



Catalogue no. 31-001-XIE

# Monthly Survey of Manufacturing

September 2004



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Statistics Canada  
Manufacturing, Construction and Energy Division  
Monthly survey of manufacturing section

# Monthly Survey of Manufacturing

September 2004

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## Symbols

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The following standard symbols are used in Statistics Canada publications:

- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0<sup>s</sup> value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- p preliminary
- r revised
- x confidential to meet secrecy requirements of the *Statistics Act*
- E use with caution
- F too unreliable to be published

## Acknowledgments

This publication was prepared under the direction of:

- **Marcelle Dion**, Director, Manufacturing, Construction & Energy Division
- **Daniela Ravindra**, Chief, Monthly Survey of Manufacturing
- **Russell Kowaluk**, Economist, is the author of this publication.

## Notice to users

Estimates in this publication are subject to revision to accommodate newly received information. It is advisable to always use data from the most recent issue. In the following tables, some components may not add exactly to the total, because of rounding. For a complete description of concepts, methodology and definitions, please consult our documentation on Statistics Canada's Website.

## Schedule of releases

<b>Schedule of releases</b>	<b>Monthly survey of manufacturing</b>
Reference period	Release date
November 2003	January 21, 2004
December 2003	February 13, 2004
January 2004	March 16, 2004
February 2004	April 15, 2004
March 2004	May 14, 2004
April 2004	June 15, 2004
May 2004	July 15, 2004
June 2004	August 13, 2004
July 2004	September 15, 2004
August 2004	October 15, 2004
September 2004	November 15, 2004
October 2004	December 15, 2004

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# Highlights

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## Monthly Survey of Manufacturing

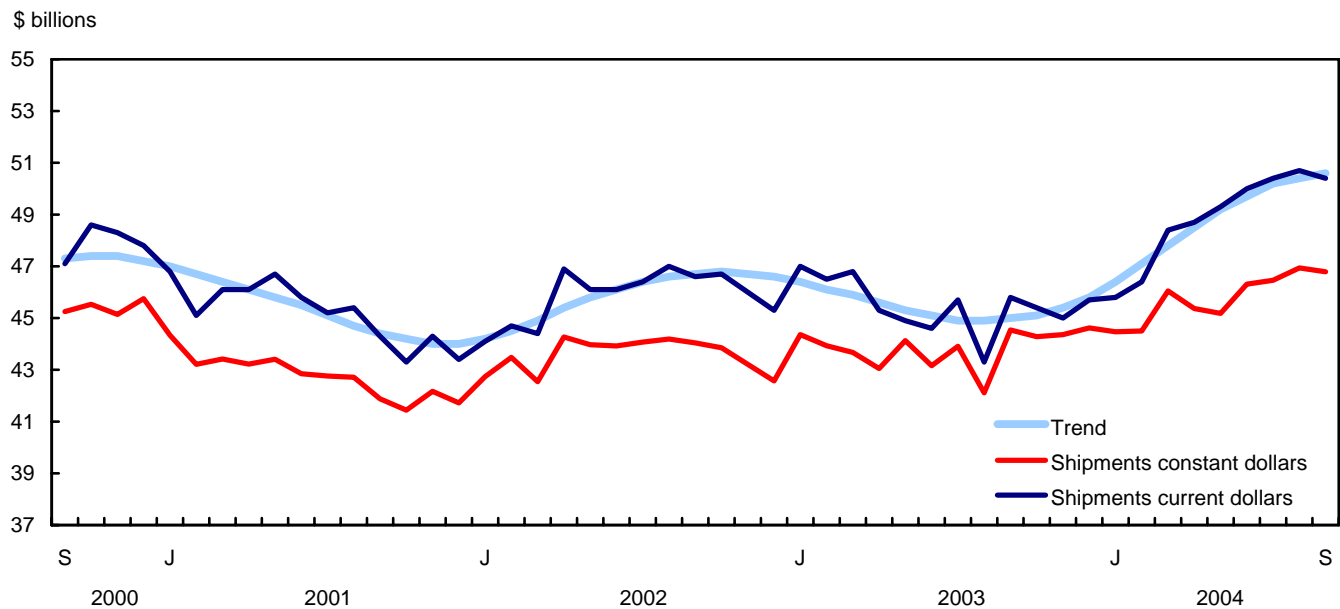
- Following a nine-month climb, shipments retreated 0.6% to \$50.4 billion in September, as a marked decline in the aerospace industry weakened production. Excluding the aerospace industry, shipments remained comparable with August's level.

