

17. 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 of grants to State and local governments.¹ It can be designated for physical capital, which creates a tangible asset that yields a stream of services over a period of years. It also can be for research and development, education, or

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

training, all of which are intangible, but 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 investment spending for physical capital, research and development, and education and training, but because it disregards spending for non-investment activities, it provides only a partial picture of Federal support for specific national needs, such as defense and transportation.

DESCRIPTION OF FEDERAL INVESTMENT

The distinction between investment spending and current outlays is a matter of judgment. The budget has historically employed a relatively broad classification of investment, encompassing physical investment, research, development, education, and training. The budget further classifies investments into those that are grants to State and local governments, such as grants for highways, and all other investments, 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 or higher education loans directly to individuals.

The definition of investment in a particular presentation can vary depending on specific considerations:

- Taking the approach of a traditional balance sheet would limit investment to only those physical assets owned by the Federal Government, excluding capital financed through grants and intangible assets such as research and education.
- Focusing on the role of investment in improving national productivity and enhancing economic growth would exclude items such as national defense assets, the direct benefits of which enhance national security rather than economic growth.
- Examining the efficiency of Federal operations would confine the coverage to investments that reduce costs or improve the effectiveness of internal Federal agency operations, such as computer systems.
- Considering a “social investment” perspective would broaden the coverage of investment beyond what is included in this chapter to include programs such as maternal health, certain nutrition programs, and

substance abuse treatment, which are designed in part to prevent more costly health problems in future years.

This analysis takes the relatively broad approach of including all investment in physical assets, research and development, and education and training, regardless of ultimate ownership of the resulting asset or the purpose it serves. It 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 definition of investment used in this section provides consistency over time (historical figures on investment outlays back to 1940 may be found in the Budget’s historical tables).²

In addition to this basic issue of definition, there are two technical problems in the classification of investment data: the treatment of grants to State and local governments, and the classification of spending that could be shown in multiple categories.

First, for some grants to State and local governments it is the recipient jurisdiction, not the Federal Government, which ultimately determines whether the money is used to finance investment or current purposes. This analysis classifies all of the outlays into 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.

Second, some spending could be classified in more than one category of investment. For example, outlays for construction of research facilities finance the acquisition of physical assets, but they also contribute to research and development. To avoid double counting, the outlays are classified hierarchically in the category that is most com-

² The historical tables are available at <https://www.whitehouse.gov/omb/historical-tables/> and on the Budget CD-ROM.

monly recognized as investment: physical assets, followed by research and development, followed by education and training. Consequently, outlays for the conduct of research and development do not include outlays for the construction of research facilities, because these outlays are included in the category for investment in physical assets.

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. For more information about the treatment of Federal credit programs, refer to the section on Federal credit in Chapter 8, "Budget Concepts," in this volume.

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 17-1. The categories include major public physical investment, the conduct of research and development, and the conduct of education and training. Total major Federal investment outlays were \$528.1 bil-

lion in 2017. Federal investment outlays are estimated to decrease 5.5 percent to \$498.8 billion in 2018, and increase by 13.6 percent to \$566.7 billion in 2019. In 2019, defense investment outlays are estimated to increase by \$26.0 billion, while nondefense investment outlays are expected to increase by \$42.0 billion. The major factors contributing to these changes are described below.

Major Federal investment outlays will comprise an estimated 12.0 percent of total Federal outlays in 2019 and 2.7 percent of the Nation's gross domestic product. Budget authority and outlays for major Federal investment by subcategory may be found in Table 17-2 at the end of this chapter.

Physical investment. Outlays for major public physical capital investment (hereafter referred to as "physical investment outlays") are estimated to increase by 21.2 percent in 2019 to \$322.8 billion, primarily driven by increases in funding to support the Administration's infrastructure initiative. Physical investment outlays are for construction and renovation, the purchase of major equipment, and the purchase or sale of land and structures. Almost 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

Table 17-1. COMPOSITION OF FEDERAL INVESTMENT OUTLAYS
(In billions of dollars)

