REAUTHORIZING THE NATIONAL APPRENTICESHIP ACT: STRENGTHENING AND GROWING APPRENTICESHIPS FOR THE 21ST CENTURY

HEARING

BEFORE THE

SUBCOMMITTEE ON HIGHER EDUCATION AND WORKFORCE INVESTMENT

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

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C O N T E N T S

REAUTHORIZING THE NATIONAL APPRENTICESHIP ACT: STRENGTHENING AND GROWING APPRENTICESHIPS FOR THE 21ST CENTURY

Wednesday, March 4, 2020
House of Representatives
Subcommittee on Higher Education
and Workforce Investment,
Committee on Education and Labor
Washington, DC.

The subcommittee met, pursuant to notice, at 10:15 a.m., in room 2175, Rayburn House Office Building. Hon. Susan A. Davis (Chairwoman of the subcommittee) presiding.

Present: Representatives Davis, Courtney, Takano, Jayapal, Levin, Trone, Lee, Trahan, Bonamici, Adams, Norcross, Smucker, Guthrie, Grothman, Stefanik, Walker, Comer, Cline, Fulcher, Watkins, Meuser, and Murphy.

Also present: Representatives Scott, and Foxx.

Staff present: Ilana Brunner, General Counsel; Emma Eatman, Deputy Press Secretary; Eli Hovland, Staff Assistant; Stephanie Lalle, Deputy Communications Director; Jaria Martin, Clerk/Special Assistant to the Staff Director; Katie McClelland, Professional Staff; Kevin McDermott, Senior Labor Policy Advisor; Richard Miller, Director of Labor Policy; Katelyn Mooney, Associate General Counsel; Max Moore, Staff Assistant; Veronique Pluviose, Staff Director; Banyon Vassar, Deputy Director of Information Technology; Joshua Weisz, Communications Director; Rachel West, Senior Economic Policy Advisor; Cyrus Artz, Minority Staff Director; Kelsey Avino, Minority Fellow; Courtney Butcher, Minority Director of Member Services and Coalitions; Amy Raaf Jones, Minority Director of Education and Human Resources Policy; Georgie Littlefair, Minority Staff Assistant; Hannah Matesic, Minority Director of Operations; Audra McGeorge, Minority Communications Director; Jake Middlebrooks, Minority Professional Staff Member; Carlton Norwood, Minority Press Secretary; Chance Russell, Minority Legislative Assistant; Mandy Schaumburg, Minority Chief Counsel and Deputy Director of Education Policy, and Brad Thomas, Minority Senior Education Policy Advisor.

Chairwoman DAVIS. The Subcommittee on Higher Education and Workforce Investment will come to order. I want to welcome every-

one here this morning. I note that a quorum is present and we are able to move on.

I also want to note for the subcommittee that Ms. Susan Wild of Pennsylvania, Ms. Lucy McBath of Georgia, and Ms. Jahana Hayes of Connecticut are permitted to participate in today's hearing with the understanding that their questions will come only after Members on the subcommittee from both sides of the aisle who are present have had an opportunity to question the witnesses.

The Subcommittee on Higher Education and Workforce Investment is meeting today in a legislative hearing to hear testimony on Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century.

Pursuant to Committee Rule 7(c), opening Statements are limited to the Chair and the Ranking Member, and this allows us to hear from our witnesses sooner and provides all members with adequate time to ask questions. I am going to recognize myself now for the purpose of making an opening Statement.

I look around this room and I see that everyone here is deeply committed to the mission of giving everyone in this country a fair shot at achieving the American Dream. While we might emphasize different means by which to reach this goal, the fact of the matter is that our best efforts moving forward will ultimately incorporate a lot more than one single answer or pathway.

Many Americans believe that attending a traditional 4-year college is critical to obtaining economic success. But this specific path of obtaining a higher education may not be the best fit for everyone. We are here today because we want to give that conversation a fresh look and acknowledge that we need to do a better job of ensuring that people, whether young students or mid-career workers, understand the many pathways they have to accessing the high-quality lifelong learning opportunities that apprenticeships provide.

We have all heard the success stories, and I think you are going to tell us some today, of people participating in Registered Apprenticeship Programs. And I have been most impressed by the people I have spoken to who have started as an apprenticeship and then became the CEO of the company that they apprenticed for. These programs combine business needs with quality training standards and have a long track record of success.

First enacted in 1937, the National Apprenticeship Act has provided, and continues to provide, hundreds of thousands of workers each year with access to paid, on-the-job learning opportunities.

Registered Apprenticeships are unquestionably the Nation's most successful federally funded work force development initiative, and we are here today to ensure this success is part of our national conversation about pathways to and continuing higher education.

According to the Department of Labor, 94 percent of people who complete Registered Apprenticeships are employed upon completion, earning an average starting wage of above 70,000 annually. That probably surprises people, I think.

As this committee has discussed in previous hearings, the success of these programs is not a mystery. Thanks to high-quality standards, close engagement with industry, and strong worker protections, Registered Apprenticeships provide apprenticeships with wages and benefits that increase as apprentices build skills and

competencies, portable and stackable credentials that are nationally recognized and valued by employers, and advancement in a rewarding career path.

Registered Apprenticeships are also important to our Nation's employers. By offering successful apprenticeship opportunities, employers build a talent pipeline of dedicated workers who are more likely to remain at their jobs for long periods of time.

For every dollar that employers invest in apprenticeships, they receive $1.47 in increased productivity, reduced waste, and greater innovation.

In response to the rising demand for Registered Apprenticeships, Federal, State, and private initiatives have created hundreds of thousands of new apprenticeship positions over the last several years.

Today, Registered Apprenticeships administered by the DOL and the State Apprenticeship Agencies, or S-A-As, can be found in over 1,200 occupations, from traditional construction and military occupations to the nontraditional occupations such as technology, finance, and healthcare careers.

But we know this, there is significant room for growth. Apprenticeships currently account for just three-tenths of 1 percent of the overall work force. I will say that again, three-tenths of 1 percent. Promoting and expanding apprenticeship opportunities is one of the most effective policy solutions to give hardworking people a clear path to financial security for themselves and their families and can serve as a jump start for people on their career journeys.

To help serve as a springboard for this conversation, I introduced a discussion draft of the National Apprenticeship Act of 2020, a proposed reauthorization of the National Apprenticeship Act that will empower more workers and employers to participate in our national apprenticeship system. And this proposal rests on three key pillars.

First, it makes historic investments in apprenticeships by authorizing $400 million in Federal grants, increasing by 100 million annually, to: create and expand registered apprenticeships, youth apprenticeships, those for young people still in school, and pre-apprenticeships, including in nontraditional occupations; encourage opportunities for individuals who face barriers to employment; support national and local intermediaries who play a pivotal role in expanding apprenticeships; and better align secondary and postsecondary education programs with apprenticeship programs. According to our estimates, these steps will create over 1 million apprenticeship opportunities over the next 5 years.

And, second, the proposal authorizes a dedicated, annual funding stream for States, which play a critical role in expanding apprenticeship opportunities. How do we achieve that? Through a new formula fund for State Apprenticeship Agencies that will provide consistent and reliable funding for apprenticeship programs each year. It also means ensuring that States can receive dedicated annual funding while also applying for grants to expand apprenticeship opportunities.

And, third, the proposal reflects the consistent feedback that we have heard from employers by streamlining the process for registering programs while maintaining Registered Apprenticeship

Programs of high-quality standards for apprenticeship agreements. This streamlining will not only make it easier for employers to create apprenticeship opportunities, but also make apprenticeship programs more consistent to ensure that all programs meet quality standards and uphold worker protections.

Perceptions of apprenticeships vary greatly across the country, making it difficult for programs to expand and reach their full potential. The proposed reauthorization codifies clear definitions and standards for Registered Apprenticeships, youth apprenticeships, andpre-apprenticeships, so that we are all speaking in a common language about what we mean when we talk about the opportunities these programs provides.

And as I have said before, the Registered Apprenticeship system has a proven potential to reach hundreds of thousands, if not millions, of American workers. And to that end, committee Democrats and Republicans have been working to reauthorize the National Apprenticeship Act in a bipartisan manner. And I certainly hope that we will continue these efforts, we put our differences aside, of course, to reach our common goal of helping more people succeed in today's economy through the Registered Apprenticeship system.

Only with these clearly established programs will we ensure that families can sit down at the kitchen table, discuss their futures, and look to the Registered Apprenticeship system as one of many high-quality pathways to postsecondary education that lead to the middle class.

The proposed reauthorization before us takes critical steps toward realizing that important goal. And we have an opportunity here to receive feedback from key stakeholders and make sure this proposal is as strong and effective as possible. And that is why you are here today.

I look forward to working with all my colleagues to advance the National Apprenticeship Act of 2020, and I now yield to the Ranking Member Mr. Smucker for his opening Statement.

[The statement of Chairwoman Davis follows:]

Prepared Statement of Hon. Susan A. Davis, Chairwoman, Subcommittee on Higher Education and Workforce Investment

I look around this room and see that everyone here is deeply committed to the mission of giving everyone in this country a fair shot at achieving the American Dream.

Yes, we might emphasize different means by which to reach this goal, but the fact of the matter is that our best efforts moving forward will ultimately incorporate a lot more than one single answer or pathway.

Many Americans believe that attending a traditional 4-year college is critical to obtaining economic success. But this specific path of obtaining a higher education is simply not be the best fit for everyone. We are here today because we want to give that conversation a fresh look and acknowledge that we need to do a better job of ensuring that people, whether young students or mid-career workers, understand the many pathways they have to accessing the high-quality lifelong learning opportunities that apprenticeships provide.

We have all heard the success stories of people participating in Registered Apprenticeship programs-and I have been most impressed by the people I've spoken to who started as an apprentice and became the CEO! These programs combine business needs with labor demands and have a long track record of success.

First enacted in 1937, the *National Apprenticeship Act* has provided-and continues to provide-hundreds of thousands of workers each year with access to paid, on-the-job learning opportunities. Registered Apprenticeships are unquestionably the nation's most successful federally funded workforce development initiative, and we are

here today to ensure this success is part of our national conversation about pathways to and through higher education.

According to the Department of Labor, 94 percent of people who complete Registered Apprenticeships are employed upon completion, earning an average starting wage of above $70,000 annually.

As this Committee has discussed in previous hearings, the success of these programs is not a mystery. Thanks to high-quality standards, close engagement with industry, and strong worker protections, Registered Apprenticeships provide apprentices with:

- Wages and benefits that increase as apprentices build skills and competencies;
- Portable and stackable credentials that are nationally recognized and valued by employers; and,
- Advancement in a rewarding career path.

Registered Apprenticeships are also important to our nation's employers. By offering successful apprenticeship opportunities, employers build a talent pipeline of dedicated workers who are more likely to remain at their jobs for long periods of time.

For every dollar that employers invest in apprenticeships, they receive $1.47 in increased productivity, reduced waste, and greater innovation.

In response to the rising demand for Registered Apprenticeships, federal, state, and private initiatives have created hundreds of thousands of new apprenticeship positions over the last several years.

Today, Registered Apprenticeships administered by DOL and State Apprenticeship Agencies, or S-A-As, can be found in over 1,200 occupations, from traditional construction and military occupations to new technology, finance, and health care careers.

But there is still significant room for growth. Apprenticeships currently account for just three-tenths of one percent of the overall workforce. Promoting and expanding apprenticeship opportunities is one of the most effective policy solutions to give hardworking people a clear path to financial security for themselves and their families and can serve as a jump start for people on their career journeys.

To help serve as a springboard for this conversation, I introduced a discussion draft of the *National Apprenticeship Act of 2020*, a proposed reauthorization of the *National Apprenticeship Act*, that will empower more workers and employers to participate in our national apprenticeship system.

This proposal rests on three key pillars.

First, it makes historic investments in apprenticeships by authorizing $400 million in federal grants, increasing by $100 million annually, to:

- Create and expand registered apprenticeships, youth apprenticeships, and pre-apprenticeships, including in non-traditional occupations;
- Encourage opportunities for individuals who face barriers to employment;
- Support national and local intermediaries who play a pivotal role in expanding apprenticeships; and
- Better align secondary and postsecondary education programs with apprenticeship programs.

According to our estimates, these steps will create over 1 million apprenticeship opportunities over the next 5 years.

Second, the proposal creates dedicated, annual funding for states, which play a critical role in expanding apprenticeship opportunities. This means establishing a new formula fund for state apprenticeship agencies that will provide consistent and reliable funding for apprenticeship programs each year. It also means ensuring that states can receive dedicated annual funding while also applying for grants to expand apprenticeship opportunities.

Third, the proposal reflects the consistent feedback we've heard from employers by streamlining the process for registering programs while maintaining Registered Apprenticeship programs high-quality standards requirements for apprenticeship agreements.

This streamlining will not only make it easier for employers to create apprenticeship opportunities, but also make apprenticeship programs more consistent to ensure that all programs meet quality standards and uphold worker protections. Perceptions of apprenticeships vary greatly across the country, making it difficult for programs to expand and reach their full potential. The proposed reauthorization codifies clear definitions and standards for Registered Apprenticeships, youth-apprenticeships, and pre-apprenticeships, so that we are all speaking in a common

language about what we mean when we talk about the opportunities these programs provides.

As I have said before, the Registered Apprenticeship system has the proven potential to reach hundreds of thousands-if not millions-of American workers. To that end, Committee Democrats and Republicans are working to reauthorize the *National Apprenticeship Act* in a bipartisan manner. I hope, that as we continue these efforts, we put our differences aside to reach our common goal of helping more people succeed in today's economy through the Registered Apprenticeship system.

Only with these clearly established programs will we ensure that families can sit down at the kitchen table, discuss their futures, and look to the Registered Apprenticeship system as one of many high-quality pathways to postsecondary education that lead to the middle class.

The proposed reauthorization before us takes critical steps towards realizing that important goal. Today, we have an opportunity to receive feedback from key stakeholders and make sure this proposal is as strong and effective as possible.

I look forward to working with all my colleagues to advance the *National Apprenticeship Act of 2020*, and now yield to the Ranking Member, Mr. Smucker, for his opening statement.

Mr. SMUCKER. Thank you, Madam Chair.

We are here today to discuss reform of the National Apprenticeship Act, which, of course, is an important tool in our efforts to promote and strengthen apprenticeships and strengthen opportunities for American workers so they are better prepared to compete in today's economy.

And I would like to thank the chair for what I know is her personal interest in ensuring that more apprenticeship programs and opportunities become available. I would like to thank her for introducing this bill that would strengthen the Act. And I would like to thank her, as well, for working with this side of the aisle in coordinating and scheduling this hearing today.

So, I am looking forward to discussion and also looking forward to the continued discussion in regard to a bill. And I do know that there is a lot that we agree on and hope that we can work through any remaining differences and really advance a bill that is done in a bipartisan way and that will have the support of the administration and something that can be passed into law. So, again, I would like to first just thank you for your work on this very, very important topic.

The more we combat the misconception that a baccalaureate degree is the only viable pathway to a good job, the more we can better prepare future workers for a successful life.

For too long, there has been a stigma surrounding skills-based education. And today's hearing is an opportunity to highlight and recognize that the on-job learning programs are a proven method of setting students up for success. I was for years involved as a construction company owner and saw that there, but this can be expanded to so many other industries.

As we all know, there is a growing interest today in apprenticeships and other earn-and-learn opportunities across the world, and for good reasons. Employers of all sizes are increasingly recognizing the critical role that apprenticeships play in the development of a qualified work force. As our economy continues to thrive, and I am proud of the strong economy that we have due to tax reform and deregulation efforts, it has created this serious skills gap that we now face. So, currently today there are more than 7 million jobs that remain unfilled.

According to the Bureau of Labor Statistics, the number of job openings in the U.S. exceeds the number of job seekers nationwide. This has increased the demand for skilled workers. Yet, a 2018 survey of U.S. employers showed that nearly half of all job creators struggled to hire employees with the right skills for the job. And for the sixth year running, skilled trade jobs continue to be the hardest position to fill all over the world.

Apprenticeship programs offer one of the strongest solutions and pathways to filling these positions, closing this skills gap, and strengthening the American work force. According to the Department of Labor, 94 percent of apprentices retain employment after completing an apprenticeship program. And the average starting salary after completion is $70,000.

The Trump administration has long recognized the benefits and importance of these programs enacted on behalf of our Nation's students and workers. In July 2018, President Trump signed an executive order on work force development in which companies around the country signed a pledge to expand apprenticeship opportunities and educate 3.8 million workers over the next 5 years.

As I said, it is abundantly clear that apprenticeship programs are proven to be effective. We must continue our work to integrate the education community with the work force so that classrooms and on-the-job development work hand-in-hand. We need to adapt in order to propel all students to success in a rapidly evolving economy.

This committee has the responsibility to work toward solutions that will increase access to career changing opportunities. Workforce programs like apprenticeships will aid in closing the skills gap by building talent pipelines and putting more Americans to work.

So, I would like to thank our witnesses, as well, for your testimony today. I am looking forward to having the discussion about how we can improve the recently released discussion draft to make the Registered Apprenticeship Program system work better for students, for families, and for employers so that we can continue to promote apprenticeships to build our work force and improve our country. Thank you.

[The statement of Mr. Smucker follows:]

Prepared Statement of Hon. Lloyd Smucker, Ranking Member, Subcommittee on Higher Education and Workforce Investment

Today we are here to discuss reform of the *National Apprenticeship Act*, an important tool in our efforts to promote and strengthen apprenticeships so American workers are better prepared to compete in today's economy.

I'd like to thank my colleagues on the other side of the aisle for working with us to hold today's hearing. The more we combat the misconception that a baccalaureate degree is the only viable pathway to a good job the more we can better prepare future workers for a successful life. For too long, there has been a stigma surrounding skills-based education. Today's hearing is an opportunity to highlight and recognize that on-the-job learning programs are a proven method of setting students up for success.

As we all know, there is a growing interest in apprenticeships and other earn-and-learn opportunities across the world, and for good reason. Employers of all sizes are increasingly recognizing the critical role that apprenticeships play in the development of a qualified workforce. However, as our economy continues to thrive under tax reform and deregulation efforts, we face a serious skills gap. Currently, more than seven million jobs remain unfilled.

According to the Bureau of Labor and Statistics, the number of job openings in the United States exceeds the number of job seekers nationwide. This has increased the demand for skilled workers. Yet, a 2018 survey of U.S. employers showed that nearly half of all job creators struggle to hire employees with the right skills for the job, and for the sixth year running, skilled trade jobs continue to be the hardest positions to fill all over the world.

Apprenticeship programs offer one of the strongest solutions and pathways to filling these positions, closing this skills gap, and strengthening the American workforce, but don't just take my word for it. According to the Department of Labor, 94 percent of apprentices retain employment after completing an apprenticeship program and the average starting salary after completion is $70,000.

The Trump administration has long recognized the benefits and importance of these programs and acted on behalf of our nation's students and workers. In July of 2018, President Trump signed an Executive Order on workforce development, in which companies around the country signed a pledge to expand apprenticeship opportunities and educate 3.8 million workers over the next five years.

It is abundantly clear that apprenticeship programs are proven to be effective. We must continue our work to integrate the education community with the workforce, so that classrooms and on-the-job development work hand in hand. We need to adapt in order to propel all students to success in a rapidly evolving economy.

This committee has a responsibility to work towards solutions that will increase access to career changing opportunities. Workforce programs like apprenticeships will aid in closing the skills gap by building talent pipelines and putting more Americans to work.

I'd like to thank our witnesses for their testimony today. I'm looking forward to having a discussion about how we can improve the recently released discussion draft to make the registered apprenticeship system work better for students, families, and employers so we can continue to promote apprenticeships to build our workforce and improve our country.

Chairwoman DAVIS. Thank you, Mr. Smucker.

I want to thank our ranking member because we have had a really good, a strong working relationship, and I appreciate your insights into this issue. Thank you so much.

Without objection, all of the Members who wish to insert written statements into the record may do so by submitting them to the Committee Clerk electronically in Microsoft Word format by 5 on Tuesday, March 17th.

And we now turn to our witnesses, and I am pleased to recognize my colleague, Representative Trone of Maryland, to briefly introduce his constituent who is appearing before us as a witness today.

Mr. TRONE. Thank you, Chairwoman Davis and Ranking Member Smucker, for holding this important hearing.

I am very pleased to introduce a leader in my State of Maryland, Secretary Tiffany Robinson. Tiffany Robinson was appointed secretary of the Maryland Department of Labor in July 2019. In this role, she leads the Department's work in protecting and empowering Marylanders by safeguarding workers, protecting consumers, and cultivating a thriving work force that meets the demands of Maryland's dynamic economy, and oversees Maryland's State Apprenticeship Agency.

Prior to her appointment, Secretary Robinson served as deputy chief of staff for Governor Larry Hogan. Before this, she was assistant secretary with the Maryland Department of Housing and Community Development and director of the Community Development Administration and the Housing Finance Agency for our State. Secretary Robinson is a graduate of the University of Maryland, Baltimore County, and the University of Baltimore School of Law.

Thank you for being here. Secretary Robinson, I look forward to continuing to work with you to strengthen our Registered Appren-

ticeship Programs in Maryland and throughout the country. Thank you.

Chairwoman DAVIS. Thank you. And I am now pleased to recognize my colleague, Representative Grothman of Wisconsin, to briefly introduce his constituent who is appearing before us as a witness today. Mr. Grothman.

Mr. GROTHMAN. It is my honor to introduce Dr. Morna Foy as president of the Wisconsin Technical College System. One of the best in the country. We have 16 public 2-year institutions serving more than 300,000 students enrolled in degree, diploma, and transfer programs, dual credit courses with high schools, basic adult education, and customized training in partnership with employers. The technical colleges, five of which I have in my district, are the primary provider of classroom instruction for Wisconsin's Registered Instruction Program, the first in the Nation, which was created in 1911, the same year as the State's Technical College System.

Dr. Foy has been engaged in higher education policy and leadership for 30 years, and believes strongly in the value of apprenticeship programs, which is why we have her here today. We are very pleased to have her here to highlight Wisconsin's program and how we can improve apprenticeships at the Federal level. Dr. Foy has a undergraduate degree from the University of Wisconsin, a master's degree from Indiana, and doctorate at our joint alma mater, the University of Wisconsin. Thank you for being here, Dr. Foy.

Chairwoman DAVIS. Thank you. And I will now introduce the remaining witnesses. Jace Noteboom is the talent director for the IBM Systems and Cognitive Enterprise Support units of IBM. Where, as a member of the human resources executive team, she has global responsibility for the work force skills, talent, offerings, and employee experience including creating and overseeing IBM's Registered Apprenticeship Programs.

And also, Daniel Bustillo. Daniel Bustillo is the executive director of the Healthcare Career Advancement Program, or H-CAP, a national organization of SEIU unions and healthcare employers who are participating in support of developing quality healthcare career education models, including Registered Apprenticeships for high road jobs that increase equity in the healthcare work force.

Thank you, all of you, for being here. We appreciate that, and in some cases, we know that you have traveled a long distance to be here today. I just want to remind witnesses that we have read your written Statements and they will appear in full in the hearing record.

Pursuant to Committee Rule 7(d) and committee practice, each of you is asked to limit your oral presentation to a 5-minute summary of your written Statement. Before you begin, please remember to press the button on the microphone in front of you so that it will turn on and the members can hear you. And as you begin to speak, the light in front of you will turn green. After 4 minutes, yellow, to signal that you have 1 minute remaining. And when the light turns red, your 5 minutes have expired and we ask you to please wrap up.

We will let the entire panel make their presentations before we move to member questions. When answering a question, please re-

member to again turn the microphone off. And I will first recognize Secretary Tiffany Robinson. And then we will just go right through the line. Thank you.

STATEMENT OF TIFFANY P. ROBINSON, ESQUIRE, SECRETARY, MARYLAND DEPARTMENT OF LABOR

Ms. ROBINSON. Good morning, Chair Scott, Ranking Member Foxx, Subcommittee Chair Davis, Subcommittee Ranking Member Smucker, and distinguished Members of the subcommittee. My name is Tiffany Robinson. I am secretary of the Maryland Department of Labor under Governor Larry Hogan.

I am honored to be here today and I thank you for this opportunity to discuss and share with you the successes and challenges of the Maryland Apprenticeship and Training Program.

Maryland has transformed the State's Registered Apprenticeship Program into the premier work force tool that it is today by developing best practices and strong partnerships with education and industry leaders, job seekers, and businesses.

During the Hogan administration, Maryland has experienced tremendous growth with its number and diversity of apprenticeships. We went from 7,340 Registered Apprentices to 10,500 as of today, and from 125 program sponsors to over 164 sponsors. By the end of this year, we expect to set another record and surpass 11,000 apprentices in the State of Maryland.

In terms of increased diversity, I don't mean a slight increase. This administration has seen a 70 percent increase in the number of female apprentices in Maryland, as well as a 40 percent increase in the number of minority apprentices.

As you can see, our focus on growing diversity already aligns with the new goals of the draft Reauthorization Act.

We are very proud of this growth, which is due to the rebranding of our Registered Apprenticeship Program through a mass coordinated outreach campaign. The inclusion of nontraditional industries and competency-based instruction and increased State incentives combined with U.S. DOL apprenticeship expansion grants.

One of the most significant changes that we have made in Maryland was to build on the growing realization that college is just not for everyone. It sounds simple, but we are actually changing the perception of apprenticeship by increasing our personal outreach to current and prospective stakeholders. For example, over the past 3 years, we have visited every single apprenticeship program in the State. This obviously helps to ensure compliance, but it also strengthens our relationship with our businesses and our sponsors. Believe it or not, when it is my team taking a tour, meeting apprentices, and providing technical assistance, Maryland businesses actually welcome a site visit from the government.

We have also found that the perception is changing among the nontraditional industries who once believed the apprenticeship model could not work for them. Innovative competency-based programs have resulted in over 60 percent of our new apprenticeship sponsors being in nontraditional fields such as healthcare, information technology and cybersecurity, transportation and logistics, advanced manufacturing, and hospitality.

The Hogan administration has also more than doubled its funding for the apprenticeship programs, which has helped to lead to the State's 45 percent increase in the number of new apprentices. Maryland's program particularly benefited from the Governor's More Jobs for Marylanders Act, which included a Registered Apprenticeship tax credit allowing an employer a $1,000 tax credit per apprentice hired. This credit has received overwhelmingly positive feedback from businesses and is being considered currently for expansion this legislative session.

While Maryland continues to grow and scale these programs, the primary challenge that we have faced is the lack of consistent and sustainable Federal funding at the program level. So, I was thrilled to see the inclusion of formula funding, as well as continued Federal grant options in the draft reauthorization language. The formula funding will enhance our State's ability to expand and integrate apprenticeship within the work force system, while growing our dedicated team. And it will finally allow States to fully incorporate pre-and youth apprenticeship into our programs through a dedicated funding stream.

And while I am happy to see the grant funding will still be available, I might add that it would be beneficial to States if the lifespan of those grants were increased to 4 years to coincide with the newly required State plan and data reporting requirements, especially considering that most apprenticeship programs are also 4 years.

It is also my hope that the grant funding remains flexible, similar to the Governor's set-aside WIOA funds. As you know, newly formed programs simply don't have the same foundation as unions and associations who have had decades to establish a generational presence. So, a grant with more flexibility and a longer lifespan will help sustainably grow these new programs.

We are very proud of the profound impact that the Maryland Apprenticeship and Training program has had on our business community, job seekers, and students in Maryland. Businesses across the country, as you mentioned, are facing a shortage of skilled workers. So I can't think of a better time to reauthorize the National Apprenticeship Act.

On behalf of the Hogan administration, Maryland is thrilled to partner with you on this important endeavor. And we look forward to continuing our growth of the apprenticeship programs in years to come.

Thank you, again, for your time, and I look forward to answering any questions you may have.

[The prepared Statement of Ms. Robinson follows:]

Written Testimony of Secretary Tiffany P. Robinson
Maryland Department of Labor

Before the Subcommittee on Higher Education and Workforce Investment of the
Committee on Education & Labor
U.S. House of Representatives

"Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century"

Wednesday, March 4, 2020

Chairman Scott, Ranking Member Foxx, and distinguished members of the Subcommittee: I am Tiffany Robinson, Secretary of the Maryland Department of Labor under Governor Larry Hogan. I am honored to be here today and thank you for the opportunity to discuss and share with you the successes and challenges the Maryland Apprenticeship and Training Program (MATP) has faced.

Today I will present to you the recent history of the program and the many developments that have led Maryland's apprenticeship program to become the success story it is today. Through collaboration with the U.S. Department of Labor and Maryland's education partners, industry leaders, jobseekers, businesses, and other stakeholders, we have developed a proven system of best practices that have made Registered Apprenticeship (Apprenticeship) the premier workforce development tool. Along this road, we have naturally faced challenges, and I am excited to share with you the actions we have taken to create lasting solutions.

We are proud that the Apprenticeship program has grown by leaps and bounds under the Hogan Administration.

HISTORY AND PROGRAM GROWTH UNDER GOVERNOR LARRY HOGAN

The federal Workforce Innovation and Opportunity Act (WIOA) was signed into law by President Obama in 2014 and became effective on July 1, 2015. The Act sought to align workforce development strategies and Apprenticeships. At the Maryland Department of Labor, we used the enactment of the new federal Act as an opportunity to critically analyze how we provided workforce services to Maryland's jobseekers and businesses. Maryland's job seekers deserve to have at their disposal a wide variety of options to place them on a career pathway. Maryland's businesses need a pipeline of talented, well-trained workers that they can rely on for generations to come.

In order to make this vision a reality and to demonstrate Maryland's commitment to growing Apprenticeship, the Maryland Department of Labor, under Governor Hogan's leadership, introduced Senate Bill 92 during the 2016 legislative session. Senate Bill 92 transferred responsibilities of the State's Apprenticeship Agency to the Division of Workforce Development and Adult Learning (DWDAL) from the Division of Labor and Industry (DLI), aligned Apprenticeship opportunities with workforce training programming, received bipartisan support,

and was subsequently signed into law. This shift was a critical realignment for Apprenticeship in terms of how services are delivered. While located in DLI, Apprenticeship was primarily utilized to train workers in the skilled trades of the construction industry and was rarely used in nontraditional industries. This relocation was an essential step forward in the continued, systemic growth of Maryland's Apprenticeship program and aligned with Governor Hogan's vision for the State of Maryland's workforce development system.

When the MATP relocated, a program review was conducted to determine best practices, find areas for growth, and ensure that Maryland was in compliance with all State and Federal regulations related to apprenticeship. As a result of this review, the three year period following the transition (2017-2020) resulted in a 40% increase in the total number of apprentices from 7,340 to 10,711.

A similar increase occurred in the registration of new Sponsors. The Department's increased level of staffing, outreach, and technical assistance offered to potential Sponsors led to the creation and registration of 65 Registered Apprenticeship Sponsors brand new to the Apprenticeship program. In comparison, the 65 Sponsors registered between January 2017 and January 2020 is more than double the total registered for the six year period of January 2011 through December 2016.

Due to the rapid growth of the MATP and a new program focused on the use of competency based testing, non-traditional occupations such as healthcare, cyber security, information technology, and advanced manufacturing became increasingly popular. Maryland began to track the comparison of the number of apprentices registered in the more traditional occupations, such as the construction trades, versus newer non-traditional occupations . This expansion has resulted in nearly 15% of all apprentices in Maryland now being registered in occupations outside of the construction trades.

Since 2016, Maryland has been awarded four federal grants totalling $6,871,446 that have provided vital resources for innovative practices designed to spur Apprenticeship growth. In addition to receiving federal funding, the MATP has been supported by Governor Hogan and his administration's priority to create jobs and get more Marylanders back to work. The MATP particularly benefited from the Governor's "More Jobs for Marylanders Act", which included a Registered Apprenticeship tax credit that allows an employer a $1,000 tax credit per apprentice hired, as long as the apprentice works seven or more months in the calendar year. Since inception, over 700 tax credits have been awarded. Legislation is currently pending to extend this tax credit, which is set to expire in July.

During this same timeframe, Maryland's youth apprenticeship program also expanded to 15 of 24 school systems, with 70 students and nearly 200 businesses registered. Coupled with the growth of the state's Registered Apprenticeship Program, it is anticipated that all 24 local school systems will have adopted the youth apprenticeship program by 2021.

Under Governor Hogan's leadership, the Maryland Apprenticeship and Training Program continues to have a profound impact on the businesses, jobseekers, and high school students

interested in the “earn as you learn” model, and there is no doubt that the program will continue to grow.

BEST PRACTICES AND SUCCESSES

In 2017, Maryland began a coordinated outreach campaign to expand Apprenticeship. These efforts included business led industry roundtables, webinars, and outreach events with community colleges, local school systems, and other government agencies. The Department also began to engage all active and inactive Apprenticeship Sponsors a minimum of two times per year by phone, email, letter, and even site visits. Each visit included information about how to reactivate their Apprenticeship, how to engage with the workforce system, the benefits of the Workforce Innovation and Opportunity Act (WIOA), and various tax and grant programs. As a result of this outreach, 27 Apprenticeship Sponsors reactivated their program. This was immediately recognized and implemented as a best practice.

Non-Traditional Industries and the Competency Based Approach:

Maryland’s emphasis on expanding Apprenticeships led to increased positive news coverage and enabled the Department to tap into new industries. Maryland is also experiencing a shift in the public perception of Apprenticeships and a growing realization that college is not the only option towards a fulfilling career path. As a result of this growth, nearly 60% of the new Apprenticeships registered over the past three years have been either non-traditional Apprenticeships or underutilized Apprenticeships. Engagement with new industries was made possible because of new innovations in Registered Apprenticeship and a culture shift in how instruction can be provided to apprentices.

Industries and occupations that have formerly been considered “non-apprenticeable” were suddenly available as a result of competency based Apprenticeships. The ability to provide On-the-Job Training and related instruction to the apprentice, where they learn and are measured in skill attainment as the result of achieving competencies, opened new opportunities in healthcare, cyber security, information technology, and advanced manufacturing. Employers who formerly shied away from the idea of multi-year occupations that consisted of thousands of hours began embracing the competency based approach and started participating in the apprenticeship movement. Examples of new industries and occupations registered are:

1. Healthcare
    a. Patient Care Technician
    b. Surgical Technologist
    c. Licensed Practical Nurse
    d. Central Sterile Processing Technician
2. Information Technology and Cyber Security
    a. Cyber Security Analyst
    b. Secure Software Programmer
    c. Data Science and Analytics
3. Transportation and Logistics:
    a. Truck Driver

   b. Diesel Technician
4. Manufacturing
   a. Machinist
   b. Additive 3D Printing Technician
5. Hospitality
   a. Lodging Manager

Funding and Innovation:

Maryland was awarded an Apprenticeship Expansion Grant from USDOL in the amount of $2,000,000 in 2016, followed by an additional grant award of just over $1.8 million dollars in 2018, and a third award of slightly over $2.8 million in 2019.

These grants enable Maryland to fund numerous activities:
1. Pre-Apprenticeship
2. New Sponsor registrations
3. New occupation development
4. Industry outreach events
5. New staff
6. Creation of the Apprenticeship Innovation Fund (AIF)

The AIF quickly emerged as a best practice for the State and allows Maryland to serve 1,402 total participants, of which 982 are Registered Apprentices. The AIF, in accordance with the Apprenticeship USA State Expansion Grant, enables Labor to invest in sustainable programs that support and engage in Apprenticeship expansion strategies, seed the implementation of new and promising ideas, and adapt proven strategies at the systems or service delivery level so as to expand the reach of Apprenticeship programs in Maryland.

In 2019, Maryland amended the AIF funding approach and raised the maximum award amount from $50,000 to $100,000 to allow longer term program development. With the most recent Apprenticeship Expansion Grant award, Maryland kept the AIF approach, but raised the maximum award amount. Rather than having upwards of 20 projects funded at $50,000 each, Maryland will grant funding to support seven larger scale projects at $250,000 each. The Competitive Grant Application opportunity for these projects is expected to be released in March 2020.

AIF projects successes include:

1. Mid-Atlantic Carpenters Training Centers Joint Apprenticeship Committee:
   - Pre-Apprenticeship Training for women and individuals with significant barriers
   - 7 participants trained
   - 7 were registered as Union Carpenter Apprentices
2. Finishing Trades Institute:
   - 10 participants were trained
   - 8 were registered as Union Glazier Apprentices
3. Childrens Guild:

    - Created a new occupation: Behavioral Health Aide
    - Registered 13 new apprentices to date
4. TranZed Apprenticeship Services;
    - Created 3 new occupations in Cyber Security and IT
    - Registered 41 new apprentices to date
5. 1199 SEIU Training and Upgrading Fund
    - Registered as a new Sponsor
    - Created new occupation: Patient Care Technician
    - Registered twenty-five new apprentices to date
6. Associated Builders and Contractors
    - Reactivation of dormant occupation in Baltimore City: Pipefitter
    - Registered 8 new apprentices to date
7. Independent Electrical Contractors, Chesapeake
    - Grant to offset related instruction costs to onboard new employers
    - 200 new apprentices registered

Additionally, grant funding was used to support the creation of a large Group NonJoint Apprenticeship Program in Baltimore City. A Group NonJoint Sponsor is a Sponsor who has registered Standards of Apprenticeship with Maryland, has a group of employers who participate in their Apprenticeship program and are not jointly managed with a union. For example, the Baltimore Alliance for Careers in Healthcare (BACH) was approved as a Registered Apprenticeship Sponsor in Maryland under this criteria. The BACH and area hospitals such as Johns Hopkins, University of Maryland Medical System, and Sinai Hospital have registered occupations such as Central Sterile Processing Technicians, Surgical Technologists, Licensed Practical Nurses, and Environmental Care Supervisors.

The BACH Apprenticeship Program serves a combination of 50% incumbent workers and 50% skilled immigrants who had backgrounds in healthcare prior to arriving in the United States. The Apprenticeship program offers a range of services for English Language Learners, barrier removal, and traditional On-the-Job Training and related instruction, all in a competency based format. The BACH and their employer partners have registered 53 apprentices to date.

Without a guarantee of continued federal funding, and in order to support the continued success and expansion of the BACH healthcare Apprenticeship program, Governor's Set Aside Funding was awarded to BACH through 2021 and will create a minimum of 95 additional healthcare apprentices.

Youth Apprenticeship:

Utilizing the Apprenticeship Maryland Program (AMP) as an introduction to Registered Apprenticeship brings unique advantages. AMP gives Maryland businesses the unique opportunity to train, influence and shape high school students into top-performing employees by providing opportunities for Maryland's high school juniors and seniors. Students are able to "earn while they learn" and not only obtain a wage, but gain academic and occupational skills leading to both a high school diploma and a State Skill Certificate in an Apprenticeship setting.

The program requires that eligible employers hire AMP participants that wish to enter high-skill, high-growth industries, such as healthcare, biotechnology, information technology, construction and design, banking and finance, and advanced manufacturing.

From the initial program start in 2016 with only 14 business partners, the program now boasts nearly 200 approved employers in nearly every county of the state and 70 youth apprentices, up from 11 in the initial pilot year. Additionally, occupations are now available to youth apprentices in diverse industries and occupations including:

- Government- Wastewater Operator
- Transportation and Logistics- Diesel Maintenance Technician
- Environmental Services
- Education- Financial Counselor
- Business- Retail Management Apprentice
- Engineering- Project Management
- Hospitality and Tourism- Chef Assistant
- Marine Trades- Outboard motor technician
- Information Technology- Computer Support Specialist
- Automotive- Auto mechanic, Body shop technician
- Healthcare- Patient Access Registrar, Laboratory Technician
- Manufacturing- Machine Operator, Mechanical Engineer, CNC Machinist
- Construction- Electrician Apprentices, Estimator, Plumber Apprentice

As Maryland enters the first full year of the AMP expansion, nearly 25% of all participating employers also participate in Registered Apprenticeship and 22% of all Youth Apprentices are also dual registered as Registered Apprentices. This trend is expected to not only continue, but to double as we enter the 2021 school year.

Employment Advancement Right Now:

Established in 2014, Employment Advancement Right Now (EARN) is the State's nationally-recognized workforce solution that works hand in hand with our Apprenticeship programs. The program is industry-led and designed with the flexibility to ensure that Maryland businesses have the talent they need by focusing on industry sector strategies that produce long-term solutions to sustained skills gaps and personnel shortages.

Based upon employer-identified training needs, Strategic Industry Partnerships (SIPs) provide education and skills training to unemployed and underemployed Marylanders, including support for individuals with specific barriers to employment. Some of these barriers include lack of transportation, homelessness, low educational attainment, limited work history, and involvement with the criminal justice system. Examples of barrier removal services include record expungement, transportation assistance, financial education, providing bridge instruction in math and reading, and stipends for training. The program also provides career advancement strategies for incumbent workers, leading to a more highly skilled workforce and improved business outcomes for employers.

The relationship between EARN and Apprenticeships is an important one. With Apprenticeship, the federal funding has specific uses that may not align with what a jobseeker needs to obtain entry into the workforce. The Department of Labor will assist a jobseeker by directing them to the EARN program to obtain the necessary skills or barrier removal. Upon completion of an EARN program, many participants join an Apprenticeship to continue their education and career path while obtaining wages.

Success Stories:

Registered Apprenticeships:

Evelyn Rhodes with the Association of Air Conditioning Professionals

After immigrating to the United States from Ecuador, Evelyn Rhodes found a job as a maintenance worker in Maryland. However, Rhodes' employer quickly recognized her potential for success in the HVAC trade and helped her secure a spot in the Association of Air Conditioning Professionals' (AACP) Registered Apprenticeship program.

Despite the barriers Rhodes faced as a native Spanish speaker, she doubled her study efforts and taught herself English while completing the apprenticeship. Her hard work paid off and each year, she received scholarships for her excellent grades and hard work. Rhodes graduated from the program as the valedictorian and went on to complete her Associate's Degree in Building Trades Technology on a scholarship.

Rhodes now teaches basic electricity in AACP's Apprenticeship program and serves as a tutor for the program's Spanish-speaking students. Thanks to Registered Apprenticeship, Rhodes was set on a path to a successful career in a growing industry that allows her to earn an income for her family while mentoring others following in her footsteps.

Kenneth Smith with the International Union of Elevators Constructors - Local 10

Kenneth Smith was self-employed for over 25 years in the restaurant and vending industries, but lost his entire livelihood during the recession. With encouragement from his son who had already completed the program, Kenneth took a leap of faith and applied to be a Registered Apprentice with the International Union of Elevator Contractors - Local 10. After a four year Apprenticeship, he graduated to journeyperson status, earned 30 community college credits, and is successfully earning an income to support his family and goals of retirement.

According to Smith, "the past five and a half year journey has been great. It saved my family and probably my life. At one point I was working three jobs a day just to sustain myself and my family. Choosing the IUEC was the best choice I could have ever made. My advice to anyone who is struggling and needs a career change is don't let your age stop you. I was 55 when I started and like I said previously it saved my life."

Youth Apprenticeships:

Humanim

An example of the success of integrating Youth and Registered Apprenticeship can be found with Humanim. Humanim is a non-profit founded in Howard County Maryland in 1971. The Humanim mission is to support and empower individuals who face social or economic challenges by building pathways to economic equity, opportunity, and independence. In July, 2019, Humanim added Registered Apprenticeship to the list of services and workforce training programs they offered with the occupation of Direct Support Professional.

Humanim immediately began to hire and register new apprentices. Maryland staff approached Humanim to discuss an opportunity to hire youth apprentices from local Howard County Public Schools and to provide them with a chance to also begin a formal Registered Apprenticeship program. Humanim immediately embraced the opportunity and revised their Standards of Apprenticeship to allow high school students on a path to graduate to participate in their program. Within 2 months, Humanim had hired and registered three youth apprentices to add to the 25 adult apprentices already registered. The experience has been so successful to date that Humanim has pledged to increase the number of youth apprentices they register for the next school year from 3 to 5.

Reentry Initiatives:

The Department of Labor works closely with the Maryland Department of Public Safety and Correctional Services to address the needs of incarcerated individuals "behind the fence" and prepares them for a successful transition back into Maryland's workforce and communities. A new pre-apprenticeship program was recently developed with The Associated Builders and Contractors, Metropolitan Washington Chapter (ABC Washington) to support Maryland's reentry initiatives.

This new program assists incarcerated individuals looking for a career in the skilled trades and currently provides construction skills training to 15 incarcerated individuals. Utilizing the pre-apprenticeship program, these individuals receive construction trades-related training that is designed to facilitate their direct entry into Registered Apprenticeship upon their release.

In addition to receiving hands on skills training, each individual learns essential life and workplace skills that include intensive barrier removal and wrap-around services. All who successfully complete the pre-apprenticeship will receive direct employment in the industry and registration as an apprentice within 90 days.
Participants who complete and enter the Registered Apprenticeship program will have the ability to choose from plumbing, HVAC and sheet metal occupations with starting wage rates averaging $14.50 and completion rates averaging $29.00. Inmates who participate in a Registered Apprenticeship program leave prison with a solid career pathway, increasing the likelihood they successfully transition back into society and become productive, stable, and ultimately self-sufficient.

CHALLENGES

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Chairwoman DAVIS. Thank you. Dr. Foy.

STATEMENT OF MORNA K. FOY, PH.D., PRESIDENT, WISCONSIN TECHNICAL COLLEGE SYSTEM

Ms. FOY. Chair Davis, Ranking Member Smucker, members of the subcommittee, thank you for the opportunity to testify on the National Apprenticeship Act and the need to strengthen and grow apprenticeship.

I am Morna Foy, president of the Wisconsin Technical College System. I am also a board member for Rebuilding America's Middle Class, or RAMC, a nationwide coalition of community colleges seeking to ensure Federal policy represents the needs of our students.

I would like to acknowledge Representative Grothman in his unwavering support for apprenticeship and for the Wisconsin Technical College System, but mostly for his consistent focus on connecting employers with educators.

Wisconsin has a strong State-registered apprenticeship program administered by our Department of Workforce Development with more than 11,000 registered apprentices headed for careers as carpenters, medical assistants, IT software developers, and many others. Our 16 technical colleges provide the majority of the related classroom instruction for registered apprentices in our State, including 77 distinct apprenticeship programs, 11 of which are new since 2014. Five more are under development and will be available this year. I have provided a handout with the complete list.

Apprenticeship receives extensive support in Wisconsin. It has consistently enjoyed broad bipartisan support among policymakers. And perhaps more importantly, our employers support it as a vital talent development strategy. More recently, apprenticeship has proved invaluable in addressing demographic challenges, an aging work force, and fewer high school graduates that Wisconsin has not experienced alone.

Apprentices certainly benefit, too. Those recently completing an apprenticeship for which a technical college provided the related instruction, reported an annual median income of $80,000, more than twice Wisconsin's annual median income. I refer you to the annual report provided to members for additional apprenticeship outcome data.

Wisconsin's technical colleges excel in aligning apprenticeship with formal education because we intentionally bring that perspective when designing and providing apprenticeship instruction. First, apprenticeship has strong K–12 connections in Wisconsin, where the Department's Youth Apprenticeship program is open to high school students with related instruction provided by high school partners.

Our technical colleges, through agreements with local school districts, award youth apprentices dual credit, college credit that also counts toward high school graduation.

From 2015 to 2019 we awarded more than 5,100 college credits to about 1,300 youth apprentices in public and private high schools.

At the postsecondary level, registered apprentices who complete the work and classroom requirements are awarded a nationally recognized apprenticeship completion certificate. That certificate is recognized as the first 39 credits of a 60-credit associate degree in technical studies, which can be completed by earning 21 general education credits, many offered online, and lead to transfer to 4-year institutions in Wisconsin as an individual's career progresses.

In that example, the degree was earned after completion of an apprenticeship. We have begun designing our newest apprenticeship programs with a degree embedded as part of the program, allowing individuals to earn a traditional degree in tandem with, rather than after, apprenticeship completion. This model shows particular promise for professions such as medical assistants, where national certification exams and accreditation bodies guide the design of program requirements. This model is strongly supported by industry partners who want employees with educational

and career pathways beyond the completion of the apprenticeship itself.

To encourage better alignment of apprenticeship and postsecondary attainment, it is my hope that reauthorization will acknowledge the role of community colleges in apprenticeship. First, a separate statutory formula program for States would better support the engagement of 2-year colleges in the development and delivery of a related apprenticeship instruction. Second, an interagency agreement established between the Federal Departments of Labor and Education would acknowledge that apprenticeship is more than just work force development. Apprenticeship, as the Wisconsin model has shown, is a highly effective, cost-neutral path to postsecondary attainment. Finally, the State Registered Apprenticeship Program works well for Wisconsin and should be maintained.

I really want to thank the committee for the opportunity to testify at today's hearing. I hope my perspective adds value to your discussions. And I would be happy to answer any questions.

[The prepared Statement of Ms. Foy follows:]

Testimony of Morna K. Foy, PhD
President of the Wisconsin Technical College System
Board Member, Rebuilding America's Middle Class: A Coalition of Community Colleges

Before the
Subcommittee on Higher Education and Workforce Investment
Committee on Education and Labor
U.S. House of Representatives

Reauthorizing the National Apprenticeship Act:
Strengthening and Growing Apprenticeships for the 21st Century

March 4, 2020

Chair Davis, Ranking Member Smucker and members of the Subcommittee, thank you for the opportunity to testify on the National Apprenticeship Act and the need to strengthen and grow the use of apprenticeships in our country. I am Morna Foy, the president of the Wisconsin Technical College System. I am also a board member of Rebuilding America's Middle Class, or RAMC, a nationwide coalition of community colleges seeking to ensure Federal policy addresses the needs of our students.

