

Benchmark Report for Manufacturers' Shipments, Inventories, and Orders: January 1992 Through December 2004

Issued August 2005

M3-3(04)

Current Industrial Reports



U S C E N S U S B U R E A U

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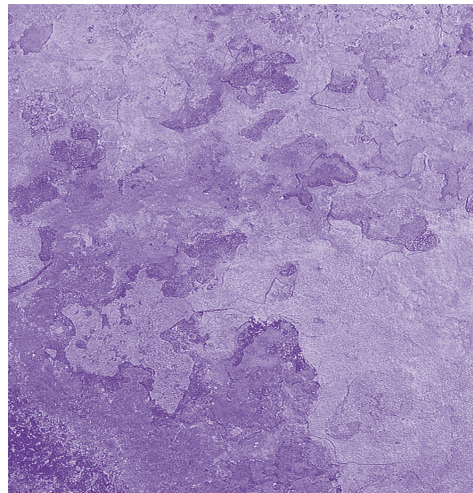
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U.S. Department of Commerce
Carlos M. Gutierrez,
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David A. Sampson,
Acting Deputy Secretary

Economics and Statistics Administration
Kathleen B. Cooper,
Under Secretary
for Economic Affairs

U.S. CENSUS BUREAU
Charles Louis Kincannon,
Director

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**Economics
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Kathleen B. Cooper,
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U.S. CENSUS BUREAU
Charles Louis Kincannon,
Director

Hermann Habermann,
Deputy Director and
Chief Operating Officer

Thomas L. Mesenbourg,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Acting Assistant Director
for Economic Programs

William G. Bostic, Jr.,
Chief, Manufacturing
and Construction Division

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Summary of Revisions

SUMMARY

The revisions to the historical data from the Manufacturers' Shipments, Inventories, and Orders survey, as shown in this publication, are the result of:

- Benchmarking the shipments and inventory data to the 2002 Economic Census and 2003 Annual Surveys of Manufactures (ASM),
- Adjusting new and unfilled orders to be consistent with the benchmarked shipments and inventory data,
- Correcting monthly data for late receipts, reclassification of reported data, and revisions to previously reported data, and
- Updating the trading day and seasonal adjustment factors for all series.

Table A summarizes the results of the first two procedures for 2001 through 2004 in the form of annual level and year-to-year percent change revisions. Table B shows the revisions attributable to late or revised data and trading day and seasonal adjustment factor updates as they affected the more recent month-to-month trends in the seasonally adjusted data.

DATA AVAILABILITY

The monthly press releases for the M3 survey are issued approximately the 18th working day of the month following the statistical period for the advance report on durable goods and the 23rd working day for the full report. These monthly reports, the revised monthly data, as well as this Benchmark report, are available the day of issue through STAT-USA/Internet at <www.stat-usa.gov> or through the Manufacturers' Shipments, Inventories, and Orders Web site at <www.census.gov/indicator/www/m3>.

In addition to this report, historical SIC data from 1958 through March 2001 are available on the Internet at <www.census.gov/indicator/www/m3>.

Description of Survey

The Manufacturers' Shipments, Inventories, and Orders (M3) survey provides broad-based, monthly statistical data on economic conditions in the domestic manufacturing sector. The survey measures current industrial activity and provides an indication of future business trends. Data are used by the Executive Branch of the Government for developing economic, fiscal, and monetary policy; the Bureau of Economic Analysis as components of the gross domestic product estimates; and trade associations, corporate economists, and other members of the business community as an analytical tool for assessing the current and future economic condition of the country.

COMPOSITION OF INDUSTRY CATEGORIES

There are 89 separately tabulated industry categories in the M3 survey. These categories are groupings of the 473 manufacturing industries as defined in the *1997 North American Industry Classification System (NAICS) Manual*. Appendix B lists these categories.

Because companies provide data on a voluntary basis, reporting in many of these 89 categories is not sufficient to warrant separate publication of the data. Consolidated reporting by some large companies also limits the quality of the data in some categories. A company that reports on a consolidated basis (entire company or a division) is included in the M3 category in which the reporting unit as a whole is classified and has no influence on the movement of the other industries which may be included in its combined report.

As a result, it has been necessary to combine the 89 industry categories into 59 publication levels for shipments and total inventories. For new and unfilled orders and inventories by stage of fabrication, it has been necessary to introduce further combinations because of the lower response rates for those items.

COMPOSITION OF THE SURVEY PANEL

The monthly M3 estimates are based on information obtained from most manufacturing companies with \$500 million or more in annual shipments. In order to strengthen the sample coverage in individual industry categories, the survey includes selected smaller companies. The sources from which companies are identified for inclusion in the survey panel are the quinquennial economic censuses, manufacturing sector.

For firms that operate in a single M3 industry category, the reporting unit typically comprises all operations of the company. Most large, diversified companies, however, file separate reports for divisions with significant activity in different industrial areas.

The composition of each company or reporting unit of a company in the survey usually includes more than one plant or establishment and frequently includes industry activities outside the M3 category in which it is classified. The survey methodology described later in this chapter assumes that the month-to-month changes of the total operations of the reporting units classified in each industry category effectively represent the month-to-month movements of all establishments that make up the category.

In 1962, the initially selected sample for this survey included all companies with more than 1,000 employees and smaller companies selected with probabilities proportional to their employment size within each industry category. As there was some deterioration in response rates for companies with between 100 and 1,000 employees, in January 1975, the staff selected a supplemental sample of approximately 1,000 companies from the universe of companies in this size range in order to strengthen the estimates. Although the response rate was only about 60 percent for this

group, beginning in January 1978 these data were added to the panel and included in the calculations of the monthly estimates. Because of poor response rates, the survey no longer included companies with less than 100 employees; instead, data for these companies were estimated by using overall industry month-to-month movements based on data reported by the larger companies.

In recent years, the size of the value of shipments of the company or reporting unit rather than the employment size has influenced the selection of companies to increase response rates. Using this criterion, census staff visit or otherwise contact large companies that did not report in the survey to request their participation or reconsideration of a previous decision not to participate. Also, staff request large diversified reporting companies to provide additional industry categories not previously provided.

Another method used for improving response has been contacting nonreporting companies by letter. Staff send letters on an ongoing basis to companies in industry categories with low response rates. In 1990, staff selected a probability sample and mailed requests to about 400 midsize companies in the plastics industry. The purpose was to test the viability of probability sampling, especially in industries comprised primarily of smaller, less diversified companies.

As a result of these efforts, we increased response by adding about 45 to 55 percent of the companies contacted to the panel. However, respondent dropouts frequently offset these increases. The current coverage levels in the survey show that reported data represent approximately 60 percent of the shipments estimates at the total manufacturing level.

LIMITATIONS OF THE DATA

The monthly data presented in this publication are subject to both sampling and nonsampling errors. Sampling errors occur because reports are received from a sample rather than from the complete universe of manufacturing companies. Because the present composition of the panel is not based on a probability sample, the amount of sampling error cannot be quantified. Nonsampling errors, on the other hand, are attributable to many sources. The use of company or divisional reports to estimate the monthly change for establishments is one source of nonsampling error. The use primarily of large companies to represent the month-to-month movement of all companies is another potential source. In addition, response and processing errors may be present, although computer edits and analytical review of the data detect the most significant errors of this kind prior to tabulation.

MONTHLY ESTIMATION PROCEDURE

A link relative procedure derives the monthly universe estimates of shipments, unfilled orders, and total inventories for each industry category. The universe estimate for the previous month is multiplied by the monthly ratio of change tabulated for reporting companies in the current month to arrive at a universe estimate for current month.

When an individual company reports unusually large changes from the previous month, or when a particular company has unique data patterns differing substantially from the movement shown by the rest of the reporting panel in a particular industry category, the company is excluded from the ratio of change calculation but included in the universe estimate of level. The effect of this procedure is to restrict the estimation for nonrespondents and firms not in the survey panel to the general trend of the industry.

The universe estimate of new orders is derived from the monthly estimate of shipments plus the change in unfilled orders between the current and prior period. The estimate includes orders that are received and filled in the same month as well as orders that have not yet been filled. It also includes the effects of cancellations and modifications of previously reported orders.

The standard ratio estimate procedure is not followed for new orders because not all companies report new orders, and some that do report this item limit their reporting to specific products for which long lead times are required in the production cycle. These companies, in effect, exclude new orders received for products that are shipped from inventory.

A modified procedure also is used to estimate the stage of fabrication inventory data. In this procedure, the total inventory data estimated for each tabulated industry category are retabulated to the appropriate three-digit NAICS subsector levels and serve as control totals for the stage of fabrication data. Initial estimates are made for each of the stages of fabrication at the three-digit NAICS level using the ratio estimation procedure. The differences between the sum of the stage of fabrication detail and total inventories at the three-digit NAICS level are then allocated proportionally to the stage of fabrication figures to form the estimates. The reasoning behind this procedure is that a significant number of companies report total inventories but cannot report inventories by stage of fabrication.

Trading Day Adjustment

Variations in the rate of manufacturing activity resulting from different numbers of trading days in the same month for different years and variations in the length of months can be an important cause of month-to-month fluctuations in the shipments data. For many industries, these irregularities can be identified approximately and removed so that the underlying trend cycle stands out clearly.

Many of the shipments series have trading day factors calculated in the trading day regression analysis routine of the X-12 seasonal adjustment software.¹ However, forty-two of the shipments series did not have identifiable trading day patterns and are only being adjusted for leap year and length of month variations. Appendix E includes a more detailed discussion of the methodology.

Seasonal Adjustment Methodology

The monthly data are adjusted for seasonality at the most detailed level tabulated in the survey, using the X-12 ARIMA version of the Census Bureau's seasonal adjustment program.² The seasonally adjusted estimates for shipments, unfilled orders, and total inventories for M3 industry categories are calculated by dividing the unadjusted estimates by seasonal adjustment factors computed by the X-12 ARIMA seasonal adjustment program. Seasonally adjusted new orders are computed by adding the changes between current and prior period seasonally adjusted unfilled orders to the current month's seasonally adjusted shipments.

The inventory by stage of fabrication data are seasonally adjusted at the three-digit NAICS subsector level for each stage. If the sum of the adjusted stage of fabrication does not equal the major group totals resulting from summing the seasonally adjusted total inventories for the individual industries, the difference is proportionally allocated to the stage of fabrication detail.

Staff calculate seasonal factors concurrently and include the current period observation in the calculation of the seasonal factor for that month. The factors reflected in this report are based on using data from January 1992 through December 2004 for shipments, unfilled orders, and inventories. Appendix F shows reliability measures regarding the adequacy of the seasonal adjustment of specific series. For information on specific measures used in the seasonal adjustment analysis, selection of options within the X-12 program for the individual industry series, and tests for the presence of seasonality, contact the Manufacturing and Construction Division, U.S. Census Bureau, Washington, DC 20233, or call 301-763-4832.

BENCHMARK PROCEDURE

The M3 survey data are benchmarked to reduce both sampling and nonsampling errors. The relatively small monthly sample size as well as the differences that result from collecting the monthly data on a divisional basis as compared to the benchmark data on an establishment basis account for most of the revision. Also, some monthly reports received too late to be included in the monthly publications are added to improve the revised estimates of change of the historical monthly data.

¹The X-12 ARIMA Seasonal Adjustment is the program used to calculate trading day weights and to seasonally adjust data in this publication.

²ibid.

DEFINITION OF TERMS

Value of Shipments

The value of shipments data in the M3 survey represents net selling values, f.o.b. plant to the customer, after discounts and allowances and excluding freight charges and excise taxes. The ASM uses the same definition. However, the data reported in the two surveys frequently are not equal because of differences, discussed earlier, in the reporting unit. For multiestablishment companies, the M3 reports typically are company- or divisional-level reports that encompass groups of plants or products. The data reported are usually net sales and receipts from customers and do not include the value of interplant transfers. The reported sales are used to calculate month-to-month changes which bring forward the universe estimates developed from the ASM.

The value of products made elsewhere under contract from materials owned by the plant is also included in shipments as well as receipts for contract work performed for others, resales, miscellaneous activities such as the sale of scrap and refuse, and installation and repair work performed by employees of the plant.

In the shipbuilding industry, the value of work done in a given year may vary considerably from the value of shipments because of the long lead time between the start and completion of a large vessel. In both the annual survey and the M3, the value of work done during the year, rather than the value of shipments, is requested. The same procedure is followed for aircraft that are accounted for on a progress basis. Aircraft and ships for which shipments are recorded upon delivery are reported in the usual manner. Where value of work done is reported in place of shipments, the work-in-process inventories are normally charged to the customer as costs are incurred and are not accumulated as finished goods inventories by the shipyard or the aircraft producer.

The value of shipments figures developed from the ASM contain duplication at the M3 industry category and higher level aggregates, since the products of some six-digit NAICS industries are used as materials by other industries within the same M3 industry aggregate. The significance of the duplication within the specific M3 industry categories varies depending on their six-digit industry composition. It is most pronounced in a few highly integrated industry areas, such as primary metals and motor vehicles and parts.

Inventories

Inventories in the M3 survey are collected on a current cost or pre-LIFO (last in, first out) basis. Because different inventory valuation methods are reflected in the reported data, the estimates differ slightly from replacement cost estimates. Companies using the LIFO method for valuing inventories report their pre-LIFO value; that is, the adjustment to their base-period prices is excluded. In the ASM, inventories are collected according to this same definition.

Inventory data are requested from respondents by stage of fabrication; that is, finished goods, work in process, and raw materials and supplies. There are several limitations to the quality of these data for two reasons. First, response to the stage of fabrication inquiries is lower than for total inventories because some companies do not keep their data monthly at this level of detail; those companies which do maintain monthly detailed records frequently do not have data for all three stages of fabrication or have quantity (physical volume) data only. Second, a product considered to be a finished good in one industry, such as steel mills shapes, may be reported as a raw material in another industry, such as stamping plants. Therefore, within the three-digit NAICS subsectors, the same type of inventory may be included under different stage of fabrication categories. Like total inventories, stage of fabrication inventories are also benchmarked to the ASM pre-LIFO data, but the stage of fabrication data are benchmarked at the three-digit subsector level.

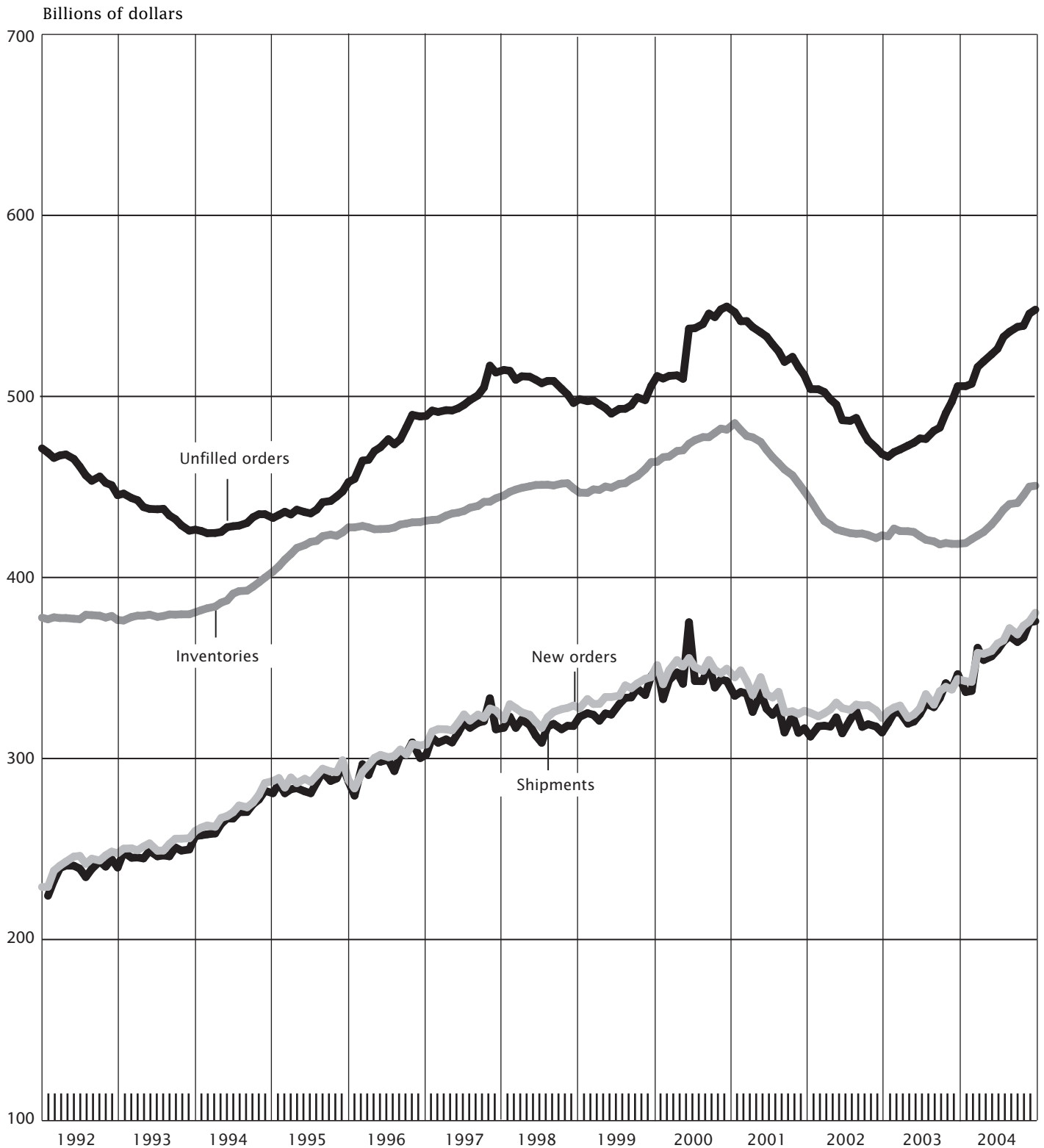
New Orders Received and Unfilled Orders

New orders, as reported in the monthly survey, are net of order cancellations and include orders received and filled during the month as well as orders received for future delivery. They also include the value of contract changes which increase or decrease the value of the unfilled orders to which they relate. Orders are defined to include those supported by binding legal documents such as signed contracts, letters of award, or letters of intent, although in some industries this

definition may not be strictly applicable. In the case of letters of intent, the full amount of the sales value is included if the parties are in substantial agreement on the amount; otherwise, only the funds specifically authorized to be expended are included.

Unfilled orders include orders (as defined above) that have not been reflected as shipments. Generally, unfilled orders at the end of the reporting period are equal to unfilled orders at the beginning of the period plus net new orders received less net shipments.

Figure A.
All Manufacturing Industries Shipments, Inventories, and New and Unfilled Orders, Seasonally Adjusted: January 1992–December 2004



Source: U.S. Census Bureau, Manufacturers' Shipments, Inventories, and Orders: 1992-2002.

Figure B.
**Ratios of Unfilled Orders to Shipments and Inventories to Shipments,
 Seasonally Adjusted: January 1992-December 2004**



Source: U.S. Census Bureau, Manufacturer's Shipments, Inventories, and Orders: 1992-2002.

Figure C.

