

16. FEDERAL INVESTMENT

Federal investment is the portion of Federal spending of taxpayer money intended to yield long-term benefits for the economy and the Nation that would be greater than if that money had been allocated in the private sector. It promotes improved efficiency within Federal agencies, as well as growth in the national economy by increasing the overall stock of capital. Investment spending can take the form of direct Federal spending or grants to State and local governments.¹ It can be designated for physical capital—a tangible asset or the improvement of that asset—that increases production over a period of years or increases value to the Government. It can also be for research and development, education, or training, all of

¹ For more information on Federal grants to State and local governments see Chapter 14, “Aid to State and Local Governments,” in this volume.

which are intangible, but can still increase income in the future or provide other long-term benefits.

Most presentations in this volume combine investment spending with spending intended for current use. This chapter focuses solely on Federal and federally financed investment. It provides a comprehensive picture of Federal spending for physical capital, research and development, and education and training. The analysis in this chapter disregards spending for non-investment activities, and therefore, provides only a partial picture of Federal support for specific national needs, such as defense, which also include current use spending.

Total Federal investment spending was \$558 billion in 2019. It is expected to increase by 20 percent in 2020 to \$667 billion. The Budget proposes a 9 percent decrease from 2020 for a total of \$609 billion in 2021.

DESCRIPTION OF FEDERAL INVESTMENT

The budget uses a relatively broad definition of investment. It defines Federal investment as encompassing spending for research, development, education, and training as well as physical assets such as land, structures, infrastructure, and major equipment. It also includes spending regardless of the ultimate ownership of the resulting asset, or the purpose it serves. For the purposes of this definition, however, Federal investment does not include “social investment” items like healthcare or social services where it is difficult to separate out the degree to which the spending provides current versus future benefits. The distinction between investment spending and current outlays is a matter of judgment, but the definition used for the purposes of this analysis has remained consistent over time and is useful for historical comparisons.²

Investment in physical assets can be for the construction or improvement of buildings, structures, and infrastructure or for the development or acquisition of major equipment. The broader research and development category includes spending on the facilities in which these activities occur, major equipment for the conduct of research and development, as well as spending for basic and applied research, and experimental development.³ Investment in education and training includes vocational rehabilitation, programs for veterans, funding for school systems and higher education, and agricultural extension services. This category excludes training for military personnel or other individuals in Government service.

² Historical figures on investment outlays beginning in 1940 may be found in the Budget’s historical tables. The historical tables are available at <https://www.whitehouse.gov/omb/historical-tables/>.

³ A more thorough discussion of research and development funding may be found in Chapter 17, “Research and Development,” in this volume.

The budget further classifies investments as either grants to State and local governments (e.g. for highways or education), or “direct Federal programs.” This “direct Federal” category consists primarily of spending for assets owned by the Federal Government, such as weapons systems and buildings, but also includes grants to private organizations and individuals for investment, such as capital grants to Amtrak, Pell Grants, and higher education loans to individuals. For grants made to State and local governments, it is the recipient jurisdiction, not the Federal Government that ultimately determines whether the money is used to finance investment or current purposes. This analysis classifies outlays based on the category in which the recipient jurisdictions are expected to spend a majority of the money. General purpose fiscal assistance is classified as current spending, although in practice, some may be spent by recipient jurisdictions on investment.

Additionally, in this analysis, Federal investment includes credit programs that are for investment purposes. When direct loans and loan guarantees are used to fund investment, the subsidy value is included as investment. The subsidies are classified according to their program purpose, such as construction, or education and training.

This discussion presents spending for gross investment, without adjusting for depreciation.