We very much appreciate that the focus of today's hearing is on registered apprenticeship. Wisconsin has a state-registered apprenticeship program, which is administered by our Department of Workforce Development. Wisconsin boasts over 11,000 active registered apprentices in professions ranging from carpenters to financial specialists to medical assistants to arborists.

A Shared History
Registered apprenticeship and the Wisconsin Technical College System have a long, successful and intertwined history in Wisconsin. Apprenticeship programs were largely unregulated in the United States until Wisconsin passed the first state apprenticeship law in 1911. The Wisconsin law became the foundation for apprenticeship laws in other states and eventually the National Apprenticeship Act.

That same year, 1911, was also the year that Wisconsin's system of trade and evening schools — the precursors to our current technical college system — was first established. In fact, the schools were created, in part, to address the need for classroom instruction for Wisconsin's new apprenticeship system.

Today, Wisconsin's technical colleges work closely with the Department to provide 65 percent of the related classroom instruction for registered apprentices. Currently, our technical colleges provide classroom instruction for 77 distinct apprenticeship programs. Eleven of the seventy-seven are new as of 2014 and encompass areas as diverse as healthcare, IT and agriculture. Five more are under development and slated for completion this year. (See

Attachment A.) Over the past five years, participation in our classroom programs for apprentices has grown to almost 7,600 individuals.

Strong Support
Apprenticeship receives extensive support in Wisconsin. First, it has always enjoyed broad bipartisan support among policymakers. Second, and most importantly, our employers support it. Apprenticeship programs are a great way to match workers with the skills that employers need. More recently, apprenticeship has become an invaluable means to address the pressing demographic reality for our employers. Like many states, Wisconsin is challenged with an aging workforce coupled with fewer high school graduates. Employers struggle to find employees with the right skill sets. When they do find them, they compete to keep them. With apprenticeship, employers get talent immediately and employers' investment in apprentices (e.g., often tuition, books and materials, etc.) helps to retain workers. Data shows that 99 percent of our apprenticeship completers remain working in Wisconsin, with 58 percent in the technical college district where they received their training, many of which are in the rural communities of our state.

Workers benefit too. Apprentices begin earning immediately, are paid their wages during classroom instruction per Wisconsin statute, avoid college debt and have an on-ramp to lifelong learning. Apprentices completing their program and the related classroom instruction at our colleges report an annual median salary of $80,344, which is more than twice the median annual income for an individual in Wisconsin.

Alignment with Higher Education
Wisconsin Technical Colleges excel in aligning apprenticeship with higher education. Let me share a few examples:

<u>Youth Apprenticeship and Dual Credit</u>
Apprenticeship and educational attainment are closely connected at the high school level. In Wisconsin, the Youth Apprenticeship (YA) program is open to high school students after completion of their sophomore year. Related classroom instruction is provided by K-12 partner schools. Our technical colleges, through agreements with local school districts, award dual credit to youth apprentices. High school students enrolled in YA have the opportunity to receive:

- A high school diploma,
- College credits from a local Wisconsin technical college, and
- A certificate of occupational proficiency (YA certificate) from the Wisconsin Department of Workforce Development.

In addition, if a student continues on as a registered apprentice, their YA work hours can be applied to a registered apprenticeship program. Over the past five years (2015-2019), 1,371 public and private Wisconsin high school students participating in YA were awarded 5,174 Wisconsin technical college credits.

Registered Apprentices and Higher Education

Registered apprentices successfully completing both the work and classroom requirements are awarded a nationally recognized apprenticeship completion certificate by the Wisconsin Department of Workforce Development. For those who wish to continue their education after completing a registered apprenticeship — nearly half of recent completers were considering doing so — the successful completion of most apprenticeships in Wisconsin is recognized as 39 credits towards a 60-credit associate's degree in Technical Studies at our technical colleges. Apprentices can complete this 60-credit associate's degree by earning 21 general studies credits, many of which are offered online. Completion of this associate's degree can then lead to transfer opportunities at several four-year institutions in Wisconsin as an individual's career progresses.

In the above example, the "traditional" associate's degree was earned after the completion of the apprenticeship program. Recently, we have begun designing our new apprenticeship programs with a traditional degree "embedded" as part of the apprenticeship program. In these cases, apprentices earn a technical diploma in their profession in tandem with — rather than after — completion of the apprenticeship credential. This is particularly helpful in professions, such as medical assistants, where national certification exams and accreditation bodies guide the design of program requirements. This model is strongly supported by industry sponsors who want employees with educational and career pathways beyond the completion of the apprenticeship, itself.

A Postsecondary Perspective

Wisconsin has been successful in aligning apprenticeship and higher education because we have connected the technical colleges as the primary provider of classroom instruction for apprentices since the inception of the apprenticeship program. As a result, Wisconsin technical colleges bring a postsecondary perspective and expertise to the development of related classroom instruction for apprenticeship curriculum and design.

Classroom instruction for an apprenticeship program is first developed on a statewide basis, using the broadest common denominator. Unique classes can be added by our colleges to the statewide program as needed by a sponsoring employer. We use the same statewide data system to document both apprenticeship and academic program curriculum.

As with our academic programs, our apprenticeship curriculum is developed on a competency and learning objective basis. This enables us to easily construct a crosswalk between apprenticeship and academic programs, building multiple pathways between the two. We also use this system to grant credit for prior learning.

Finally, our colleges have had consistently strong relationships with employers. Advisory committees made up of faculty, local employers and industry experts meet regularly to ensure that our curriculum — whether developed for apprentices or academic program students — is designed to keep pace with employer needs and the rapid pace of change in industry.

Reauthorization
The National Apprenticeship Act — which has largely been untouched since its passage in 1937 — contains elements that should be maintained to ensure quality and good program outcomes, as well as areas that require added flexibility so apprenticeship can more easily align with higher education.

We support a strong role for the U.S. Department of Labor and a continued state and Federal partnership. The state-registered apprenticeship system works well for Wisconsin and should be maintained.

To encourage better alignment of apprenticeship and postsecondary attainment, reauthorization should acknowledge the role of higher education in apprenticeship. First, a separate, statutory formula program for states should be created to support the engagement of two-year institutions of higher education in the development and delivery of related apprenticeship instruction, especially in new sectors. Second, an interagency agreement should be established between the Federal departments of Labor and Education as acknowledgement that apprenticeship is more than just workforce development. Apprenticeship — as the Wisconsin model has shown — is a highly effective, cost-neutral path to postsecondary credential attainment, individual learning and career success.

Thank you for the opportunity to testify at today's hearing. I hope my perspective from Wisconsin adds value to your discussions as the legislative process moves forward. I would be pleased to answer any questions at the appropriate time.

Attachment A
Wisconsin Technical College System
New Apprenticeship Programs Since 2014

Currently Approved

- Arborist
- Biotechnology Lab Support Assistant
- Facilities Maintenance Technician
- Financial Services Representative
- IT-Broadband Technician
- IT-Data Analyst
- IT-Service Desk Technician
- IT-Software Developer
- Mechatronics
- Medical Assistant
- Organic Vegetable Farm Manager

Under Development

- Autobody Collision Repair
- Community Health Worker
- Highway Maintenance Technician
- Industrial Metrology
- Pharmacy Technician

WISCONSIN TECHNICAL COLLEGE SYSTEM

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Chairwoman DAVIS. Thank you. Ms. Noteboom.

STATEMENT OF JACE NOTEBOOM, TALENT DIRECTOR: IBM SYSTEMS, WATSON HEALTH, COGNITIVE ENTERPRISE SUPPORT, IBM

Ms. NOTEBOOM. Chairwoman Davis, Ranking Member Smucker, distinguished members, I am the talent director for IBM Systems, responsible for work force skills and careers.

Apprenticeships provide an additional pathway to compelling careers at IBM and other employers. Since the start of our apprenticeship program in 2017, IBM has hired 500 apprentices across roles ranging from mainframe systems administration to cybersecu-

rity to data analytics. We have hired apprentices in 15 States, including California, Virginia, and North Carolina. Candidates for apprenticeships are drawn from a mix of backgrounds often passed over by the United States higher education system.

IBM has registered more than 25 new competency-based roles in information technology with the U.S. Department of Labor and collaborated with other employers and associations to enable their efforts to bring more people into the work force through this educational pathway.

As Clayton Slaughter, an IBM mainframe apprentice from Texas says, ?When I was interviewing with my manager, she was happy to hear I had prior experience and technical aptitude, but what got me the job was my desire to be there. I would encourage any company, not just tech companies, to open apprenticeships to allow people the opportunity to shine because I know that there are many others who like me have the aptitude and skills, but not the access to higher education required at many companies.?

Unfortunately, the U.S. education system is not producing graduates with relevant technical and soft skills. Around two-thirds of the U.S. working age population do not have a bachelor's degree and most graduates are from a narrow band of the U.S. population.

Often, higher education institutions simply do not offer programs in the most demanded skills. And even when higher education offers in-demand courses, obstacles interfere with progress to graduation. The GAO has found that students who transferred from 2004 to 2009 lost, on average, an estimated 43 percent of their credits, 43 percent. This obstacle to transfer of credits is particularly severe for technical courses. For example, there is no articulation agreement to allow transfer of credit for any of the San Diego City College courses in cybersecurity with San Diego State University. Their campuses may only be 8 miles apart, but academically you can't get from SDCC to SDSU.

IBM's New Collar approach focuses on skills first, not degrees earned, and emphasizes work-based learning and core skills, like learning agility, teaming, and adaptability. The primary New Collar approaches are apprenticeships, skills first, and P-TECH, a career-oriented school model.

IBM's apprenticeship is a competency-based program that pairs apprenticeships with comprehensive—excuse me—apprentices with comprehensive learning, focused hands-on application, and demonstration of skills and mentorship.

Having a standardized apprenticeship model registered with the Department of Labor allows us to share our apprenticeship model more easily. For example, both the Consumer Technology Association companies and the California Division of Apprenticeship Standards are fast-tracking apprenticeships based on IBM's Registered Apprenticeship roles.

Our skills-first strategy, rather than academic degree requirements, allows for the development of a more qualified and diverse work force. Lifelong learning, upskilling, and reskilling are all elements for successful talent management. P-TECH schools allow students in grades 9 through 14 to earn both a high school diploma and an industry recognized 2-year postsecondary degree at no cost while working with industry partners like IBM.

Based on our experience with these three New Collar pathways, IBM urges the subcommittee to move forward on the following reforms to apprenticeship. First, complexity of implementation is a barrier for many companies wanting to leverage apprenticeship programs. Second, funding. Annually, the United States spends more than 1.1 trillion on formal and informal postsecondary work force education and training. And the U.S. Department of Labor's appropriated funding level for apprenticeship programs in 2020 was less than 200 million. Third, IBM urges the House to remove obstacles in the Higher Education Act that could help prepare students for apprenticeship programs including restrictions on short-term programs and Federal Work-Study. Finally, extend the P-TECH model to pre-apprenticeship as a proven pathway that could prepare students for a career or further education.

Thank you, members of the committee. I look forward to your questions and working with the committee to modernize the apprenticeship program.

[The prepared Statement of Ms. Noteboom follows:]

Jace Noteboom, Talent Director, IBM Corporation.

Reauthorization of Apprenticeship Legislation

March 4, 2020

Hearing of
Subcommittee on Higher Education and Workforce Investment of the
House Committee on Education and Labor

Chairwoman Davis, Ranking Member Smucker and distinguished Members, I am the Talent Director for IBM Systems, one of several IBM business units that have successfully used IBM's registered apprenticeship program.

Apprenticeships provide an additional pathway to compelling careers at IBM and other employers. Since the start of our apprenticeship program in 2017, IBM has hired over 500 apprentices across roles ranging from mainframe computer administration to cybersecurity to data science. We have hired apprentices in 15 states, including California, Virginia, North Carolina, Texas, Connecticut, and Massachusetts. Candidates for apprenticeships are drawn from a mix of backgrounds often passed over by the United States' higher-education system.

IBM has worked to modernize our apprenticeship programs focusing on competency-based education and skills and scaling it across our industry. We have registered more than 25 new roles in information technology with the US Department of Labor and collaborated with other employers and associations to enable their efforts to bring more people into the workforce through this educational pathway.

For "New Collar" professionals, meaning those that don't necessarily have a bachelor's degree, and even for those with bachelor's degrees, pursuing and completing an apprenticeship has proven to be a valuable and accessible entry point into today's most in-demand tech roles.

As Clayton Slaughter, an IBM mainframe apprentice from Texas says: "When I was interviewing with my manager, she was happy to hear I had prior experience and technical aptitude, but what got me the job was my desire to be there. I asked, 'What can I do to start learning? How can I improve my odds? I would encourage any company, not just tech companies, to open apprenticeships to allow people the opportunity to shine because I know that there are many others who, like me, have the aptitude and skills but not the access to higher education required at many companies."

Challenges US Companies Face in Filling Jobs with Skilled Employees

IBM is a leader in apprenticeships and believes that apprentices make great employees. And it is important to create additional education pathways to careers.

Unfortunately, the U.S. education system is not producing candidates with relevant technical or soft skills for jobs in the information technology sector except from a narrow swath of students. The pathways through education include many barriers and often leave students with debt but no degree.

Inclusion: Around two-thirds of the U.S. working age population does not have a bachelor's degree.[1] The distribution of bachelor's degrees is low and uneven across income[2], race, age, and gender[3] (in addition to geography). As a result, higher education graduates are from a much narrower band of students than the US population. Additional educational pathways such as apprenticeships can provide career opportunities to those that haven't graduated with a bachelor's degree – and those additional students that are ending their education early, with debt but no degree, have degrees in areas that don't match up to high-demand jobs, or have the aptitude and drive but do not want to pursue higher education.

Alignment: Often, higher education institutions simply do not offer majors, minors, degrees, or programs in the most demanded skills. For example, a prominent California university offers Computer Science and Computer Engineering majors, but only a single course in cybersecurity – the upper division "CS 574 Computer Security."[4]

Community colleges are offering more and more information technology programs making them an important source of talent. San Diego City College is a good example with courses and certifications in web services, cybersecurity, and programming.[5] However, fewer than 30 percent of the roughly 1,100 public and independent community colleges across the United States offer a cybersecurity degree, certificate or course.[6]

Attainment: The Higher Education Act does not permit financing for programs of less than 600 hours – exactly the type of education pathway that is conducive to information technology certifications. Even when a higher education institution offers information technology courses, the bumpy and obstacle-filled pathway of higher education interferes with progress to graduation. End-to-end, only 13% of the 852,439 students who enrolled in community college in 2010 persisted to a bachelor's degree by 2016.[7]

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[1] https://www.census.gov/data/tables/2018/demo/education-attainment/cps-detailed-tables.html

[2] http://www.equality-of-opportunity.org/papers/coll_mrc_paper.pdf

[3] https://nscresearchcenter.org/wp-content/uploads/Completions_Report_2019.pdf

[4] https://curriculum.sdsu.edu/curriculum-services/general-catalog/19_20_gc/057-Computer-Science.pdf Page 206
[5] http://www.sdccd.edu/docs/StudentServices/catalogs/2019-2020/City_2019-2020_catalog.pdf Page 199

[6] "2016 Fact Sheet." American Association of Community Colleges. http://www.aacc.nche.edu/AboutCC/Documents/AACCFactSheetsR2.pdf; IBM Institute for Business Value interview with Casey O'Brien, Executive Director & Principal Investigator, National CyberWatch Center. February 21, 2017.

[7] https://nscresearchcenter.org/wp-content/uploads/SignatureReport13_corrected.pdf

One of the biggest obstacles in the education pathway to careers is the transfer of credits. The GAO has found that "students who transferred from 2004 to 2009 lost, on average, an estimated 43 percent of their credits."[8]

The obstacle to transfer of credits is particularly severe for information technology and other technical and career-oriented courses. For example, students taking courses in C++, or Java at San Diego City College can transfer those credits to San Diego State, but there is no articulation agreement for any of the SDCC courses in cybersecurity, web services, Desktop support, or Game Programming.[9]

Apprenticeships and the IBM New Collar Approach

IBM's New Collar approach focuses on skills first — not degrees earned - and emphasizes work-based learning and core skills, like teaming and adaptability. It is a pathway to finding and attracting nontraditional candidates with diverse backgrounds and skill sets.

IBM seeks New Collar employees with learning agility, skills, and experience who will seek continuous lifelong learning and professional growth.

To expand our number of new collar employees, IBM is experimenting with a multitude of approaches to educate and develop the next generation of technology professionals. The primary approaches are:

- Apprenticeships
- Placing a higher emphasis on "Skills First", rather than degrees, in our hiring and careers mission
- Pathways in Technology Early College High School (P-TECH) – a 9-14 school model that aligns education with job skills.

IBM is working on these priorities with the Business Roundtable, an association of chief executive officers of America's leading companies working to promote a thriving U.S. economy and expanded opportunity for all Americans through sound public policy. Our CEO, Ginni Rometty is currently the Chair of the BRT Workforce Committee and many member companies have similar workforce concerns.

Apprenticeship: IBM launched our Department of Labor Registered Apprenticeship Program in October 2017. It's a program for the 21st century, focused on building skills in cybersecurity, data science, software development and more. This 12-24 month program pairs apprentices with an IBM mentor to work on actual IBM projects, along with traditional classroom learning, in technology's fastest-growing fields.

The apprenticeship program includes:

- defined competencies, milestones, testing, and completion standards
- recruitment that seeks learning agility, and credits experience and soft skills

[8] https://www.gao.gov/products/GAO-17-574
[9] https://assist.org/transfer/report/23102239

- real time review and ongoing improvement
- blended learning including classroom and on-line training
- access to IBM's learning platform as well as external education resources
- credit for prior knowledge and experience
- mentorship
- attainment of industry-recognized skills standards

Having a standardized apprenticeship model registered with the Department of Labor allows us to share our apprenticeship model more easily with organizations, companies and even state governments, such as California. The process prompts employers to think about creating a quality program with supports, like mentoring and additional training.

A common challenge to employers in today's workforce is retention. Individuals participating in the apprenticeship programs develop a strong loyalty and have a high retention rate in their technical field.

Our apprenticeship program has improved a lot as we have learned along the way. We have been able to learn from apprentices whose first-hand experience has allowed us to make a better program for each cohort. Clayton Slaughter said, "Because we were so early in the program, many of the criteria was outdated or in some cases just incorrect. We provided that real-time feedback to our managers. As we've observed and assisted the second wave of apprentices in our group, we've gotten to see that our feedback was acted on which was very reassuring." Our apprenticeship framework provides enough flexibility for those adopting our model to continuously improve their apprenticeships and share those improvements with others.

In January 2019, IBM and the Consumer Technology Association formed an Apprenticeship Coalition to help drive industry awareness and adoption. Through this coalition, we at IBM share our best practices, toolkits and competency frameworks to help more IT companies scale our apprenticeship model and roles.

In November, the California State Government and IBM launched the state's first of its kind collaboration to create technology apprenticeships.[10] This program will adopt IBM's proven apprenticeship model to address a statewide skills shortage in three critical fields: Mainframe System Administration, Software Engineering, and Application Development. According to SEIU's Local 1000 Research Department, there is an 18.6% vacancy rate in state civil service IT positions, and not enough applicants with the right mix of skills to fill these jobs.

By using IBM's apprenticeship program as a model, the California Division of Apprenticeship Standards can fast-track new apprenticeship roles and directly address the skills gap by expanding access to new learning opportunities as well as create growth opportunities for their incumbent workforce. Apprentices in the program will participate in on-the-job training, mentoring, and classes – all while earning decent wages in an "earn while you learn" model that can provide valuable skills without the need to take on new student debt.

Skills First Hiring: Faced with an extreme skills shortage and rapid changes in the workforce, companies are increasingly finding that a "skills first" hiring strategy, rather than job criteria

[10] https://www.prnewswire.com/news-releases/california-state-government-and-ibm-launch-the-states-first-of-its-kind-collaboration-to-create-technology-apprenticeships-300958296.html

based on academic degree requirements, allows the development of a more qualified and diverse workforce. Companies are finding that recruitment mandates, such as bachelor's degrees, have excluded workers with valuable skills and experiences who would make good, employees with life-long commitments to learning. Skills First hiring also allows companies to develop a workforce with learning agility, and therefore more responsive to the changing skills of the digital economy.

This is not to say that degrees ought to be deleted from all job postings; rather, companies are increasingly finding that their employees' success depends more on their ability to continue to learn and adapt than on what they had learned at the time of hire. Lifelong learning, upskilling and reskilling are all essential elements for successful talent management strategy given the changing nature of work.

P-TECH: For younger workers, there are pathways into IT jobs as early as high school that provide them with the right mix of skills for apprenticeships or other jobs. Through P-TECH, public high school students can earn both a high school diploma and an industry-recognized two-year postsecondary degree at no cost to them or their families, while working with industry partners like IBM on skills mapping, mentorship, workplace experience and internships.

The P-TECH model of schools has four key elements:

- Alignment of the Program of Study for grades 9-14 with the skills needed by an employer
- Mentors for all students from the employer
- Internships for students from the employer
- A commitment that graduating students will be first in line for a job with the employer.

Today, over 220 P-TECH schools, or Pathways in Technology Early College High Schools, are educating students in 24 countries with the participation of over 600 companies.

Together, apprenticeships, skills first, and P-TECH provide three additional education pathways into careers at IBM. All are creating job opportunities for students and workers, and allowing IBM to tap into sources of skills and experience beyond today's higher education graduates.

What Should the U.S. Government do to expand apprenticeships as a pathway to careers?

For apprenticeships to gain wider adoption, we need to eliminate obstacles for both employers and individuals and work to create more inclusion into these proven training models.
The biggest barriers that we see are complexity and funding.

Complexity: Implementation complexity is a great concern and barrier for many companies wanting to leverage apprenticeship programs.

1. Modernization – The US Department of Labor's expertise is not shared by states. There is a general lack of understanding of competency-based apprenticeships by state agencies. This leads to confusing and inconsistent implementation practices. Additionally, the process for approvals of standard can become a long process taking upwards of 90 days.

2. Reciprocity – the lack of reciprocity undercuts funding. It also creates implementation complexity across state borders.
3. Reporting needs can become overwhelming and are often not relevant to program requirements.
4. Parallel structures – For larger companies seeking to be involved with apprenticeship, the dual model (some federal, some state) provides unneeded complexity around where and how to register a program, and provides often duplicative work if registration is needed in multiple places.
5. Employer Consortiums – Many of the skills that IBM needs also extend to our broader ecosystem of clients and partners. The current structure and processes make it difficult to create programs that can easily scale to a broader community of employers. The administrative burden on each employer is a barrier.

Funding: Apprenticeships are an important additional education pathway to careers, and IBM supports providing funding for apprenticeship. Annually, the Unites States spends more than $1.1 trillion on formal and informal post-secondary workforce education and training.[11] Of that total $1.1 trillion, the Georgetown Center on Employment estimated that $47 billion was spent on apprenticeships, certifications, and other workforce training.[12] The US Department of Labor's appropriated funding level for apprenticeship programs in 2020 was $175 million. Federal funding for apprenticeship is miniscule for such a successful pathway to careers.

1. Pre-apprenticeship and length of journey – Funding needs to be extended for pre-apprenticeship programs, and apprenticeships that can carry students through longer skilling journeys. We seek to meet people where they are in their learning journey…whether they are students, career changers, veterans, displaced workers or just seeking to gain technical proficiency. Entry points into these programs vary. Pre-apprenticeship programs and reforms to the education system can extend apprenticeship programs.
2. Apprenticeship Funding – Funding access is confusing and difficult to secure often preventing employers from opting-in. Overall funding opportunities are small and often not the needed incentive to help support companies, educators, and intermediaries in launching quality programs.
3. Quality technical support – We applaud the efforts of our workforce intermediaries, but often these organizations have no implementation experience making it confusing and difficult to give consistent guidance. Improved funding for technical support will enable better service levels of support to be provided by workforce intermediaries.

Pathways from education to apprenticeships (and throughout careers): IBM urges the House to move remove obstacles in the Higher Education Act that could help prepare students for apprenticeship programs.

1. Allow students to use their Pell Grants for shorter education programs that lead to certifications. Under existing law, students who need short-term programs of 150 to 600 hours length in order to get certifications are required to sign up for longer education programs or forgo federal financial assistance.

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[11] https://1gyhoq479ufd3yna29x7ubjn-wpengine.netdna-ssl.com/wp-content/uploads/2015/02/Trillion-Dollar-Training-System-.pdf

[12] https://1gyhoq479ufd3yna29x7ubjn-wpengine.netdna-ssl.com/wp-content/uploads/2015/02/Trillion-Dollar-Training-System-.pdf

2. Remove restrictions on student use of funds for off-campus work experiences like internships at companies. These funds should not be restricted to supporting jobs in campus cafeterias and libraries. The US Department of Education recently removed obstacles placed by the federal government between students and career oriented work study on 190 college campuses. IBM urges Congress to enact legislation to remove the obstacles for all students seeking to use their Federal Work Study as an opportunity to advance toward a job.

Extend P-TECH Model to pre-apprenticeship: Pre-apprenticeship can close the gap between a student's skills and those needed for an apprenticeship. The P-TECH model is based on a collaboration between employers and educators to improve alignment of the existing education system with needed job skills. Developing programs of study and educational materials is the responsibility of our nation's educators, but P-TECH employers play a vital role by identifying and sharing with educators the necessary skills "to be first in line for a job". Defining skills , providing mentors, internships, and committing that graduates will be "first in line for a job" are all components in the P-TECH model that can be implemented into pre-apprenticeships.

Conclusion:

With the approaches above, IBM believes that apprenticeship opportunities can and should be expanded. There are many innovative approaches to improving apprenticeships happening across the country, and we ought to scale this important education and skills pathway. If done well, we can close the skill gaps that exist in many industries and more Americans can have access to some of the most in-demand tech jobs and roles.

Thank you, Members of the Committee, for the opportunity to present IBM's approach to improving apprenticeship and your consideration of this testimony. I look forward to your questions and working with the Committee to modernize the Apprenticeship program.

Chairwoman DAVIS. Thank you. Mr. Bustillo.

STATEMENT OF DANIEL BUSTILLO, EXECUTIVE DIRECTOR, HEALTHCARE CAREER ADVANCEMENT PROGRAM

Mr. BUSTILLO. Chair Davis, Ranking Member Smucker, and members of the subcommittee, I am pleased and grateful to have the opportunity to testify before you this morning.

My name is Daniel Bustillo. I serve as executive director of the Healthcare Career Advancement Program, commonly known as H-CAP. H-CAP is a national labor-management cooperation organization of SEIU union locals and employers in healthcare that promotes innovation and quality in healthcare career education. These

industry partnerships exist across 16 States plus Washington, DC, training tens of thousands of healthcare workers a year.

H-CAP and industry partner organizations have longstanding track records of developing and implementing high-quality training programs for incumbent healthcare workers that support their career aspirations while simultaneously meeting employer work force needs. A win for all. The success of these programs and the benefits to workers would not be possible without the investments made by unions and participating employers, which allow workers to have a direct voice in these programs and ownership over their own futures.

This is all occurring in an industry undergoing continued occupational growth and delivery system transformation. According to the Bureau of Labor Statistics, employment of healthcare occupations is projected to increase by 14 percent through 2028. Moreover, of the 30 fastest-growing occupations, 18 are in healthcare and related occupations. Other sector wide factors are also accelerating the need for continued innovation in the creation and implementation of nontraditional, high-quality training programs, and rigorous work force planning.

This industry context mandates new ways of thinking. Despite the fact that the healthcare industry has a long history of work-based learning models, modern healthcare has not traditionally been an industry in which Registered Apprenticeships are used with any frequency. While H-CAP and our affiliated partners administer many high-quality training and education programs, Registered Apprenticeships are the gold standard of work force development strategies, such as that practiced by our colleagues in the trades.

Thus, in 2016, H-CAP created a national collaboration to build targeted work force solutions through Registered Apprenticeship. Since September 2016, we have also been serving as a national industry intermediary contractor with the United States Department of Labor to support the development of Registered Apprenticeship in healthcare across the Nation.

Since launching our first cohort of apprentices in November 2016, H-CAP has supported the registration of over 1,500 apprentices across eight States with multiple employers encompassing large, small, and mid-sized firms. Of these apprentices, 82 percent are women, and a majority 60 percent are people of color.

These Registered Apprenticeship Programs are developed to industry specification, with direct input from employers, unions, and workers to create competency-based programs. The move toward competency-based Registered Apprenticeship Programs has been particularly valuable in the healthcare industry, where we have a large number of highly experienced incumbent workers seeking opportunities for career progression.

As an intermediary organization and national contractor, H-CAP leverages the direct support, participation, and expertise of our partners who play a key role in the inception, design, and implementation of programs to create sustainable Registered Apprenticeship infrastructure.

We have developed positive working relationships with many State Apprenticeship Agencies and the Office of Apprenticeship at the national level.

Even though nearly 80 percent of healthcare workers are women, we continue to strive to ensure accessibility for women and workers of color, and amongst other strategies, have created a variety of tools and resources on Equal Employment Opportunity regulations. We have also begun work to make Registered Apprenticeship Programs in healthcare more accessible to people with disabilities and youth.

In short, Registered Apprenticeships continue to expand throughout the U.S. healthcare industry without sacrificing standards or quality and have assisted to meet critical industry need.

We are heartened by the continued interest in codifying and supporting the expansion of Registered Apprenticeship as a high-quality training mechanism that provides rigorous instruction, much needed supportive services to apprentices, add good jobs to workers, while assisting employers with their work force planning needs.

Investments in high-quality Registered Apprenticeships are a critical step in addressing broader work force challenges and provide workers and businesses with sustainable resources to prepare for the future. Based on our experience, we offer a few items for consideration.

First, industry partnerships and intermediary organizations help expand the capacity of industry, educational providers and human service organizations to meet worker need and employer demand. These partnerships are critical to expanding Registered Apprenticeship in our country and should be supported.

Second, supportive services, such as childcare, transportation, and housing assistance help ensure equity and apprentice success, which benefits workers and employers.

Third, worksite changes and new technologies in the healthcare sector will mean workers will need more access to earn-and-learn and on-the-job learning opportunities like Registered Apprenticeship.

And, fourth, positive strides have already been made, but continued efforts to support transparency and efficiency in the registration process, along with more longitudinal data collection and analysis, would lead to greater uptake.

We look forward to the future, and the continued expansion of a high-quality Registered Apprenticeship system that supports innovation through an efficient registration process without sacrificing quality. This expansion of Registered Apprenticeship opportunities in healthcare and other nontraditional industries is an important objective and a true benefit to workers, communities, employers, and industries.

Thank you for your time and I look forward to your questions.

[The prepared Statement of Mr. Bustillo follows:]

Daniel Bustillo, Executive Director, Healthcare Career Advancement Program (H-CAP),
Written Testimony before the U.S. House of Representatives, Committee on Education and Labor,
Subcommittee on Higher Education and Workforce Investment
Hearing on the topic:
Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century
March 4, 2020

Chair Davis, Ranking Member Smucker, and other Members of the Subcommittee, I'm pleased and grateful to have the opportunity to testify before you this morning as you consider reauthorization of the National Apprenticeship Act.

My name is Daniel Bustillo, I serve as Executive Director of the Healthcare Career Advancement Program, commonly known as H-CAP, Vice-President of an affiliated organization of labor/management workforce intermediaries, the H-CAP Education Association, and as Director of the National Center for Healthcare Apprenticeships.

H-CAP is a national labor/management cooperation organization of SEIU union locals and employers in healthcare that promotes innovation and quality in healthcare career education. These industry partnerships exist across 16 states plus Washington, DC, encompassing more than 1,000 employers and 550,000 workers across every setting of healthcare – from home care, to skilled nursing facilities, to clinics and hospitals – training tens of thousands of healthcare workers a year through collectively bargained education benefits administered by multi-employer Taft-Hartley trusts established in accordance with Section 186(c) of the Labor Management Relations Act of 1947.

These trusts are financed with contributions from employers pursuant to various collective bargaining agreements between SEIU union locals and healthcare employers, with H-CAP and industry partner organizations having long-standing track records of developing and implementing high-quality training and education programs for incumbent healthcare workers that support their career pathway aspirations while simultaneously meeting employer workforce needs – a win for all. The success of these programs and the benefits to workers would not be possible without the investments made by unions and participating employers, which allow workers to have a direct voice in these programs and ownership over their own futures. Training partnership models like these are built on the model that trade unions have used for years.

H-CAP and our industry partnerships work at the intersection of where employer and worker interest in training aligns and assist to advance worker skill attainment in accordance with that identified need. A major focus is moving front line workers through career pathways to higher wage occupations, building bridges, where needed, to increase equity in the healthcare workforce. Sometimes the focus is on new skills for the existing workforce to adjust to new job demands, delivery system redesign and increased

patient acuity. In other cases, training might invest in communication, leadership and teamwork skills to improve the quality of care.

This work puts us at the forefront of innovation in healthcare workforce education. Further, the work addresses the long-term interest of workers while simultaneously supporting employer desire for a well trained workforce to provide the highest quality care – training and skills are transferrable and put workers on a career pathway toward higher wage positions and/or provide cutting edge knowledge to enhance care given to patients with diabetes, dementia, and more. Programs are designed to assist the industry with healthcare delivery system transformation and include, but are not limited to:

- Skills enhancement and continuing education
- English as a Second Language
- High School Completion for adult learners
- College preparation
- Allied Health Certificates and Degree Programs

REGISTERED APPRENTICESHIP in HEALTHCARE:

This is all occurring in an industry undergoing continued occupational growth and delivery system transformation. According to the Bureau of Labor Statistics employment of healthcare occupations is projected to increase by 14 percent through 2028. Moreover, of the 30 fastest growing occupations, 18 are in healthcare and related occupations, with the fastest growth occurring in the occupations of home health aides and personal care aides, with approximately 1.2 million new positions for home caregivers expected by 2028.[1] Other sector wide factors are also accelerating the need for continued innovation in the creation and implementation of non-traditional, high-quality training programs and rigorous workforce planning to ensure the healthcare workforce and delivery system of the present and future. These include:

- New technologies impacting all sectors of the healthcare industry: while the best evidence we have indicates that the near term risk for mass job displacement in healthcare due to the impact of technology is relatively low, there will be a need for new skills and better systems of training for new and incumbent healthcare workers
- Delivery system change, an aging workforce and the move to increased home and community-based care, which are leading to greater demand for certain occupations and projected occupational shortages
- Increased demand for healthcare services from an aging population and people with chronic conditions
- Increased difficulty faced by healthcare workers in accessing programs that support career mobility
- Continued occupational segregation, with workers of color overrepresented in entry-level occupations and underrepresented in higher-wage occupations

This industry context mandates new ways of thinking in the support of the healthcare workforce and our systems of training. Despite the fact that the healthcare industry has a long history of work-based learning models, modern healthcare has not traditionally been an industry in which Registered

[1] https://www.bls.gov/ooh/healthcare/home-health-aides-and-personal-care-aides.htm

Apprenticeships are used with any frequency. While H-CAP and our affiliated partners administer many high-quality training and education programs, Registered Apprenticeships are the gold standard of workforce development strategies, a tried and true model of workforce development, with a demonstrated history of rigorous training programs for quality jobs, such as that practiced by our colleagues in the building trades. But, despite the fact that the healthcare industry has a long history of work-based or apprenticeship like learning models, our industry had never adopted the formal Registered Apprenticeship model with any real frequency.

Thus, in 2016, H-CAP, created a national collaboration to build targeted workforce solutions through Registered Apprenticeship that effectively address healthcare industry challenges while improving job quality and developing pipelines/career advancement opportunities for healthcare workers. Since September 2016, we have also been serving as a national industry intermediary contractor with the U.S. Department of Labor Working providing technical assistance, subject matter expertise, shareable resources, and capacity building infrastructure to support the development of Registered Apprenticeship in healthcare across the nation.

Since launching our first cohort of apprentices in November 2016, H-CAP has supported the registration of over 1,500 apprentices across 8 states with multiple employers. Of these apprentices, 82% are women and a majority (60%) are people of color.

The occupations registered with the U.S. Department of Labor and state departments of labor through H-CAP support are varied and targeted to high-growth, in-demand occupations, with demonstrable progressions for apprentices. In all, 13 occupations, with two more pending, have been registered nationally over the past three plus years. All of these programs other than Community Health Worker are competency-based.

Nationally Registered Occupations:

- Advanced Home Health with Specialties
- Ambulatory Coder
- Assistant Case Manager
- Associate Teacher (pending)
- Central Sterile Processing Technician
- Certified Nurse Aide
- Community Health Worker
- Emergency Medical Technician
- Hospital Coder
- Interventional Radiologist
- Licensed Practical Nurse
- Medical Assistant
- Optical Dispensing Technician (pending)
- Surgical Technologist
- Support and Retention Coordinator I and II (Home Care Supervisor)

ELEMENTS OF SUCCESS:

These Registered Apprenticeship programs are developed to industry specification, with direct input from employers, unions, and workers to create competency-based programs that not only meet current

industry occupational need but are built with an eye towards supporting the healthcare workforce of the future. The move towards competency-based Registered Apprenticeship programs has been particularly valuable in the healthcare industry, where we have a large number of highly experienced incumbent workers seeking opportunities for career progression. The employers associated with those apprenticeships are also varied, encompassing large, small and mid-size firms. They include Kaiser Permanente in California and Washington state, Northwell Health, Mount Sinai Health System and BronxCare in New York, Care New England in Rhode Island, Steward Health Care in Massachusetts, and many others.

As an intermediary organization and national contractor, H-CAP leverages the direct support, participation and expertise of healthcare unions and employers – who play a key role in the inception, design and implementation of programs – to create sustainable Registered Apprenticeship infrastructure. We connect these Registered Apprenticeship programs to the public workforce system, educational providers, community-based organizations, and more, aggregating demand across a region. We work to embed college credits in our Registered Apprenticeship programs, facilitating more rapid career progression, and connect apprentices with the wraparound and supportive services, such as child-care and transportation, that are so critical to the success of adult learners and working adults.

We have developed positive working relationships with many State Apprenticeship Agencies and the Office of Apprenticeship at the national level, to help provide them with more detailed expertise on the healthcare sector, to assist in removing the administrative burden from interested stakeholders and to help remove any potential hurdles that might adoption.

Even though nearly 80 percent of healthcare workers are women, we continue to strive to ensure accessibility for women and workers of color, and amongst other strategies, have created a variety of tools and resources on Equal Employment Opportunity regulations. As evidenced by the demographics of the apprentices H-CAP has supported, our equity-based Registered Apprenticeship strategy has been highly successful. We have also begun work to make Registered Apprenticeship programs in healthcare more accessible to people with disabilities and youth – both in high school and out of school.

In short, Registered Apprenticeships continue to expand throughout the U.S. healthcare industry without sacrificing standards or quality and have assisted to meet critical industry need by:

- Increasing the supply of skilled healthcare workers to support a changing healthcare delivery system
- Creating a pipeline that brings women, people of color, immigrants, and experienced low-wage workers into an accessible advancement program
- Building internal training capacity and creating opportunity to focus on competency: highly flexible and customizable
- Allowing for non-traditional approaches to workforce education with real career pathways
- Reducing turnover and related costs

More specifically, Registered Apprenticeships provide a variety of direct benefits to employers, workers and patients:

- For employers, Registered Apprenticeships help fill a labor market gap for hard to fill and high turnover positions, augmenting classroom instruction through hands-on learning guided by a

mentor, providing new competencies that mitigate the need for a transition to practice. Through this combination of formal classroom instruction with mentored on-the-job training and a structured learning pathway, Registered Apprenticeships provide a high-quality learning opportunity not replicated in other workforce development strategies and fill in the gaps where classroom instruction alone oftentimes does not fully prepare students.

- For workers, Registered Apprenticeships provide the ability to earn while they learn, allowing apprentices to master new skills while continuing to support their families, with built in wage progressions, as they demonstrate increased competency. Workers are fully prepared for jobs in their chosen field, along with labor market mobility, enabling apprentices who complete the program to obtain employment throughout an industry.
- For patients, Registered Apprenticeships provide the knowledge that they are receiving the highest quality care from a well-trained, highly competent caregiver.

CONSIDERATIONS:

We are heartened by the continued interest in codifying and supporting the expansion of Registered Apprenticeship, as a high-quality training mechanism that provides rigorous instruction, much needed supportive services to apprentices and good jobs to workers, while assisting employers with their workforce planning needs.

The U.S. invests just .1 percent of GDP on active labor market policies, less than any other industrialized country except for Mexico. Australia invests twenty-four times that amount, and Ireland invests forty-eight times that amount. At the same time, the U.S. has the largest economy in the world and more than 160 million workers in the workforce.[2] Investments in high-quality Registered Apprenticeships are a critical step in addressing broader workforce challenges and authorizing those appropriations through a National Apprenticeship Act reauthorization would provide workers and businesses with sustainable resources to prepare for the future.

Based on our experience, we offer a few items for consideration:

- Industry partnerships and intermediary organizations help expand the capacity of industry, educational providers and human service organizations to meet worker need and employer demand. By coordinating alignment amongst employers, unions, workforce systems, educational providers, etc., aggregating demand across a region, and ensuring apprentices receive needed supportive services, these partnerships are critical to expanding Registered Apprenticeship in our country and should be supported.
    - While Registered Apprenticeship investments have been significant in recent years, they are dwarfed by the amount invested in workforce development, higher education, and safety net programming broadly. A lack of alignment between Registered Apprenticeship investments and these other systems is a missed opportunity to leverage these investments to support the expansion of Registered Apprenticeship.
    - Industry partnerships are essential for long-term growth and competitiveness. Strong industry partnerships provide critical information to workforce partners and coordinate between employers, unions, workforce systems, educational providers, human service

[2] https://www.nationalskillscoalition.org/national-initiatives/body/CIAW-Invest-in-AW.pdf

systems, and more to create equitable programs across a region. These partnerships create stronger alignment between industry and education, improving the overall effectiveness and performance of education, workforce, and human service systems.
    - The PARTNERS Act, introduced by Representatives Bonamici, Ferguson, Davis and Guthrie, would support robust, locally-based, industry-driven partnerships – including labor/management partnerships like those in the H-CAP network – to ensure workers have access to and succeed in Registered Apprenticeship programs.

- Supportive services, such as child-care, transportation and housing assistance, help ensure equity and apprentice success, which benefits workers and employers.
    - Parents make up a third of the workforce and more than two thirds of low-income participants in job-training programs have children under the age of six. For many parents, child-care responsibilities make accessing training and employment impossible. Mothers of young children, for example, participate in the workforce at significantly lower levels than other parents because the disproportionate burden of childcare falls to these women.[3]
    - Access to affordable child-care can be the key to workers' success in job training programs. Access to a child-care subsidy "increases the likelihood that a single mother enrolls in courses at a school or university by 13 percentage points and participates in a job training program by 8 percentage points," according to one university study. In another survey, 48 percent of low-income participants in job training programs who received child-care said they would have been unable to complete their training program without access to the support.[4]
    - Workers without relevant industry experience often need pre-employment or pre-apprenticeship training programs. But, training alone is often not sufficient to ensure success. Pre-apprenticeship programs that provide both training and access to child-care can offer an important on-ramp to a Registered Apprenticeship pathway for a broad range of workers. Once in an apprenticeship, child-care continues to be an important support for ensuring participant success.

- Worksite changes and new technologies in the healthcare sector will mean workers need more access to on-the-job learning opportunities like Registered Apprenticeship.
    - As mentioned above, while the best evidence we have indicates that the near-term risk for mass displacement in healthcare is relatively low, technological change will result in job redesign. With this in mind, expanding access to high-quality Registered Apprenticeship programs that promote career mobility and provide the necessary knowledge for quality patient care is imperative.

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[3] https://www.nationalskillscoalition.org/resources/publications/file/Broadening-the-Apprenticeship-Pipeline_web.pdf (author calculation based on https://www.bls.gov/news.release/famee.t05.htm); Adams, Spaulding and Heller, Bridging the Gap, Urban Institutehttps://www.urban.org/sites/default/files/publication/52756/2000226-bridging-the-gap-executive-summary_1.pdf

[4] USDA, Supplemental Nutrition Assistance Program (SNAP) Employment and Training (E & T) Best Practices Study: Final Report https://fns-prod.azureedge.net/sites/default/files/ops/SNAPEandTBestPractices.pdf; Institute for Women's Policy Research, Getting to the Finish Line: The Availability and Impact of Support Services in the Workforce Development System. https://tinyurl.com/yd78nmgz

- Positive strides have already been made, but continued efforts to support transparency and efficiency in the registration process, along with more longitudinal data collection and analysis, would lead to greater uptake.

We look forward to the future, and the continued expansion of a high-quality Registered Apprenticeship system, that supports innovation through an efficient registration process without sacrificing quality. This expansion of Registered Apprenticeship opportunities in healthcare and other non-traditional industries is an important objective and a true benefit to workers, communities, employers, and industries.

Thank you for your time and I look forward to your questions.

Chairwoman DAVIS. Thank you. Thank you very much for your comprehensive remarks and for staying within the time limits. We appreciate that.

It is now time under Committee Rule 8(a) to question witnesses under the 5-minute rule. I am going to pass on that right now as I understand the Ranking Member is. And so we will go to the first member on our side and we will go back and forth throughout the morning.

Mr. Courtney of Connecticut, please.

Mr. COURTNEY. Thank you, Madam Chairwoman. And, again, to you and Mr. Smucker, congratulations on really what is an historic moment here in terms of amending and enhancing the Fitzgerald

Act, which for all intents and purposes, has not been touched for 83 years when it passed in 1937.

I am a bit of a Fitzgerald Act geek because Fitzgerald was William Fitzgerald, who represented eastern Connecticut, my district, back in 1937. He was an amazing person. As we talk about nontraditional paths to employment, he never had a college degree. He actually was a foundry worker and an amazing person, obviously, because his leadership skills sort of stood out. And he, you know, rose through the ranks where he worked, he became mayor of Norwich, Connecticut, was elected to Congress. This bill passed when he was a freshman. It was his first term in Congress in 1937 and signed into law by Franklin Roosevelt.

After two terms he left to go head up the War Industrial Board, which, obviously, was probably the biggest mobilization of work force in our country's history. And Connecticut, like all our States, did so much to make sure that, you know, we had the successful outcome. We are about to celebrate the 75th anniversary this summer. And, again, the industrial base was as big a part of that story as almost any other aspect. And the Fitzgerald Act actually helped with that high-velocity worker training to make sure that the country could, obviously, meet the demand that existed there.

So, again, thank you for your passion and experience that all of you really demonstrated here this morning. And, again, earlier we did have a kind of a subject matter hearing where we had witnesses from other countries that came in and testified from Switzerland, Germany, and Australia, which, again, this is a global issue, actually. And, you know, one exchange we had with the gentleman from Australia was talking about because they have sort of a similar setup with the Federal system of national, State, and, obviously, private sector, you know, sort of economies, that, you know, the key element that Mr.—I got his name here—Bradley, testified to was that it was so important to have a national standard so that you have portability as people move from one part of a country to another.

And, you know, Ms. Noteboom, you mentioned the fact that, you know, in your sector, you know, that is, obviously, something that is important is your, you know, obviously, your multisite company all across the country that somebody from—who is trained in California, can go to work in New York and maybe you could just sort of talk about that. I mean, that was one aspect of the Fitzgerald Act that they got it right in terms of a national standard.

Ms. NOTEBOOM. Yes. By registering apprenticeships with the U.S. Department of Labor, we create the best practices and toolkits and curriculums and competency-based programs that cannot only be used by IBM, and we are using them, but shared with other employers, such as States, such as small and medium businesses. In the digital economy, there are so many critical needs for IT skills. And the transferability of credits in the educational system, as well as the recognition of standards across States with our government is critical.

Mr. COURTNEY. And, Mr. Bustillo, I mean, you sort of have that similar sort of place in terms of dealing with multiple employers. And, again, is that standard, again, something that people need to rely on?

Mr. BUSTILLO. Yes. I think in healthcare, a little bit different context in terms of the healthcare sector just due to the fact that some of the—we have multiple occupations in healthcare, right? Some of those occupations do not, independent of Registered Apprenticeship, do not have national standards. So, the Registered Apprenticeship process really brings a structure and framework to that. That is certainly helpful in doing so. And I think that we have been successful in using that as a mechanism to create those occupational frameworks and to assist with the portability across States as you talked about.

Mr. COURTNEY. You know, Dr. Foy, I should point out, Wisconsin actually did have the first, you know, legal apprenticeship program in the country back to 1911. But, again, this bill, again, is talking about sort of stabilizing the horizon in terms of authorized funding for the programs. Again, I just wonder if you could talk about how that gives employers more confidence in terms of participating in these programs if they know they are going to be around for a while.

Ms. FOY. Yes, sure. And thanks for the acknowledgement. It is something Wisconsin's very proud of.

I think what is really important is that we understand that as we expand the disciplines and the industries in which apprenticeship is becoming a new delivery model, that is an expensive proposition, developing the curriculum for it, making sure that we have instructors available that have the skill set to do the instruction. And it is more difficult to plan for than a traditional academic program. We know the semester is coming up. We know what the enrollments are going to be. We might have a new employer decide at any time of the year that they would like to hire some apprentices and that they have an opportunity to do so. So, having funds available for curriculum development, for instruction, I think, and that are sort of a backstop to what States should and do provide, is really important.

Chairwoman DAVIS. Thank you. The gentleman's time is up. You know, we may be a little more liberal when our witnesses are finishing since there aren't as many members here today. But, please, everyone can try and stay within the 5 minutes, but I just gave a few extra seconds, so, thank you very much.

Next, we have Mr. Guthrie from Kentucky.

