Spaccarelli, S. (1988). Vignettes for emotion recognition research and affect education programs with children. *Journal of Clinical Child Psychology*, *17*, 322–325. doi:10.1207/s15374424jccp1704_4

Sachs, J., & Weiland, C. (2010). Boston's rapid expansion of public school-based preschool: Promoting quality, lessons learned. *Young Children*, *65*, 74–77.

Sarama, J., Lange, A. A., Clements, D. H., & Wolfe, C. (in press). The impacts of an early mathematics curriculum on oral language and literacy. *Early Childhood Research Quarterly*, *27*, 489–502.

Schickedanz, J., & Dickinson, D. (2005). *Opening the world of learning*. Iowa City, IA: Pearson.

Schochet, P., Cook, T., Deke, J., Imbens, G., Lockwood, J. R., Porter, J., et al. (2010). *Standards for regression discontinuity designs*. Institute of Education Sciences. Retrieved February 28, 2013, from http://ies.ed.gov/ncee/wwc/pdf/reference_resources/wwc_rd.pdf

Schweinhart, L. J., Barnett, W. S., & Belfield, C. R. (2005). *Lifetime effects: The High/Scope Perry Preschool Study through age 40*. Ypsilanti, MI: High/Scope Press.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin.

Smith-Donald, R., Raver, C. C., Hayes, T., & Richardson, B. (2007). Preliminary construct and concurrent validity of the Preschool Self-Regulation Assessment (PSRA) for field-based research. *Early Childhood Research Quarterly*, *22*, 173–187. doi:10.1016/j.ecresq.2007.01.002

Thistlethwaite, D. L., & Campbell, D. T. (1960). Regression-discontinuity analysis: An alternative to the *ex post facto* experiment. *Journal of Education Psychology*, *51*, 309–317. doi:10.1037/h0044319

Trochim, W. M. K. (1984). *Research design for program evaluation: The regression-discontinuity approach*. Beverly Hills, CA: Sage.

U.S. Census Bureau. (2012). *State and county quick facts*. U.S. Census Bureau. Retrieved October 24, 2012, from http://quickfacts.census.gov/qfd/states/25/2507000.html.

U.S. Department of Health and Human Services. (2010). *Head Start Impact Study: Final report*. Washington, DC: Administration for Children and Families, Office of Planning, Research and Evaluation.

Vygotsky, L. (1978). *Mind and society: The development of higher mental processes*. Cambridge, MA: Harvard University Press.

Wagner, D. A., Venezky, R. L., & Street, B. V. (1999). *Literacy: An international handbook*. Boulder, CO: Westview Press.

Wechsler, D. (1986). *Wechsler Intelligence Scale for Children–Revised*. New York: Psychological Corporation.

Weiland, C., Eidelman, H., & Yoshikawa, H. (2012). *Fidelity of implementation in an at-scale prekindergarten program and links to children's cognitive outcomes*. Manuscript in preparation.

Weiland, C., Wolfe, C., Hurwitz, M., Yoshikawa, H., Clements, D., & Sarama, J. (2012). Early mathematics assessment: Validation of a preschool mathematics screening tool. *Journal of Educational Psychology*, *32*, 311–333. doi:10.1080/01443410.2011.654190

Welsh, J. A., Nix, R. L., Blair, C., Bierman, K. L., & Nelson, K. E. (2010). The development of cognitive skills and gains in academic school readiness for children from low-income families. *Journal of Educational Psychology*, *102*, 43–53. doi:10.1037/a0016738

Wilson, S. J., Morse, A. B., & Dickinson, D. K. (2009). *Examining the effectiveness of OWL as used in ERF Projects: Final report of results from the OWL Consortium Project*. Nashville, TN: Vanderbilt University Center for Evaluation Research & Methodology.

Wong, V. C., Cook, T. D., Barnett, W. S., & Jung, K. (2008). An effectiveness-based evaluation of five state prekindergarten programs. *Journal of Policy Analysis and Management*, *27*, 122–154. doi:10.1002/pam.20310

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson Tests of Achievement*. Itasca, IL: Riverside.

Yoshikawa, H. (1995). Long-term effects of early childhood programs on social outcomes and delinquency. *The Future of Children*, *5*, 51–75. doi:10.2307/1602367

Zigler, E., & Styfco, S. J. (2010). *The hidden history of Head Start*. New York: Oxford University Press.

Zimmer, R. W., & Toma, E. F. (2000). Peer effects in private and public schools across countries. *Journal of Policy Analysis and Management*, *19*, 75–92. doi:10.1002/(SICI)1520-6688(200024)19:1%3c75:AID-PAM5%3e3.0.CO;2-W

Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

Appendix S1. Interpreting the RD Estimates.

Appendix S2. Addressing Threats to Validity and Robustness Checks.

Appendix S3. Comparison of Participating and Nonparticipating Schools and Teachers.

Appendix S4. Additional Supporting Tables and Figures.

Appendix S5. References.

Investing in Our Future: The Evidence Base on Preschool Education

Hirokazu Yoshikawa, Christina Weiland, Jeanne Brooks-Gunn, Margaret R. Burchinal, Linda M. Espinosa, William T. Gormley, Jens Ludwig, Katherine A. Magnuson, Deborah Phillips, Martha J. Zaslow



EXECUTIVE SUMMARY

OCTOBER 2013

Society for Research in Child Development

FOUNDATIONFORCHILDDEVELOPMENT

Executive Summary

Large-scale public preschool programs can have substantial impacts on children's early learning. Scientific evidence on the impacts of early childhood education has progressed well beyond exclusive reliance on the Perry Preschool and Abecedarian programs. A recent analysis integrating evaluations of 84 preschool programs concluded that, on average, children gain about a third of a year of additional learning across language, reading, and math skills. At-scale preschool systems in Tulsa and Boston have produced larger gains of between a half and a full year of additional learning in reading and math. Benefits to children's socio-emotional development and health have been documented in programs that focus intensively on these areas.

Quality preschool education is a profitable investment. Rigorous efforts to estimate whether the economic benefits of early childhood education outweigh the costs of providing these educational opportunities indicate that they are a wise financial investment. Available benefit-cost estimates based on older, intensive interventions, such as the Perry Preschool Program, as well as contemporary, large-scale public preschool programs, such as the Chicago Child-Parent Centers and Tulsa's preschool program, range from three to seven dollars saved for every dollar spent.

The most important aspects of quality in preschool education are stimulating and supportive interactions between teachers and children and effective use of curricula. Children benefit most when teachers engage in stimulating interactions that support learning *and* are emotionally supportive. Interactions that help children acquire new knowledge and skills provide input to children, elicit verbal responses and reactions from them, and foster engagement in and enjoyment of learning. Recent evaluations tell us that effective use of curricula focused on such specific aspects of learning as language and literacy, math, or socio-emotional development provide a substantial boost to children's learning. Guidelines about the number of children in a classroom, the ratio of teachers and children, and staff qualifications help to increase the likelihood of—but do not assure—supportive and stimulating interactions. Importantly, in existing large-scale studies, only a minority of preschool programs are observed to provide excellent quality and levels of instructional support are especially low.

Supporting teachers in their implementation of instructional approaches through coaching or mentoring can yield important benefits for children. Coaching or mentoring that provides support to the teacher on how to implement content-rich and engaging curricula shows substantial promise in helping to assure that such instruction is being provided. Such coaching or mentoring involves modeling positive instructional approaches and providing feedback on the teacher's implementation in a way that sets goals but is also supportive. This can occur either directly in the classroom or though web-based exchange of video clips.

Quality preschool education can benefit middle-class children as well as disadvantaged children; typically developing children as well as children with special needs; and dual language learners as well as native speakers. Although early research focused only on programs for low-income children, more recent research focusing on universal preschool programs provides the opportunity to ask if preschool can benefit children from middle-income as well as low-income families. The evidence is clear that middle-class children can benefit substantially, and that benefits outweigh costs for children from middle-income as well as those from low-income families. However, children from low-income backgrounds benefit more. Children with special needs who attended Tulsa's preschool program showed comparable improvements in reading and pre-writing skills as typically developing children. Further, at the end of first grade, children with special needs who had attended Head Start as 3-year-olds showed stronger gains in math and social-emotional development than children with special needs who had not attended Head Start. Studies of both Head Start and public preschool programs suggest that dual language learners benefit as much as, and in some cases more than, their native speaker counterparts.

A second year of preschool shows additional benefits. The available studies, which focus on disadvantaged children, show further benefits from a second year of preschool. However, the gains are not always as large as from the first year of preschool. This may be because children who attend two years of preschool are not experiencing a sequential building of instruction from the first to the second year.

Long-term benefits occur despite convergence of test scores. As children from low-income families in preschool evaluation studies are followed into elementary school, differences between those who received preschool and those who did not on tests of academic achievement are reduced. However, evidence from long-term evaluations of both small-scale, intensive interventions and Head Start suggest that there are long-term effects on important societal outcomes such as high-school graduation, years of education completed, earnings, and reduced crime and teen pregnancy, even after test-score effects decline to zero. Research is now underway focusing on why these long-term effects occur even when test scores converge.

There are important benefits of comprehensive services when these added services are carefully chosen and targeted. When early education provides comprehensive services, it is important that these extensions of the program target services and practices that show benefits to children and families. Early education programs that have focused in a targeted way on health outcomes (e.g., connecting children to a regular medical home; integrating comprehensive screening; requiring immunizations) have shown such benefits as an increase in receipt of primary medical care and dental care. In addition, a parenting focus can augment the effects of preschool on children's skill development, but only if it provides parents with modeling of positive interactions or opportunities for practice with feedback. Simply providing information through classes or workshops is not associated with further improvements in children's skills.

Hirokazu Yoshikawa, New York University

Christina Weiland, University of Michigan

Jeanne Brooks-Gunn, Columbia University

Margaret R. Burchinal, Frank Porter Graham Child Development Institute, University of North Carolina

Linda M. Espinosa, University of Missouri, Columbia

William T. Gormley, Georgetown University

Jens Ludwig, University of Chicago

Katherine A. Magnuson, University of Wisconsin, Madison

Deborah Phillips, Georgetown University

Martha J. Zaslow, Society for Research in Child Development and Child Trends

You can find this report at
http://fcd-us.org/resources/evidence-base-preschool
http://www.srcd.org/policy-media/policy-updates/meetings-briefings/investing-our-future-evidence-base-preschool

* After the first two primary authors, the authors are listed alphabetically. The authors thank Deborah Phillips and the Foundation for Child Development for funding this work. The authors would also like to thank those who provided helpful reviews: J. Lawrence Aber, Mary Catherine Arbour, Karen Bierman, Maia Connors, Greg Duncan, Philip Fisher, Ruth Friedman, Eugene Garcia, Ron Haskins, Jacqueline Jones, Laura Justice, Nonie Lesaux, Joan Lombardi, Pamela Morris, Adele Robinson, Jack Shonkoff, Catherine Tamis-LeMonda, Elizabeth Votruba-Drzal, and Jane Waldfogel.

Economic
Policy
Institute

A public investment agenda that delivers the goods for American workers needs to be long-lived, broad, and subject to democratic oversight

Report • By Josh Bivens and Hunter Blair • December 8, 2016

Summary: A policy effort to boost public investment should include both "core" infrastructure investments such as building roads and "noncore" public investments, such as improving early child care. Both provide high rates of return. Public finance is the most accountable way of financing infrastructure. Tax credits dangled to entice private financiers and developers provide no compelling efficiency gains and open up possibilities for corruption and crony capitalism.

Economic Policy Institute • Washington, DC

View this report at epi.org/117041

Summary

A welcome theme in the 2016 presidential election was a commitment to increasing public investment. Both candidates in the Democratic primary put forward detailed plans for such investments, and in the general election contest, Donald Trump generally criticized Hillary Clinton's five-year, $275 billion plan for infrastructure as too small.

Now that the election is over, it is time to translate these campaign promises into reality, and get serious about correctly diagnosing and fixing America's chronic underinvestment in the roads, bridges, educational institutions and other things that make up the public capital stock. This policy brief makes a number of points that should inform evaluations of public investment plans issued by President-elect Trump and Congress.

The economic case for increased public investment, including infrastructure investment, is clear

- Public investment in the United States has lagged for decades. And net federal investment has actually been *negative* at times since the Great Recession, as the long-run downward trend was reinforced by sharp reductions in discretionary federal spending imposed by the 2011 Budget Control Act (BCA). This federal disinvestment has been amplified by state and local decisions to cut back investment. Infrastructure investment has predictably lagged with the broader public investment drought.
- As public investment has lagged, productivity growth has slowed markedly and private investment remains weak. The most reliable way policymakers can accelerate productivity growth is to step up public investment.
- Productivity growth is needed (if not sufficient) if we are going to raise typical workers' wages. Productivity growth is a measure of the additional income

SECTIONS

1. Summary • 1
2. Lagging public investment leads to lagging productivity • 3
3. Public investment would address "secular stagnation" (the chronic shortfall of aggregate demand) • 4
4. Public investment should be broadly defined to include more than infrastructure • 5
5. All forms of public investment are excellent near-term job-creation strategies • 7
6. The financing mechanisms of infrastructure can radically change its benefits • 11
7. The bottom-line for the public investment agenda • 14

About the authors • 14
Endnotes • 15
References • 16

generated in an average hour of work in the economy. Rising productivity provides the *potential* for pay increases over time. Other policies are needed to ensure that this potential translates into reality, but productivity growth is a crucial element of rising living standards.

- While public investment has clear long-term growth benefits, it can also provide a near-term boost to an economy that still suffers from insufficient aggregate demand. Despite some claims that the United States is near full employment, there is still considerable productive slack (workers and capital sitting idle) in the economy that could be taken up by a burst of public investment to boost aggregate demand.

There should be a broad public investment portfolio

- A policy effort to boost public investment should include a broad portfolio of investments. "Core" infrastructure investments—building roads, bridges, transportation systems, water and sewer systems, and utility facilities—provide high rates of economic return. But so do many categories of noncore public investments, such as improving early child care and childhood education and investing in renewable energy and health care.
- Many of these noncore investments—particularly human-services investments—are at least as neglected as core infrastructure. This is particularly true if one considers the low pay in these sectors that impedes the development of a fully professionalized and motivated workforce.
- Human services investments would provide *at least* as much as, or more of, a near-term boost to economic activity and jobs than core infrastructure. Human services investments unambiguously create more *direct* jobs per dollar invested. And while core infrastructure investments create more spinoff jobs (in firms that supply affected industries and in companies supplying goods and services purchased by new wage earners), human services investments still generate more total jobs.

There is no need to reinvent the wheel: public finance is the most transparent, efficient, and accountable way of financing infrastructure

- We should be extremely wary of claims about free lunches that can be had by providing a larger private role in financing infrastructure investment. A larger private role in financing infrastructure provides no efficiency gains, but opens up many avenues for crony capitalism, corruption, and rampant inequality of public investments across communities.
- A poorly constructed plan with no real safeguards will result in private-sector profiteering while radically blunting the amount of net new investment generated.

This will in turn severely restrict the near- and long-term potential benefits of a public investment effort.

Lagging public investment leads to lagging productivity

As a share of the overall economy, public investment—government spending on the nation's physical and human capital stock—has lagged considerably relative to its pre-1970s peaks. In the early 1990s, a number of researchers, led by economist David Aschauer (1989, 1990, 2000) identified a slowdown in public investment as a key source of the slowdown in overall productivity growth that plagued the U.S. economy after 1973. Another wave of researchers criticized Aschauer's estimates of the effect of public investment on productivity growth, often on the simple grounds that they were "too large." Some also criticized the first round of public investment research on technical statistical grounds.

But what really led to the abandonment of a push for more public investment was the productivity rebound in the late 1990s. This productivity renaissance—which was led by *private-sector* investment in information and communications technology (ICT)—seemed to have solved the problem that more public investment was meant to address.

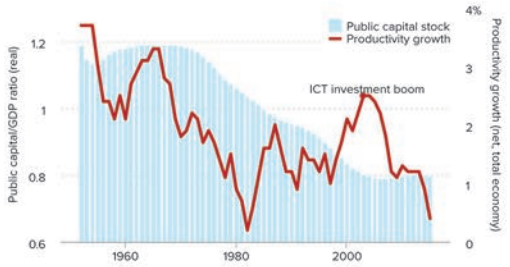
But productivity growth has slowed since 2005, and this deceleration should put public investment back front-and-center. As private investment has lagged in the last 15 years (even before the Great Recession), the most reliable policy lever for boosting productivity growth is boosting public investment. **Figure A** shows public capital stock as a share of potential gross domestic product (GDP), and productivity growth.[1] The slowdown in public investment has led to a steady decline in the size of the public capital stock relative to the overall economy.

Luckily, the most recent productivity slowdown has coincided with a resurgence of research showing that increased public investment could provide substantial gains in productivity. The new research—notably Heintz (2010)—addresses the technical criticisms of the earlier Aschaeur work yet still finds large effects. Bivens (2012a) reviews a range of the empirical literature on public capital and productivity and finds strong evidence that increasing the growth rate of the American public capital stock would significantly boost overall productivity growth.

Figure A

More public capital is associated with faster productivity growth

Public capital stock as a share of GDP and productivity growth, 1952–2015



Notes: ICT stands for information and communications technology.

Source: Bureau of Labor Statistics' total economy productivity data and Bureau of Economic Analysis National Income and Product Accounts

Economic Policy Institute

Public investment would address "secular stagnation" (the chronic shortfall of aggregate demand)

Besides boosting productivity in the longer term, increased public investment would also strengthen the American labor market in the near term by boosting aggregate economic demand.

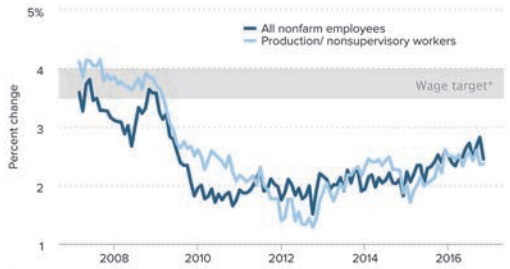
Strangely, many have declared that the U.S. economy has been nearly at full employment for essentially the past year, implying little short-run boost is possible from an increase in public investment that boosts demand.

There is no serious basis for this claim, and the complacency it breeds is dangerous. The clearest sign that we are not near full employment is the extraordinarily subdued wage growth, as shown in **Figure B**. Since the recovery from the Great Recession began, hourly wage growth (nominal) has never come close to 3 percent. In a healthy economy without slack demand, a reasonable pace of nominal wage growth is 3.5 percent to 4 percent. Further, given that the share of income accruing to labor fell precipitously in the early stages of the recovery and has yet to return to previous levels, a period of even faster growth is needed to claw back some of this depressed labor share of income.[2]

Figure B

Nominal wage growth has been far below target in the recovery

Year-over-year change in private-sector nominal average hourly earnings, 2007–2016



*Nominal wage growth consistent with the Federal Reserve Board's 2 percent inflation target, 1.5 percent productivity growth, and a stable labor share of income.

Source: EPI analysis of Bureau of Labor Statistics Current Employment Statistics public data series

Economic Policy Institute

Full employment could finally be secured in coming years with a serious near-term public investment effort that was funded with debt. Moving to a higher public investment level in the long term, funded by progressive revenue sources or debt, would also solve many fears over "secular stagnation."[3] In short, chronic weakness of aggregate demand argues strongly for a greatly increased public investment effort.[4]

Public investment should be broadly defined to include more than infrastructure

Public investment can be roughly separated into two broad areas. "Core" infrastructure mostly refers to highways and other transportation facilities, water and sewer lines, and, sometimes, public utilities. One key reason why we have traditionally relied on the public sector to provide infrastructure is that many projects carry enormous upfront costs, but the marginal costs of providing services to additional users are very small. This tends to lead to "natural monopolies." For example, once the New York City subway system was built, there was no serious way that a private competitor could make money by constructing a second subway system in New York City. Natural monopolies require accountable

regulation and management. Given that substantial public oversight was always going to be necessary, moving directly to public financing often made sense.

But this public role means that investments can be held hostage to political ideology. By many measures, after decades of ideological opposition to public spending, the United States has an infrastructure investment deficit.[5] Given this deficit, a commitment to restoring core infrastructure is most welcome, particularly since there is a lot of evidence indicating that a large increase in infrastructure spending would increase national productivity.[6]

But other noncore forms of public investment also have the potential to provide large benefits, both by boosting demand in the short run as well as boosting productivity in the long run.[7] Some of these noncore public investments could include providing resources for early child care and education, public health, and energy efficiency. The case for increasing noncore public investments is every bit as strong as for infrastructure. In fact, the rationale for noncore public investments may be even stronger in many cases because it is often *harder* for private-sector actors to claim economic returns on noncore investments than to claim returns on core infrastructure investments. For example, key economy-wide benefits of high-quality prekindergarten programs include the reduced likelihood that children in these programs encounter the criminal justice system when they grow up. Not having a criminal record obviously provides direct benefits to this group, while others benefit from not being the potential victims of crime. In short, the public benefits are even larger than the private benefits.

As an example of the large potential payoff of noncore public investments, consider investments in high-quality early childhood education. It is now clear that anything with the potential to narrow school achievement gaps between low- and high-income children could significantly boost national productivity. McKinsey (2009) estimates that completely eliminating the achievement gaps between children of different income groups would boost national income by roughly $70 billion annually.

It is equally clear that these achievement gaps are almost fully set before children begin kindergarten. This argues strongly for the potentially significant economic payoffs of high-quality child care and early childhood development. Yet this high-quality early child care and development is blocked by both insufficient demand and supply. Tens of millions of American families find the cost of such care to be nearly prohibitive and the supply of such care lags in large part because working conditions in the industry are among the least favorable of all industries while wages are among the lowest in the economy (Gould 2015). An ambitious national investment to professionalize the industry and help offset the costs to American families would have a large payoff.[8]

Similarly, by making it easier to balance work-family commitments, providing affordable high-quality child care could boost women's labor force participation and spur economic growth.[9] And if investments in health care gave underserved communities better access to care and improved their health, it could reduce lifetime health costs and add to quality of life.[10]

All forms of public investment are excellent near-term job-creation strategies

The type of public investment most frequently invoked in debates over fiscal stimulus is core infrastructure investment. For example, infrastructure investments in the American Recovery and Reinvestment Act (ARRA) were key to gaining support for enacting ARRA.

This is somewhat ironic. Core infrastructure does not provide any more near-term jobs than do more expansive forms of public investment such as investments in human services. All types of public investment have very high "bang-for-the-buck" as generators of economic activity and jobs, compared with any other fiscal policy lever. Only transfer payments particularly targeted to low-income households (for example, Medicaid or unemployment insurance or food stamps) come close in this regard.[11]

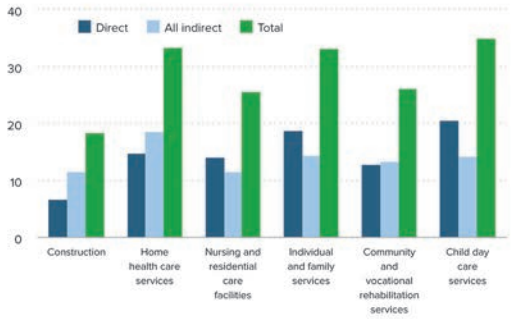
Human services investments (such as child care and home health care) generate three times as many *direct* jobs as core infrastructure spending. This direct job advantage significantly erodes, but remains, once indirect jobs are factored in. (These jobs include "supplier jobs" supported in supplier industries and related service sectors, and "respending" jobs supported by wages in the new jobs created.). This is evident in **Figure C**, which compares jobs supported by construction (the industry mostly closely associated with core infrastructure spending) with jobs supported by various human services sectors. Though not shown in the figure, construction jobs tend to have higher *respending* multipliers compared with human services jobs, due to the higher wages paid to construction workers. One implication of this is that if investment in human services is accompanied by measures to ensure higher wages in human services, it would increase respending jobs enough to at least partly offset any decline in direct jobs caused by these higher wages.

Similarly, while direct jobs supported by investments in human services employ greater shares of women and African American workers than direct jobs created by core infrastructure investments, these differences shrink once the indirect and respending jobs are considered. **Tables 1 and 2** provide the number of jobs created by a $1 billion investment in construction and in child care and the shares of those jobs held by workers of different demographic and worker characteristics

As Table 1 shows, of the 34,228 jobs supported by each $1 billion in child care spending, 60.0 percent are held by child care workers themselves. These child care jobs skew heavily towards women (who hold 94.5 percent of such jobs, versus 48.5 percent of all jobs economy-wide) and African American workers (17.7 percent of jobs, versus 10.9 percent economy-wide). These direct jobs are notably low wage, with 41.4 percent in the lowest wage fifth, and more than two-thirds (68.5 percent) in the bottom 40 percent of the overall wage distribution.

Figure C

Jobs supported by each $1 million in final demand, by sector and type of job



Note: Indirect jobs include "supplier jobs" supported in supplier industries and related service sectors, and "respending" jobs supported by wages in the new jobs created.

Source: Authors' analysis based on employment requirements matrix from the Bureau of Labor Statistics and employment multipliers derived in Bivens (2015)

Economic Policy Institute

However, when supplier jobs and jobs supported by induced spending are included, the share of total jobs accounted for by women shrinks from 94.5 percent to 73.7 percent, and the share accounted for by African American workers shrinks from 17.7 percent to 14.7 percent.

Table 2 shows that of the 17,785 jobs supported by each $1 billion in construction spending, only 37.5 percent are accounted for by construction workers themselves, with supplier and induced jobs accounting for a much bigger share of the total. Also, while direct construction jobs skew heavily male (90.5 percent) and Latino (27.7 percent, relative to 15.8 percent economy-wide), they also are more heavily unionized (15.2 percent relative to 10.7 percent economy-wide and to an even lower share in the private sector).[12] Further, construction jobs are high-wage jobs: only 10.1 percent are in the bottom wage fifth economy-wide, and 70.2 percent of these jobs pay above the 40th percentile in the overall wage distribution.

When supplier and induced jobs are considered, the total jobs supported skew significantly less male, with the share held by men falling from 90.5 percent to 72.4 percent. They also skew less Latino, with this share falling from 27.7 percent to 21.2 percent.

Table **Jobs generated through $1 billion investment in child care sector, all and by demographic characteristics of workers**

	Jobs gained					Percentage of jobs gained					
	Direct	Materials	K-input	Induced (respending)	Total	Direct	Materials	K-input	Induced (respending)	Total	Economy-wide
Totals	20,550	3,174	1,913	8,592	34,228	60.0%	9.3%	5.6%	25.1%	100.0%	
Gender											
Male	1,139	1,810	1,642	4,427	9,018	5.5%	57.0%	85.8%	51.5%	26.3%	51.5%
Female	19,410	1,364	271	4,165	25,210	94.5%	43.0%	14.2%	48.5%	73.7%	48.5%
Race											
Non-Hispanic white	12,611	2,018	1,268	5,691	21,587	61.4%	63.6%	66.3%	66.2%	63.1%	66.2%
Non-Hispanic black	3,647	348	106	933	5,034	17.7%	11.0%	5.5%	10.9%	14.7%	10.9%
Hispanic	3,245	596	437	1,362	5,640	15.8%	18.8%	22.9%	15.8%	16.5%	15.8%
Asian (including Pacific Islander)	635	161	74	460	1,330	3.1%	5.1%	3.9%	5.3%	3.9%	5.3%
Other	411	52	28	147	638	2.0%	1.6%	1.4%	1.7%	1.9%	1.7%
Age											
Less than 25 years	5,077	456	182	1,254	6,969	24.7%	14.4%	9.5%	14.6%	20.4%	14.6%
25–54	13,167	2,275	1,463	6,014	22,918	64.1%	71.7%	76.5%	70.0%	67.0%	70.0%
55 years and older	2,305	443	268	1,325	4,341	11.2%	14.0%	14.0%	15.4%	12.7%	15.4%
Union status											
Covered	726	199	247	921	2,093	3.5%	6.3%	12.9%	10.7%	6.1%	10.7%
Not covered	19,823	2,975	1,666	7,671	32,136	96.5%	93.7%	87.1%	89.3%	93.9%	89.3%
Education											
Less than high school	1,498	387	317	833	3,034	7.3%	12.2%	16.5%	9.7%	8.9%	9.7%
High school only	5,342	908	724	2,421	9,395	26.0%	28.6%	37.9%	28.2%	27.4%	28.2%
Some college	8,490	893	496	2,560	12,438	41.3%	28.1%	25.9%	29.8%	36.3%	29.8%
Bachelor's only	4,285	734	281	1,835	7,136	20.9%	23.1%	14.7%	21.4%	20.8%	21.4%
Advanced degree	934	253	95	942	2,225	4.5%	8.0%	5.0%	11.0%	6.5%	11.0%
Wage quintile											
First (lowest)	8,518	680	171	1,762	11,130	41.4%	21.4%	8.9%	20.5%	32.5%	20.5%
Second	5,574	635	344	1,684	8,238	27.1%	20.0%	18.0%	19.6%	24.1%	19.6%
Third	3,479	617	452	1,715	6,263	16.9%	19.4%	23.6%	20.0%	18.3%	20.0%
Fourth	1,879	599	494	1,715	4,688	9.1%	18.9%	25.8%	20.0%	13.7%	20.0%
Fifth (highest)	1,099	642	452	1,715	3,909	5.3%	20.2%	23.6%	20.0%	11.4%	20.0%

Note: Employment statistics represent pooled data from 2009–2012. Supplier jobs include materials and k-input (capital-input) jobs; indirect jobs include supplier jobs and induced (respending) jobs.

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

Economic Policy Institute

Table

Jobs generated through $1 billion investment in construction sector, all and by demographic characteristics of workers

	Jobs gained					Percentage of jobs gained					
	Direct	Materials	K-input	Induced (respending)	Total	Direct	Materials	K-input	Induced (respending)	Total	Economy-wide
Totals	6,664	2,714	2,176	6,230	17,785	37.5%	15.3%	12.2%	35.0%	100.0%	
Gender											
Male	6,028	1,773	1,868	3,210	12,879	90.5%	65.3%	85.8%	51.5%	72.4%	51.5%
Female	636	943	309	3,020	4,908	9.5%	34.7%	14.2%	48.5%	27.6%	48.5%
Race											
Non-Hispanic white	4,264	1,852	1,442	4,127	11,685	64.0%	68.2%	66.3%	66.2%	65.7%	66.2%
Non-Hispanic black	335	257	120	677	1,388	5.0%	9.5%	5.5%	10.9%	7.8%	10.9%
Hispanic	1,846	442	498	987	3,773	27.7%	16.3%	22.9%	15.8%	21.2%	15.8%
Asian (including Pacific Islander)	122	122	85	333	662	1.8%	4.5%	3.9%	5.3%	3.7%	5.3%
Other	97	44	32	106	279	1.5%	1.6%	1.4%	1.7%	1.6%	1.7%
Age											
Less than 25 years	727	332	207	909	2,175	10.9%	12.2%	9.5%	14.6%	12.2%	14.6%
25–54	5,129	1,957	1,665	4,361	13,111	77.0%	72.1%	76.5%	70.0%	73.7%	70.0%
55 years and older	808	427	305	960	2,500	12.1%	15.7%	14.0%	15.4%	14.1%	15.4%
Union status											
Covered	1,010	193	281	668	2,151	15.2%	7.1%	12.9%	10.7%	12.1%	10.7%
Not covered	5,654	2,523	1,895	5,563	15,636	84.8%	93.0%	87.1%	89.3%	87.9%	89.3%
Education											
Less than high school	1,380	289	360	604	2,633	20.7%	10.7%	16.5%	9.7%	14.8%	9.7%
High school only	2,758	876	824	1,756	6,214	41.4%	32.3%	37.9%	28.2%	34.9%	28.2%
Some college	1,673	779	564	1,856	4,873	25.1%	28.7%	25.9%	29.8%	27.4%	29.8%
Bachelor's only	709	568	320	1,331	2,928	10.6%	20.9%	14.7%	21.4%	16.5%	21.4%
Advanced degree	143	204	109	683	1,139	2.1%	7.5%	5.0%	11.0%	6.4%	11.0%
Wage quintile											
First (lowest)	670	443	194	1,277	2,586	10.1%	16.3%	8.9%	20.5%	14.5%	20.5%
Second	1,313	529	392	1,221	3,455	19.7%	19.5%	18.0%	19.6%	19.4%	19.6%
Third	1,651	600	514	1,244	4,009	24.8%	22.1%	23.6%	20.0%	22.5%	20.0%
Fourth	1,707	582	562	1,244	4,095	25.6%	21.5%	25.8%	20.0%	23.0%	20.0%
Fifth (highest)	1,323	561	514	1,244	3,641	19.8%	20.7%	23.6%	20.0%	20.5%	20.0%

Note: Employment statistics represent pooled data from 2009–2012. Supplier jobs include materials and k-input (capital-input) jobs; indirect jobs include supplier jobs and induced (respending) jobs.

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

Economic Policy Institute

The single most important finding of any public investment jobs analysis is that *all* forms of public investment have extraordinarily high bang-for-the-buck as job-generators compared with other forms of fiscal policy.[13] And all forms of public investment would generate large long-run economic benefits. Additionally, a mix of "core" infrastructure spending and noncore investments, particularly in human services sectors, would provide jobs for a very wide range of workers. Finally, when assessing which groups are disproportionately benefiting from such investments, it is crucial to consider not only the direct jobs created but the total jobs created.

The financing mechanisms of infrastructure can radically change its benefits

It is crucial to note that the gains highlighted above assume that a policy change actually manages to produce net new infrastructure investment. This generally should be a straightforward proposition. Governments—federal, state, and local—have been financing infrastructure for decades, and it works. But the plans that President-elect Trump has issued so far are odd enough, along many dimensions, to cast doubt on any assurances of substantial net new investment. In fact, unless further clarifications and safeguards are included with these plans, they may lead to no net new investment at all, even as hundreds of billions of taxpayer dollars are spent.

In coming days, Trump's plan will invariably be described as a simple *public-private partnership* or *P3*. P3s are standard models for financing infrastructure that could *in theory* have little downside compared with direct public provision. However, the real-world record of P3s is much spottier.[14]

Even more concerning than the downside of real-world P3s is the fact that the Trump plan is not even a P3. It is instead, at least in its embryonic form, simply a way to transfer money to developers *with no guarantee at all that net new investments are made*.

To see why, it is important to know what a textbook P3 would look like and what are the most common rationales for using them. P3s are long-term contracts between government and private companies to provide and finance infrastructure. They sit somewhere between standard public provision and full privatization of infrastructure. Say that a state or local government wants an additional road connecting two towns, but is constrained for some reason (usually by simple anti-tax politics) from raising the money itself to publicly finance the project. A crucial part of this process is that the democratically elected and accountable government ensures that the project is in the public interest. Having done this, the government can then negotiate with private financiers and developers to get the project built.

Sometimes, investors get tax breaks for purchasing bonds issued by the developer to finance the project. The developers receive a revenue stream of some kind in exchange

for their investment, and this revenue can be used to pay back debt- and equity-holders in the project. Often this is an explicit user fee, such as a toll for using a road. P3s based on explicit user fees are clearly not going to facilitate investments in underserved communities that are unable to provide profitable revenue streams. In theory, this could be addressed with clever "shadow user fees," such as minimum revenue streams guaranteed by the public partner. But such alternative mechanisms raise numerous new questions of corruption. For example, who makes sure that these minimum revenue streams are fair and only pay for the value of the infrastructure, as opposed to just constituting pure giveaways to private profiteers?

Supporters of P3s allege that they add profit incentives to support infrastructure provision. Theoretically, this profit motive could filter out so-called "bridges to nowhere" that politicians approve to get votes or curry favor, because a private partner will actually want an economic return on investment. In a well-managed P3 in which infrastructure operators face some competition, the private partner is also expected to weigh the long-term costs of deferring maintenance, specifically the loss of users and their fees if the quality of the infrastructure deteriorates quickly. This could lead to better maintenance and repair, particularly if political incentives reward breaking ground on new projects (ribbon-cutting ceremonies) over the unglamorous work of maintenance and repair on existing assets. And to the extent that there is competition, it could lead to more efficient pricing as users pay the costs of infrastructure (though, as always, simple efficiency should not be the sole criteria of policymakers).

As noted before, however, much standard infrastructure provision is characterized by economies of scale that lead to natural monopolies. So, even "private" operators in P3s will likely have to be tightly managed and regulated, and the hand-waving benefits of "competition" are unlikely to appear (monopoly is, by definition, absence of competition). In short, even textbook P3s are not some shortcut around the need for government to be effective and well-run.

And in the real world, there are many ways that P3s can go badly. For example, some P3s have included noncompete clauses that protect the private partner's investment. These clauses can hamstring the ability of the public sector to build further infrastructure in the public interest. For instance, there may be much more traffic than was anticipated when a P3 was used to build a toll road. The public partner might then wish to build more freeway lanes to help alleviate the new traffic, but the private partner could sue to protect those unexpectedly high profits on its toll road. This is not an academic concern—exactly this happened with the P3 that provided California's State Route 91 Express Lanes.[15]

Or the private partner may ramp up prices (user fees) or reduce the service quality to cut costs and maximize profits. Since so much infrastructure has the character of a monopoly, customers are not free to just switch to other providers. Another issue with real-world P3s is renegotiation. Private companies have incentives to engage in opportunistic renegotiation. Such renegotiations reverse *all* of the benefits of ever engaging the private sector in infrastructure provision and financing. Take, for example, the case where a P3 toll road is built, but traffic is lighter than forecast, so revenue disappoints. The private

operator might try to renegotiate higher tolls or even minimum revenue guarantees from a public partner.

The international evidence on P3s suggests that renegotiation is a major problem.[16] Private partners tend to initiate a renegotiation fairly quickly, and they tend to get bailed out when they run into financial problems. Most of the time, these bailouts occur due to the poor performance of the private sector in forecasting the revenue stream of say, a toll. In short, the use of P3s to make infrastructure investments without the whole endeavor turning into crony capitalism depends heavily on strong regulation and the willingness to *not* renegotiate and bail out the private partner when it fails.

Frankly, this would raise alarm bells about the incoming Trump infrastructure plan even if it was a simple P3. But the Trump infrastructure plan is not just a simple P3. Instead, the details released so far indicate only that it is a plan to give tax credits to private financiers and developers, period. Specifically, Trump's plan is to provide a tax credit equal to 82 percent of the equity amount that investors commit to financing infrastructure. The lack of further details and clarification is daunting and raises all sorts of questions.

Who decides which projects need to be built? How will the Trump administration provide communities with needed infrastructure investments that are unlikely to be profitable for private providers (for example, lead-free water pipes in Flint, Michigan)? Are investors in *already existing* P3s eligible for the credit, or is it restricted to new investment? If private investors in already existing P3 arrangements are eligible, how do we ensure these (not cheap) tax credits actually induce net new investments rather than just transferring taxpayer largesse to operators of already existing projects? If we assume tax credits will be restricted (on paper, anyhow) to just *new* investment, how do we know the money is not just providing a windfall to already-planned projects rather than inducing a net increase in how much infrastructure investment occurs?

To be fair, even well-planned infrastructure initiatives—such as the aid to state and local governments for infrastructure investment in the American Reinvestment and Recovery Act (ARRA)—can theoretically simply crowd out already-planned investment instead of creating net new investment on a dollar-for-dollar basis.[17] But a tax credit for private-sector provision introduces an additional complication. Instead of getting net new investment, states and localities may just change how they will finance the infrastructure investment they have already planned.

Trump's plan frames the infrastructure problem as a lack of innovative financing options. This is nonsense. The problem is that politicians don't want to ask taxpayers to pay for valued infrastructure.

But, even in P3s, these taxpayers *do* pay. They just pay "user fees" or "tolls" to private entities rather than "taxes" to government. Thinking that the former is clearly superior is pure ideology. After all, nothing in theory really stops governments from financing infrastructure directly and paying for it with their own tolls and user fees. In fact this happens all the time. But too often it is simply assumed that bringing in the private sector is always and everywhere more efficient and innovative. This is false. And this ideology-

based outlook will lead to plans that radically reduce—and may even totally erase—any net *new* investment actually induced.

The bottom-line for the public investment agenda

The long game regarding the public investment agenda should be to boost public investment levels *permanently*. A new research literature has bolstered claims that public investment can help long-run growth. At the same time, macroeconomists are increasingly concerned that secular stagnation may well mean that private investment will be insufficient to keep the economy pinned at full employment in coming years. To maximize the aggregate demand benefits of a *permanent* increase in public investment while allaying concerns over deficits, this permanent increase could be funded with progressive revenue sources.

