

Definitions and General Table Notes

The capitalization of R&D requires the construction of the investment flows and capital stocks associated with the R&D asset. The R&DSA's estimates of R&D assets are presented in a multiple table format. The appendix includes tables of values of stocks of R&D capital and the flows of R&D investment and depreciation on an annual basis. This appendix provides an overview of the terms and methodology used in the construction of the R&D asset tables.

Asset Valuation

BEA values the net capital stocks and depreciation of fixed assets at historical cost, current cost and real cost.

Historical cost valuation – Historical cost estimates are based on the acquisition costs of the assets. It is the value of the R&D at the time of the expenditure.

Current cost valuation – Current cost estimates of net capital stocks and depreciation reflect the prices of the given period. The current cost net capital stock is the market value of the stock at the end of the year. It can also be considered the cost of replacing the capital stock.

Real valuation – Real cost estimates remove the effects of price changes of the assets by valuing all R&D at the same prices. The R&DSA reports real-cost values using chained (2000) dollars.

Overview of Estimation Methodology

Investment – The R&D investment represents annual flow of R&D output. Raw expenditure data are adjusted to calculate historical cost and real cost R&D investment on both performer and funder bases. The adjustment is described in Table 2. R&D investment flow is reported on a funder basis in Appendix Tables 3.1 and 3.2 and on a performer basis in Appendix Tables 5.1 and 5.2.

Net Stock – R&D investment flow is aggregated into an R&D stock. The stock represents the value of R&D wealth in the economy. The R&D net stock, presented in Tables 3.3, 3.4, and 3.5, estimates the value remaining in the R&D capital stock after depreciation is deducted. The R&D stock is estimated using perpetual inventory method.

$$N_t = (1 - \delta)N_{t-1} + (1 - \frac{\delta}{2}) * I_t$$

Where N_t is the net stock at the end of period t , I_t is the R&D investment flow, and δ is the depreciation rate.

Depreciation – The depreciation of the asset is the decline in the value of the stock of R&D assets due to wear and tear, obsolescence, accidental damage, and aging. The estimates of depreciation are based on geometric depreciation patterns

$$D_t = I_t - N_t + N_{t-1}$$

Where D_t is the depreciation of the asset over period t . The depreciation of the R&D stocks is reported in Appendix Tables 3.6, 3.7, and 3.8. In the context of the NIPAs, depreciation is represented by an income component titled the Consumption of Fixed Capital (CFC).

Table 1.1 Real Gross Domestic Product with and without R&D Adjustments 1959-2002

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
GDP w/o adjustment	1	2,441,284	2,501,756	2,559,971	2,715,177	2,833,963	2,998,593	3,191,104	3,399,126
Scenario A	2	2,502,659	2,565,662	2,625,397	2,783,699	2,904,051	3,075,349	3,273,862	3,488,592
percent change	3	2.5	2.6	2.6	2.5	2.5	2.6	2.6	2.6
Scenario B	4	2,420,604	2,483,638	2,542,362	2,697,952	2,820,469	2,989,212	3,185,433	3,399,490
percent change	5	-0.8	-0.7	-0.7	-0.6	-0.5	-0.3	-0.2	0.0
Scenario C	6	2,445,880	2,508,464	2,566,699	2,722,588	2,845,305	3,014,490	3,211,437	3,425,506
percent change	7	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.8
Scenario D	8	2,433,272	2,495,636	2,553,750	2,709,405	2,831,435	2,999,995	3,196,455	3,410,207
percent change	9	-0.3	-0.2	-0.2	-0.2	-0.1	0.0	0.2	0.3

	Line	1967	1968	1969	1970	1971	1972	1973	1974
GDP w/o adjustment	1	3,484,631	3,652,698	3,765,397	3,771,876	3,898,613	4,104,966	4,341,456	4,319,565
Scenario A	2	3,581,411	3,757,836	3,878,390	3,884,122	4,010,468	4,221,217	4,459,915	4,437,032
percent change	3	2.8	2.9	3.0	3.0	2.9	2.8	2.7	2.7
Scenario B	4	3,490,302	3,665,215	3,786,821	3,794,770	3,917,134	4,122,556	4,360,936	4,343,362
percent change	5	0.2	0.3	0.6	0.6	0.5	0.4	0.4	0.6
Scenario C	6	3,516,609	3,692,356	3,813,249	3,821,081	3,946,060	4,153,281	4,392,222	4,372,838
percent change	7	0.9	1.1	1.3	1.3	1.2	1.2	1.2	1.2
Scenario D	8	3,501,384	3,677,109	3,798,474	3,806,630	3,929,155	4,134,402	4,372,442	4,353,132
percent change	9	0.5	0.7	0.9	0.9	0.8	0.7	0.7	0.8

	Line	1975	1976	1977	1978	1979	1980	1981	1982
GDP w/o adjustment	1	4,311,220	4,540,937	4,750,529	5,014,999	5,173,444	5,161,664	5,291,739	5,189,250
Scenario A	2	4,426,896	4,658,709	4,870,337	5,138,778	5,301,841	5,293,226	5,427,980	5,331,796
percent change	3	2.7	2.6	2.5	2.5	2.5	2.5	2.6	2.7
Scenario B	4	4,334,079	4,562,387	4,773,152	5,041,454	5,208,956	5,204,844	5,342,129	5,247,277
percent change	5	0.5	0.5	0.5	0.5	0.7	0.8	1.0	1.1
Scenario C	6	4,364,135	4,594,468	4,805,887	5,074,523	5,241,918	5,237,989	5,376,220	5,280,726
percent change	7	1.2	1.2	1.2	1.2	1.3	1.5	1.6	1.8
Scenario D	8	4,344,582	4,573,782	4,784,281	5,051,619	5,218,489	5,214,164	5,351,827	5,256,969
percent change	9	0.8	0.7	0.7	0.7	0.9	1.0	1.1	1.3

	Line	1983	1984	1985	1986	1987	1988	1989	1990
GDP w/o adjustment	1	5,423,777	5,813,609	6,053,732	6,263,619	6,475,076	6,742,687	6,981,436	7,112,492
Scenario A	2	5,574,518	5,973,632	6,221,370	6,432,311	6,643,641	6,913,975	7,154,928	7,294,017
percent change	3	2.8	2.8	2.8	2.7	2.6	2.5	2.5	2.6
Scenario B	4	5,488,281	5,886,756	6,132,559	6,341,916	6,563,368	6,840,134	7,086,997	7,231,365
percent change	5	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.7
Scenario C	6	5,521,588	5,919,172	6,161,986	6,367,610	6,586,515	6,861,026	7,106,571	7,250,125
percent change	7	1.8	1.8	1.8	1.7	1.7	1.8	1.8	1.9
Scenario D	8	5,497,665	5,895,716	6,141,307	6,350,228	6,571,094	6,847,327	7,094,000	7,238,144
percent change	9	1.4	1.4	1.4	1.4	1.5	1.6	1.6	1.8

Table 1.1 Real Gross Domestic Product with and without R&D Adjustments 1959-2002

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
GDP w/o adjustment	1	7,100,516	7,336,614	7,532,658	7,835,512	8,031,655	8,328,913	8,703,528	9,066,854
Scenario A	2	7,290,807	7,526,957	7,719,384	8,023,550	8,234,469	8,542,059	8,928,417	9,303,370
percent change	3	2.7	2.6	2.5	2.4	2.5	2.6	2.6	2.6
Scenario B	4	7,232,449	7,470,918	7,666,435	7,975,238	8,189,862	8,504,107	8,896,708	9,282,527
percent change	5	1.9	1.8	1.8	1.8	2.0	2.1	2.2	2.4
Scenario C	6	7,250,352	7,487,939	7,682,131	7,989,464	8,201,751	8,513,219	8,901,578	9,285,008
percent change	7	2.1	2.1	2.0	2.0	2.1	2.2	2.3	2.4
Scenario D	8	7,238,603	7,476,063	7,670,520	7,978,141	8,191,480	8,505,043	8,896,713	9,284,297
percent change	9	1.9	1.9	1.8	1.8	2.0	2.1	2.2	2.4

	Line	1999	2000	2001	2002
GDP w/o adjustment	1	9,470,332	9,816,973	9,890,694	10,048,846
Scenario A	2	9,721,418	10,082,823	10,151,897	10,295,813
percent change	3	2.7	2.7	2.6	2.5
Scenario B	4	9,716,479	10,098,968	10,181,259	10,339,339
percent change	5	2.6	2.9	2.9	2.9
Scenario C	6	9,716,956	10,097,907	10,182,661	10,342,505
percent change	7	2.6	2.9	3.0	2.9
Scenario D	8	9,717,955	10,098,145	10,183,341	10,341,526
percent change	9	2.6	2.9	3.0	2.9

Table 1.2 Gross Domestic Product with and without R&D Adjustments 1959-2002

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
GDP w/o adjustment	1	506,585	526,398	544,716	585,627	617,740	663,615	719,119	787,788
Scenario A	2	515,740	536,110	554,792	596,139	629,137	676,479	733,416	804,140
percent change	3	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.1
Scenario B	4	516,850	537,449	556,355	598,014	631,700	679,588	737,175	808,828
percent change	5	2.0	2.1	2.1	2.1	2.3	2.4	2.5	2.7
Scenario C	6	517,230	537,756	556,726	598,258	631,904	679,700	737,228	808,430
percent change	7	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.6
Scenario D	8	517,380	537,950	556,757	598,506	632,002	679,755	737,346	808,735
percent change	9	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.7

	Line	1967	1968	1969	1970	1971	1972	1973	1974
GDP w/o adjustment	1	832,596	909,989	984,602	1,038,545	1,127,118	1,238,292	1,382,704	1,499,978
Scenario A	2	851,070	931,319	1,008,944	1,064,390	1,154,342	1,267,947	1,414,822	1,534,975
percent change	3	2.2	2.3	2.5	2.5	2.4	2.4	2.3	2.3
Scenario B	4	855,833	936,150	1,013,644	1,068,569	1,158,291	1,271,507	1,418,686	1,539,570
percent change	5	2.8	2.9	2.9	2.9	2.8	2.7	2.6	2.6
Scenario C	6	855,405	935,697	1,012,453	1,067,149	1,158,009	1,271,790	1,418,623	1,538,163
percent change	7	2.7	2.8	2.8	2.8	2.7	2.7	2.6	2.5
Scenario D	8	855,877	936,495	1,013,865	1,069,084	1,159,122	1,272,341	1,419,305	1,538,923
percent change	9	2.8	2.9	3.0	2.9	2.8	2.7	2.6	2.6

	Line	1975	1976	1977	1978	1979	1980	1981	1982
GDP w/o adjustment	1	1,638,339	1,825,267	2,030,945	2,294,706	2,563,326	2,789,504	3,128,435	3,255,011
Scenario A	2	1,676,081	1,866,147	2,075,218	2,343,566	2,618,688	2,852,494	3,200,388	3,335,419
percent change	3	2.3	2.2	2.2	2.1	2.2	2.3	2.3	2.5
Scenario B	4	1,680,325	1,870,680	2,080,265	2,349,551	2,625,568	2,859,291	3,208,403	3,342,222
percent change	5	2.6	2.5	2.4	2.4	2.4	2.5	2.6	2.7
Scenario C	6	1,679,626	1,871,028	2,080,758	2,349,029	2,622,846	2,855,987	3,205,224	3,341,779
percent change	7	2.5	2.5	2.5	2.4	2.3	2.4	2.5	2.7
Scenario D	8	1,680,552	1,871,990	2,081,814	2,350,053	2,624,773	2,857,476	3,206,014	3,342,096
percent change	9	2.6	2.6	2.5	2.4	2.4	2.4	2.5	2.7

	Line	1983	1984	1985	1986	1987	1988	1989	1990
GDP w/o adjustment	1	3,536,665	3,933,173	4,220,262	4,462,825	4,739,471	5,103,791	5,484,350	5,803,067
Scenario A	2	3,625,340	4,031,912	4,327,600	4,573,170	4,854,806	5,226,089	5,613,704	5,943,750
percent change	3	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4
Scenario B	4	3,632,466	4,040,445	4,337,161	4,583,164	4,866,150	5,240,357	5,631,357	5,963,292
percent change	5	2.7	2.7	2.8	2.7	2.7	2.7	2.7	2.8
Scenario C	6	3,633,847	4,043,769	4,343,431	4,590,982	4,871,027	5,244,029	5,631,720	5,961,603
percent change	7	2.7	2.8	2.9	2.9	2.8	2.7	2.7	2.7
Scenario D	8	3,632,755	4,040,694	4,336,794	4,582,991	4,866,039	5,239,936	5,629,729	5,961,864
percent change	9	2.7	2.7	2.8	2.7	2.7	2.7	2.7	2.7

Table 1.2 Gross Domestic Product with and without R&D Adjustments 1959-2002

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
GDP w/o adjustment	1	5,995,926	6,337,744	6,657,408	7,072,228	7,397,651	7,816,860	8,304,344	8,746,997
Scenario A	2	6,148,830	6,495,124	6,815,813	7,235,079	7,577,084	8,010,315	8,512,490	8,969,464
percent change	3	2.6	2.5	2.4	2.3	2.4	2.5	2.5	2.5
Scenario B	4	6,169,819	6,515,711	6,837,580	7,256,189	7,597,208	8,031,684	8,533,352	8,990,650
percent change	5	2.9	2.8	2.7	2.6	2.7	2.7	2.8	2.8
Scenario C	6	6,167,636	6,515,410	6,838,426	7,257,585	7,600,648	8,034,824	8,539,094	8,993,329
percent change	7	2.9	2.8	2.7	2.6	2.7	2.8	2.8	2.8
Scenario D	8	6,169,705	6,517,268	6,838,562	7,258,581	7,597,809	8,030,540	8,532,485	8,985,561
percent change	9	2.9	2.8	2.7	2.6	2.7	2.7	2.7	2.7

	Line	1999	2000	2001	2002
GDP w/o adjustment	1	9,268,412	9,816,973	10,127,976	10,469,603
Scenario A	2	9,509,980	10,082,824	10,396,528	10,733,588
percent change	3	2.6	2.7	2.7	2.5
Scenario B	4	9,529,791	10,098,969	10,414,785	10,751,493
percent change	5	2.8	2.9	2.8	2.7
Scenario C	6	9,530,358	10,097,908	10,409,475	10,743,502
percent change	7	2.8	2.9	2.8	2.6
Scenario D	8	9,526,281	10,098,146	10,410,270	10,747,342
percent change	9	2.8	2.9	2.8	2.7

Table 1.3 Gross Domestic Income with and without R&D Adjustments 1959-2002

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
GDI w/o adjustment	1	506,124	527,327	545,266	585,269	618,511	662,767	717,529	781,511
Scenario A	2	515,279	537,039	555,342	595,781	629,908	675,631	731,826	797,863
percent change	3	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.1
Scenario B	4	516,389	538,378	556,905	597,656	632,471	678,740	735,585	802,551
percent change	5	2.0	2.1	2.1	2.1	2.3	2.4	2.5	2.7
Scenario C	6	516,769	538,685	557,276	597,900	632,675	678,852	735,638	802,153
percent change	7	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.6
Scenario D	8	516,919	538,879	557,307	598,148	632,773	678,907	735,756	802,458
percent change	9	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.7

