

Innovation-Related Data in BEA International Economic Surveys

NSF/SRS Workshop:

*Advancing Measures of Innovation:
Knowledge Flows, Business Metrics,
and Measurement Strategies*

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Bureau of Economic Analysis

June 6, 2006

Measuring the Nation's Economy.



BEA International Data

- International Transactions Accounts
 - Exports and imports of goods and services
 - Income receipts and payments
 - Unilateral transfers
 - Capital and financial Account
- International Investment Position of the United States
- Operations of multinational companies

BEA International Data, Continued

- International services—detailed annual data
- Direct investment—detailed annual balance of payments data
 - U.S. direct investment abroad
 - Foreign direct investment in the United States
- Operations of multinational companies
 - U.S. MNCs (U.S. parents and foreign affiliates)
 - U.S. operations of foreign MNCs

BEA Innovation-Related Data: Overview

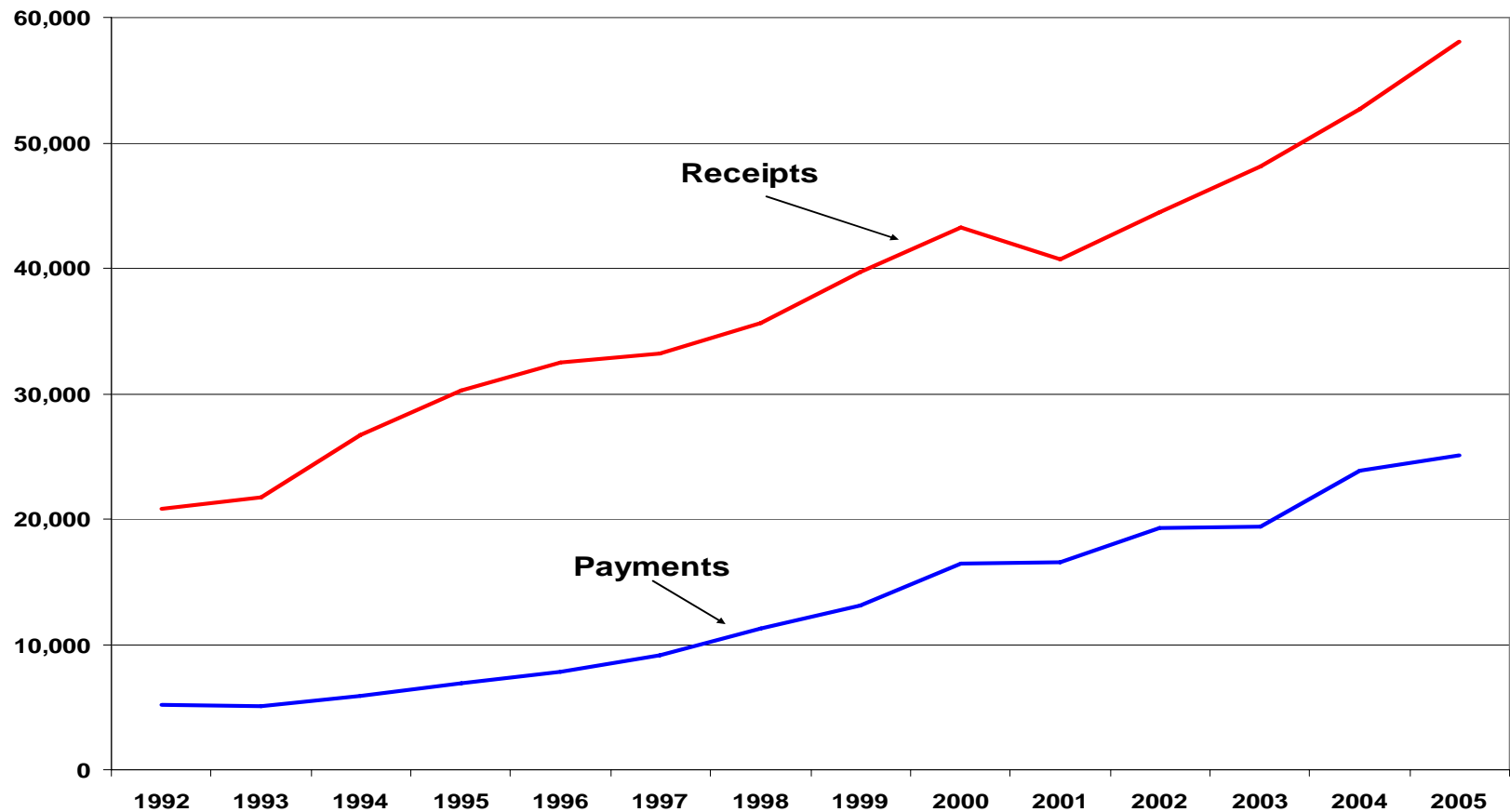
- International services exports and imports
 - Royalties and license fees
 - Research, development, and testing services
- Sales of services through affiliates
 - Scientific research and development services
- MNC R&D activity
 - R&D spending; R&D employment
- Other
 - R&D link project
 - R&D satellite account

Royalties and License Fees

- Transactions between U.S. and foreign residents involving intangible assets and property rights
 - Techniques, processes, and formulas used in production
 - Trademarks, copyrights, broadcast rights
 - Rights to distribute and use general-use computer software
 - Other intangibles