Any infrastructure-investment effort should certainly not be "funded" with one-time tax gimmicks that do not actually raise revenue over the long run. Corporate tax reform (often identified as the most likely potential source for financing infrastructure investments in the near term) should focus like a laser on boosting revenue in the long run and ending the deferral loophole in the corporate income tax code. Everything else is largely a distraction from this larger effort. Gimmicks that lead to long-term *losses*—such as a "repatriation holiday"—should be off the table.

Finally, promises that a free lunch can be had by relying heavily on private investors for infrastructure should be viewed skeptically. Tax credits dangled to entice private financiers and developers to provide infrastructure provide no compelling efficiency gains and mostly just open up possibilities for corruption and crony capitalism.

About the authors

Josh Bivens joined the Economic Policy Institute in 2002 and is currently the director of research and policy. His primary areas of research include macroeconomics, social insurance, and globalization. He has authored or co-authored three books (including *The State of Working America, 12th Edition*) while working at EPI, edited another, and has written numerous research papers, including for academic journals. He often appears in media outlets to offer economic commentary and has testified several times before the U.S. Congress. He earned his Ph.D. from The New School for Social Research.

Hunter Blair joined EPI in 2016 as a budget analyst, in which capacity he researches tax, budget, and infrastructure policy. He attended New York University, where he majored in math and economics. Blair received his master's in economics from Cornell University.

Endnotes

1. We use potential GDP as the denominator to keep steep economic downturns (such as the Great Recession) from boosting our measure of public capital stock. The capital stock is the result of cumulative years of public investment and hence provides an excellent measure of the payoff of public investment efforts.

2. The share of corporate income received by workers in the form of wages and benefits fell sharply during the recovery from the Great Recession and is at its lowest point in decades, signaling that workers have not regained the bargaining power necessary to secure wage increases. See EPI's nominal wage tracker http://www.epi.org/nominal-wage-tracker/ for data on both nominal wage growth as well as data on the shift from labor compensation to corporate profits. See Bivens (2015) for the argument on why a healthy nominal wage target for today's American economy should be something like 3.5 percent to 4.5 percent for the next couple of years.

3. The biggest difference between public investment as near-term boost versus public investment as a long-term growth strategy is how it is funded; see Bivens (2014) on this point. The short-term stimulus benefits of public investments are maximized if they are funded with debt. They are almost totally neutralized if they are funded by cuts to other government spending, including transfer programs. The stimulus benefits are attenuated, but still present, if funded with broad-based taxes. Finally, funding public investment with progressive revenue sources would still deliver considerable stimulus benefits (roughly two-thirds as much as financing with debt).

4. See Summers (2016) on the case for worrying about secular stagnation, and why a higher level of infrastructure investment would be a well-targeted response to such worries.

5. The American Society of Civil Engineers (ASCE), admittedly not a completely disinterested group, releases an annual report on the nation's infrastructure shortfall, which can be found at: http://www.infrastructurereportcard.org/http://www.infrastructurereportcard.org/

6. See Bivens (2012a) for evidence on the estimated high rates of return for core infrastructure investments.

7. See Bivens (2012b) for evidence on the estimated high economic returns of increasing noncore public investments.

8. See Whitebook et al. (2001) on why higher compensation is needed to boost quality in the child care sector.

9. See Bivens et al. (2016) for estimates of how one model child care policy (capping families' expenditures on child care at 10 percent of family income) could boost participation of women in the labor force.

10. See Hoynes, Schanzenbach, and Almond (2014) on the long-run health benefits of childrens' exposure to nutritional assistance. See Brown, Kowalski, and Lurie (2015) on the potential economic returns to childrens' exposure to health insurance coverage.

11. See Bivens (2011) on the agreement among both public and private forecasters on the relative efficiency of different forms of fiscal stimulus.

12. Given well-known problems in disaggregating the construction sector into residential versus commercial construction, it is possible that commercial construction (which would be the subsector boosted by infrastructure investments) might employ lower shares of Latino workers

than either the residential or the overall sectors. Residential construction accounts for roughly half of the total sector, so a large overrepresentation of Hispanic workers in that subsector could drive up their share in the overall sector, leading to overstatements of how many Hispanic workers would be supported by an increase in infrastructure investment. Bivens (2014) tried to account for this possible bias, but found little evidence that it was large enough to detect. Conversely, Bivens (2014) did find that the share of unionized workers is much higher (high enough to detect) in the commercial sector, so the share of jobs supported by infrastructure that are unionized is certainly larger than Table 2 indicates.

13. Recent retrospective assessments of the American Recovery and Reinvestment Act (ARRA) find extraordinarily powerful job-creation stemming from its increases in both core infrastructure (see Wilson (2012)) and noncore public investments (see Chodorow-Reich et al. (2015).

14. See Blunt (2016) for an example of a P3 gone wrong.

15. See Engel, Fischer, and Galetovic (2014) for details on this project and other instances of P3s going badly.

16. See Engel, Fischer, and Galetovic (2014) on this international evidence.

17. For the record, research shows the ARRA investments worked very well, with substantial net new investment created. On this, see Leduc and Wilson (2015).

References

Aschauer, David A. 1989. "Is Public Expenditure Productive?" *Journal of Monetary Economics*, vol. 23, no. 2, 177–200.

Aschauer, David A. 1990. "Does Public Capital Crowd Out Private Capital?" *Journal of Monetary Economics*, vol. 24, no. 2, 171–88.

Aschauer, David A. 2000. "Public Capital and Economic Growth: Issues of Quantity, Finance, and Efficiency." *Economic Development and Cultural Change*, vol. 48, no. 2, 391–406.

Bivens, Josh. 2011. *Method Memo on Estimating the Jobs Impact of Various Policy Changes.* Economic Policy Institute Report.

Bivens, Josh. 2012a. *More Extraordinary Returns: Public Investments Outside of "core" Infrastructure.* Economic Policy Institute Briefing Paper #348.

Bivens, Josh. 2012b. *Public Investment: The Next 'New Thing' for Powering Economic Growth.* Economic Policy Institute Briefing Paper #374.

Bivens, Josh. 2014. *The Short- and Long-Term Impact of Infrastructure Investments on Employment and Economic Activity in the U.S. Economy.* Economic Policy Institute Briefing Paper #374.

Bivens, Josh. 2015. *A Vital Dashboard Indicator for Monetary Policy: Nominal Wage Targets.* Center on Budget and Policy Priorities report.

Bivens, Josh, Emma Garcia, Elise Gould, Elaine Weiss, and Valerie Wilson. 2016. *It's Time for an Ambitious National Investment in America's Children: Investments in Early Childhood Care and Education Would Have Enormous Benefits for Children, Families, Society, and the Economy.* Economic Policy Institute report.

Blunt, Katherine. 2016. "The End of the Road." *San Antonio Express-News*, September 16.

Brown, D., A.E. Kowalski, and I.Z. Lurie. 2015. *Medicaid as an Investment in Children: What is the Long-Term Impact on Tax Receipts?* National Bureau of Economic Research Working Paper No. 20835.

Bureau of Economic Analysis. National Income and Product Accounts Table 1.1.5 and Fixed Assets Table 7.1.A.

Bureau of Labor Statistics (U.S. Department of Labor) Current Employment Statistics program. Various years. *Employment, Hours and Earnings—National* [database]. http://www.bls.gov/ces/#data

Bureau of Labor Statistics. Employment requirements matrix data tables from the Employment Projections program.

Bureau of Labor Statistics. Unpublished series on total economy productivity—available upon request.

Chodorow-Reich, Gabriel, Laura Feiveson, Zachary Liscow, and William Gui Woolston. 2012. "Does State Fiscal Relief during Recessions Increase Employment? Evidence from the American Recovery and Reinvestment Act." *American Economic Journal: Economic Policy*. vol. 4, no. 3, 118–145.

Current Population Survey Outgoing Rotation Group microdata. Various years. Survey conducted by the Bureau of the Census for the Bureau of Labor Statistics [machine-readable microdata file]. Washington, D.C.: U.S. Census Bureau.

Current Population Survey public data series. Various years. Aggregate data from basic monthly CPS microdata are available from the Bureau of Labor Statistics through three primary channels: as Historical 'A' Tables released with the BLS Employment Situation Summary, through the Labor Force Statistics Including the National Unemployment Rate database, and through series reports.

Economic Policy Institute. "Nominal Wage Tracker."

Engel, Eduardo, Ronald Fischer, and Alexander Galetovic. 2014. *The Economics of Public-Private Partnerships: A Basic Guide*. New York: Cambridge University Press.

Gould, Elise. 2015. *Child Care Workers aren't Paid Enough to Make Ends Meet*. Economic Policy Institute report.

Heintz, James. 2010. "The Impact of Public Capital on the U.S. Private Economy: New Evidence and Analysis." *International Review of Applied Economics*, vol. 24, no. 5, 619–32.

Hoynes, Hilary, Diane Schanzenbach, and Douglas Almond. 2014. *Long Run Impacts of Childhood Access to the Safety Net*. National Bureau of Economic Research working paper.

Leduc, Sylvain, and Daniel Wilson. 2015. *Are State Governments Roadblocks to Federal Stimulus? Evidence from the Flypaper Effect of Highway Grants in the 2009 Recovery Act*. Federal Reserve Bank of San Francisco working paper.

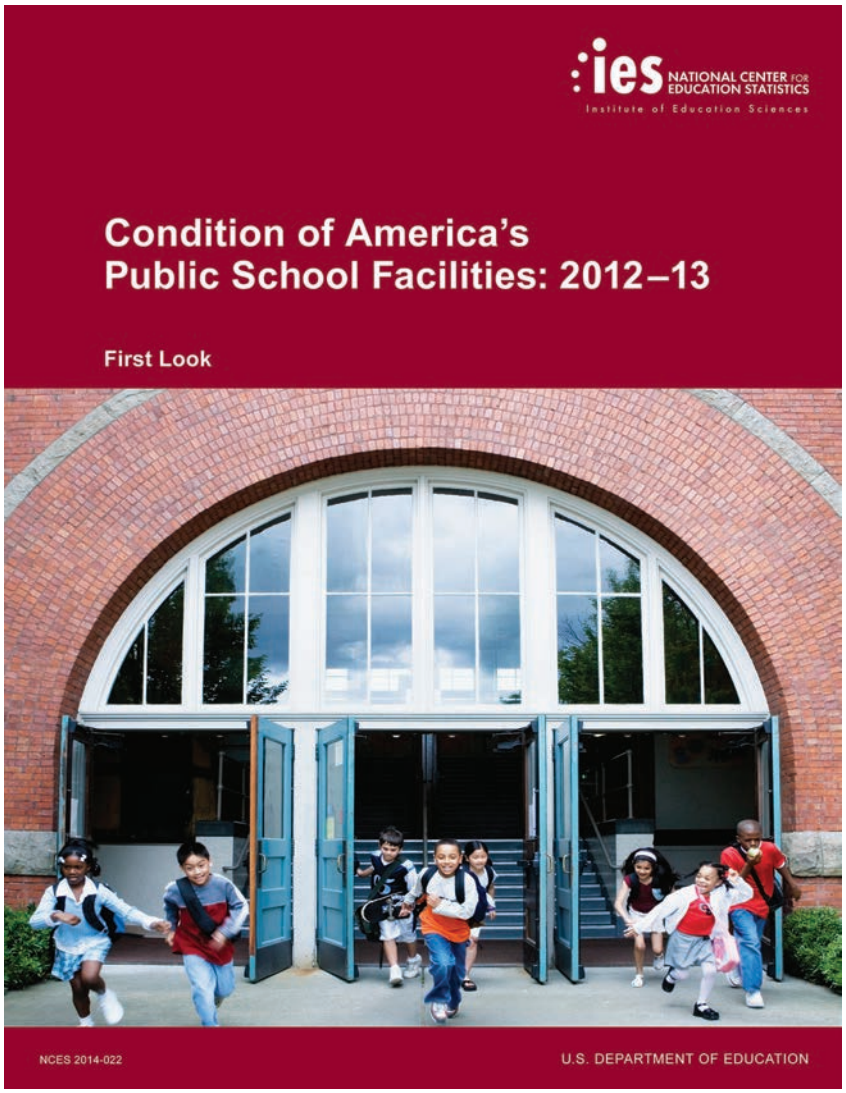
McKinsey and Company. 2009. *The Economic Impact of the Achievement Gap in America's Schools*.

Navarro, Peter, and Wilbur Ross. 2016. *Trump versus Clinton on Infrastructure*.

Summers, Larry. 2016. "The Age of Secular Stagnation." Larry Summers website, February 15.

Whitebook, Marcy, Laura Sakai, Emily Gerber, and Carollee Howes. 2001. *Then and Now: Changes in Child Care Staffing, 1994-2000*. Center for the Child Care Workforce.

Wilson, Daniel J. 2012. "Fiscal Spending Jobs Multipliers: Evidence from the 2009 American Recovery and Reinvestment Act." *American Economic Journal: Economic Policy*, vol. 4, no. 3, 251–282.


ies NATIONAL CENTER FOR EDUCATION STATISTICS
Institute of Education Sciences
Condition of America's Public School Facilities: 2012–13
First Look
NCES 2014-022
U.S. DEPARTMENT OF EDUCATION

Condition of America's Public School Facilities: 2012–13

First Look

MARCH 2014

Debbie Alexander
Laurie Lewis
Westat

John Ralph
Program Director
National Center for Education Statistics

NCES 2014-022
U.S. DEPARTMENT OF EDUCATION

FRSS
Fast Response Survey System

ies NATIONAL CENTER FOR EDUCATION STATISTICS
Institute of Education Sciences

U.S. Department of Education
Arne Duncan
Secretary

Institute of Education Sciences
John Q. Easton
Director

National Center for Education Statistics
John Q. Easton
Acting Commissioner

The National Center for Education Statistics (NCES) is the primary federal entity for collecting, analyzing, and reporting data related to education in the United States and other nations. It fulfills a congressional mandate to collect, collate, analyze, and report full and complete statistics on the condition of education in the United States; conduct and publish reports and specialized analyses of the meaning and significance of such statistics; assist state and local education agencies in improving their statistical systems; and review and report on education activities in foreign countries.

NCES activities are designed to address high-priority education data needs; provide consistent, reliable, complete, and accurate indicators of education status and trends; and report timely, useful, and high-quality data to the U.S. Department of Education, the Congress, the states, other education policymakers, practitioners, data users, and the general public. Unless specifically noted, all information contained herein is in the public domain.

We strive to make our products available in a variety of formats and in language that is appropriate to a variety of audiences. You, as our customer, are the best judge of our success in communicating information effectively. If you have any comments or suggestions about this or any other NCES product or report, we would like to hear from you. Please direct your comments to

NCES, IES, U.S. Department of Education
1990 K Street NW
Washington, DC 20006-5651

March 2014

The NCES Home Page address is http://nces.ed.gov.
The NCES Publications and Products address is http://nces.ed.gov/pubsearch.

This publication is only available online. To download, view, and print the report as a PDF file, go to the NCES Publications and Products address shown above.

This report was prepared for the National Center for Education Statistics under Contract No. ED-04-C0-0059/0025 with Westat. Mention of trade names, commercial products, or organizations does not imply endorsement by the U.S. Government.

Suggested Citation

Alexander, D., and Lewis, L. (2014). *Condition of America's Public School Facilities: 2012–13* (NCES 2014-022). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved [date] from http://nces.ed.gov/pubsearch.

Content Contact

John Ralph
(202) 502-7441
john.ralph@ed.gov

Acknowledgments

The authors would like to recognize the respondents from public school districts who provided data on the condition of public school facilities upon which the report is based.

Contents

	Page
Acknowledgments	iii
List of Tables	v
Introduction	1
Selected Findings	3
Tables	5
References	21
Appendix A: Standard Error Tables	A-1
Appendix B: Technical Notes	B-1
Appendix C: Questionnaire	C-1

List of Tables

Table		Page
1.	Percent of public schools with permanent and portable (temporary) buildings, and among those schools, the percentage distribution with various ratings of the overall condition of each building type, by school characteristics: 2012–13	6
2.	Percent of public schools with permanent buildings with the condition of building systems/features in their permanent buildings rated as fair or poor, by school characteristics: 2012–13	7
3.	Percent of public schools with portable (temporary) buildings with the condition of building systems/features in their portable (temporary) buildings rated as fair or poor, by school characteristics: 2012–13	8
4.	Percent of public schools with the condition of outdoor features at the school rated as fair or poor, by school characteristics: 2012–13	9
5.	Percent of public schools needing to spend money on repairs, renovations, and modernizations to put the school's onsite buildings in good overall condition, and among those schools, the percent with various sources of cost estimates, by school characteristics: 2012–13	10
6.	Percent of public schools with permanent buildings and with portable buildings with satisfaction with the environmental factors in their permanent and portable buildings rated as unsatisfactory or very unsatisfactory, by school characteristics: 2012–13	11
7.	Percent of public schools with a written long-range educational facilities plan for the school, with repair, renovation, or modernization work currently being performed, and with construction projects planned for the school in the next 2 years, by school characteristics: 2012–13	12
8.	Percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13	13
9.	Percent of public schools with inspection and evaluation performed by qualified professionals within the last 5 years, and the percent of public schools in which various steps had been taken within the last 5 years to improve energy efficiency at the school, by school characteristics: 2012–13	19

Table		Page
10.	Among public schools, years since original construction of the main instructional building, years since the most recent major renovation of the main instructional building, years since the last major building replacement or addition at the school, functional age of the main instructional building, and the percentage distribution of public schools according to the functional age of the main instructional building, by school characteristics: 2012–13	20

Appendix A Table

1a.	Standard errors for the percent of public schools with permanent and portable (temporary) buildings, and among those schools, the percentage distribution with various ratings of the overall condition of each building type, by school characteristics: 2012–13	A-2
2a.	Standard errors for the percent of public schools with permanent buildings with the condition of building systems/features in their permanent buildings rated as fair or poor, by school characteristics: 2012–13	A-3
3a.	Standard errors for the percent of public schools with portable (temporary) buildings with the condition of building systems/features in their portable (temporary) buildings rated as fair or poor, by school characteristics: 2012–13	A-4
4a.	Standard errors for the percent of public schools with the condition of outdoor features at the school rated as fair or poor, by school characteristics: 2012–13	A-5
5a.	Standard errors for the percent of public schools needing to spend money on repairs, renovations, and modernizations to put the school's onsite buildings in good overall condition, and among those schools, the percent with various sources of cost estimates, by school characteristics: 2012–13	A-6
6a.	Standard errors for the percent of public schools with permanent buildings and with portable buildings with satisfaction with the environmental factors in their permanent and portable buildings rated as unsatisfactory or very unsatisfactory, by school characteristics: 2012–13	A-7
7a.	Standard errors for the percent of public schools with a written long-range educational facilities plan for the school, with repair, renovation, or modernization work currently being performed, and with construction projects planned for the school in the next 2 years, by school characteristics: 2012–13	A-8
8a.	Standard errors for the percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement, by school characteristics: 2012–13	A-9

Appendix A Table **Page**

9a. Standard errors for the percent of public schools with inspection and evaluation performed by qualified professionals within the last 5 years, and the percent of public schools in which various steps had been taken within the last 5 years to improve energy efficiency at the school, by school characteristics: 2012–13 ..... A-15

10a. Among public schools, standard errors for the years since original construction of the main instructional building, years since the most recent major renovation of the main instructional building, years since the last major building replacement or addition at the school, functional age of the main instructional building, and the percentage distribution of public schools according to the functional age of the main instructional building, by school characteristics: 2012–13 ..... A-16

Appendix B Table

B-1. Number and percentage of responding public schools in the study sample, and estimated number and percentage of public schools the sample represents, by school characteristics: 2012–13 ..... B-3

Introduction

This report provides nationally representative data on the condition of public school facilities. The National Center for Education Statistics (NCES) previously collected data on this topic in 1999 (Lewis et al. 2000). The study presented in this report collected information about the condition of public school facilities in the 2012–13 school year. Specifically, the survey covered the following:

- Whether the school had permanent and portable (temporary) onsite buildings;
- The condition of 17 building systems/features in the permanent and portable (temporary) onsite buildings;
- The condition of seven outdoor features at the school;
- The overall condition of the permanent and portable (temporary) onsite buildings;
- The estimated total cost of all repairs/renovations/modernizations required to put the school's onsite buildings in good overall condition, and the sources on which the cost estimate was based;
- How satisfactory each of eight environmental factors was in the permanent and portable (temporary) onsite buildings;
- The year in which the school's main instructional building was constructed, the year of the last major renovation of the main instructional building, and the year of the last major building replacement or addition at the school;
- Whether any major repair/renovation/modernization work was currently being performed at the school;
- Whether various construction projects were planned for the school in the next 2 years;
- Which of 17 building systems/features at the school, if any, had major repairs, renovations, or replacements planned for the next 2 years, and if work was planned, the main reason for the planned major repair, renovation, or replacement;
- Whether there was a written long-range educational facilities plan[1] for the school;
- Whether inspection of the condition of the physical features of the facility and evaluations of energy use and indoor environmental hazards at the school had been performed by qualified professionals within the last 5 years; and
- Whether various steps had been taken in the last 5 years to improve energy efficiency at the school.

NCES, in the Institute of Education Sciences, conducted this survey in spring 2013 using the Fast Response Survey System (FRSS). FRSS is a survey system designed to collect small amounts of issue-oriented data from a nationally representative sample of districts, schools, or teachers with minimal burden on respondents and within a relatively short period of time. The survey on the condition of public school facilities was mailed to the school districts of approximately 1,800 public schools in the 50 states and the District of Columbia. While individual schools were sampled, the questionnaires were mailed to the districts with which the schools were associated. A separate questionnaire was enclosed for each sampled school. The cover letter indicated that the survey was designed to be completed by district-level personnel who were very familiar with the school facilities in the district. Often this was a district facilities coordinator. The letter indicated that the respondent might want to consult with other district-level personnel or with school-level personnel, such as the principal of the sampled school, in answering some of the questions. Respondents were offered the option of completing the survey via the Web. The unweighted survey response rate was 90 percent and the weighted response rate using the initial base weights was also 90 percent. The survey weights were adjusted for questionnaire nonresponse and the data were then weighted to yield national estimates that represent all eligible public schools in the United States.

[1] Terms used in the report are presented in appendix B.

Because the purpose of this report is to introduce new NCES data from the survey through the presentation of tables containing descriptive information, only selected national findings are presented. These findings have been chosen to demonstrate the range of information available from the FRSS study rather than to discuss all of the data collected; they are not meant to emphasize any particular issue. Readers are cautioned not to make causal inferences about the data presented here. The findings are based on self-reported data from public schools and school districts. Many of the variables examined are related to one another, and complex interactions and relationships have not been explored.

Tables of standard error estimates are provided in appendix A. See the technical notes (appendix B) for detailed information about the survey methodology. Appendix B also includes definitions of the analysis variables (i.e., school characteristics) and rating scales and terms used in the report. The questionnaire is located in appendix C.

Selected Findings

This section presents selected findings based on survey responses on the condition of public school facilities in the 2012–13 school year.[2]

- Based on survey responses, almost all (99 percent) of the schools had permanent buildings, and 31 percent had portable (temporary) buildings (table 1). Among schools with permanent buildings, the overall condition of about three-quarters of the permanent buildings was described as excellent (20 percent) or good (56 percent); 21 percent were in fair condition, and 3 percent were in poor condition. Among schools with portable buildings, overall condition was excellent in 6 percent, good in 49 percent, fair in 36 percent, and poor in 9 percent.
- Among public schools with permanent buildings, the building systems/features were rated as being in fair or poor condition in their permanent buildings in 14 to 32 percent of the schools:[3] windows (32 percent); plumbing/lavatories (31 percent); heating system, air conditioning system, and ventilation/filtration system (30 percent each); energy management system, security systems, and exterior lighting (29 percent each); roofs, interior finishes/trim, and internal communication systems (25 percent each); electrical system (22 percent); technology infrastructure (21 percent); interior lighting and life safety features (19 percent each); exterior walls/finishes (18 percent); and framing, floors, and foundations (14 percent) (table 2).
- Among public schools with portable (temporary) buildings, the building systems/features were rated as being in fair or poor condition in their portable buildings in 29 to 45 percent of the schools:[4] windows and exterior lighting (45 percent each); interior finishes/trim (43 percent); roofs and exterior walls/finishes (42 percent each); framing, floors, and foundations (41 percent); ventilation/filtration system, and energy management system (41 percent each); security systems (40 percent); plumbing/lavatories and air conditioning systems (37 percent each); heating systems (36 percent); internal communication systems and technology infrastructure (33 percent each); electrical system and interior lighting (30 percent each); and life safety features (29 percent) (table 3).
- The condition of the following outdoor features was rated as fair or poor in public schools that had that feature: school parking lots and roadways (36 percent); fencing (32 percent); bus lanes and drop-off areas (31 percent); outdoor athletic facilities (31 percent); covered walkways (28 percent); school sidewalks and walkways (27 percent); and outdoor play areas/playgrounds (27 percent) (table 4).
- Based on survey responses, 53 percent of public schools needed to spend money on repairs, renovations, and modernizations to put the school's onsite buildings in good overall condition (table 5). The total amount needed was estimated to be approximately $197 billion, and the average dollar amount for schools needing to spend money was about $4.5 million per school (not shown in tables).[5] Among schools needing to spend, the cost estimate was based on the best professional judgment of the survey respondent in 57 percent of the schools; on facilities inspection(s)/assessment(s) performed within the last 3 years by licensed professionals in 44 percent of the schools; and on a capital improvement/facilities master plan, schedule, or budget in 42 percent of the schools (table 5).
- Among public schools with permanent buildings, the environmental factors in permanent buildings were rated as unsatisfactory or very unsatisfactory in 5 to 17 percent of schools[6] (table 6). Among public

[2] Rating scales and terms used in the report are presented in appendix B.

[3] Percentages are based on schools with that building system/feature in their permanent buildings.

[4] Percentages are based on schools with that building system/feature in their portable (temporary) buildings.

[5] These estimates are based on the survey question that asked for the estimated total cost of all repairs/renovations/modernizations required to put the school's onsite buildings in good overall condition. The standard error for the total amount needed was $12 billion, and the standard error for the average dollar amount for schools needing to spend money was $264,000. Data are not shown in the table broken out by school characteristics because totals (sums) are affected by the number of cases in an analysis group, and totals and average dollars are heavily influenced by some very large (but verified as correct) estimated costs.

[6] Percentages are based on schools with that environmental factor in their permanent buildings.

schools with portable buildings, ratings of unsatisfactory or very unsatisfactory were reported for the environmental factors in portable buildings in 10 to 28 percent of the schools.[7]

- Sixty percent of public schools were reported to have a written long-range educational facilities plan (table 7). Seventeen percent of public schools had major repairs, renovations, or modernization work currently being performed at the school, and 39 percent had major repairs/renovations/ modernization work planned for the school in the next two years.
- Respondents indicated whether there were major repair, renovation, or replacement of various building systems or features planned for the school in the next 2 years, and if so, the main reason for such plans. Among schools with the building system/feature, 21 percent had plans for major repair, renovation, or replacement of security systems, and 20 percent had plans for such work on technology infrastructure (table 8). Improved operational or energy efficiency was cited as the main reason for the work in 46 percent of those with planned work on security systems, and in 51 percent of those with planned work on technology infrastructure. Nineteen percent of schools had plans for major repair, renovation, or replacement of roofs, and among these schools, 46 percent had replacement cycle cited as the main reason. Major repair, renovation, or replacement of the remaining building systems/features was planned in 7 to 16 percent of public schools with that system/feature.
- Based on survey responses, the following types of inspections and evaluations were performed at public schools by qualified professionals within the last 5 years: inspection of the condition of the physical features of the facility (83 percent), evaluation of indoor environmental hazards (80 percent), and evaluation of energy use (72 percent) (table 9). The following steps had been taken within the last 5 years to improve energy efficiency: replaced lighting fixtures, lighting ballast, or bulbs (65 percent), installed motion sensors for lighting (35 percent), installed or upgraded an energy management system (34 percent), installed more efficient HVAC systems (31 percent), replaced windows and/or doors (25 percent), installed or upgraded a reflective roof coating (19 percent), and upgraded insulation, outer walls, and/or siding (building envelopes) (14 percent).
- The average of the reported number of years since the construction of the main instructional building was 44 years (table 10). Among schools with major renovation of the main instructional building, the renovation occurred on average 12 years ago. Among schools with major building replacement or addition, the replacement or addition occurred on average 16 years ago. The average functional age[8] of the main instructional building was 19 years.

---

[7] Percentages are based on schools with that environmental factor in their portable buildings.

[8] Functional age is defined as the age of the school based on the year of the most recent major renovation or the year of construction of the main instructional building if no renovation has occurred.

Tables

Table 1. Percent of public schools with permanent and portable (temporary) buildings, and among those schools, the percentage distribution with various ratings of the overall condition of each building type, by school characteristics: 2012–13

School characteristic	Permanent buildings					Portable (temporary) buildings				
		Overall condition					Overall condition			
	Schools with permanent buildings	Excellent	Good	Fair	Poor	Schools with portable (temporary) buildings	Excellent	Good	Fair	Poor
All public schools	**99**	**20**	**56**	**21**	**3**	**31**	**6**	**49**	**36**	**9**
School instructional level										
Elementary	99	20	57	21	3	33	6	49	36	9
Secondary	100[2]	20	57	20	2!	24	5!	46	43	7!
Combined	100	15!	44	38	‡	29	‡	56	‡	‡
School enrollment size										
Less than 300	98	14	53	28	5!	20	‡	44	39	13!
300 to 599	100[2]	20	57	21	3	27	6!	45	39	10
600 or more	100	25	58	17	1!	43	7	54	33	6
Community type										
City	99	17	55	23	5	40	4!	53	34	8!
Suburban	100[2]	23	56	20	‡	32	5!	51	38	6!
Town	99	18	57	23	‡	27	10!	43	38	9!
Rural	100[2]	20	57	20	2!	25	7!	44	36	13
Region										
Northeast	100	16	61	20	3!	12	‡	60	25	‡
Southeast	99	25	54	18	3!	36	‡	45	41	10!
Central	100	20	58	20	2!	11	‡	25!	50	‡
West	99	19	54	24	3!	51	6	53	33	7
Percent minority enrollment[1]										
Less than 6 percent	100	17	58	23	‡	13	‡	34!	36!	24!
6 to 20 percent	100[2]	20	60	18	2!	17	‡	37	43	14!
21 to 49 percent	100	24	55	19	‡	32	6!	52	34	8!
50 percent or more	99	19	54	23	3	45	6	52	36	6
Percent of students eligible for free or reduced-priced lunch										
Less than 35 percent	100[2]	24	56	18	2!	25	8!	51	29	12
35 to 49 percent	99	18	63	17	2!	30	7!	53	36	‡
50 to 74 percent	100	20	56	22	2!	31	4!	45	41	10!
75 percent or more	98	16	52	28	4	39	5!	48	38	8!

! Interpret data with caution; the coefficient of variation is greater than or equal to 30 percent.

‡ Reporting standards not met. The coefficient of variation for this estimate is 50 percent or greater or the sample size is less than 3.

[1] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.

[2] Rounds to 100 percent.

NOTE: Respondents were presented the following definitions. **Excellent** means that the facility meets all the reasonable needs for normal school performance yet goes well beyond adequate. Relatively minor enhancements may be necessary. **Good** means that the facility meets all the reasonable needs for normal school performance, is most often in good condition, and generally meets some, but not all, of the characteristics of an excellent facility. **Fair** means that the facility meets minimal needs for normal school performance but requires frequent maintenance or has other limitations. It requires some upgrading to be considered in good condition. **Poor** means that the facility does not meet minimal requirements for normal school performance. Details may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 2. Percent of public schools with permanent buildings with the condition of building systems/features in their permanent buildings rated as fair or poor, by school characteristics: 2012–13

School characteristic	Roofs	Framing, floors, foundations	Exterior walls, finishes	Windows, doors	Interior finishes, trim	Plumbing/lavatories	Heating system	Air conditioning system	Ventilation/filtration system	Electrical system	Interior lighting	Exterior lighting	Energy management system	Life safety features[1]	Security systems	Internal communication systems	Technology infrastructure
All public schools	**25**	**14**	**18**	**32**	**25**	**31**	**30**	**30**	**30**	**22**	**19**	**29**	**29**	**19**	**29**	**25**	**21**
School instructional level																	
Elementary	26	14	17	31	24	30	30	30	29	22	20	30	29	19	29	25	22
Secondary	24	12	18	35	27	34	31	33	30	22	16	26	30	18	29	24	17
Combined	31	27	32	38	39	41	29	27	37	28	30	39	41	25	40	27	19!
School enrollment size																	
Less than 300	31	19	25	43	32	43	42	38	38	31	25	39	45	27	41	34	30
300 to 599	23	13	16	32	26	32	28	30	30	22	20	29	28	18	28	26	20
600 or more	24	12	15	26	20	23	24	26	24	16	14	22	22	14	23	17	16
Community type																	
City	27	16	19	35	29	34	31	33	31	22	21	30	28	17	25	23	20
Suburban	28	11	15	29	22	26	26	27	27	20	19	26	22	15	23	21	19
Town	28	16	21	37	30	36	34	37	36	25	23	34	37	19	38	30	23
Rural	21	15	18	31	24	32	31	29	28	23	18	29	34	22	34	26	22
Region																	
Northeast	26	14	17	31	25	28	29	32	34	26	20	26	31	16	27	28	22
Southeast	22	12	13	30	20	26	24	29	28	18	19	28	26	17	22	17	16
Central	27	13	15	31	25	37	32	31	29	22	16	31	31	18	34	28	21
West	26	16	23	36	30	32	33	30	29	23	22	31	30	21	31	25	22
Percent minority enrollment[2]																	
Less than 6 percent	25	17	19	36	26	37	38	36	33	30	24	31	35	20	34	30	21
6 to 20 percent	27	13	17	33	24	33	30	28	30	21	15	29	31	19	36	25	22
21 to 49 percent	23	11	15	29	21	28	26	28	27	20	17	26	27	16	24	20	18
50 percent or more	26	15	20	33	29	31	30	32	30	22	22	31	28	19	26	25	21
Percent of students eligible for free or reduced-priced lunch																	
Less than 35 percent	25	11	17	28	23	27	27	25	27	21	17	26	25	15	27	25	23
35 to 49 percent	22	12	12	31	18	33	29	32	28	20	16	28	30	16	29	20	17
50 to 74 percent	22	14	18	34	28	33	31	32	30	22	20	30	32	19	34	25	21
75 percent or more	32	20	23	37	31	33	34	34	33	24	24	33	32	24	26	28	21

! Interpret data with caution; the coefficient of variation is greater than or equal to 30 percent.

[1] "Life safety features" includes sprinklers, fire alarms, and smoke detectors.

[2] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.

NOTE: Respondents were provided the following definitions. **Excellent** means that a particular feature or system meets all the reasonable needs of the school pertaining to that item yet goes well beyond adequate. Relatively minor enhancements may be necessary. **Good** means a feature or system meets all the reasonable needs of the school, is most often in good condition, and generally meets some, but not all, of the characteristics of an excellent system/feature. **Fair** means that a feature or system meets minimal conditions but is not dependable, breaks down frequently, or has other limitations. It is a feature or system that would require some upgrading to be considered in good condition. **Poor** means that a particular feature or system as it exists is inadequate to meet even the minimal needs of the school. This table presents combined data for ratings of fair and poor. percentages are based on schools with that building system/feature in their permanent buildings.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 3. Percent of public schools with portable (temporary) buildings with the condition of building systems/features in their portable (temporary) buildings rated as fair or poor, by school characteristics: 2012–13

School characteristic	Roofs	Framing, floors, foundations	Exterior walls, finishes	Windows, doors	Interior finishes, trim	Plumbing/ lavatories	Heating system	Air conditioning system	Ventilation/ filtration system	Electrical system	Interior lighting	Exterior lighting	Energy management system	Life safety features[1]	Security systems	Internal communication systems	Technology infrastructure
All public schools	**42**	**41**	**42**	**45**	**43**	**37**	**36**	**37**	**41**	**30**	**30**	**45**	**41**	**29**	**40**	**33**	**33**
School instructional level																	
Elementary	43	41	43	45	43	36	35	36	42	31	31	45	41	28	40	33	33
Secondary	41	42	43	49	46	41	40	42	42	27	26	46	45	31	40	33	32
Combined	‡	‡	‡	‡	27!	‡	‡	‡	‡	‡	‡	34!	26!	37!	42!	‡	‡
School enrollment size																	
Less than 300	54	48	47	56	45	53	41	45	56	38	39	58	72	56	65	53	49
300 to 599	45	44	48	53	46	38	39	40	50	34	36	47	37	22	38	31	35
600 or more	36	35	36	36	41	30	31	32	30	24	23	40	35	26	33	29	26
Community type																	
City	39	43	42	44	42	35	33	35	37	29	29	40	38	27	34	31	32
Suburban	44	33	41	40	44	35	38	40	43	29	30	47	33	24	31	29	25
Town	39	45	40	51	41	31!	30	33	43	21	22	37	44	24!	47	30	38
Rural	45	44	44	49	45	44	38	38	44	35	36	54	58	39	55	43	40
Region																	
Northeast	53	41	51	47	58	43!	44	46	43	40	38	53	49	31!	45	42	31!
Southeast	46	47	45	49	47	44	40	42	49	39	38	52	54	33	47	34	42
Central	43	50	52	64	42	35	41	41	51	37	31	39	30!	16!	45!	31!	34!
West	39	36	38	40	40	33	32	32	36	23	25	42	36	28	36	32	29
Percent minority enrollment[2]																	
Less than 6 percent	60	62	67	81	56	52!	66	66	70	63	63	79	83	54!	79	66	58
6 to 20 percent	41	38	43	51	50	50	40	41	52	34	33	53	52	40	60	36	37
21 to 49 percent	45	40	41	43	44	32	38	40	42	30	27	44	39	22	40	24	30
50 percent or more	40	40	40	41	40	35	31	32	36	26	28	42	37	27	33	34	31
Percent of students eligible for free or reduced-priced lunch																	
Less than 35 percent	41	34	41	42	48	39	38	41	41	32	31	45	39	27	37	27	31
35 to 49 percent	32	38	43	39	33	27	29	31	38	28	23	41	43	27	40	27	31
50 to 74 percent	46	43	39	49	44	44	41	39	46	28	33	49	48	31	53	35	40
75 percent or more	47	46	45	47	45	35	33	35	38	31	31	45	37	30	32	41	28

! Interpret data with caution; the coefficient of variation is greater than or equal to 30 percent.

‡ Reporting standards not met. The coefficient of variation for this estimate is 50 percent or greater or the sample size is less than 3.

[1] "Life safety features" includes sprinklers, fire alarms, and smoke detectors.

[2] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.

NOTE: Respondents were provided the following definitions. **Excellent** means that a particular feature or system meets all the reasonable needs of the school pertaining to that item yet goes well beyond adequate. Relatively minor enhancements may be necessary. **Good** means a feature or system meets all the reasonable needs of the school, is most often in good condition, and generally meets some, but not all, of the characteristics of an excellent system/feature. **Fair** means that a feature or system meets minimal conditions but is not dependable, breaks down frequently, or has other limitations. It is a feature or system that would require some upgrading to be considered in good condition. **Poor** means that a particular feature or system as it exists is inadequate to meet even the minimal needs of the school. This table presents combined data for ratings of fair and poor. percentages are based on schools with that building system/feature in their portable (temporary) buildings.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 4. Percent of public schools with the condition of outdoor features at the school rated as fair or poor, by school characteristics: 2012–13

School characteristic	School parking lots and roadways	Bus lanes and drop-off areas	School sidewalks and walkways	Outdoor play areas/ playgrounds	Outdoor athletic facilities	Covered walkways	Fencing
All public schools	**36**	**31**	**27**	**27**	**31**	**28**	**32**
School instructional level							
Elementary	35	30	26	27	32	27	31
Secondary	36	32	26	29	28	29	33
Combined	45	46	43	39	42	32	42
School enrollment size							
Less than 300	49	42	35	38	44	44	43
300 to 599	34	30	26	26	32	26	32
600 or more	28	25	21	22	22	22	25
Community type							
City	34	30	28	27	31	24	32
Suburban	33	29	22	24	30	24	29
Town	34	31	29	31	35	33	30
Rural	40	33	28	28	31	32	34
Region							
Northeast	38	27	27	23	28	25	39
Southeast	31	27	24	27	31	23	30
Central	39	34	28	28	34	37	35
West	36	33	27	29	32	29	27
Percent minority enrollment[1]							
Less than 6 percent	44	36	33	33	42	44	44
6 to 20 percent	35	29	25	26	29	28	32
21 to 49 percent	37	32	24	21	26	26	30
50 percent or more	33	29	27	30	33	25	30
Percent of students eligible for free or reduced-priced lunch							
Less than 35 percent	33	28	23	25	27	27	31
35 to 49 percent	32	30	22	21	25	26	21
50 to 74 percent	38	33	31	29	35	32	39
75 percent or more	39	33	29	34	39	25	33

[1] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.