Manufacturers' Shipments, Seasonally Adjusted: January 1992–December 2004

Original
Revised

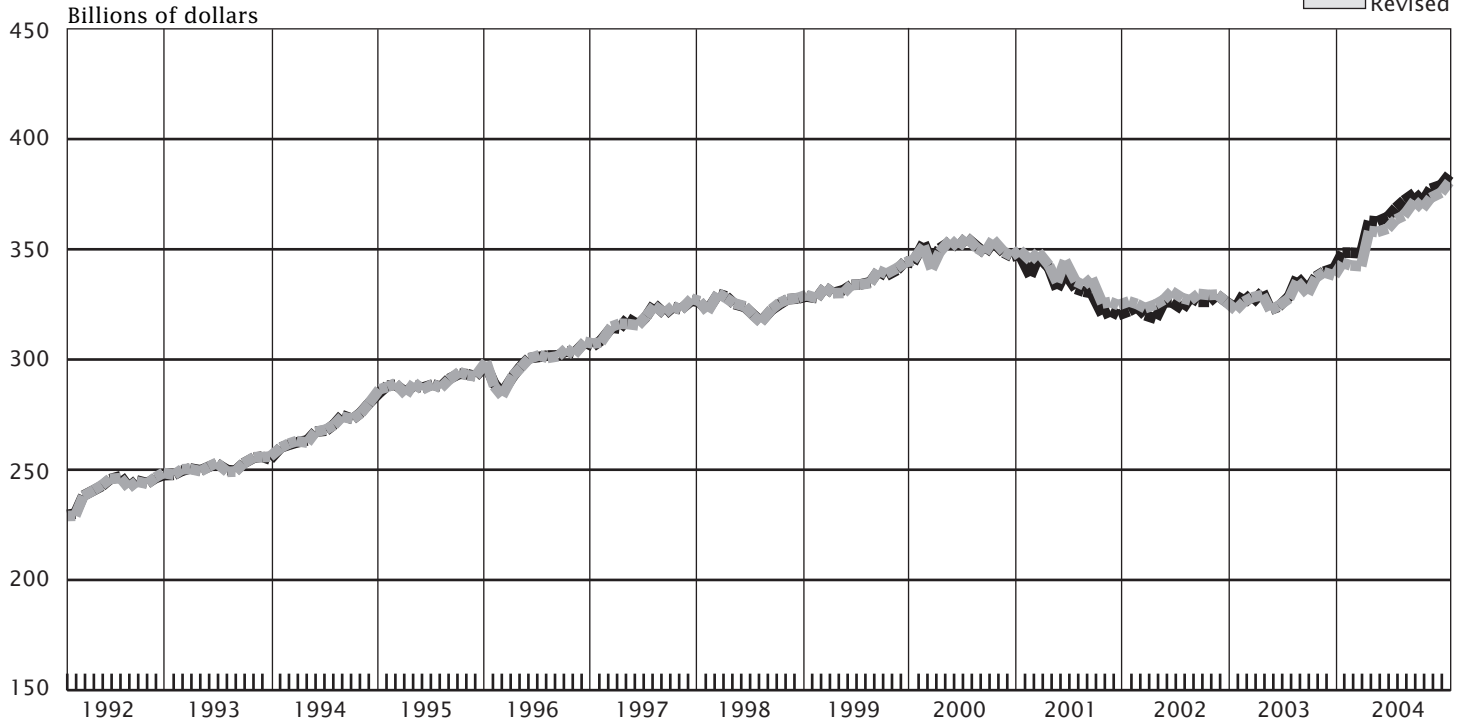
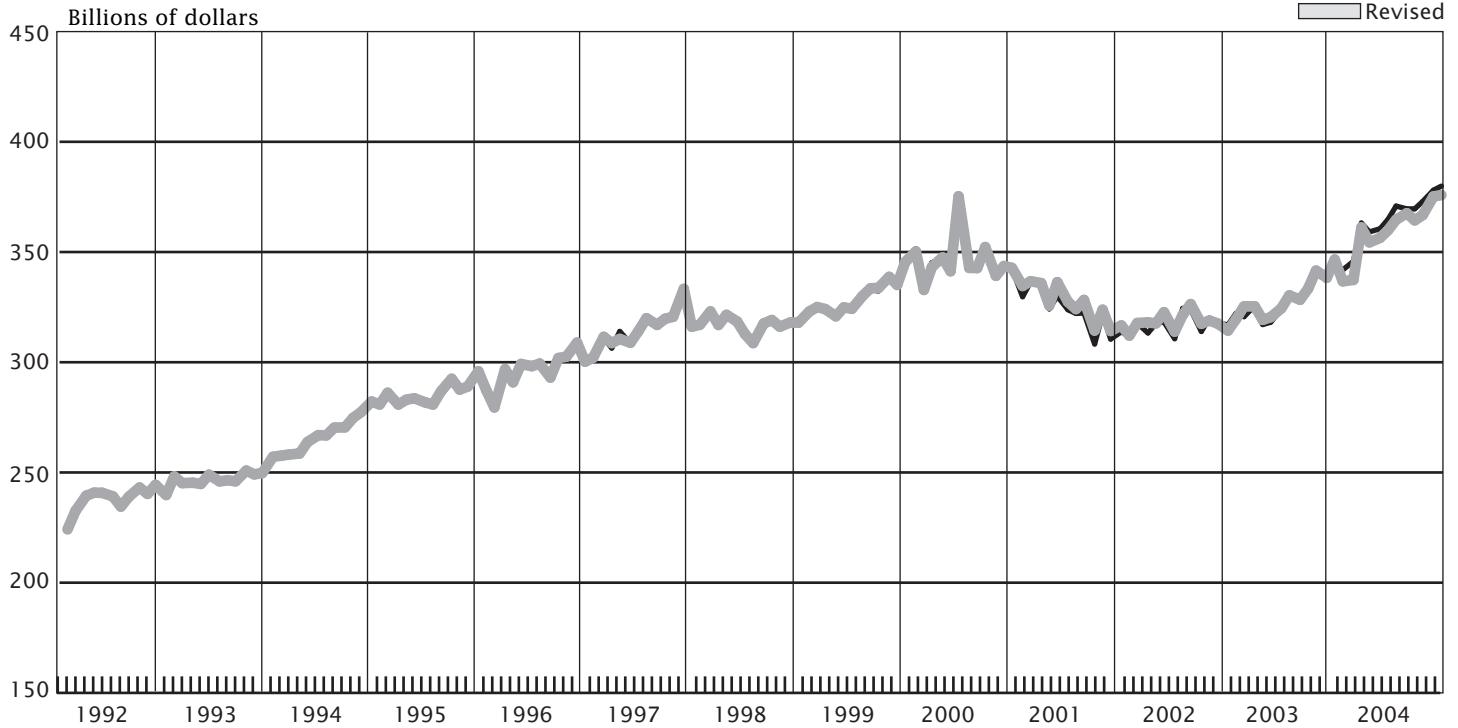


Figure D.

**Manufacturers' New Orders, Seasonally Adjusted:
February 1992–December 2004**

Original
Revised



Source: U.S. Census Bureau, Manufacturers' Shipments, Inventories, and Orders: 1992-2002.

Figure E.

**Manufacturers' Unfilled Orders, Seasonally Adjusted:
January 1992–December 2004**

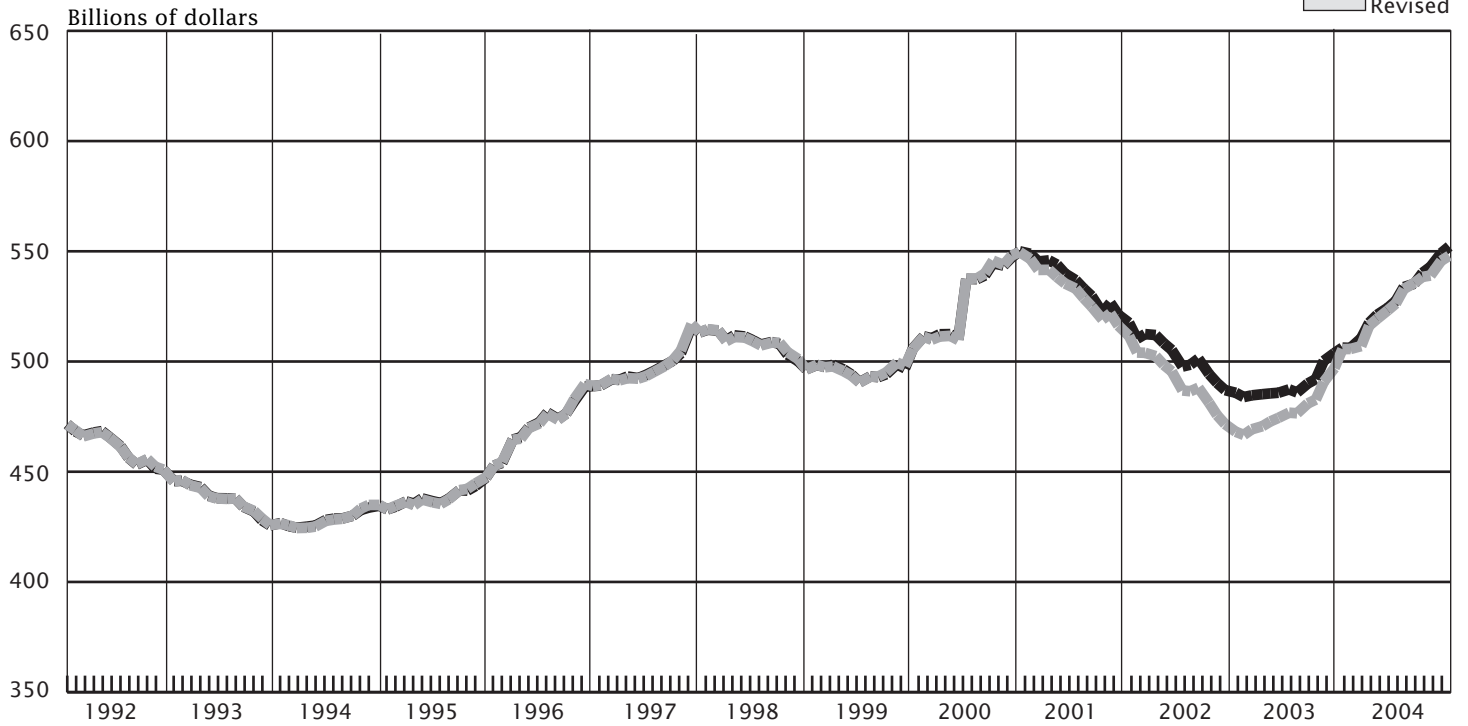
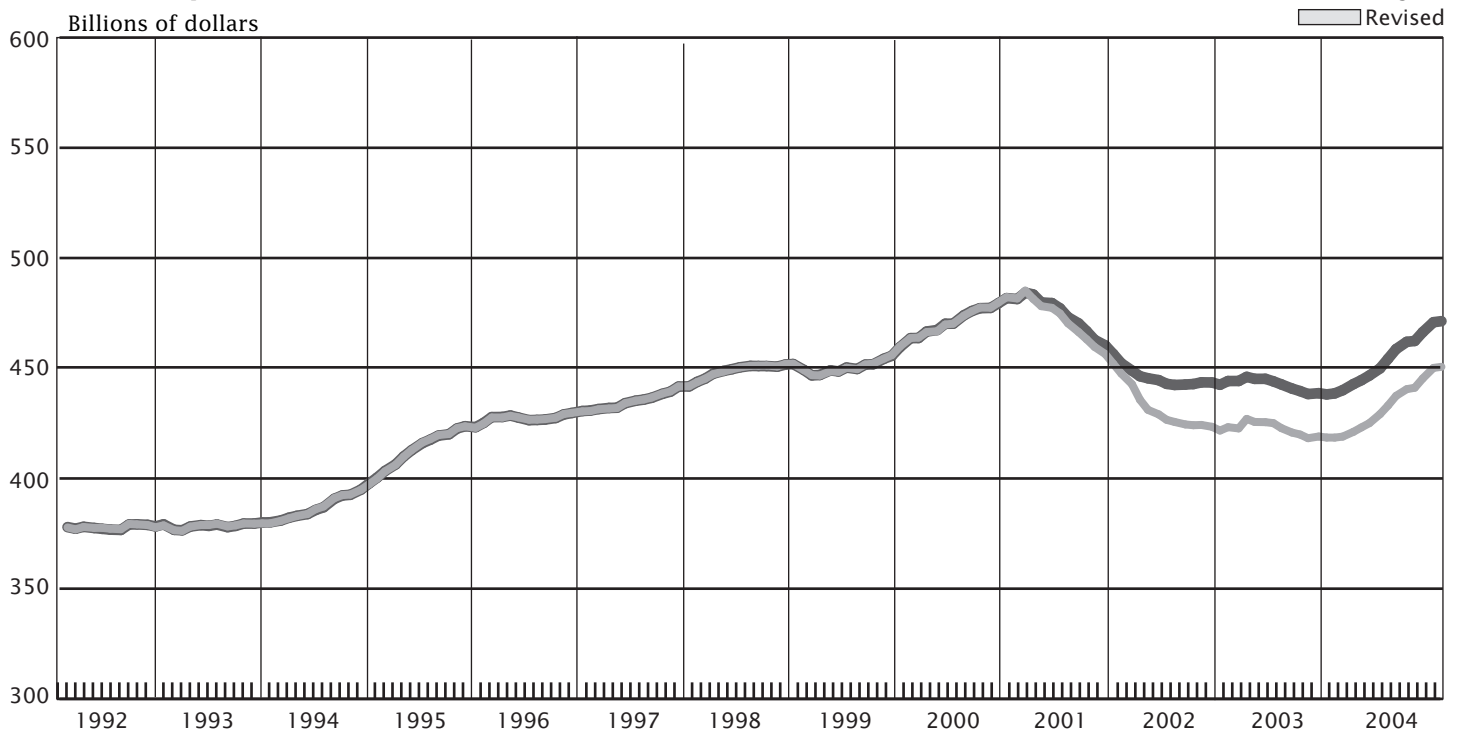


Figure F.

**Manufacturers' Inventories, Seasonally Adjusted:
February 1992–December 2004**



Source: U.S. Census Bureau, Manufacturers' Shipments, Inventories, and Orders: 1992-2002.

Table A. Revisions to Manufacturers' Shipments, Inventories, and Orders: 2001-2004

[Billion dollars]

Industry		As revised	As published	Percent revision	Year-to-year percent change	
					As revised	As published
ANNUAL SHIPMENTS						
All manufacturing industries	2004..	4 373.6	4 429.7	-1.3	9.9	10.8
	2003..	3 979.8	3 999.1	-.5	1.5	2.8
	2002..	3 920.6	3 891.8	.7	-2.5	-2.0
	2001..	4 022.9	3 970.5	1.3	-4.4	-5.7
Durable goods industries	2004..	2 358.1	2 373.4	-.6	10.3	10.4
	2003..	2 138.0	2 150.6	-.6	.5	.9
	2002..	2 128.1	2 131.4	-.2	-3.4	-2.0
	2001..	2 203.1	2 174.4	1.3	-7.2	-8.4
Nondurable goods industries	2004..	2 015.5	2 056.3	-2.0	9.4	11.2
	2003..	1 841.9	1 848.5	-.4	2.8	5.0
	2002..	1 792.5	1 760.3	1.8	-1.5	-2.0
	2001..	1 819.8	1 796.1	1.3	-.8	-2.1
ANNUAL NEW ORDERS						
All manufacturing industries	2004..	4 334.1	4 389.0	-1.3	9.7	11.1
	2003..	3 950.6	3 950.0	-	3.5	3.9
	2002..	3 816.1	3 800.9	.4	-2.6	-1.9
	2001..	3 917.2	3 875.3	1.1	-5.9	-6.9
Durable goods industries	2004..	2 318.6	2 332.7	-.6	9.9	11.0
	2003..	2 108.8	2 101.5	.3	4.2	3.0
	2002..	2 023.6	2 040.6	-.8	-3.5	-1.9
	2001..	2 097.4	2 079.2	.9	-9.9	-10.6
Nondurable goods industries	2004..	2 015.5	2 056.3	-2.0	9.4	11.2
	2003..	1 841.9	1 848.5	-.4	2.8	5.0
	2002..	1 792.5	1 760.3	1.8	-1.5	-2.0
	2001..	1 819.8	1 796.0	1.3	-.8	-2.1
END-OF-YEAR UNFILLED ORDERS						
All manufacturing industries ¹	2004..	543.6	546.8	-.6	8.4	8.8
	2003..	501.6	502.4	-.2	8.1	4.5
	2002..	464.1	480.7	-3.5	-8.5	-6.2
	2001..	507.1	512.5	-1.1	-6.9	-5.9
END-OF-YEAR INVENTORIES						
All manufacturing industries	2004..	438.7	459.7	-4.6	7.6	7.4
	2003..	407.7	428.2	-4.8	-1.2	-1.3
	2002..	412.6	433.8	-4.9	-5.5	-1.7
	2001..	436.6	441.5	-1.1	-7.1	-6.1
Durable goods industries	2004..	266.9	275.8	-3.2	8.4	7.7
	2003..	246.3	256.0	-3.8	-2.6	-3.2
	2002..	253.0	264.4	-4.3	-6.8	-4.2
	2001..	271.6	275.9	-1.6	-8.9	-7.5
Nondurable goods industries	2004..	171.8	183.9	-6.6	6.4	6.8
	2003..	161.5	172.2	-6.2	1.2	1.7
	2002..	159.6	169.3	-5.7	-3.3	2.2
	2001..	165.0	165.7	-.4	-4.0	-3.6

- Represents no change. Percent changes based on unrounded data.

¹Data on new and unfilled orders are not available for the semiconductor industry.

²Unfilled orders exist only for durable goods industries.

Note: Detail may not add to total because of independent rounding.

Table B. Manufacturers' Shipments, Inventories, and Orders Monthly Percent Changes: 2004

[Based on seasonally adjusted data]

Industry	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
SHIPMENTS												
ALL MANUFACTURING												
As published	-	-1	4.2	-1	.6	1.1	.9	.9	-1.1	1.6	.4	1.2
As revised	-3	-1	4.7	-1	.4	1.1	.5	1.9	-9	1.3	.6	1.3
Durable Goods Industries												
As published	-1.0	1.4	4.4	-8	-6	1.2	.5	1.9	-1.0	.3	.2	3.0
As revised	-1.2	1.1	4.9	-1.1	-4	1.6	-1	2.2	-2	-2	.2	3.9
Primary Metals												
As published	2.1	2.0	10.5	-5	-1	4.1	3.2	2.1	.5	-7	2.8	3.0
As revised	2.2	3.2	7.5	.9	.7	4.2	2.4	2.6	.9	-1.4	2.7	1.8
Fabricated Metal Products												
As published	-6	-1.8	10.8	-7	-1	1.0	1.5	-	.1	-1.3	2.0	.5
As revised	-1.7	-7	8.9	-4	-1	1.0	1.6	-	1.1	-1.6	2.6	.8
Machinery												
As published	-5	-5	6.2	-1	-2.7	4.7	3.2	-9	1.9	2.7	-3.8	6.6
As revised	-2.7	-3.2	12.1	-1.0	-3.6	7.0	.9	-2.0	4.8	-2	-3.4	9.9
Computers and Electronic Products												
As published	1.2	-1.9	1.7	2.5	-1.6	.2	3.0	1.6	-2.7	3.4	.2	.7
As revised	-1	-	.6	1.9	1.8	-1.0	3.6	2.3	-2.2	2.8	-1	2.2
Electrical Equipment, Appliances, and Components												
As published	-1.0	-1.0	2.0	2.0	-4	-3	3.6	1.6	-3.0	.2	1.4	-7
As revised	-1.5	-1.1	3.0	1.9	-8	-7	3.7	1.1	-2.3	.8	1.2	-1.4
Transportation Equipment												
As published	-2.9	7.6	1.3	-4.7	.4	.9	-3.7	4.7	-1.6	-1.1	-6	3.8
As revised	-2.3	5.3	3.0	-5.2	-1.0	1.2	-4.4	5.3	-1.1	-1.0	-8	4.7
Total Capital Goods												
As published	-1	1.5	1.4	.6	-1.4	1.0	2.0	1.7	-8	2.4	-2.4	3.6
As revised	-1.3	1.8	2.4	-1	-1	1.6	1.0	1.7	-	1.4	-2.4	5.6
Nondefense Capital Goods												
As published	-4	-3	3.4	.8	-2.0	1.8	1.8	1.8	-3	2.2	-2.4	4.1
As revised	-1.9	-3	5.3	-1	-6	2.9	.4	1.8	.6	1.4	-2.6	6.6
Defense Capital Goods												
As published	2.0	15.1	-11.7	-7	3.1	-4.3	3.5	1.3	-4.5	3.5	-2.1	-1.0
As revised	3.2	17.0	-14.4	-3	3.9	-7.3	6.1	.7	-4.3	1.9	-1.6	-1.9
Nondurable Goods Industries												
As published	1.2	-1.8	4.0	.8	2.0	1.0	1.3	-2	-1.1	3.1	.7	-7
As revised .....	.6	-1.5	4.3	1.0	1.4	.7	1.2	1.4	-1.8	3.1	1.1	-1.7
NEW ORDERS												
ALL MANUFACTURING												
As published	-9	1.1	5.0	-1.1	.4	1.2	1.7	-3	-	.9	1.4	.5
As revised	-2.8	.2	7.1	-1.9	.6	1.0	1.3	.8	-9	.7	2.3	.2
Durable Goods Industries												
As published	-2.6	3.9	5.9	-2.7	-9	1.3	1.9	-5	1.0	-1.0	2.0	1.5
As revised	-5.7	1.7	9.4	-4.2	-2	1.3	1.4	.3	-1	-1.4	3.3	1.8
Primary Metals												
As published	4.4	4.8	9.4	-4.4	2.8	1.9	7.5	-6	-3.2	-1.7	5.1	2.2
As revised	2.9	6.6	7.7	-4.6	4.9	.7	6.7	2.3	-3.8	-4.9	7.6	-5
Fabricated Metal Products												
As published .....	.9	-6	10.5	-1.1	-5.8	2.4	-3	2.2	-1.4	2.2	-5	-
As revised	2.5	-1.8	8.0	.9	-4.2	.9	-1.1	5.3	-3.6	4.4	-1	.3

See footnotes at end of table.