	Line	1967	1968	1969	1970	1971	1972	1973	1974
GDI w/o adjustment	1	827,959	905,435	981,437	1,031,241	1,115,515	1,229,172	1,374,059	1,489,124
Scenario A	2	846,433	926,765	1,005,779	1,057,086	1,142,739	1,258,827	1,406,177	1,524,121
percent change	3	2.2	2.4	2.5	2.5	2.4	2.4	2.3	2.4
Scenario B	4	851,196	931,596	1,010,479	1,061,265	1,146,688	1,262,387	1,410,041	1,528,716
percent change	5	2.8	2.9	3.0	2.9	2.8	2.7	2.6	2.7
Scenario C	6	850,768	931,143	1,009,288	1,059,845	1,146,406	1,262,670	1,409,978	1,527,309
percent change	7	2.8	2.8	2.8	2.8	2.8	2.7	2.6	2.6
Scenario D	8	851,240	931,941	1,010,700	1,061,780	1,147,519	1,263,221	1,410,660	1,528,069
percent change	9	2.8	2.9	3.0	3.0	2.9	2.8	2.7	2.6

	Line	1975	1976	1977	1978	1979	1980	1981	1982
GDI w/o adjustment	1	1,620,627	1,800,138	2,008,651	2,268,128	2,517,280	2,748,069	3,097,508	3,254,706
Scenario A	2	1,658,369	1,841,018	2,052,924	2,316,988	2,572,642	2,811,059	3,169,461	3,335,114
percent change	3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.5
Scenario B	4	1,662,613	1,845,551	2,057,971	2,322,973	2,579,522	2,817,856	3,177,476	3,341,917
percent change	5	2.6	2.5	2.5	2.4	2.5	2.5	2.6	2.7
Scenario C	6	1,661,914	1,845,899	2,058,464	2,322,451	2,576,800	2,814,552	3,174,297	3,341,474
percent change	7	2.5	2.5	2.5	2.4	2.4	2.4	2.5	2.7
Scenario D	8	1,662,840	1,846,861	2,059,520	2,323,475	2,578,727	2,816,041	3,175,087	3,341,791
percent change	9	2.6	2.6	2.5	2.4	2.4	2.5	2.5	2.7

	Line	1983	1984	1985	1986	1987	1988	1989	1990
GDI w/o adjustment	1	3,490,932	3,918,582	4,203,578	4,415,834	4,717,795	5,123,316	5,444,689	5,736,843
Scenario A	2	3,579,607	4,017,321	4,310,916	4,526,179	4,833,130	5,245,614	5,574,043	5,877,526
percent change	3	2.5	2.5	2.6	2.5	2.4	2.4	2.4	2.5
Scenario B	4	3,586,733	4,025,854	4,320,477	4,536,173	4,844,474	5,259,882	5,591,696	5,897,068
percent change	5	2.7	2.7	2.8	2.7	2.7	2.7	2.7	2.8
Scenario C	6	3,588,114	4,029,178	4,326,747	4,543,991	4,849,351	5,263,554	5,592,059	5,895,379
percent change	7	2.8	2.8	2.9	2.9	2.8	2.7	2.7	2.8
Scenario D	8	3,587,022	4,026,103	4,320,110	4,536,000	4,844,363	5,259,461	5,590,068	5,895,640
percent change	9	2.8	2.7	2.8	2.7	2.7	2.7	2.7	2.8

Table 1.3 Gross Domestic Income with and without R&D Adjustments 1959-2002

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
GDI w/o adjustment	1	5,923,410	6,234,996	6,517,867	6,929,731	7,296,466	7,723,173	8,233,690	8,761,644
Scenario A	2	6,076,314	6,392,376	6,676,272	7,092,582	7,475,899	7,916,628	8,441,836	8,984,111
percent change	3	2.6	2.5	2.4	2.4	2.5	2.5	2.5	2.5
Scenario B	4	6,097,303	6,412,963	6,698,039	7,113,692	7,496,023	7,937,997	8,462,698	9,005,297
percent change	5	2.9	2.9	2.8	2.7	2.7	2.8	2.8	2.8
Scenario C	6	6,095,120	6,412,662	6,698,885	7,115,088	7,499,463	7,941,137	8,468,440	9,007,976
percent change	7	2.9	2.8	2.8	2.7	2.8	2.8	2.9	2.8
Scenario D	8	6,097,189	6,414,520	6,699,021	7,116,084	7,496,624	7,936,853	8,461,831	9,000,208
percent change	9	2.9	2.9	2.8	2.7	2.7	2.8	2.8	2.7

	Line	1999	2000	2001	2002
GDI w/o adjustment	1	9,304,137	9,944,136	10,217,619	10,490,593
Scenario A	2	9,545,705	10,209,987	10,486,171	10,754,578
percent change	3	2.6	2.7	2.6	2.5
Scenario B	4	9,565,516	10,226,132	10,504,428	10,772,483
percent change	5	2.8	2.8	2.8	2.7
Scenario C	6	9,566,083	10,225,071	10,499,118	10,764,492
percent change	7	2.8	2.8	2.8	2.6
Scenario D	8	9,562,006	10,225,309	10,499,913	10,768,332
percent change	9	2.8	2.8	2.8	2.6

Table 1.4 National Savings Rate (% of GNI) 1959-2002

	Line	1959	1960	1961	1962	1963	1964	1965	1966
w/o adjustment	1	20.9	21.0	20.8	21.2	21.4	21.5	21.9	21.4
Scenario A	2	22.9	23.2	23.1	23.4	23.8	23.9	24.3	23.8
Scenario B	3	22.9	23.1	23.0	23.4	23.7	23.8	24.1	23.7
Scenario C	4	22.9	23.1	23.0	23.4	23.6	23.8	24.1	23.7
Scenario D	5	22.9	23.1	23.0	23.3	23.6	23.8	24.1	23.7

	Line	1967	1968	1969	1970	1971	1972	1973	1974
w/o adjustment	1	20.5	20.0	20.1	18.6	18.6	19.2	21.1	20.0
Scenario A	2	22.8	22.2	22.2	20.6	20.5	21.1	22.8	21.8
Scenario B	3	22.7	22.1	22.1	20.5	20.5	21.0	22.8	21.7
Scenario C	4	22.7	22.1	22.1	20.6	20.5	21.0	22.8	21.8
Scenario D	5	22.7	22.1	22.1	20.5	20.5	21.0	22.7	21.8

	Line	1975	1976	1977	1978	1979	1980	1981	1982
w/o adjustment	1	18.2	18.8	19.6	20.9	21.1	19.7	20.9	19.1
Scenario A	2	20.0	20.6	21.3	22.6	22.8	21.6	22.8	21.1
Scenario B	3	19.9	20.5	21.3	22.5	22.7	21.6	22.7	21.1
Scenario C	4	19.9	20.5	21.3	22.5	22.8	21.6	22.7	21.1
Scenario D	5	19.9	20.5	21.3	22.5	22.7	21.6	22.7	21.1

	Line	1983	1984	1985	1986	1987	1988	1989	1990
w/o adjustment	1	17.3	19.6	18.1	16.5	16.8	17.8	17.3	16.3
Scenario A	2	19.4	21.6	20.4	18.8	19.1	19.9	19.4	18.5
Scenario B	3	19.3	21.6	20.3	18.8	19.0	19.9	19.4	18.5
Scenario C	4	19.3	21.6	20.3	18.8	19.0	19.9	19.4	18.5
Scenario D	5	19.3	21.6	20.3	18.8	19.0	19.9	19.4	18.5

	Line	1991	1992	1993	1994	1995	1996	1997	1998
w/o adjustment	1	16.2	15.1	14.7	15.4	16.2	16.6	17.7	18.2
Scenario A	2	18.5	17.4	16.9	17.5	18.2	18.7	19.8	20.3
Scenario B	3	18.4	17.3	16.8	17.4	18.2	18.7	19.7	20.2
Scenario C	4	18.4	17.3	16.8	17.4	18.2	18.7	19.7	20.2
Scenario D	5	18.4	17.3	16.8	17.4	18.2	18.7	19.7	20.2

	Line	1999	2000	2001	2002
w/o adjustment	1	17.9	17.7	16.2	14.2
Scenario A	2	20.0	19.9	18.4	16.4
Scenario B	3	20.0	19.9	18.3	16.3
Scenario C	4	20.0	19.9	18.3	16.4
Scenario D	5	20.0	19.9	18.3	16.3

Table 1.5 Aggregate Current Cost Returns to R&D Assets 1959-2002*

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966	1967
Net returns to business	1	3,689	3,788	3,981	4,362	4,475	4,762	5,156	5,403	5,444
Depreciation of business	2	4,001	4,297	4,483	4,610	4,605	4,655	4,771	5,002	5,363
Net returns to nonprofits	3	36	37	40	48	54	63	74	84	89
Depreciation of nonprofits	4	94	101	109	122	135	149	165	187	212
Net returns to government	5	1,336	1,500	1,768	2,225	2,651	3,246	3,961	4,537	4,821
Depreciation of government	6	3,496	4,107	4,806	5,674	6,582	7,657	8,846	10,135	11,462

	Line	1968	1969	1970	1971	1972	1973	1974	1975	1976
Net returns to business	1	5,943	6,256	6,361	7,200	7,869	8,664	8,741	9,904	11,380
Depreciation of business	2	5,855	6,549	7,493	8,272	8,976	9,793	10,984	12,619	14,205
Net returns to nonprofits	3	100	104	104	117	128	140	138	156	180
Depreciation of nonprofits	4	237	262	295	325	353	381	419	480	542
Net returns to government	5	5,313	5,368	5,147	5,559	5,832	6,127	5,875	6,380	7,067
Depreciation of government	6	12,633	13,561	14,631	15,413	16,055	16,713	17,816	19,616	21,288

	Line	1977	1978	1979	1980	1981	1982	1983	1984	1985
Net returns to business	1	13,017	14,213	14,920	15,626	18,963	20,898	24,731	30,911	33,998
Depreciation of business	2	15,748	17,058	19,054	21,497	24,645	29,090	32,527	36,241	40,548
Net returns to nonprofits	3	206	226	236	244	290	312	359	434	464
Depreciation of nonprofits	4	602	654	728	809	909	1,048	1,140	1,229	1,335
Net returns to government	5	7,800	8,202	8,212	8,159	9,362	9,704	10,759	12,575	13,061
Depreciation of government	6	22,771	23,755	25,309	27,087	29,363	32,598	34,147	35,577	37,591

	Line	1986	1987	1988	1989	1990	1991	1992	1993	1994
Net returns to business	1	36,039	39,079	43,635	46,511	48,663	51,236	54,646	57,143	60,390
Depreciation of business	2	44,862	48,555	52,683	57,631	63,458	70,774	76,371	79,972	82,617
Net returns to nonprofits	3	489	543	631	707	773	840	924	1,003	1,101
Depreciation of nonprofits	4	1,470	1,628	1,838	2,114	2,432	2,799	3,115	3,387	3,635
Net returns to government	5	13,471	14,526	16,173	17,251	17,997	18,591	19,400	20,118	21,258
Depreciation of government	6	40,465	43,552	47,120	51,581	56,633	61,971	65,426	67,944	70,180

	Line	1995	1996	1997	1998	1999	2000	2001	2002
Net returns to business	1	62,383	67,699	73,935	74,187	78,729	84,244	83,335	88,324
Depreciation of business	2	83,201	87,299	93,770	98,798	109,445	122,177	134,688	141,814
Net returns to nonprofits	3	1,158	1,249	1,343	1,322	1,367	1,413	1,366	1,465
Depreciation of nonprofits	4	3,727	3,887	4,110	4,249	4,587	4,945	5,328	5,674
Net returns to government	5	21,579	22,425	23,199	21,886	21,608	21,242	19,654	20,478
Depreciation of government	6	69,452	69,781	71,003	70,335	72,489	74,342	76,654	79,343

*Implemented using assumptions defined in Scenario D

Table 2: Steps to Transform Survey Data to R&D Investment in Current Dollars

Source data adjustment	Explanation of adjustment	Private Performers			Government Performers					
		Business	Private Colleges and Universities	Private Non-profit Institutions	Public Colleges and Universities	Federal Government	State and Local Government	FFRDC Business	FFRDC Non-profit	FFRDC Colleges and Universities
NSF Survey Intramural Expenditures on R&D										
Identify costs for labor, material, and supplies	Estimate separately so the components can be deflated separately.	x				x				
Plus or minus expenditures to align the survey data with Frascati-defined R&D	+ R&D in social sciences		NAN							
	+ R&D in the humanities									
	- expenditures for commercialization.	NAN	NAN	NAN	NAN	NAN	x	NAN	NAN	NAN
Plus payments for the use of R&D purchased as an intermediate input to production of R&D in the sector	+ Surveyed expenditures are reported either by performer or by funder and excludes intermediate consumption to avoid double-counting. Gross output includes intermediate consumption, including the payment for the use of R&D									
Adjustments for NIPA consistency										
Adjust from fiscal to calendar year	+/- These adjustments align the survey data to NIPA conventions									
Subtract expenditures for foreign performers	This is a survey data adjustment, Frascati data should be domestic performance only.	NAN	x	NAN	x	x	x	x	x	x
		NAN	NAN		NAN	x				
Remove any additions to gross capital										
Subtract capital expenditures for purchase of structures and equipment	- Capital expenditures embedded in the current expenditure survey data should be removed from the gross output measure.	NAN	x	x	x	x	x	x	x	x
Subtract capital expenditures for purchase of software	Software expenditures embedded in the current expenditure survey data should be removed from the gross output measure.									
Adjustments to move from expenditures to full value of output										
Plus consumption of fixed capital on structures, equipment, and software owned by R&D producers and used to perform R&D performed in the US.	+ Consumption of fixed capital is part of the cost of production; Frascati-based expenditures do not include depreciation or CFC measures. Where source data include depreciation already, BEA adjusts to align reported depreciation to a NIPA-consistent measure.	x	x	x	x	x	x	x	x	x
Plus other taxes on production less subsidies	+/- These taxes and subsidies are production related, none identified									
Plus Imports of R&D	+ Domestic investment includes imported capital									
Minus Exports of R&D	- Domestic investment excludes exported capital									

Notes to the table: An "x" indicates an adjustment that BEA has made to the source data. "NAN" indicates that no adjustment is necessary. A blank indicates an adjustment to be made in future estimates.