Mr. GUTHRIE. Thank you very much. I know a lot of us talked, as my friend from Connecticut—Switzerland, we have kind of looked at their model. I believe two-thirds—their whole system is planned for two-thirds of their people to go through apprenticeships. And I remember Ms. Davis and I—the chair—talking and my first thought was wow so there is two-thirds of people they are not encouraging to go to college to begin with. Then you look at, you know, according to the census, two-thirds of Americans don't have bachelor's degrees. I think 30 percent's the No. 1 State and that is Massachusetts. So, it is not what are they doing to their citizens? What are they doing for?

And so, I think, the question we have here so the American people know is not—is really a bipartisan issue here. Everybody is working together. The question is just what is the Federal role and what are the details and how much prescription verses flexibility?

Because we all want to work together to make this work and make it happen. Because you hear the same stories and you hear it everywhere we go. There is every employer in Kentucky that would hire somebody today even if they are not advertising it, if they found somebody with the right skills. And these people are not starting at $7.25 an hour. They are substantially higher than that.

And in the late 1990's—or, yes, the late 1990's, we changed our community college—or our community colleges were part of the University of Kentucky. We separated them out and created a separate system and combined community college and technical schools together. And I think that turned out to be a great model. But at the beginning all the tech schools wanted to be community colleges, so we call it the Kentucky Community Technical College System, KCTCS. Dr. Foy, I think you are familiar with it. And I used to, in the general assembly, say let us keep the T in KCTCS because everybody wanted to be a community college.

But what has happened now is you can go to any community college or any tech school or KCTCS school as we call them, the Chamber of Commerce is there, the employers are there, the work force people, everybody seems to be working together now. And I think it is probably in some States I like to hear about Wisconsin the thing, the biggest issue is getting people to come to the programs. And you hear, well, we all say that there are substantial abilities to increase your earning potential. Everybody is begging for skilled workers. There is a shortage of skilled workers, more jobs than people. But we are having trouble getting people to come to fill the seats of training.

Now, there are some that are booked and lines to get in. But for the most part, and I don't know, Dr. Foy, just kind of what are the challenges have you had in your effort to work together with industry to get trainees, to get people education? I hate to say training because I get in trouble here because you don't—you educate people, you train animals. I have heard that before. So, I am going to—just forget I said that. How do you get people into your education system and so they can earn a better living? And we know who said that.

Ms. FOY. Well—

Mr. GUTHRIE. Sorry, I apologize to my former community college president over here.

Ms. FOY. I am very fortunate actually that in Wisconsin the technical college system has a very old and strong relationship with our State employers. So, we have involved them in all of our curriculum development, and we do that on a regular basis. They also sit on all of our governing boards by statute.

Mr. GROTHMAN. But do you give people—how do you get educate—people to be educated?

Ms. FOY. So—

Mr. GUTHRIE. How do you get them in there?

Ms. FOY. Because it is a partnership that has to happen with the employers and with educators. I think the days when it was all about higher ed just trying to get students in our seats so that we could collect tuition revenue is not how we operate. We are a partner with our State's employers to create their talent pipeline. And

apprenticeship has become an increasingly valuable and valued tool in how employers get folks into their places of business.

So, we are the second step. They are using apprenticeship as a recruiting tool. They are posting salaries of apprentices. They are putting up data about contrasting how much debt does an apprentice completer have with an associate degree in many cases in our State versus a traditional associate degree student who just went to college and paid their own way. And the answer is, you know, they have zero over here and they have something over there. They are using it as a retention tool. Wisconsin has a very, very competitive market in big industries, IT, agriculture, advanced manufacturing. So, we get employers—we will get employees who want to come into a business, but then they are also going to get recruited and head hunted by the business down the street.

Employers are using the fact that they offer apprentices, and they are making that investment in their employees as a retention tool now. And it is getting to be something where employees are actually asking about it when they go for a job interview. What do you do for me? If I come here, how are you going to demonstrate that you care about my career progression? So, we are working with employers very hard to market it, to put out materials like the one I provided to the committee. And it is having a big impact, actually.

Mr. GUTHRIE. Thank you. I am out of time. But I have unanimous consent. Submit for the record, Consumer Technology Association?s, ?Why Tech Companies Should Offer Apprenticeships.?

Chairwoman DAVIS. Without objection. Thank you. Unanimously support.

Mr. GUTHRIE. Thank you for your answer.

Chairwoman DAVIS. And, Mr. Levin, Michigan.

Mr. LEVIN. Thank you so much, Madam Chairwoman.

To start, I want to thank the witnesses. I appreciate your thoughtful comments and the bipartisan tenor of today's hearing.

In fact, bipartisanship has been a core component of the committee's work on Registered Apprenticeships. We have had other bipartisan hearings leading up to today's legislative hearing. We have also had one of the best bipartisan committee member roundtable discussions that I have attended in my time in Congress. The room was packed. Republicans and Democrats were engaged. And there was a clear bipartisan commitment to an excitement about reauthorizing the National Apprenticeship Act and increasing access to Registered Apprenticeships.

Chairwoman Davis, Ranking Member Smucker, as well as Chairman Scott and Dr. Foxx and their staffs have upheld that bipartisan commitment. For months now, they have engaged in good faith negotiations. They have even agreed to delay today's legislative hearing an extra week to give more time to reach a bipartisan agreement.

I would hope that given the Trump administration's Stated interest in growing apprenticeships, it will embrace the opportunity to meaningfully scale up Registered Apprenticeships systems through this bill. The administration's support will continue to help negotiations and enable a bipartisan bill to move smoothly through the

House of Representatives so that we can create opportunities for hundreds of thousands of people across the country.

So, I wanted to start on that bipartisan note and commitment to work with the administration. I want to talk about how to help people, poor people, people who traditionally not had access to apprenticeships get in the game.

There was a United States senator once from Illinois named Barack Obama who got into the SAFETEA-LU Bill that you could use a half a percent of your SAFETEA-LU money to build the road construction work force of the future, women, people of color, poor people. And for 4 years I was Michigan's chief work force officer and I had a job similar to Ms. Robinson's. I ran all the job training programs and that kind of thing in Michigan. And using what the senator got passed into law, we created pre-apprenticeship programs that were paid. The first was called RCAR, Road Construction Apprenticeship Readiness. And, frankly, there is a lot of people who without childcare, without transportation, without being, you know, earning something, they couldn't participate in the system. But they are not ready for the apprenticeship program unless they have a pre-apprenticeship opportunity.

So, Mr. Bustillo, let me ask your thoughts about this. Basically, few people can afford the time or money to dedicate weeks or months to a pre-apprenticeship program without income to support themselves and their families. If we just have unpaid programs, it will exclude people with low incomes and result in a pool of apprentices that lacks racial and ethnic diversity. So, how can reauthorizing the National Apprenticeship Act, which is what we are trying to do here, ensure that people of color and women and poor people can fully participate in pre-apprenticeship and Registered Apprenticeship Programs and that people receive adequate compensation?

Mr. BUSTILLO. So, thank you for the question. And I think, harking back to my oral testimony and this is expounded a little bit further in my written testimony as well. I think, clearly, you know, I am heartened to see it in the proposed legislation so there is a focus on pre-apprenticeship exactly what you are talking about as well. One of the things that we have seen quite clearly, and I am going to broaden it out a little bit as well because what you are talking about is absolutely correct. So, you heard me focus on supportive services and from based on our experience, we have seen the critical nature of those services whether it is for folks who are entering into a program like a pre-apprenticeship program. But I think that actually also holds for folks who are incumbent workers and looking for a career progression as well.

I will give a very particular example from a State, and, you know, many States have different geographies, right? So, there are States where the more rural areas of those States, there are no community or technical colleges within the neighboring towns that folks might live in. So, I have seen this and I have interacted with many healthcare workers around the country who have the desire and the ability to progress either enter into the profession or progress, but the community college where if you are a CNA trying to become an LPN, the community college is an hour away, right? An LPN program is a full-time program. So, you need, in essence, to go to school full-time, then work two double shifts on the week-

end in order to have some sort of salary or benefit to be able to support in your family, and then have a car available to you to drive a hour away as well.

So, I say all this to say that what you are talking about, Representative Levin, is absolutely critical in terms of thinking about the supportive services. You heard me mention childcare, transportation, housing assistance. I think it is a little bit broader than that though as well. I think without those supportive services, and that is one of the things that really differentiates the Registered Apprenticeship process, the wraparound services, the earn-and-learn model and the supportive services that are so critical to ensuring success, which leads to better outcomes, not only for the apprentices, but for employers as well.

Chairwoman DAVIS. Thank you very much. The gentleman's time is up. Mr. Grothman of Wisconsin.

Mr. GROTHMAN. Yes, Dr. Foy, first of all, thank you, again, for being here.

We have, I think, top-of-the-line in the country, but could you talk a little bit more about Wisconsin's system and why you feel it kind of stands out among other States?

Ms. FOY. I would be happy to do that. I think there are a few things. Wisconsin is pretty fortunate because we have had a long history of connecting apprenticeship with academic programs. But that is one of the things that is different in Wisconsin is that that relationship between the Department of Workforce Development and the Technical College System is codified in statute. We know how to work together and we do that very well.

We also have a technical college system that our curriculum is developed whether it is for apprenticeship programs or for academic programs on a competency-based basis. So, that means we build learning modules. We put all of our curriculum into a data base. Again, whether it is for apprenticeship programs or academic. And what that results in is it makes it very easy for us to crosswalk between those two kinds of delivery models, and, therefore, combine credentials for students.

We also have a very, very strong relationship with State employees—employers, excuse me. So, that makes sure that our curriculum, again, whether it is for academic programs or for apprenticeship, is current, it is modified appropriately as industry changes.

And we have one other component that I think is actually I know is quite unique in the country, which is that we have paid-related instruction. So, that is really important I think for reaching those populations that maybe haven't been as big a participant in apprenticeship, and also incumbent workers who want to advance their skills. Because without paid related instruction, they have to take essentially a pay cut in order to get the classroom instruction. And that makes a big difference. It makes it much more attractive for employees and, frankly, it is never something that we hear a concern raised by employers. They are happy to pay it because they see the value.

Mr. GROTHMAN. OK, and when we talk about cooperation with the university system, is Wisconsin somewhat unique in the ability

to have tech school—what we call our tech school credits go to the university and the university credits go to the tech school?

Ms. FOY. I think that we made a lot of good progress in that area, and particularly in apprenticeship I think we are quite unique. I think we also have some other States around the country that we are using as models for us in terms of what is possible. Program-to-program articulation has not been something that has happened that much in Wisconsin in the past, but it is definitely our focus now. And I think for programs like apprenticeship, it is going to make a big difference in terms of that next step articulation from apprenticeship to short-term certificate to associate degree and a bachelors.

Mr. GROTHMAN. OK. Recently I ran into somebody who knew somebody who graduated from Moraine Park. I think they went to the Beaver Dam campus. And we were told, I think, they are going to be working on the electrical lines.

Ms. FOY. Mm-hmm.

Mr. GROTHMAN. A very challenging job, but they are making six figures.

Ms. FOY. Mm-hmm.

Mr. GROTHMAN. And one of the things that I have a problem with is so many people, including a lot of politicians, talk about a 4-year degree being a panacea and the height of achievement in society. And I always bristle when I hear politicians say that. What can we do to get politicians and other people in society to stop, maybe in a snobby way or whatever, always pushing the 4-year degree?

Ms. FOY. I personally think that the career pathway model is the solution to a lot of different academic providers, as well as industry employer recruiters. Because the pathway model recognizes the fact that a high school diploma is not going to get you very far in your career in the next 20, 30, 40 years. Everybody needs to be continually learning. Industry is changing too fast for us to stop at any credential. That goes true for a bachelor's as well. So, our job as educators is to make sure that you can continually access increased skill sets and increase credentials. Employers are interested in matching their job opportunities with those kinds of credentials. Paying people the right amount for the right skill set and then creating a pathway to advancement.

And when you talk about it in terms of pathways, then it is not so much us against them, Representative. It is more about what role and what part do we all play in that path.

Mr. GROTHMAN. OK.

Ms. FOY. So, that is what I talk about.

Mr. GROTHMAN. I was at an Eagle Scout ceremony on Sunday. And I felt very good because, you know, I always ask the Eagle Scouts who usually complete their Eagle Scout as a senior in high school, and I asked the guy what he was going to do. And, you know, he was obviously a sharp guy. And he was not going into the tech school system, he was going into the trades. And I thought it was really good that we made progress that this, you know, obviously, top of the line guy telling me that, you know, he was going to become an electrician. Man, you made the right decision. I think we are making progress. Thank you.

Chairwoman DAVIS. Thank you. Mr. Trone of Maryland.

Mr. TRONE. Thank you, Madam Chair. Maryland, Mrs. Secretary Robinson, is one of 27 States that run their own State apprenticeship programming. In Maryland and nationally State Apprenticeship Agencies played a key role in helping expand registered programs and serve more apprentices. Based on your experience, can you expand on your opening Statement a bit about how Congress can codify and strengthen the role of State Apprenticeship Agencies and how we can support awareness in expansion of apprenticeship opportunities at State and local levels?

Ms. ROBINSON. Sure, and thank you, Congressman, for that question.

I would be happy to expand a little bit and really I would like to go back and start with my emphasis in my oral testimony about the appreciation for a dedicated annual funding stream. It is difficult to approach potential sponsors with a multiyear strategy for a new program, and we have not had access to multiyear consistent and dedicated funding. So, this is really a game changer in this reauthorization language that we are happy about.

I would also say that we have worked very hard in Maryland to do that outreach and to spread the message that Dr. Foy just talked about. This apprenticeship is a career path, especially when we are working with our youth in K through 12 in our youth apprenticeship programs. Making sure that everyone clearly understands that we are not talking about just a job. We are talking about a career path with very good wages to support your family, with advancement opportunities to potentially become the CEO like you mentioned.

Changing that message in Maryland has made all the difference. Getting youth involved and excited. We are happy to see potentially through this act, a stronger partnership with the Department of Education so that our State agency can work more closely with them in the schools to connect the kids to the employers. It is not in their nature to be out working with employers and attracting employers, but that is what we do at the Maryland Department of Labor in our State agency. So, having the ability to work closer with our education partners and be in the schools to connect them to the employers, to work on that barrier removal, provide for transportation, have boots on the ground because of the guaranteed streamlined funding, to be able to, you know, provide the technical assistance they need to connect all the dots.

Mr. TRONE. Thank you. Let us talk a second about apprenticeships in prison. Every year, over 700,000 incarcerated individuals leave State and Federal prison and return to our local communities. For many years, these justice-impacted individuals, barriers such as lack of a postsecondary education, and extended periods of unemployment make reentering the work force a challenge. Components of the Registered Apprenticeships offer incarcerated individuals the opportunity to overcome these obstacles and work on the job training that provides work experience, education, it provides job related instruction, and a nationally recognized credential that shows employers they can do the job.

We know that access to Registered Apprenticeships and other employment pathways leads to great jobs with benefits and salaries

that can sustain a family. We also know that the quality of long-term outcomes in corrections-based apprenticeships rarely matches those of Registered Apprenticeships outside the prison walls. And we have additional issues we need to address with inhumane wages in prison. Secretary Robinson and others, how can the reauthorization of the National Apprenticeship Support Act both support ongoing efforts to reform the criminal justice system and expand access of Registered Apprenticeships for individuals who are incarcerated or formerly incarcerated?

Ms. ROBINSON. Thank you. The Maryland State Agency works really closely with our State's Department of Public Safety and Correctional Services to work with inmates behind the fence. I can give you an example.

We have a quite new pre-apprenticeship program with the Associated Builders and Contractors Metro Washington chapter in our State to provide skilled trades training behind the fence for inmates where they will receive workplace skills, life skills, barrier removal, in addition to certifications, the first level of their construction basics craft training. This leads directly into and prepares them for a Registered Apprenticeship Program when they reenter their community. They will have the ability from this program to choose from HVAC and sheet metal occupations with wages starting at $14.50 an hour and completion of that apprenticeship paying $29.00 an hour. So, it gives them that career path to look forward to.

We know that they have barriers and we know they need to be focused on early before they reenter the communities. And that has been the way we have handled it. We are appreciated for the additional funding to allow us to continue to do that.

Chairwoman DAVIS. Thank you.

Mr. TRONE. Ma'am, can I mention one quick thing? I just want to say thank you for that. But also, I am thrilled to be working on a bipartisan bill with Congressman Guthrie from Kentucky in this space. And we are glad to see our provisions to support justice-impacted community folks who are embedded in the discussion draft. Thank you.

Chairwoman DAVIS. Thank you, Mr. Trone. Mr. Cline of Virginia.

Mr. CLINE. Thank you, Madam Chair. I want to thank the witnesses for appearing today. The future economic success of our Nation lies in work force education and apprenticeships are a proven pathway to gainful employment that gives workers opportunities to earn a family sustaining wage. While much of the national conversation these days is focused only on opportunities as they relate to attending college, I am glad that this subcommittee recognizes the importance and value of apprenticeships by holding another hearing on ways to improve these lucrative programs.

I want to also say that apprenticeships offer not only viable solutions, but profitable ones. They can help solve the skills gap that exists and work to fill the 7 million currently unfilled jobs in America, 7 million. Our focus needs to be on ensuring apprenticeships can continue to exist in an agile system that is responsive to the everchanging work landscape.

A large part of what makes apprenticeships work well is their ability to be customized at the State level to a specific career and

to provide earn-and-learn opportunities for workers. Engaging employers in the creation of these apprenticeship programs better allows the training to follow the current market demands and to adjust as needed. Within industry, the particulars for careers vary by location. So, encouraging States to take the lead better allows those particulars to consistently track with that specific market. I look forward to finding ways to encourage States to increase their involvement in apprenticeship programs. I enjoy hearing the great stories about the State programs that are in Wisconsin, in Maryland, and in my home State of Virginia. But what we are really talking about here, boiling it down to, is stripping away a lot of the Federal program and director—direction encouraging reciprocity among the States when it comes to a lot of these standards, and getting the government out of the way.

Ms. Noteboom, can you discuss what aspects of IBM's apprenticeship model have made it so successful?

Ms. NOTEBOOM. Absolutely. First and foremost, we are hiring for IT jobs, and creating an inclusive environment where our messaging is if you have got the right skills, you have got a career at IBM, is critical for visibility to an underrepresented population. So, key to our success is that we created apprenticeships and registered them with the DOL and then sought partnerships with other employers. For example, the Consumer Technology Association that runs the Consumer Electronics Show in Las Vegas, we partnered with them to form the Apprenticeship Coalition to help drive industry awareness and adoption so that we can scale.

Mr. CLINE. So, a lot of private sector working together to establish these best practices.

Ms. NOTEBOOM. But also in coupling on Dr. Foy's good point from earlier, we are partnering with the community colleges as well—

Mr. CLINE. Right.

Ms. NOTEBOOM [continuing]. so that they can sponsor and use the Registered Apprenticeships that we have created. So, we are partnering with Wake Tech, Moberly Area Community Colleges, and many others. That is the success is in the scale.

Mr. CLINE. It is in grassroots ground up State specific programs that you are working with here, not a Federal top down. And, yes, it is a Federal program, but the innovation is coming from the State level, correct?

And you mentioned best practices, does the law prevent you from sharing best practices outside the apprenticeship process?

Ms. NOTEBOOM. No.

Mr. CLINE. OK. Well, I think that what we want to do is to find a way to encourage the private sector to take the lead, encourage the States to take the lead. I think the draft that we have got here with a 15 percent non-Federal match requirement is woefully inadequate. I think that we need to see the private sector and the States, the non-Federal components of this, step up to the plate.

But I also think we need to find ways to empower States to better serve their communities both through apprenticeship program creation and through promoting these opportunities to prospective apprentices. And we have to remember that we are funning annual deficits of over $1 trillion. We have to ask whether it is responsible to consider a bill to expand programs, even successful programs

that are well-meaning like these programs, when the majority hasn't presented a budget plan for the next year. And when we are putting so much on the Federal Government and leaving so little to be picked up by the States and by the private sector.

So, I look forward to continuing this conversation. And, again, I appreciate the witnesses for being here. I yield back.

Chairwoman DAVIS. Thank you. Ms. Bonamici of Oregon.

Ms. BONAMICI. Thank you very much. And thank you to Chair Davis and Ranking Member Smucker for this hearing today, and thank you to our witnesses. But thank you to the leadership of the committee for approaching this important issue on a bipartisan basis. I have often said that I am a big believer in higher education, but we have to have a path for everyone, and not everyone is on the same path. And I have seen in my home State of Oregon, where Registered Apprenticeships and pre-apprenticeships are really helping people and I am especially looking at women and people of color and dislocated workers, and it is helping them access good-paying jobs. It is so important.

A few months ago, I had this great roundtable conversation. Our friends in labor at UA Local 290 Training Center, the Plumbers and Steamfitters, hosted it for us. We had about 30 people around the table, apprentices and union leaders. Sade was a—gone through the Steamfitters Local 290 program said, ?I love what I do. People who look like me coming into these spaces matters.? Jackie said, ?IBEW gave me a chance.? Single moms like Sarah said, ?Without Constructing Hope's Pre-Apprenticeship Training Program, I would never be here providing a better life for my kids and myself.? And I noted there were three women there. We have this wonderful organization called Oregon Trades Women is really helping women get into the trades and show them those opportunities. And I know how these Registered Apprenticeships and pre-apprenticeships and youth apprenticeships are all helping workers, especially those with barriers. And we have had that conversation here this morning.

As entire sectors of our economy are on the brink of significant transformation as well, we need to rapidly scale up our investments in Registered Apprenticeships to recognize the future of work and respond to local work force needs. And I am glad to see apprenticeships expanding in new fields. It is really important. I have worked with Chair Davis and Congressman Ferguson and Congressman Guthrie to introduce the Promoting Apprenticeships through Regional Training Networks for Employers Required Skills, easier to remember as PARTNERS Act. We have been working on this bipartisan bill that invests existing Federal dollars in industry partnerships that bring together employers, education, training, labor, community-based organizations to facilitate the creation of these on-the-job programs that meet the demands of employers, but also provide workers with important support.

I am grateful that Chair Davis incorporated many of our provisions into this National Apprenticeship Act reauthorization we are working on today.

And, Mr. Bustillo, thank you so much for H-CAP's continued support for the PARTNERS Act. In your testimony, you discussed the importance of apprentices accessing supportive services, which is

an important part of the bill. You know, such as childcare or transportation, housing assistance. How do local intermediaries and industry partnerships support the expansion of Registered Apprenticeships? And how can these partnerships make sure that the apprentices are receiving the necessary supportive services that they need to succeed?

Mr. BUSTILLO. Thank you. So, I am going to answer it in the frame of healthcare as well. So, thinking about healthcare, one of the things that I appreciate, certainly, about the PARTNERS Act is the fact that there is a focus on intermediaries, obviously, industry partnerships, but small and mid-sized firms as well.

Ms. BONAMICI. Right.

Mr. BUSTILLO. So, we think about healthcare, normally most folks would think, would assume that healthcare employers are all large employers, which is not the case. We have many small and mid-sized firms in healthcare that have tremendous work force needs. And, you know, we have a care crisis coming in this country, right? So, thinking about the direct care workers and the looming care crisis that we have as well, these are important considerations.

So, we have no 50-State healthcare employers, right? That does not exist. So, intermediary partnerships at the local and regional level are certainly critical to helping develop the infrastructure and ecosystem that is needed to drive this work forward in healthcare. So, thinking about intermediaries doing work related to wraparound services, supportive services as well, right? Whether it is through—directly through those organizations, working with employers and unions on coming up with solutions to that, working with local human service provider organizations, as well. It is really about creating that local infrastructure and that connection across the continuum, which includes career and technical educations in community colleges as well. Thinking about removing some of the administrative burden to expand these programs and also thinking about aggregating demand, right? Which is really important in healthcare if you think about small and mid-sized firms.

Ms. BONAMICI. Absolutely.

Mr. BUSTILLO. Those are all critical considerations to helping drive this work forward in healthcare.

Ms. BONAMICI. Thank you so much. I appreciate that. And as with our aging population, we really need to address the needs in healthcare.

Secretary Robinson, in your testimony you mentioned that Maryland uses Department of Labor apprenticeship expansion grant funding to support pre-apprenticeship programs. Why is it important for pre-apprenticeships to be registered?

Ms. ROBINSON. So, the pre-apprenticeship prepares those that may have barriers that aren't quite ready for—to enter the Registered Apprenticeship, to kind of get what they need to get the initial skills training to be on a path where they can step into a position where they are ready to take on the learning and earning model. You know, we have—you mentioned kind of regional areas, we have assigned regional apprenticeship navigators in—that work out of some of our American job centers. Kind of using some of our Wagner-Peyser money to help direct people to apprenticeships

when it works. That works well for us in terms of pre-apprenticeship programs because, obviously, our American job centers are hubs for all kinds of agencies to focus on that barrier removal. We are working at that level in the pre-apprenticeship timeframe to do everything that they need to get them ready to step into the Registered Apprenticeships role so that we can make sure that they are successful.

Ms. BONAMICI. Terrific. Thank you. My time has expired. I yield back.

Chairwoman DAVIS. Thank you. Dr. Foxx of North Carolina, who is the ranking member of the full Labor and Education Committee.

Ms. FOXX. Thank you very much, Madam Chairman. And I want to thank our witnesses for being here today, also.

Dr. Foy, I appreciated your testimony highlighting the need for increased alignment between education and the work force and you talked about the importance of having a focus on on-ramps to lifelong learning. I believe those principles speak to the need for students and families to have as many options as possible for pathways to successful careers. And by the way, a lot of people are using that word, ?pathways,? and I think it is a good word to use. How has your experience with the apprenticeship model in Wisconsin helped you send the message that there are other alternatives beside the traditional baccalaureate pathway that people tend to focus on?

Ms. FOY. I think several of the witnesses have testified to this effect already, but a connection between various kinds of apprenticeship. Youth apprenticeship, pre-apprenticeship, Registered Apprenticeship, is a part of that pathway concept, and it helps us reach a broader audience in terms of what is available and what kind of compensation options are available. I think the expansion of the areas in which apprenticeship is now being recognized as a valuable pathway or in our minds a delivery model for higher ed.

I think the youth apprenticeship movement in Wisconsin has made a huge difference, Representative, because we are getting an opportunity to expose younger people earlier on. And the fact that we connect that exposure now to actual not just high school credit, but college credit, makes it a lot more appealing. You know, it legitimizes. It is not just I am checking out what it would be like to be an electrician. I am earning college credit while I am doing this. And that—

Ms. FOXX. Congratulations—

Ms. FOY [continuing]. makes a big difference.

Ms. FOXX [continuing]. to you on what you all are doing in Wisconsin.

Ms. FOY. Thank you very much.

Ms. FOXX. That is great. Ms. Noteboom, as you know, I think I have been very familiar with what IBM is doing and have visited with your folks there, the New Collar program. What benefits have you seen from expanding the talent pool that IBM is drawing from in meeting the labor market needs? You have alluded to it, but if you want to say more that is fine.

Ms. NOTEBOOM. Sure. From my personal experience, I have hired hundreds of candidates in places like Raleigh, Baton Rouge, Columbia, Missouri. And we had the ability to open the doors of IBM

and showcase our professions and allow and create pathways for folks in the community to access our professions through apprenticeships. This allowed IBM to custom train and educate resources on exactly the skills we need, providing them opportunity and help lessoning the skill gap for us.

Ms. FOXX. Well, I do want to ask you to start using the word ?education? and not say ?train.? I have to bring it up if anybody says that word because I will tell you again, every time you use that word, you think dog. Because what I learned in my doctoral work is you train dogs and you educate people. And I don't think any of you mean to say that, but that is the implication. And so I ask you if you would do that.

Would you make another comment or two about the P-TECH program because I am fairly familiar with it, but if you would talk a little bit more about it, and particularly, I think you all have had a lot of success in New York in the P-TECH program.

Ms. NOTEBOOM. Yes. Our P-TECH model creates pathways in students grades 9 to 14 to earn both a high school diploma and an industry recognized postsecondary degree at no cost. So, it exposes them to in-demand high-tech jobs at an earlier point than traditional. And what is amazing about the program, and it has truly scaled. We have got 220 schools, 600 employer partners, and we are in 24 countries. It showcases to these individuals that they have options. They have a career pathway in IT or they could pursue higher education, and many have.

Ms. FOXX. Well, and I think there is a way for this to be replicated by other industries. And in my area, I am seeing what they call healthcare academies and other things like this.

Ms. Robinson, I would like to make one comment about something you were saying before. You were talking about these programs as though all they do is prepare you for a career. And I think it is important that we emphasize that all education is focused on our getting a career. If people get a baccalaureate degree, I think we have a sense and it is part of our problem I believe in our country that we have developed the sense that if you, ?get an education you don't go to work.? And if you get something less than a baccalaureate degree you work. Well, I would like to say that everybody I know almost that has a baccalaureate degree that wants to work actually works. And I think it is important we not distinguish between the two and in some of your comments it appears as that is the way you are doing it.

Thank you, Madam Chair.

Chairwoman DAVIS. Thank you. And next we have Mr. Norcross from New Jersey.

Mr. NORCROSS. Thank you, Madam Chair. There are 214 lawyers in Congress and only one electrician, and you are looking at him. So, I know a little bit about this. And the narrative that somehow in order to make it in this world you have to go to a 4-year degree is something that we are hearing today over and over. That is absolutely not true. Now, it might be right for some. As I like to say, when my kids were born, I didn't know if they wanted to go to college, build a college, or defend a college. We need each of those in our society and most importantly, we need to value them equally. That is somehow if you go to college, you are better than, is cer-

tainly not the way. And I will say constructionsite to Congress is not the normal pathway, but it is something that we understand.

So, I want to go into a couple of issues concerning how we got here as a Nation. You know, our parents, teachers, counselors, all put into our heads as we are going through school, college. Not service to your country. Not going into a trade. So, I think fundamentally it starts at home that whether you work with your hands and your head in an apprenticeship that might take you through the electrical, the UA, the IBEW, or you go to a 4-year school, at age 18, I ask people this on a regular basis, when you decided what you wanted to do before you graduated high school, are you doing what you thought you were going to do? And almost across the board, nobody is where they thought they would be. It is called life. That is why the idea of going to college at 18 is perfect for some who know what they want to do and are focused on that.

But the on ramps and the off ramps that our ranking member talked about are so important. We did a 4-year apprenticeship program. I went back to college later on. There are others who went back, picked up the college degree because they wanted to pursue a career. So at different points in your life college works for some.

But let me walk back. The building trades have for over 100 years have been building an apprenticeship program second to none. Have virtually no money from government put into them. They are self-funded. They do a great job. But having standards is so critically important because the construction industry in itself is transient. You have the ebbs and flows and with that the work force. So, without standards the idea of an electrician being trained in California to a different set of standards is ridiculous. The idea that they come back and forth, we go within workplaces across this country is incredibly important. So, standards there. But we also have to be open for industry outside of the building trades to create their own apprenticeship programs, those standards. So, what we want to talk about with you, Mr. Bustill—did I pronounce that correctly?

Mr. BUSTILLO. Bustillo.

Mr. NORCROSS. Bustillo. SEIU, somebody who traditionally wasn't involved in those career paths that involved the building trades, but they are outside that. So, for instance, as a first-year electrician, you would never be sent to a job in order to work there alone. You worked through side-by-side with a journeyman as you go through, and more and more. But in the nursing industry, you have to wait until you graduate before you start work. They have not made that transition. Would you walk through some of the programs SEIU and others have worked with over the years to kind of explain the difference between waiting until the end of your formal education to start, and apprenticeship where you work through it?

Mr. BUSTILLO. Sure, I am happy to do so. So, in my written testimony I provided a list of the nationally registered occupations that H-CAP has. We have 13 different occupations registered nationally with 2 pending. Fourteen of those are in healthcare, one of them is in childcare as well. Because we do—we have done some appren-

ticeship childcare work, which is a critical need. So, clearly there is a difference, right?

And I think you are right in saying that quality standards—one of the things that is attractive to us is the quality and rigor of the Registered Apprenticeship framework, right? I think that is clearly something that has been well-established. Healthcare is a different industry in the sense that—and you don't see any nursing occupations other than licensed practical nurse listed on what I told you. Healthcare is a highly credentialed and licensed and regulated environment. And there is a difference between prelicensure and post-licensure. So, if you look at Registered Apprenticeship Programs around the country that are nursing related, the majority of them are post-licensure. Just because of some misfit between the Registered Apprenticeship model and some of the regulations around nursing boards and things of that sort.

So, we have certainly focused on a variety of other occupations where there is critical industry need in healthcare. So, most of these are hospital-based, but some of them are community-based as well too. So, home care as an example where individual home care workers we know—I am using home care as a catchall, 1.2 million workers are going to be needed over the next decade. That is a different model in the sense that you are working in someone's home as well. You are not at a physical worksite. You are not in a hospital. It is a disaggregated site of employment. So, the models are a little bit different, but the mentorship component that you are referring to is certainly something that we take very seriously and have developed a lot of resources around because clearly that is one of the things that differentiates the Registered Apprenticeship model from more traditional training models.

Chairwoman DAVIS. Thank you.

Mr. NORCROSS. I yield back. Thank you.

Chairwoman DAVIS. Mr. Comer of Kentucky.

Mr. COMER. Thank you, Madam Chair. And I really appreciate this hearing. This is a huge issue all over America. One of the biggest challenges and obstacles I hear from employers and job creators in my congressional district in Kentucky is the fact that they have a difficult, if not impossible, time finding enough skilled workers. Whether it is Tarter Gate Company, which is the largest farm equipment manufacturer in the United States, which is located in Casey County, Kentucky, or Amazon's Fulfillment Center, which is one of the original fulfillment centers, which is in Campbellsville, Kentucky, any time I stop in and meet with a pretty large employer, their challenge isn't necessarily the trade war or tax policy or the regulatory environment, which they have concerns with all three of those, their biggest concern is the fact that they can't find workers. And that impedes their ability to grow and expand and invest additional capital, which we so desperately need in this economy.

As I travel around to high schools and middle schools, and I talk to students or talk to parents of children in school now, I talk to them about the great technical system that we have built in Kentucky. Congressman Guthrie mentioned that earlier. Kentucky has made a significant investment in area technology centers next to high schools. Kentucky has made a significant investment in the

community colleges all across the State. And we are starting to have a lot better communication between industry leaders, employers, and the education system on what type of curriculum to offer and to provide. And they are starting to be more flexible, which is something that you have all discussed in your testimony today.

But we still have a challenge in Kentucky getting students enrolled in these classes. Even though we have fabulous schools, fabulous facilities, we have good communication between the employers and the school system on what type of curriculum to offer and which instructors to use, we still—there is still a stigma out there with parents and with some school officials in we are not going to push students that route. We are going push students to go to a university and get a 4-year degree. I meet students every day that have recently graduated from college with excessive amounts of student loan debt, something we talk about in this committee each week, but they can't find a job based on the degree they attained all that student loan debt in.

What can we do in Congress—my question is for everyone on the panel, if you could briefly give us an answer, what can we do in Congress to reverse that stigma and to encourage, successfully encourage more students to enroll in these classes, which are so desperately needed in the work force?

Ms. NOTEBOOM. Congressman, I will begin. We would urge the House to remove the obstacles in the Higher Education Act as I mentioned in my oral testimony to help better prepare students for apprenticeship programs and remove the barriers and restrictions on short-term programs and Federal work-study. So, enabling more access to certificate programs, for example, under 600 hours.

Ms. FOY. Yes, I would support that as well. I would support looking at using student financial aid support for shorter term programs, as long as they can demonstrate quality. Honestly, Representative, having hearings like this considering reauthorization of the National Apprenticeship Bill after all these decades, keeping the focus on career paths and options for career paths, having you talk about this has an impact. People listen. Just like they listen to our big State employers and national employers talking about different ways to be successful in their companies.

Learners are really changing and education maybe is chasing their tail in a bit, but putting the pressure on educators to make sure that all of our options lead to each other. We have a lot of bachelor's degree holders in Wisconsin, too, that are not finding employment opportunities. Well, it is on us to make sure that other educational programs, apprenticeship, technical, certifications are available to them without having to start over at square one. That is the biggest barrier we have, actually, is repeating work, repeating time and expense to get to a new credential or an advanced credential. That is an industry credential or an academic one. So, we need to really work on that and we need you to keep holding our feet to the fire and talking about it as a valuable option.

Mr. COMER. Well, I can assure you I will do that. I know many of my colleagues on both sides of the aisle will continue to do that because that is a complaint we hear every day from our employers. And, you know, it is just hard to imagine that there has been so much information already spread out about this is where you can

make more money, these are available jobs right now right after graduation. Many times employers will pay for tuition for students to go to these programs so they can graduate without student loan debt, which is a huge issue in American right now. So, I am going to continue to do my job.

Chairwoman DAVIS. Thank you.

Mr. COMER. I yield back.

Chairwoman DAVIS. Thank you very much. Thank you for that question. Ms. Jayapal of Washington State.

Ms. JAYAPAL. Thank you, Madam Chair. And this is just such a wonderful hearing. I was thinking as I was listening to you, Dr. Foy, that my husband is from Pittsburgh and thanks to Social Security death benefits when his dad died, he was actually able to get a 4-year education. But then he really wanted to do something with his hands. And so he enrolled in a 3-year apprenticeship program that was both on-the-job and classroom and became a bricklayer and a marble mason and journey level, and he talks about that experience all the time. And it is just so valuable the work that you all do. So, thank you.

Apprenticeships, especially joint labor management programs, are effective in helping workers move into skilled and middle-class jobs. And in my home State of Washington, joint labor management apprenticeship programs increased total compensation for an individual apprentice by an incredible average of over $810,000 over the apprenticeship's lifetime. But there are barriers that keep many disadvantaged and under represented workers from starting and staying in apprentice—apprenticeships, barriers that Congress has the power to address as we reauthorize the National Apprenticeship Act.

I heard about many of these similar barriers when I was a Washington State senator. And so I created within the Department of Transportation the Washington State Pre-Apprenticeship Support Services program, which helps socially and economically disadvantaged people, specifically women and folks of color, to complete their apprenticeships by addressing those barriers and linking the funding to community-based organizations that could both recruit but also help people through as they went into a very undefined and new environment. It has been incredibly successful. It is partnerships between the building trades unions, employers, and community-based organizations.

The ironworkers, just as an example, have also learned a lot of lessons. The importance of trade-specific training to increase retention of those, for example, who enter the construction industry but don't have all the terminology when they get in there.

The PASS program has yielded impressive results and it has now been expanded. This served 780 people in the last 2 years with a graduation rate of 92 percent. And the program has been particularly effective in supporting people who were formerly incarcerated to access middle class jobs.

So, Mr. Bustillo, let me start with you and ask, what specific kinds of supportive services should the committee prioritize to help workers overcome those barriers to completing pre-apprenticeship programs?

Mr. BUSTILLO. Thank you. So, I think the biggest issues that we see are some of the obvious ones like childcare. I think transportation you mentioned as well, clearly important. Housing assistance, you know, but oftentimes folks who are in educational programs are derailed through some unexpected emergency as well. So, there have been some emergency assistance funds as well. They are a little bit more comprehensive, but I think have been highly successful. So, I would think about those four to start with.

Ms. JAYAPAL. Very flexible funds, too.

Mr. BUSTILLO. Yes.

Ms. JAYAPAL. Yes. Secretary Robinson, under your leadership, the Maryland Department of Labor has identified some key barriers to employment and apprenticeship. Are there particular ones that you want to make sure that you emphasize today for us to think about?

Ms. ROBINSON. Thank you. I would mention back the comments that I made earlier about our reentry programs. Oftentimes that population has significant barriers, so the funding for pre-apprenticeship behind the fence allows us to take care of those so that they are ready and prepared to move into a Registered Apprenticeship. I might add that flexibility in the State match is allowed to count State funding that is set aside for this type of barrier removal would be helpful.

We in Maryland have a program called EARN, Employment Advancement Right Now, that is industry-led. We seek out partnerships of employers. We ask them exactly what skills and what gaps they have in their work force. We have them kind of tell us what they are looking for and we pull together and recruit cohorts of individuals to be educated and trained. What we do during that timeframe it is kind of another version of a pre-apprenticeship. We spend a lot of time removing barriers, everything from transportation, healthcare, housing, you know, creating the curriculum. And the benefit of that is when they are done, they either have interviews already set up with some of those industry partners or they are ready to move into a Registered Apprenticeship Program.

Ms. JAYAPAL. Ms. Noteboom, I have 17 seconds left. But what role can pre-apprenticeship and apprenticeship programs play in strengthening diversity in representation in these industries?

Ms. NOTEBOOM. IBM believes it has a responsibility as a corporate steward to make tech very inclusive. And by improving the pathways and opening them up to a larger underrepresented population, it does just that. Makes the population more accessible to technology and vice versa.

Ms. JAYAPAL. Thank you, Madam Chair. I request unanimous consent to enter the following documents into the record: the Washington State Report on the PASS Program, Story of a Formerly Homeless Washington Youth Served by a Pre-Apprenticeship Program, and the Washington State Labor Council's 2019 Report on Apprenticeships.

Chairwoman DAVIS. Thank you. Unanimous consent, without objection.

Ms. JAYAPAL. Thank you.

Chairwoman DAVIS. Thank you. Mr. Meuser of Pennsylvania.

Mr. MEUSER. Thank you, Chairwoman. Thank you, Chairwoman Davis, very much and Ranking Member Smucker, and certainly thank all of you for being here with us today.

Like many of my colleagues, a key priority of mine for my district is economic revitalization. Workforce development comes up every day, usually several times a day. And it does play a very key role in maximizing our local economy and job employment and such. There are many schools in my district, especially one that I boast about often, Conrad Weiser in Berks County, as well as Central Columbia High School, that have implemented curriculums and plans that really expose high school students. Conrad Weiser more toward STEM initiatives, but various technical career paths. And it is fantastic. You see young people who perhaps weren't getting the most out of their education, now they have a bounce in their step. And they are very enthused about what they are working on and clearly it is very important.

We also have a number of career and technical institutes as do many districts. But I think ours are—in Pennsylvania's 9th congressional, are fantastic. And they have many, many students these days thanks to various student funds and student loans being made available for career and technical schools: the Schuylkill Career and Technical Center, the Berks County Career and Technical Center, the Carbon, and a few others. So, we really have our share. But we are still not maximizing the connectivity between the private sector, skills development, and the schools. So, it is why I am happy to have this hearing.

And my first question will go to Ms. Noteboom. Good to see you again. You put together impressive plan, apprenticeship program at IBM. How do you think that can be applied well to smaller businesses or mid-sized businesses?

Ms. NOTEBOOM. Small and mid-sized businesses in today's digital economy have a need for many of the same skill sets for the Registered Apprenticeships that we are creating. So, they can reuse those. We also have partnerships with local community colleges so they can sponsor the DOL's Registered Apprenticeship Programs, take them and apply them to local employers.

Mr. MEUSER. OK. I am holding a roundtable work force development day in my district next week, or the week after. And what would you suggest? We have businesses, we have got some of the career and technical schools. I have got chambers coming in. I have every party and stakeholder I think along the way here. Hopefully, I am going to have a couple of students to provide their input as well. So, what would you discuss? What would you bring up at such a meeting? And what sort of ideas could you share with me that would help us maximize what we are all working on?

Ms. NOTEBOOM. I would express that you State the benefits of both the apprentice and the employer. So, showcasing to the apprenticeship candidates that it is an opportunity, another area of choice, another pathway, other than pursuing a 4-year degree. And then to the employer, there are many benefits. They are able to get the right mix of skills that they need for their business, and also, work with local community colleges to provide related technical instruction.

Mr. MEUSER. You know, I find the private sector drives this, right? They know what they need. They know the people they need. They know what products they are making and what skills are necessary. I get concerned that sometimes we are pushing it from the education side of it. I mean, it needs to be balanced come the end of the day. Outside of demand for the right people, which is clear, are there any other incentives that you can think of, or any of you for that matter in the limited time, for how to activate the private sector more so toward understanding and appreciate and gain knowledge on the career and technical schools and the skills development that is taking place? Or do you find it should be more done by the business themselves?

Ms. NOTEBOOM. We have partnered with many organizations through the Consumer Technology Association. We formed an apprenticeship coalition to help drive industry awareness and adoption of programs like the Registered Apprenticeship Program. There are over 40 companies in that of all sizes. They are scaling apprenticeships and it allows us to be more responsive and them as well to their changing skill needs.

Mr. MEUSER. Thank you. Madam Chair, I yield back.

Chairwoman DAVIS. Thank you. Ms. Lee of Nevada.

Ms. LEE. Thank you, Madam Chair. Thank you, Ranking Member, for having this hearing today on apprenticeship programs, and all of you for testifying.

One issue I want to address is aligning our push for high-quality apprenticeships with critical or emerging sectors of our modern economy, such as our cybersecurity work force. I am proud to have introduced the Cyber Ready Workforce Act with Representative Stefanik. And this act will award grants to work force entities to support the creation of Registered Apprenticeship Programs in cybersecurity. Specifically, this Registered Apprenticeship Program would include industry-recognized certification in cybersecurity and encourage stackable and portable credits.

Secretary Robinson, I was interested to read through your testimony on particular industries and occupations that were once considered nonapprenticeable. You reference new innovations in Registered Apprenticeship and the culture shift in how instruction is provided to those apprentices. Can you walk us through the strategy that your State used in bolstering apprenticeship programs in formerly nontraditional areas, such as information technology and cybersecurity?

Ms. ROBINSON. Sure, thank you. Our Maryland Apprenticeship Training Council listens to proposals from all industries on any type of proposed—in these nontraditional industries usually competency-based programs. We work through them. We provide a lot of hands-on technical assistance. We also work with sponsors and try to recruit sponsors that serve as intermediaries. For example, we have a university that is serving as a cyber intermediary and helping us to recruit and register sponsors through our council. That has been really helpful. They have students on campus with cyber programs. And so the direct education piece is a no brainer.

I would say that in competency-based programs, these types of nontraditional industries didn't used to look at apprenticeship as a model because they didn't like the longer timeframe. They wanted

to see the specific skill attainment. And they are willing to stick with someone a little bit longer if it takes them a little bit longer and they would like to see if someone can pass certain levels of those skill attainments sooner, they can push them right into earning more wages, you know. And it works in Maryland. We have 25 competency-based programs right now. And that number is growing. So, thank you.

Ms. LEE. Great, thank you. And, Ms. Noteboom, obviously, I love the model that you all use and hopefully in Nevada, my home State, we can sort of combine the lessons from both and move this forward because it is obviously an incredibly important area for us not just in Nevada, but across the country.

Another issue that this committee has explored within the context of evaluating employment trends is the future of work. And with the rapid changes in innovation affecting sectors of our economy, it is clear we need to think about what the resulting implications for the work force will be. In particular, in my home State of Nevada, is the most vulnerable to the effects of job automation according to a study by the company, SmartAsset. And in particular, the Las Vegas metro area ranks in the top 5 of 150 metropolitan areas that were analyzed. So, this is an incredibly important issue for our work force development.

And my question would be to both you, Secretary Robinson and Dr. Foy. In terms of your work force development strategies, including bolstering apprenticeship opportunities, can you explain to what extent you have taken into account any data or analysis concerning automation or other job-related risk to specific occupation categories?

Ms. FOY. I will start. It is actually one of the driving forces, I think, behind some of our new industries' interest in apprenticeship. We started talking about it as a delivery model, not as something reserved exclusively for the trades. And that concern about automation is really for us a lifelong learning problem because we don't have a lot of new Wisconsinites being born. We don't have a lot of new Wisconsinites graduating from high school or certainly not at the levels that we have had in the past. So, our employers are faced with the situation of they have literally two choices. They can upskill their current work force and they can tap into previously nonparticipants in their industry. So, attracting new groups from our population. And apprenticeship is a great way to do that because you are working while you are learning. And there is virtually no cost to apprentices in our State. So, it is actually how we are addressing the automation is that we are giving our incumbent work force the skills they are going to need to run those machines instead of doing the work the machines are doing.

Ms. LEE. Great, thanks. I have run out of time.

Chairwoman DAVIS. Thank you very much.

Ms. LEE. Thank you, sorry.

Chairwoman DAVIS. Let us go to Mr. Scott of Virginia, the Chairman of the full Education and Labor Committee.

Mr. SCOTT. Thank you. Thank you, Madam Chair. Ms. Robinson, Ms. Noteboom pointed out the benefits for the apprentice and for the employer. Have you tracked students going through these programs to see what benefit it would be to the government in terms

of increased taxes, less reliance on social services, so that when the government makes investments in these programs, you actually get a good return?

Ms. ROBINSON. So, we have an entire data team. We appreciate the data that comes from the United States Department of Labor, but we have an entire data team in our State agency as well. I may have to get back to you on some of those specific numbers, but we look at trends in savings in all sectors of our apprenticeship programs. So, I would love to followup on that.

I would like to say that in terms of the youth side of things, we talked earlier about informing them this is a career path. Oftentimes, we are talking more to the parents in that regard because it is the parents we need to convince that this is an alternate career path. Oftentimes, for the student it is important for us to emphasize that they will be allowed to earn wages and make money while they are learning and they will come out of an apprenticeship with skills and credentials that they can take with them forever no matter where their career takes them.

Mr. SCOTT. And in terms of the return on investment from the government, I mean, if you have less social services, more taxes, if you are talking about youth, probably less incarceration, it seems to be a good investment on behalf of the government.

Ms. ROBINSON. A very good investment indeed.

Mr. SCOTT. Ms. Foy, can you talk about transferability of credits in terms of apprentice programs if someone is in the program, whether or not they should be able to transfer credits to a 4-year institution?

Ms. FOY. Yes, they should be. I think the trick is making sure that we are preparing them properly. Because it doesn't do the student or the apprentice any good to send them to a 4-year path that they are not properly aligned with what they have learned and how they have—what they know. So, we are working on that. We have had some success already in Wisconsin.

