

1992 Census of Manufactures

MC92-S-3

SUBJECT SERIES

Manufacturers' Shipments to Federal Government Agencies



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If you have any questions concerning the statistics in this report, call 301-457-4814.

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic

activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

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Manufacturers' Shipments to Federal Government Agencies

SUMMARY OF SURVEY RESULTS

The total value of shipments by private manufacturing firms in 108 selected Federal Government oriented industries was estimated at \$1,447.4 billion in 1992, of which \$143.9 billion or 10 percent was accounted for by shipments to the Federal Government. The Federal agency with the largest dollar volume of procurement during 1992 was the Department of Defense (DOD) with \$114.3 billion, followed by the National Aeronautics and Space Administration (NASA) with \$6.8 billion and the Department of Energy (DOE) with \$2.9 billion. The "other agencies" category (i.e., agencies other than DOD, NASA, and DOE; receiving agencies not known to the manufacturer; and plants which have less than \$1 million in Federal shipments) was estimated at \$19.8 billion. Of the \$143.9 billion of manufactured products shipped, \$107.8 billion represented shipments of prime contracts, and \$36.1 billion were done on indirect or subcontracts.

Total employment in all Federal Government oriented industries in 1992 was estimated to be 7.5 million, of which 1.0 million employees were engaged in work related to Government expenditures for manufactured products. By agency, DOD shipments supported an estimated .8 million employees; NASA, 53,000; DOE, 28,300; "other agencies," 64,400; and "agency not known", 68,700.

Twenty industries shipped more than \$1 billion of their products to the Federal Government. These industries were led by SIC 3812, Search and Navigation Equipment, at \$26.2 billion; SIC 3721, Aircraft, at \$23.0 billion; and SIC 3761, Guided Missiles and Space Vehicles, at \$16.6 billion.

SOURCE OF DATA

These data are based on the results of 1992 Census of Manufactures Survey of Manufacturers' Shipments to Federal Government Agencies. The survey sample included

plants in the 108 industries identified as having engaged extensively in business with the Federal Government. The majority of the 108 industries are grouped in Major Groups 34, 35, 36, 37, and 38. Appendix A provides limitations of the data and an explanation of the terms. Appendix B describes the survey sample and estimating procedure. Appendix C contains reproductions of the report form and instructions.

INDUSTRIAL CLASSIFICATION

The sample survey panel was selected to represent 108 industries as the industries were defined in the 1987 Standard Industrial Classification. See appendix A for limitations of the data.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(A)	Represents value less than \$.05 million (\$50,000); Employees less than 50.
(D)	Withheld to avoid disclosing data for individual companies.
(NA)	Not available.
(X)	Not applicable.
DOD	Department of Defense.
DOE	Department of Energy.
NASA	National Aeronautics and Space Administration.
n.e.c.	Not elsewhere classified.
SIC	Standard Industrial Classification.

Table 1. Employment, Value Added, Value of Shipments, and Government Shipments by

[Employment in thousands; value in million dollars]

SIC code	Industry	Employees	Value added by manufacture	Total value of shipments and receipts	Government shipments			
					Total		Prime contracts	
					Employees	Value of shipments	Employees	Value of shipments
36	Electronic and other electric equipment							
	— Con.							
3677	Electronic coils and transformers	19.2	680.6	1 133.8	2.5	127.0	.4	24.9
3678	Electronic connectors	30.7	2 385.9	3 773.5	3.6	304.9	.8	60.9
3679	Electronic components, n.e.c.	180.2	11 817.9	23 670.0	22.3	2 476.2	7.3	850.0
369	Miscellaneous electrical equipment and supplies	49.9	3 755.4	7 240.4	1.2	148.6	.2	27.9
3691	Storage batteries	20.8	1 751.4	3 325.7	.5	79.6	.4	56.4
3692	Primary batteries, dry and wet	10.7	893.6	1 907.5	1.9	156.2	(D)	85.3
3695	Magnetic and optical recording media	22.6	2 091.5	4 641.3	2.2	559.6	2.0	517.9
3699	Electrical equipment and supplies, n.e.c.	43.2	2 795.4	4 897.6	8.2	992.6	6.3	773.2
37	Transportation equipment							
3700	Transportation equipment ³	137.2	7 775.9	20 154.9	2.3	278.3	.1	16.5
3711	Motor vehicles and car bodies	227.8	45 982.9	151 682.1	9.9	1 764.9	9.6	1 556.1
3713	Truck and bus bodies	34.9	1 822.3	4 626.5	1.5	403.5	1.3	384.6
3714	Motor vehicle parts and accessories	400.0	31 074.1	75 058.4	3.8	657.7	1.6	250.2
3715	Truck trailers	23.5	1 098.1	3 551.1	2.3	369.3	1.6	156.5
3721	Aircraft	264.6	23 107.2	62 940.1	136.2	23 008.8	130.9	22 238.3
3724	Aircraft engines and engine parts	120.4	11 725.9	22 407.5	30.2	6 656.8	21.2	5 280.5
3728	Aircraft parts and equipment, n.e.c.	163.1	12 827.4	19 510.6	53.6	6 159.4	29.1	3 341.8
3731	Ship building and repairing	118.2	6 537.8	10 600.9	88.5	7 812.5	87.1	7 724.1
3761	Guided missiles and space vehicles	97.7	10 939.0	19 423.1	83.0	16 552.3	78.0	15 547.4
3764	Space propulsion units and parts	32.0	3 044.5	5 121.4	27.1	3 722.6	17.4	2 364.7
3769	Space vehicle equipment, n.e.c.	16.2	1 262.5	1 963.9	(D)	(D)	(D)	(D)
3795	Tanks and tank components	11.4	1 128.0	2 228.8	7.1	1 630.4	6.3	1 533.8
38	Instruments and related products							
3800	Instruments and related products ⁵	138.0	12 231.2	17 904.2	2.9	439.7	1.5	239.3
3812	Search and navigation equipment	253.0	24 299.2	35 039.2	186.2	26 169.7	129.5	19 006.1
3821	Laboratory apparatus and furniture	17.8	1 315.8	2 111.4	.5	63.9	.4	49.3
3823	Process control instruments	50.5	4 268.7	6 470.1	1.1	133.5	.3	41.1
3824	Fluid meters and counting devices	16.2	1 468.1	2 600.5	(A)	2.1	—	—
3825	Instruments to measure electricity	68.5	5 684.5	8 825.8	12.7	1 875.8	7.3	1 376.1
3826	Analytical instruments	40.1	3 029.3	5 222.5	2.3	274.8	1.0	157.4
3827	Optical instruments and lenses	20.3	1 573.2	2 489.3	4.8	744.9	2.3	383.3
3829	Measuring and controlling devices, n.e.c.	37.6	2 809.8	4 415.8	8.8	924.2	5.3	577.4
3842	Surgical appliances and supplies	96.4	8 900.9	13 801.0	5.7	617.0	4.8	519.3
3844	X-ray apparatus and tubes	14.3	1 871.4	3 235.0	.6	186.6	.5	143.4
3845	Electromedical equipment	40.1	4 703.8	7 188.6	2.1	353.3	2.0	347.8
3851	Ophthalmic goods	29.4	1 938.4	2 675.3	.5	54.7	.4	48.3
3861	Photographic equipment and supplies ..	77.3	14 862.0	22 118.8	4.8	838.0	4.5	768.2
3873	Watches, clocks, watchcases, and parts	7.7	437.5	843.0	.2	9.5	.1	6.7

¹Standard error estimates are calculated from the unadjusted (reciprocal) government shipments which were reported on the MC-9675. No adjustment has been made to the standard error for the ratio estimation to Census of Manufactures levels. See appendix B for a description of the methodology.