Chart 1 U.S. Receipts and Payments of Royalties and License Fees, 1992-2005

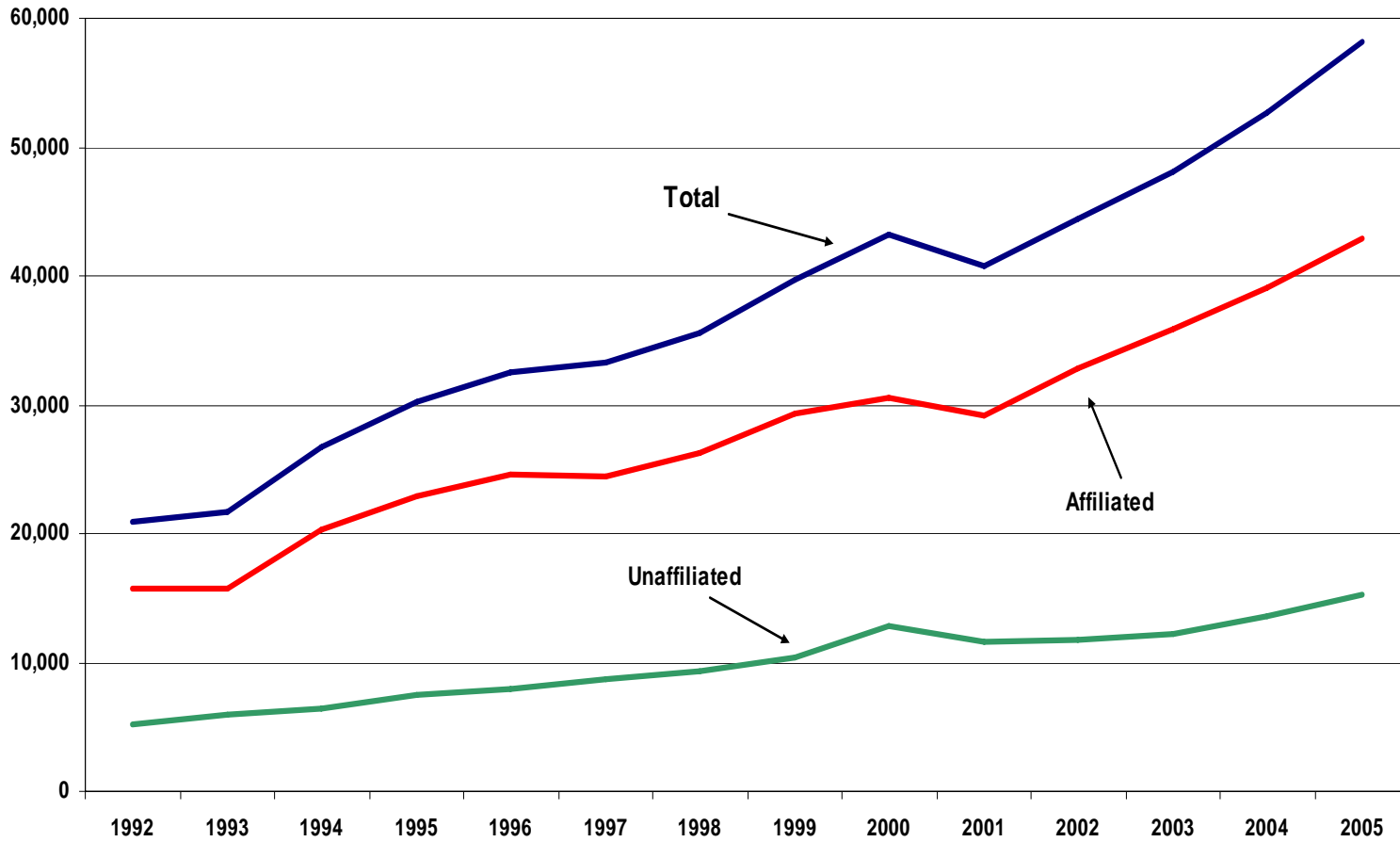
Millions of Dollars



Source: Bureau of Economic Analysis

Chart 2 Royalty and License Fee Receipts 1992-2005

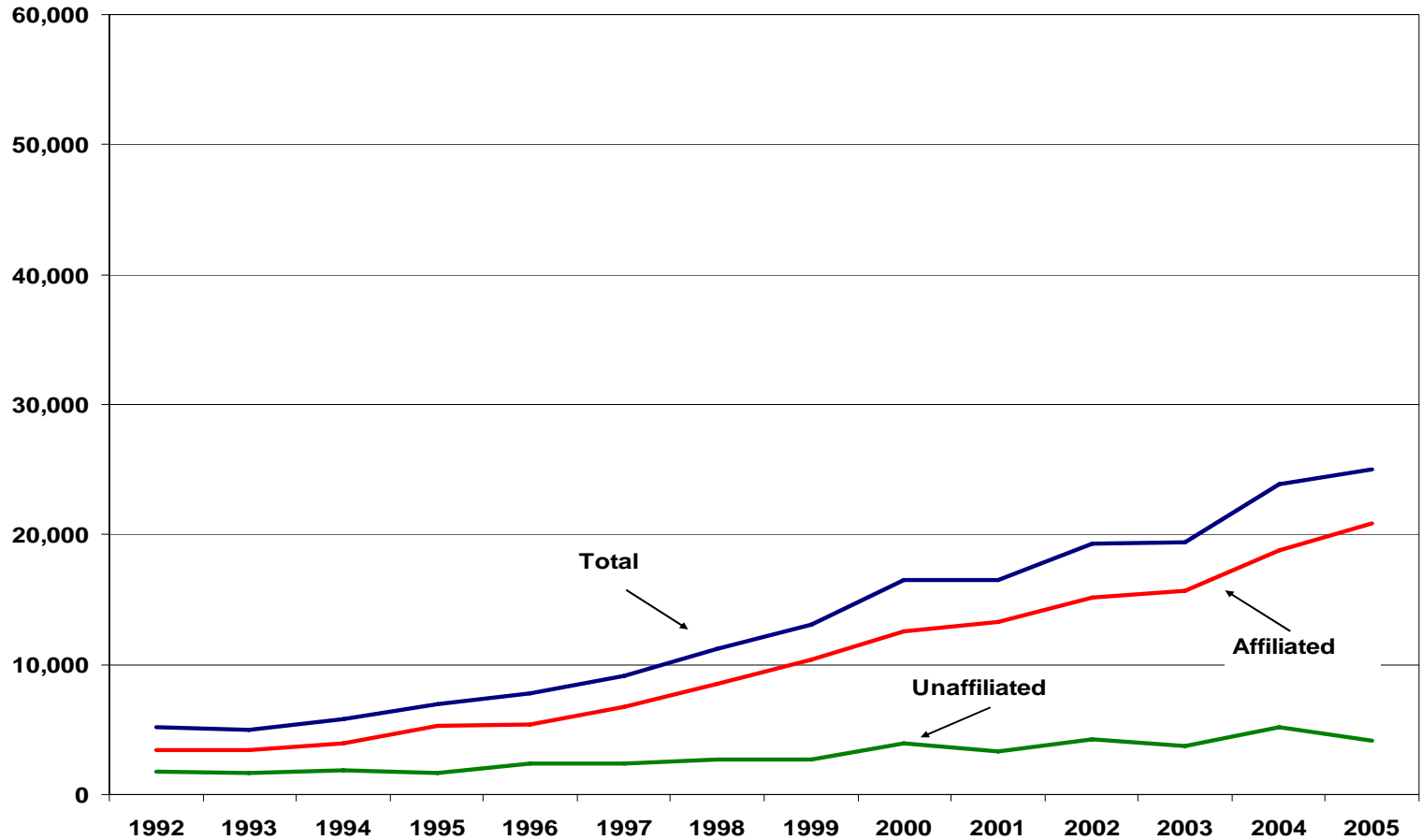
Millions of Dollars



Source: Bureau of Economic Analysis

Chart 3 Royalty and License Fee Payments 1992-2005

Millions of Dollars



Source: Bureau of Economic Analysis

Table 4.3. Royalties and License Fees, 2004—Continues

[Millions of dollars]