Table 3.1 Historical Cost Investment Flows in R&D Assets by Funder 1959-2002

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D Investment	1	12,575	13,819	14,625	15,662	17,483	19,094	20,374	22,321
Private	2	5,967	5,948	5,484	5,009	5,057	5,248	5,440	6,295
Business	3	5,834	5,807	5,318	4,811	4,840	5,025	5,180	6,004
Universities and colleges	4	16	18	19	21	22	28	38	46
Other nonprofit institutions	5	117	123	147	177	195	195	222	244
Government	6	6,607	7,871	9,141	10,653	12,426	13,847	14,934	16,026
Federal Government-extramural	7	4,785	5,876	6,962	8,264	9,713	10,729	11,492	12,312
Federal Government-intramural	8	1,668	1,823	1,988	2,177	2,476	2,853	3,153	3,382
State and local governments, excl U&C	9	111	123	136	150	165	181	194	215
Universities and colleges	10	44	48	54	62	72	84	95	116

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D Investment	1	23,728	25,109	26,286	26,627	27,460	29,404	31,738	34,330
Private	2	7,014	8,562	10,325	10,761	11,017	12,133	13,711	15,226
Business	3	6,697	8,223	9,968	10,363	10,590	11,680	13,241	14,696
Universities and colleges	4	52	56	59	64	70	70	68	74
Other nonprofit institutions	5	266	284	298	334	358	384	402	457
Government	6	16,714	16,547	15,961	15,866	16,442	17,270	18,027	19,104
Federal Government-extramural	7	12,786	12,520	11,751	11,288	11,427	11,802	12,227	12,895
Federal Government-intramural	8	3,556	3,610	3,736	4,053	4,430	4,831	5,084	5,405
State and local governments, excl U&C	9	226	253	298	329	363	394	438	480
Universities and colleges	10	146	164	176	196	221	243	278	324

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D Investment	1	36,757	40,523	44,432	49,694	56,878	65,461	74,798	82,924
Private	2	16,187	18,321	20,248	23,381	27,955	32,788	38,940	44,855
Business	3	15,582	17,646	19,491	22,509	26,963	31,673	37,656	43,423
Universities and colleges	4	81	90	108	134	156	174	202	230
Other nonprofit institutions	5	523	585	649	738	836	940	1,082	1,201
Government	6	20,571	22,202	24,184	26,313	28,924	32,674	35,858	38,069
Federal Government-extramural	7	13,911	15,209	16,839	18,367	20,229	22,980	25,257	26,733
Federal Government-intramural	8	5,777	6,037	6,271	6,706	7,292	8,106	8,795	9,333
State and local governments, excl U&C	9	529	566	613	693	772	844	952	1,026
Universities and colleges	10	354	390	461	547	631	743	854	978

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D Investment	1	91,680	103,948	116,262	122,744	127,619	135,602	143,924	154,233
Private	2	51,255	59,436	66,029	66,478	68,792	73,273	76,970	84,482
Business	3	49,685	57,706	64,082	64,270	66,320	70,383	73,726	80,962
Universities and colleges	4	242	269	304	342	383	428	478	546
Other nonprofit institutions	5	1,328	1,462	1,643	1,866	2,089	2,463	2,765	2,974
Government	6	40,425	44,512	50,234	56,267	58,827	62,328	66,954	69,752
Federal Government-extramural	7	27,976	30,718	34,877	39,397	41,811	44,273	47,568	49,401
Federal Government-intramural	8	10,256	11,390	12,604	13,688	13,510	14,190	15,109	15,675
State and local governments, excl U&C	9	1,083	1,169	1,326	1,511	1,634	1,779	1,914	2,039
Universities and colleges	10	1,110	1,235	1,427	1,671	1,872	2,086	2,362	2,636

Table 3.1 Historical Cost Investment Flows in R&D Assets by Funder 1959-2002

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D Investment	1	163,575	167,786	168,051	171,635	185,086	198,769	213,827	227,725
Private	2	93,488	94,842	93,106	94,715	108,937	121,293	133,804	146,481
Business	3	89,578	90,659	88,702	90,179	104,242	116,338	128,485	140,772
Universities and colleges	4	618	631	629	651	708	782	797	811
Other nonprofit institutions	5	3,293	3,551	3,775	3,885	3,987	4,173	4,522	4,898
Government	6	70,087	72,945	74,945	76,920	76,149	77,476	80,023	81,244
Federal Government-extramural	7	49,557	51,986	53,297	54,849	54,108	55,210	56,832	57,638
Federal Government-intramural	8	15,566	15,867	16,405	16,599	16,318	16,159	16,570	16,566
State and local governments, excl U&C	9	2,128	2,162	2,178	2,215	2,344	2,473	2,590	2,683
Universities and colleges	10	2,836	2,930	3,066	3,257	3,379	3,633	4,032	4,357

	Line	1999	2000	2001	2002
Total R&D Investment	1	245,878	268,559	275,294	276,533
Private	2	163,863	185,749	186,207	178,269
Business	3	157,817	179,231	179,292	170,779
Universities and colleges	4	883	972	1,061	1,190
Other nonprofit institutions	5	5,163	5,546	5,854	6,300
Government	6	82,015	82,810	89,087	98,264
Federal Government-extramural	7	57,953	58,032	61,831	68,713
Federal Government-intramural	8	16,481	16,450	18,249	19,922
State and local governments, excl U&C	9	2,851	3,080	3,269	3,482
Universities and colleges	10	4,730	5,249	5,739	6,147

Table 3.2 Real Investment Flows in R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D Investment	1	19,409	21,224	22,509	23,972	27,174	29,844	31,749	34,247
Private	2	9,211	9,135	8,440	7,666	7,860	8,202	8,477	9,659
Business	3	9,005	8,919	8,185	7,364	7,522	7,854	8,072	9,212
Universities and colleges	4	25	27	29	31	34	44	60	71
Other nonprofit institutions	5	181	190	226	271	303	305	345	375
Government	6	10,199	12,089	14,069	16,306	19,314	21,642	23,271	24,589
Federal Government-extramural	7	7,385	9,024	10,715	12,649	15,097	16,769	17,907	18,891
Federal Government-intramural	8	2,574	2,801	3,060	3,332	3,848	4,459	4,913	5,190
State and local governments, excl U&C	9	171	189	210	229	257	282	302	330
Universities and colleges	10	68	74	84	95	112	131	149	178

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D Investment	1	35,446	36,558	37,446	36,008	35,844	37,862	40,088	41,528
Private	2	10,478	12,466	14,709	14,552	14,382	15,624	17,318	18,419
Business	3	10,004	11,972	14,201	14,014	13,823	15,040	16,724	17,777
Universities and colleges	4	77	81	84	86	91	90	86	89
Other nonprofit institutions	5	397	413	424	452	467	494	508	552
Government	6	24,968	24,092	22,738	21,455	21,463	22,238	22,769	23,109
Federal Government-extramural	7	19,100	18,228	16,740	15,265	14,917	15,197	15,444	15,598
Federal Government-intramural	8	5,312	5,256	5,322	5,480	5,783	6,221	6,421	6,538
State and local governments, excl U&C	9	338	369	425	444	474	508	553	580
Universities and colleges	10	218	239	250	266	289	313	351	392

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D Investment	1	40,811	42,011	43,974	48,227	53,519	59,495	64,962	67,722
Private	2	17,972	18,994	20,039	22,690	26,304	29,799	33,819	36,632
Business	3	17,301	18,294	19,290	21,845	25,370	28,786	32,704	35,463
Universities and colleges	4	90	93	107	130	146	159	176	188
Other nonprofit institutions	5	581	607	642	716	787	855	939	981
Government	6	22,839	23,017	23,935	25,536	27,216	29,695	31,143	31,090
Federal Government-extramural	7	15,445	15,767	16,665	17,825	19,034	20,885	21,935	21,832
Federal Government-intramural	8	6,414	6,258	6,206	6,508	6,861	7,367	7,639	7,622
State and local governments, excl U&C	9	587	587	607	673	726	767	827	838
Universities and colleges	10	393	405	456	531	594	675	742	798

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D Investment	1	74,035	84,296	95,657	101,469	106,655	113,115	118,375	123,975
Private	2	41,390	48,199	54,326	54,955	57,492	61,123	63,307	67,908
Business	3	40,123	46,796	52,725	53,130	55,426	58,711	60,639	65,079
Universities and colleges	4	195	218	250	282	320	357	394	439
Other nonprofit institutions	5	1,072	1,185	1,351	1,543	1,746	2,054	2,274	2,390
Government	6	32,644	36,097	41,331	46,514	49,164	51,992	55,069	56,067
Federal Government-extramural	7	22,591	24,910	28,695	32,568	34,943	36,931	39,124	39,710
Federal Government-intramural	8	8,282	9,237	10,370	11,315	11,290	11,836	12,427	12,600
State and local governments, excl U&C	9	875	948	1,091	1,249	1,366	1,484	1,574	1,639
Universities and colleges	10	896	1,001	1,174	1,381	1,564	1,740	1,943	2,119

*Implemented using assumptions defined in Scenario D

Table 3.2 Real Investment Flows in R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D Investment	1	126,619	128,330	129,120	132,713	149,408	165,738	184,926	213,125
Private	2	72,366	72,539	71,537	73,237	87,938	101,137	115,719	137,090
Business	3	69,339	69,340	68,153	69,729	84,148	97,005	111,119	131,747
Universities and colleges	4	478	483	483	504	572	652	689	759
Other nonprofit institutions	5	2,549	2,716	2,900	3,004	3,218	3,480	3,911	4,584
Government	6	54,252	55,791	57,583	59,477	61,470	64,601	69,207	76,035
Federal Government-extramural	7	38,361	39,761	40,950	42,411	43,678	46,036	49,150	53,943
Federal Government-intramural	8	12,049	12,136	12,604	12,835	13,172	13,474	14,330	15,504
State and local governments, excl U&C	9	1,647	1,653	1,673	1,713	1,892	2,062	2,240	2,511
Universities and colleges	10	2,195	2,241	2,356	2,518	2,728	3,029	3,487	4,078

	Line	1999	2000	2001	2002
Total R&D Investment	1	239,359	268,559	285,661	288,335
Private	2	159,519	185,749	193,219	185,877
Business	3	153,633	179,231	186,044	178,067
Universities and colleges	4	860	972	1,101	1,241
Other nonprofit institutions	5	5,026	5,546	6,074	6,569
Government	6	79,841	82,810	92,442	102,458
Federal Government-extramural	7	56,417	58,032	64,159	71,645
Federal Government-intramural	8	16,044	16,450	18,936	20,773
State and local governments, excl U&C	9	2,775	3,080	3,392	3,631
Universities and colleges	10	4,604	5,249	5,955	6,409

*Implemented using assumptions defined in Scenario D

Table 3.3 Historical Cost Net Stock of R&D Assets by Funder 1959-2002

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D assets	1	43,541	49,792	55,851	61,961	68,838	76,175	83,595	91,702
Private	2	23,140	25,171	26,468	27,131	27,739	28,432	29,199	30,642
Business	3	22,622	24,600	25,829	26,405	26,921	27,531	28,193	29,518
Universities and colleges	4	86	90	94	99	104	115	133	156
Other nonprofit institutions	5	432	481	545	627	714	787	874	969
Government	6	20,401	24,621	29,383	34,830	41,100	47,743	54,395	61,060
Federal Government-extramural	7	13,278	16,721	20,653	25,199	30,404	35,768	41,032	46,267
Federal Government-intramural	8	6,508	7,218	7,975	8,792	9,763	10,938	12,214	13,510
State and local governments, excl U&C	9	431	480	534	593	657	725	796	875
Universities and colleges	10	184	201	221	246	275	312	353	407

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D assets	1	99,895	108,137	116,231	123,426	130,313	137,964	146,627	156,388
Private	2	32,534	35,574	39,789	43,775	47,399	51,513	56,469	62,083
Business	3	31,284	34,198	38,289	42,131	45,607	49,570	54,382	59,819
Universities and colleges	4	180	205	229	253	280	303	321	341
Other nonprofit institutions	5	1,069	1,171	1,271	1,390	1,512	1,640	1,766	1,924
Government	6	67,361	72,563	76,442	79,652	82,913	86,451	90,158	94,305
Federal Government-extramural	7	51,153	55,061	57,672	59,463	61,113	62,864	64,744	66,960
Federal Government-intramural	8	14,773	15,896	16,967	18,171	19,543	21,080	22,620	24,227
State and local governments, excl U&C	9	953	1,044	1,164	1,293	1,435	1,585	1,752	1,933
Universities and colleges	10	482	561	640	725	821	923	1,042	1,185

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D assets	1	166,930	179,375	193,568	210,499	231,537	257,358	287,942	321,455
Private	2	67,743	74,529	82,079	91,394	103,543	118,340	136,608	157,608
Business	3	65,259	71,793	79,053	88,016	99,754	114,089	131,807	152,203
Universities and colleges	4	365	393	434	493	563	640	731	834
Other nonprofit institutions	5	2,119	2,342	2,591	2,885	3,226	3,612	4,070	4,571
Government	6	99,187	104,846	111,489	119,106	127,994	139,018	151,334	163,848
Federal Government-extramural	7	69,784	73,384	77,952	83,249	89,473	97,308	106,075	114,891
Federal Government-intramural	8	25,936	27,630	29,286	31,096	33,176	35,698	38,479	41,340
State and local governments, excl U&C	9	2,133	2,337	2,553	2,812	3,104	3,419	3,787	4,168
Universities and colleges	10	1,335	1,496	1,698	1,949	2,241	2,592	2,994	3,449

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D assets	1	358,041	400,487	447,957	494,302	538,204	582,905	628,598	676,974
Private	2	181,378	209,149	238,853	264,517	288,472	312,979	337,229	364,791
Business	3	175,331	202,409	231,323	256,074	279,009	302,262	325,119	351,241
Universities and colleges	4	933	1,042	1,167	1,308	1,466	1,642	1,838	2,068
Other nonprofit institutions	5	5,114	5,698	6,363	7,135	7,997	9,075	10,272	11,482
Government	6	176,664	191,338	209,103	229,785	249,732	269,926	291,369	312,184
Federal Government-extramural	7	123,535	133,419	145,667	160,259	174,895	189,614	205,172	220,093
Federal Government-intramural	8	44,626	48,468	52,857	57,589	61,447	65,356	69,528	73,598
State and local governments, excl U&C	9	4,544	4,944	5,429	6,013	6,623	7,275	7,955	8,648
Universities and colleges	10	3,958	4,507	5,150	5,923	6,766	7,681	8,714	9,845

Table 3.3 Historical Cost Net Stock of R&D Assets by Funder 1959-2002

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D assets	1	726,735	772,928	812,435	849,332	893,137	943,028	999,364	1,060,105
Private	2	396,549	424,795	447,198	467,730	498,337	535,783	579,184	627,802
Business	3	381,415	408,062	428,902	447,982	477,208	513,240	555,103	602,051
Universities and colleges	4	2,329	2,563	2,760	2,949	3,162	3,410	3,636	3,841
Other nonprofit institutions	5	12,805	14,169	15,536	16,799	17,967	19,132	20,445	21,909
Government	6	330,187	348,133	365,237	381,602	394,800	407,245	420,180	432,303
Federal Government-extramural	7	232,919	246,068	258,457	270,424	279,910	288,993	298,214	306,797
Federal Government-intramural	8	76,957	80,090	83,251	86,117	88,294	89,997	91,825	93,375
State and local governments, excl U&C	9	9,319	9,921	10,447	10,929	11,458	12,027	12,618	13,207
Universities and colleges	10	10,992	12,054	13,082	14,132	15,138	16,227	17,523	18,925