²Includes all four-digit industries in major group 33 except 3339, 3357, 3363, and 3365.

³Includes 3716, 3732, 3743, 3751, 3792, and 3799.

⁴Data in the value of shipments column represent value of work done rather than value of shipments. Consequently, the formula for computing value added by manufacture was modified to exclude any change between beginning- and end-of-year inventories.

⁵Includes 3822, 3841, and 3843.

Note: Totals may not add to sum of the detail because of rounding.

Industry and Agency: 1992—Con.

Government shipments—Con.												Standard error of estimate (percent) for total Government shipments ¹	SIC code	
Subcontracts		To DOD		To NASA		To DOE		To other agencies		Government agency not known				
Employees	Value of shipments	Employees	Value of shipments	Employees	Value of shipments	Employees	Value of shipments	Employees	Value of shipments	Employees	Value of shipments			
														36
2.1	102.1	1.3	65.8	(A)	(A)	(A)	(A)	(A)	1.2	1.2	60.0	18	3677	
2.8	244.0	1.4	113.9	(D)	(D)	(D)	(D)	.9	60.1	1.3	126.8	18	3678	
15.0	1 626.2	13.1	1 421.2	.7	72.6	.2	26.4	.5	77.9	7.8	878.1	13	3679	
														369
1.0	120.7	1.2	146.9	—	—	—	—	(A)	1.5	(A)	.2	70	3691	
.1	23.2	.5	61.1	.1	5.2	(A)	.3	(A)	6.0	(A)	7.0	23	3692	
(D)	70.9	1.9	149.6	(A)	1.1	(A)	.5	(A)	1.6	(A)	3.4	14	3695	
.2	41.7	1.1	268.9	(A)	.2	(A)	.1	.9	262.5	.2	27.9	50	3699	
1.9	219.4	7.2	879.5	(D)	(D)	(D)	(D)	(D)	(D)	.7	75.1	16	3700	
														37
2.2	261.8	.4	84.3	—	—	.1	13.3	.1	22.5	1.7	158.2	45	3711	
.3	208.8	9.2	1 344.8	—	—	—	—	.7	418.9	(A)	1.2	1	3713	
.2	18.9	.3	46.5	—	—	—	—	1.1	347.7	.1	9.3	9	3714	
2.2	407.5	3.2	595.8	(D)	(D)	(D)	(D)	.2	17.9	.4	41.5	8	3715	
.7	212.8	2.2	349.9	—	—	—	—	.1	15.2	(A)	4.2	37	3721	
5.3	770.5	133.5	22 608.6	.9	124.7	(D)	(D)	1.4	230.8	(D)	(D)	0	3721	
9.0	1 376.3	28.2	6 269.8	.7	158.8	(D)	(D)	.9	178.1	(D)	(D)	4	3724	
24.5	2 817.6	49.6	5 724.4	2.2	259.7	.1	7.9	.5	55.8	1.3	111.6	2	3728	
1.4	88.4	87.8	7 742.4	—	—	—	—	.7	66.0	(A)	4.1	6	3731	
5.0	1 004.9	61.9	12 491.4	11.6	1 980.8	(D)	(D)	9.3	2 038.4	(D)	(D)	0	3761	
9.7	1 357.9	15.3	2 172.5	10.9	1 432.4	(D)	(D)	(D)	(D)	(D)	(D)	0	3764	
(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	0	3769	
.8	96.6	6.9	1 607.2	(D)	(D)	(D)	(D)	—	—	(A)	2.5	2	3795	
														38
1.4	200.4	1.7	248.3	(A)	4.7	.1	9.0	.5	90.2	.6	87.5	16	3800	
56.7	7 163.6	165.2	23 351.9	4.4	533.2	.1	14.8	11.9	1 634.1	4.6	635.7	1	3812	
.1	14.6	.1	11.4	(A)	2.5	(A)	1.3	.3	34.1	.1	14.6	6	3821	
.8	92.4	.7	79.3	(A)	3.9	(A)	3.6	.1	11.1	.3	35.6	20	3823	
(A)	2.1	—	—	—	—	—	—	—	—	(A)	2.1	16	3824	
5.4	499.7	9.8	1 559.5	.2	24.7	.1	14.1	.9	88.1	1.7	189.4	27	3825	
1.3	117.4	.3	45.6	(A)	3.0	.1	13.3	.9	129.5	1.0	83.4	17	3826	
2.5	361.6	3.4	561.7	.6	83.7	.2	19.0	.3	41.3	.3	39.2	14	3827	
														3829
3.5	346.8	6.9	731.0	(D)	(D)	(D)	(D)	.7	77.7	.8	69.5	17	3842	
.9	97.7	4.2	424.9	(D)	(D)	(A)	(A)	1.0	136.6	(D)	(D)	30	3844	
.1	43.2	.4	110.6	(A)	1.2	(A)	4.5	.2	68.2	(A)	2.1	3	3845	
.1	5.5	.2	52.0	.4	29.4	(A)	(A)	1.4	266.4	.1	5.5	10	3851	
.1	6.4	.4	48.3	—	—	(A)	.5	—	—	.1	5.9	52	3861	
.3	69.8	4.5	743.6	—	—	—	—	.1	50.7	.2	43.7	33	3873	
.1	2.8	.2	6.3	—	—	(A)	(D)	(D)	(D)	(D)	(D)	29		