	Receipts											
	Total	Affiliated			Unaffiliated							
		Total	By U.S. parents from their foreign affiliates	By U.S. affiliates from their foreign parents	Total	Industrial processes	Books, records, and tapes	Broadcasting and recording of live events	Franchise fees	Trademarks	General use computer software	Other intangibles
All countries	52,643	39,024	35,084	3,940	13,619	5,560	613	305	534	1,596	4,261	750
Canada	3,575	2,904	2,829	76	670	161	57	6	35	128	279	4
Europe	25,239	20,870	18,278	2,593	4,369	1,700	444	125	238	525	1,328	10
Belgium-Luxembourg	764	(D)	616	(D)	(D)	35	9	3	(D)	21	13	1
France	2,339	1,952	1,820	132	387	181	60	22	16	37	72	(*)
Germany	3,485	2,203	1,996	207	1,282	474	76	12	28	83	607	1
Italy	1,273	986	965	21	287	70	46	13	15	37	105	1
Netherlands	1,515	1,382	1,291	91	133	27	25	3	6	14	57	(D)
Norway	185	(D)	121	(D)	(D)	5	4	(*)	(D)	4	10	(D)
Spain	687	(D)	522	(D)	(D)	10	19	29	(D)	21	46	(D)
Sweden	619	(D)	298	(D)	(D)	87	12	2	(D)	10	24	(D)
Switzerland	3,415	3,084	1,941	1,143	331	265	10	2	2	14	38	(D)
United Kingdom	4,519	3,783	3,171	612	736	231	126	27	62	59	231	(*)
Other	6,438	5,640	5,538	102	798	314	59	12	59	225	124	6
Latin America and Other Western Hemisphere	4,507	(D)	3,242	(D)	(D)	76	26	64	(D)	114	200	1
South and Central America	2,505	2,034	1,996	38	471	60	25	60	28	106	192	1
Argentina	152	129	129	0	23	1	2	6	(*)	6	8	0
Brazil	647	516	513	3	131	21	10	8	1	11	81	(*)
Chile	69	39	39	0	29	3	1	4	2	10	9	0
Mexico	1,254	1,091	1,059	32	162	22	7	18	11	39	65	1
Venezuela	130	97	94	3	33	9	1	(D)	(D)	6	6	(D)
Other	253	161	161	(*)	92	5	3	(D)	(D)	33	23	(D)
Other Western Hemisphere	2,001	(D)	1,246	(D)	(D)	16	1	4	20	9	9	(D)

Royalties and License Fees

- Where to Find the Data
 - Quarterly and annual aggregate data
 - International Transactions Accounts
 - Annual data by detailed country and by type of intellectual property
 - Annual *Survey of Current Business* article on international services
 - BEA Web site—international pages
 - “Balance of payments” -International Transactions Account tables, including interactive tables
 - “Trade in Goods and Services”—detailed annual historical data

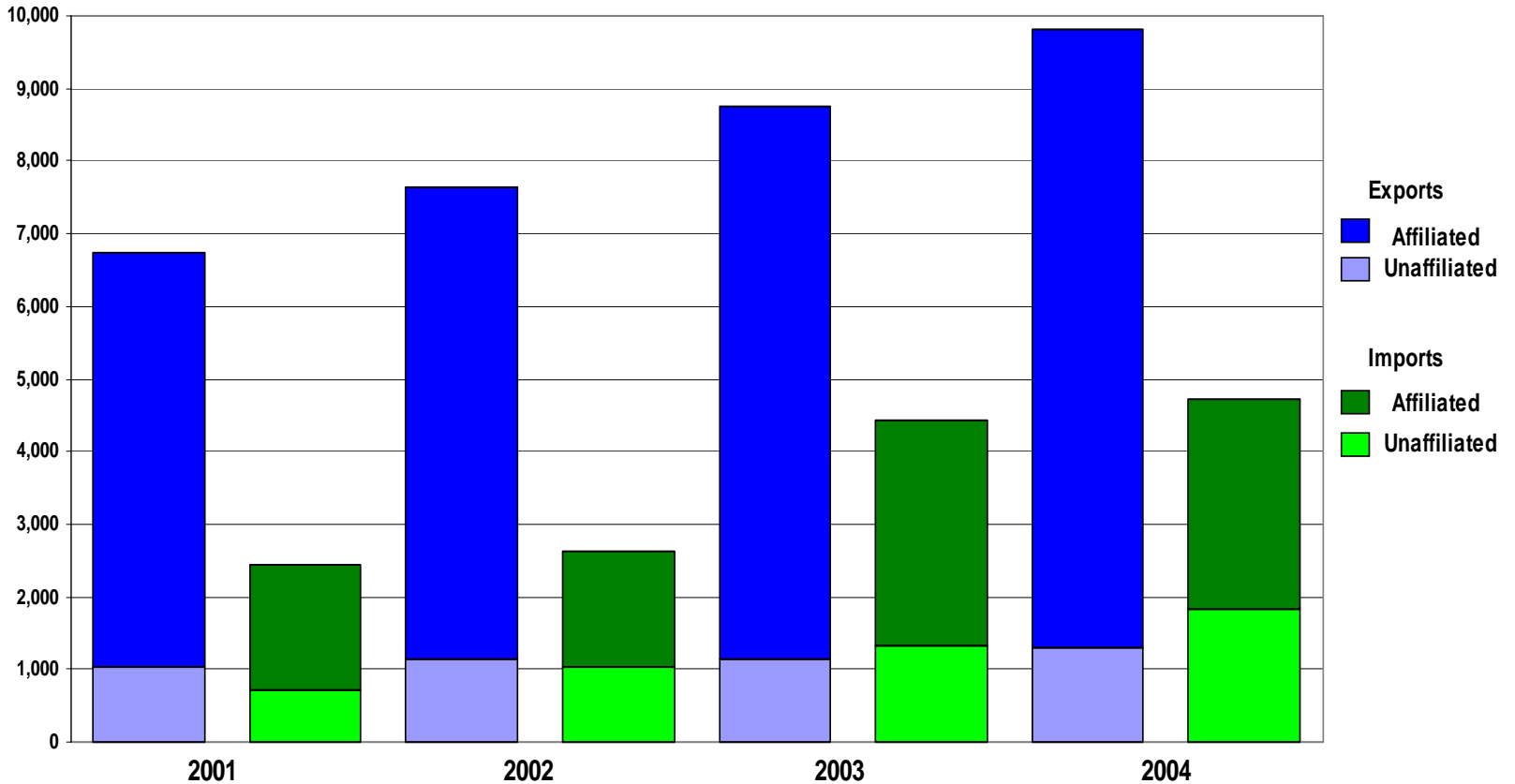
Exports and Imports of Research, Development, and Testing Services

- Included in the “Business, professional, and technical services” category in BEA tables
- Annual series
 - Unaffiliated data start in 1986
 - Affiliated data start in 2001

Chart 4

Research, Development, and Testing Services, 2001-2004

Millions of dollars



Source: Bureau of Economic Analysis

Exports and Imports of Research, Development, and Testing Services

- Where to find the data
 - Annual *Survey of Current Business* article on international services
 - Includes data by country
 - BEA Web site—International
 - “Trade in goods and services”