Table B. Manufacturers' Shipments, Inventories, and Orders Monthly Percent Changes: 2004—Con.

[Based on seasonally adjusted data]

Industry	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
ALL MANUFACTURING—Con.												
Durable Goods Industries—Con.												
Machinery												
As published	-4.5	4.2	5.5	-4.1	.1	1.5	.8	2.3	3.4	3.0	-4.2	5.4
As revised	-20.5	-8.1	34.6	-14.3	2.8	-1	-1.3	4.6	2.0	.2	-5.3	13.3
Computers and Electronic Products												
As published	4.2	1.6	4.3	-1.9	.1	-1.2	-4.2	6.0	13.2	-6.8	-5.8	8.2
As revised	-2.9	5.0	5.4	-5.3	5.1	-3.8	-1.6	4.7	10.7	-6.1	-2.8	6.1
Electrical Equipment, Appliances, and Components												
As published	3.8	3.1	1.5	4.7	-4.8	-5.1	6.7	4.4	-2.8	-3.1	4.9	-6.9
As revised	2.4	1.2	4.0	5.1	-5.7	-5.4	7.1	3.5	-1.8	-3.9	7.5	-9.7
Transportation Equipment												
As published	-10.3	11.0	4.1	-5.2	-1.8	4.8	6.5	-8.3	-3.5	.1	9.4	-2.3
As revised	-9.9	7.5	5.7	-5.0	-3.4	6.5	4.5	-7.4	-3.3	-1.3	10.4	-1.9
Total Capital Goods												
As published	-3.5	5.8	3.9	-2.7	-2.7	4.9	6.0	-5.9	6.0	-.3	1.0	-1.7
As revised	-13.3	2.3	13.5	-7.7	-.3	4.6	6.9	-6.8	2.7	-1.0	4.3	-6
Nondefense Capital Goods												
As published	-2.7	4.1	6.2	-1.3	-1.4	1.5	9.3	-7.0	3.2	-3.2	7.7	-6
As revised	-12.6	.1	17.0	-7.4	1.9	.5	11.6	-8.0	2.0	-3.7	8.6	1.7
Defense Capital Goods												
As published	-8.1	17.0	-9.3	-12.8	-12.4	34.7	-15.8	3.1	27.5	18.1	-33.4	-11.0
As revised	-18.0	16.2	-6.0	-9.3	-15.6	39.7	-21.6	3.1	8.4	18.5	-21.3	-19.3
UNFILLED ORDERS												
ALL MANUFACTURING												
As published	-	.9	1.4	.7	.6	.6	1.2	.3	.9	.5	1.1	.5
As revised	-	.3	1.8	.6	.8	.6	1.3	.5	.5	.1	1.2	.4
Durable Goods Industries												
As published	-	.9	1.4	.7	.6	.6	1.2	.3	.9	.5	1.1	.5
As revised	-	.3	1.8	.6	.8	.6	1.3	.5	.5	.1	1.2	.4
Primary Metals												
As published	2.2	4.2	3.6	.5	2.6	1.0	4.2	2.1	-7	-1.4	.2	-4
As revised	1.5	3.9	4.1	-	3.0	.5	3.6	3.3	-2	-2.6	.6	-1.1
Fabricated Metal Products												
As published	2.9	3.4	3.5	3.1	-	.7	-3	.9	.1	1.9	.6	.3
As revised	3.4	2.6	2.3	2.9	.5	.4	-1.0	1.9	-8	2.5	1.0	.7
Machinery												
As published .....	.6	3.1	2.9	.6	2.0	.5	-7	1.0	1.7	1.9	1.5	1.0
As revised .....	.5	-1.1	5.5	.1	2.1	-1	-8	1.3	.4	.6	-1	1.0
Computers and Electronic Products												
As published	-2	1.0	1.6	.6	1.2	.8	-8	.1	3.6	1.0	-4	1.0
As revised	-5	1.0	2.3	.4	1.4	.5	-5	-2	3.1	.6	-	.6
Electrical Equipment, Appliances, and Components												
As published .....	..1	2.7	2.3	4.0	1.1	-1.8	-1	1.6	1.7	-.3	1.8	-2.0
As revised .....	.3	1.7	2.3	4.2	1.0	-1.7	.1	1.5	1.7	-1.0	2.5	-2.5
Transportation Equipment												
As published	-8	-2	.4	.3	-2	.6	2.9	-1	-5	-2	1.8	.5
As revised	-7	-2	.4	.4	-2	1.0	3.0	.1	-4	-4	1.9	.5
Total Capital Goods												
As published	-2	.6	1.1	.4	.1	.9	1.7	.1	1.4	.9	1.5	.5
As revised	-2	-1	1.8	.3	.3	.8	1.9	.3	.7	.3	1.5	.4

See footnotes at end of table.

Table B. **Manufacturers' Shipments, Inventories, and Orders Monthly Percent Changes: 2004—Con.**

[Based on seasonally adjusted data]

Industry	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
ALL MANUFACTURING—Con.												
Durable Goods Industries—Con.												
Nondefense Capital Goods												
As published	-.7	.4	1.2	.6	.8	.7	2.8	.2	1.2	-.4	2.4	1.1
As revised	-.5	-.4	2.3	.3	.9	.4	3.1	.5	.8	-.4	2.2	1.1
Defense Capital Goods												
As published .....	.6	.8	.8	-	-.9	1.2	-.1	-	1.9	3.0	.2	-.4
As revised .....	.4	.4	.9	.3	-.8	1.6	-.3	-.1	1.6	1.6	.2	-.8
TOTAL INVENTORIES												
ALL MANUFACTURING												
As published .....	.3	.6	.4	.5	.7	1.0	1.0	.7	.1	.9	1.0	.1
As revised .....	.1	.5	.5	.5	1.0	.9	1.0	.7	.1	1.0	1.1	.1
Durable Goods Industries												
As published .....	.1	.5	.4	.6	.8	.9	1.1	.8	.3	.8	.9	.3
As revised	-	.3	.5	.6	.8	1.2	1.1	.9	.4	1.0	1.2	.3
Primary Metals												
As published	1.2	1.4	1.7	1.6	1.0	1.6	1.3	3.0	2.6	3.3	2.4	1.8
As revised .....	.9	1.1	2.0	1.7	1.7	2.2	.9	2.8	2.9	4.0	2.4	1.4
Fabricated Metal Products												
As published	-.2	1.4	.2	1.6	1.7	1.3	1.7	1.6	1.0	.9	1.3	1.4
As revised .....	.1	.9	.5	.3	1.8	1.5	1.9	2.1	1.2	1.0	1.3	2.1
Machinery												
As published .....	.7	.8	.8	.3	1.4	1.4	1.1	.8	.5	.2	1.5	.8
As revised .....	.6	.7	.7	.4	1.3	1.4	1.3	1.1	.7	.3	2.1	.4
Computers and Electronic Products												
As published	-1.8	-.2	.8	.5	.3	1.4	.7	.9	.2	1.1	-.3	-.4
As revised	-2.2	-.5	1.5	1.1	-	1.5	.8	-	-.1	1.7	-.3	.4
Electrical Equipment, Appliances, and Components												
As published .....	.8	-1.7	.5	-.2	1.6	1.0	1.5	1.8	.1	-.5	-.5	.6
As revised .....	.3	-1.6	.4	-.3	1.4	1.0	1.3	1.7	.4	-.3	-.2	.5
Transportation Equipment												
As published .....	.6	.4	-.2	.5	-.1	.4	1.1	-.3	-.7	.2	1.5	-.7
As revised .....	.5	-	-.6	.9	-.3	1.0	1.2	-.2	-.8	-	1.7	-.8
Total Capital Goods												
As published	-.5	.3	.1	-	.8	.7	1.1	.3	-.1	.3	1.3	.1
As revised	-.7	.2	.1	.3	.6	1.1	1.1	.4	-	.3	1.6	.2
Nondefense Capital Goods												
As published	-.5	.2	.1	.2	.8	.9	1.6	.5	-.3	.3	1.3	.1
As revised	-.6	-	.3	.4	.5	1.0	1.6	.5	-.1	.3	1.7	-.1
Defense Capital Goods												
As published	-.5	1.3	.1	-1.1	1.0	.1	-1.7	-.5	.9	.5	1.4	.5
As revised	-1.5	1.5	-1.2	-1.1	1.1	1.7	-2.3	-.8	.4	.6	1.3	2.5
Nondurable Goods Industries												
As published .....	.6	.8	.4	.3	.6	1.0	.8	.5	-.3	1.0	1.1	-.1
As revised .....	.3	.9	.4	.2	1.3	.5	.9	.4	-.2	.9	1.0	-.2

- Represents no change.

¹Data on new and unfilled orders are not available for the semiconductor industry.

Chapter A. Sample of M3 Report Form

Industry category description (see Appendix B).

Month and year of report

Prompt reporting ensures the timely receipt of your data.

Name and telephone number of person to contact at the Census Bureau regarding this report.

Name and telephone number of person to contact at your company regarding this report.

Mark the box which best describes current accounting period.

Data for new orders and unfilled orders are only requested for some industry categories

FORM M-3(SD) (6-12-2000) U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

MANUFACTURERS' SHIPMENTS, INVENTORIES, AND ORDERS
FORM APPROVED: OMB NO. 0807-0008 EXPIRES JUNE 30, 2006

NOTICE - This report is authorized by law (Title 13, United States Code). By Section 9 of the same law, your report to the Census Bureau is confidential. It may be seen only by sworn Census employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

Description: **COMPUTER MANUFACTURING**

CENSUS USE RP MC # F FP AI

JANUARY 2005 Please correct any errors in name, address, and ZIP Code.

PLEASE RETURN YOUR COMPLETED FORM WITHIN 15 DAYS:
Fax form to 1-800-272-4096
or
Use VRE on 1-800-428-9659
or
Mail form to:
U.S. Census Bureau
Mail Stop 6900
Room 2232, FOB #4
Washington, DC 20233

Census contact: **CHRIS SAVAGE** Area Code 301 Number 763-4804
Your company contact: **COMPANY CONTACT** Area Code 555 Number 555-5555 Ext 555

Ceased operations
 Sold to another company - Enter name and date in "Remarks"
 Acquired another manufacturing operation - Enter name and date in "Remarks"

CFN 1 2 3 4 5 6 0 0 0 0 1 Industry 3 4 A

Description of reporting items (Definitions of terms are provided on the back of the form)	Accounting Period	Report all figures in THOUSANDS of dollars.		
		JAN 2005	DEC 2004	NOV 2004
1 SHADE the ONE circle which best describes each accounting period. If "Other," please describe in "Remarks."	P	<input type="radio"/> Cal. Mo. <input type="radio"/> 4 week <input type="radio"/> 5 week	<input type="radio"/> Other <input type="radio"/> Cal. Mo. <input type="radio"/> 4 week <input type="radio"/> 5 week	<input type="radio"/> Other <input type="radio"/> Cal. Mo. <input type="radio"/> 4 week <input type="radio"/> 5 week
2 Sales	S			
3 New Orders (Net of Cancellations) [If applicable]	N			
4 Order Backlog (Unfilled Orders) [If applicable]	U			
5 Total Inventories (Current Cost or Market)	I			
6 Materials and Supplies Inventory	M			
7 Work-In-Process Inventory	W			
8 Finished-Goods Inventory	F			

Remarks: _____

This form is substantially accurate and has been prepared in accordance with the instructions.

Title _____ Date _____
Signature of authorized person _____

Your company's Census File Number, (CFN)

For each item listed, enter the figure in thousands of dollars.

Compare figures for current and previous periods. Correct previous periods if wrong. Explain substantial differences, or large month-to-month fluctuations in the data, in the "Remarks" section.

Chapter B.

Composition of Industry Categories in Terms of the North American Industry Classification System (NAICS)

M3/NAICS code	M3 category title with comparable NAICS titles	M3/NAICS code	M3 category title with comparable NAICS titles
	FOOD PRODUCTS		TEXTILE MILLS—Con.
11A	Grain and Oilseed Milling	313230	Nonwoven Fabric
311211	Flour	313241	Weft Knit Fabric
311212	Rice	313249	Other Knit Fabric and Lace
311213	Malt	313311	Broadwoven Fabric Finishing
311221	Wet Corn	313312	Textile and Fabric Finishing (Except Broadwoven Fabric)
311222	Soybean Processing	313320	Fabric Coating
311223	Other Oilseed Processing		
311225	Fats and Oils Refining and Blending		
311230	Breakfast Cereals		
11B	Dairy Product Manufacturing	14A	Textile Product Mills
311511	Fluid Milk	314110	Carpets and Rugs
311512	Creamery Butter	314121	Curtains and Draperies
311513	Cheese	314129	Other Household Textile Products
311514	Dry, Condensed, and Evaporated Milk	314911	Textile Bags
311520	Ice Cream and Frozen Desserts	314912	Canvas and Related Products
11C	Meat, Poultry, and Seafood Product Processing	314991	Rope, Cordage, and Twine
311611	Animal (Except Poultry) Slaughtering	314992	Tire Cord and Tire Fabrics
311612	Meat Processed From Carcasses	314999	All Other Miscellaneous Textile Products
311613	Rendering and Meat Byproducts		
311615	Poultry Processing		
311711	Seafood Canning		
311712	Fresh and Frozen Seafood		
11D	Other Food Manufacturing	15A	Apparel
311111	Dog and Cat Food	315111	Apparel Manufacturing
311119	Other Animal Food	315119	Sheer Hosiery
311311	Sugarcane	315191	Other Hosiery and Socks
311312	Cane Sugar Refining	315192	Outerwear Knitting
311313	Beet Sugar	315211	Underwear and Nightwear Knitting
311320	Chocolate and Confectionery From Cacao Beans	315212	Men's and Boys' Cut and Sew Apparel Contractors
311330	Confectionery From Purchased Chocolate	315221	Women's, Girls', and Infants' Cut and Sew Apparel Contractors
311340	Nonchocolate Confectionery	315222	Men's and Boys' Cut and Sew Underwear and Nightwear
311411	Frozen Fruits, Juices, and Vegetables	315223	Men's and Boys' Cut and Sew Suits, Coats, and Overcoats
311412	Frozen Specialty Foods	315224	Men's and Boys' Cut and Sew Shirts (Except Work Shirts)
311421	Fruit and Vegetable Canning	315225	Men's and Boys' Cut and Sew Trousers, Slacks, and Jeans
311422	Specialty Canning	315228	Men's and Boys' Cut and Sew Work Clothing
311423	Dried and Dehydrated Foods	315231	Men's and Boys' Cut and Sew Other Outerwear
311811	Retail Bakeries	315232	Women's and Girls' Cut and Sew Lingerie, Loungewear, and Nightwear
311812	Commercial Bakeries	315233	Women's and Girls' Cut and Sew Blouses and Shirts
311813	Frozen Cakes, Pies, and Other Pastries	315234	Women's and Girls' Cut and Sew Dresses
311821	Cookies and Crackers		Women's and Girls' Cut and Sew Suits, Coats, Tailored Jackets, and Skirts
311822	Flour Mixes and Dough From Purchased Flour	315239	Women's and Girls' Cut and Sew Other Outerwear
311823	Dry Pasta	315291	Infants' Cut and Sew Apparel
311830	Tortillas	315292	Fur and Leather Apparel
311911	Roasted Nuts and Peanut Butter	315299	All Other Cut and Sew Apparel
311919	Other Snack Foods	315991	Hats, Caps, and Millinery
311920	Coffee and Tea	315992	Gloves and Mittens
311930	Flavoring Syrups and Concentrates	315993	Men's and Boys' Neckwear
311941	Mayonnaise, Dressing, and Other Prepared Sauces	315999	Other Apparel Accessories and Other Apparel
311942	Spices and Extracts		
311991	Perishable Prepared Foods		
311999	All Other Miscellaneous Foods		
	BEVERAGE AND TOBACCO PRODUCTS	16A	Leather and Allied Product Manufacturing
12A	Beverage Manufacturing	316110	Leather and Hide Tanning and Finishing
312111	Soft Drinks	316211	Rubber and Plastics Footwear
312112	Bottled Water	316212	House Slippers
312113	Ice	316213	Men's Footwear (Except Athletic)
312120	Breweries	316214	Women's Footwear (Except Athletic)
312130	Wineries	316219	Other Footwear
312140	Distilleries	316991	Luggage
12B	Tobacco Manufacturing	316992	Women's Handbags and Purses
312210	Tobacco Stemming and Redrying	316993	Personal Leather Goods (Except Women's Handbags and Purses)
312221	Cigarettes	316999	All Other Leather Goods
312229	Other Tobacco Products		
	TEXTILE MILLS	21A	WOOD PRODUCTS
13A	Textile Mills	321991	Wood Building and Mobile Home Manufacturing
313111	Yarn Spinning	321992	Manufactured Homes (Mobile Homes)
313112	Yarn Texturing, Throwing, and Twisting		Prefabricated Wood Buildings
313113	Thread	21B	Other Wood Product Manufacturing
313210	Broadwoven Fabric	321113	Sawmills
313221	Narrow Fabric	321114	Wood Preservation
313222	Schiffli Machine Embroidery	321211	Hardwood Veneer and Plywood
		321212	Softwood Veneer and Plywood
		321213	Engineered Wood Members (Except Trusses)
		321214	Trusses
		321219	Reconstituted Wood Products