NOTE: Respondents were provided the following definitions. **Excellent** means that a particular feature or system meets all the reasonable needs of the school pertaining to that item yet goes well beyond adequate. Relatively minor enhancements may be necessary. **Good** means a feature or system meets all the reasonable needs of the school, is most often in good condition, and generally meets some, but not all, of the characteristics of an excellent system/feature. **Fair** means that a feature or system meets minimal conditions but is not dependable, breaks down frequently, or has other limitations. It is a feature or system that would require some upgrading to be considered in good condition. **Poor** means that a particular feature or system as it exists is inadequate to meet even the minimal needs of the school. This table presents combined data for ratings of fair and poor. percentages are based on schools with that outdoor feature.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 5. Percent of public schools needing to spend money on repairs, renovations, and modernizations to put the school's onsite buildings in good overall condition, and among those schools, the percent with various sources of cost estimates, by school characteristics: 2012–13

School characteristic	Percent of schools reporting needing to spend	Source of cost estimate was: Facilities inspection(s)/ assessment(s) performed within the last 3 years by licensed professionals	Repair/ renovation/ modernization work already being performed and/or contracted for	Capital improvement/ facilities master plan, schedule, or budget	Best professional judgment	Opinions of other district or school administrators	Other sources[1]
All public schools	**53**	**44**	**25**	**42**	**57**	**17**	**11**
School instructional level							
Elementary	52	43	22	41	56	17	12
Secondary	52	50	33	46	59	15	8
Combined	67	40	34	34	71	29!	‡
School enrollment size							
Less than 300	65	46	26	33	62	16	6!
300 to 599	51	46	22	43	54	18	13
600 or more	46	41	29	50	56	16	13
Community type							
City	54	35	22	39	55	16	10
Suburban	49	51	25	53	54	20	16
Town	55	43	21	46	54	20	14
Rural	53	48	29	35	62	15	6
Region							
Northeast	49	44	23	42	56	16	15
Southeast	45	46	30	50	54	14	9!
Central	53	50	28	42	63	18	7!
West	59	40	21	38	55	18	12
Percent minority enrollment[2]							
Less than 6 percent	52	51	34	39	63	11!	‡
6 to 20 percent	51	47	23	39	55	16	13
21 to 49 percent	50	49	28	48	62	21	11
50 percent or more	55	38	22	42	54	17	12
Percent of students eligible for free or reduced-priced lunch							
Less than 35 percent	48	42	21	44	53	12	14
35 to 49 percent	51	55	28	41	62	21	8!
50 to 74 percent	52	50	27	44	57	19	8
75 percent or more	60	35	26	39	58	17	12

! Interpret data with caution; the coefficient of variation is greater than or equal to 30 percent.
‡ Reporting standards not met. The coefficient of variation for this estimate is 50 percent or greater or the sample size is less than 3.
[1] Examples of other sources include information from past projects of the same magnitude, and insurance carrier/current industry costs.
[2] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 6. Percent of public schools with permanent buildings and with portable buildings with satisfaction with the environmental factors in their permanent and portable buildings rated as unsatisfactory or very unsatisfactory, by school characteristics: 2012–13

School characteristic	Permanent buildings[1]: Artificial lighting	Natural lighting	Heating	Air conditioning	Ventilation	Indoor air quality	Water quality	Acoustics or noise control	Portable buildings[2]: Artificial lighting	Natural lighting	Heating	Air conditioning	Ventilation	Indoor air quality	Water quality	Acoustics or noise control
All public schools	**8**	**16**	**14**	**17**	**17**	**9**	**5**	**14**	**11**	**28**	**12**	**15**	**19**	**16**	**10**	**21**
School instructional level																
Elementary	8	17	13	16	16	9	5	14	11	29	11	16	19	17	10	21
Secondary	7	16	16	20	16	9	6	12	12	28	16	14	22	14	8!	21
Combined	‡	15!	20!	21!	28	13!	16!	25	#	‡	#	‡	‡	#	‡	‡
School enrollment size																
Less than 300	11	21	19	24	25	14	9	20	14!	28	18!	18!	26	21	19!	28
300 to 599	9	15	15	18	17	9	6	13	17	33	15	21	25	19	10!	23
600 or more	4	15	9	13	11	6	3	10	5	25	7	10	13	12	6!	17
Community type																
City	9	16	16	21	18	11	6	14	10	26	11	15	18	17	7!	19
Suburban	7	15	10	13	12	4	3	10	6!	26	7!	12	14	11	7!	17
Town	8	20	14	18	16	7!	5!	15	14!	41	17!	14!	26	18!	16!	24!
Rural	9	16	14	17	20	12	7	16	15	28	16	18	24	19	14!	26
Region																
Northeast	10	12	15	22	18	9	5!	13	‡	22!	‡	‡	‡	‡	‡	‡
Southeast	10	16	9	12	14	9	4!	13	16	26	14	17	22	20	13!	22
Central	5	10	14	20	16	9	5	13	14!	25!	15!	‡	24!	15!	‡	17!
West	8	24	15	16	18	9	8	15	8	31	10	14	18	14	7	22
Percent minority enrollment[3]																
Less than 6 percent	11	12	18	26	18	13	5!	14	28!	36!	31!	33!	36!	33!	‡	31!
6 to 20 percent	8	17	15	16	18	9	6	15	‡	31	17!	17!	27	13!	‡	26
21 to 49 percent	5	15	10	13	15	7	4	10	9!	24	8!	9!	19	14	7!	11!
50 percent or more	9	19	14	18	16	8	6	15	10	29	11	15	16	16	11	23
Percent of students eligible for free or reduced-priced lunch																
Less than 35 percent	6	14	12	17	15	7	4	12	10!	26	13	17	18	14	9!	19
35 to 49 percent	7	17	14	16	16	9	5	13	8!	28	8!	13!	18!	15!	‡	11!
50 to 74 percent	8	17	14	15	16	11	6	13	12	29	15	16	23	19	11!	26
75 percent or more	11	19	15	19	20	10	7	17	12	30	10	14	18	16	14	23

Rounds to zero.
! Interpret data with caution; the coefficient of variation is greater than or equal to 30 percent.
‡ Reporting standards not met. The coefficient of variation for this estimate is 50 percent or greater or the sample size is less than 3.
[1] Based on schools with environmental factor in their permanent buildings.
[2] Based on schools with environmental factor in their portable (temporary) buildings.
[3] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.
NOTE: Based on schools with that environmental factor in their permanent and portable buildings.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 7. Percent of public schools with a written long-range educational facilities plan for the school, with repair, renovation, or modernization work currently being performed, and with construction projects planned for the school in the next 2 years, by school characteristics: 2012–13

School characteristic	School has long-range written facilities plan	Major repairs, renovations, or modernization work currently being performed	Construction projects planned	
			Build new permanent buildings/additions	Major repairs/renovations/ modernization of existing permanent buildings
All public schools	**60**	**17**	**9**	**39**
School instructional level				
Elementary	60	15	8	37
Secondary	61	21	11	45
Combined	54	26	24	52
School enrollment size				
Less than 300	47	15	9	41
300 to 599	62	16	10	41
600 or more	67	18	8	35
Community type				
City	63	18	8	39
Suburban	68	17	7	39
Town	59	19	12	41
Rural	52	14	10	38
Region				
Northeast	70	17	5!	42
Southeast	62	13	10	31
Central	54	18	9	45
West	58	18	11	38
Percent minority enrollment[1]				
Less than 6 percent	53	11	6!	43
6 to 20 percent	59	18	10	38
21 to 49 percent	60	18	9	38
50 percent or more	63	17	9	38
Percent of students eligible for free or reduced-priced lunch				
Less than 35 percent	66	19	8	42
35 to 49 percent	58	15	10	38
50 to 74 percent	58	17	10	36
75 percent or more	56	15	9	39

! Interpret data with caution; the coefficient of variation is greater than or equal to 30 percent.

[1] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 8. Percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13

School characteristic	Roofs						Framing, floors, foundations						Exterior walls, finishes					
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement					Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement					Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				
		Functional problem in existing system or feature	Improve operational or energy efficiency	Replacement cycle	Other reason			Functional problem in existing system or feature	Improve operational or energy efficiency	Replacement cycle	Other reason			Functional problem in existing system or feature	Improve operational or energy efficiency	Replacement cycle	Other reason	
All public schools	**19**	**39**	**9**	**46**	**6**		**7**	**41**	**16**	**27**	**16**		**9**	**38**	**21**	**23**	**18**	
School instructional level																		
Elementary	17	38	8	47	7!		5	40	12!	30	19!		8	36	19	26	20	
Secondary	25	41	9	45	5!		8	42	17!	26	15!		10	46	23!	18	14!	
Combined	25	31!	30!	38!	#		22!	48!	43!	‡	#		17!	‡	‡	‡	‡	
School enrollment size																		
Less than 300	20	34	14!	44	‡		5!	38!	31!	‡	‡		9	22!	35!	20!	23!	
300 to 599	19	41	5!	48	5!		7	44	11!	34	11!		9	47	16!	21	16!	
600 or more	19	39	10	46	5!		6	39	15!	28	18!		8	38	18	28	16!	
Community type																		
City	19	35	6!	50	8!		7	37	19!	27	16!		9	33	20!	31	16!	
Suburban	19	40	8!	46	‡		7	38	14!	23!	24!		8	39	17!	25!	19!	
Town	20	50	‡	36	‡		7	53	20!	‡	‡		9	53	18!	‡	24!	
Rural	19	35	13!	49	‡		5	41	‡	32!	‡		8	35	26!	23!	15!	
Region																		
Northeast	19	47	10!	36	‡		6	42!	‡	28!	‡		8	41	23!	‡	24!	
Southeast	18	39	7!	50	‡		4	62	‡	‡	‡		6	41	‡	35!	‡	
Central	23	34	5!	57	‡		7	41	‡	31!	‡		7	45	17!	18!	20!	
West	17	38	14	40	9!		9	35	21!	25	19!		11	33	23	26	19!	
Percent minority enrollment[2]																		
Less than 6 percent	20	46	‡	43	‡		6	74	‡	‡	‡		9	52	31!	‡	‡	
6 to 20 percent	23	36	6!	53	‡		6	35!	‡	28!	28!		8	47	‡	19!	25!	
21 to 49 percent	17	42	9!	48	‡		5	‡	‡	46	‡		8	23!	22!	35!	20!	
50 percent or more	18	36	13	41	9!		8	44	22!	21!	13!		9	36	25	25	14!	
Percent of students eligible for free or reduced-priced lunch																		
Less than 35 percent	22	33	6!	55	7!		6	27!	15!	38	20!		9	38	14!	32	16!	
35 to 49 percent	18	45	‡	46	‡		5	58	‡	‡	‡		9	37!	20!	18!	25!	
50 to 74 percent	17	40	8!	49	‡		6	37!	21!	33!	‡		8	46	23!	21!	‡	
75 percent or more	18	42	17!	30	11!		8	51	‡	17!	16!		10	31	29!	19!	20!	

See notes at end of table.

Table 8. Percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Windows, doors					Interior finishes, trim					Plumbing/lavatories				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason
All public schools	**15**	**30**	**43**	**17**	**10**	**12**	**19**	**20**	**44**	**17**	**13**	**25**	**35**	**26**	**13**
School instructional level															
Elementary	13	29	41	19	11	11	17	17	48	18	12	23	32	28	14
Secondary	21	31	45	14	10‡	13	27	24	31	19‡	17	21	41	25	13‡
Combined	21‡	40‡	60	#	#	25	‡	33‡	49‡	#	28	46‡	44‡	‡	#
School enrollment size															
Less than 300	18	20‡	56	12‡	12‡	9	‡	30‡	33‡	31‡	10	26‡	40	18‡	16‡
300 to 599	16	38	35	18	8‡	13	22	19	44	14‡	15	27	40	23	10‡
600 or more	13	29	40	21	10‡	12	21	16	49	14	13	22	26	36	16
Community type															
City	15	24	34	31	11‡	13	19	18	45	18‡	15	29	27	34	10‡
Suburban	14	30	36	21	13‡	13	20‡	17‡	46	18‡	13	22	33	22	24
Town	18	40	43	‡	14‡	12	32‡	33‡	30‡	‡	16	26‡	49	19‡	‡
Rural	16	31	54	10‡	‡	11	13‡	19‡	47	22	11	24	39	27	10‡
Region															
Northeast	18	34	42	16‡	‡	11	17‡	18‡	41	24‡	11	28‡	26	21‡	25‡
Southeast	12	37	40	19‡	‡	13	23‡	16‡	54	‡	12	32	36	29	‡
Central	16	27	50	14‡	8‡	10	21‡	11‡	41	27	13	25‡	38	27	11‡
West	16	27	38	19	15‡	12	17	29	39	15‡	15	21	37	27	15
Percent minority enrollment[1]															
Less than 6 percent	21	37	51	‡	‡	12	25‡	18‡	27‡	29‡	11	45	31‡	‡	‡
6 to 20 percent	15	32	47	8‡	13‡	8	21‡	‡	43	27‡	12	24‡	31	28	18‡
21 to 49 percent	13	20‡	45	28	‡	12	13‡	16‡	59	‡	13	18‡	42	25	16‡
50 percent or more	15	32	35	21	12‡	14	20	27	40	13	15	25	36	29	10‡
Percent of students eligible for free or reduced-priced lunch															
Less than 35 percent	15	28	39	20	13‡	14	17‡	14‡	50	19‡	13	26	24	29	22
35 to 49 percent	15	27	52	12‡	‡	9	16‡	‡	44	26‡	13	29	29	25‡	16‡
50 to 74 percent	15	37	46	13‡	‡	11	27	20	39	13‡	13	27	47	23	‡
75 percent or more	16	30	36	22‡	12‡	12	16‡	31	39	14‡	13	20‡	42	28	10‡

See notes at end of table.

Table 8. Percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Heating system					Air conditioning system					Ventilation/filtration system				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason
All public schools	**16**	**26**	**41**	**27**	**6**	**16**	**28**	**44**	**23**	**5**	**11**	**31**	**38**	**23**	**8**
School instructional level															
Elementary	14	23	34	35	8‡	14	26	39	29	6‡	10	30	30	29	10‡
Secondary	21	31	54	13‡	‡	22	34	52	11‡	4‡	15	32	55	8‡	5‡
Combined	29	33‡	54	‡	#	17‡	‡	57‡	‡	#	13‡	‡	41‡	‡	#
School enrollment size															
Less than 300	16	23	54	18‡	‡	16	34	48	‡	‡	9	23‡	55	‡	‡
300 to 599	17	32	33	28	7‡	17	34	42	22	‡	12	40	28	24	9‡
600 or more	14	19	43	32	6‡	16	19	43	31	7‡	11	22	43	28	7‡
Community type															
City	15	24	34	35	‡	18	25	44	26	‡	11	30	39	19‡	‡
Suburban	17	24	37	31	8‡	16	29	43	21	8‡	11	26	39	24	11‡
Town	15	32	38	23‡	‡	14	31‡	39	27‡	‡	11	37‡	28‡	32‡	‡
Rural	16	27	51	20	‡	16	30	46	20	‡	11	33	41	22	‡
Region															
Northeast	18	20	50	23‡	‡	14	24‡	55	‡	‡	13	31	40	16‡	‡
Southeast	14	28	35	34	‡	15	36	36	25	‡	12	32	37	26	‡
Central	16	31	42	24	‡	16	30	51	19‡	#	10	38	37	18‡	‡
West	16	24	39	28	9‡	17	24	40	28	8‡	11	24	38	28	9‡
Percent minority enrollment[1]															
Less than 6 percent	18	45	52	‡	‡	18	47	39	‡	‡	14	62	34‡	‡	‡
6 to 20 percent	15	26	31	36	‡	14	22	40	37	‡	12	29	32	30	‡
21 to 49 percent	16	9‡	49	35	‡	15	25	53	16‡	‡	10	15‡	52	25‡	‡
50 percent or more	16	29	38	26	7‡	17	28	42	25	5‡	10	28	37	25	10‡
Percent of students eligible for free or reduced-priced lunch															
Less than 35 percent	18	23	31	38	8‡	14	28	36	31	‡	13	27	33	30	‡
35 to 49 percent	15	31	38	30	‡	18	31	44	19‡	‡	11	37	36	25‡	‡
50 to 74 percent	16	23	53	20	‡	17	22	54	23	‡	11	26	49	22‡	‡
75 percent or more	15	30	45	17‡	‡	16	34	40	16‡	10‡	9	38	35	‡	18‡

See notes at end of table.

Table 8. Percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Electrical system					Interior lighting					Exterior lighting				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason
All public schools	**9**	**28**	**37**	**22**	**13**	**13**	**12**	**70**	**9**	**9**	**10**	**19**	**56**	**14**	**11**
School instructional level															
Elementary	9	28	31	26	15	13	13	68	10	10‡	9	20	53	15	12‡
Secondary	10	27	51	11‡	11‡	13	11‡	74	6‡	‡	10	19‡	62	10‡	‡
Combined	17‡	‡	52‡	‡	#	18‡	‡	73	‡	#	18‡	‡	73	‡	#
School enrollment size															
Less than 300	10	25‡	43	‡	19‡	12	‡	77	‡	‡	8	‡	57	‡	‡
300 to 599	10	30	31	26	12‡	15	17	67	8‡	8‡	11	26	51	13‡	10‡
600 or more	9	27	41	22	10‡	11	9‡	69	13	9‡	9	10‡	64	17	9‡
Community type															
City	11	31	29	33	‡	14	12‡	66	13‡	‡	9	12‡	50	27‡	‡
Suburban	10	32	35	16‡	17‡	14	12‡	67	8‡	13‡	10	14‡	67	‡	14‡
Town	9	25‡	42‡	19‡	‡	10	22‡	62	‡	‡	9	39‡	47	‡	‡
Rural	8	21‡	45	18‡	15‡	12	‡	78	8‡	‡	10	22‡	56	15‡	‡
Region															
Northeast	9	21‡	61	‡	‡	16	13‡	66	‡	‡	10	‡	49	14‡	‡
Southeast	9	36	20‡	32	‡	12	17‡	64	15‡	‡	9	22‡	54	20‡	‡
Central	7	40	28‡	18‡	‡	11	‡	79	‡	‡	9	‡	67	‡	‡
West	11	19	41	24	16‡	13	12‡	70	9‡	10‡	11	24	54	11‡	11‡
Percent minority enrollment[1]															
Less than 6 percent	10	35‡	48	‡	‡	16	18‡	73	‡	‡	8	‡	46‡	‡	‡
6 to 20 percent	8	21‡	24‡	34‡	22‡	10	‡	66	‡	16‡	10	19‡	51	16‡	‡
21 to 49 percent	9	26‡	51	20‡	‡	14	‡	78	8‡	‡	10	16‡	61	15‡	‡
50 percent or more	10	30	33	22	15‡	13	15	65	13‡	7‡	10	18‡	60	15‡	7‡
Percent of students eligible for free or reduced-priced lunch															
Less than 35 percent	11	23	37	32	‡	15	11‡	65	13‡	10‡	12	13‡	57	17‡	13‡
35 to 49 percent	8	46	29‡	‡	‡	10	‡	78	‡	‡	8	‡	66	‡	‡
50 to 74 percent	8	24‡	42	23‡	‡	13	13‡	78	7‡	‡	7	29‡	48	17‡	‡
75 percent or more	10	28‡	38	15‡	19‡	12	19‡	60	‡	11‡	10	21‡	56	‡	‡

See notes at end of table.

Table 8. Percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Energy management system					Life safety features[2]					Security systems				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason
All public schools	**14**	**14**	**65**	**14**	**7**	**12**	**24**	**37**	**21**	**19**	**21**	**22**	**46**	**9**	**22**
School instructional level															
Elementary	13	13	64	16	7‡	11	23	34	22	21	20	22	44	10	25
Secondary	16	15	66	9‡	9‡	12	23	41	19	16‡	20	25	50	10‡	15
Combined	34	‡	68	‡	#	16‡	‡	60‡	‡	#	32	‡	67	#	‡
School enrollment size															
Less than 300	12	#	79	‡	‡	8	‡	36‡	‡	39‡	23	22	47	‡	29
300 to 599	17	19	60	14	6‡	14	31	36	20	14‡	21	26	40	10‡	24
600 or more	13	13	65	15	8‡	11	18	38	28	16	19	18	53	14	14
Community type															
City	13	19‡	59	13‡	‡	11	22‡	42	24‡	‡	16	19‡	43	14‡	24
Suburban	14	‡	63	16‡	12‡	13	30	33	19‡	19‡	19	16	53	8‡	22
Town	17	21‡	64	13‡	‡	16	21‡	40	24‡	16‡	24	33	51	‡	9‡
Rural	15	11‡	71	14‡	‡	10	21‡	35	18‡	26‡	24	24	41	9‡	26
Region															
Northeast	17	‡	66	20‡	‡	10	31‡	38	‡	22‡	18	17‡	40	9‡	33
Southeast	14	23‡	56	18‡	‡	10	30	32	27‡	‡	18	28	38	14‡	20
Central	14	15‡	66	13‡	‡	12	21‡	27	25	27	26	28	43	8‡	20
West	14	8‡	70	9‡	13‡	13	20	46	19	16	19	15	57	8‡	20
Percent minority enrollment[1]															
Less than 6 percent	14	31‡	56	‡	‡	12	35‡	35‡	‡	‡	28	29	37	‡	30
6 to 20 percent	18	12‡	62	18‡	‡	13	29	32	15‡	24‡	23	28	44	11‡	17‡
21 to 49 percent	13	‡	62	18‡	‡	11	26‡	37	16‡	21‡	22	18	48	11	23
50 percent or more	13	11‡	73	9‡	7‡	11	15	41	29	14‡	16	16	51	10‡	23
Percent of students eligible for free or reduced-priced lunch															
Less than 35 percent	17	16	58	20	‡	13	26	31	23	19‡	23	17	48	13	21
35 to 49 percent	12	‡	68	15‡	‡	12	36	29	17‡	19‡	19	33	36	‡	25
50 to 74 percent	14	16‡	72	8‡	‡	11	20‡	41	20‡	19‡	21	22	48	7‡	22
75 percent or more	14	11‡	67	‡	11‡	9	12‡	51	20‡	17‡	17	21	48	‡	22

See notes at end of table.

Table 8. Percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Internal communication systems					Technology infrastructure				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason
All public schools	**14**	**24**	**43**	**21**	**13**	**20**	**17**	**51**	**21**	**11**
School instructional level										
Elementary	13	21	39	25	15	19	16	46	25	13
Secondary	16	28	49	12!	11!	23	19	59	14	8!
Combined	23!	37!	63	#	#	33	‡	71	‡	#
School enrollment size										
Less than 300	17	24	41	13!	22!	25	25	43	22	10!
300 to 599	14	27	40	26	7!	20	17	50	22	11!
600 or more	12	18	49	21	12!	18	10	59	20	12
Community type										
City	13	24	41	21	14!	17	16!	53	21	9!
Suburban	13	19!	50	15!	16!	20	11!	51	21	17
Town	16	17!	42	34	‡	23	16!	65	10!	‡
Rural	14	30	39	19!	12!	21	22	44	26	8!
Region										
Northeast	11	31!	35	‡	‡	17	20!	45	15!	20!
Southeast	12	26!	35	32	‡	18	22	47	22	9!
Central	16	31	40	16!	14!	24	19	45	27	9!
West	15	14!	52	20	14!	20	11	60	19	10!
Percent minority enrollment[1]										
Less than 6 percent	19	34	35!	‡	‡	22	35	32	17!	‡
6 to 20 percent	12	19!	44	24!	14!	22	15!	46	30	9!
21 to 49 percent	14	19!	49	14!	18!	19	12!	63	15	10!
50 percent or more	14	24	42	24	9!	19	15	54	20	11
Percent of students eligible for free or reduced-priced lunch										
Less than 35 percent	15	21	43	25	12!	23	14	44	28	13
35 to 49 percent	12	31	47	‡	‡	20	17!	53	19!	11!
50 to 74 percent	14	23	39	22	16!	18	16	59	19	6!
75 percent or more	14	24	44	19!	13!	19	23	51	15!	12!

Rounds to zero.

! Interpret data with caution; the coefficient of variation is greater than or equal to 30 percent.

‡ Reporting standards not met. The coefficient of variation for this estimate is 50 percent or greater or the sample size is less than 3.

[1] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.

[2] "Life safety features" includes sprinklers, fire alarms, and smoke detectors.

NOTE: Based on schools with that building system/feature. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 9. Percent of public schools with inspection and evaluation performed by qualified professionals within the last 5 years, and the percent of public schools in which various steps had been taken within the last 5 years to improve energy efficiency at the school, by school characteristics: 2012–13

School characteristic	Inspection and evaluation performed by qualified professionals			Steps to improve energy efficiency						
	Inspection of the condition of the physical features of the facility	Evaluation of energy use	Evaluation of indoor environmental hazards	Replaced lighting fixtures, lighting ballasts, or bulbs	Installed motion sensors for lighting	Upgraded insulation, outer walls, and/or siding (building envelopes)	Replaced windows and/or doors	Installed or upgraded a reflective roof coating	Installed more efficient HVAC systems	Installed or upgraded an energy management system
All public schools	**83**	**72**	**80**	**65**	**35**	**14**	**25**	**19**	**31**	**34**
School instructional level										
Elementary	82	71	80	64	32	12	23	18	28	33
Secondary	86	75	83	68	41	16	29	21	39	39
Combined	84	74	77	77	57	31	43	21	39	27
School enrollment size										
Less than 300	81	63	76	67	33	14	28	17	27	25
300 to 599	83	73	80	66	35	14	27	21	31	35
600 or more	85	76	84	63	37	13	21	17	34	40
Community type										
City	87	71	83	62	35	15	27	19	29	36
Suburban	85	75	82	65	38	12	22	16	28	35
Town	82	68	78	65	32	13	27	26	36	40
Rural	79	71	78	68	34	14	26	18	33	30
Region										
Northeast	85	79	87	67	45	20	37	18	30	36
Southeast	83	70	78	50	26	10	17	16	31	28
Central	87	74	83	73	39	14	33	22	32	39
West	79	67	77	68	32	13	19	18	31	34
Percent minority enrollment[1]										
Less than 6 percent	84	71	83	66	36	17	35	24	36	35
6 to 20 percent	84	76	83	75	41	17	29	17	32	37
21 to 49 percent	83	77	80	63	37	12	23	18	32	34
50 percent or more	82	66	78	60	29	11	21	18	29	32
Percent of students eligible for free or reduced-priced lunch										
Less than 35 percent	84	75	84	70	43	15	28	18	31	36
35 to 49 percent	86	76	78	68	34	14	24	20	30	32
50 to 74 percent	80	69	80	63	31	12	23	19	34	35
75 percent or more	82	67	78	59	29	13	25	19	29	32

[1] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 10. Among public schools, years since original construction of the main instructional building, years since the most recent major renovation of the main instructional building, years since the last major building replacement or addition at the school, functional age of the main instructional building, and the percentage distribution of public schools according to the functional age of the main instructional building, by school characteristics: 2012–13

School characteristic	Years since construction of the main instructional building	Years since most recent major renovation of the main instructional building	Years since last major building replacement or addition	Functional age of the main instructional building	Functional age of the main instructional building			
					Less than 5 years old	5–14 years old	15–34 years old	35 or more years old
All public schools	**44**	**12**	**16**	**19**	**21**	**38**	**23**	**18**
School instructional level								
Elementary	45	12	17	19	19	37	25	19
Secondary	43	11	14	17	25	39	17	18
Combined	50	12	12	18	27	34	28	11!
School enrollment size								
Less than 300	49	13	19	23	19	31	24	25
300 to 599	47	12	18	20	21	37	23	20
600 or more	38	10	12	15	22	43	24	11
Community type								
City	50	11	18	21	24	33	20	22
Suburban	43	11	15	18	23	39	20	19
Town	48	14	18	19	19	37	27	17
Rural	40	12	14	18	17	40	28	15
Region								
Northeast	54	10	19	22	23	31	20	25
Southeast	36	11	14	17	22	40	22	16
Central	49	13	19	19	22	35	24	19
West	41	12	14	19	18	41	25	16
Percent minority enrollment[1]								
Less than 6 percent	50	12	20	21	21	33	22	24
6 to 20 percent	44	13	16	19	21	34	27	18
21 to 49 percent	41	12	14	17	19	42	26	13
50 percent or more	45	10	15	20	22	39	20	20
Percent of students eligible for free or reduced-priced lunch								
Less than 35 percent	42	11	17	17	20	40	25	15
35 to 49 percent	46	12	16	20	23	34	22	21
50 to 74 percent	43	12	15	19	18	39	25	17
75 percent or more	48	11	16	20	24	35	20	21

! Interpret data with caution; the coefficient of variation is greater than or equal to 30 percent.

[1] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.

NOTE: Functional age is defined as the age of the school based on the year of the most recent major renovation or the year of construction of the main instructional building if no renovation has occurred. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

References

Kalton, G. (1983). *Compensating for Missing Survey Data.* Survey Research Center, Institute for Social Research: University of Michigan.

Levy, P., and Lemeshow, S. (1991). *Sampling of Populations.* New York: J. Wiley & Sons.

Lewis, L., Snow, K., Farris, E., Smerdon, B., Cronen, S., and Kaplan, J. (2000). *Condition of America's Public School Facilities: 1999* (NCES 2000-032). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Appendix A

Standard Error Tables

Table 1a. Standard errors for the percent of public schools with permanent and portable (temporary) buildings, and among those schools, the percentage distribution with various ratings of the overall condition of each building type, by school characteristics: 2012–13

School characteristic	Permanent buildings					Portable (temporary) buildings				
		Overall condition					Overall condition			
	Schools with permanent buildings	Excellent	Good	Fair	Poor	Schools with portable (temporary) buildings	Excellent	Good	Fair	Poor
All public schools	**0.2**	**1.1**	**1.4**	**1.0**	**0.5**	**1.4**	**1.1**	**2.8**	**2.4**	**1.4**
School instructional level										
Elementary	0.3	1.4	1.7	1.3	0.6	1.8	1.4	3.2	2.9	1.7
Secondary	0.3	1.5	2.2	2.0	0.7	2.0	1.5	4.4	4.8	2.3
Combined	#	5.5	7.0	7.4	†	6.8	†	14.2	†	†
School enrollment size										
Less than 300	1.0	2.4	3.7	3.1	1.5	2.7	†	7.3	6.9	5.1
300 to 599	0.1	1.7	2.3	1.8	0.8	2.2	2.1	5.1	4.6	2.8
600 or more	#	1.6	1.8	1.5	0.3	2.1	1.6	3.1	3.1	1.4
Community type										
City	0.7	2.0	2.6	2.3	1.3	2.8	1.8	4.2	4.1	2.6
Suburban	0.4	2.2	2.6	2.1	†	2.2	1.8	4.9	4.8	2.0
Town	0.6	3.3	3.8	3.2	†	3.6	4.7	7.7	7.5	4.1
Rural	0.3	1.8	2.5	2.0	0.8	2.1	2.3	5.0	4.8	3.5
Region										
Northeast	#	2.2	3.3	2.8	1.3	2.0	†	9.5	7.3	†
Southeast	0.7	2.3	3.1	2.2	1.0	2.8	†	5.3	4.9	3.2
Central	#	2.1	2.7	2.6	0.8	2.1	†	8.7	10.6	†
West	0.6	1.9	2.5	1.9	0.9	2.5	1.5	3.3	3.0	1.7
Percent minority enrollment										
Less than 6 percent	#	3.1	4.1	3.7	†	2.9	†	12.5	11.9	10.7
6 to 20 percent	0.5	2.1	2.7	1.9	0.9	2.2	†	6.7	7.1	4.5
21 to 49 percent	#	2.3	2.8	2.1	†	2.7	2.3	5.2	4.9	2.7
50 percent or more	0.6	1.7	2.3	2.1	0.9	2.3	1.4	3.4	3.2	1.7
Percent of students eligible for free or reduced-priced lunch										
Less than 35 percent	0.4	2.0	2.3	1.9	0.8	2.0	2.7	4.8	4.1	3.2
35 to 49 percent	0.6	2.3	3.5	2.5	0.9	2.9	3.0	6.1	5.9	†
50 to 74 percent	#	2.1	2.7	2.0	1.0	2.2	1.9	4.4	4.2	3.2
75 percent or more	0.8	2.0	3.2	2.7	1.3	3.4	2.0	5.0	4.6	3.0

Rounds to zero.

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 2a. Standard errors for the percent of public schools with permanent buildings with the condition of building systems/features in their permanent buildings rated as fair or poor, by school characteristics: 2012–13

School characteristic	Roofs	Framing, floors, foundations	Exterior walls, finishes	Windows, doors	Interior finishes, trim	Plumbing/lavatories	Heating system	Air conditioning system	Ventilation/filtration system	Electrical system	Interior lighting	Exterior lighting	Energy management system	Life safety features	Security systems	Internal communication systems	Technology infrastructure
All public schools	**1.1**	**1.1**	**1.1**	**1.3**	**1.3**	**1.2**	**1.2**	**1.3**	**1.3**	**1.2**	**1.1**	**1.3**	**1.4**	**1.2**	**1.2**	**1.3**	**1.2**
School instructional level																	
Elementary	1.4	1.3	1.3	1.6	1.5	1.6	1.5	1.6	1.6	1.4	1.4	1.6	1.7	1.4	1.6	1.6	1.5
Secondary	2.0	1.8	2.1	2.5	2.1	2.5	2.4	2.4	2.3	2.2	1.8	2.2	2.6	2.1	2.3	2.4	2.0
Combined	6.8	7.2	7.2	8.1	7.0	8.0	6.5	7.1	8.4	7.0	7.0	7.2	8.2	6.8	7.4	6.6	6.2
School enrollment size																	
Less than 300	2.9	2.8	3.0	3.5	3.2	3.4	3.3	3.3	3.2	3.0	2.9	3.5	4.0	3.2	3.4	3.2	3.3
300 to 599	1.9	2.0	1.7	2.2	2.2	2.2	2.2	2.5	2.3	2.0	2.0	2.1	2.3	1.8	2.0	2.1	1.9
600 or more	1.7	1.3	1.6	2.0	1.6	1.8	1.7	1.9	1.9	1.6	1.5	1.8	1.9	1.5	1.7	1.7	1.6
Community type																	
City	2.4	2.1	2.2	2.6	2.8	2.4	2.3	2.5	2.6	2.3	2.5	2.7	2.7	2.3	2.7	2.6	2.3
Suburban	2.4	1.6	1.9	2.4	2.1	2.5	2.4	2.7	2.4	2.3	2.1	2.2	2.2	1.9	2.4	2.2	2.0
Town	3.5	2.9	2.9	3.9	3.3	3.6	3.3	3.5	3.9	2.8	3.4	3.9	3.8	3.0	3.8	3.4	2.8
Rural	2.0	1.9	2.1	2.4	2.1	2.4	2.5	2.6	2.3	2.0	1.9	2.3	2.9	2.3	2.4	2.3	2.2
Region																	
Northeast	3.0	2.6	2.6	2.8	2.8	2.8	2.7	3.2	3.1	2.9	2.8	3.0	3.5	2.8	2.8	3.4	3.0
Southeast	2.5	2.3	2.2	2.7	2.5	2.7	2.8	3.0	2.8	2.5	2.5	2.6	2.9	2.4	2.2	2.2	2.4
Central	2.6	2.1	2.3	2.8	2.3	2.8	2.9	2.8	2.7	2.4	2.2	2.8	2.7	2.2	3.0	2.8	2.5
West	2.1	1.8	2.2	2.5	2.4	2.6	2.4	2.2	2.3	2.3	1.9	2.0	2.3	2.3	2.3	2.3	2.3
Percent minority enrollment																	
Less than 6 percent	3.4	3.7	3.4	4.0	3.3	4.1	4.3	4.3	3.8	4.1	3.6	4.3	4.4	3.4	4.3	3.9	3.2
6 to 20 percent	2.3	1.9	2.2	2.8	2.5	2.8	2.6	3.1	2.4	2.5	2.1	2.6	2.8	2.1	2.6	2.5	2.4
21 to 49 percent	2.4	1.8	1.8	2.5	2.2	2.5	2.1	2.6	2.4	2.3	2.3	2.5	2.6	2.2	2.6	2.5	1.9
50 percent or more	1.8	1.5	1.9	2.3	2.1	1.8	2.0	2.0	2.0	1.7	1.9	2.1	2.3	2.0	2.1	2.2	1.9
Percent of students eligible for free or reduced-priced lunch																	
Less than 35 percent	2.0	1.6	1.9	2.2	2.2	2.4	2.3	2.5	2.4	2.6	2.2	2.4	2.2	2.1	2.2	2.5	2.2
35 to 49 percent	2.9	2.2	1.9	3.2	2.5	3.1	3.0	3.2	3.0	2.8	2.2	3.0	3.3	2.5	3.3	2.7	2.5
50 to 74 percent	2.5	2.1	2.2	2.6	2.6	2.8	2.6	3.1	2.6	2.2	2.2	2.4	3.0	2.3	2.6	2.8	2.5
75 percent or more	2.8	2.4	2.6	3.1	3.3	2.8	3.1	3.1	3.0	2.7	2.5	2.9	3.3	2.9	2.7	3.0	2.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 3a. Standard errors for the percent of public schools with portable (temporary) buildings with the condition of building systems/features in their portable (temporary) buildings rated as fair or poor, by school characteristics: 2012–13

School characteristic	Roofs	Framing, floors, foundations	Exterior walls, finishes	Windows, doors	Interior finishes, trim	Plumbing/lavatories	Heating system	Air conditioning system	Ventilation/filtration system	Electrical system	Interior lighting	Exterior lighting	Energy management system	Life safety features	Security systems	Internal communication systems	Technology infrastructure
All public schools	**2.5**	**2.5**	**2.6**	**2.7**	**2.5**	**3.1**	**2.6**	**2.7**	**2.7**	**2.3**	**2.3**	**2.7**	**3.0**	**2.7**	**2.9**	**2.8**	**2.7**
School instructional level																	
Elementary	3.1	2.9	3.0	3.1	2.9	3.8	3.0	3.1	3.2	2.7	2.6	2.9	3.8	3.1	3.7	3.2	3.3
Secondary	4.2	5.0	4.3	4.5	4.5	5.5	4.8	4.6	4.9	4.3	4.1	5.1	5.5	4.1	5.5	4.5	4.8
Combined	†	†	†	†	12.4	†	†	†	†	†	†	14.3	12.2	15.5	15.3	†	†
School enrollment size																	
Less than 300	7.6	7.1	7.6	7.5	7.1	9.3	7.8	8.5	8.3	7.4	7.4	7.3	8.2	9.1	8.1	8.1	8.1
300 to 599	4.5	4.5	4.6	4.6	4.9	5.9	4.6	4.5	4.3	4.4	4.4	4.8	5.8	4.2	5.5	4.9	4.7
600 or more	3.0	3.0	3.1	3.1	3.1	3.9	3.2	3.3	3.2	2.4	2.7	3.6	3.7	3.2	3.6	3.3	2.7
Community type																	
City	4.4	4.4	4.3	4.4	4.2	4.6	4.1	4.4	4.4	4.4	4.3	4.9	5.1	3.9	4.6	4.1	4.6
Suburban	4.2	4.1	4.3	4.4	4.4	5.5	4.4	4.5	4.6	4.1	4.2	4.2	5.0	3.7	4.6	4.3	3.9
Town	7.8	7.9	7.3	7.8	7.2	9.2	7.0	7.7	8.2	6.1	6.3	8.0	11.0	7.4	9.7	7.7	7.4
Rural	4.9	4.9	5.4	5.2	5.2	6.3	4.9	5.2	5.2	5.0	5.0	5.7	5.7	5.4	5.7	5.7	5.4
Region																	
Northeast	9.2	9.6	9.7	9.5	9.1	15.9	10.1	9.9	10.9	10.0	10.2	10.4	12.3	10.6	11.7	10.6	10.3
Southeast	4.6	5.2	5.2	5.3	5.0	6.1	5.1	5.2	5.4	5.2	4.9	5.4	6.2	5.1	5.9	4.9	5.8
Central	10.0	9.2	11.1	9.3	10.1	10.5	9.7	10.0	9.1	9.4	9.0	9.6	13.9	8.2	14.9	10.2	11.2
West	2.8	3.0	2.9	3.3	3.2	4.0	2.8	3.1	3.1	2.6	2.9	3.5	3.7	3.4	3.4	3.5	3.2
Percent minority enrollment																	
Less than 6 percent	13.1	13.4	12.8	9.7	14.2	20.5	13.7	13.7	14.5	13.4	13.4	14.8	18.8	16.2	14.0	15.1	15.5
6 to 20 percent	6.7	6.7	6.9	7.0	6.3	8.6	6.1	6.9	7.4	6.4	6.5	7.6	8.9	7.2	8.4	7.8	8.4
21 to 49 percent	5.4	5.0	5.2	5.2	5.3	6.2	5.0	5.4	5.2	4.7	4.7	5.9	5.5	4.3	6.1	4.5	4.9
50 percent or more	3.3	3.3	2.9	3.4	3.0	3.9	3.0	3.1	3.3	2.8	2.9	3.3	3.9	3.4	3.4	3.4	3.0
Percent of students eligible for free or reduced-priced lunch																	
Less than 35 percent	4.7	4.8	4.9	4.7	4.8	6.2	4.8	4.9	5.0	4.5	4.7	5.1	5.6	4.8	6.1	5.2	4.5
35 to 49 percent	5.2	6.3	6.1	6.4	5.6	6.2	5.9	5.9	6.1	5.5	4.9	6.7	7.3	5.3	6.7	5.6	6.2
50 to 74 percent	4.8	4.4	4.7	4.7	4.6	5.7	4.6	4.8	4.7	4.4	4.6	5.3	5.4	4.7	5.5	4.8	5.0
75 percent or more	5.0	4.8	4.2	4.8	4.9	5.6	4.8	4.9	4.9	4.3	4.3	4.7	6.4	4.9	5.0	5.3	5.1