Sales Through Affiliates: Scientific Research and Development Services

- Focus is on transactions excluded from U.S. international transactions accounts
- Source: Data on the operations of MNCs
 - U.S. MNCs—U.S parent companies and their foreign affiliates
 - U.S. affiliates of foreign MNCs
- Sales data are part of larger data sets on the financing and operations of MNCs
 - Assets, value added, employment, trade, capital expenditures

Sales Through Affiliates: Scientific Research and Development Services

- Sales to foreign residents by foreign affiliates of U.S. MNCs
 - Foreign-to-foreign transaction
- Sales to U.S. residents by U.S. affiliates of foreign MNCs
 - U.S.-to-U.S. transaction
- Data classified based on industry of affiliate (NAICS 5417)
- Most recent data - 2003

Sales Through Affiliates: Scientific Research and Development Services

- Statistics: Sales to foreign customers by foreign affiliates
 - Affiliate sales were \$2.2 billion in 2003
 - Much smaller than exports of R&D services which were \$8.8 billion in 2003
 - Data available by area and major country
 - Europe--\$1.8 billion in 2003
 - Sales down slightly from \$2.4 billion in 2000
 - But healthy growth of foreign affiliate R&D spending (more later)

Sales Through Affiliates: Scientific Research and Development Services

- Statistics: Sales to U.S. customers by U.S. affiliates
 - Sales by affiliates were \$0.6 billion in 2003
 - Much smaller than R&D imports which were \$4.4 billion in 2003
 - Data by area and country of owner
 - Europe \$0.2 billion in 2003
 - Sales down from \$0.7 billion in 2000

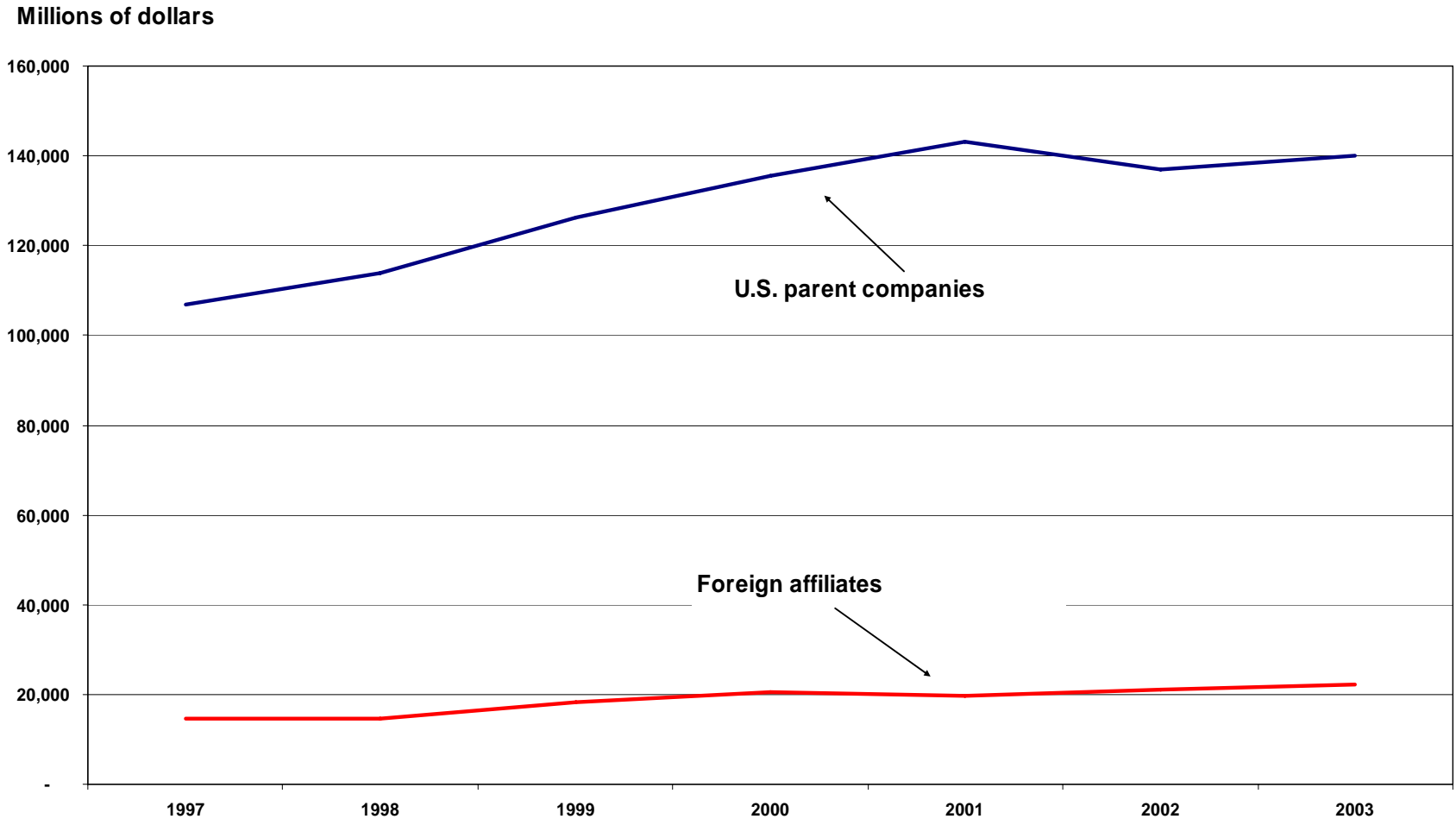
Sales Through Affiliates: Scientific Research and Development Services

- Where to find the data
 - Annual *Survey of Current Business* article on international services
 - BEA Web site—International
 - “Trade in goods and services”
- Data available only for recent years
 - Sales by foreign affiliates—1999 forward
 - Sales by U.S. affiliates—1997 forward
- Data do not cover sales of R&D services by affiliates classified in other industries
- Other innovation-related industries
 - Computer systems design and related services?
 - Others?