	Line	1999	2000	2001	2002
Total R&D assets	1	1,128,526	1,207,664	1,281,162	1,344,780
Private	2	685,205	754,242	813,347	856,244
Business	3	657,725	724,855	781,972	822,646
Universities and colleges	4	4,082	4,369	4,694	5,091
Other nonprofit institutions	5	23,398	25,019	26,681	28,506
Government	6	443,322	453,422	467,815	488,537
Federal Government-extramural	7	314,384	320,906	329,963	344,028
Federal Government-intramural	8	94,614	95,638	98,172	101,875
State and local governments, excl U&C	9	13,863	14,632	15,461	16,363
Universities and colleges	10	20,461	22,247	24,218	26,271

Table 3.4 Current Cost Net Stock of R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D assets	1	44,928	50,300	55,629	60,574	66,086	72,644	79,964	88,767
Private	2	23,829	25,412	26,350	26,496	26,536	26,947	27,705	29,419
Business	3	23,284	24,826	25,706	25,780	25,745	26,082	26,738	28,326
Universities and colleges	4	97	97	99	101	104	113	130	154
Other nonprofit institutions	5	448	488	545	615	687	752	837	940
Government	6	21,099	24,889	29,279	34,078	39,550	45,698	52,259	59,348
Federal Government-extramural	7	13,633	16,806	20,498	24,592	29,223	34,223	39,421	44,977
Federal Government-intramural	8	6,824	7,387	8,023	8,661	9,427	10,482	11,735	13,126
State and local governments, excl U&C	9	449	489	536	582	633	694	763	849
Universities and colleges	10	193	206	223	242	266	299	340	397

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D assets	1	97,903	106,707	116,824	126,304	132,890	139,157	148,558	163,900
Private	2	31,658	34,915	39,847	44,646	48,183	51,814	57,084	64,921
Business	3	30,429	33,553	38,335	42,961	46,354	49,854	54,969	62,549
Universities and colleges	4	180	205	232	261	287	306	326	358
Other nonprofit institutions	5	1,050	1,158	1,279	1,423	1,542	1,654	1,789	2,015
Government	6	66,245	71,792	76,977	81,658	84,708	87,342	91,474	98,979
Federal Government-extramural	7	50,314	54,482	58,078	60,973	62,467	63,548	65,724	70,322
Federal Government-intramural	8	14,521	15,720	17,083	18,617	19,940	21,267	22,922	25,392
State and local governments, excl U&C	9	936	1,032	1,171	1,324	1,463	1,597	1,774	2,024
Universities and colleges	10	475	557	646	744	838	930	1,055	1,241

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D assets	1	181,171	196,426	208,336	222,036	241,444	267,780	303,062	334,452
Private	2	73,302	81,274	87,919	95,932	107,451	122,580	143,152	163,190
Business	3	70,611	78,288	84,677	92,386	103,518	118,173	138,114	157,582
Universities and colleges	4	397	431	467	518	585	663	767	865
Other nonprofit institutions	5	2,294	2,555	2,775	3,028	3,349	3,744	4,271	4,743
Government	6	107,870	115,152	120,417	126,104	133,992	145,200	159,910	171,262
Federal Government-extramural	7	75,973	80,702	84,290	88,223	93,736	101,690	112,127	120,123
Federal Government-intramural	8	28,145	30,273	31,577	32,889	34,713	37,282	40,672	43,238
State and local governments, excl U&C	9	2,308	2,549	2,737	2,955	3,227	3,550	3,981	4,335
Universities and colleges	10	1,443	1,628	1,812	2,037	2,317	2,677	3,130	3,565

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D assets	1	359,444	386,788	419,786	452,274	484,144	522,241	565,008	614,795
Private	2	181,315	201,441	223,601	241,898	259,431	280,404	303,086	331,405
Business	3	175,258	194,943	216,554	234,173	250,895	270,739	292,097	318,968
Universities and colleges	4	934	1,004	1,092	1,197	1,322	1,479	1,665	1,896
Other nonprofit institutions	5	5,123	5,495	5,955	6,529	7,213	8,185	9,323	10,540
Government	6	178,129	185,347	196,185	210,375	224,713	241,837	261,923	283,390
Federal Government-extramural	7	124,595	129,267	136,682	146,746	157,454	170,002	184,582	199,938
Federal Government-intramural	8	45,018	46,970	49,602	52,703	55,178	58,363	62,248	66,517
State and local governments, excl U&C	9	4,563	4,774	5,083	5,499	5,961	6,531	7,171	7,878
Universities and colleges	10	3,952	4,336	4,818	5,428	6,120	6,942	7,922	9,058

*Implemented using assumptions defined in Scenario D

Table 3.4 Current Cost Net Stock of R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D assets	1	658,363	683,625	696,604	694,650	697,116	710,649	714,429	726,280
Private	2	359,723	376,377	384,047	383,050	390,490	406,843	418,813	437,115
Business	3	345,858	361,396	368,134	366,639	373,736	389,606	401,371	419,252
Universities and colleges	4	2,133	2,294	2,396	2,443	2,502	2,611	2,635	2,654
Other nonprofit institutions	5	11,732	12,687	13,518	13,968	14,252	14,625	14,808	15,209
Government	6	298,639	307,248	312,557	311,600	306,626	303,806	295,615	289,166
Federal Government-extramural	7	210,795	217,320	221,333	220,990	217,553	215,764	209,946	205,312
Federal Government-intramural	8	69,291	70,335	70,875	69,916	68,120	66,566	63,942	61,666
State and local governments, excl U&C	9	8,465	8,794	8,975	8,953	8,948	9,053	8,986	8,976
Universities and colleges	10	10,087	10,798	11,373	11,741	12,005	12,423	12,742	13,212

	Line	1999	2000	2001	2002
Total R&D assets	1	761,111	803,138	844,879	887,686
Private	2	471,997	514,770	550,119	576,419
Business	3	453,279	495,094	529,271	553,928
Universities and colleges	4	2,768	2,916	3,122	3,428
Other nonprofit institutions	5	15,950	16,760	17,727	19,063
Government	6	289,114	288,368	294,760	311,267
Federal Government-extramural	7	205,031	203,897	207,395	218,634
Federal Government-intramural	8	60,771	59,782	60,913	63,986
State and local governments, excl U&C	9	9,242	9,594	10,076	10,748
Universities and colleges	10	14,071	15,094	16,376	17,898

*Implemented using assumptions defined in Scenario D

Table 3.5 Real Net Stock of R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D assets	1	69,176	77,338	85,382	93,427	103,004	113,371	123,643	134,377
Private	2	36,690	39,071	40,443	40,867	41,360	42,054	42,839	44,535
Business	3	35,850	38,170	39,454	39,762	40,128	40,705	41,343	42,880
Universities and colleges	4	150	150	152	156	162	176	201	233
Other nonprofit institutions	5	690	751	836	948	1,071	1,173	1,295	1,422
Government	6	32,486	38,267	44,939	52,560	61,644	71,317	80,804	89,842
Federal Government-extramural	7	20,990	25,840	31,461	37,929	45,548	53,410	60,954	68,086
Federal Government-intramural	8	10,506	11,358	12,314	13,359	14,694	16,358	18,145	19,870
State and local governments, excl U&C	9	692	752	822	898	986	1,083	1,180	1,285
Universities and colleges	10	298	317	342	373	415	466	525	601

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D assets	1	144,372	153,667	162,093	167,784	172,286	177,461	183,588	189,770
Private	2	46,684	50,281	55,287	59,308	62,466	66,077	70,544	75,169
Business	3	44,872	48,319	53,190	57,071	60,095	63,577	67,931	72,421
Universities and colleges	4	265	295	322	347	372	391	402	414
Other nonprofit institutions	5	1,548	1,667	1,775	1,890	1,999	2,109	2,211	2,333
Government	6	97,688	103,386	106,806	108,476	109,820	111,385	113,044	114,602
Federal Government-extramural	7	74,195	78,459	80,582	80,998	80,985	81,040	81,221	81,422
Federal Government-intramural	8	21,413	22,639	23,702	24,731	25,852	27,122	28,327	29,400
State and local governments, excl U&C	9	1,380	1,486	1,625	1,759	1,896	2,036	2,192	2,343
Universities and colleges	10	700	802	896	989	1,086	1,187	1,304	1,437

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D assets	1	194,259	198,913	204,169	212,152	223,244	237,847	255,115	271,602
Private	2	78,597	82,303	86,160	91,662	99,352	108,878	120,504	132,524
Business	3	75,711	79,279	82,983	88,273	95,715	104,963	116,263	127,969
Universities and colleges	4	425	436	458	495	541	589	646	703
Other nonprofit institutions	5	2,460	2,587	2,720	2,893	3,096	3,326	3,595	3,852
Government	6	115,662	116,610	118,008	120,491	123,892	128,969	134,610	139,078
Federal Government-extramural	7	81,461	81,724	82,604	84,296	86,670	90,323	94,388	97,550
Federal Government-intramural	8	30,179	30,657	30,946	31,425	32,096	33,115	34,237	35,113
State and local governments, excl U&C	9	2,475	2,581	2,683	2,823	2,984	3,154	3,351	3,520
Universities and colleges	10	1,547	1,649	1,776	1,947	2,142	2,378	2,635	2,895

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D assets	1	290,874	315,934	346,203	375,919	404,237	432,565	459,376	484,866
Private	2	146,726	164,540	184,407	201,060	216,612	232,255	246,422	261,366
Business	3	141,825	159,232	178,595	194,639	209,485	224,250	237,488	251,558
Universities and colleges	4	756	820	901	995	1,104	1,225	1,354	1,495
Other nonprofit institutions	5	4,146	4,488	4,911	5,427	6,023	6,780	7,580	8,313
Government	6	144,148	151,394	161,796	174,859	187,625	200,311	212,954	223,499
Federal Government-extramural	7	100,827	105,587	112,724	121,972	131,466	140,810	150,073	157,683
Federal Government-intramural	8	36,430	38,365	40,907	43,805	46,071	48,341	50,610	52,460
State and local governments, excl U&C	9	3,693	3,900	4,192	4,571	4,978	5,409	5,830	6,213
Universities and colleges	10	3,198	3,542	3,973	4,512	5,110	5,750	6,441	7,143

*Implemented using assumptions defined in Scenario D

Table 3.5 Real Net Stock of R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D assets	1	506,564	524,059	536,926	548,681	571,854	603,373	642,243	693,102
Private	2	276,782	288,526	296,015	302,558	320,324	345,428	376,497	417,146
Business	3	266,114	277,042	283,749	289,596	306,580	330,794	360,817	400,100
Universities and colleges	4	1,641	1,759	1,847	1,930	2,053	2,217	2,369	2,532
Other nonprofit institutions	5	9,027	9,726	10,419	11,033	11,691	12,418	13,311	14,514
Government	6	229,782	235,532	240,912	246,123	251,529	257,945	265,746	275,956
Federal Government-extramural	7	162,192	166,595	170,598	174,553	178,461	183,194	188,733	195,933
Federal Government-intramural	8	53,315	53,918	54,629	55,224	55,880	56,518	57,481	58,849
State and local governments, excl U&C	9	6,513	6,742	6,918	7,072	7,340	7,687	8,078	8,566
Universities and colleges	10	7,761	8,278	8,766	9,274	9,848	10,547	11,454	12,608

	Line	1999	2000	2001	2002
Total R&D assets	1	750,886	817,981	878,812	930,634
Private	2	465,656	524,284	572,214	604,308
Business	3	447,190	504,244	550,528	580,728
Universities and colleges	4	2,731	2,970	3,247	3,594
Other nonprofit institutions	5	15,736	17,070	18,439	19,985
Government	6	285,230	293,697	306,599	326,327
Federal Government-extramural	7	202,276	207,666	215,724	229,212
Federal Government-intramural	8	59,954	60,887	63,360	67,082
State and local governments, excl U&C	9	9,118	9,772	10,480	11,269
Universities and colleges	10	13,882	15,373	17,034	18,764

*Implemented using assumptions defined in Scenario D

Table 3.6 Historical Cost Depreciation of R&D Assets by Funder 1959-2002

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D assets	1	6,574	7,568	8,566	9,552	10,605	11,758	12,954	14,213
Private	2	3,557	3,917	4,187	4,346	4,449	4,554	4,673	4,852
Business	3	3,477	3,829	4,089	4,235	4,324	4,415	4,518	4,679
Universities and colleges	4	14	14	15	16	16	18	20	23
Other nonprofit institutions	5	66	74	83	95	109	122	135	149
Government	6	3,017	3,650	4,379	5,206	6,156	7,203	8,281	9,361
Federal Government-extramural	7	1,921	2,432	3,030	3,718	4,508	5,365	6,227	7,078
Federal Government-intramural	8	1,001	1,113	1,232	1,359	1,504	1,678	1,877	2,086
State and local governments, excl U&C	9	66	74	82	91	101	112	123	136
Universities and colleges	10	29	31	34	38	42	48	54	62

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D assets	1	15,535	16,867	18,192	19,432	20,573	21,752	23,075	24,569
Private	2	5,122	5,522	6,111	6,775	7,392	8,020	8,755	9,612
Business	3	4,930	5,309	5,877	6,521	7,114	7,717	8,429	9,260
Universities and colleges	4	27	31	35	39	43	47	51	54
Other nonprofit institutions	5	165	182	198	216	235	256	276	299
Government	6	10,412	11,345	12,082	12,656	13,181	13,732	14,320	14,956
Federal Government-extramural	7	7,899	8,612	9,140	9,497	9,776	10,052	10,347	10,679
Federal Government-intramural	8	2,293	2,487	2,665	2,849	3,058	3,294	3,543	3,798
State and local governments, excl U&C	9	148	162	179	199	221	245	271	299
Universities and colleges	10	72	85	97	111	125	141	159	181

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D assets	1	26,215	28,079	30,239	32,762	35,841	39,640	44,214	49,411
Private	2	10,526	11,536	12,698	14,065	15,806	17,990	20,671	23,855
Business	3	10,141	11,112	12,231	13,546	15,225	17,339	19,937	23,028
Universities and colleges	4	57	61	67	75	86	98	111	127
Other nonprofit institutions	5	328	362	400	444	495	554	623	701
Government	6	15,689	16,543	17,541	18,697	20,035	21,650	23,542	25,555
Federal Government-extramural	7	11,087	11,608	12,271	13,070	14,005	15,144	16,491	17,916
Federal Government-intramural	8	4,067	4,343	4,615	4,896	5,211	5,584	6,014	6,472
State and local governments, excl U&C	9	330	362	396	435	480	529	584	645
Universities and colleges	10	204	230	259	296	340	392	453	522

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D assets	1	55,094	61,502	68,793	76,399	83,717	90,901	98,230	105,857
Private	2	27,485	31,664	36,325	40,814	44,837	48,766	52,720	56,921
Business	3	26,557	30,628	35,168	39,519	43,385	47,130	50,869	54,840
Universities and colleges	4	143	160	179	201	225	252	282	317
Other nonprofit institutions	5	785	877	978	1,094	1,227	1,384	1,569	1,764
Government	6	27,609	29,838	32,468	35,586	38,880	42,134	45,510	48,937
Federal Government-extramural	7	19,332	20,834	22,629	24,805	27,175	29,555	32,010	34,481
Federal Government-intramural	8	6,970	7,548	8,216	8,955	9,652	10,281	10,937	11,605
State and local governments, excl U&C	9	706	769	841	928	1,025	1,127	1,235	1,346
Universities and colleges	10	601	686	783	898	1,029	1,171	1,329	1,505