## Analysis – September 2004

Following a nine-month climb, shipments retreated 0.6% to \$50.4 billion in September, as a marked decline in the aerospace industry weakened production. Excluding the aerospace industry, shipments remained comparable with August's level.

### Chart 1

#### Manufacturing activity weakens slightly after a long run



The manufacturing sector has done well in 2004 as September's decrease in shipments was only the first since November 2003. Healthy demand from abroad has driven durable goods manufacturing through much of the year and coupled with soaring industrial prices for many of Canada's rich, resource-based industries, shipments have been at record levels in recent months.

#### Manufacturers continue to face challenges

Natural disasters and political upheaval in various parts of the world caused quite a stir in the marketplace in September. Hurricanes battered the Caribbean and southeastern United States, hampering oil production in the Gulf of Mexico. In addition, ongoing political strife in the oil-rich Middle East and Nigeria added to the mix of uncertainty in the global state of oil production. As a result, the price of crude oil began to surge again in September, and by late October it would hit a record US \$55 per barrel, which may further affect future manufacturing output.

In addition, the Canadian dollar began to strengthen again in September, at the expense of the US greenback. By mid-October, the dollar would attain its highest value in over a decade. The soaring dollar, coupled with high input prices, continued to chip away at manufacturers' profit margins which may inhibit their ability to expand production and compete internationally.



Although only 11 of the 21 manufacturing industries reported decreases in September, these industries accounted for 70% of total shipments. On a provincial basis, Ontario (-0.3%), Quebec (-1.7%) and Saskatchewan (-4.8%) led the six provinces reporting declines for the month.

Shipments measured in constant dollars slipped 0.3% in September, the first decline since May.

#### Text Table 1

#### Shipments by province and territory

	August 2004	September 2004	August 2004 to September 2004
	seasonally adjusted		
	\$ millions		% change
<b>Canada</b>	<b>50,695</b>	<b>50,404</b>	<b>-0.6</b>
Newfoundland and Labrador	268	249	-7.2
Prince Edward Island	115	116	0.4
Nova Scotia	739	784	6.1
New Brunswick	1,231	1,191	-3.2
Quebec	11,467	11,269	-1.7
Ontario	26,760	26,692	-0.3
Manitoba	1,093	1,054	-3.5
Saskatchewan	913	869	-4.8
Alberta	4,467	4,503	0.8
British Columbia	3,635	3,669	0.9
Yukon Territory	1	2	29.5
Northwest Territories including Nunavut	5	5	4.5

#### Factories producing few new jobs in 2004

Despite September's decline in shipments, 2004 has been a busy year for manufacturers. From January to September, shipments were up a brisk 8.2% compared with the same period in 2003, with more than half of the increase concentrated in the durable goods sector (up 9.3% for the year). However, the buzz of activity on the factory floor has not translated into large job gains. According to the most recent Labour Force Survey, employment in manufacturing was little changed in October and has remained lacklustre since the fall of 2003.

According to the Business Conditions Survey for October, manufacturers remained confident regarding their prospects for the final quarter of 2004. Manufacturers anticipated further improvements for production and employment, while they were also satisfied with the level of orders received.

#### Aerospace manufacturing tumbles

The brunt of September's decline in manufacturing activity was concentrated in the aerospace products and parts industry. Seasonal factors, coupled with the completion of some contracts in prior months, contributed to a 22.9% drop in production to \$880 million in September. In spite of the big decrease, year-to-date production remained 10.7% above levels of the same period in 2003.

Shipments of primary metals fell 1.7% from August's record high of \$3.9 billion. Although steel product prices remained strong, industrial prices for primary metals have eased in recent months (-1.1% in September), contributing to the lower shipments.

Other industries reporting decreases included wood products (-1.6%) and paper (-1.5%) manufacturing.