MNC R&D Data

- R&D expenditures
 - For most recent years data are on a performance basis (definition consistent with NSF)
 - Funded data collected in benchmark surveys
 - Data for earlier years on a funded basis
- R&D employment
 - Number of full-time and part-time employees at yearend
 - NSF—Number of full-time equivalent employees
 - Difference not significant (more later)

Chart 5 R&D Spending by U.S. MNCs 1997-2003



Source: Bureau of Economic Analysis

Table II.M 1. Selected Financial and Operating Data of U.S. Parents, by Industry of U.S. Parent

	Millions of dollars									Number of employees (thousands)
	Total assets	Total liabilities	Owners' equity	Capital expenditures ¹	Sales	Net income	Value added	Research and development performed ²	Compensation of employees	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
All industries	15,911,129	12,080,682	3,830,447	321,432	6,606,746	432,407	1,983,470	140,103	1,177,418	21,701.1
Mining	193,645	105,568	88,078	13,258	57,575	6,275	30,760	463	11,785	144.2
Oil and gas extraction.....	91,801	47,622	44,180	9,144	26,956	6,094	18,004	25	2,733	21.6
Other	101,844	57,946	43,898	4,114	30,618	181	12,755	438	9,052	122.7
Utilities	706,655	557,181	149,474	31,091	246,188	-1,792	87,500	59	28,163	347.2
Manufacturing	4,602,585	3,108,311	1,494,274	126,633	2,986,124	177,395	866,367	112,935	524,967	8,152.9
Food	265,423	173,242	92,182	7,761	254,474	17,214	60,333	1,376	35,390	760.0
Beverages and tobacco products.....	167,840	115,588	52,252	3,970	93,431	17,584	41,430	450	15,254	243.3
Textiles, apparel, and leather products.....	26,313	20,116	6,197	848	29,603	396	10,176	85	7,527	209.1
Wood products	34,069	23,116	10,953	761	24,817	539	7,943	84	4,895	79.3
Paper	140,063	91,079	48,985	3,643	95,209	5,501	34,983	1,327	21,981	324.0
Printing and related support activities.....	24,564	16,715	7,848	1,041	25,899	1,300	12,984	174	8,849	188.1
Petroleum and coal products.....	417,976	210,415	207,561	17,181	411,588	39,356	94,668	1,266	21,347	218.2
Chemicals	664,700	396,984	267,716	18,853	406,699	39,117	137,763	34,647	79,304	915.2
Basic chemicals	92,204	62,472	29,732	3,064	59,573	774	16,149	1,523	10,306	123.0
Resins and synthetic rubber, fibers, and filaments.....	85,769	64,180	21,589	2,538	49,872	1,188	16,473	2,542	9,251	117.7
Pharmaceuticals and medicines	335,650	177,284	158,366	9,489	190,420	27,986	68,693	25,582	38,885	384.1
Soap, cleaning compounds, and toilet preparations	72,890	40,809	32,081	1,706	54,618	7,178	19,005	2,689	8,836	115.0
Other	78,186	52,239	25,948	2,056	52,217	1,990	17,444	2,312	12,026	175.4
Plastics and rubber products.....	72,670	49,174	23,496	2,382	66,521	1,209	22,391	1,047	15,857	290.3
Nonmetallic mineral products.....	57,766	43,970	13,797	2,106	39,184	1,153	14,217	437	8,626	154.2
Primary and fabricated metals	153,861	101,128	52,734	5,445	141,155	4,464	45,391	1,418	32,574	605.0
Primary metals.....	87,274	58,888	28,386	3,307	80,295	540	22,041	503	17,557	299.5
Fabricated metal products.....	66,587	42,239	24,347	2,139	60,861	3,924	23,351	915	15,016	305.4
Machinery.....	651,491	483,936	167,555	11,265	244,158	20,216	71,840	8,094	49,867	751.5
Agriculture, construction, and mining machinery	103,361	65,830	37,531	2,039	55,352	1,604	12,562	1,702	10,633	150.3
Industrial machinery	30,301	13,010	17,291	653	18,085	34	4,419	1,469	4,219	71.6
Other	517,829	405,096	112,733	8,573	170,722	18,577	54,859	4,922	35,015	529.5
Computers and electronic products	501,432	215,593	285,839	16,140	310,603	6,121	111,478	33,519	73,304	981.0
Computers and peripheral equipment.....	116,563	51,197	65,366	2,939	91,070	1,425	23,956	7,055	15,730	207.0
Communications equipment.....	146,696	66,650	80,047	4,733	79,791	-670	29,878	10,344	19,187	235.9
Audio and video equipment.....	10,362	6,339	4,023	407	9,320	-19	2,787	(D)	2,252	35.6
Semiconductors and other electronic components	142,791	47,831	94,961	6,094	72,719	3,860	30,625	11,524	17,961	232.8
Navigational, measuring, and other instruments.....	83,566	43,045	40,521	1,756	56,480	1,460	23,853	4,093	17,873	265.5
Magnetic and optical media	1,453	531	922	110	1,223	65	380	(D)	301	4.3
Electrical equipment, appliances, and components	95,918	66,446	29,473	2,748	69,601	1,349	23,956	1,617	16,858	321.1
Transportation equipment.....	1,221,191	1,053,534	167,657	29,211	693,737	15,409	144,085	23,788	112,282	1,696.7
Motor vehicles, bodies and trailers, and parts.....	983,600	890,376	93,225	24,702	518,466	8,468	83,834	17,262	65,210	984.1
Other	237,591	163,158	74,433	4,509	175,271	6,941	60,251	6,526	47,071	712.6
Furniture and related products.....	20,123	9,020	11,103	631	22,485	1,112	8,620	116	5,764	142.7
Miscellaneous manufacturing.....	87,183	38,255	48,928	2,598	56,960	5,355	24,109	3,492	15,288	273.4
Wholesale trade	418,287	263,823	154,463	18,277	611,872	21,029	93,822	2,720	49,343	781.4

Table III.J 3. Research and Development Performed by Affiliates, Country by Industry¹

[Millions of dollars]