Agency: 1992

Government shipments—Con.							Standard error of estimate (percent) for total Government shipments ¹	SIC code
To NASA		To DOE		To other agencies		Government agency not known (subcontracts)		
Prime contracts	Subcontracts	Prime contracts	Subcontracts	Prime contracts	Subcontracts			
4 852.3	1 904.4	2 524.8	408.5	9 480.3	2 260.3	8 102.4	1	
3.7	—	—	—	—	—	18.9	28	
—	—	1 594.1	40.7	559.2	—	1.2	21 2813	
(D)	(D)	—	—	(D)	(D)	10.4	13 2819	
—	—	—	—	(D)	(D)	28.2	14 282	
.2	3.9	—	.4	—	—	.8	44 2891	
—	—	—	—	(D)	(D)	—	26 2892	
(D)	(D)	—	—	(D)	(D)	(D)	29	
—	—	—	—	(D)	(D)	(D)	26 2911	
—	—	—	—	(D)	(D)	5.6	23 2992	
—	—	—	—	(D)	(D)	(D)	30	
—	—	—	—	(D)	(D)	(D)	16 3011	
—	—	—	—	(D)	(D)	(D)	20 3052	
.5	21.3	(D)	(D)	(D)	(D)	11.3	18 3061	
(D)	(D)	—	—	(D)	(D)	13.7	48 3069	
1.6	596.3	10.1	66.4	51.6	31.7	190.1	33	
(A)	—	—	.4	(A)	—	2.4	37 3300	
.1	—	(D)	(D)	(D)	(D)	29.0	45 3339	
—	—	—	—	6.2	—	19.4	19 3357	
—	14.7	—	—	—	—	54.2	32 3363	
—	—	—	—	—	—	—	22 3365	
26.7	—	—	5.4	38.2	13.6	122.0	34	
10.5	62.7	(D)	(D)	(D)	(D)	(D)	17 3441	
(A)	(D)	—	—	.5	.7	161.3	18 3443	
—	—	—	—	(D)	(D)	22.4	31 3444	
(D)	(D)	—	(A)	—	(A)	(D)	9 3448	
(D)	(D)	(D)	(D)	(D)	(D)	65.2	23 345	
(D)	(D)	(D)	(D)	(D)	(D)	144.5	21 3452	
—	—	—	—	—	—	1.0	21 346	
—	—	—	—	—	—	314.8	11 3463	
—	—	(D)	(D)	(D)	(D)	—	37 347	
(D)	(D)	(D)	(D)	(D)	(D)	.2	1 3482	
—	—	—	—	2.0	—	.7	1 3483	
(D)	(D)	(D)	(D)	61.1	7.4	1.3	3 3484	
(D)	(D)	(D)	(D)	—	—	4.3	2 3489	
(D)	(D)	—	—	(D)	(D)	233.5	47 349	
—	8.8	—	.1	(D)	(D)	25.7	26 3491	
.6	10.9	(D)	(D)	—	(D)	26.1	15 3492	
—	—	(D)	(D)	—	10.7	(D)	37 3494	
13.2	—	5.1	—	14.7	—	108.3	31 3499	
—	—	—	—	(D)	(D)	(D)	35	
.4	.2	1.8	.7	19.5	8.8	14.3	10 3511	
(D)	(D)	(D)	(D)	—	4.8	90.7	15 3519	
(D)	(D)	(D)	(D)	(D)	(D)	44.6	55 353	
(D)	(D)	(D)	(D)	11.7	—	19.5	9 3531	
(D)	(D)	(D)	(D)	3.7	—	335.2	16 3537	
(D)	(D)	—	(D)	(D)	(D)	18.2	38 354	
1.3	.6	3.3	1.2	5.6	.2	76.0	19 3541	
(A)	.1	(D)	(D)	(D)	(D)	12.6	23 356	
—	—	—	2.6	.5	—	11.5	15 3561	
—	—	—	—	(D)	(D)	(D)	8 3563	
.2	15.4	(D)	(D)	(D)	(D)	69.1	18 3565	
57.5	45.3	18.1	29.0	1 629.4	216.6	169.7	22 3569	
(D)	(D)	(D)	(D)	(D)	(D)	19.8	4 3571	
2.3	2.2	(D)	(D)	(D)	(D)	9.3	10 3572	
(D)	(D)	1.1	—	(D)	(D)	102.1	40 3575	
—	—	—	—	81.6	—	5.1	40 3577	
(D)	(D)	(D)	(D)	(D)	(D)	31.2	14 3579	
—	—	—	—	(D)	(D)	(D)	12 3585	
26.9	43.0	—	1.7	(D)	(D)	24.1	24 359	
(D)	(D)	—	—	(D)	(D)	14.0	9 3593	
(D)	(D)	—	35.9	(D)	(D)	371.3	8 3594	
—	1.8	39.7	1.1	23.5	1.2	12.6	25 3599	
(A)	.5	11.8	3.8	2.6	2.9	17.3	18 361	
—	13.5	(D)	(D)	(D)	(D)	22.1	32 3613	
.6	2.5	8.2	—	6.9	11.3	43.3	13 362	
.4	1.8	1.4	1.4	12.0	7.2	46.0	19 3621	
—	(A)	—	—	44.9	—	15.5	20 3625	
—	—	—	—	(D)	(D)	4.4	60 364	
—	—	—	—	33.1	—	53.5	13 3641	
(D)	(D)	(D)	(D)	146.4	26.9	51.8	46 365	
(D)	(D)	(D)	(D)	962.2	544.5	23.9	10 3661	
(D)	(D)	(D)	(D)	(D)	(D)	21.2	10 3663	
3.2	(A)	24.9	2.8	8.5	23.4	4.3	8 3669	
22.8	2.2	—	.1	1.5	—	5.5	36 3671	
.2	8.5	—	1.2	23.5	29.1	316.0	9 3671	
—	—	(D)	(D)	(D)	(D)	35.9	38 3672	
—	10.1	(A)	—	(D)	(D)	9.3	14 3674	
—	—	—	—	—	—	—	31 3675	
—	—	—	—	—	—	—	25 3676	

Table 2. Value of Prime and Subcontract Shipments to the Government by Industry and

[Million dollars]