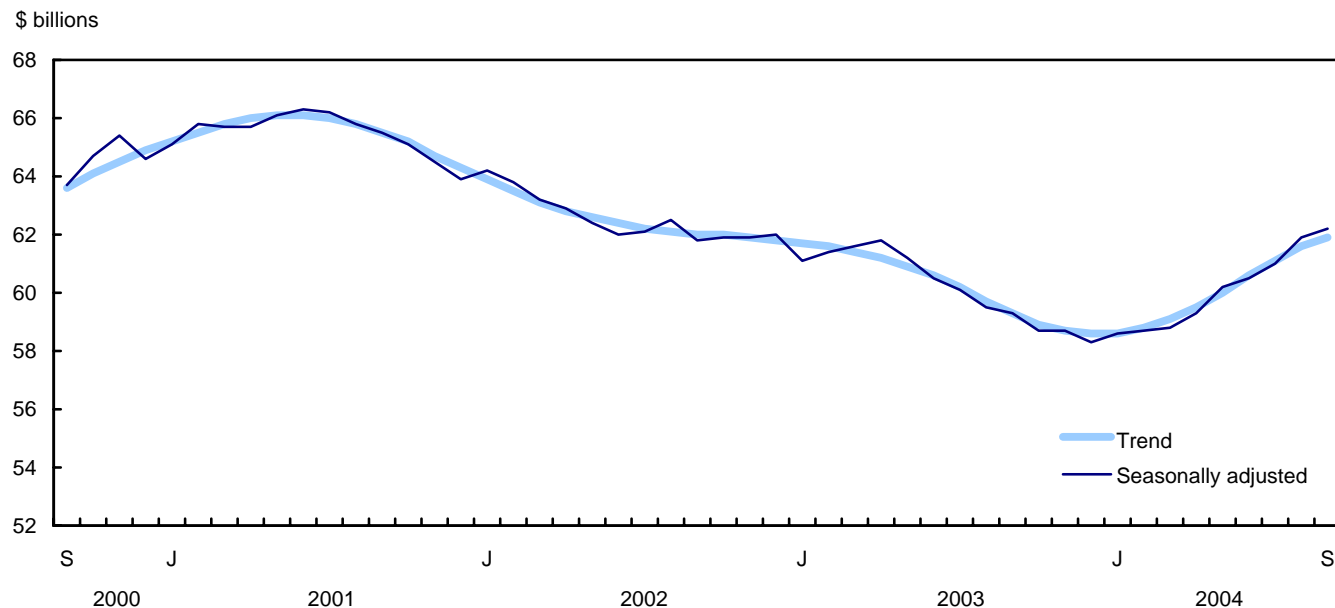
Several industries continued to report strong manufacturing activity in September, partly offsetting the overall decline in manufacturing for the month. Shipments of petroleum and coal products topped the \$4 billion mark (+2.5%) for the first time ever — entirely due to a 2.5% boost in petroleum prices for the month. Wide-ranging increases were reported by the booming fabricated metals products industry (+2.9%). January-to-September shipments for this industry are up 10.5% versus 2003.

### Inventories on an upward trend

Notwithstanding the first decline of shipments in several months, there were mixed signals on the inventory front. Raw material inventories, which are generally built-up in anticipation of future production, rose 0.4% to \$27.1 billion — the seventh successive increase.

Chart 2

#### Manufacturers stock up on finished-products



Meanwhile, inventories of finished products increased 1.1% to \$21 billion in September, the highest level since October 2001. Some manufacturers noted concerns about the higher levels of finished-product inventories, as reported in the Business Conditions Survey for October.

The increases in raw materials and finished-product inventories contributed to the 0.5% boost in total inventories in September. Inventories now stand at \$62.2 billion, up almost 7.0% since the close of 2003, and extending the upward trend in inventories to nine months.

Primary metals (+2.3%), fabricated metal products (+2.1%) and machinery (+1.7%) manufacturing contributed to the higher level of inventories in September.