Composition of Federal Investment Outlays

Major Federal Investment

The composition of major Federal investment outlays is summarized in Table 16–1. The categories include major public physical investment, the conduct of research and

Table 16–1. COMPOSITION OF FEDERAL INVESTMENT OUTLAYS
(In billions of dollars)

Federal Investment	Actual 2019	Estimate	
		2020	2021
Major public physical capital investment:			
Direct Federal:			
National defense	163.0	177.2	192.4
Non-defense	35.9	46.6	45.8
Subtotal, direct major public physical capital investment	198.9	223.8	238.2
Grants to State and local governments	80.8	87.3	97.3
Subtotal, major public physical capital investment	279.7	311.1	335.4
Conduct of research and development:			
National defense	56.0	65.8	64.9
Non-defense	67.7	73.8	75.6
Subtotal, conduct of research and development	123.6	139.6	140.5
Conduct of education and training:			
Grants to State and local governments	58.8	64.2	62.5
Direct Federal	94.0	149.4	68.4
Subtotal, conduct of education and training	152.8	213.5	130.9
Total, major Federal investment outlays	556.2	664.3	606.8
MEMORANDUM			
Major Federal investment outlays:			
National defense	219.0	243.1	257.3
Non-defense	337.2	421.2	349.6
Total, major Federal investment outlays	556.2	664.3	606.8
Miscellaneous physical investment:			
Commodity inventories	-1.1	-0.7	-1.2
Other physical investment (direct)	2.5	3.9	3.7
Total, miscellaneous physical investment	1.4	3.2	2.5
Total, Federal investment outlays, including miscellaneous physical investment	557.6	667.4	609.4

development, and the conduct of education and training. Total major Federal investment outlays were \$556 billion in 2019. They are estimated to increase 19 percent to \$664 billion in 2020, and decrease by 9 percent to \$607 billion in 2021. For 2019 through 2021, defense investment outlays comprise about 40 percent of total major Federal investment while non-defense investment comprises around 60 percent. In 2020, defense investment outlays are expected to increase by \$24 billion, 11 percent, while non-defense investment outlays are expected to increase by \$84 billion, 25 percent. In 2021, the Budget requests a defense investment increase of another \$14 billion, or 5.9 percent, over 2020 and a decrease in non-defense investment of \$72 billion, or 17 percent. The major factors contributing to these changes are described below.

Major Federal investment outlays will comprise an estimated 13 percent of total Federal outlays in 2021 and 2.6 percent of the Nation's gross domestic product. Budget authority and outlays for major Federal investment by subcategory may be found in Table 16–2 at the end of this chapter.

Physical investment. Outlays for major public physical capital (hereafter referred to as “physical investment outlays”) were \$280 billion in 2019 and are estimated to increase by 11 percent to \$311 billion in 2020. In 2021, outlays for physical investment are estimated to increase

by 8 percent to \$335 billion. Physical investment outlays are for construction and renovation, the development or purchase of major equipment, and the purchase or sale of land and structures. Around two-thirds of these outlays are for direct physical investment by the Federal Government, with the remainder being grants to State and local governments for physical investment.

Direct physical investment outlays by the Federal Government are primarily for national defense. Defense outlays for physical investment are estimated to be \$192 billion in 2021, \$15 billion higher than in 2020 due to increases for the conduct of research and development.

Outlays for direct physical investment for non-defense purposes are estimated to be \$46 billion in 2021, a decrease of 2 percent from 2020. Outlays for 2021 include \$25 billion for construction and renovation, about the same as 2020. This amount includes funds for construction and renovation of veterans' hospitals and Indian Health Service hospitals and clinics; water, power, and natural resources projects of the Corps of Engineers, and the Bureau of Reclamation within the Department of the Interior; energy projects of the Power Marketing Administrations within the Department of Energy, and the Tennessee Valley Authority; construction of office buildings by the General Services Administration; construction for the administration of justice programs

(largely in Customs and Border Protection within the Department of Homeland Security); construction for embassy security; facilities for space and science programs of the National Aeronautics and Space Administration, Department of Energy, and National Science Foundation; and Postal Service facilities.