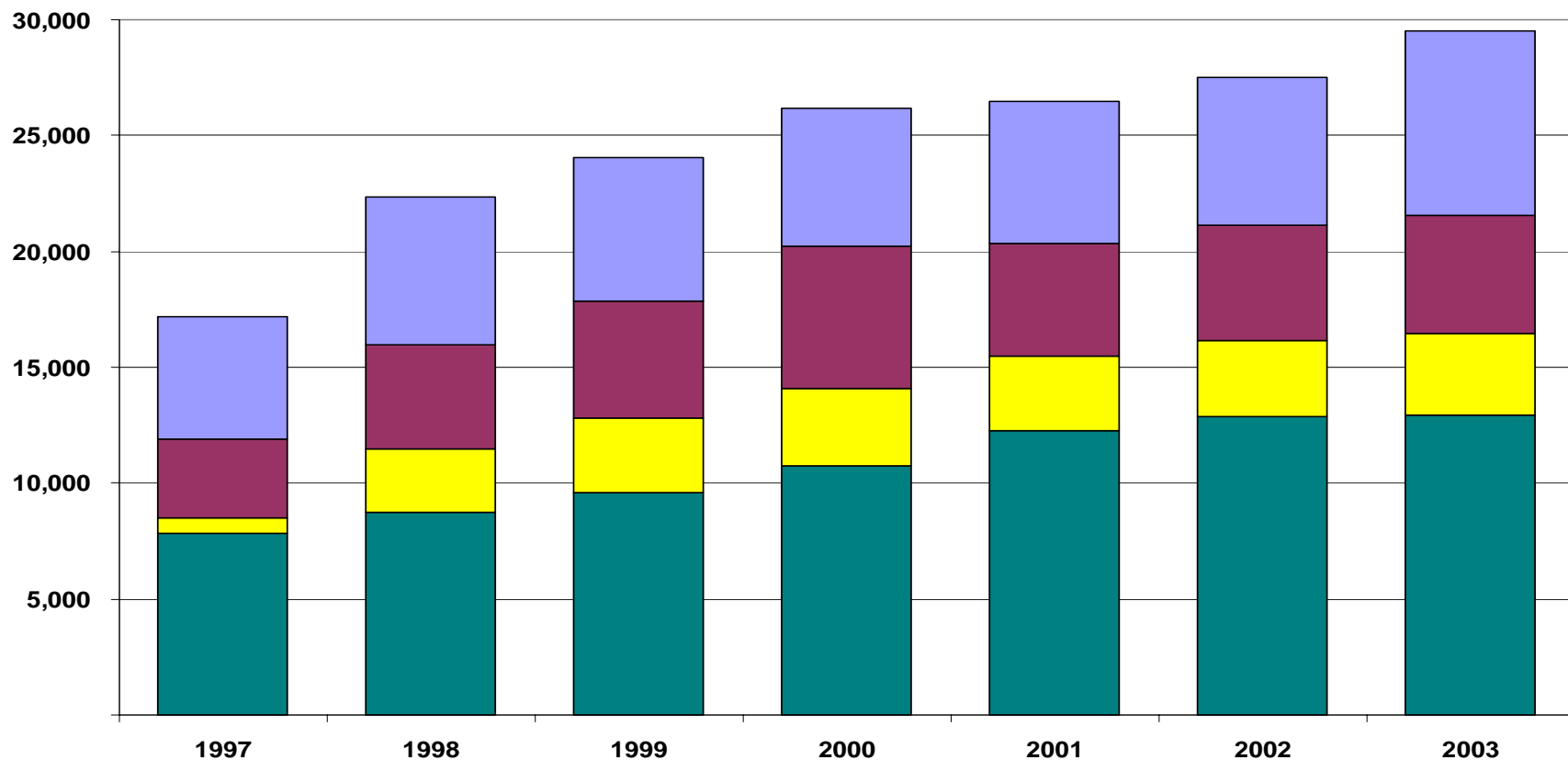
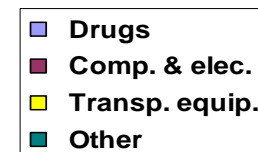
	All industries	Mining	Utilities	Manufacturing								Wholesale trade	Information	Finance (except depository institutions) and insurance	Professional, scientific, and technical services	Other industries
				Total	Of which:						Transportation equipment					
					Food	Chemicals	Primary and fabricated metals	Machinery	Computers and electronic products	Electrical equipment, appliances, and components						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
All countries	22,328	11	2	19,902	466	5,567	228	775	4,915	440	6,390	516	820	1	986	90
Canada	2,461	2	0	2,286	27	558	15	28	458	15	1,116	32	110	0	31	1
Europe	14,384	4	0	12,837	304	3,766	187	630	2,007	325	4,754	(D)	354	1	(D)	85
Austria.....	35	0	0	31	4	4	0	(*)	13	5	0	4	0	0	(*)	(*)
Belgium.....	464	(*)	0	383	2	295	4	12	(D)	(D)	(D)	11	0	(*)	67	2
Czech Republic.....	18	0	0	16	(*)	9	0	0	(*)	(*)	5	2	0	0	(*)	0
Denmark.....	59	0	0	54	0	(D)	1	25	22	0	0	(*)	4	0	1	0
Finland.....	102	0	0	97	0	3	1	7	76	0	2	1	0	0	4	0
France.....	1,797	0	0	1,698	53	876	23	51	203	22	303	46	(D)	0	24	(D)
Germany.....	3,676	0	0	3,559	53	297	68	175	578	146	2,044	61	20	0	29	8
Greece.....	16	0	0	11	2	7	2	0	0	0	0	6	0	0	0	0
Hungary.....	15	0	0	13	1	2	3	1	0	5	1	2	0	0	(*)	0
Ireland.....	(D)	0	0	362	1	108	0	0	187	14	5	2	(D)	0	(D)	1
Italy.....	613	0	0	598	5	293	18	56	101	45	58	8	(*)	0	6	0
Luxembourg.....	91	0	0	91	0	(D)	3	0	0	0	0	(*)	0	0	0	0
Netherlands.....	(D)	1	0	488	62	135	6	11	124	11	60	20	(D)	0	(D)	0
Norway.....	37	(*)	0	34	0	4	(*)	10	0	1	18	(*)	0	0	1	1
Poland.....	37	0	0	34	7	2	0	0	5	2	15	3	1	0	0	0
Portugal.....	21	0	0	20	2	3	(*)	0	(D)	0	1	2	0	0	0	0
Russia.....	1	0	0	1	(*)	0	0	0	0	0	0	1	0	0	0	0
Spain.....	318	0	0	309	6	141	10	1	26	18	90	9	0	0	0	0
Sweden.....	1,404	0	0	1,334	1	73	7	35	16	(D)	(D)	1	(*)	0	(D)	0
Switzerland.....	526	0	0	257	(*)	110	1	20	53	3	14	(D)	12	0	(D)	0
Turkey.....	17	0	0	15	0	11	1	0	0	0	3	2	0	0	0	0
United Kingdom.....	4,038	2	0	3,477	105	1,383	37	226	582	20	951	49	63	(*)	440	6
Other.....	8	0	0	8	1	(*)	1	1	0	(*)	4	(*)	0	0	0	0
Latin America and Other Western Hemisphere	689	3	2	521	67	135	4	34	58	(D)	176	(D)	(D)	(*)	29	1
South America.....	380	2	2	354	48	93	4	29	(D)	(D)	108	13	(D)	0	(D)	0
Argentina.....	22	0	0	21	2	12	0	(*)	0	0	(D)	1	0	0	0	0
Brazil.....	326	(*)	1	316	43	73	3	29	(D)	(D)	(D)	5	(D)	0	(D)	0
Chile.....	9	0	1	3	(*)	1	(*)	0	0	0	0	4	0	0	(*)	0
Colombia.....	8	0	0	5	1	2	0	0	0	0	0	1	0	0	0	0
Ecuador.....	(*)	0	0	(*)	0	0	0	0	0	0	0	(*)	0	0	0	0
Peru.....	2	1	0	(*)	0	(*)	0	0	0	0	0	1	0	0	0	0
Venezuela.....	12	0	0	10	1	5	0	0	0	0	3	2	0	0	0	0
Other.....	1	1	0	(*)	(*)	(*)	0	0	0	0	0	0	0	0	(*)	0

U.S.-MNC R&D EMPLOYMENT

- Collected in benchmark survey years--1977, 1982, 1989, 1994, 1999, 2004
 - 2004 data will be released later in 2006
- Parent R&D employment
 - 1999—647 thousand (84% of MNC total)
- Majority-owned affiliate R&D employment
 - 1999—124 thousand (16% of MNC total)
- Data available by industry and, for foreign affiliates, by country