Again, this is a changing response to the new student. They want to learn the way they want to learn in the timeframe that they want to learn, and they don't tolerate slowness on our part. So, we are working on it.

I think it is an important part of the process, but truthfully, employers like IBM, like the national health associations, they are driving the interests of 4-year institutions in this model because, again, they want to hire and upskill their current work force. So, you got a great employee, came through apprenticeship program, now you want to make him a supervisor, they wanted to put him into management, they want him to have a bachelor's degree and they need to push 4-year institutions to make those connections.

Mr. SCOTT. Is there anything the Federal Government needs to do to make sure the credits are transferrable? Or is that something that needs to be done at the State community college level?

Ms. FOY. I think that just recognizing the role of education in the apprenticeship model that it is not something for work force departments or labor departments only to care about. That puts the emphasis—and that is something that the Congress has the power to do by making agreements between the Department of Education,

making that responsibility in that role formalized in the apprenticeship authorization act.

Mr. SCOTT. Thank you. Madam Chair, we have heard a lot about the short-term PELL program, and I think that we have, just to let the witnesses know, we have a I think a consensus that we know PELL grants can be used for college courses that lead to a degree. But at this time, if all it leads to is a good job, you can't use the PELL grant. And I think the idea that you would be able to use it for a quality program that leads to a good job is something we ought to do. The trick, as we have heard, is to maintain quality. And I think we can trust the community colleges or the work force investment boards if they are referring to a program, I think if we restrict the use to those, we won't get into the problem where somebody can open up a storefront operation and just take all the PELL grant money and provide no real service. But I think there is a consensus that the short-term PELL ought to be available.

Our community colleges in Virginia have established these kinds of short-term programs, preapprentice programs, for example, where in 8 to 16 weeks you can learn, you can get the benefit, you can be first in line for an apprenticeship, your income will go up 25, 50, 100 percent, as they have studied. But if you don't have the money for the course, you can't go. If you can use the PELL grant, you can probably cover the tuition and a little money left over for living expenses so you can actually afford to go. So, I think there is a consensus on that and if we pass the Higher Education Bill, I think you can count on that being part of it.

Chairwoman DAVIS. Thank you. Mr. Takano from California.

Mr. TAKANO. Thank you, Madam Chair. Thank you, Chairwoman Davis and Ranking Member Smucker, for this bipartisan hearing on the reauthorization of the National Apprenticeship Act and the need to increase high-quality Registered Apprenticeship Programs.

As our witnesses have Stated, the earn-as-you-learn model is the foundation of an apprenticeship program. Similar to Wisconsin, my home State of California is making some great strides in expanding this apprenticeship model to the K–12 system. Dr. Foy, in your testimony you laid out the model for youth apprenticeships where a student receives a diploma, some college credit, and a certificate of occupational proficiency from the State's work force department. My question to you is what steps did Wisconsin take to transition to an embedded model where college credit is a key component of the apprenticeship pathway?

Ms. FOY. We are fortunate that it is a key component of our educational pathway, so we're already connecting the dots. We award over 100,000 college credits to high school students in our State every year. So, apprenticeship was sort of the next step to that is making sure that the youth apprenticeship curriculum was aligned with their high school curriculum and then with technical college curriculum.

So, it was truthfully a lot of conversation between teachers, between educators making sure that they were covering the same thing and also connecting those conversations with our employers. Everything we do in Wisconsin is focused on providing a talent pipeline for local employers. So, we would be bringing in major employers in the region or an area and getting them to talk to high

school students and getting them to talk to high school faculty because that is really the key for them to understand each other's work.

Mr. TAKANO. Well, thank you. Those conversations with high school faculty is really critical. Often they get, I think, isolated from the kinds of connections they need to be making to have these programs be effective.

As we have heard, wraparound services and creating local infrastructure are important. So, Dr. Foy, what are the best ways for States to leverage community college infrastructure with their Registered Apprenticeship Programs?

Ms. FOY. I think community colleges are in a good spot to be helpful here because we emphasize a lot of wraparound services. We tend to be smaller. We tend to have a majority of our students are part-time so they are heavy users of childcare, transportation, and other services that is a normal part of our delivery process. It is expected that that will be available. It is one of the good, I think, reasons why pre-apprenticeship programs tend to thrive in a community college setting because those wraparound and support services are already in place for our general student population.

I think another important service that needs to be provided is, again, this concept of paid related instruction and financial aid for short-term certifications of which apprenticeship can be one. And that is, I think, important because a lot of students, you know, they are not looking necessarily to get something free, especially if they are a person that likes the idea of apprenticeship because they are working. They are earning these educational opportunities. They are earning these wage opportunities. So, I think that that is one of the reasons why the community college setting makes a good educational base for apprenticeship programs. And, frankly, I just cannot say it enough, we have great relationships with employers because many of our faculty in Wisconsin's case, all of our faculty have actually worked in the industries in which they are educating. So, it is a lot easier for them to call up an employer than a K–12 teacher, for example.

Mr. TAKANO. Very quickly, I just want to ask this last question. We know that many of our veterans come back from their service with skill sets that do not translate over to a traditional credit or fit into the apprenticeship model. How do you suggest we work to get these veterans their service counted as prior learning?

Ms. FOY. I think the idea of building crosswalks between military experience and military work and academic programs that people pursue through the various service agency colleges is very important. That is ongoing work happening across the Nation with employer partners and with our work force development board partners and with community colleges. So, that is really the key. It is not that they aren't earning the skill set or that they are not learning the kinds of same kind of competencies that are being taught in an apprenticeship, it is that we haven't formally recognized the relationship between what happens when you are doing military service and what happens when you are in civilian life. So, it is that crosswalk building that needs to be done.

Mr. TAKANO. Thank you, Dr. Foy, and thank you, Madam Chair.

Chairwoman DAVIS. Thank you. Ms. Adams of North Carolina.

Ms. ADAMS. Thank you, Chairwoman Davis and thank you for your work on the National Apprenticeship Act reauthorization. I know this bill has been a priority for you for a very long time. As it has been to all of us who know that Registered Apprenticeships are essential pathways to a middle-class life. Thank you to the folks here who are testifying today.

And that is why this is so important. The NAA hasn't been reauthorized or revisited by Congress since its enactment in 1937. So, I don?t have to tell anybody here the different ways our work force has changed since 1937. And one obvious way is that the role of women in our economy, though unfortunately you wouldn't be able to tell it by the numbers. So, as of 2017, women made up only 7.3 percent of apprenticeships nationwide. Furthermore, women tend to be enrolled in apprenticeships with lower pay scales such as childcare where the median journey person wage is only $9.75 an hour compared to $23.46 an hour, the corresponding wage for the top male apprenticeship occupation, electrician.

So, I want to open this up to the entire panel to respond. How can our Nation attract more women into Registered Apprenticeships as a career pathway? And how can we ensure equitable access to Registered Apprenticeships and higher paying occupations in industries?

Ms. ROBINSON. I would like to start.

Ms. ADAMS. Yes, ma'am, go right ahead.

Ms. ROBINSON. Thank you for the question. I would start by saying that it begins with our youth. Our messaging to our students and our collaboration with our education partners is crucial to make sure that our young women understand that they are fully equipped to enter into some of these industries, especially the nontraditional industries. The way that apprenticeship has expanded their competency-based programs into areas like healthcare, hospitality, the list goes on and on.

Cyber, we have a wonderful organization in Maryland called Girls Go Cyber that are winning competitions across the State and the Nation. We are proud to support them in that. But allowing our youth to see that happening and providing our teachers, our counselors, and everyone in the school system with the information and the connectivity to the employers that have those opportunities available, I think is the key.

Ms. ADAMS. Yes, you can be what you see, yes. And, Dr. Foy?

Ms. FOY. Yes, I would say that I love that answer, first of all. And, second, that it has been an evolution of our employers in our State. We are not necessarily the most diverse, but that desire to change that is very strong right now. And it has been a real pleasure for me to see our State's employers taking the lead on not just their desire to diversify, but the actual critical economic need for them to do so. It is good business. And it is good business practice. And so, they are the ones taking the lead, changing their work environment, changing their cultural environment, so that if a person enters into an apprenticeship program in their company, they are not going to be the only woman there. They are not going to be the only person of color there. And if they are the first, they won't be the last.

Ms. ADAMS. OK. Ms. Noteboom.

Ms. NOTEBOOM. IBM believes that companies bringing advanced technologies to market have a responsibility to prepare people for the way those technologies shape jobs. Innovation should unlock opportunities for everyone to make our work force more inclusive, not less. So, by recognizing learning agility and prior skills, we are, you know, tapping into a work force that enables another pathway for them to succeed.

Ms. ADAMS. OK. Mr. Bustillo.

Mr. BUSTILLO. So, I would add two things. I think it is extremely important that we do the hard and critical work of really making the progressions we talk about substantively supported by wrap-around support services. And also focus on a range of occupations. In healthcare, as an example, we have a severe overrepresentation of workers of color in the entry-level lower-wage positions, severe underrepresentation in other occupations. So, we also have to do the work of creating Registered Apprenticeship Programs and pathways not just for those entry-level positions, entry into the profession, but moving up in the profession as well.

Ms. ADAMS. All right. Well, a Registered Apprenticeship can impose a barrier to entry for people with low incomes due to the cost of tools and equipment. So, do you have any suggestions about that?

Well, actually, I am out of time. Madam Chair,—

Chairwoman DAVIS. Yes.

Ms. ADAMS [continuing]. I am going to yield back, yes.

Chairwoman DAVIS. Thank you. Mr. Walker of North Carolina.

Mr. WALKER. Thank you. And since Chairwoman Adams did not ask me to yield any of my time, I am going to take the full 5 minutes there.

So, but, Ms. Noteboom, you mentioned in your testimony that IBM has hired apprentices from my home State of North Carolina, where we have an office of apprenticeships within the State's department of labor, as you probably know. As you are aware, this often forces apprenticeships, in my opinion, sponsors specifically, to comply with two sets of standards and regulations that are contradicting or I would say repetitive, extending approval processes. So, this is where I want to hone in a little bit. Can you speak to the challenges that you have all faced due to delayed approvals for new standards?

Ms. NOTEBOOM. I think that there are several complexities about our implementations to barrier for companies and the length of time that it takes to get something registered with the U.S. Department of Labor is one of them. So, that is an inhibitor to other employers who are looking to leverage this program.

Mr. WALKER. OK, how do you think these delays and duplicative requirements have affected your long-term ability to offer these training opportunities?

Ms. NOTEBOOM. I think it slows us down.

Mr. WALKER. OK, so it would be a little bit of an impediment I would think.

I want to move on for just a minute to talk about the Federal Work-Study reform. Recently, the DOE, the Department of Education, announced a new program in five institutions of higher education just in North Carolina to provide additional flexibility to stu-

dents participating in Federal Work-Study programs. I was encouraged by this announcement because this would enable more students to have access to relevant job training experiences while they are simultaneously still earning their degree. Can you explain how these earn-and-learn opportunities are important for workers that are in your apprenticeship programs, Ms. Noteboom?

Ms. NOTEBOOM. So, when I was hiring many of the apprentices across our locations, I was particularly excited when I talked to these folks and their eyes lit up because they had no idea that IBM would give them the education, the related technical instruction, and the skills that they need to succeed, whether it be in a 24-month apprenticeship time period or a 12. So, it depends on whether it is a mainframe systems administration position or cybersecurity. So, what was exciting is that, you know, given how fast skills are changing, you know, a half-life of skills are shrinking. What this does is it helps individuals be lifelong learners. They are constantly learning to keep their skills relevant.

Mr. WALKER. Very good point there. Ms. Noteboom, again, you highlighted earlier the pivotal role apprenticeships play in the lives of workers that do not have access to traditional education avenues. Last year, I was proud to introduce the Prison to Prosperity Act, which expanded pathways to job training programs for underrepresented populations, including formerly incarcerated individuals, veterans, and students who have not graduated high school. In your experience, I would like to ask how would you describe the benefits these apprenticeship programs have on individuals that may not have the ability to enter the work force otherwise?

Ms. NOTEBOOM. So, one thing that we have seen a lot of success with is our pathways in technology program for high school students. So, it is a 9 through 12 program that in addition to their high school curriculum, they get access to IT skills. And then at the end, they are emboldened to either pursue a career in IT with us or one of the 600 employers that are partnering with us on the opportunity, or they go on to higher education. So, that is a great example of the pre-apprenticeship opportunity.

Mr. WALKER. I don't want to be too leading, but would you agree that enhancing work force development opportunities for these underrepresented populations not only—how do I want to phrase this—has a direct impact for the worker, but also a greater economic result or return?

Ms. NOTEBOOM. What we are excited about at IBM is enabling the work force with skills. So, you know, we will always at IBM attract the best and the brightest whether it is mathematicians who do have a 4-year degree, I mean, we are the largest private entity that hires—that has mathematicians. We have the largest, I should say, population of them. But with New Collar roles and with apprenticeships in particular, we are expanding people's opportunity to enter.

Mr. WALKER. Yes, very well said. Not in my notes, but I can see it from you and I assume from Ms. Robinson and Dr. Foy and Mr. Bustillo, this means something to you. This is rewarding. Is that fair to say?

Ms. NOTEBOOM. It is absolutely fair to say. From my personal vantage point, even though I have a degree from Cornell, I was the

beneficiary of a program like that in high school. I was in a computer-aided drafting course at the same time I was pursuing, you know, my regular high school curriculum. And what was amazing is it gave me choice.

Mr. WALKER. Yes.

Ms. NOTEBOOM. I had awareness.

Mr. WALKER. I can tell it is passionate and it is personal for you. Thank you, Madam Chairman. I yield back.

Chairwoman DAVIS. Thank you very much. And we have somewhat come to almost the end, but not quite because we have some members off the committee who are going to ask questions. But before that, I want to go to our Ranking Member Mr. Smucker, who did not ask his questions earlier, and I will follow him. And then our colleagues who have been waiting so long you will go next. Mr. Smucker.

Mr. SMUCKER. Thank you. This has been a wonderful discussion. I appreciate the work that each of you are doing in your organizations.

I want to followup a little to Representative Comer's comments in regards to the stigma around the trades and apprenticeship programs and so on. And I have seen it firsthand. Mr. Norcross mentioned earlier, he was an electrician who came to Congress. I started out hanging drywall. So, you know, similar to him came from a construction background. And then ran a construction company, owned a construction company. And constantly were faced with—we had several hundred employees, faced with a shortage of people who were interested in the construction trades. And we saw that stigma firsthand.

One of the things that, Dr. Foy, you mention is you are doing things in K through 12, which I think is really important to begin to get students interested and knowing that there are choices out there like this. And then the other thing that I like that you are doing and I would just like you to talk about it a little and several of you said that you have credit-based programs and degree-based programs embedded right in apprenticeship.

My own personal feeling is I think if you are a guidance counselor or a parent, that makes it more attractive. There is a certificate. There is something that is marketable. There is something that you can take. And it is obviously beneficial for the student. But I guess I would like you to speak to that just a little. Do you see that? I mean, do you think that the ability to earn an associate's degree, the ability for a company to partner with a community college or another organization to provide that kind of opportunity, does that increase the attractiveness? The attractiveness of apprenticeship programs?

Ms. FOY. One hundred percent. Students today are very well-informed and they are very assertive about maximizing their return on investment as well. The investment of their time and their energy and no parent wants to think that their child's choices are going to limit them in any way. Or that they are going to send them down a path where there is just a sort of a dead-end. That is one of the challenges that apprenticeship and 2-year college education, frankly, has had to work to overcome. It is not a stopping point. It can be the beginning point. It can be the middle point of

our career. It can be something that you are doing toward the end of your career in order to upskill.

So, it makes a huge difference to get as much out of that time and investment of their energy as possible and that includes academic credential, workplace certifications, apprenticeship credentials, as much as we can pack in simultaneously we are going to do. And it is actually quite critical for some of these new industries that actually require you to have some kind of academic credential before you can sit for your licensing exam, for example.

Mr. SMUCKER. Right. Well, I think it is wonderful that you are doing that.

I do want to just confirm, Ms. Noteboom, what you had said in regards to sometimes the approval process makes it difficult for a company to start a new apprenticeship program. And we should do everything that we can to prevent that. I think that is a barrier to some students having that pathway to a career. I have experienced that personally, as well, in Pennsylvania. We had difficulty getting a new apprenticeship program approved. In fact, weren't able to do that. And so, you know, as we are considering reauthorizing this particular program, we should be thinking and ensuring that we are finding ways to make it easier for people to participate.

One other thing I want to mention. I have just another minute. Several of you have talked about competency-based programs. You are doing that in your organization. I think, Mr. Bustillo, you talked about that. And, Ms. Robinson, you talked about that. And I know you answered some questions, but I would like to hear just a little bit more, maybe, Ms. Robinson, I will ask you. A little bit more about what that means. What is a competency-based program in your particular State?

Ms. ROBINSON. Sure. So, our Maryland Apprenticeship and Training Council meets four times a year, sometimes more often, and provides a lot of technical assistance with our sponsors, businesses, partners, in the interim. When we are talking with businesses and they are a little bit shy about creating an apprenticeship program, we will walk them through the types of programs that have worked and can work. And oftentimes, in areas like cyber, we find that employers are looking for specific skills to be attained along the way, progressive skills. They need to see that you have mastered a certain set of skills before an apprentice is moved on to the next set. Unlike some more traditional trade time-based programs that the industry has determined that, you know, a 2-, 3-, 4-year period of time is significant and appropriate for that industry. We do believe that the industry should be making these determinations. But when a nontraditional industry comes to us or is leaning toward being interested and we can offer them the options of time-based, competency-based, or a hybrid, they are more willing to come to the table with a proposal.

And to your point about the timeframe for approval, I would say that State programs have the ability to be a little bit more nimble. So, we can work with those partners, help them compare different types of programs and show them standards that have been approved, get lots of businesses on board to say, yes, this is the type of competency progressive skills we would want to see. And then they can get a program approved very quickly.

Mr. SMUCKER. Thank you.

Chairwoman DAVIS. Thank you. And it is now my time. I want to give myself 5 minutes and to really initially thank you and we will sum up in just a few minutes. Ms. Noteboom, I know you mentioned San Diego. And I will followup with that. So, we will work on that issue.

I wanted to just go back for a second. Several of my colleagues, and I must say they pretty much asked all the questions that particularly I wanted to delve into. But speaking particularly of the fact that women have tended to be when they have been enrolled in apprenticeships, it has usually been at a lower pay scale. And so, we need to move forward with that and certainly at IBM, Ms. Noteboom, I mean, there has been a dramatic change. And I wanted to just mention that we want to continue to work on that so that we are really talking about equitable access and certainly diversity as we move forward.

One of the issues is around alignment with the K–12 system. And the fact that in order for students to be able to even think about these possibilities, we need counselors, as well, who are able to translate that experience for them and that means that they have to be exposed as well. I wondered if you have seen any examples of that that we might learn from as we move forward? How can we better really help our counselors and help them to understand how valued they can be in this process as we change culture, as we change ideas about this?

Ms. FOY. I would like to speak to this because I think it was a problem that Wisconsin struggled with for many years. And we have just taken the same approach with counselors and parents as we do with students, which is exposure, information, education about the options and the opportunities that result from those options. So, lots more information about what kinds of apprenticeships are out there, how much money you can make. What kind of companies employ apprentices? Some of our, you know, namesake companies, Harley Davidson, Snap-On, big institutions in our State. But also I think getting them onsite. So, we have things called Heavy Metal Tours and STEM Day and, you know, Girls in the Trades. We bring the students, but we also bring their teachers and their counselors onto our campuses and into our businesses and show them what the work is.

Chairwoman DAVIS. Do you have in Wisconsin and perhaps in Maryland, as well, directories? So, not unlike what we have for college, university directories to give students information. They can go online, they can search, they can do—has that developed in Wisconsin? And how helpful has that been?

Ms. FOY. I think online is very important. A lot of young people especially, you know, that is where they live. But there is no substitute for seeing for yourself the reality and their counselors and their parents are not online as much as young people are. So, if you want to reach them, you got to use a lot of different formats.

Chairwoman DAVIS. Maybe a directory helps, but it is not a substitute for that.

Ms. FOY. Not the silver bullet.

Chairwoman DAVIS. Yes, I think the other issue, and Ms. Noteboom and Mr. Bustillo as well, I mean, one of the issues that

we talk about and why this can be successful is because you have personnel at the businesses that are there to support and to educate really to share their experiences, which can be something similar to the young person that they are working with. Is there a training program?

Oh, and Ms. Foxx may say, educating program, in the businesses themselves to help people be mentors because it is not a natural for everybody. Some people are just very good at it. But you can be terrific at what you do, but not be able to teach it in the same way. How do you do that?

Ms. NOTEBOOM. I think we have an excellent ability at IBM to showcase our careers because we have the ability to, you know, have so many at our company. And what is awesome is our IBMers are often going out to their communities and showcasing what they do for a living. Many times at the middle school level or we have camps where we bring middle schoolers in. We also do it at the high school level very regularly. And one of the coolest things that we actually showcase to them, coupling on what you had said, Dr. Foy, earlier is we have externally recognized badges that we give throughout the apprenticeship program that can be used for any opportunity the individual wants after the apprenticeship.

Chairwoman DAVIS. Good to hear. Thank you so much. Are you all confident that you already have been able to have a cultural shift in this area, how far does this go? What is it going to do? Is it going to change our economy the way a lot of us think it has the possibility to do? What do you want to—oh, my time is up.

Ms. NOTEBOOM. I think this enables America to close the skills gap. It is opening up a huge pathway to employment.

Chairwoman DAVIS. Great. Thank you so much. OK, and now we are going to turn to Ms. Wild from Pennsylvania.

Ms. WILD. Thank you, Madam Chair. And because I am interested in any answers that the rest of you might give to the question that my colleague and the chair just asked, I would first open it up to any of you who want to add to that.

Mr. BUSTILLO. Sure, thank you. So, I will start with the mentorship component first. Very critical in healthcare when we started doing this work we realized that that was a huge hole. It did not exist. There is preceptorship, similar. So, we created a variety of resources, open source resources, training. That is a huge component of a successful program and model.

And you are right. Just because you are a good healthcare worker, doesn't mean you are a good mentor, right? So that is extremely important.

I think this clearly is something that we are invested in because we do see the potential impact that it has on our communities around the country. I think we are at the beginning stages of this process with nontraditional industries, but I do see that there is a huge potential here.

Ms. WILD. Ms. Robinson or Dr. Foy, any comment on whether we can have a cultural shift in this direction?

Ms. ROBINSON. I would think we absolutely can. We already are seeing that cultural shift and we hope to see that grow, especially in light of some of this new language. In terms of the mentoring question, I agree with my panelists. I think that if we open up that

opportunity, some of our most successful school systems in Maryland are the ones where we have—it only takes one teacher to be quite honest, who is very invested in this program and who sees the benefit who is willing to schedule the trips and connect with the employers and let those students see what is available to them. We would have employers stepping up to the plate to be mentors immediately. So, I look forward to that continued cultural shift.

Ms. WILD. Thank you. Because I want to make sure I get to my question, I am going to end that there.

I am one of the 214 lawyers in Congress and I dare say that Mr. Norcross' skills as an electrician are far more in demand than mine are on a daily basis for most people in this country. I do think that this is an incredibly important topic and it is why even though I am not part of this subcommittee, I opted to come and stay for the questions and answers.

My biggest concern, at least in my district, which is Pennsylvania 7, the Lehigh Valley of Pennsylvania, is that we don't seem to be doing enough to get word out to the people who could most benefit from apprenticeships in terms of recruiting them, in terms of making them aware of what programs are out there. So, what I would like to do, Mr. Bustillo, if we could, start with you. And did I mispronounce your name?

Mr. BUSTILLO. Bustillo is fine.

Ms. WILD. Bustillo, OK. What outreach strategies have you found are the most successful in recruiting people to apply for apprenticeships, particularly people in low-income or underserved areas who would be a good fit for these programs, perhaps, but are just unaware of them?

Mr. BUSTILLO. So, I think for us it is really about leveraging the preexisting infrastructure we have in terms of labor managing partnerships to connect directly with religious institutions, community-based organizations, employers, as well, because, frankly, most healthcare systems are based in communities. So, we have worked directly to leverage that infrastructure to get notice out.

Ms. WILD. OK. Anybody else on that? And also, if you want to expand any of you to include how we recruit experienced workers who might want or need to change industries because of changing demands for a new phase in their career.

And let me just say labor is a very strong base in my area. They wholeheartedly admit that they aren't particularly effective at marketing their programs, and without putting the burden on them, I just kind of want to figure out how we bring more of this to our underserved communities.

Ms. NOTEBOOM. I would like to expand on what Dr. Foy said earlier. I think she said it really well. We, as employers, need to be partnering with educators to really make very clear the necessary skills to be first in line for jobs because, you know, the educators are working with, you know, children and young adults regularly and so that partnership is absolutely critical. And we have shown that with our P-TECH model.

Ms. WILD. Dr. Foy?

Ms. FOY. It think it is just getting the word out and talking about it. Congress talking about it, employers talking about it, we have to talk about it. There is no single actual piece of information

that has been more powerful in my communications than those compensation numbers and the fact that financial aid or student debt is a huge problem right now. I think it is the No. 1 reason why people think that anything after high school is not going to be for them. That is a zero when you are talking about an apprenticeship or a learn-to-earn program. So—

Ms. WILD. We probably need to educate some of our parents, too, about passing this on to their children.

Ms. FOY. Absolutely.

Ms. WILD. Thank you so much. I yield back.

Chairwoman DAVIS. Thank you very much. And I now recognize the distinguished Ranking Member for his closing Statement.

Before that, I am sorry, I just wanted to mention that Members may have some additional questions of you and we ask the witnesses to please respond to those questions in writing and the hearing record will be held open for 14 days in order to receive those responses. There are a few other things in boilerplate here, but I think we are going to go ahead and ask the ranking member to please give his closing Statement. Thank you.

Mr. SMUCKER. Thank you, Madam Chair. This is a great hearing. I do want to just followup before a Statement. Talk about the exposure. You reminded me of a program in my area that works extremely well. They call it an externship. I don't know if you are all familiar with that. But essentially bringing students and guidance counselors in to one of the large employers in my area. It might be a factory floor, it might be something else. And they spend a few days there and literally immerse themselves and experience the kind of work that is available there. And that has been really an effective program in having guidance counselors and teachers understand the opportunities that are there. So, it has been great.

But, again, I just want to thank each of you for the work that you are doing, for taking the time to share your experiences and your perspectives and expertise here today. It has been a great conversation and really, really important. We all know the importance of the opportunity this provides for students and families. And so—and for employers. And so, again, I want to thank you.

It is about encouraging a mindset of lifelong learning where individuals are continually attaining new skills that allow them to be competitive in today's marketplace. So, I do appreciate—we got into a little bit of discussion about the competency-based approach, which I think is absolutely outstanding. And I think it is important, I think, Ms. Robinson, you mentioned it is important to develop those competencies in partnership with the employers who are going to be hiring the apprentice or working with the apprentice in jobs in their locations.

And I also want to mention, again, it is important to keep apprenticeships programs flexible enough, particularly to work for our small and medium-sized businesses. And I really believe if we want to encourage the growth of apprenticeship program in the country, we cannot close doors to those who want to participate by creating a system that is too difficult to navigate. And I have experienced that personally myself.

So, I am really happy for the productive conversation today about how to improve the system. I look forward to continuing discus-

sions so that we can get to a place where we can all proudly support a bill that we can see signed into law.

So, thank you, again. And thank you, Madam Chair.

Chairwoman DAVIS. Thank you. Thank you, Mr. Ranking Chair. Thank you all very much for being here. It is now time to give my closing Statement. It is going to be very brief.

And I wanted to thank you, again, because many of, I think, the ideas that we have had and we know are sort of out there, but we are not exactly sure how they have been applied or what the issues with the challenges have been, you were able to address those very well. And I greatly appreciate that and we will look to you for guidance, for your wisdom as we move forward. And I want to thank the ranking member for also saying how I think we are very ready to go forward with this and move through any of the issues that still remain. But I am very excited about it personally and I hope we can do that. I think we certainly were able to reaffirm today that the Registered Apprenticeship system is one of the best strategies we have for offering Americans across the country a clear pathway to the middle-class.

And we recognize that we have a chance to put aside whatever differences there are, work together to help more Americans succeed in our economy by scaling up Registered Apprenticeships.

Our discussion has been on the National Apprenticeship Act, of course, of 2020 that we are looking to authorize and this really has brought us one step closer I think to that goal. And at the core of the provisions is the proposal that will expand apprenticeship opportunities through historic Federal and State investment and allow employers to more easily take part in the Registered Apprenticeship system.

I think it is our hope and our wish that the investment in that at all levels whether it is businesses, whether it is the Federal Government and also the State because they play a very important role as well, that their investment will be worthwhile and actually pay for itself.

So, we are looking forward to that day and continuing our discussion with our colleagues, the stakeholders shaping a reauthorization of the National Apprentice Act that gives everyone a chance at achieving the American Dream.

Thank you again so much for being here, for traveling and helping to really explain this to all of us.

The meeting is adjourned. Thank you.

[Additional submission by Mr. Scott follow:]

CLASP
Policy solutions that work for low-income people

March 3, 2020

Statement for the Record
House Subcommittee on Higher Education and Workforce Investment
"Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century."
Wednesday, March 4, 2020

Dear Chairman Robert "Bobby" Scott and Ranking Member Virginia Foxx:

We, the Center for Law and Social Policy (CLASP), write to express our views regarding the reauthorization of the National Apprenticeship Act (NAA). As a national, nonprofit, anti-poverty organization, CLASP works to advance federal and state policies that promote economic security for individuals with low incomes, including people of color, opportunity youth, justice-impacted people, and immigrants. We appreciate the opportunity to provide the committee with recommendations that help to increase greater access to registered apprenticeships, pre-apprenticeships and youth apprenticeships, particularly for individuals who face the greatest obstacles in accessing high-quality employment pathways that lead to family-sustaining wages and benefits.

Over a century ago, Wisconsin created the first state Registered Apprenticeship Act and in 1937, Congress enacted the National Apprenticeship Act.[1] The NAA created thousands of Registered Apprenticeship programs and instructed the Department of Labor to promote labor standards to protect apprentice welfare.[2] With over 706,000 new apprentices since 2017 and an average salary of $70,000 after program completion, Registered Apprenticeships are a successful workforce development strategy with significant economic gains.[3] However, inequities, discrimination, and barriers to entry have historically prevented, and continue to prevent, many people with low incomes, especially people of color, from accessing and succeeding in a Registered Apprenticeship. A 1967 study described overwhelming resistance to racial integration in apprenticeship programs.[4] Today, while there have been improvements, apprenticeships remain largely white and male.[5]

As Congress considers NAA's reauthorization, it has an opportunity to address equity and expand access to Registered Apprenticeships, including through high-quality pre-apprenticeships. A registered, high-quality pre-apprenticeship can support students with low incomes - especially students of color and those impacted by the justice system - and promote equitable access to a Registered Apprenticeship program. For these reasons, we are providing the committee with recommendations to promote high-quality apprenticeships and pre-apprenticeship to ensure that students with low incomes, students of color, immigrants, and students impacted by the justice system can access high-quality Registered Apprenticeships.

Below are recommendations that we urge the committee to consider:

Require that all apprenticeships, including pre-apprenticeships and youth apprenticeships be registered. Across states, there is an interest in expanding pre-apprenticeships. To prepare pre-apprentices to succeed in registered apprenticeships, they must have access to high-quality registered apprenticeships. All pre-apprenticeships and apprenticeships must incorporate the types of workplace and labor standards of quality that have made registered apprenticeships successful. They must also provide direct entry into registered apprenticeships for successful apprentices.

Provide adequate compensation for pre-apprentices. Few people can afford the time or money to dedicate weeks/months to a pre-apprenticeship program without income to support themselves and their families. Unpaid programs will exclude people with low incomes, people impacted by the justice system, individuals with families and others, and result in a pool of apprentices that lacks racial and ethnic diversity. The reauthorization of the NAA can help to ensure that people of color and women fully participate in pre-apprenticeships and registered apprentices receive adequate compensation.

Eliminate barriers for women, including women of color. As of 2017, women made up just 7.3% of apprentices nationwide. Furthermore, women tend to be enrolled in apprenticeships with lower pay scales, such as childcare where the median journeyperson wage is only $9.75/hour compared to $23.46/hour, the corresponding wage for the top male apprenticeship occupation, electrician. Our nation must work to attract more women into registered apprenticeships as a career pathway and ensure that they earn wages that are comparable to wages earned by males in comparable occupations.

Eliminate barriers to entry for people with low incomes. Many registered apprenticeships impose barriers to entry for people with low incomes due high costs for tools, equipment, books, supplies, uniforms and scheduling inflexibility for parenting or commuting individuals. Scheduling barriers are especially problematic for individuals on probation and parole or community supervision. The reauthorization must provide wraparound services and robust supports to cover the costs of childcare, transportation, equipment, books, supplies, uniforms and related costs that pose barriers to entry.

Support ongoing efforts to reform the criminal justice system and ensure incarcerated individuals have access to apprenticeship pathways. A National Center for Education Statistics survey found that 29 percent of incarcerated respondents wanted to obtain certificates from a trade school or college while incarcerated; 39 percent of them said the main reason they wanted to enroll was to "increase the possibilities of getting a job when released." Nevertheless, only 7 percent of the incarcerated received such certificates.[6] The NAA must help incarcerated and formerly incarcerated individuals access the registered apprenticeships they want and provide them with other opportunities to pursue employment pathways that lead to family-sustaining jobs with benefits.

The reauthorization must support ongoing efforts at reforming the criminal justice system. This includes ensuring that occupational licensing bans do not preclude individuals impacted by the justice system from obtaining employment that they have been trained for by an apprenticeship. Individuals who are incarcerated must also be paid fair wages, and the law must help to ensure that providers do not discriminate against those impacted by the justice system.

Pay incarcerated apprentices adequate compensation in line with the minimum wage for registered apprenticeships. Apprentices who are incarcerated are often paid below the minimum wage. A 2019 Urban Institute report noted that the average starting wage for apprentices was less than one dollar an hour.[7] Furthermore, the quality and long-term outcomes of these apprenticeships rarely match those of Registered Apprenticeships outside prison walls. The reauthorization of the NAA can raise wages – as well as labor standards – for incarcerated apprentices, bring them in line with the minimum wage or the average wage for registered apprentices, and ensure the apprenticeships are high-quality education programs.

Ensure that youths and adults with low incomes are guaranteed equitable access to established registered apprenticeships, postsecondary education opportunities, or both. Quite often, young people with low incomes, especially students of color, end up funneled or "tracked" into lower-performing or poorly funded programs and pathways. Youth apprenticeships and pre-apprenticeship programs can guarantee that pre-apprentices will have equitable access either to an established registered apprenticeship or postsecondary educational opportunities.

Incentivize and allow for greater participation of regional and local intermediaries, such as high schools, adult education providers, workforce partners, and community-based organizations in the recruitment and retention of youth of color (both in-school and out-of-school youth). Out-of-school-youth, high school students, and young people of color are less likely to reap the benefits of federal and state programs and are often left behind in these programs. Regional and local intermediaries, such as workforce partners, high schools, adult education providers, community-based organizations, and other community partners can provide supportive services such as mental health and behavioral services, housing, and other supports to help increase the participation of youth of color in the pre-apprenticeship recruitment and retention process.

Dedicate a funding stream for high-quality, registered pre-apprenticeships. To continue to expand and have long-term sustainability, pre-apprenticeships must have a dedicated funding stream that allows pre-apprentices to be adequately compensated. Such a structure would allow for greater participation of youth and adults who face the greatest barriers to employment and postsecondary education.

We thank the committee for working in a bipartisan manner to increase greater access to registered apprenticeships through the reauthorization of the NAA. We look forward to working with you and your staff.

Sincerely,

Rosa M. García, Director, Postsecondary Education and Workforce Development

Asha Banerjee, Policy Analyst

Cameron Johnson, Research Assistant

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[2] "Registered Apprenticeship: Federal Role and Recent Federal Efforts." Congressional Research Service R45171.

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[5] Angela Hanks, Annie McGrew, and Daniella Zessoules, *The Apprenticeship Wage and Participation Gap*, Center for American Progress, 2018,
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[6] Annie McGrew and Angela Hanks, *The Case for Paid Apprenticeships Behind Bars*, Center for American Progress, 2017, https://cdn.americanprogress.org/content/uploads/2017/04/27102832/ApprenticeshipInPrisons-briefNew.pdf
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[Additional submissions by Ms. Jayapal follow:]

Washington State Department of Transportation

WSDOT Office of Equal Opportunity
Pre-Apprentice Support Services and
On-the-Job Training Support Services Program
2019 Annual Report

Contents

Background

As required by Revised Code of Washington (RCW) *47.01.435 Highway Construction Workforce Development – Reports,* and ESHB 1160, Section 217 (1), the Washington State Department of Transportation (WSDOT), in coordination with the Washington State Department of Labor and Industries (L&I), is required to submit an annual report to the Legislature which outlines progress related to highway transportation workforce development, and the grant program funded through the Connecting Washington Program (Pre-Apprenticeship & Support Services). These statutes further Washington State's commitment to the On-the-Job Training Support Services (OJT/SS) Program, and require WSDOT to expend federal funds received under 23 USC Section 140(b) to increase diversity in the highway construction workforce. WSDOT and L&I partner to provide services that prepare individuals interested in entering the highway construction workforce, including pre-apprenticeship training, pre-employment counseling, basic skills improvement classes, career counseling, remedial training, entry barrier removal, transportation assistance, child care, mentoring, retention services, safety equipment and occupation specific tools. WSDOT is required to report on the status of grants that have been disbursed to organizations that are providing On-the-Job Training and Support Services.

Washington State Apprenticeship & Training Council
Apprenticeship Preparation Program Recognition
2019 Progress Summary

The Washington State Apprenticeship & Training Council's (WSATC) list of recognized Apprenticeship Preparation programs continues to grow, reaching 28 programs as this publication goes to print. The vast majority of programs prepare individuals for construction trade apprenticeships with additional programs being added servicing manufacturing and information technology. A new development over the past year is very encouraging. Registered Apprenticeship Sponsors are stepping forward to offer their own, trade specific, direct entry programs. The Ironworkers were the first trade to offer this direct entry pathway with the Laborers, Cement Masons and Carpenters following soon after. These programs take individuals, many of whom have completed other Apprenticeship Preparation programs, into intensive, trade specific preparation with a job and a registered apprenticeship opportunity at completion.

All of the programs recognized by the WSATC have articulated pathways into registered apprenticeship programs and focus on preparing a diverse applicant pool to the opportunities awaiting in Washington's Registered Apprenticeship system where wage outcomes for completers now exceed $75,000.00 annually.

Information on all Washington State Apprenticeship and Training Council (WSATC) recognized apprenticeship preparation programs can be found on the L&I website at the following link: lni.wa.gov/licensing-permits/apprenticeship/apprenticeship-preparation

WSDOT Office of Equal Opportunity – On-the-Job Training Program
Pre-Apprenticeship & Supportive Services Grant 2017-2019 Award Information

The following statewide organizations were awarded Pre-Apprenticeship Support Services (PASS) grant funding through a competitive selection process for the 2017-2019 biennium. PASS Grant contracts began in July of 2017, with training schedule start dates varying by organization based on their pre-existing schedules.

Pre-Apprenticeship Construction Education (PACE) - $120,000
PACE is an 11-week apprenticeship preparation program focusing on training diverse students, especially those who are low-income, minority, female, ex-offenders, or veterans. The curriculum includes tool use, material handling, basic construction skills, trades math, tours of jobsites, apprenticeship programs, and preparation for the apprenticeship application process. PACE has recently merged with Apprenticeship and Non-Traditional Employment for Women (ANEW). The two programs, ANEW and PACE, remain distinct in service delivery but unified under one organization.

JM Perry Technical Institute - $300,025
JM Perry Technical Institute is providing outreach, recruitment, and training for individuals interested in the highway construction trades through three training programs: Agriculture Equipment Technician, Construction, and Electrical. The Agriculture Equipment Technician program will prepare students interested in becoming heavy equipment repair technicians, including the mechanical skills identified as in demand for highway construction trades.

Spokane Community College - $50,000
Spokane Community College's Skills Trade Preparation Program (STP) is supplemented with support services funds to provide equipment, transportation assistance and childcare to individuals enrolled in construction trades training.

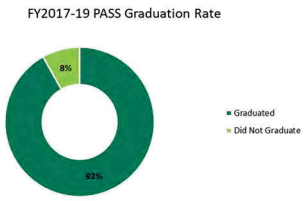
Pacific Northwest Ironworkers - $204,522
The PNW Ironworkers four-week training program prepares participants to enter into Ironworker apprenticeship and provides direct entry employment opportunities upon completion of the program. Under the grant, the program will expand participation in areas of Southwest and Eastern Washington, connecting with existing Ironworker training programs in those regions.

Apprenticeship and Non-Traditional Employment for Women (ANEW) – $678,110
In 2016, WSDOT began the ANEW pilot program. WSDOT is continuing this pilot that involves an extensive collaboration between ANEW, Carpenters-Employers Apprenticeship and Training Trust Fund, Cement Masons and Plasterers Training Centers of Washington, Juvenile Rehabilitation, Department of Corrections, State Board of Community Colleges, and King County Community Services Division. ANEW's pre-apprenticeship program teaches students soft skills, trades math, as well as basic hand and power tool skills. Students opting into specialized trade pre-apprenticeships receive additional trade specific training by the Carpenters and Cement Masons and earn direct entry into the selected apprenticeship program.

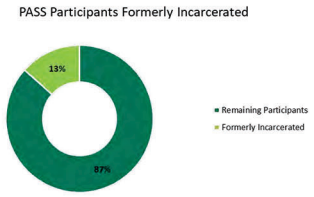
PASS Grant 2019 Progress Report

From July 2017 through July 2019, there have been over 780 PASS Program participants.

- Overall program pre-apprenticeship graduation rate of 92 percent

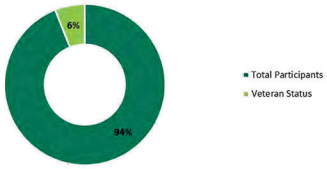


- Overall: Most reported participant barrier – Thirteen percent reported being formerly incarcerated



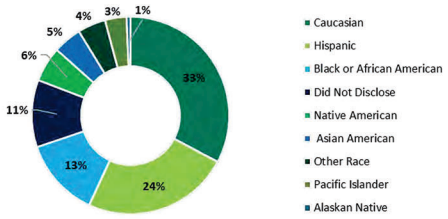
- Overall: Six percent Veteran participation

PASS Participants Veteran Status



- Overall: Support Services data – thirty-one percent (249) PASS participants received Supportive funds averaging $338.00.
- Overall: Program participants registered in Labor and Industries (L&I) Apprenticeship Registration & Tracking (ARTS) 50 percent.
    - L&I reported wages and benefits for ARTS participants: $974,025.73 (data limited to Public Works contracts)
- Program participation by race:
    - Caucasian 41 percent
    - African American 17 percent
    - Hispanic 12 percent
    - Other Race 7 percent
    - Did not disclose 12 percent
    - Various others groups at less than 5 percent

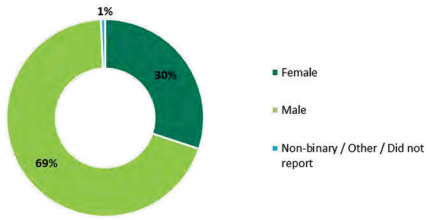
PASS Program Participants



- Participation by gender:
    - Male 69 percent
    - Female 30 percent

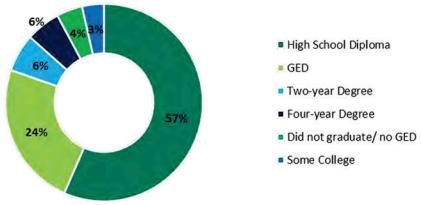
- Non-binary/Other/Did not report 1 percent

PASS Participants By Gender



- Participation by education level:
  - High School Diploma 57 percent
  - GED 24 percent
  - Post High School degree 12 percent
  - Did not graduate/no GED 4 percent
  - Various other levels at less than 3 percent

PASS Participants By Education



- Program participants with current L&I apprentice registration:
  - Caucasian 41 percent
  - African American 19 percent
  - Hispanic 16 percent
  - Pacific Islander 8 percent
  - Other 7 percent
  - Various other groups at less than 5 percent

The PASS Program is reaching the underrepresented populations in Washington State. The above data shows that PASS dollars are reaching women, people of color, the formerly incarcerated population, and individuals receiving GED certificates. Program data and graphics have been extracted from PASS Program individual intake data forms.

PASS Program Summaries FY 2019

ANEW, King County
ANEW offered seven 11-week classes serving a total of 169 individuals.
Program participation by:

- Race:
  - Caucasian 41 percent
  - African American 17 percent
  - Hispanic 12 percent
  - Native American and Alaska Native 5 percent
  - Other Race 7 percent
  - Did not disclose 12 percent
  - Various others groups at less than 5 percent
- Gender:
  - Male 55 percent
  - Female 44 percent
  - Non-binary 1 percent
- Graduation Rate: Ninety-three percent across all training programs

ANEW also worked directly with:

- Carpenters Union: 1-2 week cohorts; and
- Cement Masons Union: 3-week cohorts

JM Perry Technical Institute, Yakima
JM Perry Technical Institute served 102 individuals.
Program participation by:

- Race:
  - Hispanic 66 percent
  - Asian American 9 percent
  - Caucasian 7 percent
  - Native American and Alaska Native 4 percent
  - Did not disclose 13 percent
  - Various others groups at less than 2 percent
- Gender:
  - Male 97 percent
  - Female 2 percent
  - Did not disclose 1 percent
- Graduation Rate: Eighty-one percent

Due to the structure of their academic year, the majority of students are still enrolled in their programs, but have been placed in construction internships. The Construction Technology and Agricultural Equipment Technician programs are one year, and the Electrical Technology program is two years.

Spokane Community College (SCC), Spokane
SCC offered three 11-week pre-apprenticeship courses serving a total of 114 individuals.
Program participation by:

- Race:
  - Caucasian 40 percent
  - Native American and Alaska Native 16 percent
  - Hispanic 12 percent
  - African American 6 percent
  - Did not disclose 11 percent
  - Various others groups at less than 6 percent
- Gender:
  - Male 55 percent
  - Female 45 percent
- Graduation Rate is currently 86 percent

These classes run concurrently with the academic calendar, and run Fall, Winter, and Spring quarters.

PACE, King County
PACE offered two 11-week pre-apprenticeship classes, serving a total of 86 individuals.
Program participation by:

- Race:
  - Caucasian 32 percent
  - African American 33 percent
  - Hispanic 20 percent
  - Asian American 6 percent
  - Various others groups at less than 5 percent
- Gender:
  - Male 84 percent
  - Female and 16 percent
- Graduation rate is currently 86 percent

Pacific Northwest Ironworkers, Western Washington
The Pacific Northwest Ironworkers offered four 1-week pre-apprenticeship classes multiple times a year, serving a total of 77 participants.
Program participation by:

- Race:
  - Caucasian 34 percent
  - Hispanic 24 percent
  - African American 16 percent
  - Pacific Islander 12 percent
  - Asian American 7 percent
  - Native American and Alaska Native 5 percent
  - Various others groups at less than 3 percent
- Gender:
  - Male 79 percent
  - Female 21 percent
- Veteran participation 10 percent
- Program completion rate 96 percent
- Retention rate 75 percent over the course of 2 years

- Total apprentice hours reported 97,884.5
- Total Hourly Wages $3,641,923.19
- Total Wages and Benefits $4,897,858.41 (thru August 2019)

With PASS funds, the Ironworkers have been able to reach and serve under represented populations in the state of Washington, and provide training with direct entry into a career with a livable family wage.

PASS Program Funds also went to support the following efforts:

- Youth Employment Summit in Vancouver, March 19, with over 800 students in attendance from the local school districts who interacted with various tradespeople and learned about exciting and high-paying employment opportunities in highway construction and other careers;
- Washington Women in Trades exhibition in Seattle, May 10, an annual event for women in the trades and those interested to learn more about high paying careers in the trades, including those that support highway construction, first responders, transportation agencies, state and local municipalities;
- Puyallup Tribes Tribal Employment Rights Office Career Fair, May 17, where over 50 people attended to learn more about employment opportunities in the trades, state and local government, and in education;
- Genesis Group Employment Fair, June 6, where many opportunities for employment in the trades were shared;
- Membership fees to support and participate in the Regional Pre-Apprenticeship Collaborative for 2019, whose goal is to unite Pre-Apprenticeship Training Providers, Community Colleges, K-12 representatives, Contractors, and Public agencies together to support and promote pre-apprenticeship opportunities that translate into highway construction apprenticeships and long-term careers;
- Multilingual outreach to Northwest Asian Weekly, La Raza del Noroeste, and The Seattle Medium, Spring of 2019, to notify interested vendors in the upcoming Pre-Apprenticeship Support Services Grant Program Acquisition.

Paving the Way with Pre Apprenticeship Support Services: Success Stories

Three Skilled Trades Preparation (STP) graduates from the Spokane Community College, and all PASS grant recipients of pre-apprenticeship training, spoke recently at Spokane Pathways to Apprenticeship. The three women spoke to high school counselors about their path to apprenticeship and how their lives have changed and improved since entering the trades. Two of the women were incarcerated while attending STP and upon Department of Corrections release entered apprenticeship programs, building careers and giving back to the community. Pictured are two third year Ironworkers and one second year Laborer.