† Not applicable.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

A-4

Table 4a. Standard errors for the percent of public schools with the condition of outdoor features at the school rated as fair or poor, by school characteristics: 2012–13

School characteristic	School parking lots and roadways	Bus lanes and drop-off areas	School sidewalks and walkways	Outdoor play areas/ playgrounds	Outdoor athletic facilities	Covered walkways	Fencing
All public schools	**1.4**	**1.3**	**1.3**	**1.4**	**1.4**	**1.7**	**1.4**
School instructional level							
Elementary	1.7	1.6	1.6	1.6	1.9	2.0	1.6
Secondary	2.7	2.5	2.3	2.7	2.1	3.1	2.6
Combined	8.5	7.9	7.7	7.2	7.9	9.6	8.0
School enrollment size							
Less than 300	3.5	3.3	3.4	3.2	3.2	6.0	3.8
300 to 599	2.2	2.2	2.1	2.1	2.4	2.7	2.0
600 or more	1.9	1.7	1.8	1.9	1.7	2.2	1.9
Community type							
City	2.9	2.8	2.6	2.8	3.0	2.8	2.9
Suburban	2.4	2.5	2.2	2.3	2.6	2.8	2.3
Town	3.8	3.7	3.8	3.9	4.3	4.9	4.0
Rural	2.4	2.2	2.2	2.2	2.4	3.1	2.6
Region							
Northeast	3.5	3.3	3.0	2.8	3.2	5.1	3.3
Southeast	3.0	2.8	2.9	2.9	3.1	2.9	3.2
Central	2.7	2.9	2.8	3.0	3.2	5.0	3.2
West	2.3	2.4	2.3	2.3	2.8	2.6	2.1
Percent minority enrollment							
Less than 6 percent	4.9	4.5	4.0	3.8	4.4	8.0	4.6
6 to 20 percent	2.8	2.7	2.6	2.8	2.8	4.9	3.1
21 to 49 percent	2.7	2.6	2.5	2.4	2.9	3.2	2.8
50 percent or more	2.1	2.1	2.0	2.2	2.5	2.2	2.3
Percent of students eligible for free or reduced-priced lunch							
Less than 35 percent	2.4	2.5	2.4	2.3	2.5	3.4	2.6
35 to 49 percent	2.3	2.1	2.9	2.7	3.5	4.1	3.0
50 to 74 percent	2.6	2.6	2.4	2.7	2.7	2.8	2.7
75 percent or more	3.1	2.9	2.7	3.8	3.7	2.9	2.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

A-5

Table 5a. Standard errors for the percent of public schools needing to spend money on repairs, renovations, and modernizations to put the school's onsite buildings in good overall condition, and among those schools, the percent with various sources of cost estimates, by school characteristics: 2012–13

School characteristic	Percent of schools reporting needing to spend	Source of cost estimate was: Facilities inspection(s)/ assessment(s) performed within the last 3 years by licensed professionals	Repair/ renovation/ modernization work already being performed and/or contracted for	Capital improvement/ facilities master plan, schedule, or budget	Best professional judgment	Opinions of other district or school administrators	Other sources
All public schools	**1.3**	**2.0**	**1.6**	**2.1**	**2.0**	**1.6**	**1.1**
School instructional level							
Elementary	1.7	2.5	1.8	2.7	2.5	1.9	1.5
Secondary	2.6	3.6	3.4	3.5	3.4	2.5	1.6
Combined	6.2	9.5	9.3	8.6	9.5	9.5	†
School enrollment size							
Less than 300	3.6	4.4	3.5	4.0	4.2	3.3	1.9
300 to 599	2.0	3.1	2.6	3.1	3.0	2.5	2.2
600 or more	2.0	2.9	2.4	2.8	2.8	2.2	1.9
Community type							
City	2.8	3.9	3.3	4.0	3.9	2.8	2.2
Suburban	2.6	3.7	3.1	3.6	3.7	3.2	2.9
Town	3.6	4.7	3.9	5.1	5.1	4.0	3.5
Rural	2.5	3.5	3.3	3.6	3.4	2.6	1.7
Region							
Northeast	3.0	4.9	3.9	4.7	5.1	4.1	3.5
Southeast	2.9	4.6	4.4	4.9	4.8	3.1	2.8
Central	3.2	4.4	3.0	4.4	4.2	3.3	2.4
West	2.2	2.8	2.4	2.8	3.0	2.8	2.1
Percent minority enrollment							
Less than 6 percent	4.4	6.3	5.4	6.4	6.0	3.6	†
6 to 20 percent	2.9	4.9	3.4	4.4	4.5	3.1	3.0
21 to 49 percent	2.3	3.8	3.7	4.3	4.0	3.4	2.3
50 percent or more	2.1	2.9	2.5	3.2	2.9	2.3	1.8
Percent of students eligible for free or reduced-priced lunch							
Less than 35 percent	2.5	3.4	2.8	3.4	3.7	2.3	2.8
35 to 49 percent	3.2	4.7	4.0	5.0	4.7	4.2	2.3
50 to 74 percent	2.5	3.3	3.4	3.7	3.6	3.2	1.8
75 percent or more	2.8	4.2	3.3	4.3	4.3	2.9	2.5

† Not applicable.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 6a. Standard errors for the percent of public schools with permanent buildings and with portable buildings with satisfaction with the environmental factors in their permanent and portable buildings rated as unsatisfactory or very unsatisfactory, by school characteristics: 2012–13

School characteristic	Permanent buildings: Artificial lighting	Natural lighting	Heating	Air conditioning	Ventilation	Indoor air quality	Water quality	Acoustics or noise control	Portable buildings: Artificial lighting	Natural lighting	Heating	Air conditioning	Ventilation	Indoor air quality	Water quality	Acoustics or noise control
All public schools	**0.9**	**1.1**	**0.9**	**1.1**	**1.2**	**0.8**	**0.6**	**1.0**	**1.8**	**2.5**	**1.8**	**2.2**	**2.2**	**2.0**	**1.7**	**2.5**
School instructional level																
Elementary	1.1	1.4	1.2	1.4	1.4	1.0	0.8	1.3	2.1	3.0	2.0	2.6	2.6	2.3	2.0	2.9
Secondary	1.4	1.7	2.1	2.3	1.8	1.4	1.1	1.5	3.3	4.3	3.5	3.3	3.9	3.0	3.1	4.1
Combined	†	5.3	6.2	6.7	7.3	5.0	6.4	6.2	†	†	†	†	†	†	†	†
School enrollment size																
Less than 300	2.1	2.6	2.5	3.0	2.9	2.4	1.9	2.6	5.3	6.5	6.4	6.9	6.7	6.1	6.0	7.1
300 to 599	1.6	1.7	1.7	2.1	1.9	1.4	1.0	1.7	3.6	4.4	3.3	4.3	4.1	3.8	3.0	4.6
600 or more	0.8	1.5	1.2	1.4	1.3	0.9	0.8	1.3	1.3	2.7	1.7	2.0	2.1	2.1	1.8	2.5
Community type																
City	1.6	2.2	2.1	2.5	2.0	1.8	1.5	2.1	2.9	4.2	2.9	3.6	3.7	3.6	2.7	3.6
Suburban	1.4	2.0	1.6	1.9	1.9	1.0	0.9	1.5	2.6	4.4	2.4	3.1	3.1	2.8	2.9	3.9
Town	2.1	3.2	2.4	3.2	3.2	2.2	1.6	3.0	5.7	8.0	5.7	5.3	6.7	5.5	6.7	7.1
Rural	1.4	1.9	1.7	2.0	2.1	1.7	1.3	2.0	4.0	4.4	4.0	4.3	4.4	4.2	4.6	4.6
Region																
Northeast	2.1	2.2	2.4	3.0	2.5	1.9	1.4	2.4	†	9.5	†	†	†	†	†	†
Southeast	2.3	2.4	1.9	2.3	2.2	1.9	1.1	2.0	4.4	4.6	3.7	4.3	4.5	4.5	3.9	4.6
Central	1.3	1.7	2.0	2.5	2.2	1.6	1.2	2.0	7.1	7.9	7.0	†	8.5	7.0	†	6.9
West	1.5	2.2	1.7	1.7	2.0	1.4	1.3	1.9	2.0	3.3	1.9	2.5	2.9	2.3	2.0	3.3
Percent minority enrollment																
Less than 6 percent	2.6	2.9	3.1	4.2	3.5	2.9	1.8	3.2	12.2	11.2	11.8	11.3	11.9	11.1	†	11.8
6 to 20 percent	1.8	2.3	2.1	2.3	2.3	1.6	1.3	2.1	†	7.3	5.1	5.6	7.3	4.7	†	5.8
21 to 49 percent	1.5	2.0	1.6	2.0	2.1	1.7	1.2	1.7	3.2	4.2	2.9	3.2	4.7	3.6	2.9	3.5
50 percent or more	1.3	1.7	1.5	1.8	1.7	1.3	1.1	1.6	1.9	3.1	2.1	2.7	2.6	2.3	2.3	3.2
Percent of students eligible for free or reduced-priced lunch																
Less than 35 percent	1.4	1.7	1.6	1.9	1.9	1.2	1.0	1.7	3.0	4.1	3.5	3.9	3.9	3.4	3.8	4.2
35 to 49 percent	1.8	2.7	2.4	2.7	2.6	2.1	1.5	2.4	3.5	4.9	3.5	4.1	5.7	4.4	†	4.2
50 to 74 percent	1.8	2.0	2.2	2.5	2.0	1.8	1.4	1.8	3.3	4.8	3.5	3.9	4.6	4.1	3.8	4.6
75 percent or more	1.9	2.6	2.3	2.7	2.7	1.9	1.4	2.3	3.3	4.5	3.1	3.7	4.0	3.6	3.8	4.7

† Not applicable.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 7a. Standard errors for the percent of public schools with a written long-range educational facilities plan for the school, with repair, renovation, or modernization work currently being performed, and with construction projects planned for the school in the next 2 years, by school characteristics: 2012–13

School characteristic	School has long-range written facilities plan	Major repairs, renovations, or modernization work currently being performed	Construction projects planned	
			Build new permanent buildings/additions	Major repairs/renovations/ modernization of existing permanent buildings
All public schools	**1.5**	**1.0**	**0.8**	**1.3**
School instructional level				
Elementary	1.7	1.2	1.0	1.7
Secondary	2.6	1.9	1.3	2.4
Combined	7.5	6.7	6.3	7.5
School enrollment size				
Less than 300	3.6	2.2	2.1	3.1
300 to 599	2.3	1.5	1.3	2.3
600 or more	1.6	1.5	1.1	1.6
Community type				
City	2.9	2.1	1.5	2.7
Suburban	2.5	2.0	1.4	2.5
Town	3.3	3.1	2.3	3.6
Rural	2.5	1.7	1.4	2.2
Region				
Northeast	3.3	2.2	1.6	3.2
Southeast	2.7	1.7	1.7	2.9
Central	2.9	2.1	1.6	2.8
West	2.4	1.7	1.4	2.2
Percent minority enrollment				
Less than 6 percent	4.9	2.7	2.0	3.9
6 to 20 percent	2.8	2.1	1.7	2.4
21 to 49 percent	2.9	2.2	1.6	2.6
50 percent or more	2.2	1.6	1.3	2.2
Percent of students eligible for free or reduced-priced lunch				
Less than 35 percent	2.5	1.9	1.4	2.3
35 to 49 percent	3.7	2.3	1.8	3.2
50 to 74 percent	2.4	1.9	1.4	2.3
75 percent or more	3.4	2.3	1.7	3.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

Table 8a. Standard errors for the percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13

School characteristic	Roofs					Framing, floors, foundations					Exterior walls, finishes				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improve operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improve operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improve operational or energy efficiency	Replacement cycle	Other reason
All public schools	**1.1**	**3.1**	**1.7**	**3.1**	**1.5**	**0.7**	**4.9**	**3.8**	**4.5**	**3.9**	**0.7**	**4.5**	**3.6**	**3.7**	**3.9**
School instructional level															
Elementary	1.3	3.9	2.1	4.2	2.2	0.9	6.2	4.7	6.0	5.7	0.9	5.6	4.5	5.1	5.2
Secondary	1.8	4.4	2.6	4.7	1.7	1.4	7.1	6.6	6.9	7.1	1.3	7.5	7.1	4.9	5.9
Combined	6.8	14.2	15.1	12.3	†	6.8	19.9	18.9	†	†	6.0	†	†	†	†
School enrollment size															
Less than 300	2.6	6.9	5.1	7.4	†	1.6	12.5	13.4	†	†	1.8	9.5	11.5	9.5	9.8
300 to 599	1.8	4.8	2.1	5.1	2.2	1.3	8.7	4.9	8.1	5.0	1.2	7.3	5.1	6.1	5.9
600 or more	1.5	4.3	2.5	4.0	1.9	0.9	8.1	4.7	6.8	5.8	1.1	6.4	4.3	5.0	5.7
Community type															
City	2.1	6.0	2.9	5.9	3.7	1.2	9.4	8.9	7.5	7.4	1.5	7.1	7.0	7.7	7.3
Suburban	2.0	5.6	3.0	5.3	†	1.3	9.9	6.8	9.4	9.1	1.3	9.5	6.6	7.7	8.1
Town	3.0	10.0	†	9.0	†	2.0	15.6	9.6	†	†	1.9	11.8	7.3	†	11.5
Rural	1.9	5.3	4.1	5.8	†	1.1	11.6	†	10.6	†	1.3	8.9	8.5	8.1	6.6
Region															
Northeast	2.5	7.7	4.5	6.8	†	1.4	13.4	†	13.0	†	1.6	11.7	8.9	†	11.1
Southeast	2.3	7.1	3.6	7.3	†	0.9	14.4	†	†	†	1.3	12.0	†	12.5	†
Central	2.4	4.6	2.1	5.0	†	1.5	11.0	†	10.8	†	1.4	10.3	7.1	7.7	8.8
West	1.8	7.1	4.1	6.2	3.4	1.3	7.2	7.0	6.8	6.4	1.5	7.0	6.8	6.3	6.1
Percent minority enrollment															
Less than 6 percent	3.2	10.1	†	10.1	†	1.9	14.2	†	†	†	2.1	14.7	12.3	†	†
6 to 20 percent	2.1	5.7	2.3	6.1	†	1.5	10.8	†	10.8	12.6	1.5	10.1	†	8.0	9.2
21 to 49 percent	1.9	6.9	3.9	6.4	†	1.3	†	†	12.6	†	1.5	9.4	9.5	10.9	10.0
50 percent or more	1.7	5.7	3.5	5.6	3.5	1.2	8.0	6.7	6.6	5.2	1.2	6.6	5.8	6.1	5.3
Percent of students eligible for free or reduced-priced lunch															
Less than 35 percent	1.8	4.5	2.2	5.0	2.9	1.1	8.1	6.7	9.7	8.9	1.3	8.1	5.4	8.1	7.4
35 to 49 percent	2.4	7.5	†	7.6	†	1.3	12.6	†	†	†	1.7	11.4	7.7	8.8	10.5
50 to 74 percent	2.0	5.8	3.2	5.4	†	1.4	11.3	9.0	11.0	†	1.3	10.5	9.3	7.6	†
75 percent or more	2.3	7.1	5.4	6.5	4.9	1.6	9.8	†	7.5	7.5	1.8	8.8	8.8	8.0	8.3

See notes at end of table.

Table 8a. Standard errors for the percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Windows, doors					Interior finishes, trim					Plumbing/lavatories				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason
All public schools	**0.9**	**3.4**	**3.9**	**2.6**	**2.3**	**0.8**	**3.1**	**3.2**	**3.9**	**3.0**	**1.0**	**3.7**	**3.8**	**3.1**	**2.5**
School instructional level															
Elementary	1.1	4.5	4.7	3.4	2.9	1.0	3.7	3.7	5.1	4.0	1.2	4.6	4.7	4.4	3.5
Secondary	2.1	4.8	6.1	3.8	3.3	1.5	5.3	6.2	5.1	5.7	1.8	3.8	5.9	5.0	4.1
Combined	6.7	16.8	16.8	†	†	6.8	†	16.4	15.3	†	7.2	16.6	15.0	†	†
School enrollment size															
Less than 300	2.4	6.6	8.4	5.3	5.2	1.9	†	9.6	10.4	10.5	1.8	10.9	10.2	7.6	7.9
300 to 599	1.5	5.3	5.5	4.5	3.1	1.3	5.1	4.4	6.4	4.7	1.6	5.3	5.7	5.1	3.7
600 or more	1.3	5.2	5.5	4.2	3.5	1.2	5.0	4.2	5.5	3.8	1.3	4.0	4.7	4.9	4.0
Community type															
City	2.1	5.4	6.7	6.7	5.1	1.7	5.5	5.4	7.6	6.5	2.0	7.0	6.4	6.7	4.5
Suburban	1.8	7.0	7.2	5.8	4.8	1.6	6.1	5.2	6.9	5.7	1.9	6.1	6.9	4.8	5.6
Town	2.7	9.6	9.8	†	6.3	2.3	11.5	10.9	10.8	†	2.4	7.9	9.6	7.7	†
Rural	1.8	6.3	7.1	3.9	†	1.3	5.7	6.2	7.7	6.2	1.5	7.2	7.7	6.5	4.8
Region															
Northeast	2.5	8.3	8.2	5.8	†	1.9	7.9	6.5	9.9	9.8	2.0	9.8	7.7	6.8	9.3
Southeast	1.7	8.4	8.5	6.7	†	2.0	6.9	6.1	9.4	†	1.9	8.3	7.8	7.8	†
Central	2.1	6.0	7.8	4.8	3.7	1.7	6.7	4.8	7.9	7.1	1.9	7.9	8.3	6.7	4.7
West	1.7	6.3	6.6	4.5	4.6	1.4	4.7	6.8	6.6	5.5	1.5	4.8	5.7	4.7	4.1
Percent minority enrollment															
Less than 6 percent	3.2	8.5	8.5	†	†	2.5	12.2	8.5	11.0	11.3	2.4	12.6	10.2	†	†
6 to 20 percent	2.1	7.6	8.9	3.7	5.3	1.5	7.8	†	9.5	9.4	1.7	7.9	7.7	7.0	7.0
21 to 49 percent	2.1	7.2	8.4	7.2	†	1.9	5.8	5.5	7.7	†	1.9	6.0	8.1	6.3	6.2
50 percent or more	1.5	5.0	5.7	4.7	3.8	1.4	4.7	5.2	6.3	3.8	1.7	5.1	5.5	4.8	3.2
Percent of students eligible for free or reduced-priced lunch															
Less than 35 percent	1.8	6.2	6.9	4.9	4.8	1.6	5.4	4.8	6.9	5.9	1.8	7.4	5.7	5.8	5.5
35 to 49 percent	2.2	7.7	9.2	5.5	†	1.7	6.2	†	9.0	8.4	2.0	8.6	8.0	7.6	6.6
50 to 74 percent	1.9	7.5	7.3	4.4	†	1.7	7.0	5.7	7.8	5.8	1.7	6.1	7.6	6.3	†
75 percent or more	2.2	6.4	8.0	6.6	4.9	1.9	5.8	8.0	9.0	5.7	2.2	6.5	7.6	7.3	4.9

See notes at end of table.

Table 8a. Standard errors for the percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Heating system					Air conditioning system					Ventilation/filtration system				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improved operational or energy efficiency	Replacement cycle	Other reason
All public schools	**1.1**	**2.9**	**3.1**	**2.9**	**1.7**	**1.1**	**3.5**	**3.5**	**2.8**	**1.5**	**0.8**	**4.3**	**4.3**	**3.4**	**2.4**
School instructional level															
Elementary	1.2	3.7	3.7	4.0	2.7	1.3	4.4	4.6	3.9	2.2	0.9	5.6	5.3	5.0	3.5
Secondary	2.1	4.7	5.4	4.4	†	2.2	4.9	5.0	3.6	1.8	1.7	5.6	6.1	3.0	2.4
Combined	6.8	14.0	14.1	†	†	5.2	†	19.0	†	†	4.3	†	19.2	†	†
School enrollment size															
Less than 300	2.6	6.8	8.3	6.6	†	2.7	9.4	10.2	†	†	2.1	8.9	11.2	†	†
300 to 599	1.7	5.0	4.9	4.9	3.0	2.0	5.2	5.7	4.7	†	1.4	7.1	6.2	5.6	3.9
600 or more	1.4	3.3	5.1	5.2	2.5	1.4	3.6	4.8	4.5	2.7	1.2	4.3	5.4	5.2	3.0
Community type															
City	2.0	6.1	6.8	6.5	†	2.4	6.2	7.4	6.0	†	1.6	7.4	8.4	5.7	†
Suburban	1.9	6.0	5.4	6.0	3.5	2.0	6.7	5.7	5.6	3.4	1.6	7.5	7.2	7.0	4.9
Town	2.5	8.8	9.6	8.4	†	2.7	10.4	11.1	9.6	†	2.6	13.5	10.5	11.6	†
Rural	1.8	6.0	6.8	5.1	†	1.9	6.4	7.1	5.9	†	1.5	7.3	7.8	6.4	†
Region															
Northeast	2.6	5.9	8.4	7.1	†	2.4	9.2	10.2	†	†	2.1	9.0	9.3	7.8	†
Southeast	2.0	7.5	7.1	6.9	†	2.1	7.9	6.9	5.7	†	2.0	9.2	9.3	7.8	†
Central	2.0	7.0	7.7	6.7	†	2.2	7.9	7.8	6.5	†	1.7	10.2	9.1	7.1	†
West	1.6	4.9	5.7	5.0	3.5	1.8	5.0	5.6	5.0	3.1	1.4	6.1	6.4	5.6	4.1
Percent minority enrollment															
Less than 6 percent	3.4	9.5	10.3	†	†	3.5	11.3	11.3	†	†	3.5	10.0	10.9	†	†
6 to 20 percent	1.9	6.7	6.4	6.6	†	1.9	6.0	7.9	8.0	†	1.8	7.8	7.1	7.5	†
21 to 49 percent	2.2	3.3	6.3	6.4	†	2.2	7.2	7.1	5.1	†	1.6	6.6	9.1	7.9	†
50 percent or more	1.7	5.0	5.3	5.1	3.0	1.8	5.0	5.4	4.7	2.4	1.4	6.1	6.6	5.4	3.9
Percent of students eligible for free or reduced-priced lunch															
Less than 35 percent	1.7	5.3	5.0	5.4	3.8	1.7	6.0	5.9	6.0	†	1.4	6.5	6.1	6.7	†
35 to 49 percent	2.0	8.1	8.1	7.9	†	2.6	7.9	8.0	6.4	†	1.9	10.8	10.0	8.8	†
50 to 74 percent	1.9	5.3	6.8	5.5	†	2.3	6.2	6.4	5.9	†	1.5	7.4	8.3	6.8	†
75 percent or more	2.2	7.6	7.6	6.4	†	2.5	7.7	7.5	5.9	4.4	1.7	10.7	10.1	†	7.3

See notes at end of table.

Table 8a. Standard errors for the percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Electrical system					Interior lighting					Exterior lighting				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improvement operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improvement operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improvement operational or energy efficiency	Replacement cycle	Other reason
All public schools	**0.8**	**4.0**	**4.5**	**3.5**	**3.2**	**0.9**	**2.6**	**3.9**	**2.0**	**2.3**	**0.8**	**3.5**	**4.7**	**3.0**	**3.2**
School instructional level															
Elementary	0.9	5.0	6.0	4.9	4.2	1.1	3.4	4.9	2.6	2.9	1.0	4.6	5.9	3.9	3.8
Secondary	1.4	5.8	7.7	4.5	5.4	1.4	3.8	5.6	2.8	†	1.3	5.8	6.9	3.9	†
Combined	6.1	†	19.2	†	†	6.5	†	17.7	†	†	6.0	†	17.2	†	†
School enrollment size															
Less than 300	1.9	10.1	11.2	†	8.9	2.1	†	8.4	†	†	1.9	†	11.8	†	†
300 to 599	1.3	6.7	7.0	6.3	5.0	1.6	4.4	5.7	3.2	3.6	1.6	6.2	7.6	4.6	4.4
600 or more	1.0	5.3	6.3	5.0	3.7	1.2	3.3	5.3	3.8	3.5	1.0	3.8	6.1	5.1	4.0
Community type															
City	1.5	8.2	7.1	8.3	†	1.9	4.5	7.2	5.5	†	1.5	5.2	9.2	8.6	†
Suburban	1.6	7.6	8.5	5.7	6.2	1.7	5.3	7.4	3.4	4.9	1.5	6.3	8.8	†	6.1
Town	2.1	12.3	13.5	9.2	†	2.3	9.5	11.2	†	†	2.1	14.2	13.9	†	†
Rural	1.4	8.4	9.7	7.5	7.0	1.6	†	6.1	3.5	†	1.6	7.2	8.5	6.2	†
Region															
Northeast	1.9	9.8	11.1	†	†	2.4	6.1	9.5	†	†	2.1	†	11.6	6.5	†
Southeast	1.8	8.9	7.9	9.4	†	1.9	6.0	8.2	6.4	†	1.8	8.7	10.9	8.4	†
Central	1.4	10.1	9.5	7.6	†	1.7	†	8.3	†	†	1.5	†	10.5	†	†
West	1.3	5.8	7.0	6.5	5.6	1.6	4.3	5.9	3.3	4.0	1.4	6.7	7.0	3.9	4.6
Percent minority enrollment															
Less than 6 percent	2.5	14.1	14.1	†	†	3.0	8.5	10.4	†	†	2.3	†	16.5	†	†
6 to 20 percent	1.5	8.0	7.7	10.3	9.3	1.5	†	9.6	†	7.6	1.6	7.8	10.0	7.2	†
21 to 49 percent	1.7	9.5	9.6	7.8	†	2.0	†	6.4	3.3	†	1.7	7.4	9.0	5.7	†
50 percent or more	1.3	6.0	6.3	5.9	5.2	1.5	4.4	6.1	4.2	3.1	1.5	5.8	7.4	5.2	3.7
Percent of students eligible for free or reduced-priced lunch															
Less than 35 percent	1.5	6.2	7.4	7.0	†	1.6	4.4	7.1	4.3	4.6	1.6	5.5	7.8	5.1	5.7
35 to 49 percent	1.6	12.9	11.1	†	†	1.9	†	8.6	†	†	1.7	†	10.9	†	†
50 to 74 percent	1.3	8.2	9.6	7.5	†	1.7	5.4	5.9	3.2	†	1.2	9.9	10.2	7.5	†
75 percent or more	1.7	8.3	9.4	7.5	7.7	2.1	6.5	8.4	†	5.4	1.8	8.1	10.2	†	†

See notes at end of table.

Table 8a. Standard errors for the percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Energy management system					Life safety features					Security systems				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improvement operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improvement operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improvement operational or energy efficiency	Replacement cycle	Other reason
All public schools	**0.9**	**2.4**	**3.6**	**2.7**	**2.0**	**0.8**	**3.7**	**4.2**	**3.0**	**3.5**	**1.2**	**2.8**	**3.0**	**1.8**	**3.0**
School instructional level															
Elementary	1.2	3.2	4.5	3.5	2.6	1.0	4.4	4.9	4.0	4.2	1.5	3.5	3.7	2.3	3.9
Secondary	1.9	4.1	6.0	4.3	4.1	1.5	5.8	6.9	4.9	5.5	1.9	4.4	5.5	3.1	4.3
Combined	7.9	†	14.8	†	†	5.8	†	22.4	†	†	7.4	†	12.3	†	†
School enrollment size															
Less than 300	2.3	†	8.0	†	†	1.9	†	11.1	†	13.4	3.2	5.2	6.6	†	6.4
300 to 599	1.7	4.2	5.3	4.2	3.0	1.6	5.5	5.9	4.8	4.4	1.9	4.3	4.7	3.1	4.8
600 or more	1.2	3.5	5.3	3.8	3.1	1.1	4.6	5.6	5.0	4.3	1.4	4.0	4.7	3.2	3.3
Community type															
City	2.0	5.9	8.7	5.6	†	1.6	7.5	8.3	7.5	†	2.1	5.7	7.2	5.1	6.9
Suburban	1.9	†	7.3	6.2	4.8	1.8	7.8	7.6	6.6	5.8	2.0	4.7	6.2	2.5	5.5
Town	2.9	7.9	10.3	5.1	†	2.7	7.7	8.5	8.7	6.7	3.1	7.5	7.6	†	4.2
Rural	1.9	4.2	5.6	5.0	†	1.5	6.6	8.1	6.0	8.2	2.2	4.6	5.3	3.1	4.8
Region															
Northeast	2.9	†	8.5	7.2	†	2.1	11.2	11.2	†	10.8	2.6	6.6	8.0	4.2	8.1
Southeast	2.1	7.4	8.0	5.9	†	1.8	8.6	8.2	8.9	†	2.2	6.7	6.3	5.1	5.8
Central	2.0	5.7	6.5	5.4	†	1.9	6.8	8.1	6.8	7.4	2.6	5.0	5.7	3.3	5.6
West	1.6	3.2	6.1	4.3	4.6	1.4	5.2	6.8	4.6	4.4	1.9	3.8	5.3	2.7	4.3
Percent minority enrollment															
Less than 6 percent	3.2	11.5	12.3	†	†	2.6	12.5	10.8	†	†	3.9	8.1	8.8	†	8.8
6 to 20 percent	2.2	4.2	6.4	5.7	†	1.9	7.4	8.0	6.1	7.4	2.6	5.9	6.9	4.1	5.3
21 to 49 percent	2.0	†	8.0	6.0	†	1.8	8.5	9.4	6.7	7.7	2.4	5.3	6.1	3.2	5.4
50 percent or more	1.6	3.5	5.8	3.7	3.4	1.4	3.7	6.8	5.9	4.9	1.6	4.2	5.9	3.5	5.3
Percent of students eligible for free or reduced-priced lunch															
Less than 35 percent	1.9	4.4	6.8	5.8	†	1.8	6.2	6.9	6.0	6.0	2.2	3.8	5.2	3.6	4.7
35 to 49 percent	2.0	†	8.4	6.7	†	2.0	9.4	7.9	6.2	8.1	2.7	7.7	7.2	†	6.9
50 to 74 percent	1.9	5.7	6.3	3.4	†	1.8	6.3	8.2	6.2	6.7	2.2	4.9	5.7	3.0	4.8
75 percent or more	2.0	5.2	8.4	†	5.3	1.7	4.7	9.6	8.6	7.2	2.3	6.1	8.0	†	6.6

See notes at end of table.

Table 8a. Standard errors for the percent of public schools with major repair, renovation, or replacement of building systems or features planned in the next 2 years, and among those schools, the percentage distribution by main reason for the planned major repair, renovation, or replacement and school characteristics: 2012–13—Continued

School characteristic	Internal communication systems					Technology infrastructure				
	Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement				Major repair, renovation, or replacement planned	Main reason for planned major repair, renovation, or replacement			
		Functional problem in existing system or feature	Improve operational or energy efficiency	Replacement cycle	Other reason		Functional problem in existing system or feature	Improve operational or energy efficiency	Replacement cycle	Other reason
All public schools	**1.0**	**3.3**	**3.5**	**3.1**	**2.7**	**1.0**	**2.4**	**3.3**	**2.6**	**2.0**
School instructional level										
Elementary	1.2	4.2	4.7	4.2	3.5	1.2	3.0	4.2	3.4	2.7
Secondary	2.1	5.5	6.9	3.8	4.6	2.2	4.1	5.0	3.4	2.9
Combined	7.0	18.4	18.4	†	†	7.4	†	14.0	†	†
School enrollment size										
Less than 300	2.5	6.9	7.3	5.4	6.7	2.8	5.8	6.8	5.6	4.0
300 to 599	1.7	5.2	5.9	5.6	3.4	1.7	3.6	4.9	4.1	3.4
600 or more	1.3	4.3	5.4	4.6	3.9	1.4	2.6	4.7	4.0	3.1
Community type										
City	2.0	6.4	7.3	6.4	6.2	2.1	5.0	6.5	5.5	4.3
Suburban	1.7	5.9	8.1	5.2	5.7	2.1	4.1	6.5	4.5	4.5
Town	2.6	6.7	9.1	9.3	†	2.8	5.6	7.3	4.6	†
Rural	1.7	6.2	7.0	5.7	4.8	2.0	4.7	5.3	5.1	3.6
Region										
Northeast	2.2	12.0	10.4	†	†	2.8	7.9	8.2	7.1	6.5
Southeast	2.1	8.3	7.8	8.2	†	2.4	6.1	6.9	5.7	4.0
Central	2.1	6.2	7.6	5.7	5.1	2.2	4.8	6.1	5.3	3.4
West	1.7	4.3	5.6	5.7	4.3	1.7	3.2	5.1	4.2	3.1
Percent minority enrollment										
Less than 6 percent	3.4	9.7	10.7	†	†	3.6	9.2	7.8	8.5	†
6 to 20 percent	1.8	5.8	8.5	7.9	6.3	1.9	4.6	6.1	5.6	3.6
21 to 49 percent	2.1	6.5	8.6	5.6	6.5	2.1	4.5	6.0	4.1	4.2
50 percent or more	1.6	5.0	5.6	5.1	3.6	1.8	3.6	5.5	4.1	3.2
Percent of students eligible for free or reduced-priced lunch										
Less than 35 percent	1.8	5.2	6.3	6.2	4.8	2.0	3.8	4.9	5.1	3.7
35 to 49 percent	2.1	8.0	9.5	†	†	2.6	5.9	7.3	6.0	4.5
50 to 74 percent	1.8	6.3	7.5	6.5	5.3	2.1	4.6	6.6	5.4	2.9
75 percent or more	2.5	7.0	7.1	6.3	5.5	2.6	5.3	6.5	4.8	4.8

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

A-14

Table 9a. Standard errors for the percent of public schools with inspection and evaluation performed by qualified professionals within the last 5 years, and the percent of public schools in which various steps had been taken within the last 5 years to improve energy efficiency at the school, by school characteristics: 2012–13

School characteristic	Inspection and evaluation performed by qualified professionals			Steps to improve energy efficiency						
	Inspection of the condition of the physical features of the facility	Evaluation of energy use	Evaluation of indoor environmental hazards	Replaced lighting fixtures, lighting ballasts, or bulbs	Installed motion sensors for lighting	Upgraded insulation, outer walls, and/or siding (building envelopes)	Replaced windows and/or doors	Installed or upgraded a reflective roof coating	Installed more efficient HVAC systems	Installed or upgraded an energy management system
All public schools	**1.1**	**1.3**	**1.2**	**1.2**	**1.4**	**0.9**	**1.2**	**1.2**	**1.2**	**1.2**
School instructional level										
Elementary	1.3	1.6	1.4	1.5	1.7	1.1	1.5	1.4	1.5	1.6
Secondary	1.7	2.2	2.0	2.1	2.6	2.0	2.3	1.9	2.3	2.4
Combined	6.1	6.2	6.2	6.1	7.8	7.1	7.7	6.2	7.3	6.7
School enrollment size										
Less than 300	2.4	3.0	2.8	3.0	3.0	2.1	2.6	2.4	2.5	2.7
300 to 599	1.6	2.0	1.8	2.1	2.4	1.5	2.1	2.0	2.1	1.9
600 or more	1.5	1.7	1.6	1.9	2.1	1.4	1.8	1.6	1.8	1.9
Community type										
City	1.7	2.7	2.3	2.8	2.8	2.0	2.7	2.2	2.4	2.7
Suburban	1.8	2.4	2.1	2.5	2.6	1.5	2.2	1.9	2.2	2.5
Town	2.8	3.7	3.0	3.5	3.2	2.5	3.6	3.4	3.4	3.5
Rural	2.0	2.4	1.9	2.2	2.5	1.7	1.9	1.7	2.2	2.3
Region										
Northeast	2.7	2.5	2.3	2.9	3.3	2.5	3.0	2.6	3.2	3.0
Southeast	2.0	2.7	2.1	3.0	2.8	1.6	2.2	2.2	2.7	2.4
Central	2.2	2.7	2.7	2.5	2.7	2.1	3.0	2.8	2.8	2.9
West	1.9	2.2	2.2	2.1	2.5	1.5	1.8	1.8	2.2	2.0
Percent minority enrollment										
Less than 6 percent	3.3	3.9	3.3	3.9	4.0	2.9	3.8	3.5	3.6	3.9
6 to 20 percent	2.2	2.5	2.2	2.5	2.7	2.0	2.6	2.3	2.7	2.7
21 to 49 percent	2.0	2.4	2.3	2.6	2.7	1.9	2.4	2.2	2.3	2.5
50 percent or more	1.8	2.3	2.0	2.1	2.2	1.3	2.0	1.6	1.9	2.1
Percent of students eligible for free or reduced-priced lunch										
Less than 35 percent	1.9	2.3	1.7	2.2	2.7	1.7	2.2	2.1	2.1	2.3
35 to 49 percent	2.4	2.9	2.7	2.9	3.1	2.2	2.9	2.5	2.8	3.2
50 to 74 percent	2.1	2.6	2.2	2.6	2.6	1.6	2.3	2.0	2.4	2.4
75 percent or more	2.5	2.5	2.5	2.9	2.5	1.9	2.9	2.3	2.7	2.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

A-15

Table 10a. Among public schools, standard errors for the years since original construction of the main instructional building, years since the most recent major renovation of the main instructional building, years since the last major building replacement or addition at the school, functional age of the main instructional building, and the percentage distribution of public schools according to the functional age of the main instructional building, by school characteristics: 2012–13

School characteristic	Years since construction of the main instructional building	Years since most recent major renovation of the main instructional building	Years since last major building replacement or addition	Functional age of the main instructional building	Functional age of the main instructional building			
					Less than 5 years old	5–14 years old	15–34 years old	35 or more years old
All public schools	**0.7**	**0.4**	**0.6**	**0.5**	**1.1**	**1.2**	**1.2**	**1.2**
School instructional level								
Elementary	0.9	0.5	0.8	0.6	1.2	1.4	1.6	1.4
Secondary	1.2	0.7	0.8	0.9	2.2	2.3	1.8	1.7
Combined	4.2	2.0	1.6	3.1	6.8	7.2	7.5	4.3
School enrollment size								
Less than 300	1.7	1.0	1.4	1.5	2.9	3.3	2.8	2.8
300 to 599	1.1	0.6	1.1	0.9	1.6	2.2	2.0	2.0
600 or more	0.9	0.5	0.6	0.7	1.8	2.0	1.7	1.3
Community type								
City	1.7	0.7	1.5	1.4	2.6	2.5	2.3	2.4
Suburban	1.2	0.7	0.9	1.1	2.2	2.7	1.8	2.2
Town	1.8	1.2	1.4	1.4	2.9	4.1	3.6	3.0
Rural	1.2	0.8	0.8	0.9	1.9	2.3	2.3	1.9
Region								
Northeast	1.9	0.8	1.7	1.6	2.9	3.0	2.6	3.0
Southeast	1.2	0.9	0.9	1.1	2.4	3.0	2.6	2.5
Central	1.5	0.8	1.3	1.0	2.5	2.9	2.4	2.3
West	1.3	0.7	0.8	1.0	1.9	2.3	2.0	2.1
Percent minority enrollment								
Less than 6 percent	2.2	1.2	1.8	2.1	3.7	4.1	4.1	3.9
6 to 20 percent	1.4	0.9	1.0	1.0	2.2	2.6	2.7	2.3
21 to 49 percent	1.4	0.7	1.1	0.9	2.3	2.7	2.4	2.0
50 percent or more	1.3	0.6	1.0	0.9	1.8	2.0	2.0	1.9
Percent of students eligible for free or reduced-priced lunch								
Less than 35 percent	1.3	0.6	0.8	0.9	2.1	2.2	2.1	2.0
35 to 49 percent	1.8	1.1	1.4	1.3	2.9	3.3	2.9	2.9
50 to 74 percent	1.4	0.8	1.0	1.0	2.0	2.6	2.3	2.1
75 percent or more	1.9	0.8	1.8	1.3	2.5	3.0	2.7	2.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012–13," FRSS 105, 2013.