Chart 6 R&D Spending by U.S. Affiliates of Foreign Companies, 1997-2003

Millions of dollars



Source: Bureau of Economic Analysis

Table III.I 6. Research and Development Performed by Affiliates, Industry of Affiliate by Country of UBO

[Millions of dollars]

	All countries	Canada	Europe						Latin America and Other Western Hemisphere	Africa	Middle East	Asia and Pacific		United States
			Total	Of which:								Total	Of which: Japan	
				France	Germany	Netherlands	Switzerland	United Kingdom						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
All industries	29,524	1,674(S)	22,255	3,691	5,892	1,755(S)	3,325	5,820	956	31	(D)	3,697	3,407	(D)
Manufacturing	22,017	1,254(S)	17,919	3,081	5,363	1,520(S)	3,042	4,163	783	(D)	(D)	1,225	1,089	(D)
Food	118	(*) (S)	105	12	1	2	(D)	(D)	7	(*) (S)	0	7	5	(*) (S)
Beverages and tobacco products	(D)	1	(D)	0	0	0	0	83(S)	0	0	0	(*) (S)	(*) (S)	(*)
Textiles, apparel, and leather products	22	1(S)	(D)	3(S)	1(S)	2	2(S)	2(S)	0	0	0	(D)	(D)	0
Paper	64	2(S)	35	0	11(S)	0	(*)	4	0	(D)	0	9(S)	9(S)	(D)
Printing and related support activities	51	(D)	(D)	(*) (S)	0	0	0	(D)	0	0	(D)	0	0	0
Petroleum and coal products	(D)	0	(D)	0	4(S)	(D)	0	0	0	0	0	(*) (S)	(*)	0
Chemicals	9,413	(D)	8,984	2,105	1,453	371	2,821	2,070	0	(D)	54	313(S)	305(S)	8(S)
Basic chemicals	589	0	565	102	(*) (S)	99	(D)	(D)	0	(D)	0	13	11	(D)
Resins and synthetic rubber, fibers, and filaments	307	(D)	272	(D)	(D)	(D)	(*) (S)	(D)	0	(D)	0	13	13	0
Pharmaceuticals and medicines	7,974	(D)	7,679	(D)	1,201	(D)	2,687	(D)	0	(D)	0	217(S)	213(S)	0
Soap, cleaning compounds, and toilet preparations	302	0	(D)	(D)	7(S)	0	(D)	0	0	0	0	(D)	(D)	(D)
Other	242	(D)	(D)	(D)	(D)	5(S)	(D)	(D)	0	0	0	(D)	(D)	0
Plastics and rubber products	412	3(S)	293	(D)	63	0	1(S)	(D)	0	0	0	116	106	(*)
Nonmetallic mineral products	196	(*) (S)	181	(D)	14	1	4	(D)	(*) (S)	0	0	15	9	(*) (S)
Primary and fabricated metals	216	(D)	127	6(S)	45	1(S)	7	38	0	(*) (S)	0	20	20	0
Primary metals	34	(D)	23	4(S)	1	0	0	0	0	(*) (S)	0	(D)	(D)	0
Fabricated metal products	183	(D)	104	2(S)	44	1(S)	7	(D)	0	0	0	(D)	(D)	0
Machinery	1,563	3(S)	1,259	(D)	945	(D)	36	63	0	(D)	0	(D)	74	9(S)
Agriculture, construction, and mining machinery	364	(*) (S)	364	(*) (S)	3	0	1(S)	0	0	(D)	0	14(S)	11(S)	(D)
Industrial machinery	212(S)	2(S)	203(S)	(D)	(D)	(D)	2(S)	61	0	0	0	6	6	0
Other	987	(*) (S)	(D)	(D)	(D)	(*) (S)	34	61	0	0	0	(D)	58	(D)
Computers and electronic products	5,116(S)	(D)	2,953	434	(D)	(D)	25	1,379	(D)	0	37(S)	373	333	(D)
Computers and peripheral equipment	758(S)	(*)	53	4(S)	(D)	0	2(S)	(D)	0	(D)	0	(D)	(D)	(D)
Communications equipment	1,769(S)	(D)	609	(D)	(D)	0	0	0	9	0	0	(D)	(D)	0
Semiconductors and other electronic components	427	(D)	276	(D)	(D)	(D)	2	11	0	0	1(S)	(D)	72	0
Navigational, measuring, and other instruments	2,092	0	2,014	(D)	43	(D)	20	(D)	0	0	0	(D)	(D)	(D)
Other	70	0	(*) (S)	0	0	0	0	(*) (S)	0	0	0	70	69	0
Electrical equipment, appliances, and components	352	(D)	234	(D)	25	1(S)	(D)	35(S)	0	0	0	17(S)	16(S)	0
Transportation equipment	3,519	(D)	3,162	(D)	(D)	(D)	4	302	2(S)	0	4(S)	(D)	192	2
Motor vehicles, bodies and trailers, and parts	3,256	110	2,950	(D)	(D)	4	4	121	2(S)	0	0	192	192	2
Other	262	(D)	212	(D)	0	(D)	0	181	0	0	4(S)	(D)	(*)	0
Other	671	8(S)	181	(D)	21	(D)	8(S)	99	(D)	0	1(S)	(D)	(D)	0
Wholesale trade	5,137	(D)	3,206(S)	(D)	(D)	(D)	(D)	(D)	(D)	0	17(S)	1,652	1,510	(D)
Motor vehicles and motor vehicle parts and supplies	496	0	3(S)	0	3(S)	0	0	0	0	0	0	493	492	0
Electrical goods	935	4(S)	(D)	(*) (S)	4(S)	(D)	0	3	0	0	0	(D)	154	(D)
Petroleum and petroleum products	(D)	0	(D)	0	0	0	0	(D)	0	0	0	0	0	(*) (S)
Other	(D)	0	2,374(S)	0	(D)	(D)	(D)	(D)	(D)	0	(D)	(D)	864	9
Retail trade	(D)	0	(*) (S)	(*) (S)	0	0	0	0	0	0	0	(D)	(D)	0
Food and beverage stores	(*) (S)	0	0	0	0	0	0	0	0	0	0	(*) (S)	(*) (S)	0
Other	(D)	0	(*) (S)	(*) (S)	0	0	0	0	0	0	0	(D)	(D)	0
Information	853	(D)	619	267(S)	(D)	(D)	5	131	(*)	(D)	10(S)	38(S)	33(S)	0
Publishing industries	805	(D)	600	(D)	(D)	(D)	5	(D)	2(S)	0	0	(D)	(D)	0
Motion picture and sound recording industries	1	1	(*) (S)	0	0	0	0	(*) (S)	0	0	0	0	0	0
Telecommunications	12(S)	0	(D)	(D)	0	0	0	(D)	(*)	0	8(S)	(D)	(D)	0
Other	35(S)	0	0	0	0	0	0	(D)	0	0	0	0	0	0
Finance (except depository institutions) and insurance	14(S)	(*) (S)	9(S)	1	0	(*) (S)	1(S)	5(S)	0	0	0	4(S)	1(S)	0
Finance, except depository institutions	13(S)	(*) (S)	8(S)	1	0	(*) (S)	0	5(S)	0	0	0	4(S)	1(S)	0
Insurance carriers and related activities	1(S)	0	1(S)	0	0	0	1(S)	0	0	0	0	0	0	0
Real estate and rental and leasing	8	(*) (S)	7	2(S)	0	0	(*) (S)	1	(*) (S)	0	0	0	0	0
Real estate	1(S)	(*) (S)	(*) (S)	0	0	0	(*) (S)	0	(*) (S)	0	0	0	0	0
Rental and leasing (except real estate)	7	0	7	2(S)	0	0	0	1	0	0	0	0	0	0
Professional, scientific, and technical services	1,130	(D)	352(S)	35	(D)	60(S)	(D)	81	0	0	(D)	688	685	0
Architectural, engineering, and related services	75	3(S)	72	(D)	75	(*) (S)	(D)	(D)	0	0	0	0	0	0
Computer systems design and related services	198	0	51	(D)	0	(D)	0	0	0	0	(D)	0	0	0
Management, scientific, and technical consulting	3(S)	3(S)	0	0	0	0	0	0	0	0	0	(*) (S)	(*) (S)	0
Other	859	(D)	229(S)	0	(D)	(D)	(D)	5(S)	0	0	0	(D)	(D)	0
Other industries	(D)	(D)	143	(D)	24	0	3	(D)	(D)	0	(*)	(D)	(D)	(*) (S)
Agriculture, forestry, fishing, and hunting	76	0	73	(D)	(D)	0	1	45(S)	0	0	0	4	4	0
Mining	148(S)	(D)	(D)	0	0	0	0	(D)	(D)	0	0	0	0	0
Utilities	5	0	5	0	0	0	0	0	0	0	0	0	0	0
Construction	0	0	8	0	0	0	0	2	(*) (S)	0	0	(*) (S)	(*) (S)	(*) (S)
Transportation and warehousing	3(S)	3(S)	0	0	0	0	0	0	0	0	0	0	0	0
Management of nonbank companies and enterprises	(*) (S)	0	0	0	0	0	0	0	0	0	0	(*) (S)	0	0
Administration, support, and waste management	3	0	3	0	0	0	0	3	0	0	0	0	0	0