Table 3.6 Historical Cost Depreciation of R&D Assets by Funder 1959-2002

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D assets	1	113,814	121,594	128,543	134,738	141,281	148,878	157,491	166,984
Private	2	61,730	66,595	70,702	74,183	78,330	83,848	90,403	97,864
Business	3	59,405	64,012	67,862	71,099	75,015	80,307	86,622	93,823
Universities and colleges	4	356	397	432	463	495	533	571	606
Other nonprofit institutions	5	1,969	2,187	2,409	2,622	2,819	3,008	3,209	3,434
Government	6	52,084	54,999	57,841	60,555	62,952	65,031	67,088	69,120
Federal Government-extramural	7	36,731	38,837	40,907	42,882	44,622	46,127	47,611	49,055
Federal Government-intramural	8	12,207	12,734	13,244	13,733	14,141	14,456	14,742	15,016
State and local governments, excl U&C	9	1,457	1,560	1,651	1,733	1,815	1,904	1,998	2,094
Universities and colleges	10	1,690	1,869	2,038	2,207	2,373	2,543	2,736	2,955

	Line	1999	2000	2001	2002
Total R&D assets	1	177,457	189,421	201,797	212,914
Private	2	106,460	116,712	127,102	135,372
Business	3	102,144	112,101	122,175	130,104
Universities and colleges	4	642	685	735	793
Other nonprofit institutions	5	3,674	3,926	4,192	4,475
Government	6	70,997	72,709	74,695	77,542
Federal Government-extramural	7	50,366	51,510	52,773	54,648
Federal Government-intramural	8	15,242	15,426	15,714	16,220
State and local governments, excl U&C	9	2,195	2,310	2,440	2,580
Universities and colleges	10	3,193	3,463	3,767	4,094

Table 3.7 Current Cost Depreciation of R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D assets	1	7,591	8,505	9,399	10,406	11,322	12,461	13,782	15,325
Private	2	4,095	4,398	4,593	4,732	4,739	4,804	4,936	5,189
Business	3	4,001	4,297	4,483	4,610	4,605	4,655	4,771	5,002
Universities and colleges	4	18	17	17	18	18	19	22	26
Other nonprofit institutions	5	76	84	92	104	116	129	144	161
Government	6	3,496	4,107	4,806	5,674	6,582	7,657	8,846	10,135
Federal Government-extramural	7	2,208	2,718	3,310	4,038	4,811	5,699	6,650	7,664
Federal Government-intramural	8	1,177	1,269	1,367	1,494	1,617	1,788	2,006	2,258
State and local governments, excl U&C	9	77	84	91	100	109	119	132	146
Universities and colleges	10	34	36	38	42	45	51	58	67

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D assets	1	17,037	18,725	20,371	22,419	24,011	25,384	26,888	29,219
Private	2	5,575	6,092	6,811	7,788	8,598	9,330	10,174	11,404
Business	3	5,363	5,855	6,549	7,493	8,272	8,976	9,793	10,984
Universities and colleges	4	30	35	40	45	51	55	59	64
Other nonprofit institutions	5	182	202	222	249	275	298	322	356
Government	6	11,462	12,633	13,561	14,631	15,413	16,055	16,713	17,816
Federal Government-extramural	7	8,696	9,591	10,261	10,981	11,437	11,760	12,084	12,729
Federal Government-intramural	8	2,523	2,768	2,990	3,292	3,571	3,845	4,129	4,518
State and local governments, excl U&C	9	163	180	201	230	258	285	315	355
Universities and colleges	10	80	94	110	128	147	165	185	214

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D assets	1	32,714	36,034	39,121	41,467	45,091	49,393	54,916	62,736
Private	2	13,099	14,746	16,350	17,712	19,782	22,306	25,553	30,137
Business	3	12,619	14,205	15,748	17,058	19,054	21,497	24,645	29,090
Universities and colleges	4	72	79	87	95	107	121	138	161
Other nonprofit institutions	5	408	463	515	559	620	688	771	887
Government	6	19,616	21,288	22,771	23,755	25,309	27,087	29,363	32,598
Federal Government-extramural	7	13,876	14,956	15,949	16,624	17,706	18,960	20,577	22,861
Federal Government-intramural	8	5,075	5,576	5,979	6,212	6,578	6,986	7,503	8,260
State and local governments, excl U&C	9	410	463	511	548	601	657	725	818
Universities and colleges	10	254	293	332	371	423	484	558	659

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D assets	1	67,814	73,047	79,473	86,798	93,735	101,641	111,326	122,523
Private	2	33,667	37,470	41,882	46,332	50,183	54,521	59,745	65,889
Business	3	32,527	36,241	40,548	44,862	48,555	52,683	57,631	63,458
Universities and colleges	4	176	190	207	228	252	283	322	370
Other nonprofit institutions	5	964	1,039	1,128	1,243	1,376	1,555	1,792	2,062
Government	6	34,147	35,577	37,591	40,465	43,552	47,120	51,581	56,633
Federal Government-extramural	7	23,917	24,848	26,203	28,210	30,450	33,072	36,306	39,934
Federal Government-intramural	8	8,625	9,004	9,515	10,182	10,798	11,468	12,350	13,374
State and local governments, excl U&C	9	870	914	971	1,053	1,147	1,262	1,403	1,563
Universities and colleges	10	735	811	902	1,020	1,156	1,319	1,522	1,763

*Implemented using assumptions defined in Scenario D

Table 3.7 Current Cost Depreciation of R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D assets	1	135,544	144,913	151,303	156,432	156,380	160,967	168,883	173,382
Private	2	73,573	79,486	83,359	86,252	86,928	91,186	97,880	103,047
Business	3	70,774	76,371	79,972	82,617	83,201	87,299	93,770	98,798
Universities and colleges	4	429	478	514	544	556	585	622	636
Other nonprofit institutions	5	2,371	2,637	2,873	3,091	3,171	3,302	3,488	3,613
Government	6	61,971	65,426	67,944	70,180	69,452	69,781	71,003	70,335
Federal Government-extramural	7	43,732	46,230	48,086	49,735	49,266	49,535	50,426	49,945
Federal Government-intramural	8	14,461	15,078	15,480	15,829	15,506	15,395	15,456	15,104
State and local governments, excl U&C	9	1,740	1,864	1,948	2,016	2,011	2,058	2,137	2,161
Universities and colleges	10	2,038	2,255	2,431	2,600	2,669	2,793	2,983	3,124

	Line	1999	2000	2001	2002
Total R&D assets	1	186,521	201,464	216,670	226,832
Private	2	114,032	127,122	140,016	147,489
Business	3	109,445	122,177	134,688	141,814
Universities and colleges	4	680	732	794	858
Other nonprofit institutions	5	3,907	4,213	4,534	4,817
Government	6	72,489	74,342	76,654	79,343
Federal Government-extramural	7	51,437	52,642	54,064	55,777
Federal Government-intramural	8	15,346	15,518	15,865	16,352
State and local governments, excl U&C	9	2,284	2,426	2,586	2,726
Universities and colleges	10	3,422	3,757	4,138	4,488

*Implemented using assumptions defined in Scenario D

Table 3.8 Real Depreciation of R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D assets	1	11,716	13,063	14,466	15,926	17,597	19,477	21,477	23,513
Private	2	6,321	6,754	7,069	7,242	7,366	7,508	7,693	7,962
Business	3	6,176	6,599	6,901	7,056	7,157	7,276	7,435	7,675
Universities and colleges	4	27	27	27	27	29	30	34	40
Other nonprofit institutions	5	118	128	141	159	181	202	224	248
Government	6	5,395	6,308	7,397	8,684	10,231	11,968	13,784	15,551
Federal Government-extramural	7	3,408	4,175	5,094	6,181	7,478	8,908	10,363	11,760
Federal Government-intramural	8	1,816	1,949	2,104	2,287	2,513	2,795	3,126	3,464
State and local governments, excl U&C	9	119	129	140	153	169	186	205	225
Universities and colleges	10	52	55	59	64	71	79	90	103

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D assets	1	25,450	27,263	29,020	30,317	31,342	32,687	33,961	35,345
Private	2	8,329	8,870	9,702	10,532	11,223	12,013	12,851	13,794
Business	3	8,012	8,525	9,329	10,134	10,798	11,558	12,370	13,287
Universities and colleges	4	45	51	57	62	66	71	75	77
Other nonprofit institutions	5	271	294	316	337	358	384	406	430
Government	6	17,122	18,393	19,318	19,786	20,119	20,673	21,110	21,551
Federal Government-extramural	7	12,991	13,964	14,617	14,850	14,929	15,143	15,263	15,397
Federal Government-intramural	8	3,769	4,030	4,259	4,451	4,662	4,951	5,216	5,465
State and local governments, excl U&C	9	243	262	286	311	337	368	398	429
Universities and colleges	10	119	137	156	173	191	212	234	259

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D assets	1	36,322	37,357	38,718	40,243	42,428	44,891	47,694	51,235
Private	2	14,543	15,288	16,182	17,189	18,614	20,273	22,193	24,613
Business	3	14,011	14,726	15,586	16,554	17,929	19,538	21,404	23,757
Universities and colleges	4	79	82	86	92	101	110	119	131
Other nonprofit institutions	5	453	480	510	543	584	625	670	724
Government	6	21,779	22,069	22,536	23,054	23,814	24,618	25,501	26,622
Federal Government-extramural	7	15,406	15,505	15,785	16,133	16,660	17,232	17,871	18,670
Federal Government-intramural	8	5,635	5,780	5,917	6,029	6,190	6,349	6,516	6,746
State and local governments, excl U&C	9	456	480	506	532	566	597	629	668
Universities and colleges	10	282	304	329	360	398	440	485	538

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D assets	1	54,762	59,237	65,388	71,753	78,337	84,786	91,564	98,486
Private	2	27,188	30,386	34,459	38,301	41,940	45,480	49,140	52,963
Business	3	26,267	29,389	33,361	37,086	40,579	43,947	47,401	51,008
Universities and colleges	4	142	154	170	188	211	236	265	297
Other nonprofit institutions	5	779	843	928	1,027	1,150	1,297	1,474	1,658
Government	6	27,575	28,851	30,928	33,451	36,398	39,306	42,425	45,523
Federal Government-extramural	7	19,314	20,150	21,559	23,320	25,448	27,588	29,861	32,099
Federal Government-intramural	8	6,965	7,302	7,828	8,417	9,025	9,566	10,158	10,750
State and local governments, excl U&C	9	702	741	799	871	959	1,052	1,154	1,256
Universities and colleges	10	593	658	742	843	966	1,100	1,251	1,417

*Implemented using assumptions defined in Scenario D

Table 3.8 Real Depreciation of R&D Assets by Funder 1959-2002*

[Millions of dollars]

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D assets	1	104,921	110,836	116,252	120,958	126,236	134,218	146,056	162,266
Private	2	56,951	60,795	64,048	66,693	70,172	76,033	84,650	96,441
Business	3	54,784	58,412	61,446	63,882	67,163	72,792	81,095	92,464
Universities and colleges	4	332	366	395	421	449	488	538	596
Other nonprofit institutions	5	1,835	2,017	2,207	2,390	2,560	2,753	3,017	3,381
Government	6	47,970	50,041	52,204	54,265	56,064	58,185	61,406	65,826
Federal Government-extramural	7	33,852	35,359	36,946	38,457	39,769	41,303	43,611	46,743
Federal Government-intramural	8	11,194	11,532	11,894	12,240	12,517	12,837	13,367	14,136
State and local governments, excl U&C	9	1,347	1,425	1,497	1,559	1,624	1,716	1,848	2,022
Universities and colleges	10	1,577	1,725	1,867	2,010	2,154	2,329	2,580	2,924

	Line	1999	2000	2001	2002
Total R&D assets	1	181,575	201,464	224,830	236,513
Private	2	111,009	127,122	145,289	153,783
Business	3	106,543	122,177	139,760	147,867
Universities and colleges	4	662	732	824	894
Other nonprofit institutions	5	3,804	4,213	4,705	5,022
Government	6	70,567	74,342	79,541	82,730
Federal Government-extramural	7	50,073	52,642	56,100	58,158
Federal Government-intramural	8	14,939	15,518	16,463	17,050
State and local governments, excl U&C	9	2,224	2,426	2,683	2,843
Universities and colleges	10	3,331	3,757	4,294	4,679

*Implemented using assumptions defined in Scenario D

Table 4.1 Historical Cost Investment in R&D Assets by Performer 1959-2002

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D Investment	1	12,575	13,819	14,625	15,662	17,483	19,094	20,374	22,321
Private	2	10,423	11,437	11,985	12,711	14,090	15,179	16,021	17,588
Business	3	9,283	10,108	10,404	11,076	12,270	13,117	13,873	15,309
Universities and colleges	4	286	346	406	467	529	605	692	784
Other nonprofit institutions	5	178	208	256	311	376	431	496	520
FFRDCs - Business	6	438	498	576	442	428	479	383	364
FFRDCs -Universities and colleges	7	192	209	237	272	326	369	375	387
FFRDCs -Nonprofit	8	45	68	106	142	162	178	202	225
Public	9	2,152	2,382	2,639	2,951	3,392	3,916	4,353	4,732
Federal Government	10	1,668	1,823	1,988	2,177	2,476	2,853	3,153	3,382
State and local governments, excl U&C	11	48	52	57	62	67	67	75	85
Universities and colleges	12	291	345	411	506	626	747	875	1,010
FFRDCs -Universities and colleges	13	146	161	183	207	224	248	250	255

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D Investment	1	23,728	25,109	26,286	26,627	27,460	29,404	31,738	34,330
Private	2	18,662	19,846	20,789	20,682	20,984	22,345	24,228	26,255
Business	3	16,095	17,178	18,047	17,844	18,082	19,268	21,043	22,732
Universities and colleges	4	873	931	954	979	1,001	1,046	1,099	1,188
Other nonprofit institutions	5	606	610	592	662	702	755	786	860
FFRDCs - Business	6	428	424	475	487	507	572	567	677
FFRDCs -Universities and colleges	7	413	436	445	449	452	478	515	557
FFRDCs -Nonprofit	8	246	267	276	261	240	227	218	241
Public	9	5,066	5,263	5,497	5,945	6,476	7,058	7,510	8,075
Federal Government	10	3,556	3,610	3,736	4,053	4,430	4,831	5,084	5,405
State and local governments, excl U&C	11	104	128	145	162	189	223	251	266
Universities and colleges	12	1,138	1,244	1,331	1,445	1,573	1,708	1,859	2,053
FFRDCs -Universities and colleges	13	269	282	286	286	284	296	317	352