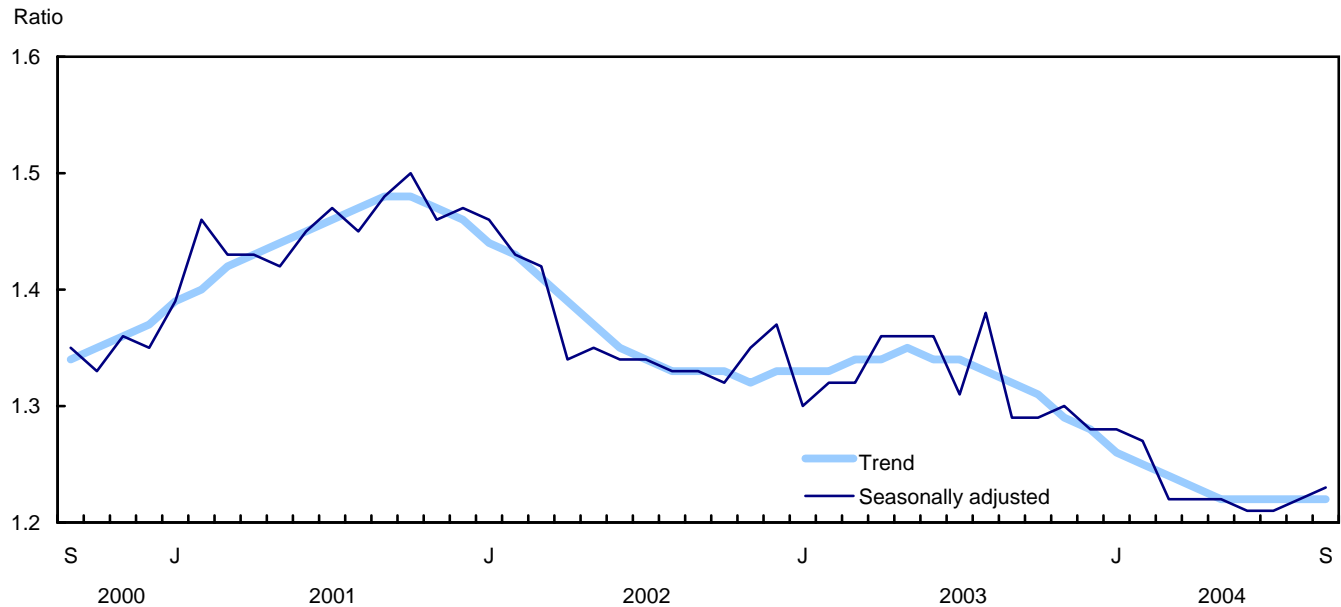
### Inventory-to-shipment ratio edges upwards again

Lower shipments, coupled with a 0.5% rise in inventory levels, contributed to the second consecutive increase in the inventory-to-shipment ratio. The ratio edged up to 1.23 in September, just shy of ratio of 1.21 posted in June and July — the lowest level since the start of the current series in 1992.

The inventory-to-shipment ratio is a key measure of the time, in months, that would be required in order to exhaust inventories if shipments were to remain at their current level.

Chart 3

Lower shipments - higher inventory-to-shipment ratio



Manufacturers faced with fewer unfilled orders

Manufacturers' unfilled orders weakened further in September. Orders retracted by 1.0% to \$37.1 billion, following a 0.9% drop in August. Despite the recent declines, manufacturers still have a cushion that was built-up earlier in the year as the backlog of unfilled orders remains 6.0% above levels at the close of 2003.