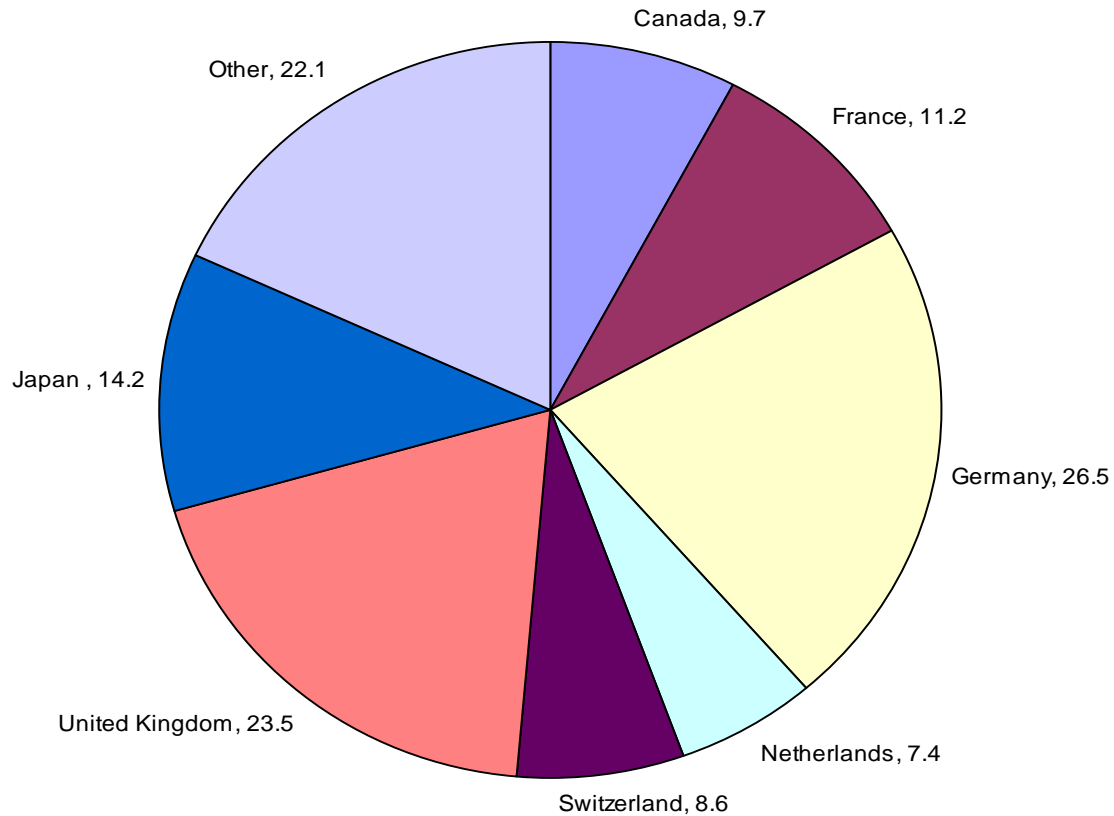
R&D Employment of U.S. Affiliates

- Annual data
- Detail available: industry by major country (UBO)
- 2003 employment of majority-owned affiliates = 123 thousand
- 11% of R&D employment of U.S. businesses
- Affiliate employment highly concentrated by industry
 - One-half in drugs, computers and electronic products, and transportation equipment mfg.

Chart 7

U.S. Affiliate R&D Employment, 2003

Thousands of employees



Source: Bureau of Economic Analysis

MNC R&D Data

- Where to find the data
 - Annual articles in *Survey of Current Business* on MNC operations
 - R&D expenditures by industry and by country
 - BEA Web site—International (new interactive tables)
 - Additional detail for R&D expenditures
 - R&D employment
- Break in series—limited data available for majority-owned U.S. affiliates for years prior to 2002

R&D Link Project

- Linked BEA MNC R&D data with NSF/Census Bureau R&D data for all U.S. businesses
- Feasibility study
- Goals
 - Create an integrated data set covering domestic and international dimensions of R&D
 - Obtain additional information on R&D activities of MNCs

R&D Link Project

- Findings
 - Feasible to link the data
 - Linked U.S. parent data for 1999 and U.S. affiliate data for 1997 to all U.S. business data from the RD1
 - Obtained new data for MNCs (e.g., separate data on basic research, applied research, and development)
 - Could produce data on MNC R&D by state
 - Improved sample frames and data quality
 - Effect of definitional differences minor (R&D employment)
- Report available on NSF, Census, and BEA Web sites
- Future: Link data for more recent years