M3/NAICS code	M3 category title with comparable NAICS titles	M3/NAICS code	M3 category title with comparable NAICS titles
	WOOD PRODUCTS—Con.		CHEMICAL PRODUCTS—Con.
321911	Wood Windows and Doors	325199	All Other Basic Organic Chemicals
321912	Cut Stock, Resawing Lumber, and Planing	325211	Plastics Material and Resins
321918	Other Millwork (Including Flooring)	325212	Synthetic Rubber
321920	Wood Containers and Pallets	325221	Cellulosic Organic Fibers
321999	All Other Miscellaneous Wood Products	325222	Noncellulosic Organic Fibers
	PAPER PRODUCTS	325611	Soaps and Detergents
	Pulp, Paper, and Paperboard Mills	325612	Polish and Other Sanitation Goods
322110	Pulp	325613	Surface Active Agents
322121	Paper (Except Newsprint)	325620	Toilet Preparations
322122	Newsprint	325910	Printing Inks
322130	Paperboard	325920	Explosives
	Paperboard Container Manufacturing	325991	Custom Compounding of Purchased Resins
322211	Corrugated and Solid Fiber Boxes	325992	Photographic Film, Paper, Plates, and Chemicals
322212	Folding Paperboard Boxes	325998	All Other Miscellaneous Chemical Products and Preparations
322213	Setup Paperboard Boxes		
322214	Fiber Cans, Tubes, Drums, and Similar Products	26A	PLASTICS AND RUBBER PRODUCTS
322215	Nonfolding Sanitary Food Containers	326211	Tire Manufacturing
	Other Paper Manufacturing	326212	Tires (Except Retreading)
322221	Coated and Laminated Packaging Paper and Plastics Film		Tire Retreading
322222	Coated and Laminated Paper	26B	Other Plastics and Rubber Product Manufacturing
322223	Plastics, Foil, and Coated Paper Bags	326111	Unsupported Plastics Bags
322224	Uncoated Paper and Multiwall Bags	326112	Unsupported Plastics Packaging Film and Sheets
322225	Laminated Aluminum Foil for Flexible Packaging Uses	326113	Unsupported Plastics Film and Sheets (Except Packaging)
322226	Surface-Coated Paperboard	326121	Unsupported Plastics Profile Shapes
322231	Die-Cut Paper and Paperboard Office Supplies	326122	Plastics Pipe and Pipe Fitting
322232	Envelopes	326130	Laminated Plastics Plate, Sheet, and Shapes
322233	Stationery, Tablets, and Related Products	326140	Polystyrene Foam Products
322291	Sanitary Paper Products	326150	Urethane and Other Foam Products (Except Polystyrene)
322299	All Other Converted Paper Products	326160	Plastics Bottles
	PRINTING	326191	Plastics Plumbing Fixtures
	Printing and Related Support Activities	326192	Resilient Floor Coverings
323110	Commercial Lithographic	326199	All Other Plastics Products
323111	Commercial Gravure	326220	Rubber and Plastics Hoses and Belting
323112	Commercial Flexographic	326291	Rubber Product for Mechanical Use
323113	Commercial Screen	326299	All Other Rubber Products
323114	Quick		
323115	Digital	27A	NONMETALLIC MINERAL PRODUCTS
323116	Manifold Business Forms	327111	Nonmetallic Mineral Product Manufacturing
323117	Books	327112	Vitreous China Plumbing Fixture and China and Earthenware Bathroom Accessories
323118	Blankbook, Looseleaf Binders, and Devices	327113	Vitreous China, Fine Earthenware, and Other Pottery Products
323119	Other Commercial	327121	Porcelain Electrical Supplies
323121	Tradebinding and Related Work	327122	Brick and Structural Clay Tiles
323122	Prepress Services	327123	Ceramic Wall and Floor Tiles
	PETROLEUM AND COAL PRODUCTS	327124	Other Structural Clay Products
	Petroleum Refineries	327125	Clay Refractories
324110	Petroleum	327211	Nonclay Refractories
	Asphalt Paving, Roofing, and Saturated Materials Manufacturing	327212	Flat Glass
324121	Asphalt Paving Mixtures and Blocks	327213	Other Pressed and Blown Glass and Glassware
324122	Asphalt Shingle and Coating Materials	327215	Glass Containers
	Other Petroleum and Coal Products Manufacturing	327310	Glass Product Made of Purchased Glass
324191	Petroleum Lubricating Oils and Greases	327320	Cement
324199	All Other Petroleum and Coal Products	327331	Ready-Mix Concrete
	CHEMICAL PRODUCTS	327332	Concrete Block and Brick
	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	327390	Concrete Pipe
325311	Nitrogenous Fertilizer	327410	Other Concrete Products
325312	Phosphatic Fertilizer	327420	Lime
325314	Fertilizer (Mixing Only)	327910	Gypsum Products
325320	Pesticides and Agricultural Chemicals	327991	Abrasive Products
	Pharmaceutical and Medicine Manufacturing	327992	Cut Stone and Stone Products
325411	Medicinals and Botanicals	327993	Ground or Treated Mineral and Earth
325412	Pharmaceutical Preparations	327999	Mineral Wool
325413	In-Vitro Diagnostic Substances		All Other Miscellaneous Nonmetallic Mineral Products
325414	Biological Products (Except Diagnostic)	31A	PRIMARY METALS
	Paint, Coating, and Adhesive Manufacturing	331111	Iron and Steel Mills and Ferrous and Ferroalloy and Steel Products Manufacturing
325510	Paints and Coatings	331112	Iron and Steel
325520	Adhesives	331210	Electrometallurgical Ferroalloy Products
	Other Chemical Manufacturing	331221	Iron and Steel Pipes and Tubes From Purchased Steel
325110	Petrochemicals	331222	Rolled Steel Shapes
325120	Industrial Gases		Steel Wire Drawing
325131	Inorganic Dyes and Pigments	31B	Alumina, Aluminum, and Nonferrous Metal Production and Processing
325132	Synthetic Organic Dyes and Pigments	331311	Alumina Refining
325181	Alkalies and Chlorines	331312	Primary Aluminum Production
325182	Carbon Black	331314	Secondary Smelting and Alloying of Aluminum
325188	All Other Basic Inorganic Chemicals	331315	Aluminum Sheet, Plate, and Foil
325191	Gum and Wood Chemicals	331316	Aluminum Extruded Products
325192	Cyclic Crudes and Intermediates	331319	Other Aluminum Rolling and Drawing
325193	Ethyl Alcohol	331411	Primary Smelting and Refining of Copper
		331419	Primary Smelting and Refining of Nonferrous Metal (Except Copper and Aluminum)
		331421	Copper Rolling, Drawing, and Extruding
		331422	Copper Wire (Except Mechanical) Drawing
		331423	Secondary Smelting, Refining, and Alloying of Copper

M3/NAICS code	M3 category title with comparable NAICS titles	M3/NAICS code	M3 category title with comparable NAICS titles
	PRIMARY METALS—Con.		MACHINERY—Con.
331491	Nonferrous Metal (Except Copper and Aluminum) Rolling, Drawing, Extruding, and Alloying	333210	Sawmill and Woodworking Machinery
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (Except Copper and Aluminum)	333220	Plastics and Rubber Industry Machinery
31C	Ferrous Metal Foundries	333291	Paper Industry Machinery
331511	Iron	333292	Textile Machinery
331512	Steel Investment	333293	Printing Machinery and Equipment
331513	Steel (Except Investment)	333294	Food Product Machinery
31D	Nonferrous Metal Foundries	333295	Semiconductor Machinery
331521	Aluminum Die-Casting	333298	All Other Industrial Machinery
331522	Nonferrous (Except Aluminum) Die-Casting	33F	Vending, Laundry, and Other Machinery Manufacturing
331524	Aluminum (Except Die-Casting)	333311	Automatic Vending Machines
331525	Copper (Except Die-Casting)	333312	Commercial Laundry, Drycleaning, and Pressing Machines
331528	Other Nonferrous (Except Die-Casting)	333319	Other Commercial and Service Industry Machinery
	FABRICATED METAL PRODUCTS	33G	Photographic Equipment Manufacturing
32A	Forging and Stamping	333313	Office Machinery
332111	Iron and Steel Forging	333314	Optical Instruments and Lenses
332112	Nonferrous Forging	333315	Photographic and Photocopying Equipment
332114	Custom Roll Forming	33H	Ventilation, Heating, Air-Conditioning, and Refrigeration Equipment Manufacturing
332115	Crowns and Closures	333411	Air Purification Equipment
332116	Metal Stampings	333412	Industrial and Commercial Fans and Blowers
332117	Powder Metallurgy Parts	333414	Heating Equipment (Except Warm Air Furnaces)
32B	Cutlery and Handtool Manufacturing	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment
332211	Cutlery and Flatware (Except Precious)	33I	Metalworking Machinery Manufacturing
332212	Hand and Edge Tools	333511	Industrial Molds
332213	Saw Blades and Handsaws	333512	Machine Tools (Metal Cutting Types)
332214	Kitchen Utensils, Pots, and Pans	333513	Machine Tools (Metal Forming Types)
32C	Boiler, Tank, and Shipping Container Manufacturing	333514	Special Dies and Tools, Die Sets, Jigs, and Fixtures
332410	Power Boilers and Heat Exchangers	333515	Cutting Tools and Machine Tool Accessories
332420	Metal Tanks (Heavy Gauge)	333516	Rolling Mill Machinery and Equipment
332431	Metal Cans	333518	Other Metalworking Machinery
332439	Other Metal Containers	33J	Turbine and Generator Manufacturing
32D	Metal Valve Manufacturing	333611	Turbines and Turbine Generator Set Units
332911	Industrial Valves	33K	Other Power Transmission Equipment Manufacturing
332912	Fluid Power Valves and Hose Fittings	333612	Speed Changers, Industrial High-Speed Drives, and Gears
332913	Plumbing Fixture Fittings and Trim	333613	Mechanical Power Transmission Equipment
332919	Other Metal Valve and Pipe Fittings	333618	Other Engine Equipment
32E	Small Arms and Ordnance Manufacturing, Nondefense	33L	Pump and Compressor Manufacturing
332992	Small Arms Ammunition	333911	Pumps and Pumping Equipment
332993	Ammunition (Except Small Arms)	333912	Air and Gas Compressors
332994	Small Arms	333913	Measuring and Dispensing Pumps
332995	Other Ordnance and Accessories	33M	Material Handling Equipment Manufacturing
32F	Small Arms and Ordnance Manufacturing, Defense	333921	Elevators and Moving Stairways
332992	Small Arms Ammunition	333922	Conveyors and Conveying Equipment
332993	Ammunition (Except Small Arms)	333923	Overhead Traveling Cranes, Hoists, and Monorail Systems
332994	Small Arms	333924	Industrial Trucks, Tractors, Trailers, and Stacker Machinery
332995	Other Ordnance and Accessories	33N	All Other Machinery Manufacturing
32G	Other Fabricated Metal Product Manufacturing	333991	Power-Driven Handtools
332311	Prefabricated Metal Buildings and Components	333992	Welding and Soldering Equipment
332312	Fabricated Structural Metal	333993	Packaging Machinery
332313	Plate Work	333994	Industrial Process Furnaces and Ovens
332321	Metal Windows and Doors	333995	Fluid Power Cylinders and Actuators
332322	Sheet Metal Work	333996	Fluid Power Pumps and Motors
332323	Ornamental and Architectural Metal Work	333997	Scales and Balances (Except Laboratory)
332510	Hardware	333999	All Other Miscellaneous General Purpose Machinery
332611	Spring (Heavy Gauge)		COMPUTERS AND ELECTRONIC PRODUCTS
332612	Spring (Light Gauge)	34A	Computer Manufacturing
332618	Other Fabricated Wire Products	334111	Computers
332710	Machine Shops	34B	Computer Storage Device Manufacturing
332721	Precision Turned Products	334112	Computer Storage Devices
332722	Bolts, Nuts, Screws, Rivets, and Washers	34C	Other Computer Peripheral Equipment Manufacturing
332811	Metal Heat Treating	334113	Computer Terminals
332812	Metal Coating, Engraving (Except Jewelry and Silverware), and Allied Services to Manufacturers	334119	Other Computer Peripheral Equipment
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	34D	Communications Equipment Manufacturing, Nondefense
332991	Ball and Roller Bearings	334210	Telephone Apparatus
332996	Fabricated Pipe and Pipe Fittings	334220	Radio and Television Broadcasting and Wireless Communications Equipment
332997	Industrial Patterns		Other Communications Equipment
332998	Enameled Iron and Metal Sanitary Ware	34E	Communications Equipment Manufacturing, Defense
332999	All Other Miscellaneous Fabricated Metal Products	334210	Telephone Apparatus
	MACHINERY	334220	Radio and Television Broadcasting and Wireless Communications Equipment
33A	Farm Machinery and Equipment Manufacturing	334290	Other Communications Equipment
333111	Farm Machinery and Equipment	34F	Audio and Video Equipment Manufacturing
33B	Lawn and Garden Tractors and Equipment Manufacturing	334310	Audio and Video Equipment
333112	Lawn and Garden Tractors and Home Lawn and Garden Equipment	34G	Semiconductor and Related Device Manufacturing
33C	Construction Machinery Manufacturing	334413	Semiconductors and Related Devices
333120	Construction Machinery	34H	Other Electronic Component Manufacturing
33D	Mining, Oil, and Gas Field Machinery Manufacturing	334411	Electron Tubes
333131	Mining Machinery and Equipment	334412	Bare Printed Circuit Boards
333132	Oil and Gas Field Machinery and Equipment	334414	Electronic Capacitors
33E	Industrial Machinery Manufacturing	334415	Electronic Resistors

M3/NAICS code	M3 category title with comparable NAICS titles	M3/NAICS code	M3 category title with comparable NAICS titles
	COMPUTERS AND ELECTRONIC PRODUCTS—Con.		TRANSPORTATION EQUIPMENT—Con.
334416	Electronic Coils, Transformers, and Other Inductors	336360	Motor Vehicle Seating and Interior Trim
334417	Electronic Connectors	336370	Motor Vehicle Metal Stamping
334418	Printed Circuit Assemblies (Electronic Assemblies)	336391	Motor Vehicle Air-Conditioning
334419	Other Electronic Components	336399	All Other Motor Vehicle Parts
34I	Search and Navigation Equipment Manufacturing, Nondefense	36F	Aircraft Manufacturing, Nondefense
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instruments	336411	Aircraft
34J	Search and Navigation Equipment Manufacturing, Defense	36G	Aircraft Manufacturing, Defense
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instruments	336411	Aircraft
34K	Electromedical, Measuring, and Control Instrument Manufacturing	36H	Aircraft Engine and Parts Manufacturing, Nondefense
334510	Electromedical and Electrotherapeutic Apparatus	336412	Aircraft Engines and Engine Parts
334512	Automatic Environmental Controls for Residential, Commercial, and Appliance Use	336413	Other Aircraft Parts and Auxiliary Equipment
334513	Instruments and Related Products for Measuring, Displaying, and Controlling Industrial Process Variables	36I	Aircraft Engine and Parts Manufacturing, Defense
334514	Totalizing Fluid Meters and Counting Devices	336412	Aircraft Engines and Engine Parts
334515	Instruments for Measuring and Testing Electricity and Electrical Signals	336413	Other Aircraft Parts and Auxiliary Equipment
334516	Analytical Laboratory Instruments	36J	Missile, Space Vehicle, and Parts Manufacturing, Defense
334517	Irradiation Apparatus	336414	Guided Missiles and Space Vehicles
334518	Watches, Clocks, and Parts	336415	Guided Missiles and Space Vehicle Propulsion Units and Propulsion Unit Parts
334519	Other Measuring and Controlling Devices	336419	Other Guided Missiles and Space Vehicle Parts and Auxiliary Equipment
34L	Manufacturing and Reproducing Magnetic and Optical Media	36K	Railroad Rolling Stock
334611	Software Reproducing	336510	Railroad Rolling Stock
334612	Prerecorded Compact Discs (Except Software), Tapes, and Record Reproducing	36L	Ship and Boat Building, Nondefense
334613	Magnetic and Optical Recording Media	336611	Ship Building and Repairing
	ELECTRICAL EQUIPMENT, APPLIANCES, AND COMPONENTS	336612	Boat Building
35A	Electric Lighting Equipment Manufacturing	36M	Ship and Boat Building, Defense
335110	Electric Lamp Bulbs and Parts	336611	Ship Building and Repairing
335121	Residential Electric Lighting Fixtures	336612	Boat Building
335122	Commercial, Industrial, and Institutional Electric Lighting Fixtures	36N	Other Transportation Equipment
335129	Other Lighting Equipment	336991	Motorcycles, Bicycles, and Parts
35B	Household Appliance Manufacturing	336992	Military Armored Vehicles, Tanks, and Tank Components
335211	Electric Housewares and Household Fans	336999	All Other Transportation Equipment
335212	Household Vacuum Cleaners		
335221	Household Cooking Appliances	37A	Household Furniture and Kitchen Cabinet Manufacturing
335222	Household Refrigerators and Home Freezers	337110	Wood Kitchen Cabinets and Counter Tops
335224	Household Laundry Equipment	337121	Upholstered Household Furniture
335228	Other Major Household Appliances	337122	Wood Household Furniture (Except Upholstered)
35C	Electrical Equipment Manufacturing	337124	Metal Household Furniture
335311	Power, Distribution, and Specialty Transformers	337125	Household Furniture (Except Wood and Metal)
335312	Motors and Generators	337129	Wood Television, Radio, and Sewing Machine Cabinets
335313	Switchgear and Switchboard Apparatus	37B	Office Furniture and Institutional Furniture Manufacturing
335314	Relays and Industrial Controls	337127	Institutional Furniture
35D	Battery Manufacturing	337211	Wood Office Furniture
335911	Storage Batteries	337212	Custom Architectural Woodwork and Millwork
335912	Primary Batteries	337214	Office Furniture (Except Wood)
35E	Other Electrical Equipment, Appliance, and Component Manufacturing	337215	Showcases, Partitions, Shelving, and Lockers
335921	Fiber Optic Cables	37C	Other Furniture Related Product Manufacturing
335929	Other Communication and Energy Wires	337910	Mattresses
335931	Current-Carrying Wiring Devices	337920	Blinds and Shades
335932	Noncurrent-Carrying Wiring Devices		
335991	Carbon and Graphite Products	39A	Medical Equipment and Supplies Manufacturing
335999	All Other Miscellaneous Electrical Equipment and Components	339111	Laboratory Apparatus and Furniture
	TRANSPORTATION EQUIPMENT	339112	Surgical and Medical Instruments
36A	Automobile Manufacturing	339113	Surgical Appliances and Supplies
336111	Automobiles	339114	Dental Equipment and Supplies
36B	Light Truck and Utility Vehicle Manufacturing	339115	Ophthalmic Goods
336112	Light Trucks and Utility Vehicles	339116	Dental Laboratories
36C	Heavy Duty Truck Manufacturing	39B	Sporting Goods, Doll, Toy, and Game Manufacturing
336120	Heavy Duty Trucks	339920	Sporting and Athletic Goods
36D	Motor Vehicle Body and Trailer Manufacturing	339931	Dolls and Stuffed Toys
336211	Motor Vehicle Bodies	339932	Games, Toys, and Children's Vehicles
336212	Truck Trailers	39C	Office Supplies (Except Paper) Manufacturing
336213	Motor Homes	339941	Pens and Mechanical Pencils
336214	Travel Trailers and Campers	339942	Lead Pencils and Art Goods
36E	Motor Vehicle Parts Manufacturing	339943	Marking Devices
336311	Carburetors, Pistons, Piston Rings, and Valves	339944	Carbon Paper and Inked Ribbons
336312	Gasoline Engines and Engine Parts	39D	Other Miscellaneous Manufacturing
336321	Vehicular Lighting Equipment	339911	Jewelry (Except Costume)
336322	Other Motor Vehicle Electrical and Electronic Equipment	339912	Silverware and Holloware
336330	Motor Vehicle Steering and Suspension Components (Except Spring)	339913	Jewelers' Material and Lapidary Work
336340	Motor Vehicle Brake Systems	339914	Costume Jewelry and Novelties
336350	Motor Vehicle Transmission and Power Train Parts	339950	Signs
		339991	Gaskets, Packing, and Sealing Devices
		339992	Musical Instruments
		339993	Fasteners, Buttons, Needles, and Pins
		339994	Brooms, Brushes, and Mops
		339995	Burial Caskets
		339999	All Other Miscellaneous Products

Chapter C.