SIC code	Industry	Total value of shipments and receipts	Government shipments					
			Total	Prime contracts	Subcontracts	To DOD		
						Prime contracts	Subcontracts	
36	Electronic and other electric equipment—							
	Con.							
3677	Electronic coils and transformers	1 133.8	127.0	24.9	102.1	24.6	41.2	
3678	Electronic connectors	3 773.5	304.9	60.9	244.0	38.8	75.1	
3679	Electronic components, n.e.c.	23 670.0	2 476.2	850.0	1 626.2	732.2	689.0	
369	Miscellaneous electrical equipment and							
	supplies	7 240.4	148.6	27.9	120.7	26.4	120.5	
3691	Storage batteries	3 325.7	79.6	56.4	23.2	53.1	8.0	
3692	Primary batteries, dry and wet	1 907.5	156.2	85.3	70.9	82.6	67.0	
3695	Magnetic and optical recording media	4 641.3	559.6	517.9	41.7	255.1	13.8	
3699	Electrical equipment and supplies, n.e.c.	4 897.6	992.6	773.2	219.4	740.5	139.0	
37	Transportation equipment							
3700	Transportation equipment ³	20 154.9	278.3	16.5	261.8	14.0	70.3	
3711	Motor vehicles and car bodies	151 682.1	1 764.9	1 556.1	208.8	(D)	(D)	
3713	Truck and bus bodies	4 626.5	403.5	384.6	18.9	45.7	.8	
3714	Motor vehicle parts and accessories	75 058.4	657.7	250.2	407.5	243.5	352.3	
3715	Truck trailers	3 551.1	369.3	156.5	212.8	141.3	208.6	
3721	Aircraft	62 940.1	23 008.8	22 238.3	770.5	21 893.7	714.9	
3724	Aircraft engines and engine parts	22 407.5	6 656.8	5 280.5	1 376.3	5 072.6	1 197.2	
3728	Aircraft parts and equipment, n.e.c.	19 510.6	6 159.4	3 341.8	2 817.6	3 247.2	2 477.2	
3731	Ship building and repairing	10 600.9	7 812.5	7 724.1	88.4	(D)	(D)	
3761	Guided missiles and space vehicles	19 423.1	16 552.3	15 547.4	1 004.9	12 135.0	356.4	
3764	Space propulsion units and parts	5 121.4	3 722.6	2 364.7	1 357.9	977.0	1 195.5	
3769	Space vehicle equipment, n.e.c.	1 963.9	(D)	(D)	(D)	(D)	(D)	
3795	Tanks and tank components	2 228.8	1 630.4	1 533.8	96.6	1 533.8	73.4	
38	Instruments and related products							
3800	Instruments and related products ⁵	17 904.2	439.7	239.3	200.4	(D)	(D)	
3812	Search and navigation equipment	35 039.2	26 169.7	19 006.1	7 163.6	17 283.8	6 068.1	
3821	Laboratory apparatus and furniture	2 111.4	63.9	49.3	14.6	11.4	—	
3823	Process control instruments	6 470.1	133.5	41.1	92.4	27.1	52.2	
3824	Fluid meters and counting devices	2 600.5	2.1	—	2.1	—	—	
3825	Instruments to measure electricity	8 825.8	1 875.8	1 376.1	499.7	1 283.3	276.2	
3826	Analytical instruments	5 222.5	274.8	157.4	117.4	43.8	1.8	
3827	Optical instruments and lenses	2 489.3	744.9	383.3	361.6	341.3	220.4	
3829	Measuring and controlling devices, n.e.c.	4 415.8	924.2	577.4	346.8	477.4	253.6	
3842	Surgical appliances and supplies	13 801.0	617.0	519.3	97.7	423.9	1.0	
3844	X-ray apparatus and tubes	3 235.0	186.6	143.4	43.2	81.1	29.5	
3845	Electromedical equipment	7 188.6	353.3	347.8	5.5	52.0	—	
3851	Ophthalmic goods	2 675.3	54.7	48.3	6.4	48.3	—	
3861	Photographic equipment and supplies	22 118.8	838.0	768.2	69.8	717.5	26.1	
3873	Watches, clocks, watchcases, and parts ...	843.0	9.5	6.7	2.8	4.8	1.5	

¹Standard error estimates are calculated from the unadjusted (reciprocal) government shipments which were reported on the MC-9675. No adjustment has been made to the standard error for the ratio estimation to Census of Manufactures levels. See appendix B for a description of the methodology.

²Includes all four-digit industries in major group 33 except 3339, 3357, 3363, and 3365.

³Includes 3716, 3732, 3743, 3751, 3792, and 3799.

⁴Data in the value of shipments column represent value of work done rather than value of shipments. Consequently, the formula for computing value added by manufacture was modified to exclude any change between beginning- and end-of-year inventories.

⁵Includes 3822, 3841, and 3843.

Note: Totals may not add to sum of the detail because of rounding.

Agency: 1992—Con.

Government shipments—Con.							Standard error of estimate (percent) for total Government shipments ¹	SIC code
To NASA		To DOE		To other agencies		Government agency not known (subcontracts)		
Prime contracts	Subcontracts	Prime contracts	Subcontracts	Prime contracts	Subcontracts			
							36	
(A)	—	(A)	—	.3	.9	60.0	18 3677	
(D)	(D)	(D)	(D)	21.6	38.5	126.8	18 3678	
49.1	23.5	1.8	24.6	66.9	11.0	878.1	13 3679	
							369	
—	—	—	—	1.5	—	.2	70	
(D)	(D)	—	—	(D)	(D)	7.0	23 3691	
1.1	—	(A)	.3	1.6	—	3.4	14 3692	
.2	—	.1	.5	—	—	—	50 3695	
(D)	(D)	(D)	(D)	262.5	(D)	27.9	16 3699	
				(D)	(D)	75.1		
							37	
—	—	—	13.3	2.5	20.0	158.2	45 3700	
—	—	—	—	(D)	(D)	1.2	1 3711	
—	—	—	—	338.9	8.8	9.3	9 3713	
(D)	(D)	(D)	(D)	(D)	(D)	41.5	8 3714	
—	—	—	—	15.2	—	4.2	37 3715	
117.3	7.4	(D)	(D)	(D)	(D)	(D)	0 3721	
148.2	10.6	(D)	(D)	(D)	(D)	(D)	4 3724	
56.3	203.4	(D)	(D)	(D)	(D)	111.6	2 3728	
—	—	—	—	(D)	(D)	4.1	6 3731	
1 857.3	123.5	(D)	(D)	(D)	(D)	(D)	0 3761	
(D)	(D)	(D)	(D)	(D)	(D)	(D)	0 3764	
(D)	(D)	(D)	(D)	(D)	(D)	(D)	0 3769	
(D)	(D)	(D)	(D)	—	—	2.5	2 3795	
							38	
(D)	(D)	8.4	.6	79.4	10.8	87.5	16 3800	
261.2	272.0	4.3	10.5	1 456.8	177.3	635.7	1 3812	
2.5	—	1.3	—	34.1	—	14.6	6 3821	
.6	3.3	(D)	(D)	(D)	(D)	35.6	20 3823	
—	—	—	—	—	—	2.1	16 3824	
10.2	14.5	1.2	12.9	81.4	6.7	189.4	27 3825	
2.8	.2	.6	12.7	110.2	19.3	83.4	17 3826	
12.7	71.0	—	19.0	29.3	12.0	39.2	14 3827	
(D)	(D)	(D)	(D)	(D)	(D)	69.5	17 3829	
(D)	(D)	(A)	—	(D)	(D)	(D)	30 3842	
(A)	1.2	—	4.5	62.3	5.9	2.1	3 3844	
29.4	—	(A)	—	266.4	—	5.5	10 3845	
—	—	—	.5	—	—	5.9	52 3851	
—	—	—	—	50.7	—	43.7	33 3861	
—	—	(D)	—	(D)	(D)	(D)	29 3873	

Table 3. Number of Employees Involved in Prime and Subcontract Shipments to the

[Thousands]