Office of Equal Opportunity – On-the-Job Training Program
Pre-Apprenticeship & Supportive Services Program
2019-21 Announcement of Awards

After an extensive and competitive acquisition process for the 2019-21 Biennium, the following organizations have been awarded funds to provide outreach, pre-apprenticeship training, and supportive services to females, minorities, and socially and economically disadvantaged individuals across Washington State, in three Service Levels. While eleven proposals were received, requests for funding totaled over three million dollars, well exceeding the available funding for this first acquisition*. Because the Program's intent is to have providers statewide, the top scoring proposals in each region were awarded, and remaining funds were awarded based on a combination of scoring and the evaluating committee's recommendations. The team of evaluators from outside WSDOT's Office of Equal Opportunity were selected to represent the entire state.

The following eight organizations were selected to receive funding through the acquisition process:

SERVICE LEVEL I (Outreach, Support Services, Employment and Pre-Apprenticeship Training Preparation, and placement into Pre-Apprenticeship Training)

Urban League of Metropolitan Seattle, $110,000.15

The Urban League of Metropolitan Seattle prepares women, men, and youth with barriers to employment to be successful contributors in the workplace and society through pre-employment assessments, training, and training placement assistance.
Counties Served: King, Pierce, Snohomish

SERVICE LEVEL II (Outreach, Support Services, and Multi-Trades Pre-Apprenticeship Training)

JM Perry Tech, $263,280.66

Perry Technical Institute will provide outreach, recruitment, support services, and training for individuals interested in the highway construction trades through three training programs: Agriculture Equipment Technician, Construction and Electrical. The Agriculture Equipment Technician program will prepare students interested in becoming a technician focused on heavy equipment repair, including the mechanical skills identified as in demand for highway construction trades.
Counties Served: Yakima and surrounding counties

Spokane Community College (SCC), $105,834.00

SCC's Skills Trade Preparation Program will be supplemented with support services and training funds to provide equipment, transportation assistance, childcare, and training to individuals enrolled in Spokane Community Colleges' Skills Trade Preparation Program.
Counties Served: Spokane and surrounding counties

Tulalip Tribes TERO Vocational Training (TVTC), $263,280.66

TVTC Construction training is a free intensive program offered to all Native Americans, their spouses, and parents. Students earn a certificate from Renton Technical College or South Seattle Community College upon successful completion. Many TVTC students have successfully launched construction careers earning a livable wage. This program consists of in shop training and "try-a-trade" days at a variety of construction training programs. TVTC students also have the opportunity to engage in outreach programs, all while learning and fostering the spirit of the community.
Counties Served: Snohomish, and open to any Native American in Washington State

ANEW, $263,280.66

ANEW's pre-apprenticeship programs provide outreach, training, support services, job placement, and retention to women, minorities, and other disadvantaged individuals in pursuing non-traditional highway construction careers that provide livable wages. ANEW recently acquired PACE (Pre-Apprenticeship Construction Education), which will increase the capacity of both programs to serve more individuals. ANEW's central location is in Renton, with training sites in Kent and Seattle.
Counties Served: King, Pierce, Snohomish

SERVICE LEVEL III (Outreach, Support Services, and Direct Entry Pre-Apprenticeship Trade Specific Training)

The Pacific Northwest Ironworkers (PNWI), $192,704.80

The PNWI four-week direct entry pre-apprenticeship training program will continue their outstanding work to offer support services and prepare participants to work as an Ironworker, and provide employment opportunities upon completion of the program. Under the Program, the Ironworkers will continue to expand participation in areas of Southwest and Eastern Washington, connecting with existing Ironworker training programs in those regions.
Counties Served: King, Pierce, Clark and surrounding counties, Spokane and surrounding counties

Northwest Carpenters Institute (NWCI), $339,020.00

The NWCI's three week program offers a safe environment where students are given the opportunity to learn the skills and tasks of the trade, with the emphasis always on learning the practical skills of an entry level carpenter apprentice. The Pre-Apprenticeship program prepares the student for the rigors and realities of the construction site. The NWCI will provide outreach, support services, direct-entry pre-apprenticeship training, and placement into the Carpenter's Union with the goal of placing apprentices onto WSDOT jobs.
Counties Served: King, Pierce, Snohomish, Whatcom, Island, San Juan, Skagit, Clallam, Jefferson, Kitsap, Thurston, Mason, Spokane, Grant

Cement Masons and Plasters, $172,600.00

Cement Mason's Direct Entry Pre-Apprenticeship program is designed to get the basic skills needed for men and women who do not come from families with traditional construction experiences. They focus outreach and training into communities who are historically underrepresented and for those coming out of incarceration of juvenile rehabilitation.
Counties Served: Spokane and surrounding counties, King and surrounding counties

** Please note, the PASS Program will be advertising the next acquisition soon for one vendor to provide services under a new PASS Program, WSDOT Youth Direct.*

WSDOT Office of Equal Opportunity
FHWA On-the-Job Training Support Services Program

For Federal Fiscal Year (FFY) 2019, WSDOT received funds from the Federal Highway Administration (FHWA) for the On-the-Job Training Support Services (OJT/SS) program in the amount of $99,920.00.

Program Summary

Purpose Statement

The primary purpose of the WSDOT OJT/SS Program is to prepare women, minorities, and other disadvantaged individuals for entry into the heavy highway construction trades and highway construction related careers, and create a pipeline of individuals ready to work on highway construction projects statewide. OJT/SS will be made available statewide, in support of individuals seeking training that will enable them to enter union apprenticeship or qualify for non-Union "trainee" highway construction jobs.

WSDOT is committed to providing the leadership, opportunities, and foundation to assist in the engagement of women and minorities in Washington State's heavy highway construction trades, to create a pipeline of individuals ready to work on projects statewide, and to retain them in their craft of choice. Continued support will entail offering direct scholarships to qualified individuals, and assisting these pre-apprentices in gaining construction related skills and maximizing those skills in a long-term career. The OJT/SS Program will also continue to support training programs and Construction Career Days in all areas of the state, and support the development of programs in areas of Washington State where none currently exist.

Statement of Problem

The construction industry and public agencies (e.g. King County, City of Seattle, City of Tacoma, Port of Seattle, WSDOT) project a shortage in the heavy highway construction labor force. Recent studies have shown a glaring statewide shortage in the number of women and minorities represented in the trades, which does not mirror the demographics of Washington State.

Continued support for apprentices once they are working continues to be an issue, as retention data is low. Approximately 50 percent of all apprentices (minority, female and white male) are canceling out of apprenticeship programs before they reach Journeyman status.

Progress of the performance period of 2019 includes an increased regional and statewide collaborative effort and partnerships in the region to improve the quality of training, support services, and job placement efforts.

Program Goals

In 2017, WSDOT and Regional Public Owners (e.g. King County, City of Seattle, Port of Seattle, City of Tacoma, etc.) commissioned a study to examine how this labor shortage is affecting the current demographic makeup of today's workforce. The study looked at current and forecasted road construction needs, labor supply/demand as well as the demographic makeup of the labor force. The data reveals apprentice shortages in all construction crafts. Examination of the demographic makeup of apprentices revealed very low contribution rates of female and minority apprentices. Conclusions drawn from the study include:

- For 2019-2022, the road construction industry can expect an average annual region-wide labor shortage of 9.7 percent for the occupations it will need to execute construction projects. Out of 3,360 active construction apprentices within King, Snohomish and Pierce counties in 2017, only 6.8 percent are female.
- Construction projects from Regional Public Owner members will support an estimated 6,700 full-time equivalent (FTE) positions per year through 2022. The top three occupations by demand will be carpenters (1,180 FTEs), heavy and tractor-trailer truck drivers (860 FTEs), and construction laborers (850 FTEs).
- Hourly apprentice participation rates (2015-16) are trending downward for minority male (-7.5%) and Caucasian women (-1%) while Caucasian male's hours are trending upward (+8.2%).
- Data also showed that female construction apprentices took longer to complete their respective apprenticeship programs than their male counterparts.

WSDOT's OJT/SS Program seeks to address both the statewide shortage in apprentices and the lack of female and minority participation in apprenticeship programs through targeted direct scholarships. The scholarship program will allow statewide access to current pre-apprenticeship and academic training programs, including (but not limited to), CDL programs, Electrician training, Diesel Tech training and Heavy Equipment Operators training by use of a stringent vetting process and directing approved funds directly to the training program.

WSDOT developed a plan to achieve the following goals for the October 1, 2018 through September 30, 2019 performance period:

Goals & Objectives

Goal One

The OJT/SS Program will award $94,000 in direct scholarships to up to 65 qualified individuals, providing tuition and assistance to individuals interested in attending a preparation program in the identified highway construction or pre-apprenticeship training programs in the areas OJT supports.

Narrative

WSDOT continues to develop the scholarship program established in the 2016 Statement of Work. The scholarships will continue to support minority and female applicants that are seeking training in the heavy highway construction areas that the WSDOT OJT/SS program supports. Some individuals seeking training in heavy highway construction trades may not be able to attend traditional pre-apprenticeship programs due to location and being unable to travel, but may have access to a specialized program that will provide training in a specific field, such as Heavy Equipment Operator, Truck Driver, or Electrician. WSDOT will pursue partnerships with state colleges, commercial driving schools and other established in-state training programs including the Urban League, Tribal Employment Rights Office Vocational Training Center (TERO TVTC), and Department of Corrections Trades Related Apprenticeship Coaching (TRAC). Existing partnerships include Apprenticeship and Non Traditional Employment for Woman (ANEW), Pre Apprenticeship and Construction Education (PACE), Perry Technical College, Spokane Community College, and the Ironworkers.

www.lni.wa.gov/TradesLicensing/Apprenticeship/About/IntroProg/

Individuals participating in eligible pre-apprenticeship programs that are in need of additional financial assistance are also eligible for this scholarship opportunity.

Objectives

a) Applicants will be screened through an application process that will include gathering information regarding personal references, brief essay, aptitude, and desire to be successful in the heavy highway construction field.

b) Priority may be given to previous scholarship recipients that demonstrated success in their program under their first scholarship to continue to support their move into a highway related career.

c) Scholarship availability will be advertised on a rolling basis on WSDOT's webpage and in targeted email blasts, in the Fall, Winter, and Spring, with a deadline for applications posted. Applications will be reviewed and awarded based on the information presented on the application. Applications will be considered on a first come, first served basis.

d) Tracking participant completion and job placement, with at least 50 percent of those ready for job placement being placed into highway construction trades, Federal-aid projects, and other related careers.

The scholarship program allows for more detailed tracking of recipients that complete training. A web-based survey will be used for follow-up in order to assess program accomplishments and locate any additional barriers that may preclude success on the job.

Scholarship recipients will be tracked as they complete the training program and enter the workforce. As a condition of award, recipients must agree to provide information regarding

program training and attendance, completion, job placement, and follow-up in order to provide statistical information regarding program outcomes. A follow up interview will occur to obtain additional information about their experience, needs and success.

Accomplishments

Federal funds were received in late March 2019, and we have seen a marked increase in scholarship applications coming in from individuals across the state. OJT/SS Program staff have sent email blasts, flyers, spoken at events, and had other public agencies share the information through their email distribution systems, to get the word out about the WSDOT OJT/SS scholarship opportunities available. To date, 38 complete scholarship applications have been received, with 30 awards offered, and eight applicants were declined. Those receiving awards are either completed or in process to having scholarship funds allocated to the students' training providers, totaling just over $73,000. Other completed applications are in the process of being reviewed for award packages. OJT/SS Program staff continue to make this opportunity a priority in discussions and events.

Paving the Way with On-the-Job Training Support Services: Success Stories

The OJT/SS Scholarship Program has been widely appreciated by individuals statewide applying for assistance with highway construction training costs and tuition. Scholarship awards have been distributed to men and women, some who have been previously incarcerated, others who have left the foster care system, and many first generation American citizens living in Washington. Funds have been applied to individuals receiving training as Electricians, Operating Engineers, Carpenters, Truck Drivers and Diesel Mechanics, Cement Masons, and Ironworkers.

Goal Two

Support statewide Construction Career Days by attending and supporting at least three events across the state. Attend other career and conference events where bringing OJT/SS Program information will be beneficial to the target audience. Build strategic and beneficial partnerships across the state with others interested in building the state's construction workforce.

Narrative

The OJT/SS Program understands the benefit of attending and supporting Construction Career Days and other events across the state. WSDOT's attendance and support at these events will help to inform interested individuals about career pathways into the construction industry. Additionally, OJT/SS Program staff will host tables at career/fair venues statewide.

The OJT/SS Program staff will continue to build and strengthen strategic partnerships with other state, regional and community based agencies and organizations to continue to promote the OJT/SS program.

Objectives

a. Attend and/or co-sponsor at least three Construction Career Day type events, and attend appropriate career fairs, conferences and other events.

b. Attend strategically beneficial events and outreach opportunities that lead to partnerships across agencies, Regional Owner Groups, Pre-Apprenticeship training providers, allies, schools, and others. Attend trade shows relevant to OJT/SS recruiting efforts (both contractors and potential apprentices).

Accomplishments

The OJT/SS Program supported the following Construction Career Days (CCD) Statewide to facilitate youth recruitment into the highway construction trades throughout the year:

- Spokane, October 10, 2019, approximately 850 students attended.
- Tri-Cities, October 1, 2019, approximately 630 students attended.
- King County, October 10, 2019, approximately 1,300 students attended; and
- Pierce County, November 13, 2019, approximately 1,300 students attended.

At each event, OJT/SS representatives were on hand to talk about On-the-Job Training Support Services. The OJT/SS Program provided insurance coverage for the events statewide and also supplied limited monetary sponsorships, at a much lower rate compared to previous years, with more financial responsibility resting with the sponsoring groups.

Amber: Breaking Down Barriers to Build a Brighter Future

Six months ago, Amber, who uses the pronouns 'they/them,' graduated from YouthCare's YouthBuild, a six-month pre-apprenticeship program that allows young people to earn their GED and build a thriving career in the construction trades.

Amber began young adult life just like many of us: they fell in love. At first, they felt safe and secure with their partner, who provided a roof over their head and food to eat. Amber hoped for a loving future together, and soon introduced a beautiful son, Jonah, into the family. But over time, Amber's partner became controlling and violent. Amber wasn't allowed to finish school, find a job, or ask friends or family for help. They were forced to rely on their abuser to survive.

After four traumatic years, Amber made a brave choice to escape. "I needed to leave for my son—I couldn't go on like that," they said.

Amber reconnected with relatives in Renton and finally had a moment to plan their next steps. With a four-year-old son, they grew anxious about how they would provide for their family.

"I was searching for jobs but wasn't getting anywhere," said Amber. "I found out about YouthBuild and how it only takes six months to get your GED and find a good job. I thought, maybe I could do that… maybe I could tough it out for six months."

On the first day of class, Amber thought their anxiety was going to get the best of them. Sitting in the classroom, they had a feeling the teacher was going to call on them. Amber felt their skin grow hot and their heartbeat quicken. They sank down into their chair before bolting out of the classroom toward the bathroom. Hidden in the corner of a stall, they began to hyperventilate.

Just as Amber was thinking of calling it quits, Jeanette, YouthCare's Construction Skills Trainer, came in to check on them.

> ***"She was real with me about things I needed to work on, but supportive, too," said Amber. "I thought, okay, these people seem to really care. I can like this place."***

Sticking through YouthBuild wasn't easy. Between dropping off Jonah at daycare, taking a one-and-a-half-hour bus ride to YouthBuild, and working another job at night, Amber was exhausted.

"It was hard. If Jonah was sick, I'd have to find another way to make up time in class. But at YouthBuild, staff understood my hectic schedule. I'd come in later to study one-on-one."

That one-on-one time with staff was a crucial ingredient to Amber's success at YouthBuild. Indeed, individualized attention is often the difference between a young person failing or succeeding in their educational goals.

"I had never gotten that at any other school…and I've been through a lot of them," said Amber. "I have major test anxiety. I'd have a panic attack before every test. But the staff took the time to help me. I ended up acing all of my GED tests."

Support from staff extended beyond the classroom. Staff made sure Amber had everything they needed to succeed in the program, including guidance and support for Jonah.

"YouthCare helped me with so much, like bus tickets and clothes. But I'm most thankful for them helping me with Jonah, because I was the only parent in the group."

By the end of the program, Amber was leading the cohort's student council and ultimately graduated YouthBuild with honors. But their success wasn't just professional—it was also personal.

Amber leading a tour at YouthBuild Exhibition Day

> ***"Before YouthBuild, I never thought I'd be brave enough to tell people my preferred pronouns. The team always encouraged me to be myself. This is who I am."***

This holiday season, Amber is putting the skills they learned at YouthBuild to work by building floating wall shelves as a gift for their loved ones. They are currently working for a small company remodeling homes, and have big dreams of running their own home improvement company one day. They want to hire and advocate for LGBTQ+ people and women in the trades, because they know from experience how hard it is to break through industry norms.

Young people like Amber come to YouthCare full of potential. Yet life circumstances, such as Amber's traumatic experience with domestic violence, can make it hard to find the confidence to achieve that potential. Amber is proof that young people can move beyond barriers and build a thriving future.

Make your year-end gift to support youth like Amber!

2019 WASHINGTON APPRENTICESHIP GROWTH AND EXPANSION STUDY

PREPARED FOR THE

WASHINGTON STATE LABOR COUNCIL

PREPARED BY

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January 2019

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Summary of Results

WAGES examines the impact an apprenticeship's model of governance and funding has on apprentice and taxpayer outcomes for the program, comparing the performance of joint labor-management partnership ("JLMP") apprenticeship programs in Washington state to non-union multi-employer partnership ("MEP") programs,[1] publicly subsidized employer apprenticeships ("PSEA")[2] and plant programs. WAGES' analysis of Washington state and federal data for 2017 finds that, overall, JLMP apprenticeship programs outperform non-union apprenticeship programs in enrollment, completion rates, journey wages and the inclusion and performance of underrepresented groups. A detailed analysis of large programs in the construction trades reveals that JLMP programs also provide a greater return on investment ("ROI") for individual apprentices and taxpayers than comparable MEP programs. Moreover, while public officials have invested millions of taxpayer dollars in newly created PSEA programs, WAGES' analysis finds that JLMP programs in high-growth and strategic industries actually do a better job of providing high-wage, sustainable careers for apprentices. In light of these results, officials should ensure that tax dollars support apprenticeships exhibiting the unique characteristics that make JLMP programs successful. Apprenticeship programs that receive public funding should provide high journey wages, ensure the democratic participation of workers in governance and standard setting, and employ a sustainable funding model that doesn't require taxpayers to finance day-to-day operations.

Data and Methodology

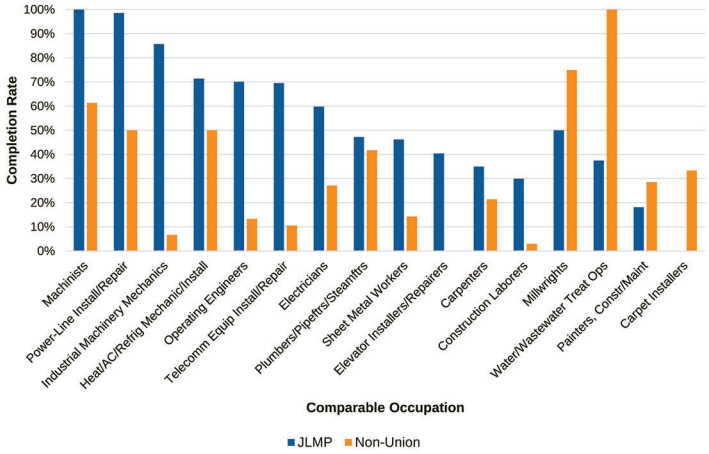
- **WAGES relies on individual apprentice and journey wage data from L&I, occupational wage and demographic data from BLS, and economic estimates from the WAGES ROI Model.** The most recent data available are combined to examine the performance of different apprenticeship models.
- **WAGES uses completion rates,[3] journey wages,[4] inclusion of underrepresented groups, net impact and ROI to compare JLMP and non-union apprenticeships.** The Study compares JLMP and non-union (MEP, PSEA and Plant programs) overall performance, the ROI of JLMP and MEP programs, and alternatives to PSEA programs. WAGES is the first comprehensive examination of the performance of different apprenticeship models in Washington state.
- **The WAGES ROI Model uses completion status, journey wage, average wage, hours worked and occupational wage data to compare twelve established JLMP and MEP construction apprenticeship programs.** The Model uses realistic assumptions to estimate the net impact and ROI for individuals and taxpayers of programs training apprentices in the six largest comparable occupations.
- **WAGES analyzes the performance of three Washington PSEA programs serving high-growth and strategic industries and compares them to similar JLMP programs.** WAGES examines completion rates, journey wages and local occupational average wages to compare the PSEA and JLMP models.

Program Performance

Enrollment and Completion Rates

- **JLMP apprenticeship programs train 83% of all apprentices in Washington.** In 2017, 14,253 apprentices trained in 205 JLMP programs, while 2,897 apprentices trained in 98 MEP, PSEA and Plant non-union programs.
- **The completion rate for JLMP programs was 8 percentage points higher (43.0% vs. 34.8%) than non-union programs.** In 2017, 6 of every 7 successful apprentices in Washington state journeyed out of JLMP programs.
- **Across comparable occupations,[5] JLMP programs had a completion rate that was more than 11 percentage points higher than non-union programs (44.0% vs. 32.2%).** JLMP programs had a higher completion rate in 12 of 16 occupations where both JLMP and non-union programs trained apprentices (**Figure 1**).

Figure 1. Successful Completion Rate for Apprentices by Occupation
2017 Apprentices by Comparable Standard Occupational Classification

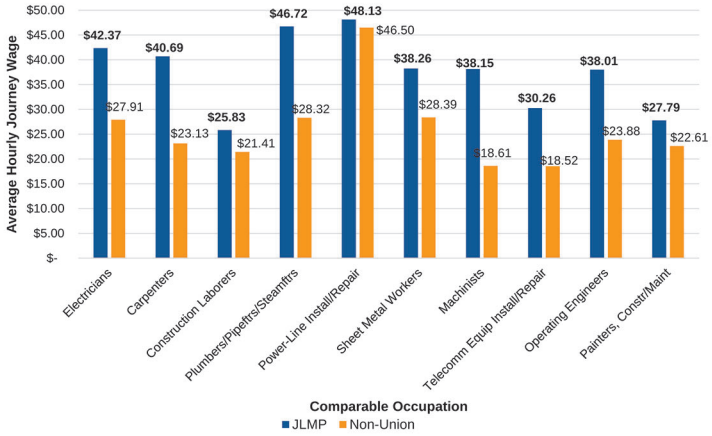


Source: ARTS, Washington State Department of Labor and Industries.

Journey Wages

- **Successful JLMP apprentices achieved journey wages 50.1% higher than non-union completers ($34.42/hour vs. $22.93/hour).** JLMP journey wages were higher across the 10 largest comparable occupations (**Figure 2**) and 13 of 14 comparable occupations overall, sometimes more than doubling non-union journey wages.

Figure 2. Average Journey Wages of 2017 Completing Apprentices
10 Largest Comparable SOC Occupations



Note: All dollar values are expressed in May 2017 dollars. Journey wages in WAGES, drawn from L&I data, represent the lowest regional journey wage for each apprenticeship program. However, some statewide programs pay significantly higher wages in certain regions. L&I reports a journey wage of $26.01/hour for the Northwest Laborers - Employers Training Trust Fund apprenticeship, for instance, but the program pays Journeyman General Laborers $37.27/hour in Western Washington. Journey wage data should therefore be interpreted as a lower bound estimate.
Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

- **JLMP journey wages placed successful apprentices 16.4% above their local occupational average,[6] while non-union journey wages were 15.2% below.** For 40 of 51 occupations, JLMP journeymen finished their program earning above the average local hourly wage, compared to just 10 of 30 occupations for non-union programs.
- **In 14 comparable occupations, JLMP journey wages exceeded the local occupational average 100.0% of the time, while non-union journey wages did so in only 35.7% of fields.** JLMP program journey wages were higher than the local occupational average wage for 14 of 14 occupations, while non-union programs exceeded the average for only 5 of 14 occupations.

Gender Inclusion and Outcomes

- **JLMP programs increased female participation relative to occupational averages by a larger amount than non-union programs, training 571 more female apprentices than expected.** In 2017, the weighted average of female participation in JLMP programs was more than double the national average for those occupations (8.8% vs. 4.2%). For non-union programs, participation was also slightly above the weighted national occupational average for occupations they trained (13.5% vs. 11.3%).
- **For 14 comparable occupations, JLMP programs boosted weighted female participation by significantly more than non-union programs.** JLMP programs more than tripled weighted average national female participation (7.9% vs. 2.8%) in these male-dominated fields, while non-union programs increased it more modestly (4.9% vs. 3.1%).
- **Non-union programs enrolled a slightly higher percentage of women overall, driven by two apprenticeships serving the healthcare and beauty industries.** Women comprised 13.6% of non-union and 8.4% of JLMP apprentices in 2017. However, women training to be medical and dental assistants in Washington Association for Community Health ("WACH") programs, and beauty industry workers in SAGE Apprentice Programs, represented 49.9% of all non-union female apprentices.

Table 1. **Average Journey Wages for Completing Female Apprentices in 2017**
9 Largest L&I Occupations for Completing Women

	JLMP Programs			Non-Union Programs		
Rank	Occupation	#	Journey Wage	Occupation	#	Journey Wage
1	Workers Comp Adjudicator	32	$22.76	Medical Assistant	22	$12.13
2	Laborer	15	$25.25	Dental Assistant	4	$13.29
3	Retail Meatcutter	10	$22.37	Machinist (Aircraft Oriented)	2	$18.61
4	Fire Fighter	8	$21.36	Cosmetologist	2	$12.13
5	Carpenter	7	$40.69	Carpenter	1	$22.56
6	Electrician	7	$42.24	Production Welder	1	$27.85
7	Operating Engineer	5	$36.92	Barber	1	$12.13
8	Instructional Assistant	5	$13.79	Web Developer	1	$36.40
9	Ironworker	3	$32.03	Dispensing Optician	1	$17.47
All	**All Occupations**	**116**	**$27.03**	**All Occupations**	**35**	**$14.23**

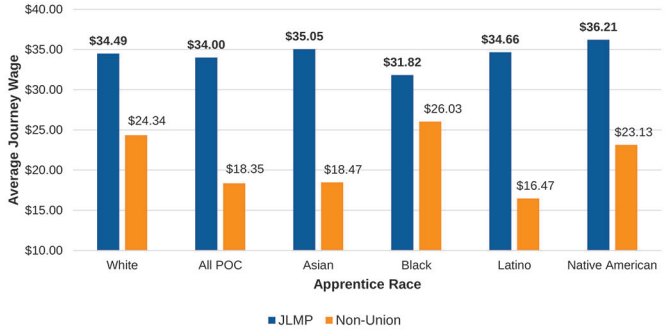
Note: Journey wages in WAGES represent the lower bound estimate for journey wages in each occupation.
Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

- **In 2017 in comparable occupations, female JLMP apprentices completed their programs at 8 times the rate of non-union female apprentices.** Approximately 1 in 3 JLMP apprentices completed their programs in 7 comparable fields, compared to only 1 in 25 non-union apprentices.
- **Female completion rates for all occupations in JLMP (41.3%) and non-union (41.7%) programs were nearly identical, driven almost entirely by high completion rates in the WACH program.** Overall, 26 of the 35 women who successfully completed non-union programs in 2017 were WACH medical and dental assistants, who journeyed out earning $12.13/hour and $13.29/hour, respectively.
- **Female JLMP apprentices earned journey wages that were twice as high as non-union female journey wages ($27.03 vs. $14.23).** In the one comparable occupation, carpentry, JLMP journeywomen out-earned non-union journeywomen $40.69/hour to $22.56/hour. (**Table 1**)

Racial Inclusion and Outcomes

- **JLMP programs trained a slightly higher percentage of apprentices of color.** In 2017, 28.5% of JLMP apprentices and 25.6% of non-union apprentices were apprentices of color.
- **For the majority of comparable occupations, JLMP programs had a higher share of apprentices of color.** Across 18 comparable occupations, apprentices of color made up a higher share of JLMP programs in 10, non-union programs in 7, and an equal share in 1 occupation.
- **Apprentices of color journeyed out of JLMP programs at a higher rate for the majority of comparable occupations, although non-union apprenticeships held a slight edge overall.** For the 10 comparable occupations, JLMP programs had a higher completion rate for apprentices of color (33.8% vs. 24.3%) than for non-union programs. However, non-union programs had a slight edge overall (34.0% vs. 30.7%).
- **Apprentices of color journeyed out of JLMP programs earning journey wages $15.65/hour higher than successful non-union apprentices of color.** Overall, successful JLMP apprentices of color achieved an average journey wage of $34.00/hour compared to just $18.35/hour for apprentices of color journeying out of non-union programs (**Figure 3**).

Figure 3. Average Journey Wages for Completing Apprentices by Race
JLMP vs. Non-Union Programs in 2017



Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

- **The journey wage gap between white apprentices and apprentices of color was 12 times larger across all non-union programs than across JLMP programs.** In 2017, white JLMP apprentices completed their programs earning an average journey wage of $34.49/hour, compared to a $34.00/hour journey wage for completing JLMP apprentices of color. However, white non-union apprentices earned $24.34/hour in journey wages upon completion, compared to an average of $18.35/hour in journey wages for non-union apprentices of color who journeyed out of their non-union program in 2017.

Veteran Inclusion and Outcomes

- **JLMP apprenticeship programs enroll a higher percentage of veterans (13.7%) than non-union programs (12.8%).** The overall percentage of veterans in apprenticeship is higher than for Washington state as a whole, where 9.6% of adults are veterans.
- **Veterans journeyed out of JLMP programs at a higher rate (35.8%) than non-union programs (32.8%).** In 2017, more than five times as many veterans completed JLMP programs (115 apprentices) than non-union programs (22 apprentices).
- **Veterans completing JLMP programs earned an average of $9.55 more per hour in journey wages than those completing non-union programs ($35.64/hour vs. $26.09/hour).** Overall, 71.1% of JLMP veteran completers earned journey wages above the local hourly occupational average, while only 22.7% of veterans completing non-union apprenticeships journeyed out above the local occupational average.

Return on Investment Analysis

WAGES ROI Model - Description

- **The WAGES ROI Model estimates the net impact on apprentice wages, benefits and tax payments, and return on investment for taxpayers, of the largest JLMP and MEP programs in the six largest comparable occupations.** The Model analyzes JLMP and MEP programs training carpenters, construction electricians, construction equipment operators, laborers, plumbers and sheet metal workers.
- **The Model utilizes wage, benefit, cost, wage scale and program length data, and a set of realistic assumptions, to project each program's lifetime impact on apprentices.** The Model relies on L&I ARTS, WTB, BLS OES and other data to create estimates for each apprentice's wages, benefits and tax payments with and without apprenticeship.

WAGES ROI Model - Results

- **JLMP programs have a greater net impact on individuals across all six comparable occupations.** The six JLMP programs increase total compensation for an individual apprentice, net of taxes and program costs, by an average of $810,444 over each apprentice's lifetime, more than double the $353,187 individual net impact for comparable MEP programs (**Table 2**).

Table 2. **WAGES ROI Model Results**
Per Apprentice Individual and Taxpayer Net Impact for 2013-2016 Exiting Apprentices

Occupation	Program	Individual Net Impact	Taxpayer Net Impact	Taxpayer ROI
Carpenter	NWCI	$533,421	$205,976	78x
	CITC - Carpenter	$312,153	$113,163	41x
Construction Electrician	PSEJATC	$1,609,808	$605,809	99x
	CITC - Con. Electrician	$423,045	$160,868	51x
Construction Equip Operator	OERTP	$884,923	$309,652	76x
	INWAGC Operators AC	$169,518	$49,819	13x
Laborer	NWLETT	$393,744	$142,583	57x
	INWAGC Laborers AC	$226,075	$44,842	59x
Plumber	SAPT	$2,103,586	$606,079	69x
	CITC - Plumber	$437,241	$188,893	37x
Sheet Metal Worker	WWSMJATC	$1,345,124	$409,841	64x
	CITC - Sheet Metal	$397,594	$149,522	47x
Six Largest Comparable	**All JLMP**	**$810,444**	**$285,612**	**74x**
	All MEP	**$353,187**	**$134,309**	**38x**

Note: Acronyms refer to Northwest Carpenters Institute ("NWCI"), Construction Industry Training Council of Washington ("CITC"), Puget Sound Electrical JATC ("PSEJATC"), Operating Engineers Regional Training Program ("OERTP"), Inland Northwest Associated General Contractors ("INWAGC"), Seattle Area Pipe Trades ("SAPT") and Western Washington Sheet Metal JATC ("WWSMJATC"). *Source*: WAGES ROI Model.

- **JLMP programs also have a greater net impact for taxpayers across all six comparable occupations.** Public officials who invest taxpayer dollars in training one JLMP apprentice earn an average net return of $285,612 in taxes per apprentice, while MEP programs generate a net impact for taxpayers of $134,309 per apprentice.
- **The return on investment ("ROI") ratio for taxpayers is 74:1 for JLMP programs.** For every $1 that taxpayers spend on public training costs for JLMP apprentices, the same apprentices will generate an estimated $74 more in additional income, sales, Social Security and Medicare taxes, net of unemployment insurance transfers.
- **Higher journey wages in JLMP programs are correlated with higher net individual impact and net taxpayer impact.** The programs with the highest journey wages, Seattle Area Pipe Trades ("SAPT"), Puget Sound Electrical JATC ("PSEJATC") and Western Washington Sheet Metal JATC ("WWSMJATC"), also have the highest net impacts for individuals and taxpayers.

"Public officials who invest taxpayer dollars in training one JLMP apprentice earn an average net return of $285,612 in taxes per apprentice."

Lessons of Success from JLMP Construction Apprenticeships

- **JLMP apprenticeship programs examined in the WAGES ROI Model all had higher journey wages and superior completion rates than comparable CITC and INWAGC programs.** JLMP completion rates were between 14 and 59 percentage points higher than for MEP programs, while journey wages were between $8.94/hour and $23.06/hour above comparable MEP journey wages.
- **JLMP apprenticeship programs rely on the collaborative input of union workers and employers to drive program success.** Employers provide cutting edge industry knowledge, active participation in governance and generous funding. Union workers negotiate high program standards, provide support to fellow members and amplify apprentice voices at the worksite.
- **JLMP programs make concerted efforts to recruit and retain more apprentices from underrepresented groups.** All six JLMP programs examined in the WAGES ROI model had a higher percentage of women in training than their MEP counterparts. JLMP coordinators visit worksites to support women and veteran apprentices, partner with pre-apprenticeship programs for people of color and women, and hire women to conduct outreach as program leaders.

Apprenticeships for Growing Industries

Washington PSEAs

- **Three quarters of the Washington occupations poised to see the highest absolute growth in jobs are not currently covered by apprenticeships.** Among the 100 highest growth occupations, only 24 are currently served by apprenticeships.
- **Government efforts to encourage apprenticeships in new and strategic industries have focused on financing publicly subsidized employer apprenticeships ("PSEAs").** Washington Association for Community Health ("WACH"), Aerospace Joint Apprenticeship Committee ("AJAC") and the Washington Technology Industry Association's ("WTIA") Apprenti programs have received millions of taxpayer dollars to expand apprenticeship in the healthcare, aerospace and tech industries.
- **These PSEA programs have a mixed record journeying out apprentices, and underperform JLMP programs and local occupational averages in terms of journey wages.** WACH, Apprenti and AJAC have varying completion rates, but all offer journey wages well below the average for the occupations they train (**Table 3**).

Table 3. **Average JLMP vs. PSEA Programs**
All Apprentices Active in 2017

Metric	JLMP Avg	AJAC	Apprenti	WACH
Apprentices	145	484	84	135
Completion Rate	43%	52%	29%	90%
Journey Wage	$36.33	$18.53	$35.41	$12.33
Journey/Local Occ Avg	124%	73%	67%	68%
High School or Less	68%	62%	15%	56%
Women vs Occ Avg	+4.5%	-1.6%	+15.5%	+1.0%
POC	29%	23%	52%	47%
Veterans	14%	9%	28%	0%

Note: All dollar values are expressed in May 2017 dollars.
Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries; May 2017 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, Occupational Employment Statistics, Bureau of Labor Statistics, May 2017.

Washington Association for Community Health ("WACH")

- **Approximately 9 of 10 apprentices successfully complete WACH's medical assistant ("MA") and dental assistant ("DA") programs, but they earn journey wages far below industry average.** WACH's journey rate for MAs ($12.13 per hour in May 2017 dollars), for instance, puts journeymen in the bottom 10% of MA earners in every Washington region but Walla Walla.
- **WACH wages also significantly trail JLMP wages for apprentices in other states.** JLMP MA apprentices in Rhode Island journey out earning $10.00/hour more than successful WACH MAs.

Apprenti

- **WTIA's Apprenti program has received $4 million in federal money and a pledge for $4 million more from Washington state, while WTIA members earn billions in profits.** WTIA leader Microsoft, for instance, has earned $72.6 billion in profits since Apprenti's inception, while WTIA member Amazon.com has grown to a market capitalization of almost $1 trillion.
- **For the 84 Apprenti apprentices training in 2017, the journey wage they'll eventually earn is only 66.7% of the local average.** Apprenti software developers journey out at a rate of $35.57/hour (in May 2017 dollars), while the average wage earned by a software developer in Seattle was $57.84/hour.

Aerospace Joint Apprenticeship Committee ("AJAC")

- **The state's largest PSEA, AJAC, journeys out a lower percentage of its apprentices (51.7%) than the comparable IAM/Boeing Joint Apprenticeship Committee (100.0%) across all occupations.** For example, 100.0% of IAM/Boeing industrial machinery mechanic apprentices successfully completed their program, versus 0.0% of industrial machinery mechanic apprentices exiting the AJAC program.
- **The JLMP IAM/Boeing program recruits a higher percentage of apprentices from underrepresented groups.** The IAM/Boeing program has a higher share of apprentices of color (36.8% vs. 22.5%), veterans (10.3% vs. 7.9%) and women (6.9% vs. 4.3%) than AJAC.
- **AJAC's journey wages also dramatically lag behind local averages and their IAM/Boeing counterparts.** Apprentices completing AJAC's program earn an average journey wage equal to 74.0% of their local occupational average. The highest journey wage achieved by an AJAC apprentice completing their program in 2017 was $19.41/hour (in May 2017 dollars) for a tool and die maker. Meanwhile, IAM/Boeing apprentices journeyed out at $42.41/hour.

JLMP Alternatives

- **Many of Washington's fastest growing occupations are currently served by JLMP programs.** For instance, carpenters (#14), construction laborers (#19) and electricians (#41) are all projected to be among the 50 highest growth occupations in Washington over the next 10 years.
- **JMLP programs across the country are starting to serve high growth non-trades occupations, many with a higher share of women and people of color.** SEIU and UNITE HERE have been active in extending registered apprenticeship and raising standards in traditionally lower-wage healthcare, food service and hospitality occupations.
- **SEIU's JLMP apprenticeship programs train apprentices in high growth healthcare occupations in New York, Rhode Island and Philadelphia.** SEIU Locals have started apprenticeship programs for medical assistants, home health aides and community health workers that journey out apprentices into high wage union jobs.
- **UNITE HERE's JLMP programs in Los Angeles, Las Vegas and Boston serve 5 of the 50 highest growth occupations in Washington.** Locals partner with union employers to train waiters, cooks, bartenders and food service workers and place them in jobs with industry-leading benefits.

Recommendations

- **Public officials should support apprenticeship programs providing high-wage opportunities in their field of training.** Officials should only invest taxpayer dollars in apprenticeships that create a pathway to high-skill, high-wage jobs, ensuring higher completion rates and greater taxpayer ROI.
- **Public funds should support the democratic participation of workers in apprenticeship program governance and standard setting.** A strong, institutionalized worker voice raises wages and completion rates, ensures shop floor knowledge is included in curriculum, and improves accountability.
- **Taxpayers should fund innovation, support and inclusion services for apprenticeship programs, not pay for day-to-day operations.** Public funds should help fledgling programs in new industries get off the ground, support apprentices with worksite visits or transportation, and increase inclusion of underrepresented groups. However, given the financial benefits of apprenticeship for employers, there's no reason taxpayers should be responsible for sustaining employer programs.
- **Washington should fund pre-apprenticeship programs directly linked or closely connected to high-performing apprenticeship programs.** Taxpayers should support successful pre-apprenticeship programs like Apprenticeship and Nontraditional Employment for Women ("ANEW"), Pre-Apprenticeship Construction Education ("PACE"), and the Ironworkers Local 86 pre-apprenticeship program that serve as direct pipelines to strong apprenticeship programs.

"Public officials should support apprenticeship programs providing high-wage opportunities in their field of training" and "support the democratic participation of workers in apprenticeship program governance and standard setting."

- **The state should provide support services for pre-apprentices to help with retention, especially for those from underrepresented communities.** Pre-apprenticeship programs represent months of unpaid training, so assistance with childcare, tools and transportation would improve retention.
- **Funding for additional apprenticeship coordinators to help apprentices early in their program would improve retention, especially with vulnerable groups.** New apprentices, female apprentices, apprentices of color and veterans could all benefit from additional support at their worksite.
- **Capital grants or affordable loans would help apprenticeship programs keep machinery, equipment and technology up-to-date.** To build relevant skills, apprentices must train with cutting edge worksite equipment and technology. Tax dollars could help keep program technology current.
- **Public officials should support greater marketing and networking efforts to introduce qualified applicants to apprenticeship.** After applicants are introduced to their programs, apprenticeships do a great job of retaining them. Public marketing and events could help get them in the door.
- **Washington should lead the country by measuring the net impact of individual apprenticeship programs.** In order to intelligently invest public tax dollars, state agencies should begin measuring the return on investment for individual apprenticeship programs.

Washington Apprenticeships for the 21st Century

Governor Jay Inslee's Career Connect Washington Initiative has raised a number of important questions about apprenticeship in Washington state. How should we structure Washington state's apprenticeships to meet the challenges and opportunities of the coming decade? How can apprenticeship programs train skilled workers to fill the openings in Washington's fastest growing industries? Can apprenticeship programs address the growing income gap by providing working class people a pathway to good jobs and good wages? How should we spend public funds to maximize the impact of pre-apprenticeship and apprenticeship programs? The Washington Apprenticeship Growth and Expansion Study ("WAGES") draws on the expertise and experience of apprenticeship coordinators from the state's largest programs, long-time public servants in the apprenticeship field, and a range of public data to provide answers to these questions.

Apprenticeship Models: What Works?

Joint labor-management partnership ("JLMP") apprenticeship programs, funded and overseen by joint apprenticeship and training committees ("JATCs"), train the large majority of apprentices in Washington. However, recent public discussion has centered around newly created publicly subsidized employer apprenticeships ("PSEA") that receive millions of dollars in taxpayer funding and promise to rapidly expand apprenticeships in high-growth industries. Additionally, multi-employer partnership ("MEP") programs run by non-union employers and employer associations have expanded in recent years. WAGES explores what works by examining the relative performance of these different models of apprenticeship in Washington state, comparing JLMP, PSEA and MEP apprenticeship models. The Study compares 170 apprenticeship organizations operating 303 apprenticeship programs across a variety of metrics, including total enrollment, completion rates, journey wages, the inclusion and outcomes of underrepresented groups, net impact for individuals and taxpayers, and taxpayer return on investment.

Investing Public Funds to Best Support Apprenticeship

The Governor's Career Connect Initiative has signaled that investing in skill training and apprenticeship is a priority for Washington state public officials. Relying on an objective, quantitative comparison of apprenticeship models, and incorporating ideas from apprenticeship coordinators managing the state's largest programs, WAGES concludes by providing a menu of powerful policy solutions to grow and expand successful, strategically situated, high-wage apprenticeships in Washington state.

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Study Structure

The Washington Apprenticeship Growth and Expansion Study ("WAGES") is divided into **five sections.**

Data and Methodology

The data and methodology section includes a discussion of WAGES' methodology, public and private data sources used in the Study, and a description of JLMP and non-union apprenticeship models.

Program Performance

The program performance section looks at overall program performance, comparing enrollment, completion rates and journey wages for 303 JLMP and non-union programs, looking at all apprentices, women, people of color and veterans.

Return on Investment ("ROI")

The ROI section analyzes the ROI and net impact of 12 apprenticeship programs, contrasting the largest JLMP program and the largest MEP program serving each of the six largest comparable occupations in Washington state.

Apprenticeships for Growing Industries

The apprenticeships for growing industries section examines the performance of Washington's recently created PSEA programs and explores JLMP alternatives for high growth occupations and strategic industries.

Recommendations

WAGES' final section recommends strategic public investments in high-wage, sustainable, democratically governed apprenticeship programs, as well as support for successful pre-apprenticeship programs, to best meet the needs of Washington's apprentices and growing industries.

Data Sources and Methodology

Data Sources

WAGES uses data from 170 apprenticeship organizations, 303 programs and 567 occupations in Washington state to compare the performance of JLMP programs to non-union apprenticeship programs. WAGES utilizes data from a number of state agencies, federal agencies and individual apprenticeship programs. Demographic, enrollment, program duration, completion and occupation data are drawn from the Washington State Department of Labor & Industries (L&I) Apprenticeship Registration and Tracking System ("ARTS"). The Bureau of Labor Statistics' ("BLS") Occupational Employment Statistics ("OES") provide wages by occupation for Washington's metropolitan statistical areas ("MSAs"), sub-regions and the state as a whole. Washington's Workforce Training and Education Coordinating Board ("WTB") provided entry and exit wages and hours for groups of Washington apprenticeship programs. Washington's Employment Security Department ("ESD") provided Washington job growth projections by occupation for 2016-2026. The U.S. Census Bureau provided demographic information. These data are used to compare the performance of three apprenticeship models defined in WAGES: joint labor-management partnership ("JLMP"), multi-employer partnership ("MEP"), and publicly subsidized employer apprenticeship ("PSEA") programs.

Quantitative Methodology

WAGES examines two broad apprentice groups: all apprentices who participated or completed a Washington state apprenticeship program in 2017, and apprentices who exited one of twelve programs serving six large construction trades between 2013 and 2016. The cohort of 17,150 apprentices active at any point in 2017 include all apprentices who started training in 2017, apprentices who cancelled, completed, transferred or were suspended from their programs in 2017, apprentices who exited their program in 2018 and started training before 2017, and apprentices listed as active who started work before 2017. In order to conduct the ROI analysis, WAGES analyzes wages and hours for apprentices working in six large trades who cancelled or completed their programs between 2013 and 2016, the most recent data available.

A Note on Journey Wages

Journey wages in WAGES, drawn from L&I data, represent the lowest regional journey wage for each apprenticeship program. However, some statewide programs pay significantly higher wages in certain regions. L&I reports a journey wage of $26.01/hour for the Northwest Laborers - Employers Training Trust Fund apprenticeship, for instance, but the program pays Journeyman General Laborers $37.27/hour in Western Washington. Journey wage data should therefore be interpreted as a lower bound estimate.

Wages in WAGES are converted to May 2017 dollars to allow for a direct comparison with BLS' OES occupational data. BLS' most recent occupational wage data is from May 2017. Journey wages for each apprenticeship program analyzed in WAGES are current as of August 2018, and have been deflated to May 2017 dollars using the CPI-U historical CPI index to facilitate a direct comparison of journey wages to state, sub-region and MSA averages. It's important to note that while journey wages are reported for each program, the actual wage that apprentices earn when they journey out is not. Some industries may pay journeymen above their journey rate, while others may pay an hourly wage that's closer to their journey rate.

WAGES holds as many factors constant as possible – occupation, gender, race – while comparing different models of apprenticeship, allowing an apples-to-apples comparison of JLMP and non-union programs. WAGES compares the performance of different apprenticeship models serving the same occupation rather than different occupations, because occupational demographics, wage rates and program success vary substantially. For example, in 2017, 99.7% of Lathing Acoustical Drywall Systems Installer apprentices in Washington were male, while 94.6% of Medical Assistant apprentices in Washington were female.[7] Roofer apprentices were 58.0% apprentices of color, while Firefighter apprentices were 90.0% White.[8] Washington's average hourly wage for Electrical Engineers is $53.06 per hour, while Childcare Workers earn just $13.37 per hour.[9] The completion rate for exiting apprentices from Sheet Metal Programs was 54.6%, but only 12.9% for Roofing programs.[10] Given the way program demographics, wages and outcomes vary dramatically by occupation, it makes sense to directly compare different apprenticeship models which serve the same occupation. A similar logic is used when comparing outcomes for women or people of color. To explore the impact of the JLMP model on women, for instance, WAGES compares the completion rates for JLMP female carpenters to non-union female carpenters, or the enrollment rates for women in JLMP sheet metal programs to women in non-union sheet metal programs. This method helps isolate the impact of the apprenticeship model itself.

A Note on Completion Rates

Completion rates throughout WAGES are calculated by comparing the number of apprentices that successfully complete their program in a given year to the total number of apprentices that either cancel or complete their program in that year. This method is consistent with the methodology of the Washington Workforce Training and Education Coordinating Board ("WTB's") annual apprenticeship reports and provides a useful basis for comparison to other studies.

$$Completion\ Rate_{Year\ X} = \frac{All\ Completing\ Apprentices_{Year\ X}}{All\ Completing\ Apprentices_{Year\ X} + All\ Cancelling\ Apprentices_{Year\ X}}$$

However, many apprenticeship program coordinators calculate completion rates based on a federal method that only includes cancelling apprentices who make it through their probationary period, with early cancellers not counted against a program's completion rate. Since many cancelling apprentices don't make it through their probationary period, the completion rates in WAGES will be significantly lower than completion rates calculated according to this federal method. Probationary period data was not available for all programs in this Study, so WAGES calculates completion rates using all completing and cancelling apprentices.