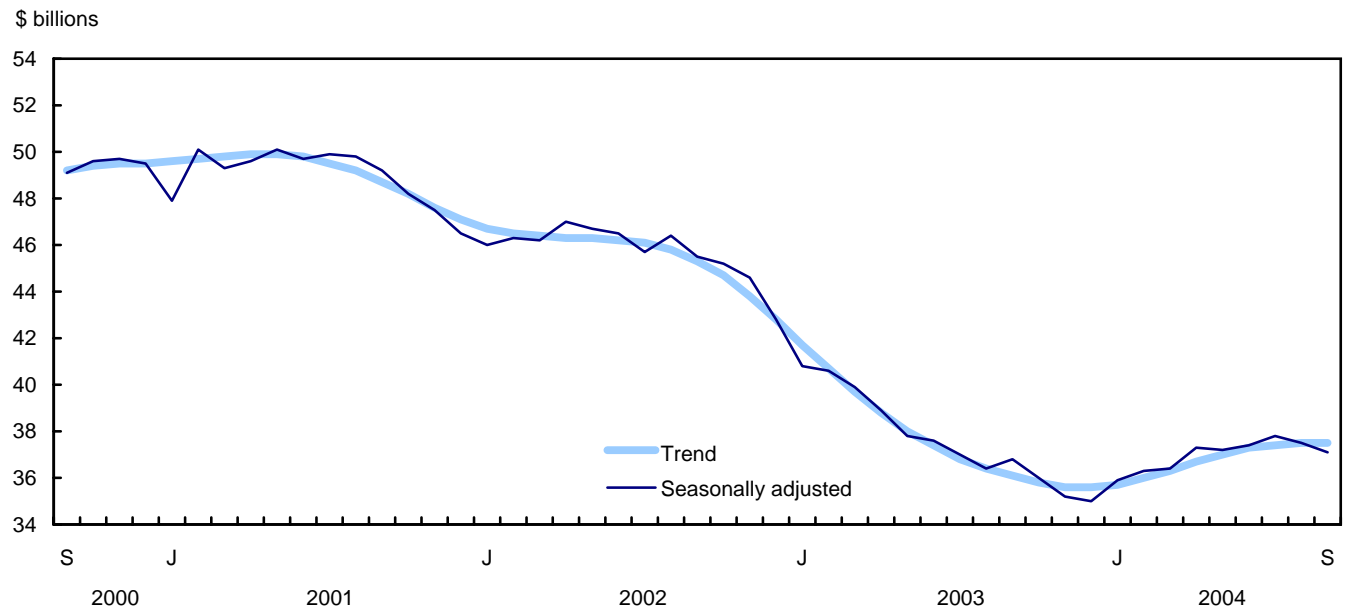
Among the industries reporting decreases were motor vehicle parts (-6.9%) and computer and electronic products (-2.3%) manufacturing. Partly offsetting the decline were manufacturers of fabricated metal products (+2.5%) and primary metals (+4.1%), as they continued to log additional orders in their books.

The beleaguered computer industry pulls down new orders

New orders fell 0.6% to \$50.0 billion in September. A sizable decline in the number of new contracts received by the long-suffering computer industry contributed to the decline. New orders of computer and electronic products slumped 8.9% to \$1.6 billion.

Chart 4

**Backlog of unfilled orders continues to weaken**



Other industries reporting fewer orders received included machinery (-2.6%) and motor vehicle parts (-2.2%) manufacturing.