A-16

Appendix B

Technical Notes

Technical Notes

Fast Response Survey System

The Fast Response Survey System (FRSS) was established in 1975 by the National Center for Education Statistics (NCES), U.S. Department of Education. FRSS is designed to collect issue-oriented data within a relatively short time frame. FRSS collects data from state education agencies, local education agencies, public and private elementary and secondary schools, public school teachers, and public libraries. To ensure minimal burden on respondents, the surveys are generally limited to three pages of questions, with a response burden of about 30 minutes per respondent. Sample sizes are relatively small (usually about 1,200 to 1,800 respondents per survey) so that data collection can be completed quickly. Data are weighted to produce national estimates of the sampled education sector. The sample size permits limited breakouts by analysis variables. However, as the number of categories within any single analysis variable increases, the sample size within categories decreases, which results in larger sampling errors for the breakouts by analysis variables.

Sample Design

The sample for the FRSS survey of the Condition of Public School Facilities consisted of approximately 1,800 regular public elementary, middle, and secondary/combined schools in the 50 states and the District of Columbia. The nationally representative sample was selected from the 2010–11 NCES Common Core of Data (CCD) Public School Universe file, which was the most current file available at the time of selection. The sampling frame included 50,995 regular elementary schools, 16,582 regular middle schools, and 19,190 regular secondary/combined schools. For purposes of this study, "regular" schools included charter schools. Excluded from the sampling frame were schools with a high grade of prekindergarten, kindergarten, or ungraded, schools with zero, missing, or "not applicable" enrollment, along with special education, vocational, and alternative/other schools, and schools outside the 50 states and the District of Columbia. A school was defined as an elementary school if the lowest grade was less than or equal to grade 3 and the highest grade was less than or equal to grade 8. A middle school was defined as having a lowest grade greater than or equal to grade 4 and a highest grade less than or equal to grade 9. A school was considered a secondary school if its lowest grade was greater than or equal to grade 9 and the highest grade was greater than or equal to grade 10. Combined schools were defined as having a lowest grade less than or equal to grade 3 and a highest grade greater than or equal to grade 9 *or* the lowest grade is in grades 4 through 8 and the highest grade is in grades 10 through 12. Secondary and combined schools were combined into one category for sampling.

The public school sampling frame was stratified by instructional level (elementary, middle, secondary/combined), community type (City, suburban, town, rural), and enrollment size (less than 300, 300 to 499, 500 to 999, 1,000 to 1,499, and 1,500 or more) to create 52 primary strata. Within the strata, schools were sorted by percent combined enrollment of American Indian/Alaska Native, Asian, Black, Hawaiian Native/Pacific Islander, Hispanic, and students of two or more races (missing, less than 6 percent, 6 to 20 percent, 21 to 49 percent, and 50 percent or more) and region (Northeast, Southeast, Central, West) prior to selection to induce additional implicit stratification. These variables are defined in more detail in the "Definitions of Analysis Variables" section of this report. For analysis, school instructional level was defined as elementary, secondary, and combined rather than the categories used for sampling. This was the same approach used in the 1999 FRSS study on the condition of school facilities (Lewis et al. 2000). This was done to facilitate comparisons between data in the two reports. Within each primary stratum, schools were selected systematically at rates that depended on the size class of the school. The sample contained approximately 720 elementary schools, 540 middle schools, and 540 secondary/combined schools. The approximately 1,800 schools were located in approximately 1,380 school districts. Approximately 16 percent of the districts with

sampled schools had more than one sampled school in the district. While there was no maximum number of schools that could be sampled within a district, most districts had only one sampled school.

Data Collection and Response Rates

Questionnaires and cover letters were mailed in January 2013. While individual schools were sampled, the questionnaires were mailed to the districts with which the schools were associated. A separate questionnaire was enclosed for each sampled school. This is the same approach used in the 1999 FRSS study on the condition of school facilities. The cover letter indicated that the survey was designed to be completed by district-level personnel who were very familiar with the school facilities in the district. Often this was a district facilities coordinator (although the title of the position varied). The letter indicated that the respondent might want to consult with other district-level personnel or with school-level personnel, such as the principal of the sampled school, in answering some of the questions. Respondents were offered the option of completing the survey via the Web. Telephone follow-up for survey nonresponse and data clarification was initiated in February 2013 and completed in June 2013.

Of the approximately 1,800 public schools in the sample, approximately 40 were found to be ineligible because the school was closed or did not meet some other criteria for inclusion in the sample (e.g., was an alternative school). For the eligible schools, an unweighted response rate of 90 percent was obtained for this survey (about 1,590 responding schools divided by the approximately 1,760 eligible schools in the sample). The corresponding weighted response rate using the initial base weights was 90 percent (table B-1). Of the schools that completed the survey, 62 percent completed it via the Web, 38 percent completed it by paper (sent by mail, fax, or e-mail), and less than 1 percent completed it by telephone. The final weighted count of responding schools in the survey after nonresponse adjustment represents the estimated universe of eligible public schools in the 50 states and the District of Columbia—approximately 84,000 schools (table B-1).[1] The difference between the final weighted count of approximately 84,000 schools and the approximately 87,000 schools in the sampling frame for this FRSS study is due to the relatively high percentage of ineligible schools that were found in the sample.

Table B-1. Number and percentage of responding public schools in the study sample, and estimated number and percentage of public schools the sample represents, by school characteristics: 2012–13

School characteristic	Respondent sample (unweighted)		National estimate (weighted)[1]	
	Number	Percent	Number	Percent
All public schools	**1,590**	**100**	**84,000**	**100**
School instructional level				
Elementary	1,020	64	62,600	75
Secondary	510	32	18,900	23
Combined	50	3	2,400	3
School enrollment size				
Less than 300	240	15	20,000	24
300 to 599	560	35	35,500	42
600 or more	790	50	28,500	34
Community type				
City	410	25	21,200	25
Suburban	480	30	23,500	28
Town	220	14	10,900	13
Rural	490	31	28,400	34

See notes at end of table.

[1] For more details about the development of survey weights, see the section of this report on sampling errors.

Table B-1. Number and percentage of responding public schools in the study sample, and estimated number and percentage of public schools the sample represents, by school characteristics: 2012–13—Continued

School characteristic	Respondent sample (unweighted)		National estimate (weighted)[1]	
	Number	Percent	Number	Percent
Region				
Northeast	280	18	15,000	18
Southeast	380	24	18,800	22
Central	380	24	21,500	26
West	550	35	28,700	34
Percent minority enrollment[2]				
Less than 6 percent	170	10	10,600	13
6 to 20 percent	380	24	21,300	25
21 to 49 percent	400	25	19,900	24
50 percent or more	640	40	32,200	38
Percent of students eligible for free or reduced-price lunch				
Less than 35 percent	530	33	26,300	31
35 to 49 percent	300	19	15,500	18
50 to 74 percent	440	28	22,800	27
75 percent or more	330	20	19,400	23

[1] Weighted count of responding schools using the final nonresponse-adjusted weights. The weighted count is an estimate of the number of eligible schools in the study universe (see text for definition of the types of schools included in the study).
[2] Minority enrollment includes Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and students of two or more races.
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Condition of Public School Facilities: 2012-13," FRSS 105, 2013.

Imputation for Item Nonresponse

Cases with missing data were recontacted by telephone to collect the missing information. However, for cases in which this data retrieval was unsuccessful, missing data were imputed. Although item nonresponse was very low (less than 1 percent for any item), missing data were imputed for the 48 items with a response rate of less than 100 percent. The missing items included both numerical data such as the total cost of all repairs/renovations/modernizations required to put the school's onsite buildings in good overall condition, as well as categorical data, such as whether there was a written long-range educational facilities plan for the school. The missing categorical data were imputed using a "hot-deck" approach to obtain a "donor" school from which the imputed values were derived. Under the hot-deck approach, a donor school that matched selected characteristics of the school with missing data (the recipient school) was identified (Kalton 1983, pp. 65–104). The matching characteristics included instructional level, enrollment size, community type, region, percent eligible for free or reduced-price lunch, and percent combined enrollment of American Indian/Alaska Native, Asian, Black, Hawaiian Native/Pacific Islander, Hispanic, and students of two or more races. In addition, other relevant questionnaire items were used to form appropriate imputation groupings. Once a donor was found, the imputed value was simply the corresponding value from the donor school.

Data Reliability

Although the school survey on the condition of public school facilities was designed to account for sampling error and to minimize nonsampling error, estimates produced from the data collected are subject to both types of error. Sampling error occurs because the data are collected from a sample rather than a census of the population, and nonsampling errors are errors made during the collection and processing of the data.

Sampling Errors

The responses were weighted to produce national estimates (table B-1). The weights were designed to reflect the probabilities of selection of the sampled schools and were adjusted for differential unit (questionnaire) nonresponse. The nonresponse weighting adjustments were made within classes defined by school instructional level, community type, and school enrollment size. Within the final weighting classes, the base weights (i.e., the reciprocal of schools' probabilities of selection) of the responding schools were inflated by the inverse of the weighted response rate for the class. The findings in this report are estimates based on the sample selected and, consequently, are subject to sampling variability.

Because the data from the FRSS survey on the condition of public school facilities were collected using a complex sampling design, the variances of the estimates from this survey (e.g., estimates of proportions) are typically different from what would be expected from data collected with a simple random sample. Not taking the complex sample design into account can lead to an under- or overestimation of the standard errors associated with such estimates. To generate accurate standard errors for the estimates in this report, standard errors were computed using a technique known as jackknife replication (Levy and Lemeshow 1991). A form of jackknife replication referred to as the JK1 method was used construct the replicates. As with any replication method, jackknife replication involves constructing a number of subsamples (replicates) from the full sample and computing the statistic of interest for each replicate. The mean square error of the replicate estimates around the full sample estimate provides an estimate of the variance of the statistic. To construct the replications, 100 stratified subsamples of the full sample were created and then dropped one at a time to define 100 jackknife replicates. Estimates of standard errors can be computed using statistical packages such as SAS or WesVar.

The standard error is a measure of the variability of an estimate due to sampling. It indicates the variability of a sample estimate that would be obtained from all possible samples of a given design and size. Standard errors are used as a measure of the precision expected from a particular sample. If all possible samples were surveyed under similar conditions, intervals of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the true population parameter being estimated in about 95 percent of the samples. This is a 95 percent confidence interval. For example, the estimated percent of public schools with portable buildings is 31 percent, and the standard error is 1.4 percent (tables 1 and 1a). The 95 percent confidence interval for the statistic extends from [31 – (1.4 x 1.96)] to [31 + (1.4 x 1.96)], or from 28.3 to 33.7 percent. The 1.96 is the appropriate percentile from a standard normal distribution corresponding to a two-sided statistical test at the $p < .05$ significance level (where .05 indicates the 5 percent of all possible samples that would be outside the range of the confidence interval).

Comparisons can be tested for statistical significance at the $p < .05$ level using Student's *t*-statistic to ensure that the differences are larger than those that might be expected due to sampling variation.[2] Student's *t* values are computed to test the difference between estimates with the following formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}}$$

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors.

[2] This includes comparisons to the 1999 FRSS study on the condition of school facilities (Lewis et al. 2000).

Nonsampling Errors

Nonsampling error is the term used to describe variations in the estimates that may be caused by population coverage limitations and data collection, processing, and reporting procedures. The sources of nonsampling errors are typically problems like unit and item nonresponse, differences in respondents' interpretations of the meaning of questions, response differences related to the particular time the survey was conducted, and mistakes made during data preparation. It is difficult to identify and estimate either the amount of nonsampling error or the bias caused by this error. To minimize the potential for nonsampling error, this study used a variety of procedures, including a pretest of the questionnaire with district-level personnel who were very familiar with the school facilities in the district. The pretest provided the opportunity to check for consistency of interpretation of questions and definitions and to eliminate ambiguous items. The questionnaire and instructions were also extensively reviewed by NCES. In addition, extensive editing of the questionnaire responses was conducted to check the data for accuracy and consistency. Cases with missing or inconsistent items were recontacted by telephone to resolve problems. Data entered for all surveys received by mail, fax, or telephone were verified to ensure accuracy.

Definitions of Analysis Variables

Many of the school characteristics, described below, may be related to each other. For example, school enrollment size and community type are related, with city schools typically being larger than rural schools. Other relationships between these analysis variables may exist. However, this First Look report focuses on national estimates and bivariate relationships between the analysis variables and questionnaire variables rather than more complex analyses.

Instructional level—Schools were classified according to their grade span in the 2010–11 CCD Public School Universe file. The categories for analysis differed from the categories used for sampling. This was the same approach used in the 1999 FRSS study on the condition of public schools.

Elementary school—had grade 6 or lower and no grade higher than grade 8

Secondary school—had no grade lower than grade 7 and had grade 7 or higher

Combined school—had grades lower than grade 7 and higher than grade 8

Enrollment size—This variable indicates the total number of students enrolled in the school based on data from the 2010–11 CCD Public School Universe file. The variable was collapsed into the following three categories:

Less than 300 students
300 to 599 students
600 or more students

Community type—This variable indicates the type of community in which the school is located, as defined in the 2010–11 CCD Public School Universe file. These codes are based on the location of school buildings. The urban-centric locale codes are assigned through a methodology developed by the U.S. Census Bureau's Population Division in 2005. This classification system has four major locale categories—city, suburban, town, and rural—each of which is subdivided into three subcategories. This variable was based on the 12-category urban-centric locale variable from CCD and collapsed into the four categories below.

City—Territory inside an urbanized area and inside a principal city

Suburban—Territory outside a principal city and inside an urbanized area

Town—Territory inside an urban cluster

Rural—Territory outside an urbanized area and outside an urban cluster

Region—This variable classifies schools into one of the four geographic regions used by the Bureau of Economic Analysis of the U.S. Department of Commerce. Data were obtained from the 2010–11 CCD Public School Universe file. The geographic regions are as follows:

Northeast—Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont

Southeast—Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia

Central—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin

West—Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming

Percent minority enrollment—This variable indicates the percentage of students enrolled in the school whose race or ethnicity is classified as one of the categories below based on data in the 2010–11 CCD Public School Universe file.

- American Indian/Alaska Native
- Asian
- Black
- Hawaiian Native/Pacific Islander
- Hispanic
- Two or more races

The variable was collapsed into the following four categories:

Less than 6 percent
6 to 20 percent
21 to 49 percent
50 percent or more

Percent of students eligible for free or reduced price lunch—This variable serves as a measure of the concentration of poverty at the school. This variable is based on data in the 2010–11 CCD Public School Universe file. This variable was collapsed into the four categories below.

Less than 35 percent
35 to 49 percent
50 to 74 percent
75 percent or more

Rating Scales and Definitions of Terms Used in This Report

Rating Scale for Table 1

The following rating scale was used in question 4 to indicate the overall condition of each type of onsite building at this school:

Excellent means that the facility meets all the reasonable needs for normal school performance yet goes well beyond adequate. Relatively minor enhancements may be necessary.

Good means that the facility meets all the reasonable needs for normal school performance, is most often in good condition, and generally meets some, but not all, of the characteristics of an excellent facility.

Fair means that the facility meets minimal needs for normal school performance but requires frequent maintenance or has other limitations. It requires some upgrading to be considered in good condition.

Poor means that the facility does not meet minimal requirements for normal school performance.

Rating Scale for Tables 2, 3, and 4

The following rating scale was used in questions 2 and 3 to indicate the condition of building systems/features and outdoor features:

Excellent means that a particular feature or system meets all the reasonable needs of the school pertaining to that item yet goes well beyond adequate. Relatively minor enhancements may be necessary.

Good means a feature or system meets all the reasonable needs of the school, is most often in good condition, and generally meets some, but not all, of the characteristics of an excellent system/feature.

Fair means that a feature or system meets minimal conditions but is not dependable, breaks down frequently, or has other limitations. It is a feature or system that would require some upgrading to be considered in good condition.

Poor means that a particular feature or system as it exists is inadequate to meet even the minimal needs of the school.

Definitions of Terms

Energy management system—A control system (often computerized) designed to regulate the energy consumption of a building by controlling the operation of energy consuming systems, such as the heating, ventilation, and air conditioning (HVAC), lighting, and water heating systems. These systems are sometimes referred to as mechanical control systems or building automation systems.

Life safety features—Includes sprinklers, fire alarms, and smoke detectors.

Security systems—Includes surveillance cameras, perimeter intrusion alarms, metal detectors, and door controllers.

Internal communications—Intercom and/or phone systems enabling communication with academic and administrative areas of the school individually and collectively.

Technology infrastructure—Facility access to voice, video, and data transmission in classrooms and administrative areas of the school. Includes wiring for computer workstations and other electronic equipment in program areas.

Long-range educational facilities plan—This plan may be referred to as a Capital Improvement Plan, Capital Facilities Plan, or Facilities Master Plan.

Contact Information

For more information about the survey, contact John Ralph, National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, 1990 K Street NW, Washington, DC 20006; e-mail: john.ralph@ed.gov; telephone: (202) 502-7441.

Appendix C

Questionnaire

U.S. DEPARTMENT OF EDUCATION NATIONAL CENTER FOR EDUCATION STATISTICS WASHINGTON, D.C. 20006–5651 **CONDITION OF PUBLIC SCHOOL FACILITIES: 2012–13** FAST RESPONSE SURVEY SYSTEM	FORM APPROVED O.M.B. No.: 1850–0733 EXPIRATION DATE: 05/2015

This survey is authorized by law (Education Sciences Reform Act of 2002, 20 U.S.C. § 9543). While participation in this survey is voluntary, your cooperation is critical to make the results of this survey comprehensive, accurate, and timely. Your answers may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose unless otherwise compelled by law (Education Sciences Reform Act of 2002, 20 U.S.C. § 9573).

Please provide information only about the school that is indicated on the front of this survey.

This survey is designed to be completed by district-level personnel who are very familiar with the school facilities in this district.

You may wish to consult with other district-level personnel or with school-level personnel, such as the principal of the selected school, in answering some questions. Please respond about the selected school for the current 2012–13 school year, even if the selected school is new.

Information Copy - Do Not Complete

NAME AND ADDRESS OF SAMPLED SCHOOL HERE

IF ABOVE **SCHOOL** INFORMATION IS INCORRECT, PLEASE UPDATE DIRECTLY ON LABEL.

Name of person completing this form: _____

Title/position: _____

Telephone number: _____ E-mail: _____

Best days and times to reach you (in case of questions): _____

Grades taught at this school: Lowest grade taught _____ Highest grade taught _____

THANK YOU. PLEASE KEEP A COPY OF THIS SURVEY FOR YOUR RECORDS.

PLEASE RETURN COMPLETED FORM TO:	**IF YOU HAVE ANY QUESTIONS OR COMMENTS, CONTACT:**
Mail: Debbie Alexander (8599.13.13.02) Westat 1600 Research Boulevard Rockville, Maryland 20850-3129	Debbie Alexander at Westat 800-937-8281, ext. 2088 or 301-294-2088 E-mail: SchoolConditionSurvey@westat.com
Fax: 800-254-0984	

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 1850–0733. The time required to complete this information collection is estimated to average 30 minutes per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. If you have any comments concerning the accuracy of the time estimate or suggestions for improving this form, please write to: U.S. Department of Education, Washington, DC 20202–4537. If you have any comments or concerns regarding the status of your individual submission of this form, write directly to: National Center for Education Statistics, 1990 K Street, NW, Washington, DC 20006.

FRSS Form No. 105, 01/2013

Instructions and Definitions Page

Please provide information only about the school that is indicated on the front of this survey. Respond about the selected school for the current 2012–13 school year, even if the selected school is new.

If the school has more than one permanent or portable building on site, consider all of them in providing a rating.

In **questions 2 and 3,** use the following rating scale to indicate the condition of building systems/features and outdoor features:

"School does not have" means that a building system/feature does not exist within that type of building or that the school does not have that outdoor feature.

Excellent means that a particular feature or system meets all the reasonable needs of the school pertaining to that item yet goes well beyond adequate. Relatively minor enhancements may be necessary.

Good means a feature or system meets all the reasonable needs of the school, is most often in good condition, and generally meets some, but not all, of the characteristics of an excellent system/feature.

Fair means that a feature or system meets minimal conditions but is not dependable, breaks down frequently, or has other limitations. It is a feature or system that would require some upgrading to be considered in good condition.

Poor means that a particular feature or system as it exists is inadequate to meet even the minimal needs of the school.

In **question 4,** use the following rating scale to indicate the overall condition of each type of onsite building at this school:

"School does not have" means that the school does not have that type of building.

Excellent means that the facility meets all the reasonable needs for normal school performance yet goes well beyond adequate. Relatively minor enhancements may be necessary.

Good means that the facility meets all the reasonable needs for normal school performance, is most often in good condition, and generally meets some, but not all, of the characteristics of an excellent facility.

Fair means that the facility meets minimal needs for normal school performance but requires frequent maintenance or has other limitations. It requires some upgrading to be considered in good condition.

Poor means that the facility does not meet minimal requirements for normal school performance.

Information Copy - Do Not Complete

Definitions

Energy management system: A control system (often computerized) designed to regulate the energy consumption of a building by controlling the operation of energy consuming systems, such as the heating, ventilation, and air conditioning (HVAC), lighting, and water heating systems. These systems are sometimes referred to as mechanical control systems or building automation systems.

Life safety features: Includes sprinklers, fire alarms, and smoke detectors.

Security systems: Includes surveillance cameras, perimeter intrusion alarms, metal detectors, and door controllers.

Internal communications: Intercom and/or phone systems enabling communication with academic and administrative areas of the school individually and collectively.

Technology infrastructure: Facility access to voice, video, and data transmission in classrooms and administrative areas of the school. Includes wiring for computer workstations and other electronic equipment in program areas.

Long-range educational facilities plan: This plan may be referred to as a Capital Improvement Plan, Capital Facilities Plan, or Facilities Master Plan.

See rating scales on instructions and definitions page.

1. Does this school have the following types of onsite buildings? *(Indicate yes or no for each type of building.)*

	Yes	No
a. Permanent buildings	1	2
b. Portable (temporary) buildings	1	2

2. What is the **condition of each building system/feature** for the permanent and portable (temporary) onsite buildings at this school? *(See instructions and definitions page.)*

- In **Part A,** circle one rating on each line to indicate the condition of each system/feature for the **permanent buildings** at this school. If the school has more than one permanent building, consider all of them in providing a rating. **Leave Part A blank if this school does not have any permanent buildings.**
- In **Part B,** circle one rating on each line to indicate the condition of each system/feature for the **portable (temporary) buildings** at this school. If the school has more than one temporary building, consider all of them in providing a rating. **Leave Part B blank if this school does not have any portable (temporary) buildings.**

	Part A. Permanent buildings *(Circle one on each line)*					Part B. Portable (temporary) buildings *(Circle one on each line)*				
Building system/feature	School does not have system/ feature	Excel- lent	Good	Fair	Poor	School does not have system/ feature	Excel- lent	Good	Fair	Poor
a. Roofs	0	1	2	3	4	0	1	2	3	4
b. Framing, floors, foundations	0	1	2	3	4	0	1	2	3	4
c. Exterior walls, finishes	0	1	2	3	4	0	1	2	3	4
d. Windows, doors	0	1	2	3	4	0	1	2	3	4
e. Interior finishes, trim	0	1	2	3	4	0	1	2	3	4
f. Plumbing/lavatories	0	1	2	3	4	0	1	2	3	4
g. Heating system	0	1	2	3	4	0	1	2	3	4
h. Air conditioning system	0	1	2	3	4	0	1	2	3	4
i. Ventilation/filtration system	0	1	2	3	4	0	1	2	3	4
j. Electrical system	0	1	2	3	4	0	1	2	3	4
k. Interior lighting	0	1	2	3	4	0	1	2	3	4
l. Exterior lighting	0	1	2	3	4	0	1	2	3	4
m. Energy management system	0	1	2	3	4	0	1	2	3	4
n. Life safety features	0	1	2	3	4	0	1	2	3	4
o. Security systems	0	1	2	3	4	0	1	2	3	4
p. Internal communication systems	0	1	2	3	4	0	1	2	3	4
q. Technology infrastructure	0	1	2	3	4	0	1	2	3	4

3. What is the condition of the following outdoor features at this school? *(Circle one rating on each line.)*

Outdoor feature	School does not have feature	Excellent	Good	Fair	Poor
a. School parking lots and roadways	0	1	2	3	4
b. Bus lanes and drop-off areas	0	1	2	3	4
c. School sidewalks and walkways	0	1	2	3	4
d. Outdoor play areas/playgrounds	0	1	2	3	4
e. Outdoor athletic facilities	0	1	2	3	4
f. Covered walkways	0	1	2	3	4
g. Fencing	0	1	2	3	4

Information Copy - Do Not Complete

4. What is the **overall condition** of the permanent and portable (temporary) onsite buildings at this school? *(If the school has more than one building of a particular type, consider all of them in providing a rating. Circle one on each line.)*

Building type	School does not have building type	Excellent	Good	Fair	Poor
a. Permanent buildings	0	1	2	3	4
b. Portable (temporary) buildings	0	1	2	3	4

5. What would probably be the total cost of all repairs/renovations/modernizations required to put this school's **onsite buildings** in good overall condition? *(Give your best estimate. **If this school's onsite buildings are already in good or excellent overall condition, enter zero.**)*

   $_____

6. On which of the sources listed below is this cost estimate based? *(Circle all that apply.)*

   a. Facilities inspection(s)/assessment(s) performed within the last 3 years by licensed professionals 1
   b. Repair/renovation/modernization work already being performed and/or contracted for 2
   c. Capital improvement/facilities master plan, schedule, or budget 3
   d. My best professional judgment 4
   e. Opinions of other district or school administrators 5
   f. Other (*specify*) _____ 6

7. How **satisfactory** is each environmental factor in the permanent and portable (temporary) onsite buildings at this school?

   - In **Part A,** circle one rating on each line to indicate the overall satisfaction with each environmental factor for the **permanent buildings** at this school. If the school has more than one permanent building, consider all of them in providing a rating. **Leave Part A blank if this school does not have any permanent buildings.**
   - In **Part B,** circle one rating on each line to indicate the overall satisfaction with each environmental factor for the **portable (temporary) buildings** at this school. If the school has more than one temporary building, consider all of them in providing a rating. **Leave Part B blank if this school does not have any portable (temporary) buildings.**

Environmental factor	Part A. Permanent buildings (Circle one on each line)					Part B. Portable (temporary) buildings (Circle one on each line)				
	School does not have factor	Very satis-factory	Satis-factory	Unsatis-factory	Very unsatis-factory	School does not have factor	Very satis-factory	Satis-factory	Unsatis-factory	Very unsatis-factory
a. Artificial lighting	0	1	2	3	4	0	1	2	3	4
b. Natural lighting	0	1	2	3	4	0	1	2	3	4
c. Heating	0	1	2	3	4	0	1	2	3	4
d. Air conditioning	0	1	2	3	4	0	1	2	3	4
e. Ventilation	0	1	2	3	4	0	1	2	3	4
f. Indoor air quality	0	1	2	3	4	0	1	2	3	4
g. Water quality	0	1	2	3	4	0	1	2	3	4
h. Acoustics or noise control	0	1	2	3	4	0	1	2	3	4

8. In what year was this school's **main instructional building** constructed? _____

9. In what year was the last major renovation of the **main instructional building?** _____
   Check here if the main instructional building has never undergone a major renovation ☐

10. In what year was the last major building replacement or addition made to this school? _____
    Check here if the school has never had a major addition or replacement ☐

11. Is any major repair/renovation/modernization work currently being performed at this school? Yes ..... 1 No 2

12. Which of the following construction projects, if any, are planned for this school in the next 2 years? *(Indicate yes or no for each item.)*

	Yes	No
a. Build new permanent buildings or permanent additions to buildings (e.g., a new classroom wing or gymnasium)	1	2
b. Major repairs, renovations, or modernization of existing permanent buildings	1	2

Information Copy - Do Not Complete

13. Which of the following building systems or features at this school, if any, have major repairs, renovations, or replacements planned for the next 2 years? If major repairs, renovations, or replacements are planned for a building system or feature, what is the main reason for the planned major repair, renovation, or replacement?

- In **Part A,** circle one response on each line to indicate major repair, renovation, or replacement plans for each building system or feature. Do not include preventive maintenance or minor repairs.
- **Complete Part B for any building system or feature for which major repair, renovation, or replacement is planned in the next 2 years.** Circle one response to indicate the main reason for any planned major repairs, renovations, or replacements for a building system or feature.

Building system/feature	Part A. Plans for major repair, renovation, or replacement in the next 2 years *(Circle one on each line)*				Part B. Main reason for planned major repair, renovation, or replacement *(Circle one for each system/feature with major repair, renovation, or replacement planned)*			
	School does not have building system/ feature	No major repair, renovation, or replacement planned	Major repair or renovation planned *(If work is planned, continue to Part B)*	Replace-ment planned	Functional problem in existing system or feature	Improved operational or energy efficiency	Replace-ment cycle	Other reason
a. Roofs	0	1	2	3	1	2	3	4
b. Framing, floors, foundations	0	1	2	3	1	2	3	4
c. Exterior walls, finishes	0	1	2	3	1	2	3	4
d. Windows, doors	0	1	2	3	1	2	3	4
e. Interior finishes, trim	0	1	2	3	1	2	3	4
f. Plumbing/lavatories	0	1	2	3	1	2	3	4
g. Heating system	0	1	2	3	1	2	3	4
h. Air conditioning system	0	1	2	3	1	2	3	4
i. Ventilation/filtration system	0	1	2	3	1	2	3	4
j. Electrical system	0	1	2	3	1	2	3	4
k. Interior lighting	0	1	2	3	1	2	3	4
l. Exterior lighting	0	1	2	3	1	2	3	4
m. Energy management system	0	1	2	3	1	2	3	4
n. Life safety features	0	1	2	3	1	2	3	4
o. Security systems	0	1	2	3	1	2	3	4
p. Internal communication systems	0	1	2	3	1	2	3	4
q. Technology infrastructure	0	1	2	3	1	2	3	4

Information Copy - Do Not Complete

14. Is there a written long-range educational facilities plan for this school? *(See definition.)*

Yes..... 1 No 2

15. Has this school had the following performed by qualified professionals within the last 5 years? *(Indicate yes or no for each item.)*

	Yes	No
a. Inspection of the condition of the physical features of the facility (e.g., roofs, foundations)	1	2
b. Evaluation of energy use (e.g., energy audit)	1	2
c. Evaluation of indoor environmental hazards (e.g., air quality, asbestos, lead paint)	1	2

16. Have any of the following been done within the last 5 years **to improve energy efficiency** at this school? *(Indicate yes or no for each item.)*

	Yes	No
a. Replaced lighting fixtures, lighting ballasts, or bulbs	1	2
b. Installed motion sensors for lighting	1	2
c. Upgraded insulation, outer walls, and/or siding (building envelopes)	1	2
d. Replaced windows and/or doors	1	2
e. Installed or upgraded a reflective roof coating	1	2
f. Installed more efficient HVAC systems	1	2
g. Installed or upgraded an energy management system	1	2

17. Are there significant problems with the facilities at this school that are not covered in this survey?

Yes..... 1 No 2

If yes, please briefly describe those problems on the back of the questionnaire.

Comments for question 17: _____

_____

_____

_____

_____

Information Copy - Do Not Complete



LEARNING POLICY INSTITUTE RESEARCH BRIEF JAN 2019

Untangling the Evidence on Preschool Effectiveness: Insights for Policymakers

Beth Meloy, Madelyn Gardner, and Linda Darling-Hammond

Abstract

Research showing that high-quality preschool benefits children's early learning and later life outcomes has led to increased state engagement in public preschool. However, mixed results from evaluations of two programs—Tennessee's Voluntary Pre-K program and Head Start—have left many policymakers unsure about how to ensure productive investments. This brief and the report on which it is based present the most rigorous evidence on the effects of preschool and clarify how the findings from Tennessee and Head Start relate to the larger body of research showing that high-quality preschool enhances children's school readiness by supporting substantial early learning gains in comparison to children who do not experience preschool and can have lasting impacts far into children's later years of school and life. Therefore, the issue is not whether preschool "works," but how to design and implement programs that ensure public preschool investments consistently deliver on their promise.

For the full report on which this brief is based, see: https://learningpolicyinstitute.org/product/untangling-evidence-preschool-effectiveness.

Acknowledgments

The full report benefited from the insights and expertise of two external reviewers: William T. Gormley, Professor of Public Policy at Georgetown University and Co-Director of the Center for Research on Children in the United States; and Martha Zaslow, Director of the Office for Policy and Communications of the Society for Research in Child Development and a Senior Scholar at Child Trends.

Funding for this brief and the full report on which it is based was provided by the Heising-Simons Foundation, along with the general operating support from the Ford Foundation, the William and Flora Hewlett Foundation, and the Sandler Foundation.

Introduction

Differences in how children develop are substantially linked to their learning experiences. As early as 9 months of age, the differential experiences of children growing up in low-income households and children from more affluent homes are associated, on average, with a gap in their cognitive development. The developmental gaps continue to grow all the way through preschool, elementary, and secondary school unless other learning opportunities intervene.[1]

Evidence from early learning programs in the 1960s and '70s demonstrated enormous benefits for children (see Table 1). Those who attended these high-quality programs, the Abecedarian Project, Chicago Child-Parent Centers, and the Perry Preschool Project, were more ready for school and less likely to be identified as having special needs or to be held back in elementary school than children who didn't attend. When those children grew up, they graduated high school and attended college at higher rates, and they were less likely to become teenage parents, commit crimes, or depend on welfare. Inspired by this evidence and long-term social returns on investment as high as $17 for every $1 spent,[2] many states have invested in preschool programs to provide learning opportunities that improve children's outcomes.

A large body of research on contemporary preschool programs finds similar benefits for children's school readiness and later outcomes. However, evaluations of two programs—Tennessee's Voluntary Pre-K program and Head Start—found mixed results, leaving policymakers and the public confused about how to interpret the findings and what to do to ensure productive investments.

This brief and the report on which it is based present the most rigorous available evidence on the effects of preschool and find that well-implemented preschool programs support substantial early learning gains and can have lasting impacts throughout school. We also explain

Table 1
Early Evaluations of Preschool Programs Document Benefits Throughout Adolescence and Adulthood

Program	Age(s)	Outcomes (relative to comparison children)
Abecedarian Project	12	• Better performance on tests of intelligence and cognitive skills
	15	• Better performance on reading and mathematics assessments • Fewer retentions in grade • Fewer special education placements
	21	• Better performance on tests of intelligence and cognitive skills • More years of total education • Higher college attendance rates • Lower incidence of teen pregnancy • Lower reported rates of drug use
	30	• More years of total education • Four times more likely to have completed a B.A. or higher • More likely to have been consistently employed • Better health outcomes (lower rates of prehypertension and risk factors for heart disease)
Child-Parent Centers	14–15	• Better performance on standardized reading and math tests • Fewer retentions in grade • Less likely to be placed in special education, and fewer years receiving special education services
	18–21	• Higher rate of high school completion and lower rates of dropout • More years of total education • Lower incidence of juvenile arrest • Fewer special education placements • Fewer retentions in grade • Less likely to experience child maltreatment
	23–24	• Higher rates of high school completion • More years of total education • Higher rates of college attendance • Lower rates of incarceration and convictions • Higher rates of enrollment in health insurance • Lower rates of depressive symptoms
	35	• Higher rates of postsecondary degree completion
Perry Preschool Project	19	• Higher average high school GPA • Fewer years spent in special education during school • Higher rates of high school graduation • More likely to be employed • More likely to be economically self-sufficient • Less likely to be arrested for a minor offense
	27	• More likely to be employed • Higher rate of high school graduation • Higher average educational attainment • Higher average monthly earnings • More likely to own their own home • Lower number of adult and lifetime arrests
	40	• More likely to be employed • Higher annual median earnings • Less likely to be arrested

Note: This table reports significant positive outcomes only. Outcomes tested and found to be non-significant are not included.
Source: See Appendix D in the full report for a list of sources.

how the findings from Tennessee and Head Start inform our overall conclusion that preschool is an effective intervention. We further find that the quality of a preschool program matters for its outcomes and that the method a study uses to compare children in a program to others outside the program shapes the interpretation of the research findings. When children who attend a specific preschool program are compared to those who did not attend preschool at all—as opposed to those who attended the same or another program—the benefits of preschool are clear.

The evidence supports moving beyond the question of whether preschool "works" and focusing instead on the more pressing question of how to design and implement programs that ensure public preschool investments consistently deliver on their promise.

Our Review

We reviewed studies that used strong research designs (randomized experiments or those with well-controlled comparison groups) to understand the impacts of 21 public preschool programs at school entry and beyond. For the studies of the impact of preschool on children's school readiness, which has been extensively researched, we were extremely selective—including only evaluations with the strongest research designs (experiments and strong quasi-experiments). There are far fewer studies that follow preschool participants into the early elementary grades and beyond. For this timeframe, we included a wider range of research designs but maintained a high bar for the strength of each evaluation. Table 2 on page 11 lists the evaluations included in our review.

Note: See the full report at https://learningpolicyinstitute.org/product/untangling-evidence-preschool-effectiveness for a list of sources and a discussion of the methodology.

The Evidence

Most evaluations of preschool programs examine whether preschool effectively prepares children for school. These studies clearly show that children who attend preschool programs are better prepared for school than children who do not. Among the programs included in our review, researchers found clear benefits for participating children's early literacy skills in 17 out of 18 where such skills were evaluated (see Figure 1). Likewise, researchers found benefits for children's early mathematics skills in 14 out of the 16 programs where these skills were assessed. The few findings of "no difference" generally showed positive influences, though not large enough to be considered statistically significant, usually because of small sample sizes.[3]

Fewer studies examined children's social-emotional skills and executive function at school entry by measuring outcomes such as self-control and attentiveness. Of the studies that looked at these outcomes, four out of six found benefits for at least one measure, including emotion recognition and teacher reports of student engagement and behavior. In one of the "no difference" studies, the evaluators of the program suggested that difficulty in consistently measuring these skills across different grade levels and teachers may explain the lack of significant findings.[4]

Figure 1
Impacts of Preschool at School Entry

Each box represents a separate evaluation of a preschool program.



Note: Evaluations usually include many measures of child outcomes across different domains. Additional domains not included here are described in the full report.

The evidence examining whether the effects of preschool persist as children progress through school also paints a largely positive, though somewhat less consistent, picture (see Figure 2). Some studies found enduring effects, underscoring that long-lasting benefits are possible. Others, however, found few differences between children in a particular preschool program and children to whom they were compared in later grades.

As we describe later in this brief, there are often challenges in maintaining a comparison group over time that allows for clear interpretation of trends. Nonetheless, of the studies in our review that measure children's literacy beyond school entry, about half found significant benefits of preschool for children's reading performance in elementary school—in several cases persisting up to 5th grade—and the other half found little difference between the children who attended the specific preschool program and other children who remained in the comparison group throughout school.

Study methods can make a difference in results. For example, two evaluations of the same program—North Carolina Pre-K—had very different findings. One study found no effect on children's literacy skills at the end of kindergarten,[5] and the other found benefits for children's performance on standardized reading tests in 3rd through 5th grade.[6] The two studies had very different designs and measured literacy skills using different tests. They also used different comparison groups. The differences in findings are likely due to these differences in research methods and timing.

Of the 13 studies that examine children's mathematics performance throughout school, 10 document significant benefits, including some that persist well into middle school. One other study found a positive influence, though not large enough to be considered significant. Two of the studies, however, found that preschool participants performed less well than the children to whom they were compared on at least one measure of mathematics skills in the early elementary grades. These evaluations of Head Start and the Tennessee Voluntary Pre-K program are discussed in depth later in this brief. In both cases, we discuss concerns with the study design and comparison group composition in later grades. We also discuss how issues related to both program and later elementary school quality can affect the interpretation of these results.