SIC code	Industry	Employees	Employees involved in Government shipments				
			Total	Prime contracts	Subcontracts	To DOD	
						Prime contracts	Subcontracts
	All industries	7 535.3	998.5	709.7	288.8	599.2	184.9
28	Chemicals and allied products						
2813	Industrial gases	7.7	.2	(A)	.2	—	—
2819	Industrial inorganic chemicals, n.e.c.	78.9	12.3	12.0	.3	.3	(A)
282	Plastics materials and synthetics	128.5	.2	—	.2	(D)	(D)
2891	Adhesives and sealants	21.1	.4	(D)	(D)	(D)	(D)
2892	Explosives	11.3	6.7	5.5	1.2	5.5	1.1
29	Petroleum and coal products						
2911	Petroleum refining	74.9	1.7	.6	1.1	(D)	(D)
2992	Lubricating oils and greases	11.9	.1	(A)	(A)	(A)	(A)
30	Rubber and miscellaneous plastics products						
3011	Tires and inner tubes	64.6	.3	(D)	(D)	(D)	—
3052	Rubber and plastics hose and belting	19.9	.2	(A)	.2	(D)	(A)
3061	Mechanical rubber goods	48.6	1.3	.7	.6	.7	.2
3069	Fabricated rubber products, n.e.c.	56.5	1.6	.9	.7	.4	.4
33	Primary metal industries						
3300	Primary metal industries ¹	542.8	13.5	1.7	11.8	1.4	2.5
3339	Primary nonferrous metals, n.e.c.	8.7	.2	(A)	.2	—	.2
3357	Nonferrous wiredrawing and insulating	60.6	1.2	.4	.8	.4	.6
3363	Aluminum die-castings	27.1	.7	(A)	.7	—	.3
3365	Aluminum foundries	22.9	1.6	—	1.6	—	.6
34	Fabricated metal products						
3441	Fabricated structural metal	72.0	3.9	1.3	2.6	.9	1.3
3443	Fabricated plate work (boiler shops)	78.4	3.8	.4	3.4	.2	2.2
3444	Sheet metal work	103.9	3.0	(D)	(D)	(D)	(D)
3448	Prefabricated metal buildings	20.3	.9	.1	.8	(D)	(D)
345	Screw machine products, bolts, etc.	46.4	1.7	.3	1.4	.3	.7
3452	Bolts, nuts, rivets, and washers	44.1	2.2	.6	1.6	.6	1.0
346	Metal forgings and stampings	225.7	3.8	.7	3.1	.7	1.2
3463	Nonferrous forgings	8.0	1.4	(A)	1.4	(A)	1.4
347	Metal services, n.e.c.	108.2	3.8	—	3.8	—	.1
3482	Small arms ammunition	7.9	(D)	(D)	(D)	(D)	(D)
3483	Ammunition, except for small arms, n.e.c. ...	23.1	19.9	14.3	5.6	14.1	5.6
3484	Small arms	11.8	2.4	1.9	.5	1.9	.5
3489	Ordnance and accessories, n.e.c.	19.5	18.8	17.2	1.6	3.2	1.4
349	Miscellaneous fabricated metal products ...	98.2	2.8	.1	2.7	.1	1.3
3491	Industrial valves	51.8	2.3	.5	1.8	.5	1.5
3492	Fluid power valves and hose fittings	28.5	2.4	.9	1.5	.8	1.2
3494	Valves and pipe fittings, n.e.c.	16.2	.4	.1	.3	(D)	(D)
3499	Fabricated metal products, n.e.c.	68.4	3.3	1.3	2.0	.6	.8
35	Industrial machinery and equipment						
3511	Turbines and turbine generator sets	27.1	3.6	2.7	.9	(D)	(D)
3519	Internal combustion engines, n.e.c.	55.5	.9	.2	.7	.2	.6
353	Construction and related machinery	84.0	1.3	.2	1.1	.2	(A)
3531	Construction machinery	74.6	1.3	.8	.5	(D)	(D)
3537	Industrial trucks and tractors	17.6	.8	.5	.3	.4	.1
354	Metalworking machinery	227.6	4.3	.1	4.3	(D)	(D)
3541	Machine tools, metal cutting types	27.4	.6	.2	.4	(D)	(D)
356	General industrial machinery	115.5	3.7	.9	2.8	.8	1.9
3561	Pumps and pumping equipment	37.2	1.8	.4	1.4	(D)	(D)
3563	Air and gas compressors	23.5	.6	.3	.3	.3	.2
3565	Packaging machinery	26.4	(D)	(D)	(D)	—	—
3569	General industrial machinery, n.e.c.	41.4	1.5	.3	1.2	.3	.1
3571	Electronic computers	110.6	11.1	8.4	2.7	2.5	1.2
3572	Computer storage devices	41.3	1.3	(D)	(D)	(D)	(D)
3575	Computer terminals	9.3	.5	.1	.4	(A)	.2
3577	Computer peripheral equipment, n.e.c.	59.3	2.5	.7	1.8	.3	1.2
3579	Office machines, n.e.c.	23.8	.6	.5	.1	(A)	—
3585	Refrigeration and heating equipment	120.7	.9	.5	.4	(D)	(D)
359	Industrial machinery, n.e.c.	23.6	.1	(A)	.1	(D)	(D)
3593	Fluid power cylinders and actuators	19.0	4.3	.7	3.6	(D)	(D)
3594	Fluid power pumps and motors	12.2	.9	.3	.6	.2	.4
3599	Industrial machinery, n.e.c.	248.9	18.4	4.6	13.8	2.0	6.6
36	Electronic and other electric equipment						
361	Electric distribution equipment	29.0	.4	.3	.1	(A)	(A)
3613	Switchgear and switchboard apparatus	39.1	2.4	1.2	1.2	1.1	1.0
362	Electrical industrial apparatus	27.0	1.4	.5	.9	.4	.2
3621	Motors and generators	67.9	2.4	.5	1.9	.5	1.4
3625	Relays and industrial controls	62.5	2.9	.6	2.3	.6	1.6
364	Electric lighting and wiring equipment	130.5	3.4	3.1	.3	2.6	.2
3641	Electric lamp bulbs and tubes	17.5	(D)	(D)	(D)	(D)	(D)
365	Household audio and video equipment	47.1	.6	.3	.3	(A)	—
3661	Telephone and telegraph apparatus	91.1	3.3	2.7	.6	1.6	.2
3663	Radio and television communications equipment	124.9	44.9	33.5	11.4	25.5	6.1
3669	Communications equipment, n.e.c.	22.5	.9	.5	.4	.5	.2
3671	Electron tubes	22.2	3.7	2.2	1.5	1.9	1.3
3672	Printed circuit boards	76.0	1.2	.4	.8	.2	.8
3674	Semiconductors and related devices	172.0	12.1	3.1	9.0	2.9	5.4
3675	Electronic capacitors	17.9	1.2	(D)	(D)	—	.5
3676	Electronic resistors	11.7	.7	(A)	.7	(D)	(D)

See footnotes at end of table.