Federal Investment	Actual 2017	Estimate	
		2018	2019
Major public physical capital investment:			
Direct Federal:			
National defense	134.0	144.7	159.9
Nondefense	38.4	40.6	40.0
Subtotal, direct major public physical capital investment	172.4	185.4	199.9
Grants to State and local governments	79.5	81.0	122.9
Subtotal, major public physical capital investment	251.9	266.3	322.8
Conduct of research and development:			
National defense	51.3	49.6	60.3
Nondefense	64.3	67.2	63.0
Subtotal, conduct of research and development	115.6	116.7	123.3
Conduct of education and training:			
Grants to State and local governments	57.5	60.0	55.9
Direct Federal	103.1	55.8	64.7
Subtotal, conduct of education and training	160.6	115.8	120.6
Total, major Federal investment outlays	528.1	498.8	566.7
MEMORANDUM			
Major Federal investment outlays:			
National defense	185.3	194.3	220.2
Nondefense	342.8	304.6	346.5
Total, major Federal investment outlays	528.1	498.8	566.7
Miscellaneous physical investment:			
Commodity inventories	-0.8	-0.8	-1.0
Other physical investment (direct)	2.6	2.8	2.9
Total, miscellaneous physical investment	1.7	2.0	1.9
Total, Federal investment outlays, including miscellaneous physical investment	529.8	500.8	568.6

\$159.9 billion in 2019, \$15.2 billion higher than in 2018. Approximately 94 percent of defense physical investment outlays, or an estimated \$149.9 billion, are for the procurement of weapons and other defense equipment, and the remainder is primarily for construction on military bases, family housing for military personnel, and Department of Energy defense facilities.

Outlays for direct physical investment for non-defense purposes are estimated to be \$40.0 billion in 2019. Outlays for 2019 include \$21.5 billion for construction and renovation. 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 this category are estimated to decrease by \$0.6 billion in 2019. The new Federal Capital Revolving Fund, proposed as part of the Administration's infrastructure initiative, increases outlays by \$1.9 billion relative to 2018. However, this increase is offset by decreases resulting from one-time upward re-estimates of credit subsidy in 2018 in the Federal Housing Administration and decreases in capital spending in 2019 in the Department of Energy's Western Area Power Administration (WAPA). The Budget proposes to repeal WAPA's authority to borrow from Treasury to fund transmission projects that are best carried out by the private sector.

Outlays for grants to State and local governments for physical investment are estimated to be \$122.9 billion in 2019, a 51.8 percent increase over the 2018 estimate of \$81.0 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 2019 is mostly accounted for by the Administration's infrastructure initiative, which will begin to rebuild and modernize the Nation's physical infrastructure, help create jobs, maintain America's economic competitiveness, and connect communities and people to more opportunities. While the Administration continues to work with the Congress, States, localities, and other infrastructure stakeholders to finalize the suite of Federal programs that will support this effort, the 2019 Budget allocates \$200 billion for the infrastructure initiative. The majority of this initiative is classified as grants to State and local governments, with \$42.4 billion in outlays estimated to occur in 2019.

Conduct of research and development. Outlays for the conduct of research and development are estimated to be \$123.3 billion in 2019, a \$6.6 billion or 5.7 percent

increase from 2018. Nearly half of research and development outlays are for national defense. Much of this year's increase is due to a \$10.7 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 \$63.0 billion in 2019, a \$4.2 billion or 6.2 percent decrease from 2018. 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 18, "Research and Development," in this volume.

Conduct of education and training. Outlays for the conduct of education and training were \$160.6 billion in 2017. Outlays are estimated to decrease to \$115.8 billion in 2018, and increase in 2019 to \$120.6 billion. Grants to State and local governments for this category are estimated to be \$55.9 billion in 2019, 46.3 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 2019 are estimated to be \$64.7 billion, which is an increase of \$8.9 billion, or 15.9 percent, from 2018. Programs in this category primarily consist of aid for higher education through student financial assistance, loan subsidies, and veterans' education, training, and rehabilitation. The decrease in outlays for the conduct of education and training from 2017 to 2018, and the increase from 2018 to 2019 are largely the result of annual re-estimates of subsidies to the Federal Direct Student Loan Program, which increased outlays in 2017 by \$28.4 billion but reduced outlays by \$11.4 billion in 2018. Another factor raising 2019 outlays is a \$4.1 billion increase in the Student Financial Assistance account at the Department of Education.

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 17-1. 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 2019.

Outlays for other miscellaneous physical investment are estimated to be \$2.9 billion in 2019. This category consists entirely of direct Federal outlays and includes primarily conservation programs.

Detailed Table on Investment Spending

Table 17-2 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. The majority of funding for the Administration's infrastructure initiative may be found under the grants to State and local governments section of the table on the "community and regional development" line and the "other" line under the "other construction and rehabilitation" heading.