While WAGES uses all available data and methods to accurately compare JLMP and non-union programs, the individual-level data necessary to facilitate a regression analysis of individual and program performance were unavailable for this Study, so the results should be interpreted conservatively. WAGES attempts to hold multiple factors constant, including exit year, occupation, gender, race and veteran status, and then compares the performance of similar groups and subgroups training in JLMP and non-union programs. However, an individual-level data set with large enough sample sizes and all relevant variables was unavailable for this Study. Additionally, certain data such as age, ability, experience and earnings history were not available. It could be the case that a share of the results attributed to the success of JLMP or non-union programs may be a function of differences in the programs' demographic mix, apprentice skill level, apprentice work experience, or the age of apprentices. However, other studies have found results consistent with WAGES results for Washington state, namely that JLMP apprentices earn higher wages,[11] that joint-labor management programs narrow the gender pay gap,[12] and that workers of color do better in unionized trades.[13]

Apprenticeship Models

Washington's apprenticeship programs are administered by a variety of different organizations, working in vastly different industries, through an array of educational institutions, across the entire state of Washington. Most apprenticeship organizations are a collaborative effort between workers' unions and employers, but some apprenticeship programs are run by an individual employer, a larger trade association or through a grant-funded non-profit. While apprenticeships are concentrated in traditional trades like carpentry or ironworking, Washington's programs train everyone from school secretaries to custodians to firefighters. Related supplemental instruction ("RSI") is provided at community or technical colleges, union training institutes or employer training facilities. In addition to program governance and differences in training facilities, apprenticeships vary in geographic scope. Some provide training for a single worksite, while others encompass dozens of employers working across multiple states.

WAGES makes a fundamental distinction between JLMP programs and programs operated solely by employers. While apprenticeship programs vary in a number of important ways, the most fundamental difference is that JLMP apprenticeship programs are bargained over, formed, designed and administered by workers and their democratically elected representatives. Some employer programs include seats for workers on their governing committees and many consider worker input. However, only JLMP programs are secured by agreements bargained by and voted on by workers themselves. This fundamental distinction explains why JLMP programs have successfully secured higher wages, a larger number of apprentices and superior completion rates than their non-union counterparts.

"Some employer programs include seats for workers on their governing committees and many consider worker input. However, only JLMP programs are secured by agreements bargained by and voted on by workers themselves."

Joint Labor-Management Partnership Apprenticeships

JLMP apprenticeship programs are the most common model of apprenticeship in Washington, training more than 5 of every 6 Washington apprentices in 2017.[14] JLMPs are funded by union workers and their employers, and governed by joint apprenticeship and training committees ("JATC"). Some JLMP programs are small partnerships between a single local workers' union and one employer, and others result from large agreements between international unions and national employers' associations. Woodworkers Local Lodge W536's apprenticeship programs with Weyerhaeuser Longview, for instance, trained 5 apprentices in 2017 to become industrial maintenance electricians, saw filers and industrial maintenance millwrights at the Weyerhaeuser lumber plant in Longview, Washington. The Puget Sound Electrical JATC, on the other hand, oversaw 3 large programs training 1,356 apprentices across Western Washington in 2017, works with dozens of employers, and is the local affiliate of the Electrical Training Alliance, a national apprenticeship partnership between the International Brotherhood of Electrical Workers ("IBEW") and National Electrical Contractors Association ("NECA") that has trained over 350,000 journeymen nationwide.[15]

In a JLMP apprenticeship program, the union and its employer partners create an apprenticeship trust that is typically funded by hourly contributions from employers and union employees determined by a negotiated collective bargaining agreement. A JATC governed by equal numbers of union and employer representatives oversees the trust, hires the executive leadership of the training program and makes sure the trust is financially sustainable. The trust then pays union training centers and/or local community and technical colleges to provide instruction and training material to apprentices.

Non-Union Programs

Multi-Employer Partnership Apprenticeships

The most common model of non-union apprenticeship in Washington state is the multi-employer partnership ("MEP") apprenticeship program. MEP apprenticeships are organizations set up to provide apprenticeship to a larger group of primarily or exclusively non-union employers. MEP programs are often created with seed money from large employer associations, and then rely on per-apprentice or per-year funding from employers to train apprentices. Executives or representatives from participating employers sit on the board and oversee the program. The Construction Industry Training Council of Washington ("CITC"), originally created by the Associated General Contractors, Associated Builders and Contractors and National Utility Contractors Association and now funded through a fee-for-service model for members,[16] is the largest multi-employer apprenticeship in Washington state.[17] CITC apprenticeship programs trained 1,354 apprentices in 2017 in 10 occupations, including construction electricians, plumbers and carpenters. The Inland Northwest Associated General Contractors sponsor apprenticeship programs in Eastern Washington for carpenters, construction equipment operators and laborers[18] and trained 165 apprentices in 2017.[19] Smaller groups like the Spokane Home Builders Association also run apprenticeship programs. WAGES will compare the performance of MEP and JLMP apprenticeships in the Return on Investment section.

Publicly Subsidized Employer Apprenticeships

Publicly subsidized employer apprenticeship (PSEA) programs are controlled by employers but receive a significant subsidy of taxpayer dollars. These apprenticeship programs are administered by non-profits, typically controlled by employer associations, and significantly funded by taxpayer dollars. Established in 2008 by the Washington legislature with $3 million in annual funding,[20] the Aerospace Joint Apprenticeship Committee ("AJAC") is Washington's largest PSEA, training 484 apprentices in 2017.[21] AJAC includes a limited amount of union worker input. Two International Association of Machinists ("IAM") representatives serve on the eight-member governing committee alongside employer representatives,[22] but most apprentices work in non-union shops.[23] The Washington Technology Industry Association ("WTIA") runs the Apprenti PSEA program, overseen by directors from Microsoft, Amazon, union avoidance law firm Davis Wright Tremaine[24] and Washington community colleges and universities. Apprenti received $3.5 million in start-up grants from the U.S. Department of Labor ("DOL") and Washington State Labor & Industries ("L&I") in 2016,[25] $7.5 million from DOL later that year to expand the program nationwide,[26] and a $4 million pledge from Washington state in 2017.[27] In 2017, Apprenti trained 84 apprentices in Washington state. WAGES will compare JLMP apprenticeship programs to PSEA programs in the Apprenticeships for Growing Industries section.

Plant Programs

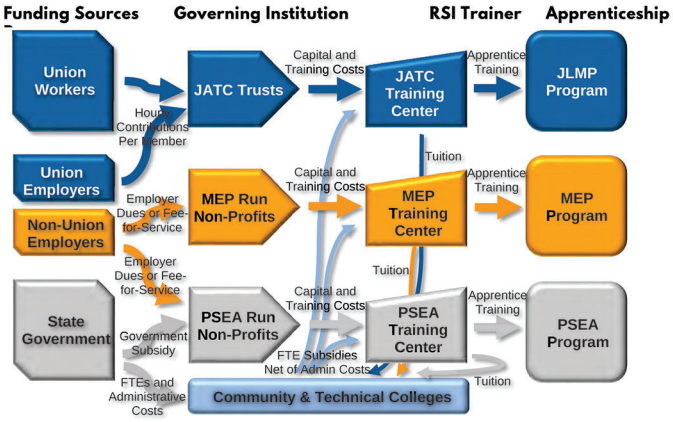
Individual employers can also create and administer apprenticeship programs to train their workforce. In 2017, for instance, Nichols Brothers Boat Builders ran five apprenticeship programs training 83 apprentices in five ship-building trades on Whidbey Island, Evco Electronics worked with 16 low voltage technician apprentices out of Spokane, and 1 apprentice police officer successfully completed their program with the Oak Harbor Police Department.[28] Plant programs tend to be smaller in scope and will be analyzed in WAGES only as part of the larger non-union program group.

Apprenticeship Funding and Program Administration

Apprenticeship programs receive funding from a variety of sources and rely on a variety of institutions to provide related supplemental instruction ("RSI") training (**Figure 4**). Larger JLMP programs like the United Brotherhood of Carpenters JATC or Northwest Laborers Employers Training Trust set up their own training centers to provide RSI training and oversee curriculum. Many JLMP programs also rely on local community and technical colleges ("CTCs") to provide RSI. For instance, the Boilermakers Local 104 apprenticeship trains and provides RSI at South Seattle College's Georgetown Campus.[29] PSEA programs also rely on CTCs for training and RSI to varying degrees. AJAC opened its own Advanced Manufacturing Training Center in Kent in 2017 and also provides training to apprentices at CTCs like Bates Technical College and Everett Community College.[30] MEP programs like CITC run their own training centers, while the Inland Northwest AGC programs partner with Spokane Community College.[31]

In addition to providing training facilities to many programs, Washington state provides per apprentice funds to registered apprenticeships that are administered through the state's CTCs. CTCs keep a significant percentage of this funding as an administrative fee for accreditation, receive tuition payments from apprenticeship programs themselves, and then pay any net remainder out to programs to help with training.

Figure 4. Funding Models for JLMP, MEP and PSEA Apprenticeship Programs



Note: Acronyms include Joint Apprenticeship and Training Committee ("JATC"), Joint Labor-Management Partnership ("JLMP"), Multi-Employer Partnership ("MEP"), and Publicly Subsidized Employer Apprenticeship ("PSEA"). Many JATC Trust, MEP Run Non-Profits and PSEA Run Non-Profits also rely on community and technical college training centers and classrooms to train apprentices.

Female Journey Wages

In addition to superior completion rates in comparable trades, women journeying out of JLMP programs in 2017 stood to earn almost twice as much, on average, as women journeying out of non-union apprenticeship programs.[80] The average journey wage for a woman completing a JLMP program in 2017 was $27.03/hour, compared to just $14.23/hour for women completing non-union programs.[81] The non-union statistics are somewhat skewed by the large percentage of female completers (74.3%) who journeyed out of WACH programs, where medical assistant journeywomen complete the program earning relatively low wages.[82] However, even after removing the relatively low-paid WACH journeywomen, the average journey wage for the remaining female completers from non-union programs is $19.76/hour, $7.26/hour below the female union journeywoman average. In the one occupation where women journeyed out of both union and non-union programs, union journeywomen carpenters earned an average journey wage of $40.69/hour, compared to $22.56/hour for non-union journeywomen carpenters.[83] Whether you hold occupation constant or look at completing journeywomen as a whole, JLMP journeywomen earn significantly more than their non-union counterparts.

Racial Inclusion and Outcomes

Apprentice of Color Enrollment

Analyzing apprenticeship program performance on racial inclusion by occupation is challenging because demographic data by occupation is unavailable at the state level, and Washington's demographics vary substantially from the national averages that are available. The Current Population Survey does not capture racial demographic data for occupations at the state level. National occupational data by race is available, but Latino workers are not separated out from the White, Black and Asian racial categories. Additionally, Washington's racial demographics vary substantially from nationwide racial demographics, with a higher share of White workers, a share of Black workers equivalent to only 1/3rd the national average, a lower share of Latino workers and a higher share of Asian workers. Consequently, it is not possible to measure racial inclusion by program compared to a national occupational average.

"Apprentices of color completing JLMP programs earned an average journey wage of $34.00/hour in 2017, compared to only $18.35/hour for apprentices of color from non-union programs."

In 2017, JLMP programs enrolled a higher percentage of apprentices of color than non-union programs overall, as well as in 10 of 18 comparable occupations. Overall, 28.5% of apprentices training in JLMP programs in 2017 were apprentices of color, compared to 25.6% in non-union programs.[84] Across the 18 occupations where apprentices trained in both JLMP and non-union programs, the JLMP programs trained a higher percentage of apprentices of color in 10 occupations, non-union programs performed better across 7 occupations, and the programs performed equally in 1 occupation. For the five largest occupations, JLMP programs trained more apprentices of color to be electricians (21.5% vs. 19.7%), laborers (35.8% vs. 25.2%) and plumbers, pipefitters and steamfitters (20.3% vs. 11.3%), while non-union programs performed better in training carpenters (37.7% vs. 30.2%) and sheet metal workers (34.0% vs. 20.2%) of color.[85]

Apprentice of Color Completion Rates

JLMP programs successfully journeyed out a higher percentage of apprentices of color in 7 of 10 comparable occupations in 2017. For the 10 comparable occupations, 153 of 453 exiting apprentices of color (33.8%) successfully completed their JLMP programs in 2017, while 26 of 107 apprentices of color (24.3%) exiting non-union programs completed them.[86] For instance, among electrician apprentices of color, 49.1% of exiting JLMP apprentices successfully completed their programs versus 13.9% of non-union

apprentices.[87] Fourteen of fifteen exiting telecommunications equipment installer and repairer apprentices of color completed their JLMP programs in 2017, while all 5 non-union apprentices of color who exited their programs did not.[88] In comparable trades, JLMP programs did a better job of journeying out apprentices of color than non-union programs. However, overall, non-union programs journeyed out a slightly higher percentage of apprentices of color than JLMP programs (34.0% vs. 30.7%), driven in large part by WACH's high completion rates.[89] Excluding WACH, the non-union completion rate for apprentices of color dropped over 10 percentage points to 23.3%.[90]

Apprentice of Color Journey Wages

Apprentices of all races journeyed out of their JLMP programs at much higher wage rates than non-union programs, and the JLMP wage premium was higher for apprentices of color. Apprentices of color completing JLMP programs earned an average journey wage of $34.00/hour in 2017, compared to only $18.35/hour for apprentices of color from non-union programs.[91] This $15.65 per hour (or 85.3%) JLMP wage premium for apprentices of color was significantly larger in both absolute and percentage terms than the JLMP premium for white apprentices completing their programs. Additionally, the average journey wage rate for white apprentices ($34.49/hour) and apprentices of color ($34.00/hour) were essentially the same for those journeying out of JLMP programs, while white apprentices completing non-union programs earned 32.7% more than apprentices of color completing non-union programs ($24.34/hour vs. $18.35/hour).[92]

Veteran Inclusion and Outcomes

Enrollment

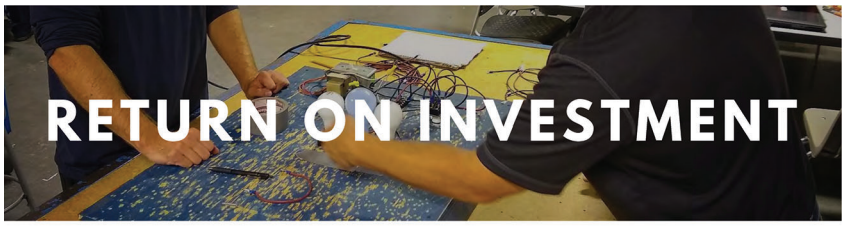
Veterans comprise a slightly higher percentage of apprentices training in JLMP apprenticeship programs than non-union programs. In 2017, 13.7% of JLMP apprentices and 12.8% of non-union apprentices were veterans.[93] Among apprenticeship programs reporting data for 100 or more apprentices in 2017, the International Union of Elevator Constructors Local 19 - National Elevator Industry Educational Program (24.8%), Puget Sound Electrical JATC (21.3%), Southwest Washington Electrical JATC (19.5%) and CITC of Washington's Construction Electrician Program (18.8%) all trained a higher than average percentage of veteran apprentices. Overall, the share of veterans in apprenticeship was higher than for the population of Washington state as a whole, where 9.6% of adult Washingtonians are veterans.[94]

Completion Rate

Veterans completed JLMP programs at a higher rate than non-union programs in 2017. Overall, 115 of 321 veterans exiting JLMP programs in 2017 (35.8%) successfully journeyed out, compared to 22 of 67 veterans exiting non-union programs (32.8%). Certain apprenticeship programs journeyed out higher percentages of veterans, like the Washington State Firefighters JATC where 20 of 20 veterans successfully completed the program in 2017, or Puget Sound Electrical JATC's where 55.9% of 34 exiting veterans completed their program.[95] Overall, veterans had a lower successful completion rate (35.3%) than all exiting apprentices as a whole (41.6%).

Journey Wages

Veteran apprentices journeying out of JLMP programs earned $9.55/hour more than veterans completing non-union programs in 2017. The 115 veteran apprentices that completed JLMP programs earned an average journey wage of $35.64/hour, while the 22 veterans completing non-union programs earned an average journey wage of $26.09/hour.[96] Only 22.7% of completing non-union veteran apprentices had journey wages above the local mean for their occupation, vs. 71.1% of veteran apprentices journeying out of JLMP programs.[97]



Return on Investment Analysis

Introduction

While the Program Performance section compared the performance and inclusion metrics for JLMP and non-union programs, WAGES' return on investment analysis calculates the estimated extra earnings for apprentices and taxpayers generated by both JLMP and MEP programs. Enrollment, completion rates, journey wages and inclusion are important metrics of apprenticeship success. A return on investment ("ROI") model can add another layer of depth by estimating the impact that an apprenticeship program has on an apprentice's lifetime earnings and benefits. The model can also estimate a ROI for taxpayers by comparing the cost of public investment in training to future increases in taxes paid by higher earning journeymen. In order to calculate these individual and taxpayer impacts, and analyze what effect program model has on ROI, WAGES compares the largest and most established JLMP and MEP programs in the state. This comparison provides insight on how different apprenticeship models may serve apprentices and taxpayers as they are expanded to new industries.

The longevity, size and success of Washington's JLMP and MEP construction apprenticeship programs makes them an ideal group to analyze in an ROI model. The Seattle Area Pipe Trades ("SAPT"), Western Washington Sheet Metal JATC ("WWSMJATC"), Laborers-Employers Training Trust Fund ("NWLETT"), Puget Sound Electrical JATC ("PSEJATC"), Washington United Brotherhood of Carpenters JATC and Operating Engineers Regional Training Program ("OERTP") JLMP programs have all been operating for over 40 years.[98] In 1985,[99] the Associated General Contractors ("AGC"), Associated Builders and Contractors ("ABC") and National Utility Contractors Association ("NUCA") partnered[100] to create the largest MEP program, CITC, which trains four occupations included in the Model. Together, the twelve programs analyzed by the WAGES ROI Model trained 6,200 apprentices in 2017, 36.1% of all apprentices in the state.[101] Additionally, 1,839 apprentices journeyed out of these programs over the past five years.[102] These large, established JLMP and MEP programs provide an ideal comparison group to look at how apprenticeship model affects ROI.

"The longevity, size and success of Washington's JLMP and MEP construction apprenticeship programs makes them an ideal group to analyze in an ROI model."

WAGES compares outcomes for the six largest JLMP and six largest MEP programs serving the largest comparable construction occupations to understand what role the model of apprenticeship plays on program outcomes. The WAGES ROI Model examines apprenticeship programs for carpenters, construction electricians/inside wiremen, construction equipment operators, laborers, plumbers and sheet metal workers. For each occupation, the Model compares the ROI and net impact on apprentices and taxpayers of the largest MEP and JLMP program. The results can be used to inform policymaking decisions on which type of apprenticeship programs to invest in, both in existing trades and new occupations, and help apprentices make decisions on which apprenticeships produce the greatest individual returns. For both individuals and taxpayers, WAGES finds that JLMP programs yield a far greater return on investment and net impact than non-union MEP programs.

Return on investment and Net Impact of Washington's Apprenticeship Programs

Calculating an apprenticeship program's return on investment ("ROI") for taxpayers is a useful way to measure program impact and make public investment decisions. Conceptually, taxpayer ROI attempts to compare the extra net taxes in a world where workers go through the apprenticeship program and earn higher wages, to net taxes for taxpayers in a world where the same workers do not go through the program. The additional income, sales, Social Security and Medicare taxes resulting from the program are compared to any additional costs incurred to pay for the program to calculate a taxpayer ROI. Public officials can then compare ROIs for different apprenticeship programs, or different workforce development programs in general, to make decisions about how best to invest tax dollars in the present to generate additional tax revenue in the future.

The ROI and net impact of an apprenticeship program for individual apprentices provides similar information about financial returns to individuals. For apprentices, the net impact and ROI of an apprenticeship program is a comparison of the additional wages and benefits (net of taxes) they earn over the course of their lifetime, minus the tuition, books and other costs they incur to go through the program. Net impact and ROI measurements can help individual apprentices make decisions about where they want to spend thousands of hours training in order to build a high-wage, high-skill career.

Washington's Workforce Training and Education Coordinating Board ("WTB") conducts regular ROI and net impact analyses of Washington's workforce development programs, including apprenticeship. WTB contracts with the W.E. Upjohn Institute for Employment Research ("Upjohn") to conduct sophisticated analyses for 12 of Washington's workforce development programs, including apprenticeship. Upjohn's net impact and cost-benefit analysis "attempts to answer the question of how outcomes compare to what would have happened to participants if there were no program, and individuals were left to their next best alternatives."[103] To model what would happen in this alternative universe where apprentices did not enroll in their program, Upjohn creates a demographically similar comparison pool of workers who sign up for job search services at Washington Work Source offices, but don't participate in a workforce development program. By comparing the wage, benefit and tax results for participants in workforce development programs to the wage, benefit and tax results for this demographically similar group of workers, Upjohn can theoretically attribute the difference in outcomes between the two groups to the workforce development program.

Upjohn found "individual apprentices stood to earn $342,560 in additional total compensation over their lifetimes. Taxpayers, meanwhile, earn $103,239 in additional taxes."

The net impacts of apprenticeship programs in Washington are positive and very large. Upjohn's 2016 analysis looked at completing and non-completing apprentices who exited their programs in 2010-2011 and 2012-2013, finding annual earnings increases of almost $13,800 per year in 2016 dollars.[104] Projecting these results forward over the lifetime of an apprentice,[105] Upjohn found that apprentices earned $258,676 more in gross wages, $103,470 more in fringe benefits, and $55,728 more in gross total compensation during training than they would have earned had they not participated in their program.[106] After subtracting away program costs and taxes, individual apprentices stood to earn $342,560 in additional total compensation over their lifetimes. Taxpayers, meanwhile, earn $103,239 in additional taxes, net of program costs.[107] Apprenticeship has the second highest net impact of any workforce development program in the state.[108]

However, Upjohn's analysis does not examine the ROI or net impact for individual apprenticeship programs. Programs with higher completion rates, higher journey wages and more benefits, all else equal, will likely see higher ROIs for taxpayers and net impacts for apprentices. Since JLMP programs have achieved higher completion rates, better journey wage standards and larger benefit packages, they will theoretically produce greater returns for individuals and taxpayers. To test that theory, WAGES uses the WAGES ROI Model to compare the ROI for taxpayers and net impact for individuals for the largest JLMP program and largest MEP program serving the six largest comparable occupations.

The WAGES ROI Model - Description

WAGES develops an economic model of ROI and net impact that allows for comparison of different apprenticeship programs and models. Upjohn's sophisticated statistical analysis examines the ROI and net impact of all apprenticeship programs in Washington state, but is not applied to individual apprenticeship programs. WAGES employs an economic model ("WAGES ROI Model") to estimate the ROI and net impacts of twelve apprenticeship programs (**Table 5**). The WAGES ROI Model is an economic model that relies on a large set of assumptions, not a statistical model. The results should, therefore, be interpreted conservatively as estimates providing a basis for comparison, rather than precise figures. Nonetheless, the WAGES ROI Model utilizes the best data available, realistic economic assumptions, and results in ROIs and net impacts that are broadly consistent with the Upjohn analysis.

Table 5. **WAGES ROI Model Apprenticeship Programs**
Largest JLMP and MEP Program in Six Largest Comparable Occupations

Occupation	JLMP Program	MEP Program
Carpenter	Northwest Carpenters Institute	Construction Industry Training Council of Washington - Carpenter
Construction Electrician	Puget Sound Electrical JATC	Construction Industry Training Council of Washington - Construction Electrician
Construction Equip Operator	Operating Engineers Regional Training Program	Inland Northwest Associated General Contractors Operators Apprenticeship Committee
Laborer	Northwest Laborers-Employers Training Trust	Inland Northwest Associated General Contractors Laborers Apprenticeship Committee
Plumber	Seattle Area Pipe Trades	Construction Industry Training Council of Washington - Plumber
Sheet Metal Worker	Western Washington Sheet Metal JATC	Construction Industry Training Council of Washington - Sheet Metal

Note: "Largest comparable occupations" are defined as the top ten occupations with the largest number of 2017 enrolled apprentices where both JLMP and MEP programs trained apprentices. "Largest program" is defined as the JLMP or MEP program with the largest number of exiting apprentices for those occupations in 2017.

WAGES applies the WAGES ROI Model to twelve programs (six JLMP and six MEP) serving the six largest apprenticeship occupations trained by both a JLMP and MEP program between 2013 and 2016.[109] The WAGES ROI Model universe includes all apprentices in the six relevant occupations who completed or canceled their program between July 1, 2013 and June 30, 2016, excluding apprentices who transferred or trained in multiple programs.[110] Staff at WTB provided pre-program earnings, post-program earnings, pre-program hours and post-program hours data for three program years – 2013/2014, 2014/2015 and 2015/2016 – for both completers and non-completers for the group of twelve programs as a whole. This was the most up-to-date data available, and the most granulated wage and hours data provided.

For each apprentice, the WAGES ROI Model compares data for their actual participation in apprenticeship to a hypothetical model where they never trained as an apprentice. The WAGES ROI Model uses on-the-job training ("OJT") hours and wage scales data for individual apprentices reported by L&I to estimate actual apprentice earnings, benefits and taxes during training, assuming a starting age of 28 for every apprentice. The Model then uses average wage data supplied by WTB to estimate apprentice earnings after completing their program, projecting this out for the remainder of their career (**Figure 6**). The hypothetical model without apprenticeship uses each apprentice's pre-apprenticeship hours and wages, adjusted for

Joint Labor-Management Partnership – A Model That Works

JLMP apprenticeships have a number of advantages that allow them to outperform non-union apprenticeship programs. JLMPs are funded by union-employer trusts that are contractually secured for years at a time. JLMP programs often partner with industry associations representing multiple employers, allowing for the sharing of both training costs and benefits. Furthermore, JLMP programs provide higher wages than comparable non-union programs. This higher wage, and union members' incentives to grow the union, help drive a higher completion rate. Finally, unions have launched a number of initiatives to benefit members and increase the inclusivity of their programs.

JLMP programs are funded by contributions based on union worker hours secured by a collective bargaining agreement. Unions and employers make contributions to a jointly administered trust that distributes training funds to JLMP apprenticeship programs. The funding levels are secured in collective bargaining agreements, negotiated and voted on by union workers, that can last for 6 years or longer between renewals. This contractually secure funding allows JLMP programs to plan for the long term and avoid reliance on taxpayers.

Unions partner with industry associations to spread the costs and benefits of training programs. Individual employers are often reticent to start apprenticeship programs because they fear that after spending thousands of dollars to train and credential an apprentice, that worker will take their newfound skills to another employer. By partnering with associations of employers, unions spread the costs of the program to a broader group of employers, and the benefits are then widely shared as trained journeymen are able to transfer between union employers based upon employer demand.

"The higher wages in JLMP apprenticeships incentivize apprentices to stick with and complete their programs."

JLMP programs provide apprentices with much higher wages and benefits than non-union programs. The same collective bargaining process that enables the creation of large training trusts also allows union workers to bargain for higher wages and benefits. Unions can secure a higher journey wage for JLMP apprentices than their non-union counterparts, especially since union representatives sit on the governing committees for their apprenticeship programs. These higher wages and stronger benefits improve the lives of successful apprentices after they complete their programs.

Higher wages and greater buy-in drive lower turnover and higher completion rates for union apprentices. The higher wages in JLMP apprenticeships incentivize apprentices to stick with and complete their programs. Additionally, every other union member has an incentive to help and grow the apprenticeship program. A larger number of talented apprentices means a larger number of future union members and a more powerful voice at the bargaining table.

The labor movement has launched a number of successful initiatives to support women, people of color and veterans, helping JLMP programs train apprentices from these underrepresented groups. The Washington State Labor Council's race and labor initiative, launched in 2015, aims to erase racial disparities and barriers to participation in union workplaces and programs.[32] At least 10 Washington unions have partnered with the Apprenticeship & Nontraditional Employment for Women ("ANEW") pre-apprenticeship program encouraging women to enter the trades.[33] The Washington State Building and Construction Trades Council, which represents over 100,000 union construction workers, was the first state Council in the country to start a pre-apprenticeship program, Pre-Apprenticeship Construction Education ("PACE"), to serve a "diverse population" of "women, men, people of color, ex-offenders, [and] veterans."[34] These efforts help JLMP programs include a higher share of apprentices from underrepresented groups.

Enrollment and Completion Rates

Enrollment

JLMP apprenticeship programs train 83% of all apprentices in Washington state.[35] In 2017, there were 14,253 apprentices training in 205 JLMP programs funded by 98 joint apprenticeship and training committee ("JATC") trusts. The largest JLMP organizations were the Washington State United Brotherhood of Carpenters JATC (2,497 apprentices), Northwest Laborers Apprenticeship Committee (1,480 apprentices) and Puget Sound Electrical JATC (1,356 apprentices).[36] An additional 2,897 apprentices trained in 98 programs run by 72 plant, multi-employer partnership ("MEP") and publicly subsidized employer apprenticeship ("PSEA") organizations.[37] This includes 1,354 apprentices training with the Construction Industry Training Council of Washington ("CITC"), 484 with the Aerospace Joint Apprenticeship Committee ("AJAC") and 135 apprentices training with the Washington Association for Community Health ("WACH").[38]

Completion Rates

Nationally, studies find that JLMP programs have a higher completion rate than non-union apprenticeship programs. A 2013 analysis by the Aspen Institute found that for the building trades, completion rates for JLMP apprenticeship programs were 6 percentage points higher (37% vs. 31%) than non-union programs.[39] A 2005 study from Oregon found that "on a trade-by-trade basis, union programs had higher completion rates than their non-union counterparts."[40] A 2004 AFL-CIO study found that nationally, non-union Associated Builders and Contractors programs journeyed out apprentices at half the rate of JLMP programs.[41] A 2002 Pennsylvania study found that completion rates were 15 percentage points higher in JLMP apprenticeships than in non-union programs.[42] Consistent with these findings, an analysis of ARTS data reveals that JLMP programs in Washington maintain much higher completion rates than non-union programs.

In Washington, apprentices training in JLMP programs had a significantly higher rate of successful completions than those in non-union programs. Overall, 3,238 apprentices completed or cancelled JLMP programs in 2017, while 640 completed or cancelled non-union programs. Among these exiting apprentices, the successful completion rate for JLMP programs was more than 8 percentage points higher than for non-union programs (43.0% vs. 34.8%).[43] In 2017, 86.2% of all successful apprentices in Washington state who journeyed out of their programs trained in JLMP apprenticeship programs.[44]

JLMP programs had a higher successful completion rate across 12 of 16 comparable occupations where both JLMP and non-union programs trained apprentices.[45] Comparing completion rates within the same occupation can provide a more accurate assessment of program success because cancellation and completion rates vary substantially for different occupations. For example, a national 2013 study found that roofers had a cancellation rate almost three times higher than elevator installers and repairers (64% vs. 23%).[46] Washington's occupations display similar patterns. Holding occupation constant, JLMP programs outperformed non-union programs. For instance, electrician apprentices successfully completed JLMP programs at double the rate of non-union programs (59.8% vs. 27.2%).[47] Among laborer apprentices leaving their programs in 2017, those exiting JLMP programs were ten times more likely to successfully journey out (30.0%) than in non-union programs (3.0%).[48] The overall completion rate across these 16 comparable occupations was 44.0% for JLMP programs and 32.2% for non-union programs.[49]

Journey Wage Rates

Journey Wage Comparison

Apprentices journeying out of JLMP programs earned an average journey wage[50] of $34.42/hour, compared to $22.93/hour for completers of non-union programs.[51] This JLMP journey wage premium is consistent with premiums reported in studies from other states, and the overall gap between union and non-union wages. In Michigan, a 2017 study found that apprentices earned an average of $22.21/hour completing JLMP programs compared to $14.55/hour after completing non-union programs.[52] Nationally, union workers earn 25% more in median weekly earnings than non-union workers.[53] Washington's JLMP programs demonstrate the same wage premium, and it remains when holding occupation constant.

For 13 of 14 comparable occupations in 2017, JLMP journey wages were between 3.5% and 105.1% higher than for non-union journeymen.[54] For example, machinist journeymen earned an average hourly journey wage[55] of $38.15/hour after journeying out of JLMP programs, but only $18.61/hour in journey wages upon completion of non-union programs. Among heating, air conditioning, and refrigeration mechanics and installers, the JLMP journey wage premium was $22.22 per hour ($49.73/hour vs. $27.51/hour).[56] Journey JLMP carpenters achieved an average journey wage of $40.69/hour in 2017, compared to $23.13/hour for journeymen completing non-union carpentry programs.[57] This substantial JLMP journey wage premium provides JLMP apprentices a much higher standard of living upon program completion, and likely contributes to the higher successful completion rates for JLMP programs.

Journey Wages Compared to Local Occupational Average Wages

JLMP programs provide journey wages that place successful apprentices 16.4% above their local occupational average wage, while non-union programs journey out apprentices 15.2% below their local mean wage. For each standard occupational classification ("SOC"), BLS publishes average hourly wages earned within each MSA, micropolitan statistical area and subregion in Washington state. WAGES calculates an estimate for the average hourly wage for each apprentice's occupation and area by assuming they work in their zip code. By comparing this estimate to an apprentice's journey wage, WAGES attempts to measure how well apprentices are paid relative to other workers in their trade and area. Across Washington state, apprentices who journeyed out of JLMP programs stood to earn journey wages equal to 116.4% of their local occupational mean wage, compared to only 84.8% of the local average for non-union completers.[58]

Table 4. JLMP Journey Wages vs. Local Occupational Average
Journey Wages for 2017 JLMP Completers by Largest SOC Occupations

SOC Occupation	2017 JLMP Completers	Avg. JLMP Journey Wage	Avg. Local Occ. Wage
Electricians	162	$42.37	$31.20
Carpenters	157	$40.69	$27.89
Firefighters	142	$21.36	$35.05
Construction Laborers	122	$25.83	$22.80
Structural Iron and Steel Workers	72	$32.17	$37.18
Power-Line Installers/Repairers	70	$48.13	$39.94
Sheet Metal Workers	61	$38.26	$30.91
Plumbers/Pipefitters/Steamfitters	59	$46.72	$34.11
Telecomm Equipment Installers/Repairers	48	$30.26	$27.96
Butchers and Meat Cutters	47	$22.26	$20.16

Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

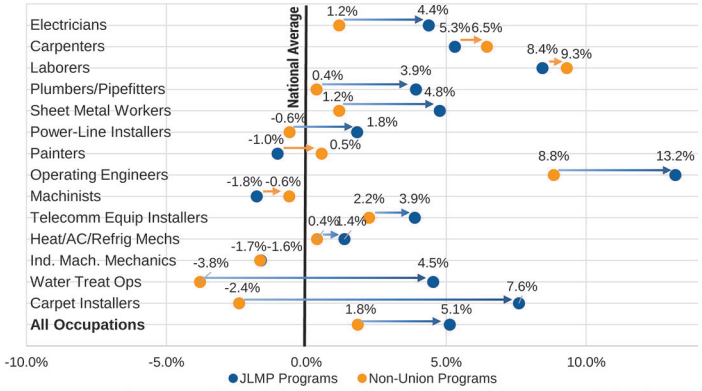
Apprentices journeying out of JLMP programs in 2017 earned journey wages above their local occupational average for the large majority of occupations (40 of 51).[59] Journey JLMP stonemasons journeyed out of their programs earning 2.1x the local average for their occupation, JLMP automotive body and related repairers earned 1.5x the local occupational mean wage, and JLMP tree trimmers and pruners earned 1.4x the local occupational mean.[60] Non-union programs, on the other hand, were able to provide journey wages above the local mean for only 10 of 30 occupations for which data was available. For instance, non-union carpenters journeyed out earning only 84.8% of their local mean wage, non-union web developers only 77.9% of their local mean and non-union medical assistants only 71.4% of their local mean.[61] Across the 14 occupations where JLMP and non-union programs both journeyed out apprentices, JLMP apprentices earned journey wages above the local average for all 14 occupations, while non-union apprentices journeyed out above the local average for only 5 occupations.[62] It's clear that JLMP apprenticeship programs do a better job of launching journeymen into careers where they earn well above a typical worker in their occupation and area.

Gender Inclusion and Outcomes

Female Enrollment

While more than 9 in 10 Washington apprentices are men, a comparison of the gender composition of Washington's apprenticeship occupations to the national averages for each occupation can provide a benchmark for gender inclusion in specific trades. In 2017, BLS' Current Population Survey captured the gender composition of 361 occupations.[63] Occupational gender ratios ran the gamut from male-dominated professions like brickmasons (99% male), to female-dominated professions like preschool and kindergarten teachers (98% female).[64] By comparing the gender ratios in occupations covered by Washington's apprenticeship programs to the national average for those same occupations, it's possible to gauge how well these programs are doing at bringing women into the traditionally male-dominated world of apprenticeships.

Figure 5. JLMP and Non-Union Female Participation vs. National Average
2017 Share of Women for Largest 14 Comparable Occupations



Source: ARTS Database, L&I; Table 11. Employed persons by detailed occupation, sex, race, and Hispanic or Latino ethnicity, Labor Force Statistics from the Current Population Survey, U.S. Census Bureau, 2017.

JLMP apprenticeship programs did a better job of engaging female apprentices than non-union, employer-run programs in 2017. There were 46 occupations trained by JLMP apprenticeship programs in Washington state for which national data on gender composition was available.[65] In these occupations, the percentage of female apprentices training in the JLMP programs was more than twice the weighted national average (8.8% vs. 4.2%).[66] By doubling the national average in female participation, the state's JLMP apprenticeship programs trained 571 more female apprentices in 2017 than would be expected according to the national average.[67] Washington's non-union apprenticeship programs also trained a slightly higher percentage of women than the national weighted average in the 39 occupations for which data was available (13.5% vs. 11.3%).[68] This translates into 62 more female apprentices training in non-union programs than would have been training had the programs enrolled women at the national average rate for their occupations.

Across the 14 directly comparable occupations where both JLMP and non-union programs trained apprentices, JLMP programs achieved female participation in excess of the national average at a rate almost three times larger than in non-union programs. In 2017, there were 14 occupations where national gender composition data was available and both JLMP and non-union programs trained apprentices (**Figure 5**). The share of women training in JLMP programs was more than triple the weighted national average for these occupations (7.9% vs. 2.8%).[69] Non-union programs also trained a slightly higher percentage of women than the weighted national average (4.9% vs. 3.1%).[70] The number of percentage points by which JLMP programs trained women above the weighted national average (5.1 percentage points) was almost triple the percentage by which non-union programs beat the weighted national average (1.8 percentage points).

"For comparable occupations, women successfully completed JLMP apprenticeship programs at more than eight times the rate of non-union programs."

Female Completion Rates

In 2017 for comparable occupations, women successfully completed JLMP apprenticeship programs at more than eight times the rate of non-union programs.[71] There were seven occupations[72] in which women exited both JLMP and non-union apprenticeship programs in 2017, either by cancelling or successfully completing their apprenticeship. Over these occupations, 1 of 25 exiting women completed their non-union programs (4.0%), while 40 of 121 exiting women in union programs (33.1%) completed their union apprenticeships.[73] Among women working to become journey laborers, for instance, 0 of 7 exiting apprentices (0%) successfully completed two non-union programs in 2017, while 7 of 15 female apprentices (46.7%) completed four JLMP apprenticeship programs.[74] For female operating engineer apprentices, 5 of 7 exiting women successfully completed JLMP programs (71.4%), while 0 of 3 exiting women successfully completed non-union operating engineer programs.[75]

The overall completion rate for female apprentices was nearly identical for JLMP (41.3%) and non-union programs (41.7%), driven entirely by relatively low-paid WACH apprentices.[76] WACH has achieved a very high rate of successful completion for its exiting female apprentices (92.9%), journeying out 26 female apprentices in 2017.[77] For all other non-union apprenticeship programs, only 9 of 56 exiting women successfully completed their apprenticeships, a completion rate of 16.1%.[78] While WACH should be commended for its completion success, WACH's female medical and dental assistants journey out earning $12.13/hour and $13.29/hour, respectively, in 2017 dollars.[79] These hourly wages place successful WACH female MAs and DAs well below the average wages in their field in every region of the state, a subject that will be discussed in more detail in the Apprenticeships for Growing Industries section.

Construction Electricians

Puget Sound Electrical JATC ("PSEJATC")
PSEJATC is a joint labor and management program between International Brotherhood of Electrical Workers ("IBEW") Local 46 and the Puget Sound Chapter of the National Electrical Contractors Association ("NECA"). PSEJATC's three programs provide training for over 1,356 apprentices per year,[124] a number that has doubled in the past three years as the organization expands. Apprentices train to achieve certification as inside wireman (construction electricians), limited energy/sound and communication electricians, and residential electricians.[125]

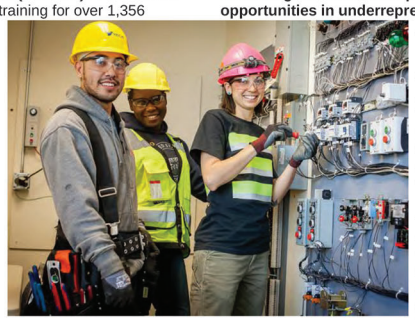


Photo: PSEJATC electrician apprentices training in Motor Control classroom lab exercises.

Since 2001, PSEJATC has operated a 66,000 sq. ft. training facility in Renton with cutting edge equipment. PSEJATC Training Director Clay Tschillard says that the program's "classrooms and labs have been designed specifically to educate instructors, journeyworker electricians and apprentices in all aspects of the electrical industry."

PSEJATC's joint labor and management partnership instills a spirit of collaboration in the program. Employers are constantly upgrading their equipment and working with the most modern technology available. They bring that knowledge to PSEJATC's program to keep its curriculum and equipment up-to-date. Oversite from the electricians' union IBEW Local 46 and NECA ensures that apprentices work on a wide variety of skills beneficial to their careers, rather than focusing on specialized requirements driven by any one employer. The program also continually works to grow and train more apprentices, increasing the supply of skilled electricians in the industry. Overall, labor and management "working together to improve the program creates a less adversarial environment," says Clay Tschillard.

PSEJATC partners with a number of community-based organizations to expand apprenticeship opportunities in underrepresented communities. ANEW is headquartered at PSEJATC's training facility, introducing aspiring apprentices to the program and providing support services like tools, clothes and boots to those who need them. PSEJATC also partners with the Urban League and Pre-Apprenticeship Construction Education ("PACE") to recruit apprentices of color, and the Department of Corrections to connect formerly incarcerated men and women to good jobs.

Construction Industry Training Council of Washington – Construction Electrician ("CITC")
CITC trains apprentices in three electrical industry trades – construction electrician, residential wireman and low energy/sound and communication technician.[126] The programs vary in length from two to four years, with apprentices meeting on a weekly basis to learn their trade.[127] The 677 apprentices training to become CITC construction electricians comprised 50% of all apprentices training in CITC programs in 2017.[128]

CITC's programs focuses on training, workforce development and safety. "We want our workers to be skilled, and we want them to come home safe every night" says CITC CEO Halene Sigmund.[129] Most CITC apprentices continue to work for their employers even after they journey out.

Table 9. PSEJATC and CITC – Construction Electrician Performance Comparison

Metric	PSEJATC	CITC
2017 Apprentices	1,081	677
2017 Completion Rate*	54%	31%
2018 Journey Wage	$50.09	$29.90
Individual Net Impact	$1,609,808	$423,045
Taxpayer Net Impact	$605,809	$160,868
2017 Women	6%	4%
2017 People of Color	23%	22%
2017 Veterans	24%	19%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation.
Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

Construction Equipment Operators

Operating Engineers Regional Training Program ("OERTP")

OERTP is a JLMP between International Union of Operating Engineers Locals 302 and 612, and a number of employers and employer groups, including the Associated General Contractors of Washington ("AGC").[130] Started in 1974 using old military-issue gear, OERTP has expanded to fill a 1,600-acre training center in Ellensburg packed with state-of-the art equipment. OERTP trains operating engineer apprentices in three occupations - construction equipment operator, heavy duty repairman mechanic, and hoisting engineer – learning to operate everything from dozers to cranes to asphalt rollers.[131] OERTP trained 379 apprentices in 2017, including 264 construction equipment operators.[132]

Photo: Steven Neese (2yr Apprentice) taking a moment from his busy day running a D10 dozer for Kiewit Construction at a rock quarry in Skagit County.

The collaborative relationship between labor and management at OERTP has been a boon to both workers and employers. For contractors, high standards negotiated by the union ensure a stable, highly-skilled workforce. "If people are paid well, with good benefits and pensions, you'll have more productive workers" says Lacey Hall, Coordinator at OERTP. The union hiring hall also ensures that contractors can secure veteran journeymen with specialized skills at a moment's notice. The JLMP benefits apprentices as well. Hall says that journeymen in the union "have skin in the game" with apprentices because today's apprentice is tomorrow's union brother or sister. This incentivizes journeymen to help apprentices succeed in the program and become the next generation of union members keeping wage and benefit standards high.

OERTP has a relatively high percentage of female apprentices (13.3% of construction equipment operators in 2017) for the construction trades. Coordinator Lacey Hall attributes this to OERTP's strong partnership with pre-apprenticeship programs that empower women like Apprenticeship and Nontraditional Employment for Women ("ANEW"), where OERTP puts on half-day workshops for mostly female pre-apprentices. Additionally, three of OERTP's coordinators in the field are women, connecting with interested applicants and providing needed support to apprentices.

Inland Northwest Associated General Contractors Operators Apprenticeship Committee ("INWAGC")

Headquartered in Spokane, INWAGC's operators apprenticeship program trained 50 apprentices in 2017 and journeyed out 1 apprentice.[133] INWAGC's 6,000-hour program requires 160 hours per year of RSI and trains apprentices "in all aspects of equipment operation, maintenance and safety."[134]

Table 10. OERTP and INWAGC Operators AC Performance Comparison

Metric	OERTP	Inland NW AGC
2017 Apprentices	264	50
2017 Completion Rate*	73%	14%
2018 Journey Wage	$40.29	$24.54
Individual Net Impact	$884,923	$169,518
Taxpayer Net Impact	$309,652	$49,819
2017 Women	13%	10%
2017 People of Color	21%	27%
2017 Veterans	11%	25%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation.
Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

Laborers

Northwest Laborers-Employers Training Trust Fund ("NWLETT")

NWLETT is a JLMP between 13,000 members of Laborers International Union of North America ("LIUNA") locals in Washington and Idaho, and AGC.[135] Founded in 1969, NWLETT has six locations statewide, including large training centers in Kingston, Des Moines and Spokane. The Kingston training center is housed on 15 acres of former military land, where hundreds of laborer apprentices spend several weeks every year training, learning, and building structural improvements to the center and nearby community. NWLETT is the second largest apprenticeship program in the state, training 1,480 apprentices in 2017.[136] "Laborers are the first on and last off a site" explains NWLETT Training Director Glen Freiberg. "We do everything from the ground down," including digging trenches and tunnels, pouring cement, and tending other crafts.

Photo: A Laborer apprentice hydroblasts concrete

NWLETT's laborer-employer partnership ensures a structured learning environment, steady stream of skilled workers and improved worker safety. For Glen Freiberg, the main benefit of the apprenticeship program for employers is that it is highly structured. Courses start with general construction, move on to concrete, and then proceed progressively based upon the skills laborers will need at their worksites. Employers can also count on an organized supply of experienced workers from union hiring halls, where journey laborers call-in or wait in person to be dispatched based on skill and need. The collaborative nature of the NWLETT program also protects worker safety and lowers employer costs. Apprentices go through an OSHA-10 training, receive an asbestos abatement card and attend environmental classes to learn about worksite safety. They also have a voice on the job to speak up about safety issues with the backing of their union. Employers, in turn, benefit from reduced injury claims and lower insurance rates.

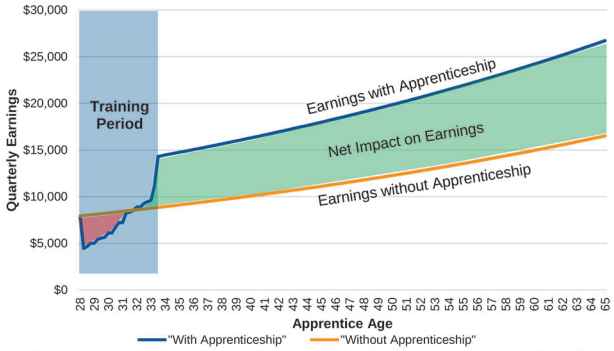
NWLETT's program structure and outreach efforts encourage participation from underrepresented groups. While many college courses and other workforce development programs charge participants hefty tuition or fees, NWLETT provides apprentices money for gas, food, travel and other supports while they learn, and wages while they train. Program staff also present at trade fairs in distressed neighborhoods, engage veterans in the Helmets to Hardhats program and recruit from Joint Base Lewis-McChord.