Outlays for grants to State and local governments for physical investment are estimated to be \$97 billion in 2021, an 11 percent increase over the 2020 estimate of \$87 billion. Grants for physical investment fund transportation programs, sewage treatment plants, community and regional development, public housing, and other State and tribal assistance. The increase in 2021 is mostly accounted for by the \$5 billion in spending proposed by the Infrastructure Initiative.

Conduct of research and development. Outlays for the conduct of research and development were \$124 billion in 2019. Outlays are estimated to increase by 13 percent to \$140 billion in 2020, and increase by less than 1 percent in 2021. Nearly half of research and development outlays are for national defense, a trend which has remained consistent over the past decade. Much of this year's increase is due to an \$8 billion increase in research and development within military programs accompanied by smaller increases in defense-related research and development at the Department of Energy. Physical investment for research and development facilities and equipment is included in the physical investment category.

Non-defense outlays for the conduct of research and development are estimated to be \$76 billion in 2021, \$2 billion higher than 2020. Most investments in this area are funded through programs in the National Institutes of Health, the National Aeronautics and Space Administration, the National Science Foundation, and the Department of Agriculture.

A discussion of research and development funding can be found in Chapter 17, "Research and Development," in this volume.

Conduct of education and training. Outlays for the conduct of education and training were \$153 billion in 2019. Outlays are estimated to increase by 40 percent to \$214 billion in 2020, and decrease by 39 percent in 2021 to \$131 billion. Grants to State and local governments

for this category are estimated to be \$62 billion in 2021, 48 percent of the total. They include education programs for the disadvantaged and individuals with disabilities, early care and education programs, training programs in the Department of Labor, and other education programs. Direct Federal education and training outlays in 2021 are estimated to be \$68 billion, which is a decrease of \$81 billion, or 54 percent, from 2020 primarily due to a one-time upward reestimate in 2020 in the Federal Direct Student Loan program. Programs in this category primarily consist of aid for higher education through student financial assistance, loan subsidies, and veterans' education, training, and rehabilitation. This category does not include outlays for education and training of Federal civilian and military employees. Outlays for education and training that are for physical investment and for research and development are in the categories for physical investment and the conduct of research and development.

Miscellaneous Physical Investment

In addition to the categories of major Federal investment, several miscellaneous categories of investment outlays are shown at the bottom of Table 16-1. These items, all for physical investment, are generally unrelated to improving Government operations or enhancing economic activity.

Outlays for commodity inventories are for the purchase or sale of agricultural products pursuant to farm price support programs and other commodities. Sales are estimated to exceed purchases by \$3 billion in 2021.

Outlays for other miscellaneous physical investment are estimated to be \$4 billion in 2021. This category consists entirely of direct Federal outlays and includes primarily conservation programs.

Detailed Table on Investment Spending

Table 16-2 provides data on budget authority as well as outlays for major Federal investment, divided according to grants to State and local governments and direct Federal spending. Miscellaneous investment is not included because it is generally unrelated to improving Government operations or enhancing economic activity.

Table 16-2. FEDERAL INVESTMENT BUDGET AUTHORITY AND OUTLAYS: GRANT AND DIRECT FEDERAL PROGRAMS

(In millions of dollars)