Government by Industry and Agency: 1992

Employees involved in Government shipments—Con.							SIC code
To NASA		To DOE		To other agencies		Government agency not known (subcontracts)	
Prime contracts	Subcontracts	Prime contracts	Subcontracts	Prime contracts	Subcontracts		
35.1	17.9	24.5	3.8	50.9	13.5	68.7	28
(A)	—	—	—	—	—	.2	2813
—	—	9.4	.3	2.3	—	(A)	2819
(D)	(D)	—	—	(D)	(D)	(A)	282
—	—	—	—	(D)	(D)	.3	2891
(A)	.1	—	(A)	—	—	(A)	2892
—	—	—	—	(D)	(D)	(D)	29
(D)	(D)	—	—	(D)	(D)	(D)	2911
—	—	—	—	(D)	(D)	(A)	2992
—	—	—	—	(D)	(D)	(D)	30
—	—	—	—	(D)	(D)	(D)	3011
—	—	—	—	(D)	(D)	(D)	3052
(A)	.2	(D)	(D)	(D)	(D)	(D)	(D)
(A)	(D)	—	—	(D)	(D)	(D)	(D)
—	—	—	—	(D)	(D)	.2	3061
—	—	—	—	(D)	(D)	(D)	3069
(A)	7.1	(A)	1.1	.3	.1	1.0	33
(A)	—	—	(A)	(A)	—	(A)	3300
(A)	—	(D)	(D)	(D)	(D)	.2	3339
—	—	—	—	(A)	—	.4	3357
—	.2	—	—	—	—	.8	3363
—	—	—	—	—	—	—	3365
.2	—	—	.1	.2	.1	1.1	34
.1	.6	(D)	(D)	(D)	(D)	.5	3441
(D)	(D)	—	—	(D)	(D)	2.3	3443
—	—	—	—	(D)	(D)	.2	3444
(D)	(D)	—	(A)	—	(A)	(D)	3448
(A)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
(D)	(D)	(D)	(D)	(D)	(D)	.6	345
—	—	—	—	—	—	1.8	346
—	—	—	—	—	—	(A)	3463
—	—	—	—	—	—	3.7	347
—	—	(D)	(D)	(D)	(D)	(A)	3482
(D)	(D)	(D)	(D)	(D)	(D)	(A)	3483
(D)	(D)	(D)	(D)	(A)	(A)	(A)	3484
(D)	(D)	(D)	(D)	.7	.1	.1	3489
(D)	(D)	—	—	(D)	(D)	1.4	349
(D)	.1	—	(A)	(D)	(D)	.2	3491
(D)	(D)	(D)	(D)	(D)	(D)	.2	3492
.3	—	(D)	(D)	—	(D)	(D)	3494
—	—	.1	—	.3	—	1.2	3499
—	—	—	—	(D)	(D)	(D)	35
(A)	(A)	(A)	(A)	(A)	(A)	(A)	(D)
—	—	—	—	—	—	.1	3511
(D)	(D)	(D)	(D)	(D)	(D)	(A)	3519
(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1
(D)	(D)	(D)	(D)	(D)	(D)	(D)	353
(D)	(D)	(D)	(D)	(D)	(D)	.2	3531
(D)	(D)	(D)	(D)	(D)	(D)	.2	3537
(A)	(A)	(A)	(A)	(A)	(A)	4.3	354
(A)	(A)	(D)	(D)	(D)	(D)	.2	3541
—	—	—	—	.1	(A)	.9	356
—	—	—	—	(D)	(D)	.1	3561
—	—	—	—	(A)	(A)	.1	3563
(A)	.2	(D)	(D)	(D)	(D)	(D)	3565
—	—	—	—	(D)	(D)	.9	3569
(D)	.3	(D)	.1	5.5	.5	.5	3571
(D)	(D)	(D)	(D)	(D)	(D)	.1	3572
(D)	(D)	(D)	—	(D)	(D)	.1	3575
—	—	(A)	—	(D)	(D)	.5	3577
(D)	(D)	(D)	—	.5	—	.1	3579
—	—	(D)	(D)	(D)	(D)	.3	3585
(D)	(D)	—	—	(D)	(D)	(D)	(D)
(D)	(D)	—	—	(D)	(D)	.3	359
(D)	(D)	—	—	(D)	(D)	.1	3593
(D)	(D)	—	—	(D)	(D)	.1	3594
—	—	—	.7	(D)	(D)	6.5	3599
—	(A)	.2	(A)	.1	(A)	.1	36
(A)	(A)	.1	(A)	(A)	(A)	.2	361
—	—	—	—	—	—	.5	3613
(A)	.1	(A)	.1	(D)	(D)	.6	362
(A)	(A)	(A)	(A)	(A)	(A)	.4	3621
(A)	(A)	(A)	(A)	(A)	(A)	.1	3625
—	(A)	—	—	.5	—	.1	364
—	—	—	—	(D)	(D)	(D)	(D)
—	—	—	—	.3	—	.3	3641
(A)	(D)	(D)	(D)	1.1	.2	.2	365
(D)	(D)	(D)	(D)	(D)	(D)	.2	3661
(D)	(D)	(D)	(D)	(D)	(D)	.3	3663
(A)	(A)	.2	(A)	(D)	(D)	.2	3669
(A)	(A)	—	—	.1	.2	(A)	3671
(A)	.1	—	—	(A)	—	(A)	3672
—	—	—	—	.2	.3	3.2	3674
—	.2	(D)	(D)	(D)	(D)	.6	3675
—	—	(A)	—	(D)	(D)	.2	3676

Table 3. Number of Employees Involved in Prime and Subcontract Shipments to the

[Thousands]

SIC code	Industry	Employees	Employees involved in Government shipments					
			Total	Prime contracts	Subcontracts	To DOD		
						Prime contracts	Subcontracts	
36	Electronic and other electric equipment – Con.							
3677	Electronic coils and transformers	19.2	2.5	.4	2.1	.4	.9	
3678	Electronic connectors	30.7	3.6	.8	2.8	.5	.9	
3679	Electronic components, n.e.c.	180.2	22.3	7.3	15.0	6.4	6.7	
369	Miscellaneous electrical equipment and supplies	49.9	1.2	.2	1.0	.2	1.0	
3691	Storage batteries	20.8	.5	.4	.1	.4	.1	
3692	Primary batteries, dry and wet	10.7	1.9	(D)	(D)	(D)	(D)	
3695	Magnetic and optical recording media	22.6	2.2	2.0	.2	1.1	(A)	
3699	Electrical equipment and supplies, n.e.c.	43.2	8.2	6.3	1.9	6.0	1.2	
37	Transportation equipment							
3700	Transportation equipment ²	137.2	2.3	.1	2.2	(D)	(D)	
3711	Motor vehicles and car bodies	227.8	9.9	9.6	.3	(D)	(D)	
3713	Truck and bus bodies	34.9	1.5	1.3	.2	.3	(A)	
3714	Motor vehicle parts and accessories	400.0	3.8	1.6	2.2	1.5	1.7	
3715	Truck trailers	23.5	2.3	1.6	.7	1.5	.7	
3721	Aircraft	264.6	136.2	130.9	5.3	128.6	4.9	
3724	Aircraft engines and engine parts	120.4	30.2	21.2	9.0	20.3	7.9	
3728	Aircraft parts and equipment, n.e.c.	163.1	53.6	29.1	24.5	28.4	21.2	
3731	Ship building and repairing	118.2	88.5	87.1	1.4	(D)	(D)	
3761	Guided missiles and space vehicles	97.7	83.0	78.0	5.0	(D)	(D)	
3764	Space propulsion units and parts	32.0	27.1	17.4	9.7	6.9	8.4	
3769	Space vehicle equipment, n.e.c.	16.2	(D)	(D)	(D)	(D)	(D)	
3795	Tanks and tank components	11.4	7.1	6.3	.8	6.3	.6	
38	Instruments and related products							
3800	Instruments and related products ³	138.0	2.9	1.5	1.4	(D)	(D)	
3812	Search and navigation equipment	253.0	186.2	129.5	56.7	117.0	48.2	
3821	Laboratory apparatus and furniture	17.8	.5	.4	.1	.1	–	
3823	Process control instruments	50.5	1.1	.3	.8	.2	.5	
3824	Fluid meters and counting devices	16.2	(A)	–	(A)	–	–	
3825	Instruments to measure electricity	68.5	12.7	7.3	5.4	6.4	3.4	
3826	Analytical instruments	40.1	2.3	1.0	1.3	.3	(A)	
3827	Optical instruments and lenses	20.3	4.8	2.3	2.5	2.0	1.4	
3829	Measuring and controlling devices, n.e.c.	37.6	8.8	5.3	3.5	4.4	2.5	
3842	Surgical appliances and supplies	96.4	5.7	4.8	.9	4.2	(A)	
3844	X-ray apparatus and tubes	14.3	.6	.5	.1	.3	.1	
3845	Electromedical equipment	40.1	2.1	2.0	.1	.2	–	
3851	Ophthalmic goods	29.4	.5	.4	.1	.4	–	
3861	Photographic equipment and supplies	77.3	4.8	4.5	.3	4.4	.1	
3873	Watches, clocks, watchcases, and parts ...	7.7	.2	.1	.1	(D)	(D)	

