

20. FEDERAL INVESTMENT

Federal investment is the portion of Federal spending intended to yield long-term benefits for the economy and the country. 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 which are intangible, but still increase income in the future or provide other long-term benefits.

¹ For more information on Federal grants to State and local governments see Chapter 17, “Aid to State and Local Governments,” in this volume.

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 \$487 billion in 2018. It is expected increase by 20 percent in 2019 to \$582 billion. The Budget proposes a 1 percent increase over 2019 for a total of \$589 billion in 2020.

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 health care 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 21, “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 20–1. The categories include major public physical investment, the conduct of research and

Table 20–1. COMPOSITION OF FEDERAL INVESTMENT OUTLAYS
(In billions of dollars)

Federal Investment	Actual	Estimate	
	2018	2019	2020
Major public physical capital investment:			
Direct Federal:			
National defense	146.0	161.3	183.4
Nondefense	34.6	45.9	46.3
Subtotal, direct major public physical capital investment	180.6	207.2	229.7
Grants to State and local governments	79.9	84.2	93.6
Subtotal, major public physical capital investment	260.5	291.4	323.3
Conduct of research and development:			
National defense	49.1	60.3	64.3
Nondefense	65.2	69.6	70.3
Subtotal, conduct of research and development	114.3	129.9	134.6
Conduct of education and training:			
Grants to State and local governments	56.1	62.8	59.7
Direct Federal	54.5	95.8	69.0
Subtotal, conduct of education and training	110.6	158.6	128.7
Total, major Federal investment outlays	485.4	579.9	586.7
MEMORANDUM			
Major Federal investment outlays:			
National defense	195.1	221.5	247.7
Nondefense	290.3	358.4	339.0
Total, major Federal investment outlays	485.4	579.9	586.7
Miscellaneous physical investment:			
Commodity inventories	-1.2	-1.1	-0.9
Other physical investment (direct)	2.8	3.2	3.0
Total, miscellaneous physical investment	1.5	2.1	2.0
Total, Federal investment outlays, including miscellaneous physical investment	487.0	582.0	588.7

development, and the conduct of education and training. Total major Federal investment outlays were \$485 billion in 2018. They are estimated to increase 19 percent to \$580 billion in 2019, and increase by 1 percent to \$587 billion in 2020. For 2018 through 2020, defense investment outlays comprise about 40 percent of total major federal investment while nondefense investment comprises around 60 percent. In 2019, defense investment outlays are expected to increase by \$26 billion, 14 percent, while nondefense investment outlays are expected to increase by \$68 billion, 23 percent. In 2020, the Budget requests a defense investment increase of another \$26 billion, or 12 percent, over 2019 and a decrease in nondefense investment of \$19 billion, or 6 percent. The major factors contributing to these changes are described below.

Major Federal investment outlays will comprise an estimated 12 percent of total Federal outlays in 2020 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 20–2 at the end of this chapter.

Physical investment. Outlays for major public physical capital (hereafter referred to as “physical investment outlays”) were \$260 billion in 2018 and are estimated to increase by 12 percent to \$291 billion in 2019. In 2020,

outlays for physical investment are estimated to increase by 11 percent to \$323 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 \$183 billion in 2020, \$22 billion higher than in 2019 due to increases for the procurement of weapons and other defense equipment.

Outlays for direct physical investment for nondefense purposes are estimated to be \$46 billion in 2020, an increase of less than 1 percent over 2019. Outlays for 2020 include \$26 billion for construction and renovation, about the same as 2019. 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 \$94 billion in 2020, a 11 percent increase over the 2019 estimate of \$84 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 2020 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 \$114 billion in 2018. Outlays are estimated to increase by 14 percent to \$130 billion in 2019, and increase by another 4 percent in 2020 to \$135 billion. 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 a \$3 billion increase in research and development within military programs accompanied by smaller increases in defense-related research and development at the Department of Energy and Department of Homeland Security. 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 \$70 billion in 2020, less than \$1 billion higher than 2019. Most investments in this area are funded through programs in the National Institutes of Health, the National Aeronautics and Space Administration, the Department of Energy, and the National Science Foundation.

A discussion of research and development funding can be found in Chapter 21, "Research and Development," in this volume.

Conduct of education and training. Outlays for the conduct of education and training were \$111 billion in 2018. Outlays are estimated to increase by 43 percent to

\$159 billion in 2019, and decrease by 19 percent in 2020 to \$129 billion. Grants to State and local governments for this category are estimated to be \$60 billion in 2020, 46 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 2020 are estimated to be \$69 billion, which is a decrease of \$27 billion, or 28 percent, from 2019 primarily due to a one-time upward reestimate in 2019 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 20-1. 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 \$1.0 billion in 2020.