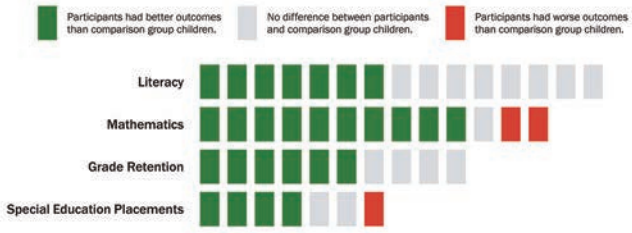
Finally, some preschool evaluations also examine impacts on grade retention and special education placements. Among the studies that examined special education placements, most (4 out of 7) found reductions in special education placements in elementary school for participating children, and two found no effect. The other study—of Tennessee Voluntary Pre-K—found that children who participated in preschool were significantly more likely to be placed in special education when they entered elementary school.[7] In that case, involvement with the public school system at an earlier age likely led to earlier identification of underlying developmental delays.

Of the studies that measured grade retention, most (6 out of 10) found a reduction for participating children in being held back in grade. Two evaluations of Tulsa's early childhood education programs did not find evidence of a difference between preschool participants and those in the comparison group. Both studies found fairly low rates of grade retention for all children, and in both cases, the evaluators suggested that many of the children to whom participants were compared attended other high-quality preschool programs, meaning both groups may have benefited equally from their early learning experiences.

Lower rates of grade retention and special education placements come with significant and immediate cost savings for school systems and society. School districts spend an average of $13,119 per child each year,[8] a cost that is doubled whenever a student is retained in grade. Retaining a child in grade also increases the likelihood of future retentions, compounding the associated costs.[9] Furthermore, the annual cost of providing special education services can be more than twice that of a general education program, and early identification of special needs—and education that addresses them early on—can reduce the number of years that special services are needed, further reducing the overall costs to schools and society.

Figure 2
Impacts of Preschool Throughout School

Each box represents a separate evaluation of a preschool program.



Note: Evaluations usually include many measures of child outcomes across different domains. Additional domains not included here are described in the full report.

Research Design Can Have Substantial Implications for Study Findings

Determining a preschool program's effectiveness requires researchers to compare children who attend that preschool program to similar children who do not, so that any differences can be attributed to the program. Early studies of early childhood education compared children who attended preschool to those who had no formal early learning experiences because preschool was not widely available.

In contrast, most contemporary studies compare children in a specific preschool with children who have a different early learning experience that may be in an equally high-quality preschool. In a case such as this, the findings of "no difference" mean that the children in the preschool program of interest do about as well as children who attended other preschool programs. Preschool may still have a positive effect, as both sets of children may be performing better than they would have without preschool and better than children who did not attend preschool at all. The only way to test the question of whether preschool matters is by comparing outcomes for children who did attend the preschool program under study and those who attended no preschool at all.

Researchers typically strive to ensure similarity of children being compared, and they may account for the early learning experiences of children who do not attend the program under study. Their success in creating comparable groups—and in making the appropriate comparisons within them—has important implications for the strength of their conclusions. However, not all studies are able to accomplish this goal.

Sometimes researchers are able to randomly choose which children can attend a program. Essentially, whether a child is able to enroll is determined by the flip of a coin. Those who do not attend become part of the comparison group. Evaluations using this approach have been particularly influential in the preschool debate because the children being compared should be quite similar if the selection is truly random and the sample size is large enough. Meanwhile, their early learning experiences, it is presumed, should be quite different. However, in practice, when a child is not chosen for the program being evaluated, her parents are often likely to enroll her in another preschool program. And, for many reasons, children chosen for the comparison group may drop out of the study, often making the groups no longer comparable. Both of these circumstances can influence the evaluation's findings and weaken the strength of its conclusions.

Whether—and how—researchers account for the early learning experiences of children in the comparison group also matters to the interpretation of findings. Studies that account for the early learning experiences of children in the comparison group can answer two questions: (1) What are the benefits of the preschool program for all eligible children, including those with the means and motivations to access high-quality alternatives? and (2) What are the benefits of the program for those children who live in homes or communities that lack those alternatives? These are critically important questions to be able to answer in early childhood research, as differences in the experiences of comparison groups often account for different findings.

Note: See the full report for an in-depth discussion of the methodology.

The implications of research design are clear in the case of one famous Head Start study. The study participants, who had attended Head Start, were compared to children who had either also attended Head Start, had attended another preschool program, or had attended no preschool program. Thus, the results were difficult to interpret and, in fact, showed little difference between the groups. As described in the box that follows, when Head Start participants were compared to children who did not attend any preschool program, the positive benefits of Head Start were obvious.

Do Head Start Gains "Fade Out"?

Head Start is a comprehensive, nationwide program for 3- and 4-year-old children in families with low incomes. Over the 50-year existence of Head Start, numerous evaluations have found benefits for children who participate compared to similar children who did not attend.[10] However, in 2012, the Head Start Impact Study found that early benefits of the program were undetectable by 1st grade: that is, the Head Start participants were not performing noticeably better than children in the comparison group.[11] The findings left policymakers with a lingering question: Do Head Start gains disappear?

The answer is: not necessarily. There are many possible explanations for these findings. For example, many of the children who were not admitted to Head Start by random assignment (and were not considered Head Start participants by evaluators) still attended preschool—and many of them attended other Head Start programs. As a result, in part, the study compared Head Start participants to other Head Start participants, masking the true effects of the program.[12] A recent re-analysis compared Head Start participants who would have stayed home if the evaluation had not allowed them to attend Head Start to children who did stay home when they didn't have access to Head Start. The study found large positive impacts on children's vocabulary in 1st grade for Head Start participants.[13] This evidence suggests that the benefits of Head Start may be larger and longer lasting for children without access to alternative care arrangements.

Several other evaluations of Head Start also showed benefits for longer term outcomes, such as grade retention, graduation rates, and educational attainment in adolescence and adulthood, despite finding similar "fade-out" on short-term outcomes like test scores.[14] Collectively, the evidence suggests that Head Start effectively prepares young children for school and that the relative size of the persistent benefits is more substantial when Head Start graduates are compared to children who were unable to attend preschool.

Furthermore, evidence suggests that policymakers should look beyond the Head Start years to the quality of elementary education to understand why the effects appear more or less lasting. A 2017 analysis found compelling evidence of the relationship between later school quality and the apparent impact of Head Start on child outcomes.[15] The study compared the adult outcomes of children who were differentially exposed to increases in Head Start spending and public k–12 school spending, and it found that for children from low-income families, the longer term benefits of Head Start spending were larger when followed by access to better funded schools. Likewise, the increases in k–12 spending were more impactful when children were exposed to greater early childhood spending. This evidence suggests that investments in elementary school may be critical to sustaining gains from preschool.

Research indicates that successful programs incorporate common elements of preschool quality, such as well-qualified educators, a developmentally appropriate curriculum, and adequate learning time.[16] Most or all of these elements are present in the programs that demonstrate the strongest and most persistent impacts on children.[17]

In studies of the longer term effects of preschool programs, the importance of quality teaching in early elementary grades also should not be discounted. In addition to findings that investments in elementary schools influence the strength of ongoing preschool effects,[18] researchers have found that the level of challenge provided by kindergarten teachers matters for later outcomes. A national study of kindergarten instruction found that many kindergarten teachers provide relatively uniform instruction that covers basic skills, even when alumni of a preschool program have likely already mastered these skills.[19] It also found that too much time spent on this basic content suppresses learning gains, whereas more time spent on more advanced content is positively associated with student learning. If kindergarten does not build on what children have learned in preschool and allow them to explore new ideas, preschool attendees may become disengaged and gradually lose ground relative to their peers.

Considerations of program quality as well as the nature of the comparison group in the Tennessee study have been raised as concerns that may account for its unexpected findings, as described in the box below.

Does Tennessee's Evaluation Prove That Preschool Doesn't Work?

Tennessee's Voluntary Pre-K program began as a success story: Initial results showed the program enhances children's school readiness in language, literacy, and mathematics. However, a follow-up evaluation appears to show no differences between program participants and comparison children on language development by 1st grade, and found that children in the study's comparison group actually surpassed program alumni on mathematics and reading skills by 2nd grade.[20]

These results understandably received attention, in part because of the study's design, which allowed the evaluators to randomly choose children either to attend the program or not. However, many of the children who were not chosen to participate in the program dropped out of the study at the start, and only one third of the remaining children agreed to additional developmental assessments in 3rd grade.[21] These were children whose parents returned a set of permission forms, calling the comparability of the comparison children to program alums into question.

A more recent follow-up evaluation of the Tennessee Voluntary Pre-K program accessed 3rd grade state achievement test scores and was able to include a broader group of comparison children.[22] This study, like its predecessor, found that children in the study's comparison group scored higher than program alumni on both reading and mathematics tests in 3rd grade. Do these findings mean that the Tennessee Voluntary Pre-K program—or that preschool as an intervention—doesn't work?

Not necessarily. There are a few other possible explanations. First, methodological issues may contribute to the study's findings. For example, in the Tennessee evaluation, the group of children to whom participants were compared was more advantaged than program alumni in nearly every way reported by the program evaluators.[23] These children were older, more likely to be White, less likely to be Black or Hispanic, and more likely to be native English speakers. Although these differences were not large enough to be statistically significant, it is possible that the cumulative impact of these advantages influenced the study's overall findings.

Further, it is possible that the more advantaged group of children to whom participants were compared went to better resourced elementary schools. Recent research has demonstrated the impact of elementary school investments on the magnitude and persistence of the impacts of early childhood programs.[24] If participant children attended more poorly resourced, lower quality elementary schools, their kindergarten teachers may have been ill equipped to support the development of children who varied substantially in the knowledge and skills they brought into the classroom.

In addition, the evaluators did not account for the early learning experiences of children who did not attend the program, some of whom attended other preschools.[25] Without direct comparisons of participants to children who did and did not attend other preschool programs, the results are difficult to interpret. It is impossible to know from the analysis whether the effects of the program were different for children without access to alternative early learning experiences, as was the case with Head Start.

Notably, earlier reports out of Tennessee foreshadowed this trend of initial gains for preschool participants followed by convergence or, in some cases, lower scores for program attendees in elementary school. Therefore, the quality of Tennessee's program, which evidence suggests may have been meaningfully different from programs that demonstrate effectiveness, is likely the more compelling explanation for these findings.[26] The evaluation's findings clearly demonstrate that program participants saw immediate benefits from program participation; however, it is possible that the quality of early instruction children received in their preschool year did not instill the type of deep understanding of mathematical and literacy concepts that would set the foundation for continued growth.

This explanation is supported by an evaluation of the quality of a sample of Tennessee Voluntary Pre-K classrooms. The study found substantial variation in observed teacher-child interaction quality, with some classrooms scoring quite high and others extremely low.[27] In the low-quality classrooms, teachers spent only a little more than half of their time engaged in learning activities, which may reflect poor classroom management or difficulties embedding learning into everyday routines and play. Further, critical elements of quality were completely missing from the program. For example, researchers observed that teachers received little support for professional development to improve instruction. The evidence suggests the quality of Tennessee's program may have been meaningfully different from programs that demonstrate effectiveness. In a recent assessment of statewide program quality, Tennessee's program met only 5 of the 10 new quality benchmarks set forth by the National Institute for Early Education Research (NIEER).

Given these considerations, it seems that the results of the Tennessee program evaluation warrant further investigation to understand their meaning, both in Tennessee and in relation to preschool more broadly.

Note: See the full report for a list of sources.

Conclusion

The weight of a sizable body of evidence indicates that preschool programs make a substantial difference in preparing children for school.[28] The evidence about continued effects beyond school entry is also positive, but less consistent. Sorting out these findings requires an examination of the way that different studies construct comparison groups—whether children in those groups are truly comparable to the children who attended the preschool program under study and whether they themselves attended a different preschool.

In order to generate meaningful impacts, early learning experiences need to be rich and engaging.[29] Implementing a high-quality preschool program well—offering compensation and support that attract and retain a highly qualified workforce; a program day that provides adequate, productive learning time and activities; and child assessments used to individualize learning—is complex and often expensive.[30] Finally, although preschool quality is important, even the highest quality preschool cannot inoculate children from the detrimental effects of poverty or poor elementary and secondary schools. Sustained benefits likely require investments in children and their families that are also sustained from preschool through grade school and beyond.

Preschool Pays for Itself

Preschool programs are often held up as savvy investments, in large part due to economic analyses signaling large returns on investment. Estimates of returns on investment in preschool range from the modest—$2 for every $1 invested when examined just a few years after preschool[31]—to the substantial—$17 for every $1 invested when tracked through adulthood.[32]

What explains this variability? The timing of cost-benefit analyses and the outcomes that evaluators measure directly affect the size of an estimated return. The largest returns have been observed among high-intensity programs that have documented long-term benefits such as lower rates of incarceration and higher earnings well into adulthood. More modest returns from contemporary programs, on the other hand, are usually based on short-term benefits such as reductions in special education placements and grade retention in elementary and middle school.[33] These can be expected to predict longer term benefits as children grow into adulthood and are more likely to graduate and gain productive employment.

Importantly, however, no cost-benefit analysis of a preschool program has ever found zero return, and any return that exceeds $1 for every $1 spent means the program more than pays for itself.

Table 2
Programs and Studies of Outcomes Included in This Analysis

Program	Timing of Evaluation: School Entry	Throughout School[a]
Arkansas Better Chance Program	Husted, Barnett, Jung, & Thomas (2007)	Jung, Barnett, Husted, & Francis (2013)
Boston Public Schools K1	Weiland & Yoshikawa (2013)	
California Transitional Kindergarten	Manship, Holod, Quick, Ogut, Brodziak de los Reyes, et al. (2017)	Manship, Holod, Quick, Ogut, Brodziak de los Reyes, et al. (2017)
Connecticut School Readiness Program	The Connecticut Academy of Science and Engineering (2016)	
Florida Pre-Kindergarten Early Intervention		Figlio & Roth (2009)
Florida Voluntary Pre-K		Miller & Bassok (in press)
Georgia's Pre-K Program	Peisner-Feinberg, Schaaf, LaForett, Hildebrant, & Sideris (2014)	Cascio & Schanzenbach (2013)[b]
Head Start	U.S. Department of Health and Human Services (2010)	U.S. Department of Health and Human Services (2012); U.S. Department of Health and Human Services (2010); Deming (2009)
Michigan Great Start Readiness Program	Wong, Cook, Barnett, & Jung (2008)[b,c]	
New Jersey Abbott Preschool Program	Frede, Jung, Barnett, Lamy, & Figueras (2007)	Barnett, Jung, Youn, & Frede (2013)
New Mexico Pre-K	Hustedt, Barnett, Jung, & Friedman (2010)	
North Carolina Pre-K	Peisner-Feinberg & Schaaf (2011)	Peisner-Feinberg, Mokrova, & Anderson (2017); Dodge, Bai, Ladd, & Muschkin (2016)
Oklahoma 4-Year-Old Program	Wong, Cook, Barnett, & Jung (2008)[b]	Cascio & Schanzenbach (2013)[b]; Smith (2016)
San Francisco Preschool for All	Applied Survey Research (2013)	
South Carolina 4K and First Steps to Success	Wong, Cook, Barnett, & Jung (2008)[b]	
Tennessee Voluntary Pre-K	Lipsey, Farran, & Durkin (2018)	Lipsey, Farran, & Durkin (2018)
Tulsa ECE Programs: CAP Tulsa Head Start	Gormley, Phillips, & Gayer (2008)[b]	Phillips, Gormley, & Anderson (2016)
Tulsa ECE Programs: Universal Pre-K	Gormley, Phillips, & Gayer (2008)[b]	Hill, Gormley, & Adelstein (2015); Gormley, Phillips, & Anderson (2017)
Virginia Preschool Initiative	Huang (2017)	Virginia University Research Consortium on Early Childhood (2015)
Washington ECEAP		Bania, Kay, Aos, & Pennucci (2014)
West Virginia Pre-K	Wong, Cook, Barnett, & Jung (2008)[b]	
Total Studies and Programs	**14 studies of 18 programs**	**19 studies of 14 programs**

[a] To capture a robust cross-section of literature on outcomes beyond school entry, we include studies of both early elementary school (grades k–3) and later grades (grade 4 through adulthood) where possible. In cells where multiple studies are listed, evaluations of both grade spans met the methodological bar for inclusion.
[b] This is a multi-program study.
[c] Following our review, a new and expanded version of this evaluation was released. For more information see: Barnett, W. S., Jung, K., Friedman-Krauss, A., Frede, E. C., Nores, M., Hustedt, J. T., Howes, C., & Daniel-Echols, M. (2018). State prekindergarten effects on early learning at kindergarten entry: An analysis of eight state programs. *AERA Open*, *4*(2), 1–16.

Endnotes

1. Halle, T., Forry, N., Hair, E., Perper, K., Wandner, L., Wessel, J., & Vick, J. (2009). *Disparities in early learning and development: Lessons from the Early Childhood Longitudinal Study—Birth Cohort (ECLS-B).* Washington, DC: Child Trends.
2. Campbell, F. A., Pungello, E. P., Burchinal, M., Kainz, K., Pan, Y., Wasik, B. H., Barbarin, O., Sparling, J. J., & Ramey, C. T. (2012). Adult outcomes as a function of an early childhood educational program: An Abecedarian Project follow-up. *Developmental Psychology, 48*(4), 1033–1043; Reynolds, A. J., Ou, S., & Temple, J. (2018). A multicomponent, preschool to third grade preventive intervention and educational attainment at 35 years of age. *Journal of the American Medical Association Pediatrics, 172*(3), 247–256; Schweinhart, L. J., Montie, J., Xiang, Z., Barnett, W. S., Belfield, C. R., & Nores, M. (2005). *Lifetime effects: The High/Scope Perry Preschool Study through age 40.* Monographs of the High/Scope Educational Research Foundation, No. 14. Ypsilanti, MI: High/Scope Press.
3. Wong, V. C., Cook, T. D., Barnett, W. S., & Jung, K. (2008). An effectiveness-based evaluation of five state pre-kindergarten programs. *Journal of Policy Analysis and Management, 27*(1), 122–154.
4. Peisner-Feinberg, E. S., Schaaf, J. M., LaForett, D. R., Hildebrandt, L. M., & Sideris, J. (2014). *Effects of Georgia's Pre-K Program on children's school readiness skills: Findings from the 2012–2013 evaluation study.* Chapel Hill, NC: University of North Carolina, FPG Child Development Institute.
5. Peisner-Feinberg, E. S., Mokrova, I. L., & Anderson, T. L. (2017). *Effects of participation in the North Carolina Pre-Kindergarten Program at the end of kindergarten: 2015–2016 statewide evaluation.* Chapel Hill, NC: University of North Carolina, FPG Child Development Institute.
6. Dodge, K. A., Bai, Y., Ladd, H. F., & Muschkin, C. G. (2016). Impact of North Carolina's early childhood programs and policies on educational outcomes in elementary school. *Child Development, 88*(3), 1–19.
7. Lipsey, M. W., Farran, D. C., & Durkin, K. (2018). Effects of the Tennessee Prekindergarten Program on children's achievement and behavior through third grade. *Early Childhood Research Quarterly, 45*, 155–176.
8. U.S. Department of Education, National Center for Education Statistics. (2018). *The condition of education* (NCES 2018-144). Public School Expenditures.
9. Xia, C., & Glennie, E. (2005). *Cost-benefit analysis of grade retention.* Raleigh, NC: Duke University, Center for Child and Family Policy, 1–7.
10. See, e.g., Garces, E., Thomas, D., & Currie, J. (2002). Longer-term effects of Head Start. *American Economic Review, 92*(4), 999–1012; Carneiro, P., & Ginja, R. (2014). Long-term impacts of compensatory preschool on health and behavior: Evidence from Head Start. *American Economic Journal: Economic Policy 6*(4), 135–173; Deming, D. (2009). Early childhood intervention and life-cycle skill development: Evidence from Head Start. *American Economic Journal: Applied Economics, 1*(3), 111–134.
11. U.S. Department of Health and Human Services, Administration for Children and Families. (2010). *Head Start Impact Study: Final report.* Washington, DC: Author.
12. U.S. Department of Health and Human Services, Administration for Children and Families. (2010). *Head Start Impact Study: Final report.* Washington, DC: Author.
13. Feller, A., Grindal, T., Miratrix, L., & Page, L. (2016). Compared to what? Variation in the impacts of early childhood education by alternative care type. *Annals of Applied Statistics, 10*(3), 1245–1285.
14. See, e.g., Garces, E., Thomas, D., & Currie, J. (2002). Longer-term effects of Head Start. *American Economic Review, 92*(4), 999–1012; Carneiro, P., & Ginja, R. (2014). Long-term impacts of compensatory preschool on health and behavior: Evidence from Head Start. *American Economic Journal: Economic Policy 6*(4), 135–173.
15. Johnson, R. C., & Jackson, C. K. (2017). *Reducing inequality through dynamic complementarity: Evidence from Head Start and public school spending* (No. w23489). Cambridge, MA: National Bureau of Economic Research.
16. Wechsler, M., Melnick, H., Maier, A., & Bishop, J. (2016). *The building blocks of high-quality early education programs.* Palo Alto, CA: Learning Policy Institute; NAEYC Early Learning Standards and Accreditation Criteria & Guidance for Assessment, 2017.
17. Wechsler, M., Melnick, H., Maier, A., & Bishop, J. (2016). *The building blocks of high-quality early education programs.* Palo Alto, CA: Learning Policy Institute; Wechsler, M., Kirp, D., Tinubu Ali, T., Gardner, M., Maier, A., Melnick, H., & Shields, P. (2016). *The road to high-quality early learning: Lessons from the states.* Palo Alto, CA: Learning Policy Institute.
18. Johnson, R. C., & Jackson, C. K. (2017). *Reducing inequality through dynamic complementarity: Evidence from Head Start and public school spending* (No. w23489). Cambridge, MA: National Bureau of Economic Research.
19. Claessens, A., Engel, M., & Curran, F. C. (2014). Academic content, student learning and the persistence of preschool effects. *American Educational Research Journal, 51*, 403–434.
20. Lipsey, M. W., Farran, D. C., & Hofer, K. G. (2016). *Effects of a state prekindergarten program on children's achievement and behavior through third grade.* Nashville, TN: Vanderbilt University, Peabody Research Institute.
21. Lipsey, M. W., Farran, D. C., & Hofer, K. G. (2016). *Effects of a state prekindergarten program on children's achievement and behavior through third grade.* Nashville, TN: Vanderbilt University, Peabody Research Institute.
22. Lipsey, M. W., Farran, D. C., & Durkin, K. (2018). Effects of the Tennessee Prekindergarten Program on children's achievement and behavior through third grade. *Early Childhood Research Quarterly, 45*, 155–176.
23. Lipsey, M. W., Farran, D. C., & Durkin, K. (2018). Effects of the Tennessee Prekindergarten Program on children's achievement and behavior through third grade. *Early Childhood Research Quarterly, 45*, 155–176.
24. Johnson, R. C., & Jackson, C. K. (2017). *Reducing inequality through dynamic complementarity: Evidence from Head Start and public school spending* (No. w23489). Cambridge, MA: National Bureau of Economic Research.
25. Lipsey, M. W., Farran, D. C., & Hofer, K. G. (2016). *Effects of a state prekindergarten program on children's achievement and behavior through third grade.* Nashville, TN: Vanderbilt University, Peabody Research Institute; Lipsey, M. W., Farran, D. C., & Durkin, K. (2018). Effects of the Tennessee Prekindergarten Program on children's achievement and behavior through third grade. *Early Childhood Research Quarterly, 45*, 155–176.
26. Strategic Research Group. (2011). *Assessing the impact of Tennessee's pre-kindergarten program: Final report.* Columbus, OH: Author.
27. Farran, D., Hofer, K., Lipsey, M., & Bilbrey, C. (2014). *Variations in the Quality of TN-VPK Classrooms.* Presentation at the Society for Research on Education Effectiveness Conference, Washington, DC.
28. Peisner-Feinberg, E. S., Mokrova, I. L., & Anderson, T. L. (2017). *Effects of participation in the North Carolina Pre-Kindergarten Program at the end of kindergarten: 2015–2016 statewide evaluation.* Chapel Hill, NC: University of North Carolina, FPG Child Development Institute.
29. Wechsler, M., Melnick, H., Maier, A., & Bishop, J. (2016). *The building blocks of high-quality early education programs.* Palo Alto, CA: Learning Policy Institute.
30. Meloy, B., Gardner, M., Wechsler, M., & Kirp, D. (2019). "What Can We Learn From State-of-the-Art Early Childhood Education Programs?" in Reynolds, A. R., & Temple, J.A. (Eds.). *Sustaining Early Childhood Learning Gains: Program, School, and Family Influences*, pp. 101–132. Cambridge: Cambridge University Press.
31. Cannon, J., Kilburn, M. R., Karoly, L., Mattox, T., Muchow, A., & Buenaventura, M. (2017). *Investing Early: Taking Stock of Outcomes and Economic Returns From Early Childhood Programs.* Santa Monica, CA: RAND Corporation.
32. Barnett, W. S., Belfield, C. R., & Nores, M. (2005). "Lifetime Cost-Benefit Analysis" in Schweinhart, L. J., Montie, J., Xiang, Z., Barnett, W. S., Belfield, C. R., & Nores, M. (Eds.). *Lifetime effects: The High/Scope Perry Preschool Study through age 40.* Monographs of the High/Scope Educational Research Foundation, No. 14. Ypsilanti, MI: High/Scope Press.
33. Cannon, J., Kilburn, R., Karoly, L., Mattox, T., Muchow, A., & Buenaventura, M. (2017). *Investing Early: Taking Stock of Outcomes and Economic Returns From Early Childhood Programs.* Santa Monica, CA: RAND Corporation.

REBUILD AMERICA'S SCHOOLS
A National Coalition

1440 N Street, NW
Suite 1016
Washington, DC 20005

PHONE 202-462-5911
E-MAIL
RebuildAmericasSchools@comcast.net

American Federation of Teachers □ Council of The Great City Schools □ National Parent Teacher Association
International Union of Operating Engineers □ National Education Association □ AASA, The School Superintendents Association
□ National School Boards Association □ National Association of Elementary School Principals
National Association of Secondary School Principals □ NAACP □ National Association of Federally Impacted Schools
American Institute of Architects □ Organizations Concerned About Rural Education □ National Rural Education Association
Californians for School Facilities

April 28, 2021

The Honorable Bobby Scott
Chair, The Education and Labor Committee
US House of Representatives
Washington, D.C. 20515

Dear Chairman Scott:

Rebuild America's Schools looks forward to working with Chairman Scott and the Education and Labor Committee on investing in our nation's schools and classrooms to advance student achievement, creating local jobs and improving our national economy. The Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy hearing will highlight the need to improve schools, expand access to affordable child care, reduce the cost of higher education, and help unemployed workers get back on the job.

The national need to modernize schools is extensive. The Government Accounting Office (GAO) June 2020 report estimates more than half of America's public school districts need significant repairs to their school facilities. Fifty four percent of school districts across the country must replace or update major systems in more than half their buildings. Grants and infrastructure bonds will assist communities respond to necessary school facility modifications, renovations, and repairs to re-open safely for students, teachers, and staff. This is beyond the capacity of state and local community resources.

President Biden's American Jobs Plan and legislation such as *The Reopen and Rebuild America's Schools Act* invest in grant and bond programs improving health and safety conditions for students and staff creating over 1.9 million local jobs. *The Reopen and Rebuild America's Schools Act* addresses a national need to assist local school districts provide safe, modern, healthy, energy efficient schools with improved learning opportunities for students to achieve and succeed.

We look forward to working with you and the Committee on advancing President Biden's American Jobs Plan and the objectives of the hearing. The *Reopen and Rebuild America's Schools Act* is a critical federal link in providing America's students modern, technologically and energy efficient schools and classrooms where they can develop the educational skills necessary to achieve and succeed in the 21st century workforce.

Sincerely,

Bob Canavan

Robert P. Canavan
Chair



American Federation
of Teachers, AFL-CIO

AFT Teachers
AFT PSRP
AFT Higher Education
AFT Public Employees
AFT Nurses and Health
Professionals

555 New Jersey Ave. N.W.
Washington, DC 20001
202-879-4400
www.aft.org

Randi Weingarten
PRESIDENT

Fedrick C. Ingram
SECRETARY-TREASURER

Evelyn DeJesus
EXECUTIVE VICE PRESIDENT

VICE PRESIDENTS
J. Philippe Abraham
Shelvy Y. Abrams
Frederick Albert
Elba L. Aponte Santos
Barbara Bowen
Vicky Rae Byrd
Zeph Capo
Donald Carlisto
Larry J. Carter, Jr.
Kathy A. Chavez
Donna M. Chiera
Melissa Cropper
Amanda Curtis
Jolene T. DiBrango
GlenEva Dunham
Marietta A. English
Francis J. Flynn
Jeffery M. Freitas
Lisa Gourley
David Gray
Ron Gross
Anthony M. Harmon
David Hecker
Karla Hernandez-Mats
Jan Hochadel
Jerry T. Jordan
Frederick E. Koval
Stephanie Ly
Terrence Martin, Sr.
John McDonald
Daniel J. Montgomery
Michael Mulgrew
Andrew Pallotta
Donna Phillips, RN
Juan Ramirez
Jesse Sharkey
Andrew Spar
Denise Specht
Wayne Spence
Jessica J. Tang
Adam Urbanski
Debbie White, RN
Carl Williams

April 28, 2021

U.S. House of Representatives
Committee on Education and Labor
Washington, D.C. 20515

Dear Chairman Scott,

On behalf of the 1.7 million members of the American Federation of Teachers, I am writing to thank you for holding today's hearing on Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy and for your tireless advocacy for H.R. 604, the Reopen and Rebuild America's Schools Act. The students AFT teachers, paraprofessionals, nurses and school-related personnel serve have felt the effects of a lack of investment in public school facilities for years. Indeed, in its 2021 report, the American Society of Civil Engineers gave America's school infrastructure a D+. Including H.R. 604 in the upcoming infrastructure package will be a crucial step toward addressing these needs.

The COVID-19 crisis only strained the infrastructure system further, laying bare both the connectivity challenges faced by students in low-income communities and the ventilation system challenges faced by schools, while at the same time creating massive learning losses. While the American Rescue Plan Act will do a great deal to address immediate pandemic-related challenges, including the need to reopen schools safely, the health and academic challenges produced by a decaying school infrastructure must also be addressed.

Too many of our nation's children have been attending classes in buildings with failing or faulty HVAC systems, broken plumbing, or asbestos. Our members know that students can't thrive in schools laden with toxic black mold, classrooms without heat or air conditioning, or buildings with leaking ceilings or contaminated water. To put it simply, no child should be breathing contaminated air and drinking tainted water anywhere, let alone in a place of learning.

Moreover, our members understand that student success depends on a school's capacity to provide students with the tools necessary to compete in the 21st century. H.R. 604 would invest in the communities that need it most. That investment will reap not only educational growth but also economic growth; it is estimated that the Reopen and Rebuild America's Schools Act would create more than 2 million jobs.

The AFT has been walking the walk on infrastructure investment for years, harnessing the billions in our members' pension funds to serve the common good. In 2011, the American labor movement committed $10 billion over five years for infrastructure. This has increased to $16 billion, creating at least 100,000 jobs. Partnering with allies in West Virginia, the AFT

The **American Federation of Teachers** is a union of professionals that champions fairness; democracy; economic opportunity; and high-quality public education, healthcare and public services for our students, their families and our communities. We are committed to advancing these principles through community engagement, organizing, collective bargaining and political activism, and especially through the work our members do.

built housing for educators in rural McDowell County to help reduce teacher shortages. We will continue to do everything we can to improve our nation's infrastructure, but the teachers, bus drivers and paraprofessionals in your district need more allies. In this moment of crisis, they need Congress to take action.

I urge you to continue to advocate for the inclusion of the Reopen and Rebuild America's Schools Act in the upcoming infrastructure package and thank you for highlighting this crucial piece of legislation in today's hearing.

Sincerely,

Randi Weingarten
President

RW : emc opeiu #2 afl-cio

GAO Report 20-494: K-12 EDUCATION—School Districts Frequently Identified Multiple Building Systems Needing Updates or Replacement

https://www.govinfo.gov/content/pkg/CPRT-117HPRT47050/pdf/CPRT-117HPRT47050.pdf

[Additional submissions by Ms. Wilson follow:]



3 Million Kids Missing From School Because of COVID-19 Is a Travesty

By Rey Saldaña, Shaquille O'Neal | March 5, 2021 Facebook Twitter Email

Ensuring equity in education will take more than reopening buildings

For many low-income students, inequitable learning conditions are not new — but they have been exacerbated by the pandemic.

An estimated three million students in the U.S. have gone "missing" during the pandemic — not from home, but from virtual school. They are no longer attending classes and are most likely falling behind. Even after the pandemic ends, many may never go back.

We are devastated by that number. Not just as parents and as advocates for the nation's children, but as two people who grew up with family struggles and the difficulties brought on by economic instability. If the pandemic had happened at an earlier time in our lives, we or someone we know could have been one of those millions of kids.

For many low-income students, inequitable learning conditions are not new — but they have been exacerbated by the pandemic. It's no surprise, then, that these same students are experiencing learning loss and chronic absenteeism at higher rates than their peers during the COVID-19 crisis. We can't let that continue.

The solution is to provide whole-child supports that meet students' needs outside the classroom: access to food, health care, after-school programs, counseling, and housing and job referrals for parents. These essential services successfully get children in economically strapped families back to learning, and our nation's leaders must prioritize funding them so that no student is missing from school.

Beyond buildings

As we near a year since thousands of schools first closed their doors last spring, President Biden has made quickly reopening school buildings and getting millions of students and teachers back into the classroom a top priority. His plan focuses on safety first and offers $130 billion in funds for K-12 schools to help reduce in-person class sizes and take other steps to prevent COVID-19 transmission.

Figuring out how to get more students in the door as safely as possible is important. As difficult as community debates over school reopening have been, educators, parents and children agree that students learn best in the classroom. Many experts believe in-person learning will ensure the most at-risk children are less likely to be left behind.

But while returning to buildings may help reverse learning loss and bring some of the missing children back, it won't solve the problem entirely if children are still hungry, their social and emotional needs are unmet, and their families are still struggling to afford health care and school supplies.

An effective way to provide wrap-around services that enable children to learn is by embedding nonprofit partners to coordinate them in schools, ensuring students' needs are all met in one place. This approach, called integrated student supports, also benefits the schools, allowing educators to prioritize student learning while knowing families will get help. Schools require additional federal funding to provide these services, as well as coordinators to run them. It's the only way to get kids back to in-person or virtual schoolrooms and prevent further learning loss, especially in low-income communities where students are falling off the most.



Proven models

This isn't just a vision. It's already working in 2,500 schools across the nation. Communities In Schools, a national education nonprofit, found that schools providing integrated students supports last year were able to keep 99% of students in the education system. Students and their families receive exactly the right support for them, no matter the mode of learning, whether it's mental health checks and telehealth services, regular meal distribution, reliable internet access or mentoring and academic support.

These wrap-around services do more than just keep kids in school — they set them up for success.

These wrap-around services do more than just keep kids in school — they set them up for success.

Low-income kids were disadvantaged by the education system when we were in school, and they overwhelmingly still are today. The two of us were able to fulfill our potential because of organizations like the integrated student supports provider Communities In Schools and the afterschool network of Boys & Girls Clubs. Rey now leads CIS's national network, and Shaquille founded The Shaquille O'Neal Foundation to fund out-of-school-time programs for the millions of kids who were forgotten long before the pandemic. These proven models have adapted to our time of social distancing, and they are helping kids get through a pandemic as well as through the difficulties of everyday life.

There's no sugarcoating it. The nation is failing students everywhere. In Los Angeles, one-third of high school students are not regularly logging on for online learning. In Houston, 42% of students received a failing grade this fall compared to 26% in fall 2019. In Washington, D.C., students are now four months behind in math and one month behind in reading, compared to regular years.

We can do better. Whether schools are virtual, hybrid, or in-person, we can meet every child's most critical needs so that learning can go on, long after we put COVID-19 in the history books.

Shaquille O'Neal is founder of The Shaquille O'Neal Foundation, which helps underserved youth achieve their full potential, and a member of the national board of directors of Communities In Schools, the national organization that ensures all students are on a path to success. He is an alumnus of the Boys & Girls Clubs. Rey Saldaña is president and CEO of Communities In Schools. As a student, he was supported by Communities In Schools – San Antonio. Later, he served four terms as a San Antonio city council member.

Report Estimates 1 to 3 Million Students Missing From School Since March, But Data on Disrupted Learning is 'At Best a Moving Target'

By Linda Jacobson | October 21, 2020



(John Moore/Getty Images)

Between 1 to 3 million students in the U.S. possibly haven't attended school since pandemic-related closures began in March, according to estimates released today by Bellwether Education Partners.

Pulling from news reports and federal data sources, the team of researchers predict that between 10 and 25 percent of students in the most marginalized populations have completely missed out on learning for the past seven months.

"We did this because we know that just 1 percent of our most marginalized kids not coming to school might not seem like a lot in any one district, and many districts might not even be keeping careful count, but that's more than 230 schools' worth of children across the country — and we think that's a big deal," said Hailly T.N. Korman, a senior associate partner at the Washington-based non-profit who conducted the project with co-authors Bonnie O'Keefe and Matt Repka.

The five high-risk groups that have likely had the most difficulty connecting to school virtually are homeless students, children with disabilities, migrant students, English learners and those in foster care. If 10 percent were disconnected from school, for example, the number of students in those groups would range from 1,500 in Vermont to over 200,000 in California — the size of a large metro school district. If a quarter of students in those groups haven't participated since March, that would amount to over 3 million nationwide.

"There is not enough public recognition of the serious challenges facing America's most vulnerable students at this moment or of the consequences if millions continue to be disconnected from schools and other support systems indefinitely," they wrote.

But they stressed that the estimates are far from perfect because many students fall into two or more groups and "these populations are at best a moving target."

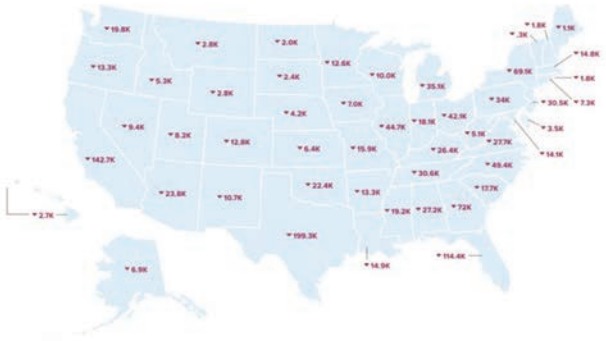
The researchers considered two types of students in their model — missing students that haven't logged on but would participate if they had the opportunity and those who are gone, which they defined as having "made a transition away from school engagement in ways that could be permanent."

Korman, with Bellwether, noted that the researchers did not use districts' actual enrollment counts so far from this year.

"Since accurate attendance data is hard to come by this year, and we know that many districts are still struggling to define what 'in attendance' even means," she said, "we decided to focus on a set of hypotheticals that we think align with the reporting to date and the pockets of local data where it has been made available."

A range of 1 to 3 million missing students doesn't seem off to Jamie Fox, the head of communications for Remind, a communications platform widely used among schools. The company calculated that 1.3 million students stopped engaging — sending or responding to Remind messages — by the end of last school year.

"We've been trying to use our data to help administrators gain [a] line of sight to 'missing students' so they can plan interventions early," Fox said.



Students who stopped responding to or sending messages through the Remind app in each state at the end of last school year. (Remind)

Beyond government officials' efforts to "stomp out" the virus so schools can reopen, the Bellwether authors recommended that education officials develop attendance strategies that recognize students' unmet needs, work with social services and internet providers to coordinate responses, and collect and report real-time attendance data.

Hard to 'keep track'

Missing students include those experiencing homelessness who already struggled to find reliable internet service or suitable places to do schoolwork even before COVID-19. A new report this week on rising youth homelessness in California, from UCLA's Center for the Transformation of Schools, delved into the struggles facing these students.

"COVID has exacerbated those challenges since many students are still not going into a physical school location, making it hard to 'keep track' of their living situations, needs, and well-being," said Geneva Sum, a communications specialist for the center. "Several of our interviewees stated that students are trying to do schoolwork in motel rooms with multiple family members and are experiencing difficulty concentrating, so some districts are distributing things like microphones and headphones to mitigate those issues."