¹Includes all four-digit industries in major group 33 except 3339, 3357, 3363, and 3365.

²Includes 3716, 3732, 3743, 3751, 3792, and 3799.

³Includes 3822, 3841, and 3843.

Note: Totals may not add to sum of the detail because of rounding.

Government by Industry and Agency: 1992—Con.

Employees involved in Government shipments—Con.							SIC code
To NASA		To DOE		To other agencies		Government agency not known (subcontracts)	
Prime contracts	Subcontracts	Prime contracts	Subcontracts	Prime contracts	Subcontracts		
							36
(A)	—	(A)	—	(A)	(A)	1.2	3677
(D)	(D)	(D)	(D)	(D)	(D)	1.3	3678
.5	.2	(A)	.2	.4	.1	7.8	3679
—	—	—	—	—	—		369
(D)	(D)	—	(A)	(D)	(D)	(A)	3691
(A)	—	(A)	(A)	(A)	—	(A)	3692
(A)	—	(A)	—	.9	—	.2	3695
(D)	(D)	(D)	(D)	(D)	(D)	.7	3699
—	—	—	(D)	(A)	(D)	1.7	37 3700
—	—	—	—	(D)	(D)	(A)	3711
—	—	—	—	1.0	.1	.1	3713
(D)	(D)	(D)	(D)	(D)	(D)	.4	3714
—	—	—	—	.1	—	(A)	3715
.9	(A)	(D)	(D)	(D)	(D)	(D)	3721
.6	.1	(D)	(D)	(D)	(D)	(D)	3724
.4	1.8	(D)	(D)	(D)	(D)	1.3	3728
—	—	—	—	(D)	(D)	(A)	3731
10.8	.8	(D)	(D)	(D)	(D)	(D)	3761
(D)	.6	(D)	(D)	(D)	(D)	(D)	3764
(D)	(D)	(D)	(D)	(D)	(D)	(D)	3769
(D)	(D)	(D)	(D)	—	—	(A)	3795
(D)	(D)	.1	(A)	.5	(A)	.6	38 3800
2.1	2.3	(A)	.1	10.4	1.5	4.6	3812
(A)	—	(A)	—	.3	—	.1	3821
(A)	(A)	(D)	(D)	(D)	(D)	.3	3823
—	—	—	—	—	—	(A)	3824
.1	.1	(A)	.1	.8	.1	1.7	3825
(A)	(A)	(A)	.1	.7	.2	1.0	3826
.1	.5	(D)	.2	.2	.1	.3	3827
(D)	(D)	(D)	(D)	(D)	(D)	.8	3829
(D)	(D)	(A)	—	(D)	(D)	(D)	3842
(A)	(A)	—	(A)	.2	(A)	(A)	3844
.4	—	(A)	—	1.4	—	.1	3845
—	—	—	(A)	—	—	.1	3851
—	—	—	—	.1	—	.2	3861
—	—	(D)	—	(D)	(D)	(D)	3873

Appendix A.

Limitations of the Data and Explanation of Terms

LIMITATIONS OF THE DATA

The survey of Shipments to Federal Government Agencies was conducted to measure the extent of Government procurement in 108 manufacturing industry classifications listed in appendix B. Similar data for other manufacturing industries which may have made shipments to the Federal Government were not included in the sample. Therefore, the data at the U.S. level do not represent all Federal Government procurement, only that of the industries surveyed.

In general, shipments to the Federal Government in this report consist of finished goods or components produced to military specifications. The major portion of Government business for these industries, with the exception of the machinery industries, is subject to renegotiation and, therefore, is separately identified in the records of the respondents. Government shipments consist of products shipped to Federal agencies, their contractors, subcontractors, and suppliers. The Government total is further subdivided into shipments relating to (1) Government prime contracts and (2) other manufacturers in ultimate performance of Federal Government contracts (subcontracts).

The survey was designed primarily to measure the volume of shipments to the Federal Government made by prime contracting industries and was not intended to include all manufacturing industries that may have been engaged in subcontracting activities related to Government contracts. In interpreting the figures for subcontract work, note that these industries do not represent all “basic materials” industries and “other components” industries that are important in subcontracts. Shipments of materials and components purchased by the Government and furnished to contractors supplying finished equipment were reported as prime contracts.

Furthermore, there is no indication of the level of subcontracts (e.g., first tier, second tier, etc.). Because of the nature of the industries surveyed, it is likely that, except for a few industries such as electronic components, most of the subcontracting is first tier only, and the pyramid of shipments values from one tier to another is not large.

The particular sample selected for this survey is one of a large number of similar probability samples of the same size that could have been selected by chance, using the same sample design. Each of the possible samples would have yielded somewhat different sets of results. The sampling errors (the differences between the estimates obtained

and the results theoretically obtainable from a comparable complete canvass of the same target universe) are unknown. Guides to the potential size of the sampling errors, however, are provided by the estimated relative standard errors of the estimates. These are shown in the report for total value of Government shipments for each industry. On the average, relative standard errors will be higher for the detailed figures than for the aggregates.

In conjunction with its associated estimate, the relative standard error (computed as the estimated standard error of the estimate divided by the value of the estimate itself) may be used to define confidence intervals, ranges which could be expected to include comparable complete coverage values for specified percentages of all possible samples. The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference can be made that comparable complete coverage results within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates shown would differ from complete coverage results by as much as one, two, or three standard errors, respectively.

For example, if an estimated total is shown as \$20.0 million with an associated relative standard error of 2 percent, the standard error is \$0.4 million. Then, there is approximately 67 percent confidence that the interval \$19.6 million to \$20.4 million includes the complete coverage total, about 95 percent confidence that the interval \$19.2 million to \$20.8 million includes the complete coverage total, and almost certain confidence that the interval \$18.8 million to \$21.2 million includes the complete coverage total.