Inland Northwest Associated General Contractors Laborers Apprenticeship Committee ("INWAGC")

INWAGC's laborers apprenticeship program trains 60 laborer apprentices per year[137] **in Eastern Washington**[138] **at its Spokane facility.**[139] Apprentices learn "everything from site preparation, clean up & security to asbestos abatement" on their way to becoming "highly skilled worker[s] who's qualifications are recognized and respected throughout the industry."[140] Additionally, many government agencies require public works construction projects to use a certain percentage of apprentice hours.[141] According to Inland Northwest AGC, "the Inland Northwest AGC Apprenticeship Programs are here to partner with employers to help with [these] apprentice utilization requirements."[142].

geographic and occupational conditions in their trade, and projects that forward until retirement. By comparing the estimated lifetime earnings and benefits for individuals who went through an apprentice program, to the hypothetical earnings for each apprentice in a world where they never participated in an apprenticeship program, the WAGES ROI Model estimates a net impact for each apprentice and for taxpayers for each apprentice in each program. A more detailed explanation of the WAGES ROI Model, including an explanation of all model assumptions, can be found in **"Appendix A: The WAGES ROI Model."**

Figure 6. Estimated Quarterly Earnings for Apprentice John Doe
Apprenticeship vs. No Apprenticeship, Age 28 to 65



Note: Post-training earnings for apprentices, and all earnings for non-apprentices, estimated to grow at a real wage rate of 2%.

The WAGES ROI Model - Results

JLMP programs produced significantly greater gains in additional wages, benefits and taxes for individuals and taxpayers than MEP programs for all six of the state's largest comparable occupations. On average, the six JLMP programs increased an individual apprentice's lifetime earnings by $446,118 and lifetime benefits by $365,427, net of tax payments (**Table 6**). For taxpayers, these higher earning JLMP apprentices generated an additional $289,474 in income, sales, Social Security and Medicare taxes, net of unemployment insurance transfers. MEP programs also produced additional wages, benefits and taxes for apprentices. The average annual earnings of MEP apprentices increased by $233,221 over their lifetimes, benefits by $120,971 and net payments to taxpayers by $137,970.

JLMP programs added significantly more to lifetime benefits because of their generous health and retirement packages. In 2017, employers in the construction trades paid their workers an average hourly wage of $24.85/hour along with $7.79/hour in health, retirement and paid leave benefits.[111] The Model uses this benefit percentage (31.3%) as an estimate for benefits accrued by individuals who never enter apprenticeship, all MEP completers and non-completers, and JLMP non-completers. JLMP completers, however, accrue a far higher amount of retirement and healthcare benefits through their union jobs. WWSMJATC apprentices, for instance, journey out of their programs earning benefits equal to 56.8% of their

wages, while inside wiremen/construction electrician apprentices journey out of their PSEJATC program earning a benefit package worth 44.8% of their wages.[112] These higher benefit rates drive the much higher lifetime additional benefits enjoyed by JLMP program apprentices.

Higher wage occupations had a greater positive effect on lifetime earnings, benefits and tax payments. The programs that contributed to the largest increases in apprentice lifetime earnings and tax payments were the SAPT, PSEJATC and WWSMJATC apprenticeship programs. These three programs also had the highest journey wages (in May 2017 dollars), with SAPT apprentices journeying out at $51.50/hour, PSEJATC apprentices journeying out at $48.62/hour and WWSMJATC apprentices journeying out at $41.89/hour.[113] All three programs also achieved greater lifetime earnings and tax payments for apprentices because of their higher completion rates. Among MEP programs, the greatest returns for individuals were also achieved by the three programs with the highest journey wages (in May 2017 dollars) – CITC – Plumber ($29.11/hour), CITC – Construction Electrician ($29.02/hour) and CITC – Sheet Metal ($28.39/hour).

Table 6. WAGES ROI Model Results – Additional Wages, Benefits, Taxes and Costs
Avg. Additional Lifetime Wages, Benefits, Taxes and Costs for 2013-2016 Exiting Apprentices

Occupation	Program	Additional Wages	Additional Benefits	Additional Taxes	Taxpayer Costs	Individual Costs
Carpenter	NWCI	$332,661	$201,567	$208,655	$2,679	$806
	CITC - Carpenter	$208,228	$104,774	$115,988	$2,824	$849
Construction Electrician	PSEJATC	$850,625	$760,850	$611,976	$6,166	$1,667
	CITC - Con. Electrician	$281,961	$141,933	$164,110	$3,242	$850
Construction Equip Operator	OERTP	$435,085	$451,126	$313,781	$4,129	$1,287
	INWAGC Operators AC	$116,084	$54,689	$53,870	$4,051	$1,255
Laborer	NWLETT	$265,652	$128,849	$145,083	$2,500	$757
	INWAGC Laborers AC	$164,787	$61,429	$45,611	$769	$140
Plumber	SAPT	$932,672	$1,173,210	$615,006	$8,927	$2,297
	CITC - Plumber	$277,470	$161,121	$194,183	$5,289	$1,350
Sheet Metal Worker	WWSMJATC	$626,715	$720,181	$416,395	$6,554	$1,771
	CITC - Sheet Metal	$263,048	$135,402	$152,785	$3,263	$856
Six Largest Comparable	**All JLMP**	**$446,118**	**$365,427**	**$289,474**	**$3,862**	**$1,101**
	All MEP	**$233,221**	**$120,971**	**$137,970**	**$3,661**	**$1,005**

Note: All figures are per apprentice, presented in real May 2017 dollars, discounted by 3% per year.

Program costs increased with program RSI hours and the average length of program participation. Following Upjohn, the WAGES ROI Model estimates taxpayer costs as an annual administrative fee of $495/apprentice (in May 2017 dollars) and an FTE cost of $4,396/year (in May 2017 dollars). Annual individual costs are estimated at $400/apprentice (see “Appendix A” for methodological details). Apprenticeships that require apprentices to study for the most RSI hours, like plumbers (216 annual hours), construction electrician (200 annual hours) and sheet metal worker (200 annual hours) programs, tend to have higher taxpayer costs. Additionally, individual and taxpayer costs increase with average length of program participation. The only outlier among the 12 programs is the Inland Northwest Association of General Contractors Laborers Apprenticeship Committee (“INWAGC Laborers AC”) program, where apprentices exited after training for an average of only one quarter. This leads to an estimated taxpayer and individual program cost which may underestimate total costs for a typical apprentice, and likely overestimates program benefits.

The net impact of JLMP programs for individuals and taxpayers is far higher than MEP programs for all six of Washington's largest comparable occupations. Overall, the six JLMP programs created an average net impact (wages + benefits – taxes – private costs) for individuals of $810,444 (**Table 7**). SAPT's apprenticeship program achieved the highest net impact, with individuals earning an average of $2,103,586 more in net total compensation over the course of their lifetime than if they had not trained in the program. The JLMP net impact for taxpayers (taxes – taxpayer costs) per apprentice was also positive and significantly higher than for the MEP apprenticeships. On average, an apprentice training in one of the six JLMP program generated $285,612 in additional tax revenue, net of the initial public program costs, over the course of their lifetime. MEP programs also produce positive net impacts for individuals and taxpayers. MEP apprenticeship had an average net impact of $353,187 on the lifetime earnings and benefits of MEP apprentices, net of taxes and individual program costs. This additional income generated a net impact for taxpayers of $134,309 per MEP apprentice.

Table 7. WAGES ROI Model Results – Net Impact and Return on investment
Individual and Taxpayer Net Impact of 2013-2016 Exiting Apprentices

Occupation	Program	Individual Net Impact	Taxpayer Net Impact	Taxpayer ROI
Carpenter	NWCI	$533,421	$205,976	78x
	CITC - Carpenter	$312,153	$113,163	41x
Construction Electrician	PSEJATC	$1,609,808	$605,809	99x
	CITC - Con. Electrician	$423,045	$160,868	51x
Construction Equip Operator	OERTP	$884,923	$309,652	76x
	INWAGC Operators AC	$169,518	$49,819	13x
Laborer	NWLETT	$393,744	$142,583	57x
	INWAGC Laborers AC	$226,075	$44,842	59x
Plumber	SAPT	$2,103,586	$606,079	69x
	CITC - Plumber	$437,241	$188,893	37x
Sheet Metal Worker	WWSMJATC	$1,345,124	$409,841	64x
	CITC - Sheet Metal	$397,594	$149,522	47x
Six Largest Comparable	**All JLMP**	**$810,444**	**$285,612**	**74x**
	All MEP	**$353,187**	**$134,309**	**38x**

For JLMP apprenticeships examined by the Model, the ROI for taxpayers was 74x the initial taxpayer costs. PSEJATC achieved the largest taxpayer ROI (99x) because the program produced significant increases in net taxes while incurring slightly lower program costs. NWCI also produced a high taxpayer ROI (78x) driven primarily by its lower program costs associated with a shorter training period. MEP programs generated an ROI for taxpayers of 38x public program costs. INWAGC Laborers AC achieved the highest ROI level among MEP programs, but those results should be interpreted cautiously because of the program's abnormally short average length of training and small number of exiting apprentices.

JLMP programs achieve superior results by investing in advanced training facilities, drawing on the contributions of both union workers and employers, and recruiting talented apprentices from all communities. A brief overview of the largest JLMP and MEP program for each occupation provides some background explaining how JLMP programs are able to achieve such powerful results. These successful JLMP programs provide important lessons that should be applied to new apprenticeship programs in growing industries.

Carpenters

Washington State UBC JATC's Northwest Carpenters Institute ("NWCI")

NWCI is a JLMP between United Brotherhood of Carpenters local unions in Washington and Idaho, and AGC and other employers.[114] Headquartered in Kent, NWCI runs five training centers across the state[115] and is planning to add a sixth in Dupont in the near future. NWCI is the largest apprenticeship organization in Washington state, training thousands of apprentices across 12 occupational programs,[116] with the large majority training to become journey carpenters (62.8%) and lathing acoustical drywall systems installers (23.7%).[117] In addition to traditional woodwork and framing, apprentices learn to erect scaffold, operate forklifts, construct complex interior roofing systems and weld together metal frames.

Photo: NWCI apprentice runs power saw

The JLMP model works well for apprentice carpenters and helps retain women and veterans. JLMP apprentices benefit when both their apprenticeship coordinators and union reps monitor their progress and onsite job training, especially apprentices from vulnerable groups. NWCI coordinators and union reps strive to stay in constant contact with apprentices to ensure they're receiving enough on-the-job training to advance to the next level of apprenticeship. Additionally, NWCI provides expansive continuing education to journeymen. "It does not stop at apprenticeship," says NWCI Outreach Coordinator Lisa Marx. Program leaders recently invested approximately one million dollars in upgraded tablets, huddle screens and facilities, keeping equipment up-to-date so apprentices and journeymen are trained with the latest technology.

NWCI's relationships with pre-apprenticeship programs are also crucial to its success. Paula Resa says the construction trades are experiencing a "silver tsunami" as older workers retire and programs struggle to keep up with the demand for new carpenters. NWCI runs a state-recognized pre-apprenticeship program to bring in qualified candidates directly once they graduate. NWCI also partners with pre-apprenticeship programs like ANEW, a great resource to recruit women to carpentry. Signatory contractors are aware of the tight labor market and NWCI is working with them to identify talented workers. These efforts are opening doors for more people of color and women. NWCI Admissions data from 3Q 2018 shows apprentices of color now comprise 41% of new apprentices and 34% of apprentices overall.

Construction Industry Training Council of Washington – Carpenter ("CITC")

CITC was started by AGC, the Associated Builders and Contractors ("ABC") and National Utility Contractors Association ("NUCA") in 1985 to train apprentices in a number of construction trades.[118] CITC's apprenticeship programs have since expanded to cover at least ten occupations.[119] The organization has training and education facilities in Spokane, Pasco, Vancouver, Bellevue and Marysville. CITC is overseen by an executive board of employer representatives and counts seven employer associations as Associate Partners.[120] Programs are funded by non-union contractors which pay CITC an hourly fee to train their apprentice workers while they work on projects. Carpentry was CITC's first ever apprenticeship field,[121] and the program trained 133 apprentices in 2017.[122] Apprentices work and train over four years to complete the 8,000-hour program.[123]

Table 8. Northwest Carpenters Institute and CITC – Carpenters Performance Comparison

Metric	NWCI	CITC
2017 Apprentices	1,567	133
2017 Completion Rate*	36%	22%
2018 Journey Wage	$41.92	$25.00
Individual Net Impact	$533,421	$312,153
Taxpayer Net Impact	$205,976	$113,163
2017 Women	8%	7%
2017 People of Color	29%	44%
2017 Veterans	14%	9%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation.
Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

The Rise of Publicly Subsidized Employer Apprenticeships

Washington's PSEA Efforts

Washington state leaders recognize the value of expanding apprenticeship to increase the number of skilled workers in fast-growing industries. In December 2017, Washington Governor Jay Inslee's Career Connect Washington initiative secured a $6.4 million federal grant under the Workforce Innovation and Opportunity Act to connect "students to great employers and high-quality job training" and "create 29,000 new career connected learning experiences in 11 communities from [2017] through September 2019."[161] Along with job shadowing, career planning and internships, Career Connect Washington officials plan to "move over 1,400 young people, plus more than 400 adults, into new apprenticeships and pre-apprenticeships in fields such as advanced manufacturing, health care, agricultural irrigation systems, building trades, IT and maritime manufacturing."[162]

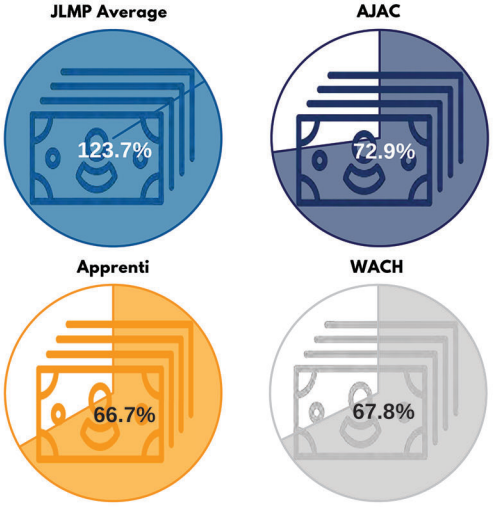
There is a strong need for new apprenticeships, as three-quarters of the Washington occupations poised to see the greatest job growth over the next 10 years are not currently served by an apprenticeship program. Every year, the Washington State Employment Security Department ("ESD") creates 10-year employment projections for Washington state. There are currently apprenticeship programs serving just 24 of the 100 occupations projected to experience the largest growth in absolute jobs over the next decade. None of the top 5 highest growth occupations - software developers for applications, combined food preparation and serving workers including fast food, waiters and waitresses, personal care aides and registered nurses – currently have registered apprenticeship programs training apprentices in Washington state. There is clearly a need for more apprenticeships to serve these fast-growing fields.

Recent efforts to establish apprenticeships in these fields have focused on publicly subsidized employer apprenticeships ("PSEAs"). The Washington state legislature established the Aerospace Joint Apprenticeship Committee ("AJAC") in 2008, providing funding of $3 million per year to train machinists, tool and die makers, industrial maintenance technicians and other aerospace workers in partnership with the state's community and technical colleges[163] and a primarily non-union group of employers.[164] The federally-funded Washington Association for Community Health ("WACH") started a medical assistant ("MA") apprenticeship program in 2014, and a dental assistant ("DA") program in 2016.[165] The Washington Technology Industry Association ("WTIA"), led by local tech giants like Microsoft,[166] created a non-profit WTIA Workforce Institute in 2015[167] to oversee its Apprenti apprenticeship programs for software developers, network security administrators, web developers and other tech industry occupations. Apprenti has received millions of dollars from the U.S. Department of Labor and Washington L&I to expand their programs nationwide, pay for RSI and launch a national apprenticeship loan program.[168] These new PSEA programs serve high-growth or strategically important occupations and are primarily driven by employers and employer associations.

PSEA Challenges

However, PSEA programs have a mixed record of success and provide journey wages that trail significantly behind local averages, JLMP programs and comparable union pay rates (Figure 7). In terms of completion rates, WACH's apprentices complete their program at a high rate, Apprenti lags behind the apprenticeship average and AJAC journeys out a far lower percentage of its apprentices than the comparable IAM/Boeing Joint Apprenticeship Committee JLMP program.[169] PSEA programs also have difficulties providing high journey wages. WACH's MAs journey out of their program earning a wage equivalent to the bottom ten percent of MAs in Washington.[170] Apprenti's software developers who completed the program in 2017 earned journey wages equal to just 61.5% of the local occupational average.[171] For AJAC, machinists journeying out earned less than half the journey wage of apprentices completing the IAM/Boeing JLMP program.[172] In order to better understand the efficacy of these new PSEA programs, and consider potentially superior JLMP alternatives, it's instructive to compare the achievements of WACH, Apprenti and AJAC to Washington's JLMP apprenticeship programs.

Figure 7. JLMP and PSEA Journey Wages as a Percent of Local Occupational Mean Hourly Wage
Average Journey Wages for All 2017 Apprenticeship Programs, Weighted by Apprentices



Note: For each apprentice in the organization, the journey wage for their occupation (May 2017 dollars) was compared to the average hourly wage for their occupation in their area, and those ratios were then averaged for all 2017 apprentices in each organization to establish an average journey wage:local occupational average ratio for the organization as a whole.
Source: Apprenticeship Program Details, Washington L&I; ARTS Database, Washington L&I; May 2017 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, OES, BLS, May 2017.

WACH Apprenticeship Program

Overview

The Washington Association for Community Health ("WACH") is a federally-funded primary care association comprised of 27 community health center employers in Washington state that runs two apprenticeship programs.[173] WACH operates apprenticeship programs to certify medical assistants ("MA") and dental assistants ("DA") through its Institute for Rethinking Education & Careers in Healthcare ("In-Reach") initiative.[174] The MA program started training cohorts of MA apprentices in 2014,[175] while the DA program launched a pilot in November 2016.[176] The MA and DA programs are each 2000 hour, 12-month apprenticeships, and successful MA apprentices are accredited through South Seattle College.[177]

Enrollment and Completion Rates

WACH has achieved a modest level of enrollment, but high completion rates among exiting apprentices. WACH enrolled 16 apprentices in its DA program in 2017, and an average of 41 new apprentices per year in its MA program between 2014 and 2017.[178] Although WACH's apprenticeship programs are relatively small, journeying out 74 total apprentices between 2015 and 2017, its apprentices have been able to journey out of their programs at a high rate. The completion rate for MA and DA apprentices in WACH's programs was 94.7% for apprentices exiting in 2015, 96.8% for apprentices in 2016 and 89.7% for apprentices in 2017.[179] WACH's 2017 completion rate ranked 41st among the 132 programs with exiting apprentices, well above the average completion rate of 41.7% for all programs.

"If medical assistants earn the journey wage after completing WACH's program, they will be in the bottom 10% of wage earners in their field in every single region in Washington state besides Walla Walla."

Gender and Racial Inclusion

WACH trains a percentage of women roughly in line with their occupational averages, and a higher percentage of people of color than typical apprenticeship programs. Nationally, 91.6% of medical assistants and 95.9% of dental assistants are women. In WACH's programs, 94.6% of MA apprentices and 87.0% of DA apprentices are women. WACH programs enroll a higher percentage of apprentices of color than the state average. In 2017, 34.8% of the program's DAs were apprentices of color, while 49.1% of MA apprentices were people of color. According to WACH officials, a majority of graduates "are Latina women living in underserved areas of Eastern Washington. Many of them are single mothers who live in multigenerational households and face financial, geographic or familial barriers to attending a traditional college."[180]

Journey Wages

However, while WACH has been successful journeying out DAs and MAs, especially apprentices of color, journey wages for apprentices are far below local levels. Journey wages for successful MAs and DAs in WACH's programs are $12.13/hour and $13.29/hour, respectively, in May 2017 dollars. These wages place graduates far below the average for workers in their field, even in lower wage regions in Eastern Washington. By comparison, medical assistants in Yakima earned an average of $17.35/hour in 2017, $16.86/hour on average in Spokane, and an average of $16.43/hour in the Tri-Cities.[181] In fact, if medical assistants earn the journey wage after completing WACH's program, they will be in the bottom 10% of wage

earners in their field in every single region in Washington state besides Walla Walla.[182] Results for dental assistants are similar. In Wenatchee, the average DA earns $20.43/hour, in the Tri-Cities $19.60/hour and in Yakima $18.05/hour. WACH DAs earning the journey wage will be in the bottom quartile of DA earners in all Washington regions.[183]

WACH journey wages also significantly trail entry level union wages. Under the United Food and Commercial Workers ("UFCW") Local 21's 2017 contract with MultiCare Health Systems, certified medical assistants start at $17.72/hour.[184] In 2017, medical assistants working for University of Washington Medicine represented by Service Employees International Union ("SEIU") Local 1199NW earned a starting base salary of $17.20/hour.[185] Washington State Nurses Association ("WSNA") medical assistants working with Whatcom county started out earning $16.30/hour in 2017.[186] These starting union salaries, in some cases $5.00/hour more than the WACH journey wage, show the crucial role that healthcare unions play in ensuring that healthcare workers who spend countless hours earning a credential receive the living wage they deserve.

JLMP medical assistant apprenticeships in Rhode Island also provide far higher journey wages. MA apprentices in the Care New England – SEIU JLMP earn a journey wage of $22.91/hour upon program completion.[187] Successful apprentices in the Providence Community Health Center JLMP journey out earning a journey wage of $19.37/hour.[188] These apprenticeship programs demonstrate that it's possible to raise standards in traditionally lower-wage occupations if there's a concerted effort to raise wages.

Apprenticeship without Collective Bargaining – Lower Wages, Unsustainable Careers

WACH shows that apprenticeship without collective bargaining cannot guarantee higher wages or a sustainable career path. Although WACH has done a good job of journeying out its MA and DA apprentices, the program's journey wages are well below local occupational averages, comparable union salaries and JLMP programs in other parts of the country. Many MA journeywomen will either have to subsist on lower non-union wages, or leave their community health center to look for higher paid work. The participation of a healthcare union in the WACH program would ensure that successful apprentices earn the livable wages and strong benefits that they deserve.

Apprenti Apprenticeship Program

Overview

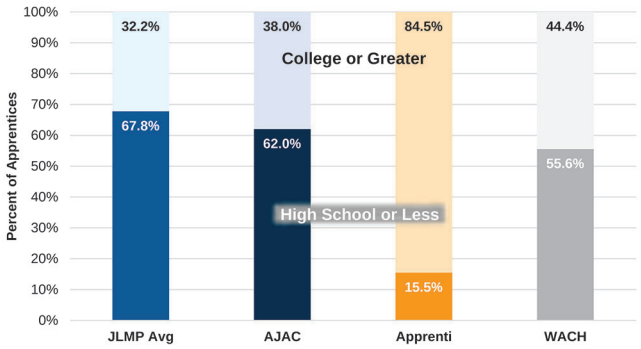
WTIA started the Apprenti apprenticeship program in 2016 to train mostly college educated workers for careers in the tech industry, focusing on underrepresented groups. Apprenti has overseen apprentice programs in eight tech fields, with two of three apprentices training to be either software developers or datacenter technicians.[189] Programs take between 2,000 and 3,000 hours to complete.[190] Apprenti recruits primarily college-educated workers for its apprenticeships. In 2017, 84.5% of Apprenti apprentices listed an education of "college or greater," compared to 32.7% for Washington apprentices as a whole (**Figure 8**),[191] and at least 55% already have an A.A. or B.A. degree coming into their program.[192] Apprenti's stated goal is to provide a "pipeline for underrepresented groups such as minorities, women and veterans to gain training, certification and placement within the talent-hungry tech industry."[193] Since its inception, 50.4% of Apprenti's apprentices have been apprentices of color, 30.0% women and 45.7% veterans.[194]

Taxpayer Funding

Apprenti is generously funded by U.S. and Washington taxpayers, even as WTIA members earn billions of dollars in profit. In September 2016, DOL pledged $7.5 million in grant money for Apprenti,[195] and the program had received $4 million in federal money by July 2018.[196] In 2017, Apprenti was also able to secure Washington state funding after "actively work[ing] with policy and budget leaders in the Executive Branch, the State House, and State Senate."[197] Washington's final 2017 budget included $4 million to fund Apprenti's

RSI.[198] The funds were subsequently repurposed "as a reward for small companies who pre-fund RSI and/or [to be] used as seed capital to launch a national apprenticeship loan program."[199] Taxpayer funding for the program comes as WTIA's largest members earn billions of dollars in profits. Microsoft, for instance, earned profits of $20.5 billion in FY 2016, $25.5 billion in FY 2017 and $16.6 billion in FY 2018.[200] T-Mobile generated $4.5 billion in net income for 2017,[201] while Amazon's market capitalization reached almost $1 trillion in 2018.[202] While training workers to join the booming tech industry is an important goal, it's unclear why highly profitable multi-national corporations require taxpayer funding to do so.

Figure 8. **JLMP and PSEA Percent of 2017 Apprentices By Education**
High School or Less Compared to College or Greater



Note: "High School or Less" refers to apprentices reporting an education level of High School Graduate, G.E.D., Some High School (9th – 12th) and 8th Grade or Less. "College or Greater" refers to apprentices reporting an education level of College or Greater.
Source: Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

Completion Rates

Only seven apprentices completed Apprenti's programs as of August 2018, with a successful completion rate of 28.6%. According to L&I data, 2 out of 7 of Apprenti's exiting apprentices journeyed out of the program in 2017, and none had exited by August 2018. Apprenti's 2017 completion rate of 28.6% is below the rate for all Washington's apprenticeships (41.6%) and the rate for JLMP apprenticeships (43.0%). The completion rate for apprentices of color was 16.7%, and 25.0% for female apprentices. However, the low sample size of program completers and short history of the program make it hard to draw any conclusions about Apprenti's ability to journey out successful tech workers.

Table 11. NWLETT and INWAGC Laborers AC Performance Comparison

Metric	NWLETT	Inland NW AGC
2017 Apprentices	1,480	60
2017 Completion Rate*	32%	5%
2018 Journey Wage[143]	$27.11 - $37.27	$22.06
Individual Net Impact	$393,744	$226,075
Taxpayer Net Impact	$142,583	$44,842
2017 Women	12%	8%
2017 People of Color	35%	22%
2017 Veterans	10%	10%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation.
Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

Plumbers

Seattle Area Pipe Trades ("SAPT")

SAPT is a partnership between United Association Local 32 and a coalition of employers led by the Mechanical Contractors Association of Western Washington ("MCAWW").[144] Established in 1968, SAPT trains 483 apprentices per year, including 181 plumber apprentices,[145] in five trades – commercial plumbers, residential plumbers, steamfitters, HVAC/refrigeration mechanics and marine pipefitters.[146]

SAPT emphasizes meritocracy and apprentice ownership of the program. According to third-generation union member and SAPT Training Coordinator P.J. Moss, the program's motto is "The Best Mechanic Wins."[147] Program staff, union journeymen and apprentices strive to recruit the most talented individuals. Apprentices are also encouraged to participate in program oversight, regularly sitting on interview panels and recruiting skilled workers to the program.

Photo: An SAPT apprentice welds pipes

SAPT is a strong JLMP with active participation from both employers and union workers. Moss reports that MCAWW has a "passion for apprenticeship" and executives sit on the SAPT board of trustees. Training program staff ensure that enrollment matches industry demand, so that apprentices know they can count on a high-wage job in the pipe trades when they journey out. The participation of Local 32 members in the program means that union journeymen seek to recruit strong candidates who will build and strengthen the union. Employers and union members both contribute to fund the apprenticeship program, explains SAPT Assistant Training Coordinator Heather Winfrey. Since journeymen, apprentices and employers help fund the program, they all have a stake in seeing it succeed. This supportive environment, and the program's high wages and benefits lead to low turnover. The retention rate for apprentices who successfully journey out of SAPT programs is 97% after one year and 90% after five years.[148]

SAPT works to increase the participation of underrepresented groups through active recruitment. SAPT staff attend events with talented female and person of color candidates, giving out push cards and inviting them to apply. Apprentices achieve based on their own skills, and many top performers in the program are women. SAPT expects to increase the participation of women and apprentices from other underrepresented groups as networks widen into previously underserved communities.

Construction Industry Training Council of Washington – Plumber ("CITC")

CITC's plumber apprenticeship trained 270 apprentices in 2017, with 22 successfully completing the program.[149] CITC also offers a number of continuing education courses for journey plumbers.[150] Although journey wages for CITC's apprenticeship programs reported by L&I are lower than their JLMP counterparts, CITC CEO Halene Sigmund says that CITC apprentices working on public works projects are often paid the same public rate as union workers on the same project. According to Sigmund, non-union employers often stick with the public rate even on private jobs in order to improve retention.

Table 12. Seattle Area Pipe Trades and CITC - Plumbers Performance Comparison

Metric	SAPT	CITC
2017 Apprentices	181	270
2017 Completion Rate*	71%	44%
2018 Journey Wage	$53.06	$30.00
Individual Net Impact	$2,103,586	$437,241
Taxpayer Net Impact	$606,079	$188,893
2017 Women	5%	1%
2017 People of Color	25%	10%
2017 Veterans	13%	10%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation.
Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

Sheet Metal Workers

Western Washington Sheet Metal JATC ("WWSMJATC")

WWSMJATC is a partnership between Sheet Metal Workers Local 66 and Sheet Metal and Air Conditioning Contractors' National Association – Western Washington ("SMACNA").[151]

WWSMJATC runs two main training centers in Everett and Dupont, and oversees sattellite training centers in Bellingham and Bremerton.[152] WWSMJATC trains 534 apprentices per year, including 384 sheet metal workers,[153] in four trades - HVAC service technicians, HVAC test adjust and balance technician, residential sheet metal worker and sheet metal worker. Apprentices learn to cut, roll, bend, and shape sheets of steel, tin, nickel, titanium, aluminum, brass, and copper into ductwork, building facades, refrigeration unit cabinets and a wide variety of other objects.[154]

Photo: A WWSMJATC apprentice works on a building

The collaborative nature of WWSMJATC improves employee retention, provides a higher standard of living for apprentices and encourages continuing education.

WWSMJATC's mission is to "to bring Labor and Management together for the development of a highly skilled and competitive workforce for the ever-changing sheet metal industry."[155] Collective bargaining agreements solidifying WWSMJATC funding levels are negotiated for three to six-year terms, providing stability to the program. WWSMJATC's industry-leading wage standards create lower turnover and stabilize the workforce as well. "Higher wages and benefits provide a better living environment," says WWSMJATC Executive Administrator Jeff Reinhardt. "Guys take their jobs seriously and are more dedicated to the work."[156]

WWSMJATC also funds state-of-the-art training facilities where journey level sheet metal workers can stay up-to-date training on the industry's latest equipment.

WWSMJATC works with a number of pre-apprenticeship programs to increase the inclusion of underrepresented groups.

WWSMJATC works closely with PACE to recruit apprentices of color and others pre-apprentices looking to enter the trade. WWSMJATC also hosts groups from ANEW's 12-week pre-apprenticeship program and strives to recruit more female apprentices. In August 2017, WWSMJATC and Local 66 joined with SMACNA, Helmets to Hardhats and others to launch SMART Heroes, a program to provide "free sheet metal industry training to enlisted U.S. Military men and women who plan to enter civilian life within the year."[157]

Construction Industry Training Council of Washington – Sheet Metal ("CITC")

CITC offers a Sheet Metal apprenticeship program which trains 53 apprentices per year.[158]

CITC sheet metal apprentices spend 9,000 hours in on-the-job training and an additional 800 hours in the classroom, learning to cut, bend and straighten sheet metal, solder and weld sheet metal parts and shape metal over anvils, blocks, or forms using a hammer.[159] According to CITC CEO Halene Sigmund, journey rates for CITC programs vary by county and are often higher than those listed on L&I's website.[160] Additionally, CITC contractors working on public works construction projects are required to pay the minimum rate just like union contractors, meaning CITC apprentices earn more.

Table 13. Western WA Sheet Metal JATC and CITC – Sheet Metal Performance Comparison

Metric	WWSMJATC	CITC
2017 Apprentices	384	53
2017 Completion Rate*	49%	14%
2018 Journey Wage	$43.16	$29.25
Individual Net Impact	$1,345,124	$397,594
Taxpayer Net Impact	$409,841	$149,522
2017 Women	11%	4%
2017 People of Color	20%	34%
2017 Veterans	15%	12%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation.
Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

employed earning above $10.00/hour. Afterward, 89% earned more than $10.00/hour.[263] These results demonstrate that linking apprentices to high standard union jobs is the best way to improve conditions in previously low-wage, high growth industries.

UNITE HERE Culinary Union 226 and Bartenders Local 165 in Las Vegas partner with 28 union employers on the Las Vegas Strip to offer training and a bartending apprenticeship through the Culinary Academy of Las Vegas. The Culinary Academy trains several thousand people across 12 hospitality industry occupations.[264] Local 165´s bartending apprenticeship program trains bartenders on bartending and cocktails, spirits product knowledge, beer and wine over five months.[265] Through apprenticeship training and the power of collective bargaining, Local 165 bartenders are among the 8.4% of restaurant workers who earn a pension,[266] and also enjoy health and other retirement benefits.[267]

UNITE HERE´s growing number of pre-apprenticeship and apprenticeship programs show that JLMP programs can work as well in the service sector as they do in traditional trades. In 2016, the AFL-CIO's Working for America Institute ("WAI") earned a $1.37 million grant to work with UNITE HERE and local partners to build training and apprenticeship programs in the hospitality industry.[268] WAI acknowledges that while many hotel and hospitality "jobs exist in lower-paid, entry-level job classifications, there are many opportunities to secure positions that offer good wages, benefits and career pathways to worthwhile careers."[269] The strongest opportunities and career pathways in the sector come through JLMP programs linked to union jobs.

"These JLMP programs prove that it's possible to generate high-wage, high-skill jobs in any industry when you allow workers to have a real democratic say in setting standards."

Apprenticeships for Growing Industries – The Union Difference

The experience of SEIU, UNITE HERE and IAM/Boeing demonstrate that high-skill, high-wage apprenticeships are possible in high-growth and strategically important industries. While WACH medical assistants journey out earning $12.13/hour (May 2017 dollars), SEIU MAs in Rhode Island and elsewhere complete apprenticeship programs earning $20.00/hour and above. Non-union food service workers struggle to find healthcare for their families, but 83% of workers in UNITE HERE's BEST Hospitality Training program journey out with employer-paid healthcare. IAM/Boeing apprentices complete their program at nearly twice the rate of AJAC apprentices, and journey out earning more than twice as much. These JLMP programs prove that it's possible to generate high-wage, high-skill jobs in any industry when you allow workers to have a real democratic say in setting standards.

JLMP programs in growing industries create a pathway for women, people of color and other marginalized groups to build sustainable careers. SEIU Healthcare 1199NW provides training to thousands of women and people of color working in the healthcare industry, helping them learn new skills and climb the career ladder. UNITE HERE Local 11 membership is primarily people of color and women, and the Hospitality Training Academy they've partnered in building allows them to secure union jobs with great benefits. IAM/Boeing's apprenticeship programs train a higher percentage of women, people of color and veterans than AJAC, and provide a pipeline to high-wage jobs. These examples demonstrate that JLMP apprenticeship programs are the best way to meet the demand for workers in high-growth industries while ensuring high standards for all apprentices, especially those from underrepresented communities.

WAGES Recommendations

The Lessons of JLMP Program Success

WAGES' analyses demonstrate that JLMP programs have higher enrollment, better wage and benefits standards, higher completion rates, better return on investment and broader inclusion of underrepresented groups than other apprenticeship models. JLMP apprenticeship programs, where union workers participate in governance and negotiate high standards, are able to enroll more apprentices, provide higher journey wages, achieve superior completion rates, and include more apprentices from underrepresented communities than non-union programs. JLMP programs produce a greater net impact on individual apprentices, and produce a much higher return on investment for taxpayers, than MEP programs. Finally, while government efforts have focused on funding PSEAs, JLMP programs actually do a better job of providing high-wage, high-skill jobs in growing and strategic industries.

JLMP programs are successful for a number of reasons:

- Sustainable funding from employers and union workers leads to **higher enrollment in JLMP programs.**
- Union workers are able to negotiate **higher journey wages and benefits** in JLMP programs, leading to good, high-wage union jobs on completion.
- Greater support for apprentices and better wages and benefits drive **higher completion rates** in JLMP programs.
- These higher completion rates and better standards lead to a **greater return on taxpayer investment.**
- Union efforts to improve inclusion have **increased the enrollment and success of underrepresented groups**, including women, people of color and veterans.

Decision makers should draw lessons from the success of Washington's JLMP programs to inform policy that will create more high-wage, high-skilled jobs for workers and a larger talent pool for employers. Public funding should focus on programs that offer high wage and benefit standards that lift apprentices toward the top of their field. Public officials should also support programs that give workers an equal role in governance and setting standards. Apprenticeships offer high returns for employers, so there's no need subsidize the day-to-day operations of established programs. Funding for pre-apprenticeships should focus on support services like childcare, transportation and help with tools, and target programs with a direct pipeline to apprenticeships. Public assistance for extra apprenticeship coordinators would help retention, while funding for capital and technology improvements would help apprenticeship training keep pace with rapidly developing, innovative industries. Additionally, centralized financial support to market apprenticeships to workers looking for a career transition would help get more qualified apprentices into the system. Finally, Washington state should lead the nation by being the first to measure the net impact and return on investment for individual apprenticeship programs to inform public investment decisions.

WAGES Recommendations

Public grants should go to apprenticeship programs providing high-wage opportunities in their occupational fields. According to the U.S. Department of Labor, apprenticeship is a chance for workers to seek "high-skilled, high-paying jobs" and for employers "to build a qualified workforce."[270] Apprenticeship programs that journey out apprentices at or above the average salary for their field are giving them a much better chance to achieve the high-paying jobs they deserve. Additionally, higher journey wage rates are correlated with higher completion rates for apprentices.[271] This suggests that the higher the salary an apprentice is set to earn on completion, the greater the chance that apprentice will finish their program. Tax dollars should support programs with high wage standards that improve apprentice success.

Public funds should only support apprenticeship programs that include democratically elected worker representation in program governance and decision-marking. When workers have an equal, democratic voice in setting program standards, they are able to improve wage and benefit rates, boosting apprentice retention and improving career stability. Worker representatives also contribute shop floor knowledge, increasing the relevance of program curriculum. Additionally, democratic representation of workers on an apprenticeship governing committee ensures accountability, as apprentices themselves take ownership over the long-term sustainability and effectiveness of their programs. Public officials should support these worker efforts to raise standards, ensure apprenticeship curricula reflect shop floor knowledge, and provide program accountability by only supporting apprenticeship programs with equal, democratic worker governance.

Taxpayers should fund new ideas, greater inclusion and effective support services in apprenticeship, not subsidize the long-term viability of programs. Public funds can play an exciting role in encouraging innovation, fostering inclusion and supporting the establishment of new programs. The U.S. Department of Labor has provided millions of dollars to existing programs to train apprentices in energy efficiency and renewable energy trades,[272] state governments provide grants to start-up apprenticeships in the health care industry,[273] and ApprenticeshipUSA State Expansion Grants for a number of states have boosted participation by traditionally underrepresented groups.[274] However, none of these efforts were targeted at funding the day-to-day operations and sustainability of apprenticeship programs. Washington's JLMP programs and MEP programs continue to achieve high returns on investment without relying on taxpayer hand-outs to run their operations. This is because apprenticeships are a great investment. A 2016 U.S. Department of Commerce study on apprenticeship returns for employers found an overall rate-of-return of 50% at Siemens, and an internal rate of return of 40% per year at Dartmouth Hitchcock Medical Center.[275] With substantial rates of return to employers, and proven apprenticeship models that don't rely on huge taxpayer subsidies, public funding for apprenticeship should be limited to providing innovation, inclusion and support services.

Washington should provide funding to pre-apprenticeship programs that are closely connected to high-performing apprenticeship programs. Successful pre-apprenticeship programs like Apprenticeship & Nontraditional Employment for Women ("ANEW") and Pre-Apprenticeship Construction Education ("PACE") have strong relationships with dozens of long-established apprenticeship programs, providing structured opportunities for graduates to transition into apprenticeship. Other successful pre-apprenticeship programs are directly sponsored by a specific apprenticeship program. The Pacific NW Ironworkers and Employers Local #86 program has partnered with the Washington Department of Transportation to provide a 4-week pre-apprenticeship bootcamp where aspiring ironworkers earn their OSHA 10 safety card, learn basic First Aid/CPR and gain knowledge of the basics of ironworking.[276] Students who complete pre-apprenticeship training are directly entered into the Ironworkers Apprenticeship program.[277] Pre-apprenticeship works when it creates a direct pipeline to apprenticeship, so the state should support pre-apprenticeships that have proven relationships with apprenticeship programs.

The state should provide support services for pre-apprentices to help with retention, especially for those from vulnerable communities. Pre-apprenticeships are intensive, unpaid programs that can last anywhere from one to three months. Although these programs are often free for participants, pre-apprentices are still forgoing income, paying for childcare, purchasing tools, paying for transportation and incurring other expenses. This creates a financial hurdle for many aspiring pre-apprentices, especially low-income residents, single-moms and others without the financial cushion to weather a period of low earnings and higher expenses. Apprenticeship supporters in government should consider expanding access to free childcare, financial assistance for tools and supplies, and wage stipends for pre-apprentices who qualify.

Funding additional apprenticeship coordinators to help apprentices early in their program would help with retention, especially for vulnerable groups. Apprenticeship coordinators play an important role in ensuring that apprentices are being integrated into their worksites and learning appropriate skills. This is especially true for apprentices from underserved groups like women or veterans. A rogue supervisor or foreman may fail to invest the time in training apprentices, or may assign them menial tasks that don't build appropriate skills. Apprenticeship coordinators can provide program support and backup at the worksite to get apprentices back on track. Public support for these positions would improve retention for all apprentices, and especially those from vulnerable groups.

Capital grants or affordable loans would help apprenticeship programs keep machinery and equipment up-to-date. Apprenticeship programs have an edge over purely academic programs because employers play an important role in program oversight and curriculum development. Industry is constantly evolving and becoming more efficient, and that means employers need workers familiar with new technology, new machines and new equipment. While established apprenticeship programs do a good job of keeping their training equipment up-to-date, the government could help with grant money or discounted loans that assist programs in securing cutting edge equipment.

Many apprenticeship programs do a great job with recruitment and retention once apprentices are in the door, but could use help with marketing to reach a wider applicant pool. Apprenticeship is a fantastic deal for workers looking to build a career. Washington's WTB estimates that apprentices earn $342,140 more in net wages and benefits over the course of their lifetime than similar workers who don't go through apprenticeship,[278] and the WAGES ROI Model shows that the results for higher-wage JLMP programs are even stronger. Training directors and coordinators are persuasive, passionate advocates for their programs. However, workers not connected to the world of apprenticeship have a hard time learning about these programs in the first place. Public funds to market to workers in their late 20s looking to build a career would get more qualified applicants through the door and boost apprentice participation and impact.

Washington should lead the nation by becoming the first state to measure the net impact and ROI of individual programs. Washington's WTB, relying on the sophisticated analysis of the W.E. Upjohn Institute for Employment Research, is a national leader in measuring the impact of Washington's workforce development programs. In order to make more informed public investment decisions, the Legislature should empower WTB to go further and analyze the net impact of individual apprenticeship programs. Public officials who have invested millions of dollars in PSEA programs that provide journey wages well below their respective occupational average are routing tax dollars to unproven programs without the necessary information to make sound investment decisions. A statistical analysis of all of the state's large apprenticeship programs would provide the data that legislators need to support programs with the highest net impact and return on investment for apprentices and taxpayers.

Journey Wages

Apprenti's journey wages across all occupations are well below state and local averages. For the 84 Apprenti apprentices training across 7 occupations in 2017, the average journey wage for their program was equivalent to just 66.7% of the local occupational average. For instance, Apprenti software developer 1 apprentices journey out at a rate of $35.57/hour in May 2017 dollars.[203] However, software developers creating systems software earn an average of $57.84/hour in the Seattle metropolitan area, $51.75/hour in the Portland metropolitan area and $48.53/hour on average in Yakima.[204] In fact, successful Apprenti apprentices earning the journey wage would be in the bottom 10% of software developer earners in Seattle, the Tri-Cities and Bremerton-Silverdale.[205] The journey wage for another popular Apprenti occupation, web developer, is 22.1% below the Seattle average and 17.9% below the average hourly wage for the state as a whole. Apprentices journeying out of the Apprenti program can and do earn wages above their journey rate,[206] but the program's journey rates as a percentage of local occupational averages (66.7%) are below the non-union program average (85.1%) and well below the JLMP program average (123.7%).

"[Apprenti's] journey rates as a percentage of local occupational averages (66.7%) are below the non-union program average (85.1%) and well below the JLMP program average (123.7%)."

JLMP Programs Are Large and Successful Enough to Serve Growing Industries

While Apprenti does serve fast growing industries and some underserved groups, JLMP programs do so on a far larger scale and at far better wages. Apprenti serves many of the 100 highest growth occupations in Washington state, including IT support professionals (#13), software developers (#31), web developers (#44) and network security administrators and systems administrators (#62).[207] However, JLMP programs also serve in demand occupations, including top 100 growth fields like carpenters (#14), construction laborers (#19) and electricians (#41).[208] In 2017, 16 veterans successfully completed the Puget Sound Electrical JATC and came out as inside wiremen / construction electricians at a journey wage of $48.62/hour, 38 carpenters of color journeyed out of the United Brotherhood of Carpenters JATC program at a journey wage of $40.49/hour and 15 non-college educated women became journey laborers earning a journey wage of $25.25/hour. These and other JLMP programs provide financially sustainable pathways for work-class men and women from all backgrounds to train for high-skill trades without requiring millions in public subsidy.

AJAC Apprenticeship Program

Overview

Washington's State Legislature founded the non-profit Aerospace Joint Apprenticeship Committee ("AJAC") as a PSEA overseeing aerospace and manufacturing apprenticeship programs in 2008. AJAC is the largest PSEA in Washington state, training 484 apprentices in 2017[209] at 18 locations across Washington state, including 7 community and technical colleges.[210] Most AJAC apprentices (70.7%) train to become journeyman machinists, but AJAC also trains industrial maintenance technicians, tool and die makers, manufacturing precision metal fabricators, plastic process technicians, aircraft airframe mechanics and even youth production technicians.[211] AJAC's employers are majority non-union,[212] but the program's advisory committee does include two current or former members of the International Association of Machinists and Aerospace Workers (IAM) District 751.[213]

Completion Rate

AJAC journeys out apprentices at a higher rate than the state average, but below the rate of the JLMP IAM/Boeing Joint Apprenticeship Committee. In 2017, 51.7% of exiting AJAC apprentices successfully journeyed out of their program, 10 percentage points higher than the statewide completion rate of 41.6%.[214] However, the AJAC completion rate trails the comparable IAM/Boeing Joint Apprenticeship Committee, a joint effort of Boeing and IAM District 751, where 21 of 21 exiting apprentices successfully journeyed out of their apprenticeship in 2017.[215] For the two occupations where AJAC and the IAM/Boeing program both trained exiting apprentices, the differences were stark. IAM/Boeing journeyed out 100% of their machinist apprentices versus 61.4% of AJAC machinists, and 100% of their industrial machinery mechanics versus 0% of AJAC's apprentices in the same field.[216] AJAC does a good job journeying out its apprentices, but falls short of the comparable JLMP program.

Gender, Racial and Veteran Inclusion

The IAM/Boeing JLMP program does a better job than AJAC at training apprentices from underrepresented groups. In 2017, the IAM/Boeing program trained a higher percentage of women, people of color and veterans than AJAC (**Table 14**). Approximately 36.8% of IAM/Boeing's 2017 apprentices were apprentices of color, versus just 22.5% for AJAC. Women comprised 6.9% of IAM/Boeing apprentices versus 4.3% of AJAC's apprentices, and 10.3% of IAM/Boeing apprentices were veterans against 7.9% of AJAC's apprentices.[217] Training apprentices in the same industry and similar occupations, IAM/Boeing's JLMP program has done a better job of including women, people of color and veterans in its apprenticeship program.

Table 14. Comparison of IAM/Boeing and AJAC Programs
2017 Completion, Wages and Inclusion Metrics

Metric	IAM/Boeing JLMP	AJAC
Completion Rate	100%	52%
Average Journey Wage	$41.84	$18.62
Journey Wage: Local Occ Avg.	184%	74%
Percent Women	7%	4%
Percent Apprentice of Color	37%	23%
Percent Veterans	10%	8%

Note: Average journey wage and journey wage: local occupational average for all 2017 completing apprentices.
Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

Journey Wages

The biggest difference between the AJAC and IAM/Boeing programs is the large journey wage gap for successful apprentices. Union workers earn significantly higher pay and benefits in the aerospace industry, and that difference is reflected in Washington's aerospace apprenticeship programs. The highest paid AJAC apprentices in 2017 completed their tool and die maker programs earning a journey wage of $19.41/hour in May 2017 dollars.[218] Meanwhile, IAM/Boeing's maintenance machinists completed their programs at a journey wage of $42.41/hour.[219] Relative to the machinist industry average, AJAC's machinists journeyed out at wages equal to 74.0% of their local occupational average, while IAM/Boeing machinists journeyed out at rates equal to 164.0% of their local occupational average wage.[220] Overall, IAM/Boeing machinists completed their programs earning more than double the pay rate of their AJAC counterparts.

Even Significant Worker Input Cannot Secure High Wages in the Absence of a Union

Among PSEAs, AJAC has achieved the greatest degree of program success and worker voice, but still lags the standards set by JLMP programs. Between 2010 and 2017, 166 apprentices successfully completed AJAC programs and started careers in the aerospace industry.[221] In 2017, for the first time, more than half of AJAC's exiting apprentices successfully journeyed out of their program, a marked improvement from 2014, when only 15.2% successfully journeyed out.[222] However, AJAC's completion rate still trails the IAM/Boeing program, and its journey wages are substantially lower. In addition, the IAM/Boeing program does a better job of engaging underrepresented groups. The participation of IAM District 751 representatives on AJAC's governing committee undoubtedly helps, but without the sustained participation of a labor-management partnership and pathway into good-paying union jobs, AJAC will continue to struggle with below average wages, a less inclusive apprentice cohort and significant apprentice turnover.