Table 17-2. FEDERAL INVESTMENT BUDGET AUTHORITY AND OUTLAYS: GRANT AND DIRECT FEDERAL PROGRAMS
(In millions of dollars)

Description	Budget Authority			Outlays		
	2017 Actual	2018 Estimate	2019 Estimate	2017 Actual	2018 Estimate	2019 Estimate
GRANTS TO STATE AND LOCAL GOVERNMENTS						
Major public physical investment:						
Construction and rehabilitation:						
Transportation:						
Highways	42,510	42,350	43,872	43,644	44,094	44,898
Mass transportation	13,733	13,550	12,284	12,124	13,131	13,049
Rail transportation	1,579	1,571	679	4,325	1,888	853
Air and other transportation	3,675	3,674	3,189	3,486	3,958	3,875
Subtotal, transportation	61,497	61,145	60,024	63,579	63,071	62,675
Other construction and rehabilitation:						
Pollution control and abatement	2,920	2,821	1,959	3,055	3,050	2,126
Community and regional development	13,775	4,182	50,285	6,667	8,296	50,837
Housing assistance	3,653	3,630	462	3,582	3,667	3,314
Other	809	1,166	120,673	687	912	1,849
Subtotal, other construction and rehabilitation	21,157	11,799	173,379	13,991	15,925	58,126
Subtotal, construction and rehabilitation	82,654	72,944	233,403	77,570	78,996	120,801
Other physical assets	1,990	2,192	2,032	1,881	1,958	2,122
Subtotal, major public physical investment	84,644	75,136	235,435	79,451	80,954	122,923
Conduct of research and development:						
Agriculture	336	334	326	308	341	341
Other	188	183	173	108	104	92
Subtotal, conduct of research and development	524	517	499	416	445	433
Conduct of education and training:						
Elementary, secondary, and vocational education	38,087	37,707	33,770	38,427	38,927	37,527
Higher education	380	376		342	421	329
Research and general education aids	789	786	15	776	802	244
Training and employment	3,241	3,355	1,981	3,269	3,321	2,405
Social services	12,464	12,721	12,097	11,854	13,292	12,358
Agriculture	418	447	399	388	594	545
Other	1,702	1,952	2,209	2,448	2,629	2,494
Subtotal, conduct of education and training	57,081	57,344	50,471	57,504	59,986	55,902
Subtotal, grants for investment	142,249	132,997	286,405	137,371	141,385	179,258
DIRECT FEDERAL PROGRAMS						
Major public physical investment:						
Construction and rehabilitation:						
National defense:						
Military construction and family housing	6,798	6,994	9,877	6,278	7,917	9,487
Atomic energy defense activities and other	534	524	626	390	466	578

Table 17-2. FEDERAL INVESTMENT BUDGET AUTHORITY AND OUTLAYS: GRANT AND DIRECT FEDERAL PROGRAMS—Continued
(In millions of dollars)