In addition to the sampling errors, the estimates are subject to various response and operational errors: errors of collection, reporting, transcription, etc. These operational errors would also occur if a complete canvass were

to be conducted under the same conditions as this survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency.

A 1992 census mail status file was the basis for creating the sampling frame for the survey. A comparison of this file with the final census of manufactures file showed that a number of small plants were added as a result of Census Bureau processing. The adjustment of the survey estimates to final Census Bureau results for total employment and total shipments account for these adds. However, to the extent that these plants differ in their patterns of shipments to Federal agencies, the distribution estimated from the survey may be affected. We are not able to provide a measure of this difference. (See appendix B for an explanation of the estimation procedure.) In addition, changes to SIC codes occurred for several sample cases. The changes may have been to codes still in scope of the survey, or they may have been to codes not in scope. These code switches were allowed for certainty establishments since they only represent themselves. Thus, if the switch was to an out-of-scope code, the establishment was deleted from the sample. Noncertainty cases were not allowed to switch under the presumption that the cases they represented did not make the same kind of switch and probably did not switch at all. This procedure is biased, but if our presumptions are correct, the total mean squared error is lowered. We are not able to quantify the amount of bias introduced.

EXPLANATION OF TERMS

All employees. This category includes all full-time and part-time employees on the payrolls of operating manufacturing establishments who worked or received pay for any

part of the pay period ending nearest the 12th of the month specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during this pay period. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are, however, excluded.

The report form requests a total number of employees. We estimated the number of employees by agency by adjusting the total number of employees at the establishment by the proportion of its value of shipments to the particular agency to its total value of shipments.

Value added by manufactures. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, fuel, purchased electricity, and contract work from the value of shipments (or value of production) as well as receipts for services rendered. This figure is then adjusted by the addition of value added by merchandising operations (that is sold without further manufacture, processing, or assembly) and the net change in finished goods and work-in-process inventories between the beginning and end of the year.

Value of shipments. This item covers the received or receivable net selling values f.o.b. plant (exclusive of freight and taxes) of all products shipped, both primary and secondary, as well as all miscellaneous receipts such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. It also includes all items made by or for each establishment from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

Appendix B.

Description of Survey Sample and Estimating Procedure

The estimates presented in this report are derived from a probability sample of approximately 7,800 manufacturing establishments which were selected from the 1992 Census of Manufactures excluding administrative records. The sample was restricted to 108 industry classifications. Of these, 91 represented four digit SIC levels, 14 three digit SIC levels, and 3 two digit SIC levels. The two- and three-digit SIC's excludes four-digit SIC's that were being sampled separately. These industries, based on earlier detailed studies, had been shown to be engaged extensively in business with the Federal Government. Most of the industries fall in Major Groups 34, 35, 36, 37, or 38. In addition, 65 plants not initially in the Census Bureau file but identified by the Department of Army as having significant amounts of shipments to the Federal Government, were treated as separate strata and included in the sample with certainty. These plants were subsequently located in the Census Bureau files and were classified accordingly. Because of this slight amount of duplication in the frame, a trivial amount of bias was introduced in the estimates. Any duplicate sample cases were identified and one of the duplicates deleted.

In addition to the Department of Army adds, additional establishments were identified for certainty inclusion in the panel. These included in-scope establishments of particular companies surveyed in the Census Bureau's Manufacturers' Shipments, Inventories, and Orders (M3) survey and all establishments with total employment of 500 or more. All other establishments in the frame were subsequently assigned sampling probabilities that were proportional to their total value of shipments. No establishment, regardless of its shipments, was assigned a probability less than 0.005. Establishments chosen for the survey were assigned weights equal to the reciprocal of their probabilities of selection. Individual establishment data were inflated by their sampling weights to develop the industry estimates used in the final estimation procedure.

All establishments included in the survey were instructed to report total employment, cost of materials, and value of shipments. These data were to be identical to the data reported for these items on the 1992 Census of Manufactures filed with the Census Bureau for that plant. In addition, the establishments were instructed to indicate by means of a check box inquiry the range of value of shipments made by the establishments to the Federal Government in 1992. Those establishments indicating shipments of \$1 million or more to the Federal Government

were asked to report the value of such shipments classified by the specific Government agency to which the products were billed. The remaining plants (those indicating value of shipments of less than \$1 million to the Federal Government) were not required to complete this portion of the inquiry. In order to estimate for the latter respondents, a linear approximation to the mean value of the range (which the respondent checked) was employed. The following mean values were used to estimate shipments for establishments that shipped less than \$1 million to the Federal Government:

Up to \$100,000,	estimated at \$42,000
\$100,000 to \$249,999,	estimated at \$150,000
\$250,000 to \$499,999,	estimated at \$350,000
\$500,000 to \$999,999,	estimated at \$700,000

These estimates are included in the "other Government agency not specifically known" category.

Government employment by agency was derived for each plant as a straight proration of its total employment by the ratio of Government shipments data by agency total shipments. A Government employment figure is shown in the various tables.

Simple weighted estimates X_{ai}^l of shipments by agency "a" for industry "i" were formed. These estimates were then adjusted as follows to provide final survey estimates X_{ai}^l of shipments for agency "a", industry "i":

$$X_{ai}^l = \left(\frac{Y_i}{Y_i^l} \right) X_{ai}^l$$

where

- X_{ai}^l =the estimate of Government shipments for industry "i" to agency "a".
- Y_i^l =the simple weighted estimate of total value of shipments for industry "i" obtained from the sample survey.
- Y_i =the value of shipments for industry "i" obtained from the 1992 Census of Manufactures.
- X_{ai}^l =the simple weighted estimate of Government shipments for industry "i" to agency "a" obtained from the sample survey.

A similar estimation was used for employment data. The variance on an estimated total X_{ai}^l was estimated as follows:

$$\sigma^2(X_{ai}^l) = [Y_i/Y_i^l]^2 [\sigma^2(X_{ai}^l) + R_i^2 \sigma^2(Y_i) - 2 R_i \sigma(X_{ai}^l, Y_i^l)]$$

where

Y_i , Y_i^l and X_{ai}^l are defined as before,

$\sigma^2(X_{ai}^l)$ = the variance on the simple weighted estimate X_{ai}^l ,

$\sigma^2(Y_i^l)$ = the variance on the simple weighted estimate Y_i^l ,

$\sigma(X_{ai}^l, Y_i^l)$ = the covariance between X_{ai}^l and Y_i^l , and
 $R_i = X_{ai}^l/Y_i^l$ corresponding

The corresponding relative standard error on the estimate X_{ai}^l was computed as

$$V(X_{ai}^l) = \sigma(X_{ai}^l)/X_{ai}^l$$

Selective relative standard errors appear in the tables.

Appendix C. **Sample Report Form and Instructions**

The sample report form and instructions are shown on the following pages.