Composition of Aggregate Data Series in Terms of M3 Industry Series

<p>NONDEFENSE CAPITAL GOODS</p> <p>32E Small arms and ordnance manufacturing, nondefense 33A Farm machinery and equipment manufacturing 33C Construction machinery manufacturing 33D Mining, oil, and gas field machinery manufacturing 33E Industrial machinery manufacturing 33F Vending, laundry, and other machinery manufacturing 33G Photographic equipment manufacturing 33I Metalworking machinery manufacturing 33J Turbine and generator manufacturing 33K Other power transmission equipment manufacturing 33L Pump and compressor manufacturing 33M Material handling equipment manufacturing 33N All other machinery manufacturing 34A Computer manufacturing 34B Computer storage device manufacturing 34C Other computer peripheral equipment manufacturing 34D Communications equipment manufacturing, nondefense 34I Search and navigation equipment manufacturing, nondefense 34K Electromedical, measuring, and control instrument manufacturing 35C Electrical equipment manufacturing 35E Other electrical equipment, appliance, and component manufacturing 36C Heavy duty truck manufacturing 36F Aircraft manufacturing, nondefense 36K Railroad rolling stock 36L Ship and boat building, nondefense 37B Office furniture and institutional furniture manufacturing 39A Medical equipment and supplies manufacturing</p> <p>DEFENSE CAPITAL GOODS</p> <p>32F Small arms and ordnance manufacturing, defense 34E Communications equipment manufacturing, defense 34J Search and navigation equipment manufacturing, defense 36G Aircraft manufacturing, defense 36J Missile, space vehicle, and parts manufacturing, defense 36M Ship and boat building, defense</p> <p>CONSUMER DURABLE GOODS</p> <p>21A Wood building and mobile home manufacturing 32B Cutlery and handtool manufacturing 32E Small arms and ordnance manufacturing, nondefense 33B Lawn and garden tractors and equipment manufacturing 34F Audio and video equipment manufacturing 35B Household appliance manufacturing 36A Automobile manufacturing 36B Light truck and utility vehicle manufacturing 36L Ship and boat building, nondefense 37A Household furniture and kitchen cabinet manufacturing 37C Other furniture related product manufacturing 39B Sporting goods, doll, toy, and game manufacturing 39C Office supplies (except paper) manufacturing 39D Other miscellaneous manufacturing</p>	<p>CONSUMER NONDURABLE GOODS</p> <p>11A Grain and oilseed milling 11B Dairy product manufacturing 11C Meat, poultry, and seafood product processing 11D Other food manufacturing 12A Beverage manufacturing 12B Tobacco manufacturing 14A Textile product mills 15A Apparel manufacturing 16A Leather and allied product manufacturing 22A Pulp, paper, and paperboard mills 22C Other paper manufacturing 24A Petroleum refining 24C Other petroleum and coal products manufacturing 25B Pharmaceutical and medicine manufacturing</p> <p>CONSTRUCTION MATERIALS AND SUPPLIES</p> <p>21B Other wood product manufacturing 24B Asphalt paving, roofing, and saturated materials manufacturing 25C Paint, coating, and adhesive manufacturing 27A Nonmetallic mineral product manufacturing 32G Other fabricated metal product manufacturing 33H Ventilation, heating, air-conditioning, and refrigeration equipment manufacturing 35A Electric lighting equipment manufacturing</p> <p>INFORMATION TECHNOLOGY INDUSTRIES</p> <p>33G Photographic equipment manufacturing 34A Computer manufacturing 34B Computer storage device manufacturing 34C Other computer peripheral equipment manufacturing 34D Communications equipment manufacturing, nondefense 34E Communications equipment manufacturing, defense 34F Audio and video equipment 34I Search and navigation equipment, nondefense 34J Search and navigation equipment, defense 34K Electromedical, measuring, and control instrument manufacturing 34L Manufacturing and reproducing magnetic and optical media 35E Other electrical equipment, appliance, and component manufacturing</p> <p>COMPUTERS AND RELATED PRODUCTS</p> <p>34A Computer manufacturing 34B Computer storage device manufacturing 34C Other computer peripheral equipment manufacturing</p> <p>MOTOR VEHICLES AND PARTS</p> <p>36A Automobile manufacturing 36B Light truck and utility vehicle manufacturing 36C Heavy duty truck manufacturing 36D Motor vehicle body and trailer manufacturing 36E Motor vehicle parts manufacturing</p>
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Chapter D.

Benchmarking Procedures Used in Revising Monthly M3 Time Series

The mathematical technique used in benchmarking data in the M3 survey generally follows a trend revision minimization approach with constraints determined by annual benchmarks. The objective function F

$$F = \sum_{i=0}^{n-1} [(Y_{i+1}/Y_i) - (X_{i+1}/X_i)]^2$$

defines the sum of squared differences in the month-to-month trend between the original (X values) and revised (Y values) data. In the objective function, the value $i = 0$ corresponds to the link or anchor month. The anchor month's value is not revised by the benchmarking procedure. The value n determines the span of months, beginning with the anchor month, to be considered in the benchmarking procedure. All months within this span, except for the anchor month, are revised based on constraints defined below. Since the count begins with $i = 0$, the last month in the span is represented by $i = n-1$.

For shipments and inventories, the anchor month is December 2000. The value n is 55 and represents the 55-month period ranging from December 2000 to June 2005. For unfilled orders, the anchor month is December 2000. The value n is 55 and represents the 55 months from December 2000 to June 2005. Therefore, when benchmarking,

December 2000 corresponds to $i = 0$ for shipments, inventories, and unfilled orders,

June 2005 corresponds to $i = n-1 = 54$ for shipments and inventories and to $i = n-1 = 54$ for unfilled orders,

Y_{i+1}/Y_i is the revised ratio of change from month i to month $i + 1$, and

X_{i+1}/X_i is the original ratio of change from month i to month $i + 1$.

For shipments, inventories, and unfilled orders, monthly data for the 89 M3 industry categories are benchmarked using the trend minimization function F .

When benchmarking shipments, the constraints are:

$$\sum Y_i = 2001 \text{ ASM benchmark: } i \in 2001$$

$$\sum Y_i = 2002 \text{ Economic Census benchmark: } i \in 2002$$

$$\sum Y_i = 2003 \text{ ASM benchmark: } i \in 2003$$

$$\sum Y_i = 2004 \text{ ASM benchmark: } i \in 2004$$

When benchmarking inventories, the constraints are:

$$Y_{12} = \text{December 2001 ASM inventories benchmark}$$

$$Y_{24} = \text{December 2002 Economic Census inventories benchmark}$$

$$Y_{36} = \text{December 2003 ASM inventories benchmark}$$

$$Y_{48} = \text{December 2004 inventories benchmark}$$

When benchmarking unfilled orders, the constraints are:

$$Y_{12} = \text{December 2001 unfilled orders benchmark}$$

$$Y_{24} = \text{December 2002 unfilled orders benchmark}$$

$$Y_{36} = \text{December 2003 unfilled orders benchmark}$$

$$Y_{48} = \text{December 2004 unfilled orders benchmark}$$

All benchmarks for unfilled orders are derived since the item is not collected in the ASM or census. It is derived each year by assuming that the ratio of the benchmark value to the original December unfilled orders value is the same as the ratio of the shipments benchmark value to the sum of the monthly original shipments values.

The three stages of fabrication inventories (finished goods, work in process, and materials and supplies) are benchmarked in similar fashion to total inventories. However, stage of fabrication inventories are tabulated only at three-digit NAICS subsector levels. Therefore, the monthly benchmarked results are summed across industry categories to the subsector level. If, after benchmarking, the sum of the three detail values does not equal the total inventories value for a given month at the subsector level, then the imbalance is eliminated by raking the difference across the stages. The raking is performed by adjusting each original (i.e., benchmarked) detail value by the ratio of total inventories for the month to the sum of the original details.

Monthly new orders estimates are derived consistent with the benchmarked shipments and unfilled orders monthly data using the following formula:

$$X_i = S_i + (Y_i - Y_{i-1})$$

for $i = 1$ through $n-1 = 54$, and where

$i = 1$ corresponds to January 2001,

$i = 54$ corresponds to June 2005,

X_i is benchmarked new orders for month i ,

S_i is benchmarked shipments for month i , and

Y_i is benchmarked unfilled orders for month i .

Table D-1. **Benchmark Data for Shipments and Total Inventories for M3 Industry Categories: 2001-2003**

[Million dollars]

Industry category	Shipments			Inventories		
	2001	2002	2003	2001	2002	2003
All manufacturing industries	4 022 901	3 920 559	3 979 846	436 622	412 647	407 712
Durable good industries	2 203 102	2 128 096	2 137 970	271 597	253 028	246 262
Wood products	88 550	88 986	91 240	9 146	9 509	9 410
Wood building and mobile home manufacturing	11 052	10 459	9 570	629	609	620
Other wood product manufacturing	77 498	78 527	81 670	8 517	8 900	8 790
Nonmetallic mineral products	94 460	95 265	96 349	9 009	9 502	9 464
Primary metals	137 469	139 449	136 839	19 887	19 617	18 231
Iron and steel mills and ferroalloy and steel product manufacturing	60 803	62 043	61 175	11 188	10 906	9 559
Alumina, aluminum, and nonferrous metal production and processing	49 180	50 774	49 923	5 983	6 133	6 180
Ferrous metal foundries	16 584	15 037	14 653	1 798	1 587	1 519
Nonferrous metal foundries	10 902	11 595	11 088	918	991	973
Fabricated metal products	258 918	246 735	244 662	31 070	30 649	30 777
Forging and stamping	25 899	21 315	21 740	3 061	2 783	2 783
Cutlery and handtool manufacturing	11 793	10 459	10 107	1 680	1 767	1 672
Boiler, tank, and shipping container manufacturing	22 810	23 019	22 695	2 401	2 387	2 330
Metal valve manufacturing	21 992	21 476	21 325	4 279	3 865	3 772
Small arms and ordnance manufacturing	4 434	5 066	5 901	871	1 000	1 031
Other fabricated metal product manufacturing	171 990	165 400	162 894	18 778	18 847	19 189
Machinery	268 457	253 061	253 600	45 966	40 474	39 066
Farm machinery and equipment manufacturing	15 017	14 691	15 555	2 131	2 097	2 003
Lawn and garden tractors and equipment manufacturing	7 891	6 837	8 065	827	971	1 139
Construction machinery manufacturing	20 057	19 253	20 180	3 916	3 183	2 966
Mining, oil, and gas field machinery manufacturing	9 011	7 452	7 586	2 034	2 166	2 129
Industrial machinery manufacturing	35 138	30 216	28 965	7 729	6 404	5 772
Vending, laundry, and other machinery manufacturing	10 965	13 568	13 354	1 853	2 031	2 077
Photographic equipment manufacturing	10 952	7 863	7 548	1 431	1 203	1 156
Ventilation, heating, air-conditioning, and refrigeration equipment manufacturing	34 246	32 012	32 084	3 933	3 290	3 329
Metalworking machinery manufacturing	26 689	25 538	24 466	5 441	4 441	4 115
Turbine and generator manufacturing	11 107	14 966	13 631	2 010	1 607	1 411
Other power transmission equipment manufacturing	24 025	23 469	25 012	3 185	3 012	2 971
Pump and compressor manufacturing	14 629	12 701	13 739	2 591	2 321	2 524
Material handling equipment manufacturing	18 059	15 562	15 552	2 688	2 161	2 060
All other machinery manufacturing	30 671	28 933	27 863	6 197	5 587	5 414
Computers and electronic products	434 427	358 257	353 667	52 001	44 733	42 369
Computer manufacturing	54 782	47 734	45 618	3 076	1 964	1 709
Computer storage device manufacturing	13 449	9 423	8 408	1 111	1 204	1 011
Other computer peripheral equipment manufacturing	24 364	16 395	14 742	2 848	2 089	1 687
Communications equipment manufacturing	100 374	64 966	60 506	11 520	11 305	10 483
Audio and video equipment manufacturing	8 436	8 862	8 648	887	833	844
Semiconductor and related device manufacturing	68 308	61 447	66 644	6 665	5 505	5 315
Other electronic component manufacturing	58 208	48 938	46 563	9 090	6 936	6 336
Search and navigation equipment manufacturing	34 309	32 227	34 212	6 322	4 652	5 313
Electromedical, measuring, and control instrument manufacturing	64 215	60 711	61 348	10 057	9 852	9 283
Manufacturing and reproducing magnetic and optical media	7 982	7 554	6 978	425	393	388
Electrical equipment, appliances, and components	116 919	104 473	101 770	13 307	12 116	11 402
Electric lighting equipment manufacturing	12 514	12 396	11 897	1 417	1 458	1 349
Household appliance manufacturing	24 448	22 883	23 813	2 037	1 805	1 699
Electrical equipment manufacturing	34 316	31 774	30 611	4 645	3 876	3 738
Battery manufacturing	7 177	6 386	6 176	626	534	523
Other electrical equipment, appliance, and component manufacturing	38 464	31 034	29 273	4 582	4 443	4 093
Transportation equipment	613 837	637 677	653 491	66 633	61 055	59 593
Automobile manufacturing	92 921	88 108	85 118	1 586	1 581	1 761
Light truck and utility vehicle manufacturing	115 338	137 070	158 538	1 583	2 087	2 119
Heavy duty truck manufacturing	13 357	16 101	15 922	821	953	1 010
Motor vehicle body and trailer manufacturing	25 856	24 364	25 852	3 277	3 135	3 061
Motor vehicle parts manufacturing	192 433	204 587	200 491	12 506	13 149	13 239
Aircraft manufacturing	68 704	64 375	62 988	25 460	25 123	23 958
Aircraft engine and parts manufacturing	49 629	44 438	44 221	9 887	8 254	7 574
Missile, space vehicle, and parts manufacturing	17 092	16 083	16 863	5 692	1 652	1 629
Railroad rolling stock	7 469	7 923	7 514	1 573	1 376	1 429
Ship and boat building	18 147	21 264	22 073	2 715	2 260	2 372
Other transportation equipment	12 891	13 364	13 911	1 533	1 485	1 441
Furniture and related products	70 885	77 243	76 621	7 216	7 744	7 488
Household furniture and kitchen cabinet manufacturing	37 540	41 474	40 655	4 504	4 650	4 577
Office furniture and institutional furniture manufacturing	25 822	27 838	28 014	2 049	2 494	2 344
Other furniture related product manufacturing	7 523	7 931	7 952	663	600	567
Miscellaneous products	119 180	126 950	129 731	17 362	17 629	18 462
Medical equipment and supplies manufacturing	58 608	62 446	65 779	8 252	7 817	8 597
Sporting goods, doll, toy, and game manufacturing	15 644	16 238	16 086	2 686	2 567	2 602
Office supplies manufacturing	3 727	4 260	4 046	437	521	554
Other miscellaneous manufacturing	41 201	44 006	43 820	5 987	6 724	6 709
Nondurable goods industries	1 819 799	1 792 463	1 841 876	165 025	159 619	161 450
Food products	456 692	460 020	482 815	33 273	31 500	31 645
Grain and oilseed milling	46 934	47 664	52 977	3 520	3 453	3 720
Dairy product manufacturing	66 875	66 232	67 478	3 187	3 269	3 505
Meat, poultry, and seafood product manufacturing	134 767	132 161	143 460	5 798	5 384	5 717
Other food manufacturing	208 116	213 963	218 900	20 768	19 394	18 703
Beverage and tobacco products	117 422	105 691	106 873	14 696	14 862	14 625

See footnote at end of table.

Table D-1. **Benchmark Data for Shipments and Total Inventories for M3 Industry Categories: 2001-2003—Con.**

[Million dollars]

Industry category	Shipments			Inventories		
	2001	2002	2003	2001	2002	2003
Nondurable goods industries—Con.						
Beverage manufacturing	65 239	66 067	67 796	9 116	9 699	9 473
Tobacco manufacturing	52 183	39 624	39 077	5 580	5 163	5 152
Textile mills	45 141	45 549	42 557	5 586	4 774	4 594
Textile products	34 165	31 806	30 827	4 401	3 353	3 447
Apparel	56 545	44 515	40 624	7 889	5 802	5 506
Leather and allied products	8 108	6 299	6 003	1 603	876	827
Paper products	159 150	153 656	149 271	14 604	14 298	13 575
Pulp, paper, and paperboard mills	75 471	69 941	66 651	6 604	6 518	6 122
Paperboard container manufacturing	46 518	43 434	43 108	4 037	3 905	3 670
Other paper manufacturing	37 161	40 281	39 512	3 963	3 875	3 783
Printing	99 303	95 386	92 191	5 811	5 809	5 697
Petroleum and coal products	222 356	215 190	237 010	11 179	14 227	15 896
Petroleum refineries	202 294	193 530	213 998	9 897	12 673	14 231
Asphalt paving, roofing, and saturated materials manufacturing	12 066	13 444	14 161	580	825	898
Other petroleum and coal products manufacturing	7 996	8 216	8 851	702	729	767
Chemical products	442 790	460 451	477 360	49 567	48 362	49 579
Pesticide, fertilizer, and other agricultural chemical manufacturing	19 371	19 295	21 132	2 600	2 222	2 197
Pharmaceutical and medicine manufacturing	126 450	141 146	148 099	17 691	17 494	18 362
Paint, coating, and adhesive manufacturing	27 452	27 446	27 570	2 800	2 403	2 472
Other chemical manufacturing	269 517	272 564	280 559	26 476	26 243	26 548
Plastics and rubber products	178 127	173 900	176 345	16 416	15 756	16 059
Tire manufacturing	15 198	14 744	15 357	1 190	1 123	1 155
Other plastics and rubber product manufacturing	162 929	159 156	160 988	15 226	14 633	14 904

Note: Detail may not add to total because of independent rounding.