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D Investment	1	36,757	40,523	44,432	49,694	56,878	65,461	74,798	82,924
Private	2	27,997	31,201	34,439	38,739	44,750	51,852	59,929	67,048
Business	3	24,090	26,801	29,534	32,993	38,208	44,451	51,843	58,534
Universities and colleges	4	1,313	1,416	1,563	1,826	2,122	2,376	2,599	2,770
Other nonprofit institutions	5	948	1,063	1,180	1,395	1,588	1,822	2,046	2,186
FFRDCs - Business	6	761	930	1,005	1,128	1,214	1,333	1,450	1,555
FFRDCs -Universities and colleges	7	632	725	859	1,046	1,200	1,355	1,415	1,434
FFRDCs -Nonprofit	8	253	267	298	352	418	515	576	570
Public	9	8,760	9,322	9,993	10,954	12,128	13,609	14,869	15,875
Federal Government	10	5,777	6,037	6,271	6,706	7,292	8,106	8,795	9,333
State and local governments, excl U&C	11	284	301	312	340	387	428	461	482
Universities and colleges	12	2,289	2,491	2,792	3,180	3,613	4,108	4,528	4,876
FFRDCs -Universities and colleges	13	411	493	618	729	836	967	1,085	1,185

Table 4.1 Historical Cost Investment in R&D Assets by Performer 1959-2002

[Millions of dollars]

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D Investment	1	91,680	103,948	116,262	122,744	127,619	135,602	143,924	154,233
Private	2	74,310	84,687	94,849	99,225	103,325	109,567	115,849	124,540
Business	3	65,097	74,529	83,607	87,060	90,215	94,955	99,929	107,470
Universities and colleges	4	2,956	3,244	3,608	4,024	4,462	4,953	5,398	5,753
Other nonprofit institutions	5	2,415	2,730	3,090	3,433	3,658	4,297	4,916	5,380
FFRDCs - Business	6	1,650	1,800	1,919	1,940	2,046	2,176	2,251	2,385
FFRDCs -Universities and colleges	7	1,565	1,732	1,927	2,151	2,366	2,576	2,681	2,751
FFRDCs -Nonprofit	8	627	651	698	616	578	610	674	801
Public	9	17,370	19,261	21,414	23,520	24,293	26,035	28,075	29,694
Federal Government	10	10,256	11,390	12,604	13,688	13,510	14,190	15,109	15,675
State and local governments, excl U&C	11	491	483	497	538	559	604	641	629
Universities and colleges	12	5,291	5,842	6,586	7,416	8,251	9,188	10,191	11,167
FFRDCs -Universities and colleges	13	1,331	1,547	1,726	1,878	1,973	2,054	2,133	2,223

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D Investment	1	163,575	167,786	168,051	171,635	185,086	198,769	213,827	227,725
Private	2	133,034	136,135	135,078	137,755	150,753	163,847	177,485	190,012
Business	3	114,739	116,795	115,483	117,444	129,878	142,389	155,418	167,065
Universities and colleges	4	6,132	6,503	6,815	7,113	7,380	7,744	8,192	8,658
Other nonprofit institutions	5	6,072	6,514	6,779	6,806	6,869	7,065	7,349	8,011
FFRDCs - Business	6	2,341	2,415	2,017	2,261	2,338	2,362	2,186	2,131
FFRDCs -Universities and colleges	7	2,850	2,942	2,967	3,041	3,087	3,064	3,099	3,004
FFRDCs -Nonprofit	8	900	965	1,017	1,090	1,201	1,223	1,241	1,143
Public	9	30,542	31,652	32,972	33,880	34,333	34,922	36,342	37,713
Federal Government	10	15,566	15,867	16,405	16,599	16,318	16,159	16,570	16,566
State and local governments, excl U&C	11	597	566	588	596	547	506	519	583
Universities and colleges	12	12,060	12,864	13,632	14,375	15,142	15,868	16,799	17,916
FFRDCs -Universities and colleges	13	2,319	2,354	2,348	2,310	2,326	2,389	2,455	2,649

	Line	1999	2000	2001	2002
Total R&D Investment	1	245,878	268,559	275,294	276,533
Private	2	206,646	227,394	229,839	226,294
Business	3	182,011	199,886	199,815	193,677
Universities and colleges	4	9,246	10,012	10,969	12,099
Other nonprofit institutions	5	8,774	10,389	11,557	12,474
FFRDCs - Business	6	2,001	2,010	2,072	2,316
FFRDCs -Universities and colleges	7	2,986	3,044	3,235	3,409
FFRDCs -Nonprofit	8	1,628	2,053	2,192	2,319
Public	9	39,232	41,165	45,455	50,239
Federal Government	10	16,481	16,450	18,249	19,922
State and local governments, excl U&C	11	611	609	680	769
Universities and colleges	12	19,407	21,298	23,413	25,838
FFRDCs -Universities and colleges	13	2,733	2,808	3,113	3,710

Table 4.2 Real Investment in R&D Assets by Performer 1959-2002*

[Millions of dollars]

	Line	1959	1960	1961	1962	1963	1964	1965	1966
Total R&D Investment	1	19,409	21,224	22,509	23,972	27,174	29,844	31,749	34,247
Private	2	16,087	17,566	18,447	19,455	21,901	23,724	24,965	26,987
Business	3	14,329	15,526	16,013	16,953	19,071	20,502	21,619	23,490
Universities and colleges	4	441	532	625	715	822	945	1,079	1,203
Other nonprofit institutions	5	275	319	394	476	584	674	773	798
FFRDCs - Business	6	675	764	887	676	666	748	596	558
FFRDCs -Universities and colleges	7	297	320	365	417	506	577	584	593
FFRDCs -Nonprofit	8	70	105	163	218	251	279	315	345
Public	9	3,322	3,658	4,062	4,517	5,273	6,120	6,783	7,261
Federal Government	10	2,574	2,801	3,060	3,332	3,848	4,459	4,913	5,190
State and Local Government	11	74	80	88	94	104	105	116	131
Universities and colleges	12	449	530	632	774	973	1,168	1,364	1,549
Universities and colleges FFRDCs	13	225	248	282	317	348	387	390	390

	Line	1967	1968	1969	1970	1971	1972	1973	1974
Total R&D Investment	1	35,446	36,558	37,446	36,008	35,844	37,862	40,088	41,528
Private	2	27,877	28,895	29,615	27,969	27,391	28,773	30,602	31,759
Business	3	24,043	25,010	25,708	24,131	23,604	24,810	26,579	27,498
Universities and colleges	4	1,304	1,355	1,359	1,324	1,307	1,347	1,388	1,437
Other nonprofit institutions	5	905	888	843	895	916	972	993	1,040
FFRDCs - Business	6	640	617	677	659	661	737	717	819
FFRDCs -Universities and colleges	7	617	635	635	608	590	615	650	674
FFRDCs -Nonprofit	8	368	389	393	353	313	292	275	291
Public	9	7,568	7,663	7,831	8,039	8,453	9,089	9,486	9,769
Federal Government	10	5,312	5,256	5,322	5,480	5,783	6,221	6,421	6,538
State and Local Government	11	155	186	206	219	246	287	317	322
Universities and colleges	12	1,700	1,811	1,895	1,954	2,053	2,200	2,348	2,483
Universities and colleges FFRDCs	13	402	410	407	386	371	382	400	425

	Line	1975	1976	1977	1978	1979	1980	1981	1982
Total R&D Investment	1	40,811	42,011	43,974	48,227	53,519	59,495	64,962	67,722
Private	2	31,084	32,347	34,084	37,596	42,107	47,126	52,048	54,757
Business	3	26,747	27,785	29,230	32,019	35,952	40,399	45,025	47,803
Universities and colleges	4	1,458	1,467	1,547	1,772	1,997	2,160	2,257	2,262
Other nonprofit institutions	5	1,053	1,102	1,168	1,354	1,494	1,656	1,777	1,785
FFRDCs - Business	6	845	964	995	1,095	1,142	1,212	1,260	1,270
FFRDCs -Universities and colleges	7	702	751	850	1,015	1,129	1,231	1,229	1,171
FFRDCs -Nonprofit	8	281	277	295	341	394	468	500	465
Public	9	9,727	9,664	9,890	10,631	11,412	12,369	12,914	12,965
Federal Government	10	6,414	6,258	6,206	6,508	6,861	7,367	7,639	7,622
State and Local Government	11	315	313	308	330	364	389	400	393
Universities and colleges	12	2,541	2,583	2,764	3,086	3,400	3,733	3,932	3,982
Universities and colleges FFRDCs	13	456	511	612	707	786	879	943	967

*Implemented using assumptions defined in Scenario D

Table 4.2 Real Investment in R&D Assets by Performer 1959-2002*

[Millions of dollars]

	Line	1983	1984	1985	1986	1987	1988	1989	1990
Total R&D Investment	1	74,035	84,296	95,657	101,469	106,655	113,115	118,375	123,975
Private	2	60,008	68,676	78,039	82,026	86,352	91,397	95,284	100,107
Business	3	52,568	60,438	68,790	71,970	75,396	79,208	82,190	86,386
Universities and colleges	4	2,387	2,631	2,969	3,327	3,729	4,132	4,440	4,624
Other nonprofit institutions	5	1,950	2,214	2,542	2,838	3,057	3,584	4,043	4,325
FFRDCs - Business	6	1,333	1,460	1,579	1,603	1,710	1,815	1,851	1,917
FFRDCs -Universities and colleges	7	1,264	1,405	1,585	1,778	1,977	2,149	2,205	2,211
FFRDCs -Nonprofit	8	506	528	574	510	483	509	554	644
Public	9	14,027	15,620	17,618	19,443	20,303	21,717	23,091	23,868
Federal Government	10	8,282	9,237	10,370	11,315	11,290	11,836	12,427	12,600
State and Local Government	11	396	391	409	445	467	504	527	505
Universities and colleges	12	4,273	4,737	5,419	6,131	6,896	7,664	8,382	8,976
Universities and colleges FFRDCs	13	1,075	1,254	1,420	1,552	1,649	1,713	1,754	1,787

	Line	1991	1992	1993	1994	1995	1996	1997	1998
Total R&D Investment	1	126,619	128,330	129,120	132,713	149,408	165,738	184,926	213,125
Private	2	102,977	104,122	103,786	106,516	121,693	136,619	153,495	177,830
Business	3	88,816	89,330	88,730	90,811	104,842	118,727	134,411	156,354
Universities and colleges	4	4,747	4,974	5,236	5,500	5,958	6,457	7,085	8,103
Other nonprofit institutions	5	4,700	4,982	5,209	5,263	5,545	5,891	6,356	7,497
FFRDCs - Business	6	1,812	1,847	1,550	1,748	1,887	1,969	1,890	1,994
FFRDCs -Universities and colleges	7	2,206	2,250	2,280	2,351	2,492	2,555	2,680	2,812
FFRDCs -Nonprofit	8	697	738	782	843	969	1,020	1,073	1,070
Public	9	23,641	24,209	25,334	26,197	27,715	29,118	31,430	35,295
Federal Government	10	12,049	12,136	12,604	12,835	13,172	13,474	14,330	15,504
State and Local Government	11	462	433	452	461	442	422	448	545
Universities and colleges	12	9,335	9,839	10,474	11,115	12,223	13,231	14,528	16,767
Universities and colleges FFRDCs	13	1,795	1,800	1,804	1,786	1,877	1,992	2,123	2,479

	Line	1999	2000	2001	2002
Total R&D Investment	1	239,359	268,559	285,661	288,335
Private	2	201,167	227,394	238,494	235,952
Business	3	177,185	199,886	207,340	201,943
Universities and colleges	4	9,001	10,012	11,382	12,615
Other nonprofit institutions	5	8,541	10,389	11,992	13,006
FFRDCs - Business	6	1,948	2,010	2,150	2,415
FFRDCs -Universities and colleges	7	2,907	3,044	3,357	3,555
FFRDCs -Nonprofit	8	1,584	2,053	2,274	2,418
Public	9	38,192	41,165	47,167	52,383
Federal Government	10	16,044	16,450	18,936	20,773
State and Local Government	11	594	609	706	802
Universities and colleges	12	18,893	21,298	24,295	26,941
Universities and colleges FFRDCs	13	2,661	2,808	3,231	3,868

*Implemented using assumptions defined in Scenario D

Table 5.1 Aggregate Cost-Based Price Indexes for R&D Investment 1959-2002

[Index numbers, 2000=100]

	Line	1959	1960	1961	1962	1963	1964	1965	1966	1967
Total R&D Investment, Funder	1	18.4	18.4	18.8	19.1	19.5	20.0	20.6	21.3	22.1
Federal extramural	2	24.2	24.6	25.0	26.2	24.8	25.5	26.1	26.4	27.7
Federal intramural	3	12.0	11.2	12.2	12.2	13.4	14.4	15.5	16.4	17.3
Non-federal domestic	4	17.2	17.3	17.4	16.9	19.1	19.0	19.3	20.6	20.7
Total R&D Investment, Performer	5	18.4	18.4	18.8	19.1	19.5	20.0	20.6	21.3	22.1
Private	6	20.4	20.6	20.9	21.2	21.4	21.8	22.2	22.8	23.6
Business	7	20.9	21.2	21.5	21.8	22.1	22.4	22.8	23.4	24.1
Universities and colleges	8	13.1	13.3	13.7	14.2	14.7	15.2	15.8	16.7	17.6
Other nonprofit institutions	9	16.6	16.7	16.7	16.9	17.2	17.6	18.0	18.7	19.3
FFRDCs - business	10	19.2	19.0	18.9	19.6	18.5	19.1	19.7	20.6	21.6
FFRDCs -universities and colleges	11	24.6	24.2	24.0	24.8	23.5	24.2	24.8	25.6	26.7
FFRDCs -nonprofit	12	24.5	25.1	25.7	27.0	25.6	26.3	26.7	26.8	28.1
Public	13	12.4	11.8	12.6	12.7	13.6	14.5	15.4	16.3	17.1
Federal government	14	12.0	11.2	12.2	12.2	13.4	14.4	15.5	16.4	17.3
State and local governments	15	16.6	16.7	16.7	16.9	17.2	17.6	18.0	18.7	19.3
Universities and colleges	16	13.0	13.2	13.5	13.9	14.3	14.8	15.3	16.1	16.9
FFRDCs -universities and colleges	17	19.5	19.0	18.8	19.2	18.5	19.0	19.6	20.4	21.4