The Greenville County Schools in South Carolina is among those districts using the types of strategies the researchers recommend. To minimize the chances teachers would lose touch with students in the spring, the technology services department sent frequent reports to schools identifying which students weren't logging on to their classes, according to district spokesman Tim Waller.

If teachers couldn't make contact, the district's attendance director and social workers would get involved. Ultimately, the district lost contact with 54 of the district's 77,000 students.

Prior to the start of this school year, the Fulton County Schools in Georgia mounted a "locate, assess, connect" effort led by social workers at each school. They reached out to almost 7,500 students who missed more than 10 days last spring and completed less than 70 percent of their online assignments in March through May.

With a script and a list of questions for families, they asked about needs, including technology, housing and food.

"We strongly believe that this proactive, structured process was a key component of why we had so many students ready to go on day one in a full-time virtual environment," said spokeswoman Shumuriel Ratliff.

The Washington Post
Democracy Dies in Darkness

Education

Unprecedented numbers of students have disappeared during the pandemic. Schools are working harder than ever to find them.



Kenneth Chapman Sr. drives to check in on Detroit students last October who haven't been appearing in class online. (Nick Hagen for The Washington Post)
By Moriah Balingit
Feb. 25, 2021 at 8:20 p.m. EST

DETROIT — Kenneth Chapman Sr. was hopeful as he navigated a hulking Detroit Public Schools van down the street, pulling up to a brick home. Out front, there were signs that the girl he was looking for lived inside. Amid the discarded plastic cups in the yard, there was a ball, and on the porch a small bike, painted fluorescent pink.

"Normally when I get to the house and I see toys or bikes, I think, 'Okay, somebody's going to be here,' " Chapman said.

But when he knocked, no one appeared.

This was one of the two dozen stops Chapman, who works in the school system's Family and Community Engagement Office, would make, looking on this chilly day in late October for students who had been missing classes. Some of the children on the list had worrisome numbers of absences this early on in the school year. But there were 3,000 students the district could not account for at all.

School districts across the country that closed buildings in mid-March in response to the coronavirus pandemic handled the transition to remote learning with varying levels of success. During the disruption, schools lost track of students. Many students who were present in the classroom in early March could not be found online. And others who showed up in the spring haven't been seen since.

Even before the pandemic, districts had to track down children who had stopped showing up to school or had failed to appear for a new school year. They have strong incentives to find them; school funding is often allocated on a per-pupil basis. Sometimes it turns out students have moved and enrolled in other districts. Other times they can't be found and are removed from the rolls.

But this year, students have disappeared from classes in unprecedented numbers, forcing districts to rethink their approach to those who stop showing up. Many districts, cognizant of the damage that lost school time can cause, have employed extraordinary efforts to track down students to ensure that they are safe and have devices to learn. Others, like Detroit and Miami, have kept students on rosters even after they failed to show for an entire month. North Dakota began tracking attendance for all schools on a daily basis, and several schools used coronavirus aid to hire family liaisons to find missing students.

Several states have seen precipitous drops in public school enrollment this school year, and many have seen a rise in the number of students enrolled in private schools or being home-schooled. In addition, the children who would have started preschool or kindergarten in the fall are staying home in droves, as those grades are not mandatory in most states. But there's another category of students: those who were supposed to be in classes this year but still have not appeared.

In North Carolina, a state education official told state lawmakers in December that more than 10,000 students had not been accounted for. New Mexico could not account for more than 12,000 students at the start of the school year, children who were enrolled before the pandemic but never showed up in the fall. This month, the state's education department reported that more than 2,700 students were still missing.

Katarina Sandoval, New Mexico's deputy secretary of academic engagement and student success, said that in previous years, the number of students who failed to come to school was so small that they did not even have a name for them. Many of them were high school dropouts.

But this year, the missing students come from all grades. The state organized an effort to reach out to families and enlisted the help of social service agencies to support those families who struggled to get their children to school.

A lot of these discrepancies stem from poor record-keeping systems. In many states, districts collect attendance individually and do not have a good way of sharing with one another. So a student who merely transferred may be marked as missing, and a student who cannot be found could be presumed to be in another district.

Detroit, which opened buildings in the fall for optional in-person instruction, had more than 900 students who did not enroll until after October, weeks into the school year. The district, which has long struggled with chronic absenteeism, launched an aggressive attendance initiative in 2019 backed by private foundations that allowed it to hire attendance officers for every school to keep tabs on children who did not show up.

During the pandemic, the district capitalized on the initiative, launching three door-to-door campaigns that sent staff and parent volunteers to the homes of students who have not been showing up to classes — either virtually or in person. In late January, the district was in the midst of its third campaign, with volunteers hitting the streets in 26-degree weather to check on students.

When school districts reach out to families, they often do so through text messages, robocalls, emails, Facebook posts and snail mail. It's communication that requires families to have a working cellphone, Internet access and a fixed address. That means families who move frequently, change cellphone numbers or do not speak English can be left out of the loop and can be difficult to find.

Sacramento City Unified School District learned that lesson the hard way, when it lost touch with more than 1,600 students after closing in mid-March. None of them had responded to check-in calls from educators, and none of them logged on when virtual classes started a month later.

The district jumped into action, dispatching staff members to students' homes and setting up a food truck in the middle of large apartment complexes to draw out families and their children. If they found a student, they collected current contact information and ensured that the student had what was needed to log on. When that did not work, the district sought addresses from the state's food stamp program and from social service agencies. About three-quarters of the district's schoolchildren qualify for low-cost health insurance, food stamps or other social service programs.

By summer, just 845 students were missing. And by the start of the school year, only nine remained unreachable.

It is deeply worrisome for educators when they cannot account for where a young person is, or whether they are learning and safe. When school is in session and classes are face to face, teachers are better able to detect whether a schoolchild is being abused or neglected. Those

check-ins are tougher when school is closed and children are no longer showing up for face-to-face instruction. Educators accounted for about a fifth of child abuse reports in 2018, according to federal data.

“There’s just a whole layer of kids who have just disappeared,” said Hailly T.N. Korman of the think tank Bellwether Education Partners, who is studying what she calls “the attendance crisis.”

She is particularly concerned about children who come from low-income households, English-language learners, homeless students and migrant students, whose families may have been hit especially hard by the economic downturn: “It’s been true for generations . . . that every one of society’s unmet needs of children shows up at a classroom door.

“Now there’s no classroom door to show up at.”

“School has historically been the daily wellness check for a lot of kids,” Korman said. “They don’t have that anymore.”

Like cities across the country, Detroit shut down its schools in mid-March as the pandemic tore through the community.

One of its victims was 5-year-old Skylar Herbert, the daughter of a police officer and a firefighter, and the first child to die of covid-19 in Michigan. Shortly thereafter, Gov. Gretchen Whitmer (D) formed a task force to examine the pandemic’s lopsided effects on communities of color. She dedicated the task force to Skylar, who was Black.

In the fall, the district reopened school buildings but gave parents the option of sending their children back or keeping them home and having them learn online. About a quarter of parents said they would send their children back. The rest either could not be reached or opted for virtual learning.

Last spring, after schools closed, the district endeavored to get a laptop with Internet embedded out to every one of the district’s 50,000 students, raising $23 million in three weeks from Detroit-based companies to fund the effort. They distributed more than 45,000. But many students never showed up to pick up a device — including nearly every child who remained missing deep into the school year. About 70 percent of the students on that list were also considered chronically absent before the pandemic.



Chapman and his colleagues become de facto IT specialists to help students log on. (Nick Hagen for The Washington Post)



Chapman and Assistant Superintendent Sharlonda Buckman visit a student's home. (Nick Hagen for The Washington Post)

Nikolai Vitti, the superintendent of Detroit Public Schools, said the number of students missing from classrooms is staggering. In the spring, only 10 percent of students were engaged with virtual learning, prompting the district to launch an aggressive campaign of door-to-door visits to ensure that families had devices and knew about when the district would open virtually. A month into the school year last fall, 8,000 students were still missing. About 5,000 of them joined the school year late.

"We've always had issues with absenteeism because of the impact of poverty," Vitti said. "But nothing like this."

That was true for Chena Castigliano, who has been raising three young children on her own since her husband, a drywall installer, was arrested and sent back to his native Mexico last year. Then came postpartum depression and eviction. She registered her school-age children, 5-year-old Emiliana and 6-year-old Emilio, for face-to-face classes in the fall, but they went only sporadically because she struggled to find them transportation. Things got worse when schools shut down in mid-November.

The children had to share a loaner device, and then she could not afford Internet. Because classes are still remote, the children have not attended since early December.

Not all families have "somebody to lean on," Castigliano said.

On that Friday, some of the families that Chapman encountered had easily resolvable issues that had kept students from virtual classrooms. One high school student had missed Oct. 7 because she had lost her laptop charger — but later recovered it. A boy's mother explained that he could not log on that day because of an enrollment issue at the school. Many times, Chapman said, students have not logged on because neither they nor their parents could figure out how. In those cases, he and the other staff dispatched to homes become de facto IT specialists.

But other times, the issues are greater. That same week, Chapman had arrived at a home where a cord snaked out the front door to an idling car. The family's power had been cut, and they were

using electricity drawn from the car for the house. It was not uncommon, Chapman said, to come across a family whose children had stopped showing up because there was no electricity in the household.

The most worrisome cases are still the ones where a knock on the door yields no answer, or when the address belongs to an abandoned home.

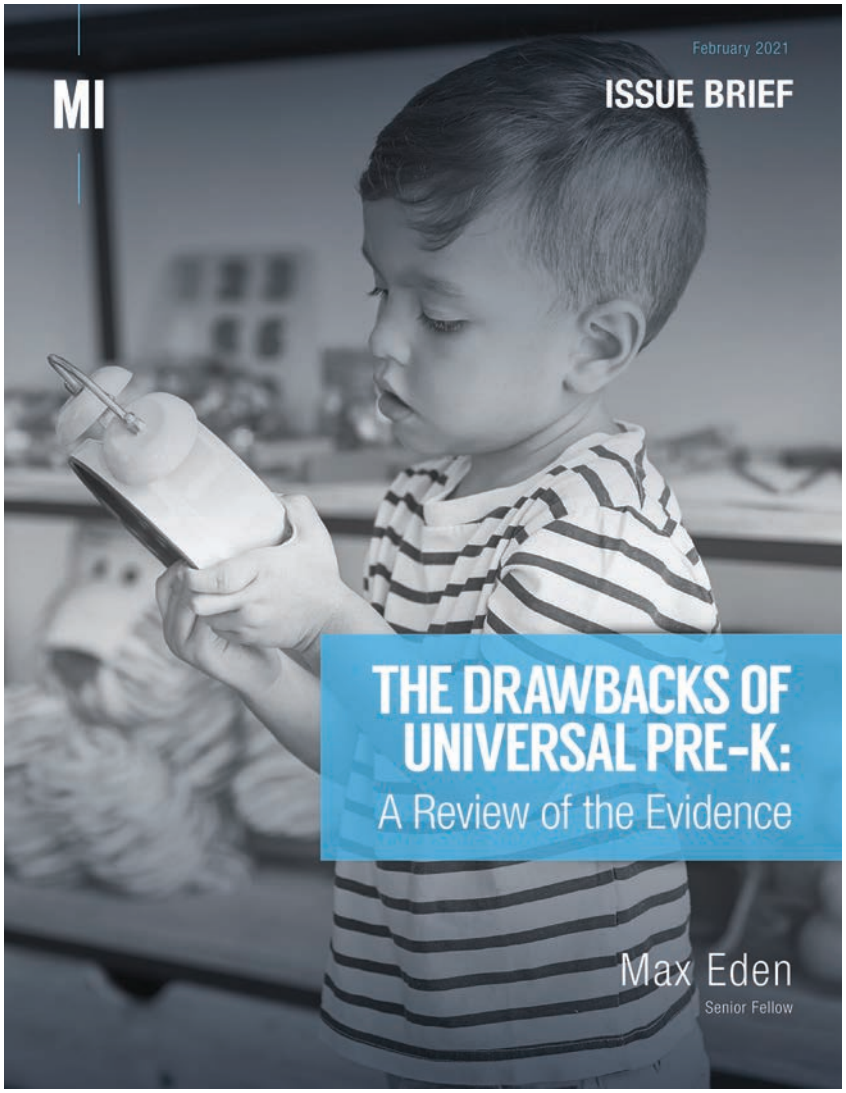
The attendance crisis will have lifelong consequences for the students who are missing weeks or months of classes or who decide to leave school altogether.

"They might not come back at all. They might not finish high school," said Korman, the researcher. "They will struggle in the workforce. It will be difficult for them when they raise their own children."

"We're going to see the consequences of this for generations."

Correction: An earlier version of this article incorrectly stated that New Mexico is still searching for 12,000 students. Since the fall, the number has dropped to 2,700 missing.

[Additional submission by Mr. Grothman follow:]



Contents

Executive Summary....3
Introduction....4
The Case for Early Education....4
Center-Based Child Care....6
The Effects of Head Start....9
Pre-K....10
Discussion of Findings and Policy Implications....10
Endnotes....13

Executive Summary

The Covid-19 crisis has dealt a substantial blow to the child-care industry and stymied the expansion of public prekindergarten. As America recovers, policymakers will have to make tough choices with limited budgets. Progressive politicians, including President Biden, have called for an unprecedented expansion of federal investment in early education, arguing that it would boost women's participation in the workforce and that the long-run academic benefits for children would yield economic dividends.

The first claim is well supported by existing research. The second does not withstand scrutiny. Although there are some frequently cited studies of early childhood interventions that have shown remarkably positive results, they were conducted based on interventions and in environments that bear little resemblance to the policy proposals currently on the table and hence have limited utility in informing contemporary debates.

Moreover, a deeper look at the most rigorous and representative research on the effects of early education for children provides more cause for alarm than optimism. Expanded child care likely benefits deeply disadvantaged students. For other students, these programs may have no impact, or have a negative effect on cognitive or noncognitive measures. These findings are consistent with—and likely partly explained by—recent advances in our understanding of neuroscience and child development. Studies suggest that many children exhibit higher levels of stress hormones—colloquially termed "toxic stress"—in child-care environments than they do at home, which could leave a lasting physical impact on their brain architecture.

In light of the troubling findings from social science and the scientific literature, policymakers should not directly invest in a model of child care that may harm many children. Rather, any additional investment in early education should come in the form of an expanded child tax credit, which can help families improve their children's home environments and which could also be directed to center-based child-care options at their discretion.



Introduction

Expanded public subsidies for child care and prekindergarten command solid bipartisan support. According to recent polling, two-thirds of Republicans and nearly nine out of 10 Democrats would like to see Congress increase federal investment in early education.[1] At the state level, public investment and student enrollment in prekindergarten increased at a faster rate in single-party-control Republican states than it did in Democratic states during the first half of the last decade.[2]

The child-care industry has been deeply affected by the coronavirus pandemic and attendant lockdowns. A report from the National Women's Law Center estimated that about one in five child-care workers lost their jobs between February and July 2020.[3] Major school districts, such as that of New York City, have halted their planned expansion of public pre-K.[4] Early education advocates have pressed Congress for more funding to see the sector through the crisis, arguing that without adequate federal support, "the damage to children could be lasting."[5]

Even before the pandemic, progressive politicians—including many of the Democratic presidential candidates—were calling for unprecedented expansions to federal investment in early education.[6] The Sanders-Biden "Unity Plan" called for federal grant assistance to guarantee that all families could afford licensed, center-based child care for children under the age of five, the provision of universal prekindergarten for all three- and four-year-old children, increased funding in order to enable all eligible children to attend Head Start and Early Head Start, as well as an increased child tax credit.[7] The Sanders campaign plan, upon which the Biden-Sanders proposal was largely based, was projected to cost $1.5 trillion over a decade.[8] When Biden tapped Connecticut education commissioner Miguel Cardona for secretary of education, he declared that Cardona would help "secure high-quality, universal pre-K for every three- and four-year-old in the country."[9]

Early-education advocates argue that this new spending would allow women to spend more time in the workforce and improve the academic and life trajectories of children. The economic literature on the first contention is fairly convincing and will not be scrutinized in this report.[10] The second contention, however, is more belied than supported by the research.

This issue brief analyzes the research on early education. First, it will present and contextualize the arguments made by early-education advocates and the research used to support those arguments. Then it will review other studies that are frequently elided or ignored but that are more relevant to contemporary policy debates. These studies present a consistent pattern: while early education *can* be a profound boon for deeply disadvantaged students, it can also set disadvantaged students further back and potentially do lasting harm to students born into middle-class families.

The Case for Early Education

Early-education advocates make bold claims, based on well-designed studies, for the transformative power of high-quality early childhood interventions. The First Five Years Fund, for example, claims: "Research shows that for every dollar invested in high-quality early childhood education, society gains up to $7.30 in economic returns over the long term."[11] When he was president, Barack Obama made a similar claim, arguing that for "[e]very dollar we put into high-quality early childhood education we get $7 back in reduced teen pregnancy, improved graduation rates, improved performance in school, reduced incarceration rates. The society as a whole does better."[12]

Rigorous evaluations of early education and prekindergarten programs show consistent and convincing evidence that it improves what advocates have termed "kindergarten readiness." Studies conducted in New Jersey,[13] Oklahoma,[14] Georgia,[15] Tennessee,[16] Boston,[17] and Chicago[18] found positive immediate effects on outcomes such as letter and word recognition, phonemic awareness, counting, and math knowledge. A skeptic could pick holes at some of these studies, pointing out that they do not always adequately control for selection effects (i.e., the outcomes may simply be an artifact of differences between families that choose to send their children to pre-K versus those that do not). Yet several of these studies were randomized control trials (RCTs), considered the gold standard in social science, comparing participants who applied to the program and were randomly accepted with those who applied and were randomly rejected.

Early-education skeptics could reasonably counter that "kindergarten readiness" is a poor, if not meaningless, metric. In education, short- and long-run outcomes do not always track; interventions may provide a short-run benefit and no effects in the long run, or no effects in the short run but positive effects in the long run.[19] Conservative critics of early education frequently cite the Head Start Impact Study—the largest RCT of an early-education intervention ever conducted—as evidence that federal involvement in early education "doesn't work" because although participants saw immediate boosts on a variety of metrics, those benefits quickly faded.[20] For those who participated in Head Start, "by the end of 3rd grade there were very few impacts found for either cohort. ... The few impacts found did not show a clear pattern of favorable or unfavorable impacts for children."[21]

Third-grade impacts are not necessarily dispositive. It is plausible that a program could have null effects by elementary school but still yield positive results for later life outcomes. This has been documented in the case of the Perry Preschool Project, one of the most-cited RCTs examining the long-run effects of early education. Students who participated in the program saw a dramatic short-term boost in IQ scores at ages four and five. By age 10, the effect on IQ had faded to statistical insignificance.[22] The long-run benefits, however, were nonetheless striking. By age 27, participants were substantially more likely to have graduated high school or earned a GED (71% vs. 54%), females were less likely to be single parents (57% vs. 83%) and to have had an abortion (4% vs. 23%), and males were substantially more likely to earn more than $2,000 a month (42% vs. 6%). By age 40, participants were also substantially less likely to have been incarcerated (28% vs. 52%) and to have been arrested for violent crimes (32% vs. 48%) or drug dealing (7% vs. 25%).

The Abecedarian Project, which formed the basis of the 7.3-to-1 return on investment claim made by the First Five Years Fund, found that participants were more likely to obtain a bachelor's degree (23% vs. 6%) and more likely to find full-time employment by age 30 (75% vs. 53%) and were six times less likely to have spent extended time on public assistance.[23] Researchers also found substantial health benefits for Abecedarian participants. Studies of the Chicago Child-Parent Centers found that participants were more likely to graduate high school (80% vs. 73%), less likely to have been incarcerated (21% vs. 26%) by age 23, and less likely to suffer from depressive symptoms in their early twenties (13% vs. 17%).[24]

Perhaps the most remarkable findings were produced last year when Nobel Prize–winning economist James Heckman examined the effects of participation in the Perry Preschool Project on the *children* of participants and found that they were substantially less likely to have ever been suspended from school, addicted to drugs, or arrested (40% vs. 60%) and were more likely to be employed (58% to 37%).[25]

Despite these striking findings from carefully designed studies, when the *Washington Post* evaluated President Obama's claim about early education's long-term benefits, it gave him "Two Pinocchios."[26] That's because, the *Post* fact-checker noted, none of the studies mentioned above "fit directly with [President Obama's] proposal, on a national scale." Both the Abecedarian and Perry Preschool studies were conducted in a single-site program with highly trained staff. Abecedarian served kids from birth to age five, operating for 10 hours a day, five days a week, 50 weeks a year, for a total of 2,500 hours; the project is estimated to have cost $90,000 per pupil. The Perry Preschool Project served 58 low-income, high-risk African-American children with IQs ranging from 70 to 85 with two years of five-day-a-week preschool plus an hour and a half per week in home visits to coach parents. The Chicago Child-Parent Center program was larger in scale, serving about 2,000 students for two years of pre-K, a kindergarten program, and ongoing support interventions provided to children in first through third grades; it also referred families to community and social-services agencies, provided home visits, and required two and a half hours of parental involvement every week in in-school or at-home activities.[27]

Center-based child care and publicly provided pre-K, as currently configured and as would be expanded through large-scale federal investment, do not resemble these programs in terms of the population that they would serve or in the way they are designed. The argument made by early-education advocates, thus, could be not unjustly characterized as: "We have strong evidence that small, intensively resourced programs serving deeply disadvantaged students yielded strong benefits; therefore, we *know* that large-scale, less resourced, differently designed programs serving all students will also yield strong benefits." For this reason, reviewing the literature on early education and the claims made on its behalf, the Brookings Institution's Russ Whitehurst has argued that early-education advocates "use statistics as a drunken man uses lampposts, for support rather than illumination."[28]

These studies do tell us two very important things. First, they provide strong evidence that early childhood interventions can have dramatic, lasting, and even intergenerational effects. Second, as the study of the Perry Preschool Project by Heckman suggests, these long-term outcomes may be largely mediated by the effects of early education on character and behavior, rather than on academics. Heckman notes: "The Perry program substantially improved Externalizing Behaviors (aggressive, antisocial, and rule-breaking behaviors), which, in turn, improved a number of labor market outcomes, health behaviors, and [reduced] criminal activities."[29]

To assess the likely consequences of increased public subsidy of early education, we should look to studies that are more representative of the programs that would be expanded and pay special attention to their effects on noncognitive outcomes, especially behavior. The next three sections will cover studies matching the domains that the Biden-Sanders Unity Plan intends to subsidize: child care (for ages from birth to three), Head Start (for three- and four-year-olds), and prekindergarten (primarily for four-year-olds). I will then discuss the policy implications of these findings.

Center-Based Child Care

The largest and most representative study conducted on American child care is the National Institute of Child Health and Human Development's Study of Early Child Care and Youth Development (SECCYD), launched in the early 1990s.[30] Based on an ethnically and demographically diverse sample of more than 1,000 children who spent an average of 27 hours a week in non-maternal care over the first four and a half years of their life, SECCYD examined differential outcomes associated with types of non-maternal care (e.g., in-home child care provided by nonfamily members and center-based child care), as well the quality of those arrangements and the quantity of time that kids spent in them. The study did not have an experimental design, and hence cannot tell us whether child-care arrangements *caused* observed outcomes but only that they are *associated* with them. But policymakers ought to be aware of these associations, many of which track the findings of more rigorous studies.

When it comes to center-based child care, SECCYD provides both good and bad news. On the positive side of the ledger, children six months and older who had more experience in center-based child care demonstrated slightly improved cognitive and language development through age three and slightly better pre-academic skills at age four and a half. On the negative side, participation in center-based care was linked to an increased incidence of ear infections, upper-respiratory illness, and stomach illness during the first three years of life, as well as more problem behaviors (especially disobedience and aggression) at age four and a half.

Researchers found "weak and slight" positive associations between the quality of child care[31] and improved cognitive function and language development in the first three years of life as well as greater literacy and numeracy at age four and a half. They found no association between the number of hours per week spent in child care and cognitive or language skills.

Greater time spent in child care was, however, associated with worse behavioral outcomes: children who spent more time in child care were rated as less cooperative, more disobedient, and more aggressive at age four and a half and in kindergarten. Reflecting on the study, one of its authors, Jay Belsky, later emphasized that "the problem behavior associated with early, extensive, and continuous care emerged irrespective of whether quality of care was good or bad."[32] The association was

substantial; in terms of effect sizes, the effect associated with early and extensive child care was comparable with that of growing up in poverty.

A follow-up study found that these associations persisted into adolescence. Researchers found positive associations with higher-quality child care and cognitive and academic measures. The link between greater hours spent in child care and greater problem behaviors, i.e., higher levels of risk-taking and impulsivity, also persisted until age 15.[33]

Belsky cautioned that despite the "prodigious" efforts made by SECCYD's authors to control for factors that affect child development, the study was still substantially limited in terms of causal inference, and he pointed to recent evaluations of the Quebec Family Policy as having greater causal power as well as greater policy relevance to the question of the effects of *expanding* child care.

International Studies

Perhaps the most rigorous and most policy-relevant studies on the expansion of publicly subsidized child care were conducted on the Quebec Family Policy. In the late 1990s, Quebec launched a program that offered $5-a-day child care, which increased the share of 0–4-year-olds in child care by 14 percentage points, relative to the rest of Canada. This sharp policy shift provided researchers the opportunity to perform a quasi-experimental, difference-in-difference analysis of the effects of child care. Although these studies were not as robust as a randomized control trial, there is strong reason to suppose that the impacts observed were causal. The authors described the results as "striking in their consistent indication of a substantial negative impact of universal child care on children in two-parent families."

Researchers found that child care caused an increase in hyperactivity, anxiety, and aggression, as well as a deterioration in motor and social development. They also found substantially negative effects on health, including an estimated increase of 156%–394% in the likelihood of children suffering from a nose/throat infection. Researchers also found strong evidence of "worse parenting" after the new policy was put into place. They documented a significant rise in "hostile/ineffective parenting," as well as a rise in "aversive parenting." They also found a 2.8-percentage-point reduction in the likelihood that a child's father rates himself as in excellent health and "striking evidence of an increase in depression" among mothers. What's more, they found a significant deterioration in the reported quality of the relationship between parents. Based on all this, the researchers concluded that "the consistency of the results suggest that more access to child care is bad for these children (and, at least along some dimensions, for these parents)."[34]

A 2015 follow-up study found that "the negative impact of the Quebec program on the noncognitive outcomes of young children appears to persist and grow as they reach school ages." Among children who participated, the effect on anxiety more than doubled when they reached the ages of five to nine, and the effect on aggression increased by 50%. During those ages, participants experience an increase in hyperactivity and a deterioration in their relationships with their teachers, according to parent reports. Following participants into their teen years, the researchers found "strong indications of a worsening of both health and life satisfaction among those older youths exposed to the Quebec child-care program." They also found that, especially for men, "exposure to the Quebec program leads to higher rates of crime."[35]

A 2016 study found a silver lining: for children of single-parent households, the impact of "child-care access is positive at nearly every percentile and is particularly large for individuals at the very bottom of the distribution." The researchers reflected that their findings were consistent with the hypothesis that child care can help children whose "preexisting home environment was extremely poor. As a whole, this suggests that while formal child care is not a perfect substitute for home learning environments, given the large number of hours spent in child-care centers, it may provide a remedy for children from the most disadvantaged home environments."[36]

Despite these positive findings for children in single-parent households, researchers in Italy found dramatic negative effects in a sample of students born into two-parent families that earned, on average, about twice the median national income. They found that one month's participation in child care between birth and the age of two corresponded to a loss of about 0.5 IQ points when children were eight to 14 years old. The researchers also examined noncognitive (personality) effects of child

care and found that participation reduced "openness" by 8% and "agreeableness" by 6.8%, while increasing "neuroticism" by 5.1%. Further stratifying their sample between more and less affluent families, researchers found that the IQ and personality effects were muted among students from less affluent families but particularly pronounced among students from more affluent families.[37]

Other international studies have produced findings that are broadly consistent with the pattern thus far demonstrated: some positive outcomes for disadvantaged children, negative outcomes for advantaged children, and negative outcomes for children who spend a greater number of hours in child-care arrangements.

A study of public child-care programs in Germany, serving children from birth to age two, found that participation "enable[d] disadvantaged children to catch up with their peers," when it came to motor-skill development, social and emotional regulation, and language development, but also concluded that the effects of expanding the program were "disappointing" in part because it "harm[ed] the language skill development of children from more-educated families."[38]

A study of the effects of child care on disadvantaged students in Chile found positive and negative effects. Researchers found positive outcomes on measures of motor skills and personal expression skills but negative outcomes on memory, reasoning, and "potentially severe negative incremental effects on child-adult interactions." The researchers expressed particular alarm regarding the findings on child-adult interaction, noting that it "may potentially undermine the benefits of center-based care," given that "research in psychology shows that child-adult interactions significantly influence many other tasks in early childhood and later years; chief among them are cognitive, language, emotional, and social behavior skills."[39]

A study of early childhood interventions in Denmark found no difference in outcomes between home care and center-based preschool for three-year-olds. It also found that an increase in hours spent in both family day care and center-based care "leads to significantly poorer child outcomes" when children are seven years old.[40]

Studies of Child-Care Subsidies in the U.S.

The research discussed thus far suggests that expanded child-care subsidies would be beneficial only for children in low-income and single-parent households, while harming those from middle-class, two-parent families. However, another line of research conducted by Arizona State University's Chris Herbst suggests that even the former group may not benefit as much as might be hoped. Reasonable questions regarding the power of causal inference of the following studies could be raised, but they represent some of the most rigorous attempts to date to control for the effects of child-care subsidies.

In a 2010 paper, coauthored with Erdal Tekin, Herbst analyzed the effects of child-care subsidies (available only to those making less than 85% of a state's median income) in single-parent households and concluded: "By encouraging low-income mothers to work and by creating incentives to shift children into formal child-care settings, subsidies place children in environments where the average child is more likely to be overweight and obese." Children in center-based care were 9.9 percentage points more likely to be overweight and 6.0 percentage points more likely to be obese.[41] In 2011, Herbst and Tekin replicated their results by using distance from social-services center as an "instrumental variable." They demonstrated that families that lived farther from social-services centers were less likely to access subsidized child care, and they used that variation in distance to trace the causal effect of child-care subsidies on children's weight, reaching similar findings.[42]

Using the same empirical approach, Herbst and Tekin later found negative impacts on cognitive ability and teacher-reported behavioral measures in kindergarten, although the effects began to fade after first grade and ceased to be statistically significant by the end of fifth grade.[43]

Utilizing several nationally representative surveys, Herbst and Tekin found negative effects of child-care subsidies on mothers' physical and mental health, finding that "subsidized mothers are less likely to report being healthy overall, are more likely to exhibit symptoms consistent with anxiety and depression, and score higher on measures of parenting stress." They were also more likely "to utilize psychological and physical aggression toward their children, and are more likely to utilize spanking as a disciplinary tool." Notably, the negative effects were strongest for low-income single mothers, for whom "the

estimated effect of ... spending is nearly twice as large as that from the full sample and eight times larger than that from the high income sample." The researchers concluded that "public policies aimed at increasing the employment of low-skilled mothers may undermine their health and have negative implications for the parent-child relationship."[44]

Herbst has also conducted a study to attempt to identify the causal impact of child care by utilizing the summer "dip" in participation as a plausibly exogenous variable.[45] When Herbst analyzed the data in a manner similar to the way SECCYD did—by matching participants and nonparticipants by their demographic data—he found a similar result to that of SECCYD: a short-term increase in measures of mental ability. When using the summer "dip" in participation in an instrumental-variables analysis, however, Herbst found that ability test scores were about 9% lower for children in child-care settings and that "contrary to previous research, the negative effects are driven by participation in formal care ... [and] disadvantaged children do not benefit from exposure to non-parental settings."

The only other paper that has used an instrumental-variables approach to attempt to isolate the causal impact of child care was published in 2011. Isolating changes induced by the 1996 Welfare Reform Act and examining only low-income single mothers, it estimated that a year of child care reduced cognitive test scores by 2.1%. The study found "clear evidence that child care has a more negative effect if the mother is more educated."[46] Researchers found that the negative effects were isolated to informal child care; formal, center-based child care had no effects on children, either positive or negative.

The Effects of Head Start

As noted above, the largest randomized control trial study of an early childhood intervention was the Head Start Impact study, which showed no differences in outcome when measured in third grade. Early-education advocates, however, point to several longitudinal studies demonstrating positive long-run outcomes, perhaps the most notable of which is a 2009 paper by Harvard University professor David Deming. Deming compared children who participated in Head Start with their siblings who did not.[47] Although this approach has the virtue of controlling far more precisely for students' backgrounds than demographic matching, Russ Whitehurst of the Brookings Institution has pointed out that even this method may be subject to systematic bias, because the decision to send one child but not another to Head Start is not made randomly by parents. Rather, he argued, it seems likely that the parents chose to send only one child "precisely because there were differences in the children that the parents recognized, e.g., one seemed ready for pre-K and the other not."[48]

Deming's study tracked a cohort of students born between 1970 and 1986, most of whom attended Head Start between 1984 and 1990. Consistent with the Head Start Impact study, Deming found substantial immediate gains on standardized tests that largely—though not entirely—faded out by the time students reached the ages of 11–14. He noted that the fadeout effect was strongest for African-American and disadvantaged students. Those groups, however, saw the largest gains in long-term outcomes. Head Start participants saw a reduced likelihood of grade repetition, a decreased likelihood of being diagnosed with a learning disability, an increased rate of high school graduation, a decreased rate of reported idleness, and improved physical health. Deming summarized that the improvements represented a gain of "one-third of the size of the outcome gap between the bottom quartile and the median ... and is about 80 percent as large as the gains from the Perry Preschool and Carolina Abecedarian model preschool programs."[49]

A 2019 working paper coauthored by one of Deming's students replicated and extended his analysis, tracking the same cohort of students over an additional decade and analyzing the outcomes of students born between 1986 and 1996.[50] Analyzing Deming's cohort over a longer time period erased the gains that Deming observed on high school graduation and idleness. While gains in health, college attendance, and years of education persisted, Deming's cohort saw no boost in college graduation or in earnings. The later cohort of students, born between 1986 and 1996, by contrast, saw largely negative effects from Head Start. They were more likely to be diagnosed with a learning disability, more likely to exhibit behavioral problems in school, more likely to commit crimes, more likely to have children as teenagers, less likely to attend college, and more likely to be idle.

Pre-K

There are three studies of scaled-up pre-K programs—of the sort that would be expanded through additional federal investment—that measure outcomes through elementary school. The results are mixed.

New Jersey's Abbott Preschool Program provides free pre-K for three- and four-year-olds for all students in 35 of the state's lowest-income school districts. It serves approximately 43,000 students, a little less than half within traditional public schools and a little more than half in licensed private centers or at Head Start centers. It operates on a traditional public school schedule: six hours a day, 180 days a year for one or two years. Researchers found substantial short-run benefits and were able to follow two-thirds of their sample into the fifth grade, matching them based on demographic characteristics to their kindergarten classmates who did not attend an Abbott Preschool. Students who attended Abbott for one or two years scored higher than their counterparts in fifth grade on measures of literacy and mathematics and were less likely to be assigned to special education or held back a grade.

Researchers have also examined Georgia's universal pre-K program, which serves about 84,000 children across the state in public schools, at licensed private centers, and with Head Start center partners, operating for 6.5 hours a day, 180 days a year. Researchers intend to follow these students through fifth grade, comparing them with demographically similar students who did not participate. At this point, only results through the end of second grade are available. The researchers have thus far concluded that "children who attended Georgia's pre-K exhibited a general pattern of initial gains for most skills from pre-K through kindergarten or into first grade, followed by increasing declines in scores through second grade." This pattern contributed to an overall null effect, as the researchers noted that participants' scores were near or slightly below the average when they entered Georgia's pre-K program and, after seeing an initial boost, fell back to within that same range by the end of second grade.[51]

Tennessee's voluntary pre-K (VPK) program serves about 18,000 low-income children in nearly 1,000 classrooms, all managed directly by traditional public school districts. Unlike those of New Jersey and Georgia, Tennessee's pre-K program was studied via randomized control trial, providing us with stronger evidence of causality.[52] Consistent with much of the literature, participants saw immediate academic gains. Those gains, however, had mostly faded by the end of first grade. When participants reached third grade, the researchers compared their scores on standardized state tests with those of their nonparticipating peers. VPK students performed substantially worse on science and math. The behavior of VPK students also proved to be worse than their nonparticipating peers; they were more likely to be disciplined for less serious infractions, such as breaking school rules, as well as more serious infractions, such as fighting. VPK students were also more likely to be diagnosed with disabilities, including speech/language impairment and intellectual disabilities.

Discussion of Findings and Policy Implications

The most representative and rigorous research on early childhood interventions does not suggest that additional investment would yield great benefits. Indeed, it provides good reason to believe that the opposite is true: additional investment may come at a substantial cost to the next generation.

The Quebec Family Policy provides the closest analogue to what we might expect if America were to make a similar commitment to universal child care. For children in two-parent households, the results were rather grim: deterioration in parenting practices, deterioration in children's behavior, and long-term harm to their health and life satisfaction. Studies from Italy and Germany provide further grounds to fear that child care harms children from two-parent, middle-class families, especially those from more advantaged backgrounds. These findings are consistent with research on the effects of first-year maternal employment, which finds decreases in achievement and deterioration in behavior for children from two-parent middle- and upper-class families.[53] These results argue strongly, if not decisively, against a universal child-care subsidy if our primary consideration is the well-being of the next generation.

Reasonable minds could reach different conclusions on the likely effects of further subsidizing child care on children from disadvantaged families. Results from Canada and Germany suggest that child care *can* improve outcomes for disadvantaged children and children from single-parent households. Results from Chile, however, were more equivocal. And studies attempting to assess the causal impact of child-care subsidies in America have yielded troubling findings of increased childhood obesity, deteriorating parenting skills, and negative cognitive effects.

Early-education advocates may look at these data and argue that it's evidence that we need to invest in *quality* child-care programs. They may be right, but only up to a point. SECCYD did find that higher-quality child care was associated with improved outcomes. However, as one of its authors noted, the study "never found that the quality of care accounted for ... quantity-of-care effects. In other words, the problem behavior associated with early, extensive, and continuous care emerged irrespective of whether quality of care was good or bad."[54] Results from Denmark and Canada reached similar findings regarding negative effects of extensive child care. This suggests that child-care policies that foster "high-quality" programs intended to enable low-income and single parents to work full-time may harm disadvantaged children.

Findings from studies of Head Start and of public pre-K provide further grounds to fear that expanding early education would do more harm than good for disadvantaged students. The best study we have of Head Start's most recent participants suggests that it substantially harmed them. This is not necessarily inconsistent with previous results showing positive long-term outcomes. It may be the case that whereas Head Start provided a boost to children relative to their home settings in the 1970s and 1980s, it no longer was doing so by the 1990s. Child poverty has decreased substantially since the early 1990s, even as Head Start has expanded to serve a substantially larger share of disadvantaged students. It is quite plausible, therefore, that Head Start is currently producing effects similar to, or even worse than, those found in the most recent study.[55]

The randomized control trial of the Tennessee pre-K program provides further grounds to fear that expanding pre-K will harm disadvantaged students. Early-education advocates have attempted to salvage the reputation of Tennessee's pre-K program[56] by pointing to a follow-up study that found that pre-K participants who had consistently high-quality K–3 classrooms showed improvements over their peers.[57] But unless early-education advocates purport to possess the means to simultaneously increase the quality of elementary school across the board, the practical implication of this finding suggests that the effect of pre-K on students who had typical elementary school experiences was even worse than the study's top-line findings displayed. The findings of James Heckman—that long-term effects of early education appear to be primarily driven by its influence on character and behavior—provide reason to fear that the Tennessee program, which resulted in increased behavior problems, and others like it are doing lasting harm.

These results may be dismaying, but they should not be deeply surprising. Despite the fact that his name and work are consistently invoked by advocates for universal early education, Heckman has said, "I have never supported universal pre-school. ... The 'intervention' that a loving, resourceful family gives to its children has huge benefits that, unfortunately, have never been measured well. Public preschool programs can *potentially* compensate for the home environments of disadvantaged children"[58] (emphasis in original).