Description	Budget Authority			Outlays		
	2017 Actual	2018 Estimate	2019 Estimate	2017 Actual	2018 Estimate	2019 Estimate
Subtotal, national defense	7,332	7,518	10,503	6,668	8,383	10,065
Nondefense:						
International affairs	2,416	2,328	980	943	1,412	1,626
General science, space, and technology	1,396	1,290	1,158	1,280	1,260	1,410
Water resources projects	3,401	3,129	1,920	3,130	3,346	3,206
Other natural resources and environment	1,156	1,266	927	1,069	1,297	1,113
Energy	3,491	3,783	-2,568	3,521	2,846	2,242
Postal service	500	575	607	507	486	518
Transportation	185	160	201	136	217	263
Veterans hospitals and other health facilities	2,632	3,278	4,236	2,726	4,155	3,633
Administration of justice	1,571	1,437	2,178	921	1,459	1,607
GSA real property activities	900	876	2,461	1,256	1,456	2,147
Other construction	6,466	3,656	2,817	6,452	4,263	3,774
Subtotal, nondefense	24,114	21,778	14,917	21,941	22,197	21,539
Subtotal, construction and rehabilitation	31,446	29,296	25,420	28,609	30,580	31,604
Acquisition of major equipment:						
National defense:						
Department of Defense	147,865	155,025	178,363	126,912	135,906	149,398
Atomic energy defense activities	485	567	594	432	471	469
Subtotal, national defense	148,350	155,592	178,957	127,344	136,377	149,867
Nondefense:						
General science and basic research	365	358	293	357	340	332
Postal service	877	1,533	4,976	837	1,432	2,250
Air transportation	3,383	3,703	3,030	2,927	3,784	3,381
Water transportation (Coast Guard)	1,174	1,192	1,012	1,383	1,269	1,237
Hospital and medical care for veterans	1,783	1,857	2,802	1,375	1,582	2,150
Federal law enforcement activities	1,318	1,423	1,394	1,359	1,710	1,401
Department of the Treasury (fiscal operations)	317	322	144	396	245	190
National Oceanic and Atmospheric Administration	2,022	2,062	1,476	1,766	1,916	1,751
Other	4,962	5,019	5,181	5,557	5,815	5,430
Subtotal, nondefense	16,201	17,469	20,308	15,957	18,093	18,122
Subtotal, acquisition of major equipment	164,551	173,061	199,265	143,301	154,470	167,989
Purchase or sale of land and structures:						
National defense	-33	-38	-37	-36	-31	-31
Natural resources and environment	388	295	52	265	275	163
General government .....	.....	.....	13	.....	.....	4
Other	149	159	159	283	67	170
Subtotal, purchase or sale of land and structures	504	416	187	512	311	306
Subtotal, major public physical investment	196,501	202,773	224,872	172,422	185,361	199,899
Conduct of research and development:						
National defense:						
Defense military	49,036	43,564	57,102	45,431	43,271	53,965
Atomic energy and other	6,209	6,211	6,430	5,913	6,286	6,371
Subtotal, national defense	55,245	49,775	63,532	51,344	49,557	60,336
Nondefense:						
International affairs	289	322	117	290	266	266
General science, space, and technology:						
NASA	10,135	9,713	10,109	10,066	9,525	10,016
National Science Foundation	5,517	5,591	3,948	5,279	5,258	5,010
Department of Energy	4,657	4,456	3,253	4,338	4,456	3,253
Subtotal, general science, space, and technology	20,309	19,760	17,310	19,683	19,239	18,279
Energy	2,994	3,237	1,603	2,911	3,410	3,189
Transportation:						

Table 17-2. FEDERAL INVESTMENT BUDGET AUTHORITY AND OUTLAYS: GRANT AND DIRECT FEDERAL PROGRAMS—Continued
(In millions of dollars)

Description	Budget Authority			Outlays		
	2017 Actual	2018 Estimate	2019 Estimate	2017 Actual	2018 Estimate	2019 Estimate
Department of Transportation	720	745	639	690	745	703
NASA	517	508	488	462	494	471
Other transportation	41	41	40	24	40	39
Subtotal, transportation	1,278	1,294	1,167	1,176	1,279	1,213
Health:						
National Institutes of Health	32,419	32,233	23,540	30,021	33,282	31,295
Other health	2,066	1,796	1,454	2,610	1,436	1,455
Subtotal, health	34,485	34,029	24,994	32,631	34,718	32,750
Agriculture	1,751	1,660	1,436	1,646	1,848	1,592
Natural resources and environment	2,369	2,359	1,708	2,378	2,317	1,834
National Institute of Standards and Technology	615	612	497	618	629	551
Hospital and medical care for veterans	1,346	1,338	1,454	1,188	1,314	1,372
All other research and development	1,633	1,615	1,479	1,365	1,713	1,526
Subtotal, nondefense	67,069	66,226	51,765	63,886	66,733	62,572
Subtotal, conduct of research and development	122,314	116,001	115,297	115,230	116,290	122,908
Conduct of education and training:						
Elementary, secondary, and vocational education	1,426	1,552	1,265	1,436	1,241	1,417
Higher education	83,052	35,641	35,765	79,673	31,246	39,219
Research and general education aids	2,353	2,300	2,132	2,403	2,237	2,201
Training and employment	2,267	2,227	1,826	2,099	2,461	2,485
Health	1,746	1,746	939	1,735	1,803	1,644
Veterans education, training, and rehabilitation	16,642	14,003	12,147	13,520	13,968	15,439
General science and basic research	902	887	634	814	943	901
National defense .....	.....	.....	.....	1	3	.....
International affairs	650	646	171	645	844	483
Other	836	942	721	742	1,056	891
Subtotal, conduct of education and training	109,874	59,944	55,600	103,068	55,802	64,680
Subtotal, direct Federal investment	428,689	378,718	395,769	390,720	357,453	387,487
Total, Federal investment	570,938	511,715	682,174	528,091	498,838	566,745