Outlays for other miscellaneous physical investment are estimated to be \$3 billion in 2020. This category consists entirely of direct Federal outlays and includes primarily conservation programs.

Detailed Table on Investment Spending

Table 20-2 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 20-2. FEDERAL INVESTMENT BUDGET AUTHORITY AND OUTLAYS: GRANT AND DIRECT FEDERAL PROGRAMS

(In millions of dollars)

Description	Budget Authority			Outlays		
	2018 Actual	2019 Estimate	2020 Estimate	2018 Actual	2019 Estimate	2020 Estimate
GRANTS TO STATE AND LOCAL GOVERNMENTS						
Major public physical investment:						
Construction and rehabilitation:						
Transportation:						
Highways	47,094	46,635	37,696	44,449	44,977	46,354
Mass transportation	14,121	13,800	13,077	12,608	13,342	14,097
Rail transportation	2,766	2,765	1,203	2,110	2,070	1,241
Air and other transportation	6,665	6,660	5,190	4,485	5,551	4,987
Subtotal, transportation	70,646	69,860	57,166	63,652	65,940	66,679
Other construction and rehabilitation:						
Pollution control and abatement	3,402	3,400	2,265	3,147	2,532	2,745
Community and regional development	33,760	6,716	932	6,835	8,190	11,458
Housing assistance	4,979	4,988	600	3,556	4,154	4,146
Other	1,863	1,670	190,711	826	1,126	6,067
Subtotal, other construction and rehabilitation	44,004	16,774	194,508	14,364	16,002	24,416
Subtotal, construction and rehabilitation	114,650	86,634	251,674	78,016	81,942	91,095
Other physical assets	2,915	2,963	2,086	1,857	2,279	2,532
Subtotal, major public physical investment	117,565	89,597	253,760	79,873	84,221	93,627
Conduct of research and development:						
Agriculture	335	335	326	341	341	364
Other	185	185	183	82	82	77
Subtotal, conduct of research and development	520	520	509	423	423	441
Conduct of education and training:						
Elementary, secondary, and vocational education	42,327	40,332	35,676	37,506	43,072	40,718
Higher education	564	400	.....	355	477	278
Research and general education aids	764	763	30	743	829	267
Training and employment	3,406	3,191	3,165	3,050	3,096	3,041
Social services	14,139	13,817	13,038	11,994	12,671	12,975
Agriculture	418	418	402	413	515	443
Other	1,871	1,592	1,820	2,073	2,131	2,003
Subtotal, conduct of education and training	63,489	60,513	54,131	56,134	62,791	59,725
Subtotal, grants for investment	181,574	150,630	308,400	136,430	147,435	153,793
DIRECT FEDERAL PROGRAMS						
Major public physical investment:						
Construction and rehabilitation:						
National defense:						
Military construction and family housing	10,256	9,697	19,587	6,350	7,237	8,401
Atomic energy defense activities and other	1,411	1,864	2,033	754	1,534	1,721
Subtotal, national defense	11,667	11,561	21,620	7,104	8,771	10,122
Nondefense:						
International affairs	1,885	1,664	1,000	886	1,185	1,293
General science, space, and technology	2,006	2,018	1,740	1,336	1,980	1,902
Water resources projects	19,387	4,066	2,378	1,892	4,904	5,922
Other natural resources and environment	2,090	1,664	1,407	1,249	1,456	1,670
Energy	2,320	3,228	-2,891	2,123	2,623	2,223
Postal service	662	868	899	567	618	797
Transportation	200	96	72	183	109	116
Veterans hospitals and other health facilities	4,389	6,260	4,096	3,688	4,246	4,628
Administration of justice	3,186	3,066	5,479	1,064	2,977	2,640
GSA real property activities	1,539	1,358	12,312	1,278	1,602	2,293
Other construction	5,283	4,221	1,474	4,002	3,993	2,373
Subtotal, nondefense	42,947	28,509	27,966	18,268	25,693	25,857

Table 20–2. FEDERAL INVESTMENT BUDGET AUTHORITY AND OUTLAYS: GRANT AND DIRECT FEDERAL PROGRAMS—Continued
(In millions of dollars)