	Line	1968	1969	1970	1971	1972	1973	1974	1975	1976
Total R&D Investment, Funder	1	23.1	24.4	25.8	27.3	28.8	30.4	33.2	36.4	38.6
Federal extramural	2	28.9	30.6	32.1	34.0	36.7	38.5	41.6	45.6	47.7
Federal intramural	3	18.5	19.8	21.6	23.8	26.1	27.8	29.8	33.0	35.3
Non-federal domestic	4	21.7	22.7	23.9	25.0	25.2	26.9	29.7	32.4	34.6
Total R&D Investment, Performer	5	23.1	24.4	25.8	27.3	28.8	30.4	33.2	36.4	38.6
Private	6	24.6	25.8	27.2	28.5	29.8	31.5	34.4	37.6	39.8
Business	7	25.2	26.4	27.8	29.2	30.4	32.1	35.0	38.2	40.5
Universities and colleges	8	18.7	19.8	21.0	22.0	22.9	24.3	26.6	28.8	30.5
Other nonprofit institutions	9	20.1	20.8	21.5	22.3	23.0	24.3	27.9	30.6	32.7
FFRDCs - business	10	22.6	24.2	25.7	27.2	29.2	31.2	34.4	38.8	41.1
FFRDCs -universities and colleges	11	27.9	29.5	31.2	32.9	35.1	37.0	40.4	44.7	46.8
FFRDCs -nonprofit	12	29.3	31.0	32.6	34.5	37.3	39.2	42.6	46.6	48.8
Public	13	18.2	19.5	21.1	22.9	24.8	26.4	28.6	31.5	33.6
Federal government	14	18.5	19.8	21.6	23.8	26.1	27.8	29.8	33.0	35.3
State and local governments	15	20.1	20.8	21.5	22.3	23.0	24.3	27.9	30.6	32.7
Universities and colleges	16	17.9	19.0	20.2	21.5	22.5	24.0	26.4	28.7	30.4
FFRDCs -universities and colleges	17	22.5	24.1	25.6	27.1	28.9	31.0	34.2	38.6	40.7

Table 5.1 Aggregate Cost-Based Price Indexes for R&D Investment 1959-2002

[Index numbers, 2000=100]

	Line	1977	1978	1979	1980	1981	1982	1983	1984	1985
Total R&D Investment, Funder	1	41.2	44.0	47.6	52.2	57.0	60.5	62.9	65.3	67.4
Federal extramural	2	50.4	53.4	57.0	62.0	66.6	71.1	74.2	76.7	78.4
Federal intramural	3	38.5	40.7	43.6	47.9	52.2	55.5	57.8	59.8	61.7
Non-federal domestic	4	37.0	39.9	43.8	48.1	53.2	56.3	58.4	60.8	63.0
Total R&D Investment, Performer	5	41.2	44.0	47.6	52.2	57.0	60.5	62.9	65.3	67.4
Private	6	42.3	45.3	49.0	53.6	58.6	62.1	64.6	67.0	69.1
Business	7	43.0	46.0	49.9	54.4	59.5	63.1	65.6	68.0	70.1
Universities and colleges	8	32.5	34.8	38.0	42.0	45.7	48.7	50.8	53.4	55.9
Other nonprofit institutions	9	34.9	37.5	41.3	46.6	51.6	54.1	55.8	57.9	59.2
FFRDCs - business	10	44.2	47.2	51.0	56.2	61.4	66.0	68.7	71.0	73.5
FFRDCs -universities and colleges	11	49.4	52.1	56.0	60.8	65.3	69.4	72.0	74.7	76.8
FFRDCs -nonprofit	12	51.3	54.0	57.9	62.8	67.2	71.0	73.7	76.6	78.4
Public	13	36.4	38.8	41.9	46.2	50.3	53.5	55.7	57.9	60.0
Federal government	14	38.5	40.7	43.6	47.9	52.2	55.5	57.8	59.8	61.7
State and local governments	15	34.9	37.5	41.3	46.6	51.6	54.1	55.8	57.9	59.2
Universities and colleges	16	32.4	34.9	38.3	42.4	46.1	49.0	51.1	53.7	56.2
FFRDCs -universities and colleges	17	43.9	47.2	51.1	56.5	62.0	66.3	69.0	71.4	74.0

	Line	1986	1987	1988	1989	1990	1991	1992	1993	1994
Total R&D Investment, Funder	1	69.1	71.9	74.5	77.6	80.2	82.6	84.9	87.0	88.8
Federal extramural	2	80.1	80.9	81.0	82.9	85.0	86.7	88.9	90.1	91.5
Federal intramural	3	63.8	65.9	68.7	70.7	74.1	77.4	79.3	82.1	85.0
Non-federal domestic	4	64.6	68.5	72.4	76.3	79.0	81.6	84.1	86.5	88.2
Total R&D Investment, Performer	5	69.1	71.9	74.5	77.6	80.2	82.6	84.9	87.0	88.8
Private	6	70.7	73.6	76.3	79.4	81.9	84.2	86.6	88.6	90.1
Business	7	71.6	74.7	77.4	80.6	83.0	85.2	87.8	89.8	91.2
Universities and colleges	8	58.1	61.2	64.0	67.4	70.6	72.8	75.0	77.1	79.5
Other nonprofit institutions	9	61.0	63.5	66.8	69.3	71.9	75.1	77.4	78.9	80.5
FFRDCs - business	10	75.2	75.9	77.5	80.1	82.5	84.6	87.0	88.3	90.0
FFRDCs -universities and colleges	11	78.5	79.3	80.6	83.1	85.4	87.1	89.6	90.6	92.3
FFRDCs -nonprofit	12	80.2	81.0	81.0	82.8	84.9	86.4	88.9	90.0	91.7
Public	13	62.1	64.5	67.1	69.6	72.8	75.6	77.5	80.0	82.6
Federal government	14	63.8	65.9	68.7	70.7	74.1	77.4	79.3	82.1	85.0
State and local governments	15	61.0	63.5	66.8	69.3	71.9	75.1	77.4	78.9	80.5
Universities and colleges	16	58.5	61.6	64.1	67.3	70.4	72.6	74.7	77.0	79.5
FFRDCs -universities and colleges	17	75.8	77.0	78.9	81.6	84.0	86.0	88.2	89.5	91.2

Table 5.1 Aggregate Cost-Based Price Indexes for R&D Investment 1959-2002

[Index numbers, 2000=100]

	Line	1995	1996	1997	1998	1999	2000	2001	2002
Total R&D Investment, Funder	1	90.1	91.9	93.8	95.1	96.8	100.0	102.6	106.3
Federal extramural	2	92.7	93.4	95.3	96.6	97.7	100.0	101.9	103.9
Federal intramural	3	88.2	90.6	92.7	94.4	96.9	100.0	102.6	106.5
Non-federal domestic	4	89.4	91.6	93.4	94.7	96.5	100.0	102.8	107.2
Total R&D Investment, Performer	5	90.1	91.9	93.8	95.1	96.8	100.0	102.6	106.3
Private	6	91.1	92.7	94.4	95.6	96.9	100.0	102.4	106.2
Business	7	91.8	93.3	95.0	96.1	97.1	100.0	102.4	106.4
Universities and colleges	8	82.1	85.0	87.6	90.2	95.0	100.0	104.2	108.1
Other nonprofit institutions	9	84.1	86.7	89.3	92.0	94.5	100.0	101.6	102.9
FFRDCs - business	10	92.7	93.7	95.4	96.4	97.3	100.0	102.4	104.9
FFRDCs -universities and colleges	11	93.8	94.4	96.0	97.0	97.7	100.0	101.7	103.6
FFRDCs -nonprofit	12	92.9	93.5	95.5	96.7	97.6	100.0	101.9	104.0
Public	13	85.5	88.1	90.4	92.5	96.0	100.0	103.3	107.0
Federal government	14	88.2	90.6	92.7	94.4	96.9	100.0	102.6	106.5
State and local governments	15	84.1	86.7	89.3	92.0	94.5	100.0	101.6	102.9
Universities and colleges	16	82.1	85.1	87.6	90.3	95.0	100.0	104.2	107.9
FFRDCs -universities and colleges	17	94.2	95.3	96.6	97.2	97.6	100.0	101.9	104.0

Table 5.2 Alternative Scenario Price Indexes for R&D Investment 1959-2002

[Index numbers, 2000=100]

Line	1959	1960	1961	1962	1963	1964	1965	1966	
Aggregate Cost-Based Price Index (Table 6.1, Lines 1 and 5)									
Scenario A	1	18.4	18.4	18.8	19.1	19.5	20.0	20.6	21.3
Manufacturing Industries High MFP Price Index									
Scenario B	2	94.5	92.3	91.0	87.9	86.5	85.4	84.1	85.9
High-Productivity Services Industries VA Price Index									
Scenario C	3	43.6	43.6	45.2	44.6	45.3	45.8	46.4	47.0
Top R&D Performers' Price Index									
Scenario D	4	64.8	65.1	65.0	65.3	64.3	64.0	64.2	65.2

Line	1967	1968	1969	1970	1971	1972	1973	1974	
Scenario A	1	22.1	23.1	24.4	25.8	27.3	28.8	30.4	33.2
Scenario B	2	86.6	86.1	87.7	90.3	90.8	90.7	92.1	101.1
Scenario C	3	48.0	48.5	47.7	48.3	52.2	54.4	55.4	57.6
Scenario D	4	66.9	68.7	70.2	73.9	76.6	77.7	79.2	82.7

Line	1975	1976	1977	1978	1979	1980	1981	1982	
Scenario A	1	36.4	38.6	41.2	44.0	47.6	52.2	57.0	60.5
Scenario B	2	105.8	107.6	110.1	114.6	122.2	130.3	138.1	139.0
Scenario C	3	62.5	67.1	70.3	72.0	72.0	75.3	80.8	87.2
Scenario D	4	90.1	96.5	101.0	103.0	106.3	110.0	115.1	122.4

Line	1983	1984	1985	1986	1987	1988	1989	1990	
Scenario A	1	62.9	65.3	67.4	69.1	71.9	74.5	77.6	80.2
Scenario B	2	137.9	135.7	134.2	132.1	129.3	128.9	132.2	134.4
Scenario C	3	92.0	97.2	104.9	110.4	107.2	108.4	108.4	108.7
Scenario D	4	123.8	123.3	121.5	121.0	119.7	119.9	121.6	124.4

Line	1991	1992	1993	1994	1995	1996	1997	1998	
Scenario A	1	82.6	84.9	87.0	88.8	90.1	91.9	93.8	95.1
Scenario B	2	136.5	134.2	132.9	128.4	123.8	121.0	115.4	111.4
Scenario C	3	110.8	112.8	115.1	114.2	115.2	115.2	116.1	111.6
Scenario D	4	129.2	130.7	130.2	129.3	123.9	119.9	115.6	106.9

Line	1999	2000	2001	2002	
Scenario A	1	96.8	100.0	102.6	106.3
Scenario B	2	105.8	100.0	100.0	99.4
Scenario C	3	105.8	100.0	96.3	93.2
Scenario D	4	102.7	100.0	96.4	95.9

Table 6 Deflation Summary
Private Sector

Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
Private Sector: All			
Private Sector: All			
Private Sector: Business			
Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All Industry		Fisher aggregate of detail from 1987 forward, GDP deflator for earlier years	201.9
Compensation of Employees	NSF reported distribution of wages of R&D personnel by industry	Not separately calculated	85.3
Scientists and Engineers	Based on 1987 split from NSF working paper	Deflation: BEA chain-type Laspeyres index based on engineer salaries in R&D organizations from the American Association of Engineering Societies Annual Salary Surveys and, beginning with 2000, salaries for R&D scientists and engineers from R&D Magazine Salary Surveys	55.4
Support Personnel	Based on 1987 split from NSF working paper	Deflation: BEA index based on BLS Average Hourly Earnings of Production Workers in research and testing services	29.9
Materials and Supplies	NSF reported distribution of R&D materials and supplies by industry	Deflation: BEA composite index for materials in the Scientific Research and Development Services industry (NAICS 5417) from Annual industry Accounts-GDP by Industry (KLEMS data)	28.5
Other R&D Costs (Overhead)	NSF reported distribution of R&D overhead costs by industry	Deflation: BEA composite index for overhead in NAICS 5417	84.1
CFC for structures and equipment	Beginning in 1998, NSF reported distribution of historical-cost depreciation by industry. For earlier years, extrapolated back using NIPA estimates of corporate capital consumption allowances by SIC industry. Historical-cost depreciation was adjusted to a current-cost basis using the ratio of NIPA estimates for current-cost depreciation to historical-cost depreciation for private fixed assets for SIC 873 Research, development and testing for 1998 and earlier, and NAICS 5412 Miscellaneous professional, scientific, and technical services beginning in 1999 (NAICS 541 excluding 5411 and 5415).	Deflation: Chain-type price index for depreciation in NAICS 5412 Miscellaneous professional, scientific, and technical services (NAICS 541 excluding 5411 and 5415) from NIPA Fixed Assets	4.0
Private Sector: FFRDCs administered by business			
Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All FFRDCs administered by industry	Weight of expenditures based on R&D obligations to Industry FFRDCs for three agency categories	Fisher aggregate of detail	2.0
DOD and NASA Funded		Deflation: NIPA price index for Federal defense purchases of R&D services	0.2
HHS funded		Deflation: BEA unpublished price index for biomedical research and development (BRDPI)	0.4
DOE and All Other Funded		Deflation: NIPA unpublished price index for Federal nondefense purchases of R&D services	1.4
Private Sector: Private universities and colleges			
Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All Private universities and colleges		Fisher aggregate of detail	10.0
R&D expenditures less CFC	R&D expenditures less research equipment (removed to reclassify these expenditures from current expense to investment).	Deflation: Academic R&D price index from the National Center for Education Statistics for 1960 to 1995, extrapolated for other years using NIPA price index for personal consumption expenditures (PCE) for education and research-other	9.3

Table 6 Deflation Summary

CFC for structures and equipment	Perpetual-inventory calculations at current cost, based on gross investment and on investment prices. Gross investment for R&D structures and equipment: Federal obligations on plant to private universities and colleges and the reclassification of research equipment from current expense to investment.	Direct valuation: perpetual inventory calculations based on gross investment and investment prices. Investment prices: For equipment, the NIPA index for private fixed investment in equipment and software by educational services industry (NAIC 61); for structures, the NIPA index for private fixed investment in nonresidential structures by educational services industry (NAIC 61)	0.7
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Private Sector: FFRDCs administered by private universities and colleges

Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All FFRDCs administered by private universities and colleges	Expenditures for individual FFRDCs, aggregated by Federal sponsoring agency, less research equipment. Beginning with 2002, research equipment is a BEA estimate based on historical trends.	Fisher aggregate of detail	3.0
DOD and NASA Funded		Deflation: NIPA price index for Federal defense purchases of R&D services	1.2
DOE and All Other Funded		Deflation: NIPA unpublished price index for Federal nondefense purchases of R&D services	1.6
CFC for structures and equipment	CFC for structures and equipment: Perpetual-inventory calculations at current cost, based on gross investment and on investment prices. Gross investment for R&D structures and equipment: Federal obligations on plant to FFRDCs administered by private universities and colleges and the reclassification of research equipment from current expense to investment.	Direct valuation: perpetual inventory calculations based on gross investment and investment prices. Investment prices: For equipment, the NIPA index for private fixed investment in equipment and software by educational services industry (NAIC 61); for structures, the NIPA index for private fixed investment in nonresidential structures by educational services industry (NAIC 61).	0.3

Private Sector: Other nonprofit institutions

Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All Other nonprofit institutions	Expenditures for years surveyed by NSF. For other years, Federal funding interpolated or extrapolated using Federal obligations to nonprofit institutions; nonFederal funding interpolated or extrapolated using PCE expenditures for foundations and nonprofit research.	Deflation: NIPA price index of PCE for education and research-other (for years through 1958) and NIPA implicit price deflator (IPD) for foundations and nonprofit research (beginning in 1959)	10.4