Table D-2. **Benchmark Data for Inventories by Stage of Fabrication for M3 Industry Categories: 2001-2003**

[Million dollars]

Industry category	2001	2002	2003
ALL MANUFACTURING INDUSTRIES			
Materials and supplies	1 927 430	1 757 323	1 718 240
Work-in-process	1 638 773	1 481 732	1 452 133
Finished goods	2 046 990	1 892 696	1 893 189
Durable Goods Industries			
Materials and supplies	1 202 628	1 080 734	1 025 435
Work-in-process	1 295 850	1 140 604	1 105 601
Finished goods	1 047 678	958 635	944 416
Wood Products			
Materials and supplies	43 998	43 017	44 098
Work-in-process	25 863	25 443	21 989
Finished goods	47 939	45 972	47 145
Nonmetallic Mineral Products			
Materials and supplies	42 026	41 536	43 257
Work-in-process	15 411	14 536	15 883
Materials and supplies	58 649	55 304	61 792
Primary Metals			
Materials and supplies	82 608	76 233	75 438
Work-in-process	85 746	77 560	74 356
Finished goods	81 595	75 423	76 426
Fabricated Metal Products			
Materials and supplies	133 963	128 272	130 760
Work-in-process	128 659	114 310	110 291
Finished goods	138 303	132 433	143 814
Machinery			
Materials and supplies	199 659	179 903	168 565
Work-in-process	200 620	170 603	151 674
Finished goods	194 796	171 462	164 925
Computers and Electronic Products			
Materials and supplies	299 407	237 621	199 626
Work-in-process	272 694	229 151	213 406
Finished goods	164 743	130 688	115 963
Electrical Equipment, Appliances, and Components			
Materials and supplies	66 063	60 130	57 830
Work-in-process	41 671	35 342	32 198
Finished goods	65 827	62 695	55 831
Transportation Equipment			
Materials and supplies	216 901	199 282	188 734
Work-in-process	464 668	418 462	426 997
Finished goods	157 533	149 594	134 563
Furniture and Related Products			
Materials and supplies	42 504	39 713	41 893
Work-in-process	20 057	18 241	18 112
Finished goods	35 054	31 617	35 715
Miscellaneous Products			
Materials and supplies	75 499	75 027	75 234
Work-in-process	40 461	36 956	40 695
Finished goods	103 239	103 447	108 242
Nondurable Goods Industries			
Materials and supplies	724 802	676 589	692 805
Work-in-process	342 923	341 128	346 532
Finished goods	999 312	934 061	948 773
Food Products			
Materials and supplies	128 857	126 836	130 524
Work-in-process	32 959	31 760	31 534
Finished goods	229 429	229 701	220 566

See footnote at end of table.

Table D-2. **Benchmark Data for Inventories by Stage of Fabrication for M3 Industry Categories: 2001-2003—Con.**

[Million dollars]

Industry category	2001	2002	2003
ALL MANUFACTURING INDUSTRIES—Con.			
Nondurable Goods Industries—Con.			
Beverage and Tobacco Products			
Materials and supplies	70 898	67 928	63 465
Work-in-process	46 005	48 559	48 342
Finished goods	54 173	58 800	63 556
Textile Mills			
Materials and supplies	22 362	17 671	16 653
Work-in-process	18 486	15 390	15 474
Finished goods	34 808	29 427	27 199
Textile Products			
Materials and supplies	20 020	16 821	15 267
Work-in-process	10 301	8 653	7 270
Finished goods	26 574	22 244	20 247
Apparel			
Materials and supplies	26 121	19 600	17 507
Work-in-process	20 764	16 055	13 547
Finished goods	62 810	45 383	42 039
Leather and Allied Products			
Materials and supplies	5 803	3 724	3 112
Work-in-process	2 902	1 854	1 554
Finished goods	12 767	8 345	5 816
Paper Products			
Materials and supplies	87 288	81 930	79 514
Work-in-process	15 956	16 007	14 686
Finished goods	75 122	74 124	75 232
Printing			
Materials and supplies	36 238	32 861	33 554
Work-in-process	23 911	21 953	20 856
Finished goods	20 529	18 499	19 251
Petroleum and Coal Products			
Materials and supplies	41 572	42 975	59 774
Work-in-process	39 533	44 291	44 754
Finished goods	75 642	72 476	95 780
Chemical Products			
Materials and supplies	204 552	196 186	197 549
Work-in-process	104 685	112 363	124 951
Finished goods	308 432	284 496	280 507
Plastics and Rubber Products			
Materials and supplies	81 091	70 057	75 886
Work-in-process	27 421	24 243	23 564
Finished goods	99 026	90 566	98 580

Note: Detail may not add to total because of independent rounding.

Table D-3. Annual Shipments as Originally Published and Revised: 2001-2004

[Million dollars]

Industry category	2001	2002	2003	2004
ALL MANUFACTURING INDUSTRIES				
As published	3 970 499	3 891 753	3 999 124	4 429 700
As revised	4 022 901	3 920 559	3 979 846	4 373 578
Durable Goods Industries				
As published	2 174 406	2 131 404	2 150 638	2 373 410
As revised	2 203 102	2 128 096	2 137 970	2 358 097
Wood Products				
As published	87 250	87 652	93 238	110 314
As revised	88 550	88 986	91 240	107 082
Nonmetallic Mineral Products				
As published	94 861	88 222	87 500	91 299
As revised	94 460	95 265	96 349	98 408
Primary Metals				
As published	138 246	135 930	131 307	165 790
As revised	137 469	139 449	136 839	172 968
Fabricated Metal Products				
As published	253 113	252 232	245 469	272 504
As revised	258 918	246 735	244 662	272 216
Machinery				
As published	266 554	255 651	253 516	294 446
As revised	268 457	253 061	253 600	288 742
Computers and Electronic Products				
As published	429 471	392 026	418 651	469 794
As revised	434 427	358 257	353 667	405 289
Electrical Equipment, Appliances, and Components				
As published	114 068	103 673	101 415	106 479
As revised	116 919	104 473	101 770	107 129
Transportation Equipment				
As published	602 495	624 129	618 670	648 681
As revised	613 837	637 677	653 491	687 965
Furniture and Related Products				
As published	72 147	69 999	69 870	75 369
As revised	70 885	77 243	76 621	81 555
Miscellaneous Products				
As published	116 201	121 890	131 002	138 734
As revised	119 180	126 950	129 731	136 743
Nondurable Goods Industries				
As published	1 796 093	1 760 349	1 848 486	2 056 290
As revised	1 819 799	1 792 463	1 841 876	2 015 481
Food Products				
As published	451 385	450 183	461 064	487 358
As revised	456 692	460 020	482 815	511 566
Beverage and Tobacco Products				
As published	118 786	109 832	105 310	108 824
As revised	117 422	105 691	106 873	109 106
Textile Mills				
As published	45 681	43 170	39 775	41 415
As revised	45 141	45 549	42 557	43 411
Textile Products				
As published	31 971	34 232	35 247	37 979
As revised	34 165	31 806	30 827	33 291
Apparel				
As published	54 598	53 621	52 970	56 282
As revised	56 545	44 515	40 624	41 563

See footnote at end of table.

Table D-3. **Annual Shipments as Originally Published and Revised: 2001-2004—Con.**

[Million dollars]

Industry category	2001	2002	2003	2004
ALL MANUFACTURING INDUSTRIES—Con.				
Nondurable Goods Industries—Con.				
Leather and Allied Products				
As published	8 834	10 408	10 903	10 467
As revised	8 108	6 299	6 003	5 649
Paper Products				
As published	155 845	151 530	159 611	172 508
As revised	159 150	153 656	149 271	160 502
Printing				
As published	100 792	97 968	95 036	95 043
As revised	99 303	95 386	92 191	91 864
Petroleum and Coal Products				
As published	219 074	206 879	244 097	337 643
As revised	222 356	215 190	237 010	306 938
Chemical Products				
As published	438 410	424 143	459 110	505 957
As revised	442 790	460 451	477 360	520 613
Plastics and Rubber Products				
As published	170 717	178 383	185 363	202 814
As revised	178 127	173 900	176 345	190 978

Note: Detail may not add to total because of independent rounding.

Table D-4. Total Inventories as Originally Published and Revised: 2001-2004

[Million dollars]

Industry category	2001	2002	2003	2004
ALL MANUFACTURING INDUSTRIES				
As published	441 527	433 756	428 176	459 690
As revised	436 622	412 647	407 712	438 748
Durable Goods Industries				
As published	275 855	264 446	255 969	275 766
As revised	271 597	253 028	246 262	266 920
Wood Products				
As published	9 664	9 566	9 598	9 843
As revised	9 146	9 509	9 410	9 668
Nonmetallic Mineral Products				
As published	9 440	9 306	9 051	9 393
As revised	9 009	9 502	9 464	9 695
Primary Metals				
As published	19 502	19 144	17 420	22 005
As revised	19 887	19 617	18 231	23 098
Fabricated Metal Products				
As published	32 145	31 227	30 504	34 992
As revised	31 070	30 649	30 777	35 571
Machinery				
As published	44 532	42 296	40 512	44 857
As revised	45 966	40 474	39 066	43 630
Computers and Electronic Products				
As published	54 598	49 287	45 945	47 524
As revised	52 001	44 733	42 369	43 982
Electrical Equipment, Appliances, and Components				
As published	13 488	12 234	11 949	12 463
As revised	13 307	12 116	11 402	11 894
Transportation Equipment				
As published	67 188	65 769	65 146	66 744
As revised	66 633	61 055	59 593	61 144
Furniture and Related Products				
As published	7 765	7 632	7 375	8 359
As revised	7 216	7 744	7 488	8 466
Miscellaneous Products				
As published	17 533	17 985	18 469	19 586
As revised	17 362	17 629	18 462	19 772
Nondurable Goods Industries				
As published	165 672	169 310	172 207	183 924
As revised	165 025	159 619	161 450	171 828
Food Products				
As published	31 865	32 534	33 082	33 865
As revised	33 273	31 500	31 645	32 123
Beverage and Tobacco Products				
As published	14 855	14 717	14 725	14 776
As revised	14 696	14 862	14 625	14 618
Textile Mills				
As published	5 411	4 759	4 817	4 602
As revised	5 586	4 774	4 594	4 349
Textile Products				
As published	4 648	4 691	4 951	5 063
As revised	4 401	3 353	3 447	3 497
Apparel				
As published	7 363	6 784	6 901	7 009
As revised	7 889	5 802	5 506	5 584

See footnote at end of table.

Table D-4. **Total Inventories as Originally Published and Revised: 2001-2004—Con.**

[Million dollars]

Industry category	2001	2002	2003	2004
ALL MANUFACTURING INDUSTRIES—Con.				
Nondurable Goods Industries—Con.				
Leather and Allied Products				
As published	1 479	1 580	1 673	1 655
As revised	1 603	876	827	835
Paper Products				
As published	14 950	14 621	14 352	14 806
As revised	14 604	14 298	13 575	13 839
Printing				
As published	6 046	5 985	5 754	6 438
As revised	5 811	5 809	5 697	6 337
Petroleum and Coal Products				
As published	12 479	14 302	13 973	16 259
As revised	11 179	14 227	15 896	18 548
Chemical Products				
As published	50 052	50 363	51 917	56 263
As revised	49 567	48 362	49 579	53 583
Plastics and Rubber Products				
As published	16 524	18 974	20 062	23 188
As revised	16 416	15 756	16 059	18 515

Note: Detail may not add to total because of independent rounding.

Table D-5. **End-of-Year Unfilled Orders as Originally Published and as Revised: 2001-2004**

[Million dollars]

Industry category	2001	2002	2003	2004
ALL MANUFACTURING INDUSTRIES				
As published	512 520	480 679	502 416	546 844
As revised	507 149	464 137	501 561	543 566
Primary Metals				
As published	16 300	14 459	16 002	18 865
As revised	16 688	15 316	17 432	20 486
Fabricated Metal Products				
As published	39 724	36 900	38 021	44 618
As revised	40 226	34 919	35 661	41 810
Machinery				
As published	53 512	42 420	42 882	50 401
As revised	54 971	49 751	68 132	74 600
Computers and Electronic Products				
As published	126 483	118 817	129 156	140 886
As revised	115 833	96 566	99 613	108 751
Electrical Equipment, Appliances, and Components				
As published	14 452	13 792	13 415	14 852
As revised	14 903	14 468	13 951	15 411
Transportation Equipment				
As published	251 447	244 416	251 281	263 799
As revised	254 203	242 308	254 675	268 613
Furniture and Related Products				
As published	6 294	5 254	5 356	5 996
As revised	6 212	6 026	6 266	7 027

Note: Detail may not add to total because of independent rounding.

Table D-6. **Annual New Orders as Originally Published and Revised: 2001-2004**

[Million dollars]

Industry category	2001	2002	2003	2004
ALL MANUFACTURING INDUSTRIES				
As published	3 875 329	3 800 930	3 949 998	4 389 035
As revised	3 917 225	3 816 100	3 950 626	4 334 124
Durable Goods Industries				
As published	2 079 236	2 040 581	2 101 512	2 332 745
As revised	2 097 426	2 023 637	2 108 750	2 318 643
Primary Metals				
As published	136 291	134 089	132 850	168 653
As revised	135 902	138 077	138 955	176 022
Fabricated Metal Products				
As published	248 872	249 408	246 590	279 101
As revised	255 179	241 428	245 404	278 365
Machinery				
As published	260 392	244 559	253 978	301 965
As revised	263 754	247 841	271 981	295 210
Computers and Electronic Products				
As published	363 049	325 378	358 127	396 431
As revised	352 220	277 543	290 070	332 968
Electrical Equipment, Appliances, and Components				
As published	110 628	103 013	101 038	107 916
As revised	113 930	104 038	101 253	108 589
Transportation Equipment				
As published	591 756	617 098	625 535	661 199
As revised	605 854	625 782	665 858	701 903
Furniture and Related Products				
As published	71 614	68 959	69 972	76 009
As revised	70 270	77 057	76 861	82 316

Note: Detail may not add to total because of independent rounding.

Chapter E.

Notes on Trading Day Adjustment Methodology

The shipments data in the M3 survey are adjusted for calendar month variations, both length of month and number of trading days per month. The selection of these adjustment factors is based primarily on recognition of patterns contained in the data using the regression and spectral analysis capabilities of the X-12 seasonal adjustment software.

Factors are considered optimal when the daily weights assigned to the industry eliminate or diminish the peaks in the spectral plots, which are based on calendar frequencies, and lower the absolute value of the month-to-month change in the residual irregular component (I) of the data series.

New orders data in this publication are implicitly trading day adjusted by using the trading day adjusted shipments as input to their derivation. The change in unfilled orders is not trading day adjusted.

Table E-1. Trading Day Diagnostics

Industry	Chi-Square ¹	Industry	Chi-Square ¹
FOOD PRODUCTS		MACHINERY	
Grain and oilseed milling	43.09	Farm machinery and equipment	22.79
Dairy products	24.98	Lawn and garden tractors and equipment	8.88
Meat, poultry, and seafood products	27.67	Construction machinery	17.92
Other foods	9.15	Mining, oil, and gas field machinery	21.20
BEVERAGES AND TOBACCO		Industrial machinery	18.36
Beverages	19.12	Vending, laundry, and other machinery	18.00
Tobacco	(NA)	Photographic equipment	16.91
Textile Mills	17.93	Ventilation, heating, air-conditioning, and refrigeration equipment	14.77
Textile Products	18.21	Metalworking machinery	6.33
Apparel	6.26	Turbines and generators	(NA)
Leather and Allied products	12.55	Other power transmission equipment	4.71
WOOD PRODUCTS		Pumps and compressors	6.62
Wood buildings and mobile homes	6.02	Material handling equipment	28.65
Other wood products	20.81	All other machinery	13.08
PAPER PRODUCTS		COMPUTERS AND ELECTRONIC PRODUCTS	
Pulp, paper, and paperboard	31.19	Computers	29.75
Paperboard containers	60.18	Computer storage devices	13.57
Other paper	20.20	Other computer peripheral equipment	24.60
Printing	15.52	Communications equipment, nondefense	20.32
PETROLEUM AND COAL PRODUCTS		Communications equipment, defense	13.38
Petroleum refineries	28.43	Audio and video equipment	8.04
Asphalt paving, roofing, and saturated materials	23.84	Semiconductors and related devices	9.74
Other petroleum and coal products	23.08	Other electronic components	13.21
CHEMICAL PRODUCTS		Search and navigation equipment, nondefense	4.07
Pesticides, fertilizers, and other agricultural chemicals	32.77	Search and navigation equipment, defense	6.58
Pharmaceuticals and medicines	14.37	Electromedical, measuring, and control instruments	14.58
Paints, coatings, and adhesive	25.70	Magnetic and optical media	8.97
Other chemicals	124.05	ELECTRICAL EQUIPMENT, APPLIANCES, AND COMPONENTS	
PLASTICS AND RUBBER PRODUCTS		Electric lighting equipment	10.96
Tires	29.64	Household appliances	30.76
Other plastics and rubber products	58.42	Electrical equipment	1.18
Nonmetallic Mineral Products	126.16	Batteries	6.23
PRIMARY METALS		Other electrical equipment, appliances, and components	13.64
Iron and steel mills and ferroalloy and steel products	67.59	TRANSPORTATION EQUIPMENT	
Alumina, aluminum, and nonferrous metal products	32.88	Automobiles	26.36
Ferrous metal foundries	50.96	Light trucks and utility vehicles	22.17
Nonferrous metal foundries	15.02	Heavy duty trucks	14.49
FABRICATED METAL PRODUCTS		Motor vehicle bodies and trailers	27.40
Forging and stamping	29.33	Motor vehicle parts	57.89
Cutlery and handtools	12.36	Aircraft, nondefense	3.62
Boilers, tanks, and shipping containers	33.11	Aircraft, defense	21.51
Metal valves	8.03	Aircraft engines and parts, nondefense	23.08
Small arms and ordnance, nondefense	5.29	Aircraft engines and parts, defense	12.59
Small arms and ordnance, defense	15.66	Missiles, space vehicles, and parts, defense	3.57
Other fabricated metal products	52.78	Railroad rolling stock	7.56
		Ships and boats, nondefense	8.73
		Ships and boats, defense	17.29
		Other transportation equipment	16.04
		FURNITURE AND RELATED PRODUCTS	
		Household furniture and kitchen cabinets	18.00
		Office furniture and institutional furniture	12.91
		Other furniture related products	24.05
		MISCELLANEOUS PRODUCTS	
		Medical equipment and supplies	96.21
		Sporting goods, dolls, toys, and games	26.91
		Office supplies	47.66
		Other miscellaneous products	26.17

NA Not available. NT Not trading day adjusted. T Trading day adjusted.

¹The Chi-Square value measures the presence of identifiable trading day patterns.

Note: For all industry categories including those that are not trading-day adjusted, we adjust for leap year effects and for length of month.

Chapter F.

Summary Measures for Evaluating the Quality of the Seasonal Adjustment of M3 Series

The measures shown in the following tables were used in evaluating the current seasonal adjustment procedure. Brief descriptions of the measures follow.

The "O" is the average month-to-month percentage change, without regard to sign, in the original series. The "CI" is the same for the seasonally adjusted series. The "I" is the same for the irregular component, which is obtained by dividing the trend-cycle component into the seasonally adjusted series. The "C" is the same for the trend-cycle component which is a smoothed version of the seasonally adjusted series obtained by means of a moving average.

The "I/C" is the average relative month-to-month change, without regard to sign, of the irregular component divided by the average relative month-to-month change, without regard to sign, of the trend-cycle component. It serves as an indication of the series' relative irregularity.

The M7 value is a function of the F-test assessing the significance of stable seasonality and the F-test assessing the significance of moving seasonality. A value between 0 and 1 is an indicator that the amount of moving seasonality is acceptable relative to the amount of stable seasonality.

The F value presented here measures the presence of stable seasonality. It is the quotient of two variances: (1) the between months variance, which is mainly due to seasonal, and (2) the residual variance, which is mainly due to irregular. A value of 7.0 or greater is used as an indicator of the presence of stable seasonality.

The Q value is a weighted average of 11 different quality control statistics from X-12-ARIMA. It is an indicator of the overall quality of the adjustment. With values greater than 1.0, other measures must be consulted to determine if the seasonal movement in the series can be adequately quantified by the X-12 program.

For series which are not seasonally adjusted in this publication, the original unadjusted values are included in both the seasonally adjusted and unadjusted totals.