Description	Budget Authority			Outlays		
	2019 Actual	2020 Estimate	2021 Estimate	2019 Actual	2020 Estimate	2021 Estimate
GRANTS TO STATE AND LOCAL GOVERNMENTS						
Major public physical investment:						
Construction and rehabilitation:						
Transportation:						
Highways	49,226	46,983	49,283	45,235	46,207	48,363
Mass transportation	13,652	13,550	14,358	13,109	14,078	14,950
Rail transportation	2,590	2,513	1,176	1,996	2,136	1,257
Air and other transportation	5,065	4,954	5,140	4,154	4,551	4,638
Subtotal, transportation	70,533	68,000	69,957	64,494	66,972	69,208
Other construction and rehabilitation:						
Pollution control and abatement	4,114	3,804	2,655	3,403	2,637	3,092
Community and regional development	9,504	4,781	1,003	6,166	9,306	11,541
Housing assistance	4,896	5,190	600	3,869	4,357	4,635
Other	1,344	2,115	190,694	914	1,828	6,158
Subtotal, other construction and rehabilitation	19,858	15,890	194,952	14,352	18,128	25,426
Subtotal, construction and rehabilitation	90,391	83,890	264,909	78,846	85,100	94,634
Other physical assets	2,449	2,433	2,119	1,944	2,225	2,643
Subtotal, major public physical investment	92,840	86,323	267,028	80,790	87,325	97,277
Conduct of research and development:						
Agriculture	357	357	363	297	432	405
Other	186	193	27	51	57	25
Subtotal, conduct of research and development	543	550	390	348	489	430
Conduct of education and training:						
Elementary, secondary, and vocational education	40,480	41,546	37,888	39,381	42,766	41,767
Higher education	400	405	.....	388	448	363
Research and general education aids	764	772	30	748	841	255
Training and employment	3,191	3,501	3,397	2,884	3,233	3,343
Social services	13,858	14,545	13,772	12,649	13,791	14,113
Agriculture	452	470	448	453	592	472
Other	1,872	1,935	2,024	2,323	2,493	2,174
Subtotal, conduct of education and training	61,017	63,174	57,559	58,826	64,164	62,487
Subtotal, grants for investment	154,400	150,047	324,977	139,964	151,978	160,194
DIRECT FEDERAL PROGRAMS						
Major public physical investment:						
Construction and rehabilitation:						
National defense:						
Military construction and family housing	11,339	16,472	6,597	7,024	7,564	10,928
Atomic energy defense activities and other	1,820	1,936	1,765	1,411	1,847	1,728
Subtotal, national defense	13,159	18,408	8,362	8,435	9,411	12,656
Non-defense:						
International affairs	1,373	1,090	996	895	1,378	1,372
General science, space, and technology	1,965	2,011	1,610	1,606	1,991	1,971
Water resources projects	4,964	4,524	3,436	2,891	2,942	2,740
Other natural resources and environment	1,742	1,529	1,278	1,204	1,671	1,767
Energy	2,005	3,209	-1,980	2,067	2,809	3,014
Postal service	857	958	1,223	647	757	938
Transportation	791	590	61	185	158	374
Veterans hospitals and other health facilities	6,189	4,643	4,987	3,585	4,550	4,302
Administration of justice	3,660	3,331	2,503	1,079	2,524	3,229
GSA real property activities	1,851	986	12,126	1,211	1,860	2,484
Other construction	4,203	3,322	1,461	3,412	3,663	2,307
Subtotal, non-defense	29,600	26,193	27,701	18,782	24,303	24,498
Subtotal, construction and rehabilitation	42,759	44,601	36,063	27,217	33,714	37,154

Table 16–2. FEDERAL INVESTMENT BUDGET AUTHORITY AND OUTLAYS: GRANT AND DIRECT FEDERAL PROGRAMS—Continued
(In millions of dollars)