Private Sector: FFRDCs administered by other nonprofit institutions

Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All FFRDCs administered by other nonprofit institutions	Beginning with 2001, expenditures for individual FFRDCs, aggregated by Federal sponsoring agency. For earlier years, Federal agency obligations to FFRDCs administered by other nonprofit institutions.	Fisher aggregate of detail	2.1
DOD and NASA Funded		Deflation: NIPA price index for Federal defense purchases of R&D services	0.6
DOE and All Other Funded		Deflation: NIPA unpublished price index for Federal nondefense purchases of R&D services	1.4

Table 6 Deflation Summary
Public Sector

Public Sector: Federal			
Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All Federal	Federal obligations to intramural R&D by agency and by cost type.	Fisher aggregate of detail	16.4
Compensation of Employees		Fisher aggregate of detail	
DOD		Deflation: NIPA IPD Federal defense compensation of general government employees	2.5
DOE		Deflation: NIPA IPD Federal non-defense compensation of general government employees	0.1
HHS		Deflation: NIPA unpublished biomedical price index (BRDPI) 1979 to 2002 used as the overall price index for HHS, extrapolated back for 1929 to 1978 using NIPA IPD for this component: Federal nondefense compensation of general government employees	1.5
NASA & other		Deflation: NIPA IPD Federal non-defense compensation of general government employees	2.2
Materials and Supplies		Fisher aggregate of detail	
DOD		Deflation: NIPA IPD Federal defense installation support services	4.9
DOE		Deflation: NIPA IPD Federal defense services & Federal defense weapons support services	0.4
HHS		Deflation: NIPA unpublished biomedical price index (BRDPI) 1979 to 2002 used as the overall price index for HHS, extrapolated back for 1929 to 1978 using NIPA chain-type price index for this component: Federal nondefense intermediate goods and services purchased	1.8
NASA & other		Deflation: NIPA IPD Federal nondefense intermediate goods and services purchased	1.5
CFC on R&D Equipment	Perpetual-inventory calculations at current cost, based on gross investment and on investment prices. Gross investment for R&D equipment: Federal obligations for Federal intramural plant and the reclassification of research equipment from current expense to investment.	Fisher aggregate of detail	
DOD		Deflation: NIPA chain-type price index for Federal national defense investment in equipment and software	1.0
DOE		Deflation: NIPA chain-type price index for Federal national defense investment in equipment and software	
HHS		Deflation: NIPA chain-type price index: Federal national non-defense investment equipment and software	
NASA & other		Deflation: NIPA chain-type price index for Federal nondefense investment in equipment and software	
CFC on R&D Structures	Perpetual-inventory calculations at current cost, based on gross investment and on investment prices. Gross investment for R&D structures: Federal obligations for Federal intramural plant	Fisher aggregate of detail	
DOD		Deflation: NIPA chain-type price index for Federal national defense investment in industrial buildings	0.6
DOE		Deflation: NIPA chain-type price index for Federal national defense investment in industrial buildings	
HHS		Deflation: NIPA chain-type price index for Federal Nondefense investment in industrial buildings & Federal defense investment in new structures	

Table 6 Deflation Summary

NASA & other		Deflation: NIPA chain-type price index for Federal nondefense investment in new structures	
Public Sector: State and Local			
Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All State and local R&D Expenditures excluding CFC	For years surveyed by NSF, R&D expenditures, less R&D plant and a BEA-derived estimate for research equipment. For other years, Federal funding interpolated or extrapolated using Federal obligations to state and local governments; nonFederal funding interpolated or extrapolated using NIPA state and local government consumption and gross investment estimates.	Fisher aggregate of detail Deflation: NIPA IPD Education and Research - Other & NIPA IPD Foundations and non-profit research	0.6
CFC for structures and equipment	Perpetual-inventory calculations at current cost, based on gross investment and on investment prices. Gross investment for R&D structures and equipment: Federal obligations on plant to state and local governments and a reclassification of BEA-estimated research equipment from current expense to investment.	Direct valuation: perpetual inventory calculations based on gross investment and on investment prices. Investment prices: For equipment, the NIPA index for state and local fixed investment in equipment and software; for structures, the NIPA index for state and local fixed investment in health care structures.	0.1
Public Sector: Public universities and colleges			
Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All Public universities and colleges R&D expenditures less CFC	R&D expenditures less research equipment (removed to reclassify these expenditures from current expense to investment).	Fisher aggregate of detail Deflation: Academic R&D price index from the National Center for Education Statistics for 1960 to 1995, extrapolated for other years using NIPA price index for personal consumption expenditures (PCE) for education and research-other	21.3
CFC for structures and equipment	Perpetual-inventory calculations at current cost, based on gross investment and on investment prices. Gross investment for R&D structures and equipment: Federal obligations on plant to public universities and colleges and the reclassification of research equipment from current expense to investment.	Direct valuation: perpetual inventory calculations based on gross investment and investment prices. Investment prices: For equipment, the NIPA index for state and local fixed investment in equipment and software; for structures, the NIPA index for state and local fixed investment in educational buildings.	2.6
			18.7
Public Sector: FFRDCs administered by public universities and colleges			
Cost Component	Source Data	Method for Real Estimates	2002 (billions of dollars)
All FFRDCs administered by public universities and colleges	Expenditures for individual FFRDCs, aggregated by Federal sponsoring agency, less an estimate for research equipment. Beginning with 2002, research equipment is a BEA estimate based on historical trends.	Fisher aggregate of detail	2.8
DOD and NASA Funded DOE and All Other Funded		Deflation: NIPA price index for Federal defense purchases of R&D services Deflation: NIPA unpublished price index for Federal nondefense purchases of R&D services	0.0
CFC for structures and equipment	Perpetual-inventory calculations at current cost, based on gross investment and on investment prices. Gross investment for R&D structures and equipment: Federal obligations on plant to FFRDCs administered by public universities and colleges and the reclassification of research equipment from current expense to investment.	Direct valuation: Perpetual-inventory calculations at current cost, based on gross investment and on investment prices. Investment prices: For equipment, the NIPA index for public fixed investment in equipment and software by educational services industry (NAIC 61); for structures, the NIPA index for state and local fixed investment in educational buildings.	2.5
			0.3

Notes:

NIPA - National Income and Product Accounts

KLEMS - BEA production framework (for energy, materials and purchased services inputs) which provides greater detail about the inputs consumed by industries

SIC - Standard Industrial Classification System

NAICS - North American Industrial Classification System

BLS - Bureau of Labor Statistics

Table 7. Summary of the Impact of Treating Funder-based R&D as Investment in the National Income and Product Accounts, 2000*

[Billions of dollars]					
Account 1. Domestic Income and Product Account					
1	Compensation of employees, paid	0.0	14	Personal consumption expenditures (3-3)	-1.3
			14a	Consumption of fixed capital for nonprofits	5.2
2	Taxes on production and imports	0.0	14b	R&D paid for by nonprofits to nonprofits	-5.0
			14c	R&D paid for by nonprofits to business	0.0
3	Less: Subsidies (4-4)	0.0	14d	R&D paid for by nonprofits to government	-1.6
			15	Gross private domestic investment	185.7
4	Net operating surplus	53.3	16	Fixed investment (6-2)	185.7
5	Private enterprises (2-11)	53.3	16a	R&D paid for by business to business	176.0
			16b	R&D paid for by business to nonprofits	1.7
			16c	R&D paid for by nonprofits to business	0.0
6	Current surplus of government enterprises	0.0	16d	R&D paid for by nonprofits to nonprofits	5.0
			16e	R&D paid for by nonprofits to government	1.6
7	Consumption of fixed capital (6-13)	212.6	16f	R&D paid for by business to government	1.5
8	Nonprofits	5.2	17	Change in private inventories	
9	Government	81.4	18	Net exports of goods and services	0.0
10	Business	126.0	19	Exports	0.0
11	Gross domestic income	265.9	20	Imports	0.0
			21	Government consumption expenditures and gross investment	81.4
12	Statistical discrepancy	0.0	22	Consumption expenditures (4-1)	-1.4
			22a	Consumption of fixed capital	81.4
			22b	R&D paid for by government to government	-38.1
			22c	R&D paid for by government to business	-25.9
			22d	R&D paid for by government to nonprofits	-18.8
			23	Gross investment (6-3)	82.8
			23a	R&D paid for by government to government	38.1
			23b	R&D paid for by government to business	25.9
			23c	R&D paid for by government to nonprofits	18.8
13	GROSS DOMESTIC PRODUCT	265.9	24	GROSS DOMESTIC PRODUCT	265.9
Account 2. Private Enterprise Income Account					
1	Income payments on assets	0.0	11	Net operating surplus (1-5)	53.3
2	Business current transfer payments (net)	0.0	12	Income receipts on assets	0.0
3	Proprietors' income with IVA and CCAdj	0.0			
4	Rental income of persons with CCAdj	0.0			
5	Corporate profits with IVA and CCAdj	53.3			
6	Taxes on corporate income	0.0			
7	Profits after tax with IVA and CCAdj	53.3			
8	Net dividends	0.0			
9	Undistributed corporate profits with IVA and CCAdj (6-10)	53.3			
10	USES OF PRIVATE ENTERPRISE INCOME	53.3	13	SOURCES OF PRIVATE ENTERPRISE INCOME	53.3
Account 3. Personal Income and Outlay Account					
1	Personal current taxes	0.0	8	Compensation of employees, received	0.0
2	Personal outlays	-1.3	9	Proprietors' income with IVA and CCAdj	0.0
3	Personal consumption expenditures (1-14)	-1.3	10	Rental income of persons with CCAdj	0.0
4	Personal interest payments	0.0	11	Personal income receipts on assets	0.0
5	Personal current transfer payments	0.0	12	Personal current transfer receipts	0.0
			13	Less: Contributions for government social insurance	0.0
6	Personal saving (6-9)	1.3			
7	PERSONAL TAXES, OUTLAYS, AND SAVING	0.0	14	PERSONAL INCOME	0.0

*Implemented using assumptions defined in Scenario A

Table 7. Summary of the Impact of Treating Funder-based R&D as Investment in the National Income and Product Accounts, 2000*

[Billions of dollars]					
Account 4. Government Receipts and Expenditures Account					
1	Consumption expenditures (1-22)	-1.4	8	Current tax receipts	0.0
2	Current transfer payments	0.0	9	Contributions for government social insurance	0.0
3	Interest payments	0.0	10	Income receipts on assets	0.0
4	Subsidies (1-3)	0.0	11	Current transfer receipts	0.0
5	Less: Wage accruals less disbursements	0.0	12	Current surplus of government enterprises	0.0
6	Net government saving (6-12)	1.4			
7	GOVERNMENT CURRENT EXPENDITURES AND NET SAVING	0.0	13	GOVERNMENT CURRENT RECEIPTS	0.0
Account 5. Foreign Transactions Current Account					
1	Exports of goods and services	0.0	4	Imports of goods and services	0.0
2	Income receipts from the rest of the world	0.0	5	Income payments to the rest of the world	0.0
			6	Current taxes and transfer payments to the rest of the world (net)	0.0
			7	Balance on current account, national income and product accounts	0.0
3	CURRENT RECEIPTS FROM THE REST OF THE WORLD	0.0	8	CURRENT PAYMENTS TO THE REST OF THE WORLD AND BALANCE ON CURRENT ACCOUNT	0.0
Account 6. Domestic Capital Account					
1	Gross domestic investment	268.6	8	Net saving	56.0
2	Private fixed investment (1-16)	185.7	9	Personal saving (3-6)	1.3
3	Government fixed investment (1-23)	82.8	10	Undistributed corporate profits with IVA and CCA _{adj} (2-9)	53.3
4	Change in private inventories	0.0	11	Wage accruals less disbursements (private)	0.0
5	Capital transfer payments to the rest of the world (net)	0.0	12	Net government saving (4-6)	1.4
6	Net lending or net borrowing (-), national income and product accounts	0.0	13	Plus: Consumption of fixed capital (1-7)	212.6
			14	Private	131.1
			15	Government	81.4
			16	Equals: Gross saving	268.6
			17	Statistical discrepancy	
7	GROSS INVESTMENT, CAPITAL TRANSFERS, AND NET LENDING	268.6	18	GROSS SAVING AND STATISTICAL DISCREPANCY	268.6
Account 7. Foreign Transactions Capital Account					
1	BALANCE ON CURRENT ACCOUNT, NATIONAL INCOME AND PRODUCT ACCOUNTS	0.0	2	CAPITAL TRANSFERS (NET) AND NET LENDING, NATIONAL INCOME AND PRODUCT ACCOUNTS	0.0

*Implemented using assumptions defined in Scenario A

Table 8. Dimensions of International R&D

Year	Trade in R&D Services \$ Millions ¹						Royalties and License Fees for Industrial Processes in \$ Millions ²						BEA and NSF data on international funding and performance of R&D \$ Millions			
	Imports			Exports			Payments (Imports)			Receipts (Exports)			BEA data on majority- owned foreign affiliates of U.S. multinationals (MOFA)		NSF data on company and other non-Federal funds for industrial R&D performed abroad	
	Unaffiliated	Affiliated	Total	Unaffiliated	Affiliated	Total	Unaffiliated payments	From U.S. parents to foreign affiliates	Sum ³	Unaffiliated receipts	To U.S. parents from foreign affiliates	Sum ³	R&D Funded by MOFA	R&D Performed By MOFA		
1985															3,650	
1986	76			282											4,624	
1987	114			177			436			1,592					5,226	
1988	182			231			487			1,863					6,208	
1989	133			375			568	57	625	1,947	9,100	11,047	7,048	7,922	6,706	
1990	210			384			666			2,333			10,187		7,952	
1991	241			602			796			2,434			9,396		9,147	
1992	225			611			818			2,525			11,084		10,063	
1993	239			464			1,054			2,820			10,951		9,565	
1994	294			522			1,034			3,026			10,445	11,877	9,395	
1995	364			638			948			3,513				12,582	13,052	
1996	379			681			1,319			3,566				14,039	14,050	
1997	564			893			1,417			3,544				14,593	13,107	
1998	637			867			1,319			3,499				14,664	16,008	
1999	749			994			1,568			3,900			14,626	18,144	16,904	
2000	787			910			1,692			4,662				20,457	17,698	
2001	725	1,700	2,425	1,046	5,700	6,746	1,720			4,174				19,702	18,209	
2002	1,028	1,600	2,628	1,142	6,500	7,642	2,049			4,039				21,063	25,164	
2003	1,327	3,100	4,427	1,152	7,600	8,752	2,034			4,627				22,328	29,171	
2004	1,827	2,900	4,727	1,307	8,500	9,807	2,554			5,560						

Notes:

1. Source: Bureau of Economic Analysis; International Trade in Business, Professional and Technical Services, Table 7, <http://www.bea.gov/beatdi/1001serv/intlserv.htm>
2. Source: Bureau of Economic Analysis, International Trade in Royalties and Licensing Fees, Table 4, <http://www.bea.gov/beatdi/1001serv/intlserv.htm> and U.S Direct Investment Abroad, 1989 Benchmark Survey Table 1.X.1
3. This sum does not include transactions between foreign-owned U.S. affiliates and their foreign parents; for industrial processes these data are unavailable.