Advances in our understanding of child development and neuroscience may offer an explanation for the mixed but broadly negative pattern of findings. Harvard University's Center on the Developing Child has pointed out that "strong, frequent, or prolonged activation of the body's stress management system," colloquially labeled "toxic stress," in infants and toddlers without healthy mediation by a caregiver can lead to "damaged, weakened bodily systems and brain architecture, with lifelong repercussions."[59]

Scientists have found that child care increases the production and changes the diurnal pattern of cortisol, a key stress hormone. Typically, cortisol production in young children declines throughout the course of a day, but studies have documented that many children in child-care settings experience a rise in cortisol from the morning to the afternoon.[60] One study found that increased cortisol reached a threshold sufficient to be qualified as a "stress response" in 40% of children, regardless of the quality of child care (as traditionally measured), and that elevated cortisol levels were associated with anxious/vigilant behavior in girls and angry/aggressive behavior in boys.[61]

A literature review on the subject found that "the effect of daycare attendance on cortisol excretion was especially notable for children younger than 36 months."[62] Another study examined the interaction between children's family backgrounds and hours spent in child care, concluding that for "children from low-risk contexts, greater weekly hours in child care were predictive of higher cortisol levels. In contrast, for children facing several cumulative risk factors, greater hours in child care per week were predictive of lower cortisol levels."[63] Based on their findings, those researchers concluded that "links between child care and children's development may differ as a function of children's broader ecologies."

Another way of saying that, and explaining the literature as a whole, is that the quality of children's early environments matter; healthier environments help children reach their potential, and less healthy environments stymie their development—potentially permanently. There is not necessarily any inconsistency in the mixed pattern of findings described in this paper, e.g., the positive findings from the Perry Preschool Project, the mixed findings on Head Start, and the negative findings from the Italian child-care study. For the most deeply disadvantaged students, highly resourced, high-quality early-education programs can provide an environment healthier than what is available at home, which can produce benefits lasting even into the next generation. But for other students, spending time in a child-care setting rather than the home could do lasting cognitive and noncognitive damage. The negative findings from the Tennessee pre-K study and the study of the long-term effects of Head Start students from the early 1990s warn us that for the median disadvantaged student today, center-based child care and prekindergarten may be a less healthy environment for child development than their home.

While the well-being of children should be a primary consideration, workforce participation is undoubtedly a factor in the child-care debate as well. Early-education advocates are entirely correct to argue that additional early-education spending would boost women's participation in the workforce. Alleviating the need for parents to take time off work to care for their children would also boost their career prospects, or, at the very least, ameliorate a disadvantage vis-à-vis their other colleagues. But whatever child-rearing arrangements and attendant trade-offs parents should choose, policymakers should not put their thumb on the scale of favoring workforce considerations over the welfare of young children.

Policymakers should not allocate additional taxpayer dollars to programs that may harm children. The most prudent course of action, based on the research, would certainly not be to provide universal child care and early-education subsidies, or even to expand means-tested programs, but rather to scale down the number of students who are served by publicly subsidized early education and focus existing resources more intensively on the most disadvantaged children.

However prudent, this would most certainly not be a politically palatable approach. Given the broad bipartisan support for expanding federal investment in early education, a proposal to scale back and concentrate early-education subsidies would be a nonstarter in Congress. If politicians are intent on additional expenditures to support children, they should come in the form of a direct subsidy to parents. There is no shortage of studies suggesting that direct redistribution, such as the earned income-tax credit, has positive effects for children. Rather than allocate taxpayer dollars to programs that may harm children, policymakers should expand the federal child tax credit or even consider further direct financial subsidies for parents. Parents could then, at their discretion, use those resources to subsidize early education or to improve the conditions that their children live in at home.



Endnotes

1. John Halpin et al., "Affordable Child Care and Early Learning for All Families: A National Public Opinion Study," Center for American Progress, Sept. 13, 2018.
2. Max Eden, "Red States Lead the Way on Pre-K," *Education Week*, Aug. 3, 2016.
3. Claire Ewing-Nelson, "One in Five Child Care Jobs Have Been Lost Since February, and Women Are Paying the Price," National Women's Law Center, August 2020.
4. Alex Zimmerman and Christina Veiga, "De Blasio Proposes over $221 Million in NYC Education Cuts, Including Pre-K and School Budgets," *Chalkbeat*, Apr. 7, 2020.
5. Kevin Mahnken, "Coronavirus Could Deliver Disastrous Setback to Public Pre-K, Study Warns," *The 74*, Apr. 22, 2020.
6. Anna North, "We Asked All the 2020 Democrats How They'd Fix Child Care. Here's What They Said," Vox, July 5, 2019.
7. Biden-Sanders Unity Task Force Recommendations.
8. Jacob Pramuk, "Bernie Sanders Unveils $1.5 Trillion Universal Child Care and Pre-K Plan," CNBC, Feb. 24, 2020.
9. Jacqueline Rabe Thomas, "For CT's Miguel Cardona, New Post as U.S. Secretary of Education Is a Key Part of Joe Biden's Agenda," *Connecticut Mirror*, Dec. 22, 2020.
10. Maria Enchautegui et al., "Effects of CCDF Subsidy Program on the Employment Outcomes of Low Income Mothers," U.S. Dept. of Health and Human Services (HHS), December 2016.
11. "Why It Matters: Economic Impact," First Five Years Fund.
12. Barack Obama, "Remarks by the President in Working Mothers Town Hall," Apr. 15, 2015.
13. W. Steven Barnett et al., "Abbott Preschool Program Longitudinal Effects Study: Fifth Grade Follow-Up," National Institute for Early Education Research, Mar. 20, 2013.
14. William Gormley, Deborah Phillips, and William T. Gormley, Jr., "The Effects of Universal Pre-K in Oklahoma: Research Highlights and Policy Implications," *Policy Studies Journal* 33, no. 1 (February 2005): 65–82.
15. Ellen Peisner-Feinberg, Jennifer Schaaf, and Doré LaForett, "Children's Growth and Classroom Experiences in Georgia's Pre-K Program," University of North Carolina's Frank Porter Graham Child Development Institute, February 2013.
16. Mark W. Lipsey, Dale C. Farran, and Kelley Durkin, "Effects of the Tennessee Prekindergarten Program on Children's Achievement and Behavior Through Third Grade," *Early Childhood Research Quarterly* 45, no. 4 (Winter 2018): 155–75.
17. Christina Weiland et al., "Findings on Boston Prekindergarten Through Early Elementary School," University of Michigan Education Policy Initiative Issue Brief, October 2019.
18. Arthur Reynolds, Suh-Ruu Ou, and Judy A. Temple, "A Multicomponent, Preschool to Third Grade Prevention Intervention and Educational Attainment at 35 Years of Age," *JAMA Pediatrics* 172, no. 3 (March 2018): 247–56.
19. Jay P. Greene, "Evidence for the Disconnect Between Changing Test Scores and Changing Later Life Outcomes," *Education Next*, Nov. 7, 2016.
20. Lindsey Burke, "Federal Early Childhood Education, Care Don't Benefit Kids. Here Are the Facts," *Daily Signal*, Feb. 19, 2019.
21. Michael Puma et al., "Third Grade Follow-Up to the Head Start Impact Study," OPRE Report 2012-45, October 2012.
22. "Evidence Summary for the Perry Preschool Project," *Social Programs That Work Review*, November 2017.
23. Joseph Sparling and Kimberly Meunier, "Abecedarian: An Early Childhood Education Approach That Has a Rich History and a Vibrant Present," *International Journal of Early Childhood* 51 (July 24, 2019): 207–16.
24. Reynolds, Ou, and Temple, "A Multicomponent, Preschool to Third Grade Prevention."
25. James J. Heckman and Ganesh Karapakula, "Intergenerational and Intragenerational Externalities of the Perry Preschool Project," NBER Working Paper no. 25889, May 2019.

[26] Michelle Ye Hee Lee, "Obama's Claim that Every Dollar Spent on Pre-Kindergarten Education Earns '$7 back,' " *Washington Post*, Apr. 20, 2015.

[27] The study design, however, cannot adequately control for selection effects, leaving open the question of whether the findings are attributable to the intervention or in differences between students whose families do and don't apply.

[28] Grover J. "Russ" Whitehurst, "Rigorous Preschool Research Illuminates Policy (and Why the Heckman Equation May Not Compute)," Brookings Institution, May 4, 2017.

[29] James Heckman, Rodrigo Pinto, and Peter Savelyev, "Understanding the Mechanisms Through Which an Influential Early Childhood Program Boosted Adult Outcomes," *American Economic Review* 103, no. 6 (October 2013): 2053.

[30] Jay Belsky et al., "The NICHD Study of Early Child Care and Youth Development," HHS, 2006.

[31] Measured both by objective input metrics and by a subjective evaluation of the amount of "positive caregiving" that children received.

[32] Jay Belsky, "Universal Preschool: Be Careful What You Wish For," Institute for Family Studies, Oct. 6, 2015.

[33] Deborah Lowe Vandell et al., "Do Effects of Early Child Care Extend to Age 15 Years? Results from the NICHD Study of Early Child Care and Youth Development," *Child Development* 81, no. 3 (May 2011): 737–56.

[34] Michael Baker, Jonathan Gruber, and Kevin Milligan, "Universal Childcare, Maternal Labor Supply and Family Well-Being," NBER working paper no. 11832, December 2005, 4.

[35] Michael Baker, Jonathan Gruber, and Kevin Milligan, "Non-Cognitive Deficits and Young Adult Outcomes: The Long-Run Impacts of a Universal Child Care Program," NBER working paper no. 21571, September 2015.

[36] Michael J. Kottelenberg and Steven F. Lehrer, "Targeted or Universal Coverage? Assessing Heterogeneity in the Effects of Universal Childcare," NBER working paper no. 22126, March 2016.

[37] Margherita Fort, Andrea Ichino, and Giulio Zanella, "Cognitive and Noncognitive Costs of Day Care at Age 0–2 for Children in Advantaged Families," *Journal of Political Economy* 128, no. 1 (January 2020): 158–205.

[38] Christina Felfe and Rafael Lalive, "Does Early Child Care Affect Children's Development?" *Journal of Public Economics* 159 (March 2018): 33–53.

[39] Grace E. Noboa-Hidalgo and Sergio S. Urzúa, "The Effects of Participation in Public Child Care Centers: Evidence from Chile," *Journal of Human Capital* 6, no. 1 (Spring 2012): 25.

[40] Nabanita Datta Gupta and Marianne Simonsen, "Non-Cognitive Child Outcomes and Universal High Quality Child Care," *Journal of Public Economics* 94, nos. 1–2 (February 2010): 30–42.

[41] Chris M. Herbst and Erdal Tekin, "Child Care Subsidies and Childhood Obesity," *Review of Economics of the Household* 9 (September 2011): 349–78.

[42] Chris M. Herbst and Erdal Tekin, "The Geographic Accessibility of Child Care Subsidies and Evidence on the Impact of Subsidy Receipt on Childhood Obesity," *Journal of Urban Economics* 71, no. 1 (January 2012): 37–52.

[43] Chris Herbst and Erdal Tekin, "The Impact of Child-Care Subsidies on Child Development: Evidence from Geographic Variation in the Distance to Social Service Agencies," *Journal of Policy Analysis and Management* 35, no. 1 (Winter 2016): 94–116.

[44] Chris Herbst and Erdal Tekin, "Child Care Subsidies, Maternal Well-Being, and Child-Parent Interactions: Evidence from Three Nationally Representative Datasets," NBER Working Paper no. 17774, January 2012.

[45] Chris M. Herbst, "The Impact of Non-Parental Child Care on Child Development: Evidence from the Summer Participation 'Dip,' " *Journal of Public Economics* 105 (September 2013): 86–105.

[46] Raquel Bernal and Michael P. Keane, "Child Care Choices and Children's Cognitive Achievement: The Case of Single Mothers," *Journal of Labor Economics* 29, no. 3 (July 2011): 495.

[47] David Deming, "Early Childhood Intervention and Life-Cycle Skill Development: Evidence from Head Start," *American Economic Journal: Applied Economics* 1, no. 3 (July 2009): 111–34.

[48] Grover J. "Russ" Whitehurst, "Does Pre-K Work? It Depends How Picky You Are," Brookings Institution, Feb. 26, 2014.

[49] Deming, "Early Childhood Intervention and Life-Cycle Skill Development," 112.

[50] Remy J.-C. Pages et al., "Elusive Longer-Run Impacts of Head Start: Replications Within and Across Cohorts," Annenberg Center at Brown University, EdWorkingPaper No. 19-27, May 2019.

[51] Peisner-Feinberg, Schaaf, and LaForett, "Children's Growth and Classroom Experiences."

[52] Lipsey, Farran, and Durkin, "Effects of the Tennessee Prekindergarten Program."

[53] Rachel G. Lucas-Thompson et al., "Maternal Work Early in the Lives of Children and Its Distal Associations with Achievement and Behavior Problems: A Meta-Analysis," *Psychological Bulletin* 136, no.6 (2010): 915–42..

[54] Belsky, "Universal Preschool."

[55] An alternative hypothesis that cannot be ruled out is that the findings reflect a shift in which siblings parents tend to send to Head Start over time, from the more gifted/prepared sibling in the 1970s and early 1980s to the less gifted/prepared sibling the late 1980s and early 1990s.

[56] "Why It Matters: Economic Impact," First Five Years Fund.

[57] Francis A. Pearman, II et al., "Teachers Schools and Pre-K Effect Persistence: An Examination of the Sustaining Environment Hypothesis," Annenberg Center at Brown University, EdWorkingPaper No. 19-85, July 2019.

[58] Archbridge Institute, "Nobel-Prize Winning Economist Dr. James Heckman on Social Mobility, the American Dream, and How COVID-19 Could Affect Inequality," Apr. 23, 2020.

[59] National Scientific Council on the Developing Child, "Excessive Stress Disrupts the Architecture of the Developing Brain," Harvard University's Center on the Developing Child, January 2014.

[60] Kristin Bernard et al., "Examining Change in Cortisol Patterns During the 10-Week Transition to a New Child-Care Setting," *Child Development* 86, no. 2 (October 2014): 456–71.

[61] Megan R. Gunnar et al., "The Rise in Cortisol in Family Daycare: Associations with Aspects of Care Quality, Child Behavior, and Child Sex," *Child Development* 81, no. 3 (May 2010): 851–69.

[62] Harriet Vermeer and Marinus H. van IJzendoorn, "Children's Elevated Cortisol Levels at Daycare: A Review and Meta-Analysis," *Early Childhood Research Quarterly* 21, no. 3 (Fall 2006): 390–401.

[63] Daniel Berry et al., "Child Care and Cortisol Across Early Childhood: Context Matters," *Developmental Psychology* 50, no. 2 (June 2013): 514.



[Additional submission by Ms. Wild follow:]

WRITTEN STATEMENT BY
SMART AND NEMIC

BEFORE HOUSE EDUCATION & LABOR COMMITTEE
"Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy"
April 28, 2021

The pandemic has sharply highlighted decades of neglect of the indoor air quality (IAQ) in schools. Students, parents, and teachers should enter a classroom with assurance that they are safe, including the air they breathe. Even classrooms tested only a few years after a new air system installation have revealed ventilation levels below the minimum required rates[1].

With incoming federal grants, our communities have a once-in-a-generation opportunity to improve our schools' heating, ventilation, and air conditioning (HVAC) systems. However, the intended outcomes will only be achieved if the systems are repaired, installed, adjusted, and maintained by technicians who are trained and certified; efficiencies gained through new technologies are only as effective as the conditions under which they operate.

It is well known that HVAC systems serving educational facilities are in need of repair. A 2020 report by the United States Government Accountability Office (GAO) estimated 41% of school districts need to update or replace the existing HVAC systems in at least half of their schools, representing approximately 36,000 schools. Per the report, "*If not addressed, HVAC issues can result in health and safety problems.*"[2]

Improving the performance of school HVAC systems not only saves energy and provides a safer and healthier building environment, but it also has a significant correlation to student performance. In a 2017 literature review, W. J. Fisk, a senior scientist with the Indoor Environment Group, summarized that eight studies reported statistically significant improvements in some measures of student performance associated with increased ventilation rates or lower CO_2 concentrations, with performance increases as high as 15%.[3]

As with any infrastructure and capital improvements, additional stimulation to local economies can only occur through a base of labor standards underlying the work as it is performed. Such standards include:

- **Prevailing wage,** defined as the average wage paid to similarly employed workers in a specific occupation in the category of intended employment. Contractors must compete for work on the criteria of who can best train, best equip, and best manage a construction crew. It helps protect all workers against

[1] Chan, et al, Ventilation rates in California classrooms: Why many recent HVAC retrofits are not delivering sufficient ventilation, Building and Environment Journal 167 (2020) (https://www.sciencedirect.com/science/article/pii/S0360132319306365).
[2] *K-12 Education School Districts Frequently Identified Multiple Building Systems Needing Updates or Replacement* (Rep. No. GAO-20-494). (June 4th, 2020). United States Government Accountability Office. https://www.gao.gov/assets/710/707374.pdf
[3] Fisk, W. J., The ventilation problem in schools: literature review, Indoor Air. 2017;27:1039–1051 (https://onlinelibrary.wiley.com/doi/epdf/10.1111/ina.12403)

exploitation and research shows that it leads to increased worker productivity and safer job sites, all while providing a family-sustaining wages to the dedicated, blue-collar workers on the job. Specifically Test, Adjust, and Balance technicians and the field work of ventilation verification are applicable as sheet metal work where not separately cited.

- **Utilization of registered apprentices,** the gold standard for workforce training. Programs provide individuals with full-time jobs where they learn valuable on-the-job experience, complete necessary classes, and earn good wages and benefits to become a highly skilled worker in construction trades.
- **The ABC test to combat worker misclassification and wage theft.** Worker misclassification is when employers misclassify workers as "independent contractors," thus, denying them access to fair pay, overtime, health insurance, and other benefits. The "ABC test" is the solution. The ABC test protects construction workers by presuming that they are "employees." If an employer wants to classify a worker as an independent contractor under these laws, the employer is required to show that the worker: (A) is free from the employer's control, (B) is customarily engaged in an independently established trade or business, and (C) performs work outside the scope of the employer's core business.
- **A neutrality agreement prior to project start.** The employer and union agree to terms that allow for a structured process, where the employer remains neutral, for workers to vote on forming or joining a union where the workforce is not already unionized.
- **Local hire provisions.** The employer agrees to hire local residents. The direct benefit to the community is wages stay local, but also that it can lead to a better trained workforce on the front end and back end of the project.

To address gaps of both building system performance and labor standards, we propose a physical assessment of the existing HVAC infrastructure. The assessment is to be performed by a skilled, trained, and certified technician employed by entities adhering to workforce standards. Systems will be verified to meet or exceed the recommendations of the World Health Organization (WHO)[4], Centers for Disease Control and Prevention (CDC)[5], and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)[6] as well as any applicable local and state agency school-reopening guidance. The resulting assessment report allows design professionals to make recommendations for adjustments, repairs, upgrades, or replacements with reduced assumptions. School districts and building owners can then make educated decisions on proposed improvements.

---

[4] World Health Organization, Considerations for school-related public health measures in the context of COVID-19 (September 14, 2020) (https://www.who.int/publications-detail/considerations-for-school-related-public-health-measures-in-the-context-of-covid-19); World Health Organization, Considerations for public health and social measures in the workplace in the context of COVID-19 (May 10, 2020) (https://www.who.int/publications-detail/considerations-for-public-health-and-social-measures-in-the-workplace-in-the-context-of-covid-19); World Health Organization, Q&A: Ventilation and air conditioning in public spaces and buildings and COVID-19 (July 29, 2020) https://www.who.int/news-room/q-a-detail/q-a-ventilation-and-air-conditioning-in-public-spaces-and-buildings-and-covid-19

[5] Centers for Disease Control and Prevention, Operating schools during COVID-19: CDC's Considerations (February 3, 2021) https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/schools.html; Centers For Disease Control and Prevention, Interim Guidance For Businesses and Employers Responding To Coronavirus Disease 2019 (COVID-19) (January 4, 2021) (https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html)

[6] ASHRAE, ASHRAE Epidemic Task Force: Building Readiness (February 1, 2021) (https://www.ashrae.org/file%20library/technical%20resources/covid-19/ashrae-building-readiness.pdf); ASHRAE, ASHRAE Epidemic Task Force: Core Recommendations for Reducing Airborne Infectious Aerosol Exposure (January 6, 2021) (https://www.ashrae.org/file%20library/technical%20resources/covid-19/core-recommendations-for-reducing-airborne-infectious-aerosol-exposure.pdf); ASHRAE, ASHRAE Epidemic Task Force: Schools & Universities (October 7, 2021) (https://www.ashrae.org/file%20library/technical%20resources/covid-19/ashrae-reopening-schools-and-universities-c19-guidance.pdf);

1. Ventilation Verification Assessment[7]
   - ☐ **Filtration -** Review system capacity and airflow to determine the highest Minimum Efficiency Reporting Value (MERV) filtration for reducing contagions, replace or upgrade filters where needed, and verify that such filters are installed correctly.
     - MERV 13 or better filtration shall be installed in the facility's HVAC system where feasible.
   - ☐ **Ventilation Rate** - Calculate the required ventilation rates for each occupied area based on the actual occupancy. Physically verify that the ventilation rate meets or exceeds the minimum outside air (OSA) rates set forth by the local jurisdiction.
   - ☐ **Ventilation System Operation** - Physically test all ventilation components for proper operation.
   - ☐ **Air Distribution** - Survey all inlets and outlets. Verify all ventilation is reaching the served zone and there is adequate distribution.
   - ☐ **Building Pressure -** Verify the building pressure is per design and a negative pressure is maintained for contaminant rooms temporarily occupied by sick occupants.
   - ☐ **Operational Controls -** Review control sequences to verify systems will maintain intended ventilation, temperature, and humidity conditions during school operation. During unoccupied hours, verify a daily flush is scheduled for three changes of building volume using outdoor air.
   - ☐ **CO_2 Monitoring -** As an indicator of proper ventilation throughout the school year, all classrooms shall be equipped with a CO_2 monitor within each zone of the building.
   - ☐ **Limited or No Existing Mechanical Ventilation.** In cases where there is limited or no existing mechanical ventilation, the assessment would then focus on available options and provide the design professional with documentation to provide ventilation options.
2. **Design Professional Review –** Submit the Ventilation Verification assessment report to qualified design professionals (licensed mechanical engineer, certified industrial hygienist (CIH), or mechanical design professional as defined by state or provincial guidelines).
3. **Repairs, Adjustments, Replacements and Upgrades –** Work with the design professional to determine cost effective options to improve ventilation, filtration energy efficiency for the students, parents and staff that depend on a healthy learning environment.

Completing any replacements or adjustments to the system — such as increasing ventilation and filtration or installing new equipment — without a physical assessment by a skilled, trained, and certified professional may result in wasted funding, additional energy increases, and premature equipment failure with no assurance the recommended strategies to reduce pathogen transmission and increase the indoor air quality were achieved.

Physical verification — and thereby adjustment and/or replacement — of an HVAC system by a skilled, trained, and certified technician will ensure accurate ventilation rates, functioning filtration, and achievement of the desired outcome with money well spent to protect the health and safety of students, teachers, and parents.





[7] Ventilation Verification. Retrieved from https://www.nemionline.org/ventilation-verification/
Training, Sample Assessment Test Sheets, Sample Method of Procedure

[Questions submitted for the record and the responses by Mr. McCluskey follow:]

MAJORITY MEMBERS

ROBERT C. "BOBBY" SCOTT, VIRGINIA,
Chairman

RAÚL M. GRIJALVA, ARIZONA
JOE COURTNEY, CONNECTICUT
GREGORIO KILILI CAMACHO SABLAN,
NORTHERN MARIANA ISLANDS
FREDERICA S. WILSON, FLORIDA
SUZANNE BONAMICI, OREGON
MARK TAKANO, CALIFORNIA
ALMA S. ADAMS, NORTH CAROLINA
MARK DESAULNIER, CALIFORNIA
DONALD NORCROSS, NEW JERSEY
PRAMILA JAYAPAL, WASHINGTON
JOSEPH D. MORELLE, NEW YORK
SUSAN WILD, PENNSYLVANIA
LUCY MCBATH, GEORGIA
JAHANA HAYES, CONNECTICUT
ANDY LEVIN, MICHIGAN
ILHAN OMAR, MINNESOTA
HALEY M. STEVENS, MICHIGAN
TERESA LEGER FERNANDEZ,
NEW MEXICO
MONDAIRE JONES, NEW YORK
KATHY E. MANNING, NORTH CAROLINA
FRANK J. MRVAN, INDIANA
JAMAAL BOWMAN, NEW YORK
MARK POCAN, WISCONSIN
JOAQUIN CASTRO, TEXAS
MIKIE SHERRILL, NEW JERSEY
JOHN A. YARMUTH, KENTUCKY
ADRIANO ESPAILLAT, NEW YORK
KWEISI MFUME, MARYLAND

COMMITTEE ON
EDUCATION AND LABOR
U.S. HOUSE OF REPRESENTATIVES
2176 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6100

MINORITY MEMBERS

VIRGINIA FOXX, NORTH CAROLINA,
Ranking Member

JOE WILSON, SOUTH CAROLINA
GLENN THOMPSON, PENNSYLVANIA
TIM WALBERG, MICHIGAN
GLENN GROTHMAN, WISCONSIN
ELISE M. STEFANIK, NEW YORK
RICK W. ALLEN, GEORGIA
JIM BANKS, INDIANA
JAMES COMER, KENTUCKY
RUSS FULCHER, IDAHO
FRED KELLER, PENNSYLVANIA
GREGORY F. MURPHY, NORTH CAROLINA
MARIANNETTE MILLER-MEEKS, IOWA
BURGESS OWENS, UTAH
BOB GOOD, VIRGINIA
LISA C. MCCLAIN, MICHIGAN
DIANA HARSHBARGER, TENNESSEE
MARY E. MILLER, ILLINOIS
VICTORIA SPARTZ, INDIANA
SCOTT FITZGERALD, WISCONSIN
MADISON CAWTHORN, NORTH CAROLINA
MICHELLE STEEL, CALIFORNIA
JULIA LETLOW, LOUISIANA
VACANCY

May 6, 2021

Mr. Neal McCluskey, Ph.D.
Director, Center for Educational Freedom
Cato Institute
1000 Massachusetts Avenue, NW
Washington, D.C. 20001

Dear Mr. McCluskey,

I would like to thank you for testifying at the April 28, 2021 Committee on Education and Labor hearing entitled "Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy."

Please find enclosed additional questions submitted by Committee members following the hearing. Please provide a written response no later than Thursday, May 13, 2021, for inclusion in the official hearing record. Your responses should be sent to Mariah Mowbray and Rashage Green of the Committee staff. They can be contacted at 202-225-3725 should you have any questions.

I appreciate your time and continued contribution to the work of the Committee.

Sincerely,

ROBERT C. "BOBBY" SCOTT
Chairman

Enclosure

Committee on Education and Labor Hearing
"Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy"
Wednesday, April 28, 2021
12:00 p.m. (Eastern Time)

Representative Russ Fulcher (R – ID)

1. I am concerned that under a "free" community college policy we will hurt the quality of learning offered to students, and I am particularly worried about the proposal's effects on student-to-faculty ratios. What will happen to a community college's on-time completion rate, Pell Grants usage, and student loan default rates if President Biden's plan is enacted?

2. Could "free" community college lead to a community college having to restrict access? What types of students would be harmed if that were to happen? (I ask this given Idaho's community colleges are roughly one-third the cost of our public four-year colleges and universities.)

3. What are the kinds of "federal strings" you could envision could come with federal matching requirements for the two free years of community college under the American Families Plan Act?

CATO INSTITUTE | CENTER FOR EDUCATIONAL FREEDOM

Committee on Education and Labor Hearing

"Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening

Families and our Economy"

Wednesday, April 28, 2021

12:00 p.m. (Eastern Time)

Questions for the Record to Neal McCluskey

Questions from Representative Russ Fulcher (R – ID)

1.I am concerned that under a "free" community college policy we will hurt the quality of learning offered to students, and I am particularly worried about the proposal's effects on student-to-faculty ratios. What will happen to a community college's on-time completion rate, Pell Grants usage, and student loan default rates if President Biden's plan is enacted?

President Biden has proposed making community college "free" to students. The specifics of how he would do that are not clear. I will answer the segments of your question according to approaches I think would be most applicable to them. I also note it is inherently difficult to make predictions about policy effects because all people act as individuals, facing varying circumstances, and different responses to policies can trigger different outcomes and, often, further changes in policies. That is why unintended consequences of laws so often become important -- and painful.

On-time completion rates: Regardless of whether the mechanism to make community college free to students is aid to students so they can pay community college costs, or aid to schools so they do not charge students in the first place, decreasing the cost to students will likely increase demand for community colleges. Unless the sector becomes more dynamic than it currently is, it will not expand quickly enough to accommodate this, leading to more

Cato Institute • 1000 Massachusetts Ave. NW, Washington, DC 20001
202-842-0200 • Fax: 202-842-3490 • www.cato.org

shortages of courses and student assistance than exist in the already low-cost sector[1], reducing further its very poor on-time completion rate. For the cohort of students who entered community colleges in 2014, only 40.2 percent had completed their studies at any institution *six* years later.[2] Common problems cited by community college students are limited student services, insufficient parking to arrive at class on time, and unavailable courses.[3] Perhaps as concerning, evidence suggests community colleges are slow to adapt to changes in workforce demands by ending old courses and starting new ones. Greatly increased demand would not only overload the schools with students, it would likely lead to even worse matching to employer needs.[4]

Pell Grant usage: Whether the plan would increase Pell grant usage depends a lot on proposal details that currently do not exist. If the proposal is to fund community colleges directly so that they do not charge students anything, Pell usage would likely decline because students would have no tuition and fees to pay. Were "free" to include room and board, it might decline even further. If the final plan is to make community college free by supplying students additional Pell funding to fully cover tuition and fees, and maybe room and board, we would likely see Pell usage increase dramatically.

My expectation, based on how "free" college is likely perceived by the average person, is there would be no charge to students for community college – "free" like public K-12 schools – in which case Pell usage would decline. It could, though, be a "last dollar" plan in which students pay nothing after they have used available aid, in which case we could see Pell usage rise as more Pell-eligible people enroll in community colleges. The plan could also provide "free" room and board funding on a last dollar basis, further stimulating attendance and driving Pell usage up as more people sought free community college that included room and board coverage. It is also possible the plan would be "first dollar" for tuition and fees but leave Pell applicable to room and board, which might increase Pell usage if many people chose to go to community college who otherwise would not have chosen any college, or choose to pay for new room and board rather than, say, living with relatives.

---

[1] The average tuition and fee charge at a community college ($3,377) is less than the average Pell Grant ($4,418). See "Table 330.10: Average undergraduate tuition, fees, room, and board rates charged for full-time students in degree-granting postsecondary institutions, by level and control of institution: Selected years, 1963-64 through 2019-20," Digest of Education Statistics, National Center for Education Statistics, August 2020, https://nces.ed.gov/programs/digest/d20/tables/dt20_330.10.asp?current=yes, and National Center for Education Statistics, "Financial Aid: What Is the Average Amount of Pell Grants Awarded to Undergraduate
Students?" Trend Generator,
https://nces.ed.gov/ipeds/TrendGenerator/app/answer/8/36#:~:text=Financial%20Aid%3A%20What%20is%20the,is%20based%20on%205%2C698%20institutions.

[2] Completing College National and State Reports, National Student Clearinghouse Research Center, December 2020, p. 4, https://nscresearchcenter.org/wp-content/uploads/Completions_Report_2020.pdf.

[3] Stephen R. Porter and Paul D. Umbach, "What Challenges to Success Do Community College Students Face?" Percontor, LLC, January, 2019, https://www.risc.college/sites/default/files/2019-01/RISC_2019_report_natl.pdf

[4] Michel Grosz, "Do Postsecondary Training Programs Respond to Changes in the Labor Market?" Federal Trade Commission Working Paper no. 343, December 2019, https://www.ftc.gov/reports/do-postsecondary-training-programs-respond-changes-labor-market.

Student loan default rates: If "free" means no charges to students, these would likely decline somewhat, but relatively few community college students – 18 percent[5] – currently use student loans because the institutions are already relatively inexpensive. If "free" also means that the federal government will pay one's room and board costs, then student loan default rates would probably decline even further as people who might have attended more expensive four-year schools gravitated more towards community colleges for their first two years. However, were the community college proposal to spur so much demand for the two-year schools that they had large waiting lists, large-scale moves from four-year schools might not occur.

2.Could "free" community college lead to a community college having to restrict access? What types of students would be harmed if that were to happen? (I ask this given Idaho's community colleges are roughly one-third the cost of our public four-year colleges and universities.)

This is a very real possibility; free community college could lead to restricting access to the schools entirely, or to high-demand courses and programs. Again, if community colleges do not expand to meet what would likely be greatly increased demand, they will have to either start turning students away or force them to languish as they wait for specific courses they need to graduate to come open. Failure to respond quickly to student needs is currently a major problem in community colleges, which are already very low cost. Artificially increasing demand by having taxpayers bear all the costs will only exacerbate these problems.

Rationing would likely hurt low-income students the most because they have less ability to pay to get a necessary course at another institution than wealthier students. They also have less ability to afford the opportunity costs of spending time unproductively in college, killing time and money waiting for necessary courses to come open. Many lower-income students also have children and jobs, whereas wealthier students may be younger and live with their parents, enabling them to more comfortably bide their time.

3.What are the kinds of "federal strings" you could envision could come with federal matching requirements for the two free years of community college under the American Families Plan Act?

---

[5] Table 331.20: Full-time, first-time degree/certificate-seeking undergraduate students enrolled in degree-granting postsecondary institutions, by participation and average amount awarded in financial aid programs, and control and level of institution: 2000-01 through 2018-19, Digest of Education Statistics, National Center for Education Statistics, August 2020, https://nces.ed.gov/programs/digest/d20/tables/dt20_331.20.asp?current=yes.

First, I should note that because the federal government already provides huge amounts of money to higher education there are already major federal strings, including many data reporting requirements, safety regulations, student discipline regulations – including highly controversial Title IX sexual misconduct rules – and more. That said, I would expect to see new "supplement not supplant" regulations saying that federal money cannot replace any state or local higher education funding, and requirements that states show "maintenance of effort" by not cutting their total higher education funding below a small threshold, and likely regularly increasing it. In other words, regulations to keep state and local governments from offsetting their federal aid and matches for community colleges by cutting elsewhere in higher education.

There would also probably be requirements that federal and state matching funds only be used for "educational purposes" such as paying professors or modernizing academic buildings, as opposed to expanding recreation facilities, or funding more gourmet dining options. But defining exactly what constitutes "academic" will be difficult and likely highly bureaucratic; what if new recreation facilities host a few physical education classes, or better dining is said to have nutritional benefits to aid students? And spending more on "academics," even under a very strict definition, could result not in more or better academic offerings, but higher pay for professors who continue to offer the existing level of service, or opening new programs for which there is little demand, or a lot of demand but little applicability to workforce needs.

In short, there would likely be new regulations aimed at reining in potential excess that would add a lot of red tape, but that would also be very difficult to write and implement in a way that truly stopped excessive or wasteful spending. It would be the worst of both worlds.

[Questions submitted for the record and the responses by Mr. Riedl follow:]

MAJORITY MEMBERS

ROBERT C. "BOBBY" SCOTT, VIRGINIA,
Chairman

RAÚL M. GRIJALVA, ARIZONA
JOE COURTNEY, CONNECTICUT
GREGORIO KILILI CAMACHO SABLAN,
NORTHERN MARIANA ISLANDS
FREDERICA S. WILSON, FLORIDA
SUZANNE BONAMICI, OREGON
MARK TAKANO, CALIFORNIA
ALMA S. ADAMS, NORTH CAROLINA
MARK DESAULNIER, CALIFORNIA
DONALD NORCROSS, NEW JERSEY
PRAMILA JAYAPAL, WASHINGTON
JOSEPH D. MORELLE, NEW YORK
SUSAN WILD, PENNSYLVANIA
LUCY MCBATH, GEORGIA
JAHANA HAYES, CONNECTICUT
ANDY LEVIN, MICHIGAN
ILHAN OMAR, MINNESOTA
HALEY M. STEVENS, MICHIGAN
TERESA LEGER FERNANDEZ,
NEW MEXICO
MONDAIRE JONES, NEW YORK
KATHY E. MANNING, NORTH CAROLINA
FRANK J. MRVAN, INDIANA
JAMAAL BOWMAN, NEW YORK
MARK POCAN, WISCONSIN
JOAQUIN CASTRO, TEXAS
MIKIE SHERRILL, NEW JERSEY
JOHN A. YARMUTH, KENTUCKY
ADRIANO ESPAILLAT, NEW YORK
KWEISI MFUME, MARYLAND

COMMITTEE ON
EDUCATION AND LABOR
U.S. HOUSE OF REPRESENTATIVES
2176 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6100

MINORITY MEMBERS

VIRGINIA FOXX, NORTH CAROLINA,
Ranking Member

JOE WILSON, SOUTH CAROLINA
GLENN THOMPSON, PENNSYLVANIA
TIM WALBERG, MICHIGAN
GLENN GROTHMAN, WISCONSIN
ELISE M. STEFANIK, NEW YORK
RICK W. ALLEN, GEORGIA
JIM BANKS, INDIANA
JAMES COMER, KENTUCKY
RUSS FULCHER, IDAHO
FRED KELLER, PENNSYLVANIA
GREGORY F. MURPHY, NORTH CAROLINA
MARIANNETTE MILLER-MEEKS, IOWA
BURGESS OWENS, UTAH
BOB GOOD, VIRGINIA
LISA C. MCCLAIN, MICHIGAN
DIANA HARSHBARGER, TENNESSEE
MARY E. MILLER, ILLINOIS
VICTORIA SPARTZ, INDIANA
SCOTT FITZGERALD, WISCONSIN
MADISON CAWTHORN, NORTH CAROLINA
MICHELLE STEEL, CALIFORNIA
JULIA LETLOW, LOUISIANA
VACANCY

May 6, 2021

Mr. Brian Riedl
Senior Fellow in Budget, Tax and Economics
The Manhattan Institute
8315 Mount Vernon Highway
Alexandria, VA 22309

Dear Mr. Riedl,

I would like to thank you for testifying at the April 28, 2021 Committee on Education and Labor hearing entitled "Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy."

Please find enclosed additional questions submitted by Committee members following the hearing. Please provide a written response no later than Thursday, May 13, 2021, for inclusion in the official hearing record. Your responses should be sent to Mariah Mowbray and Rashage Green of the Committee staff. They can be contacted at 202-225-3725 should you have any questions.

I appreciate your time and continued contribution to the work of the Committee.

Sincerely,

ROBERT C. "BOBBY" SCOTT
Chairman

Enclosure

Committee on Education and Labor Hearing
"Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy"
Wednesday, April 28, 2021
12:00 p.m. (Eastern Time)

Representative Russ Fulcher (R – ID)

1. I am worried about the federal government dictating to states what states can and cannot spend money on. Can you speak to how Medicare mandates from the federal level have shifted budget priorities at the state level? What unintended consequences could occur if the federal government enters into a "federal-state partnership" with a state to provide "free" community college?

Committee on Education and Labor Hearing
"Building Back Better: Investing in Improving Schools, Creating Jobs, and Strengthening Families and our Economy"
Wednesday, April 28, 2021

Brian Riedl
Senior Fellow, the Manhattan Institute;

Representative Russ Fulcher (R – ID)
I am worried about the federal government dictating to states what states can and cannot spend money on. Can you speak to how Medicare mandates from the federal level have shifted budget priorities at the state level? What unintended consequences could occur if the federal government enters into a "federal-state partnership" with a state to provide "free" community college?

Brian Riedl

Medicaid is an example of the federal government taking financial responsibility for state government benefits. But when one level of government is doing the spending, and another level of government is doing most of the taxing, accountability becomes muddled and the incentives become backwards. For Medicaid, the matching fund formula means that states have every incentive to overspend, because doing so increases their federal subsidy. Consequently, states expand Medicaid first during booms, and restrain it last during recessions. States also employ gimmicks to create the false appearance of higher Medicaid spending to collect additional federal matching grants. This combines with federal restrictions on how Medicaid must be designed and what benefits must be provided to create an expensive, fossilized, bureaucratic, inefficient program. Medicaid health outcomes are not strong given the amount of money spent.

Similar issues are inevitable with "free" community college financed by the federal government. While details of the President's plan are sparse, Washington will likely have to choose between massive federal cost overruns, or heavy federal regulation of state community colleges to keep costs down. If the program is designed as an open-ended matching grant like Medicaid, then states will have every incentive to steeply increase college funding to secure more "free" federal money. This may lead Washington to regulate local community college budgets to keep such costs from rising. Ultimately the result is the federalization of local college administration, and steep cost overruns as well. As soon as Washington declares itself responsible for financing a state-provided benefit, both costs and federal regulations inevitably soar. The simple lesson is that accountability demands that the level of government that provides the benefits should also do the taxing.

[Whereupon, at 4:05 p.m., the Committee was adjourned.]

○