Description	Budget Authority			Outlays		
	2019 Actual	2020 Estimate	2021 Estimate	2019 Actual	2020 Estimate	2021 Estimate
Acquisition of major equipment:						
National defense:						
Department of Defense	176,808	179,947	175,105	154,407	167,404	179,246
Atomic energy defense activities	641	709	730	220	458	484
Subtotal, national defense	177,449	180,656	175,835	154,627	167,862	179,730
Non-defense:						
General science and basic research	665	584	478	515	588	496
Postal service	1,119	5,160	2,174	772	1,544	1,896
Air transportation	3,743	3,787	3,807	3,529	4,123	4,107
Water transportation (Coast Guard)	2,691	1,753	1,547	1,485	2,352	2,231
Other transportation (railroads)	2	2	.....	2	2	.....
Hospital and medical care for veterans	2,683	2,251	3,465	1,976	2,984	3,167
Federal law enforcement activities	1,195	1,879	1,715	1,008	1,625	1,460
Department of the Treasury (fiscal operations)	347	323	437	380	367	415
National Oceanic and Atmospheric Administration	1,690	1,355	1,431	1,351	2,022	1,576
Other	4,819	5,135	5,658	5,744	6,354	5,748
Subtotal, non-defense	18,954	22,229	20,712	16,762	21,961	21,096
Subtotal, acquisition of major equipment	196,403	202,885	197,547	171,389	189,823	200,826
Purchase or sale of land and structures:						
National defense	–35	–35	–34	–52	–25	–26
Natural resources and environment	342	312	91	241	258	256
Other	155	159	157	129	28	–44
Subtotal, purchase or sale of land and structures	462	436	214	318	261	186
Subtotal, major public physical investment	239,624	247,922	232,824	198,924	223,798	238,166
Conduct of research and development:						
National defense:						
Defense military	54,669	62,691	59,831	50,952	58,738	57,688
Atomic energy and other	6,870	7,291	7,319	5,008	7,073	7,239
Subtotal, national defense	61,539	69,982	67,150	55,960	65,811	64,927
Non-defense:						
International affairs	235	226	73	235	226	226
General science, space, and technology:						
NASA	10,016	13,428	12,656	9,792	12,267	12,063
National Science Foundation	5,923	6,129	5,805	5,273	5,414	5,816
Department of Energy	5,045	5,325	4,734	4,503	5,102	5,084
Subtotal, general science, space, and technology	20,984	24,882	23,195	19,568	22,783	22,963
Energy	4,212	4,323	1,958	3,493	3,455	3,446
Transportation:						
Department of Transportation	875	936	566	803	928	650
NASA	565	575	630	558	558	581
Other transportation	24	23	35	36	23	27
Subtotal, transportation	1,464	1,534	1,231	1,397	1,509	1,258
Health:						
National Institutes of Health	36,929	39,323	36,650	33,879	36,481	38,592
Other health	1,858	1,186	832	1,461	802	835
Subtotal, health	38,787	40,509	37,482	35,340	37,283	39,427
Agriculture	1,849	1,935	1,967	1,612	2,032	2,320
Natural resources and environment	2,477	2,501	1,781	2,348	2,464	1,947
National Institute of Standards and Technology	625	657	560	671	677	627
Hospital and medical care for veterans	1,370	1,313	1,351	1,205	1,304	1,326
All other research and development	1,564	1,556	1,417	1,443	1,586	1,587
Subtotal, non-defense	73,567	79,436	71,015	67,312	73,319	75,127
Subtotal, conduct of research and development	135,106	149,418	138,165	123,272	139,130	140,054

Table 16-2. FEDERAL INVESTMENT BUDGET AUTHORITY AND OUTLAYS: GRANT AND DIRECT FEDERAL PROGRAMS—Continued
(In millions of dollars)

Description	Budget Authority			Outlays		
	2019 Actual	2020 Estimate	2021 Estimate	2019 Actual	2020 Estimate	2021 Estimate
Conduct of education and training:						
Elementary, secondary, and vocational education	1,392	1,460	1,127	1,309	1,194	1,137
Higher education	70,755	125,123	41,229	70,477	124,106	43,575
Research and general education aids	2,331	2,430	2,293	2,324	2,309	2,297
Training and employment	2,642	2,309	1,824	2,239	2,457	2,088
Health	2,043	2,172	1,318	1,906	2,053	1,896
Veterans education, training, and rehabilitation	10,080	14,317	12,830	13,433	14,649	15,048
General science and basic research	910	935	919	811	876	929
National defense .....	.....	.....	.....	2	.....	.....
International affairs	713	743	322	668	711	567
Other	1,111	1,036	843	845	997	898
Subtotal, conduct of education and training	91,977	150,525	62,705	94,014	149,352	68,435
Subtotal, direct Federal investment	466,707	547,865	433,694	416,210	512,280	446,655
Total, Federal investment	621,107	697,912	758,671	556,174	664,258	606,849