Table F-1. Shipments (Seasonal Summary Measures)

Industry	Average percent changes				Ratio of irregular trend-cycle (\bar{I}/\bar{C})	Ratio of moving to stable seasonality M7	F-value	Q-value	Seasonal adjustment indicator
	Original series (\bar{O})	Seasonally adjusted series (\bar{CI})	Irregular series (\bar{I})	Trend-cycle series (\bar{C})					
Food Products									
Grain and oilseed milling	4.50	2.32	2.19	.65	3.35	.45	21.41	.64	(S)
Dairy products	4.95	1.80	1.56	.73	2.13	.33	53.88	.61	(S)
Meat, poultry, and seafood products	3.59	1.45	1.28	.56	2.31	.34	48.48	.46	(S)
Other foods	5.80	1.47	1.40	.34	4.15	.23	139.34	.44	(S)
Beverages and Tobacco									
Beverages	5.18	1.69	1.67	.27	6.26	.16	249.69	.50	(S)
Tobacco	13.12	8.36	8.28	.64	12.85	2.31	4.24	1.79	(NS)
Textile Mills	9.13	1.99	1.84	.56	3.32	.19	201.76	.34	(S)
Textile Products	6.55	1.80	1.64	.70	2.34	.19	168.04	.27	(S)
Apparel	8.82	2.15	1.97	.58	3.40	.17	211.88	.37	(S)
Leather and Allied Products	10.03	2.54	2.40	.85	2.83	.45	40.24	.50	(S)
Wood Products									
Wood buildings and mobile homes	6.96	2.61	2.29	1.07	2.14	.16	169.44	.26	(S)
Other wood products	5.10	2.38	1.96	.91	2.16	.36	79.93	.39	(S)
Paper Products									
Pulp, paper and paperboard	3.13	1.76	1.49	.83	1.79	.54	16.49	.58	(S)
Paperboard containers	3.71	1.61	1.39	.68	2.04	.26	61.02	.37	(S)
Other paper	4.44	1.84	1.71	.51	3.35	.36	31.61	.77	(S)
Printing	4.55	1.19	1.12	.32	3.47	.18	123.80	.43	(S)
Petroleum and Coal Products									
Petroleum refineries	4.49	3.06	2.24	1.92	1.16	.30	54.20	.32	(S)
Asphalt paving, roofing, and saturated materials	14.66	3.52	3.18	1.22	2.61	.12	565.27	.25	(S)
Other petroleum and coal products	5.33	3.66	3.45	1.26	2.75	.57	12.77	.94	(S)
Chemical products									
Pesticides, fertilizers, and other agricultural chemicals ..	15.11	4.88	4.47	1.40	3.20	.11	457.70	.32	(S)
Pharmaceuticals and medicines	7.47	3.30	3.17	.77	4.12	.47	24.69	.74	(S)
Paints, coatings, and adhesives	5.06	2.20	2.08	.55	3.81	.20	158.40	.49	(S)
Other chemicals	4.84	1.21	1.00	.65	1.54	.19	118.47	.29	(S)
Plastics and Rubber Products									
Tires	6.30	2.17	2.07	.51	4.05	.29	75.69	.55	(S)
Other plastics and rubber products	5.34	1.37	1.21	.54	2.26	.15	161.98	.26	(S)
Nonmetallic Mineral Products	5.64	1.41	1.24	.62	2.00	.16	229.73	.25	(S)
Primary Metals									
Iron and steel mills and ferroalloy and steel products ..	5.75	1.77	1.26	1.11	1.13	.21	104.19	.22	(S)
Alumina, aluminum, and nonferrous metal products ...	4.68	2.13	1.85	1.01	1.83	.31	48.73	.38	(S)
Ferrous metal foundries	9.38	2.45	2.17	.90	2.42	.23	107.05	.30	(S)
Nonferrous metal foundries	11.39	3.05	2.70	1.09	2.48	.17	162.05	.26	(S)
Fabricated Metal Products									
Forging and stamping	6.45	2.03	1.70	.98	1.74	.21	110.41	.23	(S)
Cutlery and handtools	10.92	3.59	3.50	.61	5.70	.36	48.86	.63	(S)
Boilers, tanks, and shipping containers	6.16	2.63	2.61	.21	12.32	.25	80.58	.96	(S)
Metal valves	6.49	2.89	2.76	.71	3.91	.32	58.61	.43	(S)
Small arms and ordnance, nondefense	11.52	6.04	5.94	.79	7.48	.45	30.77	.92	(S)
Small arms and ordnance, defense	22.32	8.78	8.38	1.61	5.21	.51	32.00	.86	(S)
Other fabricated metal products	5.71	1.33	1.10	.57	1.94	.17	145.70	.25	(S)
Machinery									
Farm machinery and equipment	12.59	4.72	4.07	1.83	2.23	.23	98.56	.26	(S)
Lawn and garden tractors and equipment	23.88	7.60	7.55	.57	13.16	.14	253.57	.74	(S)
Construction machinery	8.95	3.60	3.17	1.45	2.18	.22	94.19	.34	(S)
Mining, oil, and gas field machinery	8.92	3.76	3.56	1.23	2.89	.58	26.96	.71	(S)
Industrial machinery	16.85	6.05	5.59	1.58	3.53	.38	55.54	.55	(S)
Vending, laundry, and other machinery	16.66	6.32	6.24	.89	6.99	.71	33.45	1.04	(S)
Photographic equipment	11.04	4.02	3.70	1.42	2.61	.26	64.67	.47	(S)
Ventilation, heating, air-conditioning, and refrigeration equipment	8.82	2.29	2.14	.67	3.19	.25	86.81	.44	(S)
Metalworking machinery	15.52	4.69	4.52	1.00	4.53	.24	75.95	.59	(S)
Turbines and generators	68.73	20.17	19.79	1.99	9.93	.59	32.18	1.18	(NS)
Other power transmission equipment	8.85	3.22	3.01	.95	3.16	.25	81.68	.44	(S)
Pumps and compressors	7.08	2.66	2.53	.74	3.42	.26	76.87	.43	(S)
Material handling equipment	7.48	2.68	2.47	.97	2.55	.44	22.71	.66	(S)
All other machinery	5.42	2.57	2.42	.79	3.05	.56	24.49	.52	(S)

See footnotes at end of table.

Table F-1. Shipments (Seasonal Summary Measures)—Con.

Industry	Average percent changes				Ratio of irregular trend-cycle (\bar{I}/\bar{C})	Ratio of moving to stable seasonality M7	F-value	Q-value	Seasonal adjustment indicator
	Original series (\bar{O})	Seasonally adjusted series (\bar{CI})	Irregular series (\bar{I})	Trend-cycle series (\bar{C})					
Computers and Electronic Products									
Computers	25.06	5.16	4.92	1.31	3.77	.51	48.56	.68	(S)
Computer storage devices	58.37	7.55	7.34	1.46	5.02	.21	231.99	.60	(S)
Other computer peripheral equipment	34.21	7.41	7.32	1.28	5.73	.29	124.02	.60	(S)
Communications equipment, nondefense	21.79	3.61	3.26	1.42	2.30	.16	242.53	.29	(S)
Communications equipment, defense	15.38	8.43	8.40	1.13	7.42	.84	13.61	1.13	(S)
Audio and video equipment	11.46	4.15	3.79	1.27	2.98	.27	63.62	.47	(S)
Semiconductors and related devices	12.03	4.26	3.78	1.56	2.43	.35	56.48	.41	(S)
Other electronic components	8.65	2.34	2.19	.84	2.60	.36	42.28	.57	(S)
Search and navigation equipment, nondefense	13.36	5.12	5.07	.87	5.85	.39	45.61	.95	(S)
Search and navigation equipment, defense	12.30	3.26	3.14	.67	4.71	.36	52.57	.64	(S)
Electromedical, measuring, and control instruments	17.38	2.39	2.34	.43	5.47	.54	108.95	.80	(S)
Magnetic and optical media	9.93	4.56	4.37	1.07	4.08	.27	57.84	.62	(S)
Electrical Equipment, Appliances, and Components									
Electric lighting equipment	14.03	2.93	2.90	.46	6.35	.27	109.12	.64	(S)
Household appliances	10.25	2.74	2.51	.71	3.55	.27	70.89	.49	(S)
Electrical equipment	12.84	2.95	2.88	.45	6.34	.27	94.50	.61	(S)
Batteries	14.41	4.24	4.05	.91	4.47	.19	136.24	.43	(S)
Other electrical equipment, appliances, and components	7.43	2.22	2.13	.63	3.41	.23	95.84	.42	(S)
Transportation Equipment									
Automobiles	17.35	4.65	4.53	.74	6.16	.20	112.18	.58	(S)
Light trucks and utility vehicles	18.92	5.30	5.04	1.41	3.56	.22	100.16	.40	(S)
Heavy duty trucks	8.60	3.46	2.96	1.50	1.98	.30	53.27	.41	(S)
Motor vehicle bodies and trailers	8.44	3.34	3.09	1.11	2.80	.26	68.04	.43	(S)
Motor vehicle parts	13.27	3.10	2.93	.76	3.84	.16	200.57	.35	(S)
Aircraft, nondefense	30.76	14.73	14.65	1.54	9.49	.41	32.95	1.21	(S)
Aircraft, defense	13.71	7.10	7.02	1.01	6.95	.53	20.96	.98	(S)
Aircraft engines and parts, nondefense	19.39	5.42	5.17	1.21	4.27	.46	34.03	.67	(S)
Aircraft engines and parts, defense	24.87	11.05	10.96	1.09	10.07	.41	31.87	1.29	(S)
Missiles, space vehicles, and parts, defense	12.19	6.37	6.28	.94	6.67	.50	26.14	1.15	(S)
Railroad rolling stock	28.58	11.47	11.32	1.43	7.93	.50	29.61	1.15	(S)
Ships and boats, nondefense	14.04	6.41	6.28	.89	7.09	.51	27.97	1.11	(S)
Ships and boats, defense	13.08	7.40	7.39	.79	9.33	.61	15.06	1.08	(S)
Other transportation equipment	14.88	5.74	5.53	1.32	4.19	.43	35.11	.74	(S)
Furniture and Related Products									
Household furniture and kitchen cabinets	7.97	2.09	1.94	.57	3.42	.26	103.57	.40	(S)
Office furniture and institutional furniture	4.18	2.49	2.29	.85	2.71	.33	57.96	.48	(S)
Other furniture related products	4.90	2.21	2.02	.78	2.58	.33	65.84	.50	(S)
Miscellaneous Products									
Medical equipment and supplies	7.03	1.63	1.55	.53	2.94	.29	87.02	.57	(S)
Sporting goods, dolls, toys, and games	18.08	3.97	3.78	.80	4.74	.25	94.52	.41	(S)
Office supplies	16.45	5.12	4.71	1.37	3.44	.29	76.52	.53	(S)
Other miscellaneous products	8.44	2.06	1.90	.62	3.07	.36	60.34	.44	(S)

NS Not seasonally adjusted. S Seasonally adjusted.

Table F-2. Unfilled Orders (Seasonal Summary Measures)

Industry	Average percent changes				Ratio of irregular trend-cycle (\bar{I}/\bar{C})	Ratio of moving to stable seasonality M7	F-value	Q-value	Seasonal adjustment indicator
	Original series (\bar{O})	Seasonally adjusted series (\bar{CI})	Irregular series (\bar{I})	Trend-cycle series (\bar{C})					
Primary Metals									
Iron and steel mills and ferroalloy and steel products	3.01	2.02	1.28	1.56	.82	.33	78.47	.27	(S)
Alumina, aluminum, and nonferrous metal products	2.65	1.78	.92	1.46	.63	.42	71.07	.31	(S)
Ferrous metal foundries	2.20	1.78	1.40	1.02	1.37	.32	38.14	.40	(S)
Nonferrous metal foundries	3.60	2.87	2.41	1.33	1.81	.50	20.18	.48	(S)
Fabricated Metal Products									
Forging and stamping	1.98	1.76	1.09	1.42	.77	.79	7.63	.50	(S)
Boilers, tanks, and shipping containers	2.13	1.72	1.40	.91	1.53	1.57	3.73	.96	(NS)
Metal valves	2.24	1.56	1.27	.92	1.38	.42	37.35	.44	(S)
Small arms and ordnance, nondefense	9.16	6.53	5.37	2.98	1.80	.27	59.89	.35	(S)
Small arms and ordnance, defense	2.11	1.91	1.52	1.01	1.51	.52	14.29	.50	(S)
Other fabricated metal products	1.38	1.04	.58	.83	.70	.36	55.63	.31	(S)
Machinery									
Construction machinery	4.53	2.91	1.96	1.85	1.06	.44	68.98	.31	(S)
Mining, oil, and gas field machinery	3.74	3.48	2.11	2.63	.80	.83	7.94	.48	(S)
Industrial machinery	3.17	2.36	1.47	1.81	.81	.51	25.25	.25	(S)
Vending, laundry, and other machinery	3.47	2.55	2.15	1.21	1.77	.84	11.48	.76	(S)
Photographic equipment	3.50	2.46	2.07	1.48	1.40	.83	8.22	.67	(S)
Ventilation, heating, and air-conditioning, and refrigeration equipment	2.64	1.79	1.43	.90	1.59	.56	23.51	.54	(S)
Metalworking machinery	2.15	1.81	1.04	1.44	.72	.37	32.99	.29	(S)
Turbines and generators	2.52	2.44	1.39	1.82	.76	.78	10.32	.41	(S)
Other power transmission equipment	5.06	2.16	1.31	1.71	.77	1.31	29.25	.68	(NS)
Pumps and compressors	2.13	1.40	.94	.85	1.11	.37	52.80	.26	(S)
Material handling equipment	2.24	1.81	1.21	1.19	1.02	.44	32.01	.36	(S)
All other machinery	2.00	1.47	1.06	.91	1.17	.45	28.74	.33	(S)
Computers and Electronic Products									
Computers	3.89	2.77	2.37	1.23	1.93	.93	6.23	.83	(NS)
Communications equipment, nondefense	2.33	2.07	1.37	1.45	.95	.57	12.35	.41	(S)
Communications equipment, defense	2.73	2.36	1.89	1.26	1.50	.85	10.44	.62	(S)
Other electronic components	2.13	1.85	1.02	1.43	.72	.62	13.96	.45	(S)
Search and navigation equipment, nondefense	1.99	1.74	.99	1.31	.76	.49	21.72	.31	(S)
Search and navigation equipment, defense	1.27	.78	.56	.47	1.18	.41	52.90	.32	(S)
Electromedical, measuring, and control instruments	1.46	.95	.69	.61	1.15	.39	35.64	.34	(S)
Electrical Equipment, Appliances, and Components									
Electric lighting equipment	2.40	1.87	1.60	.82	1.95	.76	12.88	.58	(S)
Household appliances	10.00	7.04	6.41	1.90	3.38	.53	20.15	.88	(S)
Electrical equipment	1.45	.98	.87	.47	1.83	.52	19.31	.62	(S)
Other electrical equipment, appliances, and components	2.35	2.01	1.31	1.43	.92	.42	29.69	.27	(S)
Transportation Equipment									
Motor vehicle bodies and trailers	3.85	2.62	1.57	1.81	.87	.38	79.43	.33	(S)
Motor vehicle parts	2.14	1.40	1.16	.67	1.74	.38	29.86	.42	(S)
Aircraft, nondefense	1.48	1.35	.86	1.02	.85	.58	14.11	.29	(S)
Aircraft, defense	1.97	1.64	1.37	.88	1.57	.41	28.80	.54	(S)
Aircraft engines and parts, nondefense	1.50	1.33	1.02	.80	1.28	.80	13.68	.61	(S)
Aircraft engines and parts, defense	2.32	1.86	1.46	1.00	1.47	.46	38.08	.43	(S)
Missiles, space vehicles, and parts, defense	1.86	1.40	1.05	.91	1.15	.46	43.34	.43	(S)
Railroad rolling stock	4.12	3.44	2.62	1.80	1.46	1.77	1.85	1.04	(NS)
Ships and boats, nondefense	3.19	2.80	1.70	1.93	.88	1.77	4.50	.78	(NS)
Ships and boats, defense	2.88	1.99	1.67	1.02	1.64	.59	28.16	.51	(S)
Other transportation equipment	3.43	3.07	2.45	1.58	1.55	1.71	2.74	1.21	(NS)
Furniture and Related Products									
Household furniture and kitchen cabinets	4.10	2.46	2.06	1.06	1.95	.49	21.10	.61	(S)
Office furniture and institutional furniture	3.35	1.95	1.44	1.22	1.18	.26	67.94	.31	(S)
Miscellaneous Products									
Sporting goods, dolls, toys, and games	8.57	5.10	4.27	2.08	2.05	2.36	3.30	1.14	(NS)

NS Not seasonally adjusted. S Seasonally adjusted.

Table F-3. Total Inventories (Seasonal Summary Measures)

Industry	Average percent changes				Ratio of irregular trend-cycle (\bar{I}/\bar{C})	Ratio of moving to stable seasonality M7	F-value	Q-value	Seasonal adjustment indicator
	Original series (\bar{O})	Seasonally adjusted series (\bar{CI})	Irregular series (\bar{I})	Trend-cycle series (\bar{C})					
Food Products									
Grain and oilseed milling	3.60	1.84	1.49	.90	1.65	.21	99.57	.33	(S)
Dairy products	2.80	1.42	1.15	.70	1.63	.26	76.95	.35	(S)
Meat, poultry, and seafood products	1.71	.85	.59	.54	1.09	.39	35.59	.43	(S)
Other foods	2.63	.69	.56	.33	1.71	.18	376.73	.21	(S)
Beverages and Tobacco									
Beverages	1.45	.89	.69	.49	1.43	.43	43.16	.40	(S)
Tobacco	2.70	1.26	1.01	.59	1.71	.50	84.36	.48	(S)
Textile Mills	1.72	.78	.47	.57	.82	.23	133.42	.16	(S)
Textile Products	1.53	.81	.45	.64	.70	.22	100.25	.16	(S)
Apparel	2.16	1.09	.46	.93	.50	.23	152.05	.25	(S)
Leather and Allied Products	2.22	1.47	.84	1.10	.76	.56	32.71	.43	(S)
Wood Products									
Wood buildings and mobile homes	4.20	1.90	1.56	1.05	1.49	.53	29.45	.48	(S)
Other wood products	1.54	1.13	.83	.63	1.31	.45	28.30	.56	(S)
Paper Products									
Pulp, paper, and paperboard	1.01	.81	.45	.59	.77	.25	64.77	.18	(S)
Paperboard containers	1.39	1.22	.69	.92	.75	.70	11.61	.45	(S)
Other paper	1.39	.92	.82	.37	2.20	.60	17.53	.73	(S)
Printing									
Printing and related support activities	2.64	1.27	1.04	.60	1.73	.18	135.04	.30	(S)
Petroleum and Coal Products									
Petroleum refineries	2.72	1.97	1.45	1.26	1.15	.49	33.96	.40	(S)
Asphalt paving, roofing, and saturated materials	5.37	2.60	2.04	1.30	1.57	.26	122.24	.33	(S)
Other petroleum and coal products	5.23	4.20	3.83	1.41	2.72	.60	16.45	.90	(S)
Chemical Products									
Pesticides, fertilizers, and other agricultural chemicals	5.35	1.77	1.35	.93	1.46	.10	445.63	.26	(S)
Pharmaceuticals and medicines	1.86	1.33	1.11	.73	1.52	.40	34.81	.42	(S)
Paints, coatings, and adhesives	1.37	.73	.57	.39	1.45	.19	120.21	.31	(S)
Other chemicals .....	.89	.58	.31	.47	.66	.36	43.45	.28	(S)
Plastics and Rubber Products									
Tires	1.97	1.02	.64	.74	.86	.25	146.20	.23	(S)
Other plastics and rubber products .....	.93	.67	.29	.57	.50	.23	152.85	.24	(S)
Nonmetallic Mineral Products	1.24	.70	.45	.51	.87	.18	142.38	.17	(S)
Primary Metals									
Iron and steel mills and ferroalloy and steel products ..	1.37	1.00	.44	.87	.51	.24	91.86	.19	(S)
Alumina, aluminum, and nonferrous metal products ...	1.12	.95	.61	.62	.98	.72	10.01	.55	(S)
Ferrous metal foundries	1.47	1.01	.74	.58	1.28	.28	76.56	.37	(S)
Nonferrous metal foundries	2.28	1.74	1.55	.80	1.93	.61	13.49	.66	(S)
Fabricated Metal Products									
Forging and stamping	1.36	1.02	.79	.64	1.24	.44	30.02	.34	(S)
Cutlery and handtools	2.27	1.31	1.06	.63	1.68	.42	51.26	.46	(S)
Boilers, tanks, and shipping containers	2.71	1.59	1.23	.72	1.71	.23	89.70	.36	(S)
Metal valves .....	.91	.68	.41	.49	.82	.75	14.72	.54	(S)
Small arms and ordnance, nondefense	2.34	1.28	.84	.86	.98	.27	146.52	.22	(S)
Small arms and ordnance, defense	5.04	3.11	2.78	.96	2.89	1.17	5.85	1.11	(NS)
Other fabricated metal products .....	.94	.72	.38	.59	.65	.33	61.99	.22	(S)
Machinery									
Farm machinery and equipment	2.66	1.46	1.03	.94	1.09	.16	160.96	.16	(S)
Lawn and garden tractors and equipment	9.71	3.21	2.19	1.86	1.18	.39	97.13	.31	(S)
Construction machinery	1.43	1.07	.70	.72	.97	.41	35.02	.31	(S)
Mining, oil, and gas field machinery	1.70	1.13	.68	.82	.83	.50	47.98	.35	(S)
Industrial machinery	2.19	1.17	.70	.84	.83	.46	27.11	.29	(S)
Vending, laundry, and other machinery	2.47	1.69	1.51	.76	2.00	.83	9.36	.77	(S)
Photographic equipment	2.59	1.35	1.03	.74	1.38	.37	52.12	.29	(S)
Ventilation, heating, air-conditioning, and refrigeration equipment	2.27	1.17	.71	.85	.84	.24	95.46	.23	(S)
Metalworking machinery	2.24	1.16	.82	.71	1.16	.29	86.67	.26	(S)
Turbines and generators	6.94	2.86	2.46	1.23	2.00	.29	67.76	.53	(S)
Other power transmission equipment	1.50	1.16	.79	.79	.99	.66	29.48	.39	(S)
Pumps and compressors	1.25	.76	.60	.45	1.33	.50	28.42	.40	(S)

See footnotes at end of table.