Description	Budget Authority			Outlays		
	2018 Actual	2019 Estimate	2020 Estimate	2018 Actual	2019 Estimate	2020 Estimate
Subtotal, construction and rehabilitation	54,614	40,070	49,586	25,372	34,464	35,979
Acquisition of major equipment:						
National defense:						
Department of Defense	176,984	181,016	178,407	138,477	152,101	172,864
Atomic energy defense activities	745	639	682	434	429	465
Subtotal, national defense	177,729	181,655	179,089	138,911	152,530	173,329
Nondefense:						
General science and basic research	505	585	368	467	503	422
Postal service	910	981	5,403	841	1,041	1,792
Air transportation	4,102	3,977	3,977	3,306	4,438	4,434
Water transportation (Coast Guard)	3,257	2,528	1,215	1,346	2,104	2,252
Other transportation (railroads)	19	2	2	2	2	2
Hospital and medical care for veterans	2,757	3,304	2,382	1,771	2,692	2,455
Federal law enforcement activities	1,233	1,194	1,453	1,317	1,428	1,362
Department of the Treasury (fiscal operations)	241	386	510	294	418	500
National Oceanic and Atmospheric Administration	2,031	2,093	1,348	1,518	2,190	2,110
Other	5,045	4,623	5,007	5,289	5,011	4,840
Subtotal, nondefense	20,100	19,673	21,665	16,151	19,827	20,169
Subtotal, acquisition of major equipment	197,829	201,328	200,754	155,062	172,357	193,498
Purchase or sale of land and structures:						
National defense	–34	–37	–35	–39	–33	–29
Natural resources and environment	283	288	81	242	258	221
Other	155	159	159	–14	170	28
Subtotal, purchase or sale of land and structures	404	410	205	189	395	220
Subtotal, major public physical investment	252,847	241,808	250,545	180,623	207,216	229,697
Conduct of research and development:						
National defense:						
Defense military	52,335	55,810	59,463	44,185	53,976	57,303
Atomic energy and other	6,729	6,408	7,218	4,959	6,290	6,995
Subtotal, national defense	59,064	62,218	66,681	49,144	60,266	64,298
Nondefense:						
International affairs	238	231	78	238	231	231
General science, space, and technology:						
NASA	11,060	10,016	10,618	10,121	9,889	10,772
National Science Foundation	5,824	5,812	5,255	5,207	5,298	5,274
Department of Energy	4,843	4,979	4,472	4,350	4,838	4,768
Subtotal, general science, space, and technology	21,727	20,807	20,345	19,678	20,025	20,814
Energy	4,079	4,294	1,451	3,008	3,612	3,057
Transportation:						
Department of Transportation	845	952	878	780	903	930
NASA	560	565	575	507	558	581
Other transportation	49	49	26	22	46	30
Subtotal, transportation	1,454	1,566	1,479	1,309	1,507	1,541
Health:						
National Institutes of Health	35,276	37,020	32,585	31,667	34,430	35,588
Other health	1,892	1,887	832	1,554	1,412	964
Subtotal, health	37,168	38,907	33,417	33,221	35,842	36,552
Agriculture	1,739	1,800	1,738	1,578	1,823	2,033
Natural resources and environment	2,275	2,311	1,721	2,311	2,504	2,134
National Institute of Standards and Technology	630	629	525	645	679	602
Hospital and medical care for veterans	1,286	1,342	1,325	1,191	1,283	1,293
All other research and development	1,708	1,764	1,446	1,593	1,676	1,640
Subtotal, nondefense	72,304	73,651	63,525	64,772	69,182	69,897
Subtotal, conduct of research and development	131,368	135,869	130,206	113,916	129,448	134,195

Table 20-2. FEDERAL INVESTMENT BUDGET AUTHORITY AND OUTLAYS: GRANT AND DIRECT FEDERAL PROGRAMS—Continued
(In millions of dollars)

Description	Budget Authority			Outlays		
	2018 Actual	2019 Estimate	2020 Estimate	2018 Actual	2019 Estimate	2020 Estimate
Conduct of education and training:						
Elementary, secondary, and vocational education	1,480	1,392	1,194	1,200	1,431	1,086
Higher education	34,959	73,485	42,862	32,083	70,997	44,849
Research and general education aids	2,316	2,323	2,183	2,250	2,233	2,211
Training and employment	2,496	2,553	1,894	2,116	2,636	2,343
Health	2,007	2,048	1,198	1,841	1,832	1,686
Veterans education, training, and rehabilitation	13,980	10,096	14,322	12,703	14,154	14,478
General science and basic research	883	861	779	762	846	843
National defense .....	.....	.....	.....	1	.....	.....
International affairs	664	658	322	672	703	625
Other	1,099	1,118	818	822	983	896
Subtotal, conduct of education and training	59,884	94,534	65,572	54,450	95,815	69,017
Subtotal, direct Federal investment	444,099	472,211	446,323	348,989	432,479	432,909
Total, Federal investment	625,673	622,841	754,723	485,419	579,914	586,702