Successful JLMP Apprenticeship Programs in Growing Industries

The JLMP Advantage in Growing Industries

Workers in many of Washington's fastest growing occupations are represented by unions. Food service workers, the second fastest growing occupation in Washington,[223] are represented by UNITE HERE Local 8 in corporate offices, WFSE at university dining halls, and Public School Employees SEIU Local 1948 in high school cafeterias.[224] Certified Nursing Assistants ("CNAs") and Home Care Aides ("HCAs"), the fourth fastest growing Washington occupation,[225] are represented by a number of unions, including SEIU 775, UFCW 21 and SEIU Healthcare 1199NW.[226] Registered Nurses are the fifth highest growth occupation in Washington, and heavily organized with WSNA, SEIU Healthcare 1199NW and UFCW 21.[227] JLMP programs could train apprentices in these occupations and achieve the high standards that PSEAs have failed to provide.

"The best way for public officials, unions and employers to help workers improve their skills and build better lives is to embrace the establishment of sustainable JLMP programs in growing industries, rather than settling for publicly subsidized employer apprenticeship programs."

Union organizing efforts have boosted occupational wages and benefits in these rapidly growing industries, especially for women.[228] Many of SEIU 775's home care aides ("HCA") will start at a wage of $15.00/hour in 2019[229] in a field where 9 of 10 workers are women[230] and 75% of Washington HCAs were earning less than $14.32/hour as recently as May 2017.[231] For registered nurses, a field that's 89.9% female,[232] the 2017 Association of periOperative Registered Nurses ("AORN") Salary and Compensation survey found that unionized nurses earned $8,200 more per year in annual base compensation than non-union nurses,[233] while a 2017 Medscape RN/LP Compensation Report found that union nurses earned $11,000 more per year.[234] In 2018, UNITE HERE food service workers working in Silicon Valley were able to achieve $4.75/hour raises and a $19.00/hour minimum contract wage at some worksites.[235]

JLMP programs for these high growth occupations would serve as pipelines for workers to high wage, good union jobs by including a worker voice in apprenticeship governance and standards. Journey wages for Washington's JLMP apprenticeship programs are much higher than for non-union programs training the same occupations.[236] Unions and employers are starting innovative JLMP apprenticeship programs across the country that promise to do the same thing in healthcare, food service and other occupations. The best way for public officials, unions and employers to help workers improve their skills and build better lives is to embrace the establishment of sustainable JLMP programs in growing industries, rather than settling for PSEA programs.

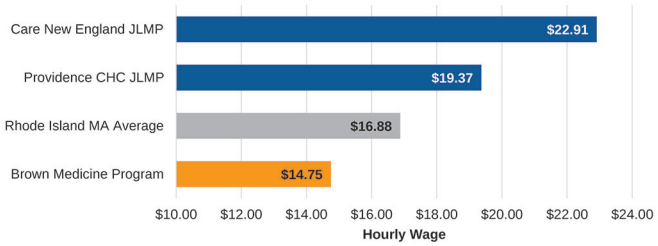
Innovative JLMP Apprenticeship Programs in Healthcare

Service Employees International Union ("SEIU") has partnered with healthcare employers nationwide to launch Healthcare Career Advancement Program ("H-CAP"), an organization dedicated to worker training, continuing education and apprenticeship.[237] H-CAP supports registered apprenticeships, funds training programs, conducts policy research, and operates the non-profit H-CAP Education Association comprised of "16 industry-driven, labor/management, and labor-based training organizations that include over 900 employers and more than 600,000 employees in 14 states plus Washington, DC."[238]

In 2016, SEIU and AFSCME worked through H-CAP to create a National JATC, found a National Center for Healthcare Apprenticeship ("NCHA"), and register national standards with the DOL.[239] The goal of the NCHA is "to facilitate and accelerate the registration of healthcare apprenticeships nationally and regionally, where needed, and bring healthcare apprenticeships to scale."[240] The JATC lists standards for 16 occupations and specialties, including some of Washington's highest growth occupations over the next ten years like medical assistants (#45), home health aides (#79) and home health directors (#84).[241]

SEIU and H-CAP have since launched JLMP healthcare apprenticeships in New York, Rhode Island and Philadelphia. In January 2017, 1199 SEIU United Healthcare Workers East partnered with Bronx Lebanon Hospital Center, LaGuardia Community College and other organizations to launch a community health worker apprenticeship.[242] In January 2018, Rhode Island's Governor's Workforce Board awarded two $25,000 development grants to JLMP registered apprenticeships serving the fast-growing health care industry.[243] Later that year, SEIU 1199NE partnered with Providence Community Health Centers to create a certified medical assistant apprenticeship, which launched in October 2018 with generous funding from H-CAP.[244] SEIU 1199NE also partnered with Care New England Healthcare System, H-CAP and other organizations to start a Community Health Worker Apprenticeship.[245] In Philadelphia, SEIU 1199C funds MA, community health worker, early childhood education teacher and direct services professional apprenticeships.[246]

Figure 9. Rhode Island Medical Assistant Journey Wages
JLMP Programs, State Average and Non-Union Brown Medicine



As with traditional trades, JLMP programs in the rapidly growing healthcare industry pay higher journey wages than non-union programs for the same occupations. In Rhode Island, the average hourly wage for a medical assistant was $16.88/hour in May 2017 (**Figure 9**).[247] Medical assistants completing the Care New England JLMP program currently earn journey wages of $22.91/hour.[248] Certified medical assistants in Providence Community Health Centers' program journey out at $19.37/hour.[249] Meanwhile, medical assistants completing their non-union apprenticeship at Brown Medicine earn journey wages of $14.75/hour.[250] JLMP apprenticeships in healthcare will continue to provide better pathways to high wage jobs because of the power of union workers to negotiate superior wages and benefits for completing apprentices.

SEIU 1199NW is now preparing to launch a registered apprenticeship program in Washington state after working for years to expand training to healthcare workers. SEIU 1199NW partnered with nine Washington employers to create the SEIU Healthcare 1199NW Multi-Employer Training and Education Fund ("The Training Fund") in 2008.[251] "Close to 14,000 Washington State healthcare workers are currently eligible for Training Fund education benefits," and 2,500 union healthcare workers each year utilize "funding for Professional Development activities, a Tuition Assistance program to cover college and university enrollment costs, and a wide variety of educational support services."[252] Almost 4 in 5 workers enrolled in school through The Training Fund are women and 54% are people of color.[253] The Training Fund is now preparing to start registered apprenticeship programs in Washington, hiring an Apprentice Lead to oversee "the development, successful implementation, management and operation of apprenticeship and pre-apprenticeship programs offered through" the Training Fund.[254] With SEIU's history of partnering to create high pay JLMP apprenticeships, SEIU 1199NW's JLMP apprenticeships in Washington will undoubtedly raise the standards for healthcare apprenticeships in the state.

Innovative JLMP Programs in the Food Service Industry

UNITE HERE has created a number of training and apprenticeship programs for workers in the fast-growing, but traditionally low-wage, food service and hospitality industry. Food preparing and service related occupations like waiters, cooks, bartenders and food service workers are projected to comprise 6 of the 50 highest growth occupations in Washington over the next 10 years.[255] Housekeepers, meanwhile, are the 38th fastest growing occupation in Washington with a projected 4,327 new workers added by 2026.[256] UNITE HERE has set up jointly funded training academies in Boston, Los Angeles and Las Vegas to provide apprenticeship programs for many workers in these occupations, including housekeepers, room attendants, line cooks, and bartenders.

"While only 5% of BEST Hospitality Training apprentices received employer sponsored health benefits before training, 83% were able to achieve health benefits through their employer after completion."

UNITE HERE Local 11 in Los Angeles partnered with educational institutions and local employers to fund and create the Hospitality Training Academy ("HTA"), which oversees room attendant and line cook apprenticeships among other training programs.[257] Through the HTA, UNITE HERE and hotel employers train over 1,200 hotel workers per year.[258] The HTA's room attendant apprenticeship trains workers to "properly and efficiently clean a hotel room while following industry guidelines for customer service, sanitation and safety."[259] The line cook apprenticeship program instills an "understanding and knowledge of safety, sanitation, food handling and preparation procedures" and is "designed to move [successful apprentices] into a culinary position at a UNITE HERE Local 11 establishment, starting as a Line Cook."[260] Both programs are effective because they connect apprentices with union jobs on completion.

UNITE HERE Local 26 partnered with employers to found Boston Education, Skills & Training Corp. ("BEST") Hospitality Training in 2006, and recently founded the nation's first housekeeping pre-apprenticeship program.[261] BEST trains 491 workers per year and has achieved strong results through its housekeepers program. The placement rate for BEST Hospitality Training graduates is 89%, with many graduates working for union employers that pay up to 50% of their wage into a comprehensive benefits package.[262] While only 5% of BEST Hospitality Training apprentices received employer sponsored health benefits before training, 83% were able to achieve health benefits through their employer after completion. The program also had a significant impact on wage earnings. Before training, only 34% of workers were

[1] Multi-Employer Partnership programs include the Construction Industry Training Council of Washington ("CITC"), Inland Northwest Associated General Contractors, and other non-union programs funded or sponsored by multiple employers.
[2] Publicly Subsidized Employer Apprenticeships include Washington Association for Community Health ("WACH") programs, the Washington Technology Industry Association's Apprenti programs and Aerospace Joint Apprenticeship Committee ("AJAC") programs.
[3] Completion rate refers to the number of apprentices who complete a program, divided by the total number of completers and cancellers. This rate is consistent with Washington's Workforce Training and Education Coordinating Board's ("WTB") method, but differs from the completion rate many apprenticeship organizations use to report their own statistics, which excludes cancellers still in their probationary period. Probationary cancellation data was unavailable for the Study, and to stay consistent with WTB practice, WAGES counts all cancellers against a program's completion rate.
[4] All journey wages listed in WAGES are represented in May 2017 dollars to allow comparison to May 2017 Bureau of Labor Statistics Occupational Employment Statistics wage and demographic data unless otherwise stated. Journey wages also represent the final step in each apprenticeship program's wage scale, but apprentices may earn more than the journey wage after program completion. Additionally, for statewide programs, journey wages reported to L&I may represent the lowest regional journey wage, and may therefore underestimate journey wages for some apprentices in higher wage regions.
[5] Comparable Occupations refers to Standard Occupational Classifications where both JLMP and non-union programs journeyed out or trained apprentices in 2017 unless otherwise stated.
[6] Local occupational average in WAGES refers to the mean hourly wage for an apprentice's occupation for their ARTS-listed zip code. BLS OES metropolitan statistical area and micropolitan statistical area wage data were used where available, and BLS OES Washington State data was used for zip codes that fell outside of recognized MSAs, Micropolitan statistical areas and Washington subregions.
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Weighted National Average Female = $\frac{\sum_{i=1}^{46} Nat'l\ Pct\ Female\ Occupation_i \times Union\ Apprentices\ in\ Occupation_i}{\sum_{i=1}^{46} Union\ Apprentices\ in\ Occupation_i}$

Weighted Union Average Female = $\frac{\sum_{i=1}^{46} Union\ Pct\ Female\ Occupation_i \times Union\ Apprentices\ in\ Occupation_i}{\sum_{i=1}^{46} Union\ Apprentices\ in\ Occupation_i}$

Sources: Table 11. Employed persons by detailed occupation, sex, race, and Hispanic or Latino ethnicity, Labor Force Statistics from the Current Population Survey, U.S. Census Bureau, 2017.
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Weighted National Average Female = $\frac{\sum_{i=1}^{39} Nat'l\ Pct\ Female\ Occupation_i \times Non-Union\ Apprentices\ in\ Occupation_i}{\sum_{i=1}^{39} Non-Union\ Apprentices\ in\ Occupation_i}$

Weighted Non-Union Average Female = $\frac{\sum_{i=1}^{39} Non-Union\ Pct\ Female\ Occupation_i \times Non-Union\ Apprentices\ in\ Occupation_i}{\sum_{i=1}^{39} Non-Union\ Apprentices\ in\ Occupation_i}$

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Appendix A – The WAGES ROI Model

Assumptions and Methodology

Wages

The WAGES ROI Model estimates the lifelong results for apprentices in the 12 programs by estimating in-training earnings and hours, starting at 28 years old, and then projecting an adjusted post-apprenticeship wage forward from program completion/non-completion through age 65. To derive in-training earnings, the WAGES ROI Model uses OJT hours worked for each apprentice divided by number of quarters in the program as an estimate for quarterly hours worked.[279] Wage scale progressions for each occupation and program are used to estimate quarterly earnings for each apprentice. To arrive at an estimate of post-program earnings for non-completers, the WAGES ROI Model takes the ratio of the average post-apprenticeship wage (for all 12 programs as a group) to the 25th percentile local occupational wage for non-completers for each program year, applies that ratio to the 25th percentile local occupational wage for each non-completing apprentice, and multiplies by the average post-apprenticeship hours worked per quarter for non-completers (**Table 15**). To arrive at an estimate of post-program earnings for completers, the WAGES ROI Model takes the ratio of the average post-apprenticeship wage (for all 12 programs as a group) for each program year to the average journey wage for completers for each program year, and applies that ratio to the journey wage of each completing apprentice multiplied by the average post-apprenticeship hours worked per quarter for completers.

The WAGES ROI Model creates a control group of comparable non-participants by projecting adjusted pre-apprenticeship earnings for each individual in the universe, assuming a starting age of 28, forward until they turn 65. The WAGES ROI Model takes the ratio of the average pre-program wage (for all 12 programs as a group) to the average 10th percentile local occupational wage for each completion status group for each year, and applies that ratio to the 10th percentile local occupational wage for each apprentice.[280] That adjusted pre-program wage is then multiplied by pre-program hours per quarter and projected to grow at a steady real rate of 2% for each apprentice from age 28 until age 65.[281] This serves as the control group estimate for each individual apprentice in the universe.

Taxes

The WAGES ROI Model estimates income, Social Security, Medicare and sales taxes, and net unemployment insurance benefits, for all apprentices and all control group members. Income taxes are measured for each apprentice on a quarterly basis assuming that current real rates remain constant. Following Upjohn, sales tax rates are assumed to be 8.35% of gross income. Social Security and Medicare taxes are estimated at 7.65% taken from gross individual income, and an additional 7.65% contributed by employers. Following Upjohn, post-apprenticeship unemployment insurance benefits for apprentices are estimated, conservatively, at the long-term quarterly estimate of $228 per quarter per apprentice.

Costs

Individual and taxpayer program costs in the WAGES ROI Model follow Upjohn's estimates used by WTB. Apprenticeship programs typically pay for apprentice tuition, and books average roughly $400 per year, so WAGES ROI Model estimates individual costs per apprentice of apprenticeship programs at $100 per quarter (in May 2017 dollars). These estimates have not been adjusted by program or occupation, and may therefore over or under-estimate costs per program. Following Upjohn, the WAGES ROI Model assumes a state subsidy per FTE of $4,264 ($4,396 in May 2017 dollars) and annual administrative cost of $480 per apprentice ($495 in May 2017 dollars). In order to capture initial registration costs, apprentices who exit during the first year of apprenticeship are assumed to have incurred the entire annual administrative cost. Apprentices training for greater than a year incur administrative costs on a quarterly basis. These individual

and public cost estimates are adjusted for each program's required quarterly RSI hours for each apprentice, multiplied by the number of quarters each apprentice spends in their program, and discounted by a 3% real rate to arrive at an average individual and public cost for each program.

Table 15. WAGES ROI Model Assumptions

		With Apprenticeship		Without Apprenticeship
	Assumption	Completers	Non-Completers	All
In Training	Wage Earnings In Training	Avg OJT Hours/Quarter x Wage Scale Step for Each Quarter		Occ 10th Pctl Wage x (WTB Avg/Occ 10th Avg)
	Benefits In Training	JLMP: $11.03/hour - $32.19/hour MEP: 31.3%		31.3%
After Training	Wage Earnings After Training	Journey Wage x (WTB Avg/Journey Wage Avg)	Occ 25th Pctl Wage x (WTB Avg/Occ 25th Avg)	Occ 10th Pctl Wage x (WTB Avg/Occ 10th Avg)
	Benefits After Training	JLMP: 31.0% - 62.5% MEP: 31.3%	31.3%	31.3%
Lifetime Projection	Discount Rate	3%		3%
	Wage Growth	2% (Real)		2% (Real)
Taxes	Income Tax	Current Real Rates		Current Real Rates
	SSI & Medicare	Individual 7.65% Employer 7.65%		Individual 7.65% Employer 7.65%
	Sales Tax	8.35% of Gross Earnings		8.35% of Gross Earnings
	Net UI	$228/Quarter		$0/Quarter

Note: WTB hourly wage and hours worked averages were provided for completers, non-completers and completers and non-completers combined, for one quarter before apprenticeship and three quarters after apprenticeship, for 2013-2014, 2014-2015 and 2015-2016 for all 12 apprenticeship programs as a whole. "WTB Avg" refers to the relevant completer/non-completer and year category for each apprentice.
Journey wages for all programs except NWLETT were taken from L&I's apprenticeship information. The NWLETT journey wage of $30.09 (in May 2017 dollars) was a simple average of the regional journey wages for the program across the state.

The WAGES ROI Model makes a number of assumptions about benefits for the control group and apprentices. For non-apprentices in the control group, the Model assumes a benefit rate of 31.3% of wages, consistent with BLS' estimate for healthcare, retirement and paid time off benefits for workers in the construction industry.[282] For JLMP apprentices in training, the Model assumes a benefit amount per hour of between $11.03/hour and $32.19/hour as reported by the JLMP programs, and between $6.71/hour and $9.12/hour for the MEP programs. For MEP completers and non-completers, and JLMP non-completers, the Model assumes a 31.3% benefit rate consistent with BLS estimates upon completion. For JLMP completers, the Model takes the programs' benefit amount divided by the journey wage to establish a long-term benefit rate of between 31.0% and 62.5%.

Model Universe

The WAGES ROI Model universe includes all apprentices participating in only one program who exited the largest JLMP and MEP programs training apprentices in Washington's six largest comparable occupations. In order to isolate the effects of each program, the Model excludes 431 apprentices who transferred between programs or enrolled multiple times in apprenticeship programs. After excluding these apprentices, there are a total of 2,353 exiting apprentices in the WAGES ROI Model universe (**Table 16**). The

in-universe completion rates for each program are within 5 percentage points of the completion rates for all exiting apprentices for each program in the period, implying that the exclusion of these multiple-program apprentices does not substantially change the mix of completers and non-completers for any program. The only program for which sample size is an issue is the Inland Northwest Chapter Associated General Contractors Laborers Apprenticeship Committee ("INWAGC Laborers AC") program, where only 12 exiting apprentices were included in the Model.

Apprentices who completed their programs spent an average of approximately 4-5 years in apprenticeship, while non-completers spent 1-2 years in apprenticeship. For each occupation, the respective JLMP and MEP programs required the same number of OJT hours (i.e. the SAPT and CITC apprenticeships for plumbers both require 10,000 worked or credited hours), implying that the average number of quarters that completers train for each program should be similar. This is broadly true, with the exception of plumbers and sheet metal workers, where JLMP apprentices who complete their program train for an average of 9 and 4 quarters longer than their MEP counterparts, respectively. This disparity can be explained, in part, by a larger average number of OJT hours credited to CITC – Plumbers and CITC – Sheet Metal apprentices, than to SAPT and WWSMJATC apprentices. For non-completers, the average length of apprentice participation is similar for JLMP and MEP programs with the exception of laborer, plumber and sheet metal programs. In these fields, MEP non-completers exit their program more than a year earlier than JLMP apprentices. The WAGES ROI Model treats the effect of apprenticeship on all non-completers identically regardless of the amount of time they spend in their program. This assumption could inflate the individual and taxpayer net impact of MEP laborer, plumber and sheet metal programs relatives to their JLMP counterparts.

Table 16. WAGES ROI Model Universe
Completion Status and Avg Program Length for 2013-2016 Exiting Apprentices in Universe

Occupation	Program	Completers	Non-Completers	Completers Avg. Quarters	Non-Completers Avg. Quarters
Carpenter	NWCI	134	474	20	5
	CITC - Carpenter	24	62	18	6
Construction Electrician	PSEJATC	206	78	22	7
	CITC - Con. Electrician	36	92	19	5
Construction Equip Operator	OERTP	51	49	18	10
	INWAGC Operators AC	8	59	20	13
Laborer	NWLETT	179	500	15	5
	INWAGC Laborers AC	0	12		1
Plumber	SAPT	66	24	29	15
	CITC - Plumber	40	48	20	10
Sheet Metal Worker	WWSMJATC	110	78	23	14
	CITC - Sheet Metal	7	16	19	5
Six Largest Comparable	**All JLMP**	**746**	**1203**	**21**	**6**
	All MEP	**115**	**289**	**19**	**7**

Note: The universe includes all apprentices who exited 7/1/13 - 6/30/16 who did not transfer from or train in another apprenticeship program. Excludes duplicates and transferees to isolate effects of programs in the model.

Discussion of Model Assumptions

The WAGES ROI Model provides robust economic estimates rather than precise statistical calculations. Over 100 bootstrap simulations, the Model's hypothesis that JLMP programs outperform MEP programs in terms of net impact were found significant at the 0.1% level for all six occupations.[283] Although the overall conclusions are robust, the model makes a number of assumptions about hours worked, post-apprenticeship wages and real wage growth that may over or underestimate program benefits for both JLMP and MEP programs. Wages and hours for the hypothetical scenario where participants never enter apprenticeship are based on pre-apprenticeship wages and hours, which may underestimate annual earnings if participants would have increased working hours or hourly earnings by more than the Model's assumptions. Real wage growth may be faster or slower than the 2% assumption made in the WAGES ROI Model. The age, ability or experience of apprentices may vary significantly between programs, weakening the assumption of identical age on entry. However, even allowing for these caveats, the WAGES ROI model provides statistically robust evidence that JLMP programs have a higher net impact for individuals and taxpayers than MEP programs across all the state's six largest comparable occupations.

There are a number of assumptions in the WAGES ROI Model that could affect the Model's estimates. Non-apprentices in the control group, who are estimated to work their pre-program hours for the rest of their lives, may have actually worked more hours as they gained other job skills. This would depress the wage, benefit and tax estimates for the control group in the WAGES ROI Model, inflating the relative size of the net impact and ROI for JLMP and MEP apprentices and taxpayers. The assumption that all apprentices and non-apprentices entered training working within their program's occupation, and then stay there between ages 28 to 65 may not be true. This could alter the distribution of pre-apprenticeship and post-apprenticeship wages, which are based on local occupational averages. The assumption that all apprentices, regardless of gender, race or veteran status, earn wages in relation to their local occupational average or their journey wage may also under or overestimate the net impact of programs depending on their demographic mix. It could also be the case that certain programs have a younger age profile, which would imply a higher net impact as journeyed out apprentices spend additional years earning a higher post-apprenticeship wage. The assumption of 2% real wage growth could also inflate net impacts and ROIs if it is higher than the real rate, or deflate them if it's lower. NWLETT's journey wage in the Model was based on statewide program journey wage data that was unavailable for other statewide programs, indicating that the net returns for other statewide apprenticeship programs may be higher than those found in the Model. Despite these potential drawbacks, the WAGES ROI Model makes the most realistic economic assumptions possible given the available data, and is a useful tool to compare the performance of different apprenticeship program models.

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[281] Consistent with Upjohn, the WAGES ROI Model estimates real wage growth at 2% per year, and uses a real discount rate of 3%.

[282] Benefits include all insurance, retirement and savings, and paid leave benefits, but exclude legally required benefits (beyond model timeframe) and supplemental pay (included in average hourly wage data from WTB).
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[Additional submission by Mr. Guthrie follow:]

Consumer Technology Association: Why Tech Companies Should Offer Apprenticeships

https://www.govinfo.gov/content/pkg/CPRT-116HPRT44651/pdf/CPRT-116HPRT44651.pdf

[Questions submitted for the record and their responses follow:]

COMMITTEE ON
EDUCATION AND LABOR
U.S. HOUSE OF REPRESENTATIVES
2176 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6100

March 19, 2020

Mr. Daniel Bustillo
Executive Director
Healthcare Career Advancement Program (H-CAP)
P.O. Box 775
New York, NY 10108

Dear Mr. Bustillo:

I would like to thank you for testifying at the March 4, 2020 Higher Education and Workforce Investment Subcommittee hearing entitled *"Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century."*

Please find enclosed additional questions submitted by Committee members following the hearing. Please provide a written response no later than Thursday, April 2, 2020 for inclusion in the official hearing record. Your responses should be sent to Katie McClelland of the Committee staff. She 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

Higher Education and Workforce Investment Subcommittee Hearing
"Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century."
Wednesday, March 4, 2020 at 10:15 am

Representative Gregorio Kilili Camacho Sablan (D-MP)

The Northern Mariana Islands does not have registered apprenticeships at this time but is working toward establishing the infrastructure needed to support them. As we invest in apprenticeships in the Marianas, what initiatives are worth supporting financially to ensure a successful program that can expand and is scalable, and what level of investment is needed in the apprenticeship system to support those efforts?

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March 19, 2020

Ms. Morna K. Foy, Ph.D.
President
Wisconsin Technical College System
4622 University Avenue
P.O. Box 7874
Madison, WI 53707

Dear Dr. Foy:

I would like to thank you for testifying at the March 4, 2020 Higher Education and Workforce Investment Subcommittee hearing entitled *"Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century."*

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Representative Josh Harder (D-CA)

The Registered Apprenticeship College Consortium (RACC) is an initiative to align apprenticeship sponsors and higher education institutions and enable apprentices to more easily receive college credit for their programs. The RACC facilitates connections between apprenticeship sponsors and institutions that promote flexibility in scheduling and credit transfer, accommodation of student mobility, and recognition of extra-institutional learning, and it allows apprentices to leverage their training from a Registered Apprenticeship in pursuit of their goals for education advancement. It allows apprenticeship sponsors to offer an additional benefit to their apprentices and provides higher education institutions with a pool of applicants who have already undertaken a rigorous postsecondary educational experience.

- How can the RACC better complement states' efforts to align apprenticeship and higher education?
- Reflecting a concern from one of our local unions, what can a reauthorization of the National Apprenticeship Act do to better address the cost of apprentices completing the degrees for which they have already received some credit-hours?

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March 19, 2020

Ms. Jace Noteboom
Talent Director: IBM Systems, Watson Health, Cognitive Enterprise Support
IBM
1 North Castle Drive, 2AHR2AZ01
Armonk, NY 10504

Dear Ms. Noteboom:

I would like to thank you for testifying at the March 4, 2020 Higher Education and Workforce Investment Subcommittee hearing entitled *"Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century."*

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- In your testimony you note that accessing funding for apprenticeships is confusing and difficult to secure, often preventing employers from opting-in and, that overall, funding opportunities are small and often not the needed incentive to help support companies, educators, and intermediaries in launching quality programs. We attempt to increase funding for grant opportunities in this bill – how else can we make it easier to incentivize and encourage employers to participate?

Representative Josh Harder (D-CA)

The Registered Apprenticeship College Consortium (RACC) is an initiative to align apprenticeship sponsors and higher education institutions and enable apprentices to more easily receive college credit for their programs. The RACC facilitates connections between apprenticeship sponsors and institutions that promote flexibility in scheduling and credit transfer, accommodation of student mobility, and recognition of extra-institutional learning, and it allows apprentices to leverage their training from a Registered Apprenticeship in pursuit of their goals for education advancement. It allows apprenticeship sponsors to offer an additional benefit to their apprentices and provides higher education institutions with a pool of applicants who have already undertaken a rigorous postsecondary educational experience.

- What benefits can the combination of an apprenticeship and an associate's or bachelor's degree provide for your employees' career paths when compared to just one or the other?

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March 19, 2020

Ms. Tiffany P. Robinson, Esq.
Secretary
Maryland Department of Labor
500 N. Calvert Street, 4th Floor
Baltimore, MD 21202

Dear Ms. Robinson:

I would like to thank you for testifying at the March 4, 2020 Higher Education and Workforce Investment Subcommittee hearing entitled *"Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century."*

Please find enclosed additional questions submitted by Committee members following the hearing. Please provide a written response no later than Thursday, April 2, 2020 for inclusion in the official hearing record. Your responses should be sent to Katie McClelland of the Committee staff. She 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
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[Mr. Bustillo response to questions submitted for the record follows:]

Q: The Northern Mariana Islands does not have registered apprenticeships at this time but is working toward establishing the infrastructure needed to support them. As we invest in apprenticeships in the Marianas, what initiatives are worth supporting financially to ensure a successful program that can expand and is scalable, and what level of investment is needed in the apprenticeship system to support those efforts?

To spur investment in registered apprenticeship for the Commonwealth of the Northern Mariana Islands (CNMI), there are various initiatives that are already being supported through appropriated funding that could be expanded. Two specific ones that could be used to develop the infrastructure needed to support the growth of apprenticeship are:

- Apprenticeship State Expansion (ASE) grants
- Industry Intermediary contracts

The CNMI was awarded one of the ASE grants this year and it will help provide resources for the development of much needed capacity building to begin their first apprenticeships. The resources provided through these grants can be used to incentivize employer participation, to help pay for costs related to mentoring of the apprentice on the job, to create new educational provider capacity, to offset related instruction tuition/class costs, and to defray administrative costs for the apprenticeship programs.

The Industry Intermediary contracts provide important sector-specific knowledge and resources to support the development and expansion of apprenticeships. Industry or sector partnerships, working within the registered apprenticeship system, provide an effective solution for expanding apprenticeships. Industry partnerships are workforce intermediaries, which bring together multiple actors in the labor market.

These partners often include:

- multiple employers, within the same industry sector;
- industry associations;
- workers and worker representatives, including unions, within the industry;
- education providers.

Industry partnerships investigate workforce needs within the sector, drilling down into specific skill needs, occupational shortages or hard to fill jobs, and technological changes that can impact the competencies required for jobs within the sector. Using information from the multi-employer and worker coalitions, the partnerships then work with education institutions to align instruction, courses and programs of study to industry needs.

The partnerships also work to assist with recruitment for job vacancies, emphasizing education opportunities corresponding with hard-to-fill occupations. Thereby providing opportunity to workers, while supporting employer recruitment needs. This strategy enables the partnerships to support workers in career ladders as well as provide educational and other supports to new

entrants into the targeted occupations.

Consistent funding support over multiple years is critical to the creation of infrastructure for scalable high-road apprenticeship models. This is also needed to provide the requisite technical assistance to properly recruit, develop, and implement an apprenticeship program, especially when it's a new workforce training program in a community.

[Ms. Foy response to questions submitted for the record follows:]

WISCONSIN TECHNICAL COLLEGE SYSTEM
we are futuremakers

Dr. Morna K. Foy, President
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April 2, 2020

Katherine McClelland
Professional Staff
Committee on Education and Labor
U.S. House of Representatives
2176 Rayburn House Office Building
Washington, DC 20515-6100

Dear Ms. McClelland:

Thank you for the opportunity to appear before the March 4, 2020 Higher Education and Workforce Investment Subcommittee hearing, "Reauthorizing the National Apprenticeship Act: Strengthening and Growing Apprenticeships for the 21st Century."

I appreciate Committee members' interest in the contributions of the Wisconsin Technical College System to Wisconsin's successful registered apprenticeship program and look forward to the future reauthorization of the National Apprenticeship Act.

Enclosed are my responses to the questions submitted by Committee members following the hearing for inclusion in the official hearing records.

Be safe and well.

Sincerely,

Morna K. Foy, PhD
President
Wisconsin Technical College System

Enclosure

U.S. House of Representatives
Committee on Education and Labor
Higher Education and Workforce Investment Subcommittee Hearing
March 4, 2020
"Reauthorizing the National Apprenticeship Act:
Strengthening and Growing Apprenticeships for the 21st Century"
Responses to Committee Members' Questions
as submitted by Morna K. Foy, President
Wisconsin Technical College System

Representative Gregorio Kilili Camacho Sablan (D-MP)
Question: *The Northern Mariana Islands does not have registered apprenticeships at this time but is working toward establishing the infrastructure needed to support them. As we invest in apprenticeships in the Marianas, what initiatives are worth supporting financially to ensure a successful program that can expand and is scalable, and what level of investment is needed in the apprenticeship system to support those efforts?*

Response:
The infrastructure for Wisconsin's successful registered apprenticeship program can be simplified as consisting of four areas: administration, higher education, pipelines and partnerships with business, industry and labor. We estimate that the State of Wisconsin dedicates approximately $7.7 million in state funding to our state registered apprenticeship program in three of the four areas. With approximately 11,000 apprentices, the State of Wisconsin invests approximately $700 per apprentice annually. If one excludes $5 million for youth apprenticeship, the State of Wisconsin invests approximately $250 per apprentice annually. It should be noted that several of these areas are also supported with federal funding, which is not included in the total. These figures also do not include instructor salaries, costs of equipment for related classroom instruction or the contributions of Wisconsin's business, industry and labor organizations.

Administration: Wisconsin is one of several states with a state registered apprenticeship program. In Wisconsin, the apprenticeship program is administered by the Bureau of Apprenticeship Standards (BAS) in the Wisconsin Department of Workforce Development. BAS staffing includes:

- 13 central office staff,
- 5 youth apprenticeship staff, and
- 17 BAS apprenticeship training representatives located across the state who act as the primary liaisons between apprentices, apprenticeship sponsors, local apprenticeship committees, workforce development entities, and the colleges of the Wisconsin Technical College System (WTCS).

Higher Education: The 16 colleges of the WTCS work closely with BAS to provide the majority (over 60%) of the paid related classroom instruction for registered apprenticeship programs in the industrial, construction and service sectors. In addition to a 1.0 FTE Education Director for Apprenticeship at the central WTCS office, each of the 16 colleges has a designated apprenticeship coordinator, who devotes approximately 20 percent of their time to apprenticeship activities (16 x .20 = 3.2 FTE). In addition, the WTCS Board awards $500,000 annually as part of a dedicated apprenticeship grant program for the development and maintenance of systemwide curricula and direct instructional support for the colleges.

There are several advantages to having a statewide college system provide the majority of classroom instruction to apprentices. First, classroom instruction for an apprenticeship program is developed on a statewide basis, using the broadest common denominator. Unique classes can be added by WTCS colleges to the statewide program as needed by a local sponsoring employer. Second, as with all WTCS academic programs, the apprenticeship curriculum is developed on a competency and learning objective basis. This enables WTCS to easily construct a crosswalk between apprenticeship and academic programs, building multiple pathways between the two. WTCS also uses this system to grant credit for prior learning. Finally, WTCS uses the same statewide data system to document both apprenticeship and academic program curriculum.

Pipelines: Pre-apprenticeship and youth apprenticeship programs are important means to increase interest in registered apprenticeship and help ensure a pool of diverse and qualified applicants to registered apprenticeship programs. These pipelines are made possible through partnerships with community-based organizations and unions for pre-apprenticeship programs, and K-12 schools in the case of youth apprenticeship.

Pre-apprenticeship programs are an opportunity for adults and youth, who are interested in registered apprenticeship, but lack certain basic skills (e.g., math skills), to obtain the necessary proficiencies to enter a registered apprenticeship program. In Wisconsin, there are over 20 community-based organizations, unions and correctional facilities that offer pre-apprenticeship programs in careers as diverse as arborist, plumbing, construction or welding. Completers of certified pre-apprenticeship programs in Wisconsin receive a Certificate of Apprenticeship (completion) as well as assistance from apprenticeship navigators to help them connect with industry.

Youth apprenticeship programs integrate school and work-based learning to instruct high school juniors and seniors in employability and occupational skills. Local programs provide training based on statewide youth apprenticeship curriculum guidelines as endorsed by business and industry. Students are instructed by qualified teachers and skilled worksite mentors. In addition to being employed by a participating employer under the supervision of a

skilled mentor, students are simultaneously enrolled in academic classes to meet high school graduation requirements and a youth apprenticeship related instruction class. Participating school districts are part of 38 state youth apprenticeship consortiums in program areas as diverse as finance, health, hospitality and tourism, transportation and manufacturing. High school students completing the program receive a Certificate of Occupational Proficiency (i.e., youth apprenticeship certificate) from Wisconsin's Department of Workforce Development.

Partnerships with business/industry/labor: Partnerships with these sector sponsors are critical to the success of registered apprenticeship programs in Wisconsin. The primary responsibilities of a registered apprenticeship sponsor are to:

- provide the on-the-job training to the apprentice under the supervision of skilled workers, and
- pay the apprentice for work performed and for the hours spent in related classroom instruction. (Wisconsin's registered apprenticeship programs is unique among states in that it requires that apprentices be paid for the time spent in related classroom instruction.)

Sponsors may also be responsible for conducting and providing the related classroom instruction, if not provided by a WTCS college.

In addition, many sponsors support their apprentices by removing financial barriers to entering or completing a registered apprenticeship program. Sponsors often reimburse apprentices for the cost of their tuition for related instruction and/or required equipment (e.g., steel-toed boots or tool sets, etc.). The State of Wisconsin acknowledges the costs borne by sponsors but does not currently have a dedicated state funding source to reimburse sponsors for these costs. Apprentices who receive their related instruction from a WTCS college are eligible for a $1,500 privately-funded grant to offset equipment costs. Approximately 300 apprentices receive such grants each year.

Finally, and most importantly, Wisconsin registered apprenticeship is driven and guided by industry through a hierarchical framework of state and local industry and labor advisory councils and committees. Wisconsin registered apprenticeship sponsors serve on the Wisconsin State Apprenticeship Advisory Council and four standing subcommittees, as well as 20 state apprenticeship trade advisory committees. Sponsors may also serve on local apprenticeship program advisory committees to help ensure that WTCS colleges' apprenticeship training is current and future focused.

Representative Josh Harder (D-CA)
Question: *How can the RACC better complement states' efforts to align apprenticeship and higher education?*

Response:
The Registered Apprenticeship College Consortium (RACC) can better complement states' efforts to align apprenticeship with higher education by encouraging and incentivizing the development of broad, system-level advanced standing agreements, rather than singular, institution to individual apprenticeship program articulation agreements.

An example of a broad system-level advanced standing agreement can be found in Wisconsin's 60 credit Technical Studies-Journey Worker Associate in Applied Science (JW-AAS) degree that has been in place in Wisconsin for the past 25 years. In the mid-1990's, the 16 colleges of the Wisconsin Technical College System (WTCS) collaborated to build an associate degree pathway for registered apprenticeship program completers that was neither occupationally nor industry sector-specific. Instead, it was based on the hours of learning occurring in the classroom and on-the-job. The result is the JW-AAS degree, which provides academic recognition for both the related instruction and on-the-job learning that an individual completes in a registered apprenticeship. All 16 WTCS colleges recognize the successful completion of a 3-year or longer registered apprenticeship program with at least 400 hours of paid related instruction provided through a WTCS college and the possession of a Certificate of Apprenticeship (completion) issued by the Wisconsin's Bureau of Apprenticeship Standards as fulfilling the 39 credit minimum technical studies requirement of the 60 credit JW-AAS degree. The JW-AAS degree can be completed with 21 general education credits; many — if not all — of which may be completed on-line. This a flexible academic degree option for working adults.

Question: *Reflecting a concern from one of our local unions, what can a reauthorization of the National Apprenticeship Act do to better address the cost of apprentices completing the degrees for which they have already received some credit hours?*

Response:
In Wisconsin, a systemwide advance standing agreement among the 16 colleges of the Wisconsin Technical College System (WTCS) enables individuals completing many of the registered apprenticeship programs a pathway to the Technical Studies-Journey Worker Associate of Applied Science (JW-AAS) degree. In such cases, little to no cost is incurred by the apprentice when applying as the individual evaluation of prior learning is not needed under the advanced standing agreement.

For apprenticeship programs that do not meet the JW-AAS advanced standing eligibility criteria (i.e., those apprenticeship programs of less than 3 years in length and with fewer than

400 hours of related instruction), WTCS maps competency level crosswalks between individual apprenticeship programs to alternative, but logically sequential, occupational associate degree programs. These crosswalks are documented, centralized and accessible to all 16 WTCS colleges, which facilitates the consistent granting of credits for a registered apprentice's related instruction and on-the-job learning. Typically, individual credit-for-prior learning procedures and associated fees would apply. However, because the crosswalks have been collaboratively developed among the WTCS colleges, the majority of WTCS colleges waive these fees since the need to administer prior learning assessments for each course equivalent is no longer necessary.

[Ms. Noteboom response to questions submitted for the record follows:]

Answers:

Representative Sablan:

Answer 1:

Intermediaries, Funding, and pre-apprenticeship programs are helpful initiatives.

Intermediaries: Incenting a company, NGO, or higher education institution to act as first-mover and intermediary is helpful. Although we have had great success in implementing our Registered Apprenticeships with the US Department of Labor, other companies have found it helpful to have the pathway to apprenticeships defined by our early efforts. IBM has worked closely with the Consumer Technology Association to encourage additional companies to develop apprenticeships. We have developed apprenticeship playbooks and shared our pathways through the CTA. Higher education institutions, and both the US Department of Labor and other government agencies can help, but apprenticeships can't move forward without an interested employer.

Funding apprenticeship programs is another obstacle. Annually, the United States spends more than $1.1 trillion on formal and informal post-secondary workforce education and training. The US Department of Labor's appropriated funding level for apprenticeship programs in 2020 was less than $200 million. As the Northern Mariana Islands moves forward, funding provided to subsidize the direct and indirect costs of apprenticeship programs will impact their rate of growth and scale. Simply put, more funding will drive more apprenticeships.

Finally, pre-apprenticeship programs that raise and align the skills of graduates closer to the skills needed by employers, reduce the burden on the apprenticeship program. IBM has worked successfully with educators and local governments on the P-TECH Model. Students in similar programs have a proven pathway that could prepare students for a career, education, or apprenticeships.

Apprenticeships at IBM https://www.ibm.com/us-en/employment/newcollar/apprenticeships.html
Consumer Technology Association https://www.cta.tech/Membership/Member-Groups/CTA-Apprenticeship-Coalition

Answer 2:

Increasing the funding is the primary need to incentivize companies. Reducing state-by-state bureaucratic obstacles is the following priority. Registering an apprenticeship is a burden but does add value to the program. The registration process provides the US Department of labor a tool to assess and improve the quality of the training pathways. The goal of apprenticeship is to develop training pathways to valued career skills and registration helps in that process. However, repeating the registration multiple times in multiple formats across states serves little purpose and is a great obstacle to the expansion of apprenticeship programs.

Representative Harder:

Answer 1:

An employee with a degree and an apprenticeship can acquire a helpful combination of soft and hard skills. The apprenticeship allows them to build the skills that they are missing or many times have not had the opportunity to apply during traditional education.

IBM employs both apprentices that have associate's and bachelor's degrees, and those that have no higher education degrees.

Apprentices with degrees are often career changers. They joined our apprenticeship programs after their higher education degree did not help them toward desirable careers, or other personal reasons.

Apprentices without degrees benefit from the technical training that they receive during the program, and often have different learning styles that are addressed through on-the-job training.

[Mr. Robinson response to questions submitted for the record follows:]

Maryland
DEPARTMENT OF LABOR

OFFICE OF THE SECRETARY
500 N. Calvert Street, 4th Floor
Baltimore, MD 21202

April 2, 2020

The Honorable Bobby Scott
Chairman, Committee
United States House of Representatives
1201 Longworth House Office Building
Washington, DC 20515

The Honorable Virginia Foxx
Ranking Member, Committee
United States House of Representatives
2462 Rayburn House Office Building
Washington, DC 20515

The Honorable Susan A. Davis
Chair, Subcommittee
United States House of Representatives
1214 Longworth House Office Building
Washington, DC 20515

The Honorable Lloyd Smucker
Ranking Member, Subcommittee
United States House of Representatives
127 Cannon House Office Building
Washington, DC 20515

The Honorable Gregorio Kilili Sablan
Member, Subcommittee
United States House of Representatives
2411 Rayburn House Office Building
Washington, DC 20515

The Honorable Gregorio Kilili Sablan:

Regarding your question:

> The Northern Mariana Islands does not have registered apprenticeships at this time but is working toward establishing the infrastructure needed to support them. As we invest in apprenticeships in the Marianas, what initiatives are worth supporting financially to ensure a successful program that can expand and is scalable, and what level of investment is needed in the apprenticeship system to support those efforts?

In establishing a Registered Apprenticeship system it is critical that a state/territory determines if they will be participating as a State Apprenticeship Agency (SAA) or as an Office of Apprenticeship (OA) State. Maryland has chosen to participate in the Registered Apprenticeship system as an SAA state because of the greater flexibility allowed. As such Maryland has created Apprenticeship regulations which mirror the requirements of the United States Department of Labor but have certain requirements tailored specifically to our State.

Maryland has established numerous initiatives over the years which have helped to establish a robust Apprenticeship system. The below are examples of initiatives worth financially investing in to expand and scale Apprenticeship in your region:

1. **Youth Apprenticeship** - Maryland created a Youth Apprenticeship program to help strengthen connections between the school systems, students, parents, and employers to

Registered Apprenticeship. Utilizing the Apprenticeship Maryland Program (AMP) as an introduction to Registered Apprenticeship brings unique advantages. AMP gives Maryland businesses the unique opportunity to train, influence and shape high school students into top-performing employees by providing opportunities for Maryland's high school juniors and seniors. Students are able to "earn while they learn" and not only obtain a wage, but gain academic and occupational skills leading to both a high school diploma and a State Skill Certificate in an Apprenticeship setting.

The program requires that eligible employers hire AMP participants that wish to enter high-skill, high-growth industries, such as healthcare, biotechnology, information technology, construction and design, banking and finance, and advanced manufacturing. Highlights of the program include:

- Students may begin a Youth Apprenticeship in their junior or senior year at 16 years of age
- Employers provide 450 hours of paid, structured on the job learning
- High schools, colleges, associations, unions or employers provide structured related instruction (education) directly connected to the occupation
- Students receive high school credit for both the related instruction and On-the-Job Learning
- Students receive a skills certificate from the Maryland Department of Labor upon completion
- Youth apprentices may also be directly and dually registered as adult Registered Apprentices receiving full credit for their Apprenticeship while still in high school
- Program serves to introduce new employers to the concept of Apprenticeship as a workforce system, recruitment, training and retention model

2. **Employer engagement** - Maryland has a team of specialized Apprenticeship Navigators and Regional Business Services Consultants who meet with business partners, Registered Apprenticeship Sponsors/employers, non-profit organizations, schools and other partners. This team engages each Sponsor on at least a quarterly basis. This initiative began in 2016 and has proved hugely successful with our Sponsors requesting us to visit more to provide hands on technical assistance. The team provides services to include:
    - Developing Registered Apprenticeship Programs
    - Connecting new employers to existing Registered Apprenticeship Programs
    - Reactivating Registered Apprenticeship Programs
    - Developing On-the-Job Learning and related instruction for employers
    - Connecting job seekers to Registered Apprenticeship Sponsors

3. **Non-Traditional Industries and the Competency Based Approach** - Maryland put a strong emphasis and focus on changing the public perception of Apprenticeships by expanding into new, non-traditional industries and occupations that were formerly considered "non-apprenticeable". This was done through competency based Apprenticeships. The ability to provide On-the-Job Training and related instruction to the apprentice, where they learn and are measured in skill attainment as the result of achieving competencies, opened new opportunities in healthcare, cyber security, information technology, and advanced manufacturing. Employers who formerly shied

away from the idea of multi-year occupations that consisted of thousands of hours began embracing the competency based approach and started participating in the apprenticeship movement. Examples of new industries and occupations registered are:

- Healthcare
  - Patient Care Technician
  - Surgical Technologist
  - Licensed Practical Nurse
  - Central Sterile Processing Technician
- Information Technology and Cyber Security
  - Cyber Security Analyst
  - Secure Software Programmer
  - Data Science and Analytics
- Transportation and Logistics:
  - Truck Driver
  - Diesel Technician
- Manufacturing
  - Machinist
  - Additive 3D Printing Technician
- Hospitality
  - Lodging Manager

Despite Maryland's successes, challenges remain as we continue to scale and fully integrate Registered Apprenticeship. A primary challenge is the lack of consistent funding that can be applied at the program level to ensure the state's ability to support and grow Apprenticeships, enable strategic planning for future growth and innovation, reach new partners, and better equip stakeholders with the integration of Apprenticeship into high schools, community colleges, and four year institutions. However, we have developed several financial initiatives that have helped to significantly grow the Apprenticeship program. These programs are:

1. **Registered Apprenticeship Tax Credit** - Tax Credits have varied in Maryland ranging from $1,000 per newly registered apprentice to a recently approved $3,000 per apprentice.
   - In the State of Maryland it is estimated that well over 95% of apprentices have the cost of their related instruction (education) associated with their Apprenticeship paid by their employer. Tax credits are a valuable resource, especially to employers new to Apprenticeship, to offset this cost.
2. **Apprenticeship and Training Fund** - Maryland has created an Apprenticeship and Training Fund to support pre-apprenticeship, Apprenticeship activities associated with high schools and community colleges, and associated workforce programs. The Fund is created and funded through payments of twenty-five cents per hour worked on prevailing wage projects. Employers can pay this fund directly to the Maryland Apprenticeship and Training Fund OR to a Registered Apprenticeship Sponsor approved in Maryland to help them grow their Apprenticeship.

Thank you for your question and your focus on the growth of Apprenticeship. If you have any questions, please contact our Policy Director, Michael Harrison at michael.harrison@maryland.gov or 410-230-6008.

Sincerely,

Tiffany P. Robinson
Secretary
Maryland Department of Labor

[Whereupon, at 12:52 p.m., the subcommittee was adjourned.]

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