Table F-3. Total Inventories (Seasonal Summary Measures)—Con.

Industry	Average percent changes				Ratio of irregular trend-cycle (\bar{I}/\bar{C})	Ratio of moving to stable seasonality M7	F-value	Q-value	Seasonal adjustment indicator
	Original series (\bar{O})	Seasonally adjusted series (\bar{CI})	Irregular series (\bar{I})	Trend-cycle series (\bar{C})					
Machinery—Con.									
Material handling equipment	1.66	1.36	.93	.98	.95	.50	16.53	.40	(S)
All other machinery	1.48	1.08	.75	.65	1.16	.53	30.62	.34	(S)
Computers and Electronic Products									
Computers	5.63	2.53	1.86	1.65	1.12	.38	36.68	.32	(S)
Computer storage devices	8.58	2.84	2.08	1.90	1.09	.45	44.08	.36	(S)
Other computer peripheral equipment	5.04	1.77	1.28	1.07	1.20	.30	64.06	.32	(S)
Communications equipment, nondefense	3.07	1.77	1.14	1.28	.89	.47	24.07	.39	(S)
Communications equipment, defense	4.20	3.52	2.88	1.63	1.77	.87	5.99	.82	(NS)
Audio and video equipment	4.79	2.68	1.85	1.64	1.13	.33	64.09	.28	(S)
Other electronic components	2.08	1.71	1.04	1.26	.83	.59	23.26	.30	(S)
Search and navigation equipment, nondefense	1.81	1.47	1.18	.77	1.54	.55	17.88	.58	(S)
Search and navigation equipment, defense	2.13	1.75	1.43	.81	1.78	.59	14.64	.65	(S)
Electromedical, measuring, and control instruments ...	1.69	.88	.64	.53	1.21	.43	30.91	.42	(S)
Magnetic and optical media	3.34	2.60	2.19	1.23	1.77	.58	18.09	.67	(S)
Electrical Equipment, Appliances, and Components									
Electric lighting equipment	2.45	.97	.82	.47	1.76	.39	53.36	.40	(S)
Household appliances	3.90	1.26	.85	.79	1.08	.23	218.00	.21	(S)
Electrical equipment	2.23	.96	.67	.63	1.06	.64	10.00	.61	(S)
Batteries	3.19	1.41	1.17	.81	1.44	.29	75.36	.40	(S)
Other electrical equipment, appliances, and components	1.14	.73	.41	.56	.73	.31	67.40	.23	(S)
Transportation Equipment									
Automobiles	4.58	2.87	2.60	.95	2.72	.60	17.71	.72	(S)
Light trucks and utility vehicles	5.95	3.90	3.41	1.32	2.59	.53	14.54	.91	(S)
Heavy duty trucks	2.82	1.92	1.46	1.03	1.41	.66	12.54	.65	(S)
Motor vehicle bodies and trailers	2.75	1.80	1.44	.93	1.56	.63	14.12	.68	(S)
Motor vehicle parts	1.41	1.01	.74	.62	1.19	.58	23.63	.41	(S)
Aircraft, nondefense	2.67	1.67	1.36	.96	1.42	.56	20.31	.39	(S)
Aircraft, defense	2.43	2.25	1.81	1.26	1.44	1.22	4.52	.84	(NS)
Aircraft engines and parts, nondefense	2.54	1.85	1.59	.84	1.90	.68	13.07	.61	(S)
Aircraft engines and parts, defense	4.66	3.48	3.05	1.47	2.08	.55	15.56	.63	(S)
Missiles, space vehicles, and parts, defense	3.29	2.96	1.86	2.01	.93	.45	25.94	.30	(S)
Railroad rolling stock	4.98	2.69	2.32	1.22	1.90	.59	21.16	.56	(S)
Ships and boats, nondefense	3.47	2.03	1.49	1.35	1.11	.84	20.40	.51	(S)
Ships and boats, defense	3.15	2.74	2.40	1.02	2.34	.76	7.86	.84	(S)
Other transportation equipment	3.05	1.99	1.74	.85	2.05	.62	12.79	.51	(S)
Furniture and Related Products									
Household furniture and kitchen cabinets	1.28	.75	.46	.56	.84	.42	44.49	.41	(S)
Office furniture and institutional furniture	1.58	1.18	.85	.78	1.09	.46	40.93	.34	(S)
Other furniture related products	2.08	1.66	1.35	.81	1.67	.73	12.46	.69	(S)
Miscellaneous Products									
Medical equipment and supplies	1.27	.79	.64	.41	1.54	.45	23.10	.47	(S)
Sporting goods, dolls, toys, and games	2.59	1.23	1.04	.58	1.79	.38	33.48	.46	(S)
Office supplies	3.63	1.71	1.08	1.13	.96	.22	131.98	.29	(S)
Other miscellaneous products	1.66	1.03	.73	.65	1.12	.58	31.00	.50	(S)

NS Not seasonally adjusted. S Seasonally adjusted.

Table F-4. **Materials and Supplies Inventories (Seasonal Summary Measures)**

Industry	Average percent changes				Ratio of irregular trend-cycle (\bar{I}/\bar{C})	Ratio of moving to stable seasonality M7	F-value	Q-value	Seasonal adjustment indicator
	Original series (\bar{O})	Seasonally adjusted series (\bar{CI})	Irregular series (\bar{I})	Trend-cycle series (\bar{C})					
Food products	1.82	1.07	.94	.36	2.61	.34	55.14	.54	(S)
Beverages and tobacco	2.04	.97	.85	.41	2.09	.27	83.63	.38	(S)
Textile mills	1.85	1.39	1.20	.61	1.97	.47	20.50	.52	(S)
Textile products	1.61	1.26	.84	.84	1.00	.47	28.96	.35	(S)
Apparel	1.91	1.57	1.03	1.06	.97	.39	43.06	.27	(S)
Leather and allied products	2.64	2.28	1.90	1.06	1.78	.64	12.57	.60	(S)
Wood products	3.65	1.40	1.04	.89	1.17	.32	181.41	.31	(S)
Paper products .....	.94	.85	.57	.61	.94	.71	11.52	.39	(S)
Printing	2.82	2.25	1.98	.99	1.99	.35	34.94	.43	(S)
Petroleum and coal products	3.41	2.86	2.38	1.40	1.70	.57	19.93	.52	(S)
Chemical products .....	.97	.83	.73	.36	2.05	.69	10.06	.67	(S)
Plastics and rubber products	1.17	.94	.59	.73	.81	.51	19.13	.31	(S)
Nonmetallic mineral products .....	.91	.82	.69	.37	1.87	.57	13.39	.54	(S)
Primary metals	1.73	1.19	.67	.91	.74	.21	129.41	.22	(S)
Fabricated metal products	1.40	1.15	.81	.71	1.13	.77	11.54	.46	(S)
Machinery	1.43	.94	.66	.63	1.05	.51	22.19	.38	(S)
Computers and electronic products	2.06	1.61	1.14	1.11	1.02	.52	16.27	.45	(S)
Electrical equipment, appliances, and components	1.42	.92	.59	.67	.88	.56	17.01	.44	(S)
Transportation equipment	1.61	1.14	.92	.59	1.56	.59	17.05	.55	(S)
Furniture and related products	1.17	1.01	.80	.56	1.43	1.16	4.08	.87	(NS)
Miscellaneous products	1.19	.88	.76	.43	1.75	.66	12.16	.59	(S)

NS Not seasonally adjusted. S Seasonally adjusted.

Table F-5. **Work-in-Process Inventories (Seasonal Summary Measures)**

Industry	Average percent changes				Ratio of irregular trend-cycle (\bar{I}/\bar{C})	Ratio of moving to stable seasonality M7	F-value	Q-value	Seasonal adjustment indicator
	Original series (\bar{O})	Seasonally adjusted series (\bar{CI})	Irregular series (\bar{I})	Trend-cycle series (\bar{C})					
Food products	5.70	2.14	1.97	.62	3.18	.13	344.99	.23	(S)
Beverages and tobacco	3.66	1.65	1.31	.86	1.53	.17	203.07	.25	(S)
Textile mills	1.72	1.06	.87	.50	1.75	.46	23.52	.69	(S)
Textile products	2.41	1.49	1.20	.75	1.60	.35	45.97	.42	(S)
Apparel	3.16	1.65	1.32	.92	1.43	.29	60.24	.35	(S)
Leather and allied products	3.78	3.12	2.54	1.36	1.86	.82	8.56	.65	(S)
Wood products	1.75	1.44	1.13	.71	1.61	1.25	5.35	.78	(NS)
Paper products	1.89	1.47	1.25	.74	1.69	.53	20.18	.48	(S)
Printing	6.58	2.88	2.62	1.02	2.58	.30	58.96	.46	(S)
Petroleum and coal products	4.11	2.89	2.67	.96	2.77	.58	20.02	.95	(S)
Chemical products	2.02	1.53	1.31	.63	2.09	.55	20.56	.76	(S)
Plastics and rubber products	1.66	1.18	1.00	.57	1.75	.46	18.91	.55	(S)
Nonmetallic mineral products	2.62	1.43	1.10	.74	1.48	.20	140.67	.30	(S)
Primary metals	1.29	1.08	.74	.78	.96	.78	8.32	.46	(S)
Fabricated metal products	1.27	.80	.65	.41	1.58	.42	32.98	.43	(S)
Machinery	1.89	.79	.55	.49	1.13	.23	143.06	.27	(S)
Computers and electronic products	2.47	1.17	.87	.74	1.17	.38	42.68	.32	(S)
Electrical equipment, appliances, and components	1.99	1.07	.84	.52	1.63	.29	51.32	.40	(S)
Transportation equipment	1.87	1.20	.98	.60	1.63	.42	33.48	.38	(S)
Furniture and related products	1.56	1.25	1.07	.58	1.84	1.29	5.42	1.09	(NS)
Miscellaneous products	2.24	1.49	1.35	.65	2.09	.35	32.54	.80	(S)

NS Not seasonally adjusted. S Seasonally adjusted.

Table F-6. **Finished Goods Inventories (Seasonal Summary Measures)**

Industry	Average percent changes				Ratio of irregular trend-cycle (\bar{I}/\bar{C})	Ratio of moving to stable seasonality M7	F-value	Q-value	Seasonal adjustment indicator
	Original series (\bar{O})	Seasonally adjusted series (\bar{CI})	Irregular series (\bar{I})	Trend-cycle series (\bar{C})					
Food products	2.38	.83	.69	.38	1.82	.22	139.12	.38	(S)
Beverages and tobacco	3.88	2.52	2.27	1.00	2.27	.62	18.05	.77	(S)
Textile mills	2.65	1.29	1.01	.75	1.35	.23	109.76	.25	(S)
Textile products	2.02	1.17	.82	.79	1.04	.28	64.31	.24	(S)
Apparel	3.17	1.60	.95	1.14	.84	.33	72.24	.26	(S)
Leather and allied products	3.23	2.26	1.63	1.32	1.23	.62	23.87	.54	(S)
Wood products	3.09	2.07	1.68	.92	1.83	.34	76.61	.38	(S)
Paper products	1.61	.97	.71	.57	1.24	.42	57.00	.32	(S)
Printing	3.60	1.80	1.27	1.02	1.24	.81	56.85	.52	(S)
Petroleum and coal products	3.24	2.21	1.80	1.24	1.45	.41	34.49	.52	(S)
Chemical products	1.26	.78	.53	.49	1.08	.37	46.91	.33	(S)
Plastics and rubber products	1.51	.82	.51	.64	.80	.17	202.69	.18	(S)
Nonmetallic mineral products	1.86	1.01	.69	.67	1.04	.16	177.53	.15	(S)
Primary metals	1.64	1.25	1.03	.59	1.74	.73	18.24	.48	(S)
Fabricated metal products	1.72	.90	.62	.59	1.05	.29	113.11	.26	(S)
Machinery	1.69	.87	.71	.50	1.40	.28	69.28	.35	(S)
Computers and electronic products	4.42	2.08	1.68	1.05	1.60	.41	42.92	.36	(S)
Electrical equipment, appliances, and components	2.96	.93	.68	.51	1.33	.28	105.44	.33	(S)
Transportation equipment	2.99	1.55	1.34	.63	2.14	.53	31.06	.63	(S)
Furniture and related products	2.38	1.30	.96	.82	1.17	.27	61.12	.29	(S)
Miscellaneous products	1.62	.86	.73	.41	1.77	.42	27.24	.63	(S)

S Seasonally adjusted.

Chapter G.

Description of the M3 Benchmark Data for Shipments and Inventories

GENERAL

The estimates for the 2003 Annual Survey of Manufactures (ASM) are based on reports from a representative sample of approximately 55,000 manufacturing establishments and administrative-record information for small employers and new businesses. These estimates represent the portion of the manufacturing population accounted for by establishments with paid employees. Nonemployers are defined as out-of-scope of the ASM. The 2003 tables provide 2003 and 2002 estimates for employment, plant hours, payrolls, value added by manufacture, capital expenditures, cost of materials, inventories, value of industry shipments, and fuels and electric energy consumed for most manufacturing industries. Establishments are classified in manufacturing industries by industry definitions described in the 2002 North American Industry Classification System (NAICS) manual.¹

SCOPE AND USE OF ANNUAL SURVEY

The 2003 ASM is the 44th survey of this type conducted by the U.S. Census Bureau to provide the key measures of manufacturing activity for industry groups and important industries for intercensal years. These key measures, as well as other detailed statistics for manufacturing, were collected in the economic censuses; the three most recent censuses covered the years 2002, 1997, and 1992. An annual survey was conducted for each of the years between censuses starting with 1949.

During intercensal periods, these annual surveys provide a continuous series of basic statistics for industries and furnish benchmarks for current business indicators and for measures of industrial production and productivity. The survey also provides significant data in connection with planning for industrial mobilization.

DESCRIPTION OF THE SURVEY SAMPLE

The 2002 Economic Census included approximately 350,000 manufacturing establishments. For the 2003 ASM, we conducted mail-out/mail-back surveys of 55,000 selected establishments and administrative data for small employers and new businesses. The mail survey represents all establishments that received a form in the previous economic censuses. Some 25,000 large establishments (all establishments of multi-unit companies with shipments of at least \$500 million, manufacturers of selected computer products, and all remaining establishments with at least 250 employees) are selected with certainty, and some 30,000 other establishments (generally with the equivalent of 20 to 250 employees) are selected with probability proportional to a composite measure of establishment size. Selected establishments receive a long form; except that, to reduce burden, about 5,000 single-establishment firms from industries with large numbers of small firms (that have between 5 to 20 employees) receive a short form.

The mail survey universe is updated annually from three sources; Internal Revenue Service Administrative records are used to include new single-unit manufacturers, the Company Organization Survey identifies new establishments of multi-unit firms, and a manufacturers classification survey identifies kinds of business.

To represent census nonmail cases, small single-establishment firms (generally with 1 to 5 employees) and new establishments, annual estimates are made based on information from Internal Revenue Service individual and business income tax records.

¹**North American Industry Classification System (NAICS) United States, 2002.** To order the 1419-page manual in print or on CD-ROM, call (800) 553-6847.

COMPARABILITY WITH HISTORIC DATA

Both the 2002 Economic Census and the 1997 Economic Census present data based on the North American Industry Classification System (NAICS). While there were revisions to selected industries for 2002, this sector is not affected by those revisions.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the 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 possible 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 that the comparable, complete-survey result would be 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 from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the 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 during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DESCRIPTION OF IMPUTATION PROCEDURE

The need for imputation in the ASM arises from several sources. Complete nonresponse, partial nonresponse, inconsistent reported data, and the Bureau's desire to reduce the reporting burden for small manufacturers are the primary factors contributing to the need for imputation.

For purposes of the ASM, an item is considered to be an impute if the value was not directly reported on the questionnaire, directly derived from other reported items, directly available from supplemental sources, or obtained from the respondent during the analytical review phase.

In imputing records for nonrespondents, two basic approaches are followed. For most larger establishments, operational information is available from the prior-year ASM. Imputation for 2003 data for establishments with 2002 data available involves adjusting the corresponding 2002 data by estimates of the year-to-year relative change. These estimates are developed based on employment and payroll data from the Bureau of Labor Statistics at the industry group (four-digit NAICS) level and are then applied to the 2002 prior-year establishment values for employment and payroll. The remaining data for the establishment are developed based on their prior-year relationship to these two control items. For nonrespondents that have no prior-year record available including establishments not included in the mail portion of the survey, administrative-record data for annual payroll and employment are used. For all other items, industry average relationships between these control items and the item to be imputed are used.

EXPLANATION OF TERMS

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. Included are all items made by or for the establishments 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.

In the case of multiestablishment companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

End-of-Year Inventories

Respondents were asked to report their end-of-year inventories at cost or market.

When using inventory data by stage of fabrication for "all industries" and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and manufacturing totals, which are aggregates of figures reported by establishments in specified industries.

Benchmark Report for Manufacturers' Shipments, Inventories, and Orders:
January 1992 Through December 2004
Current Industrial Reports