Chart 5

**Inventories - Monthly change in trend**

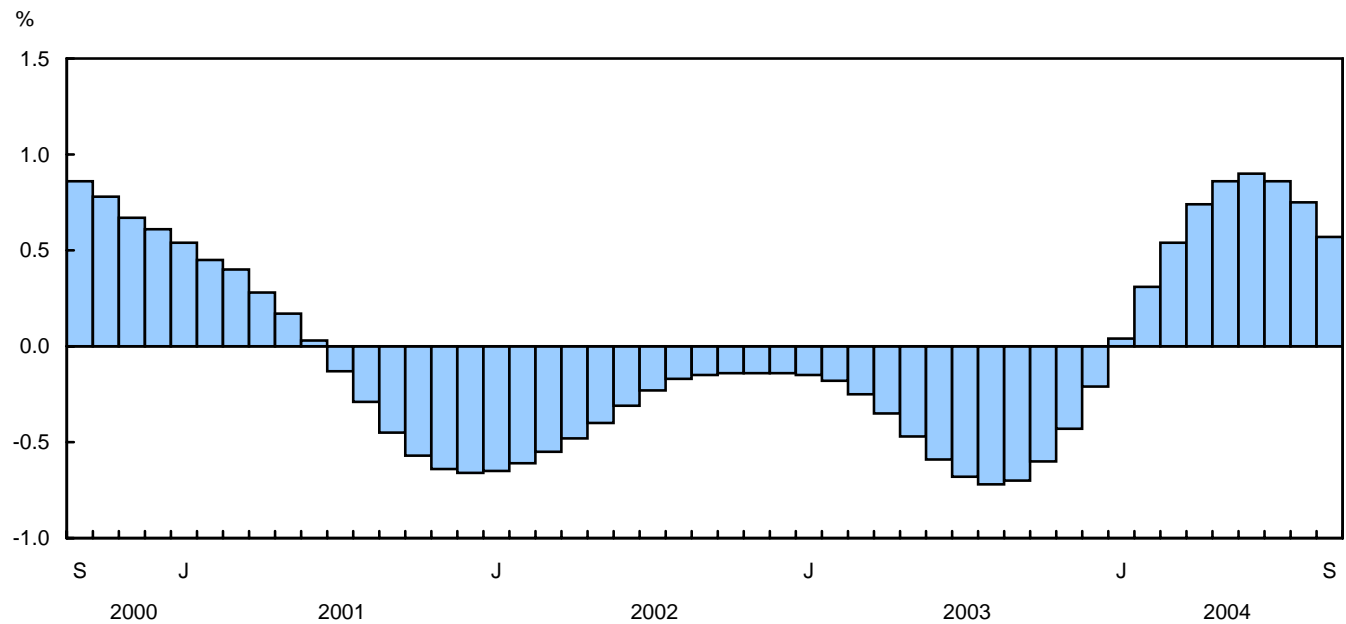


Chart 6

Shipments - Monthly change in trend

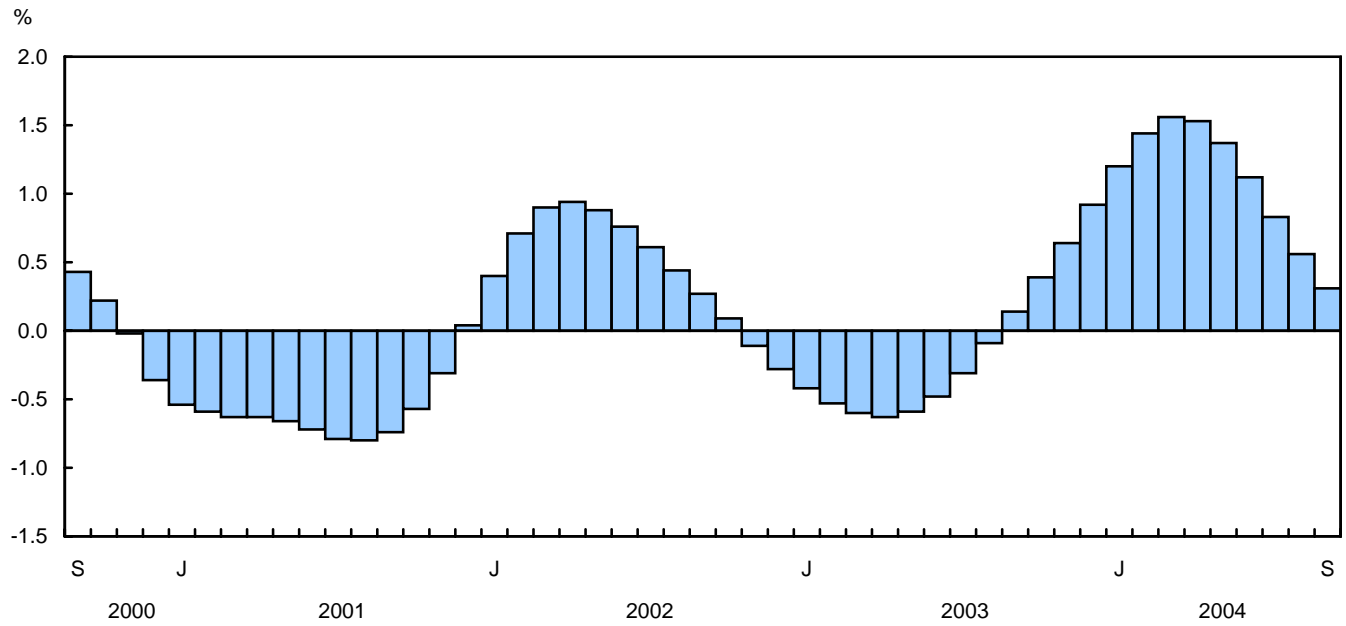
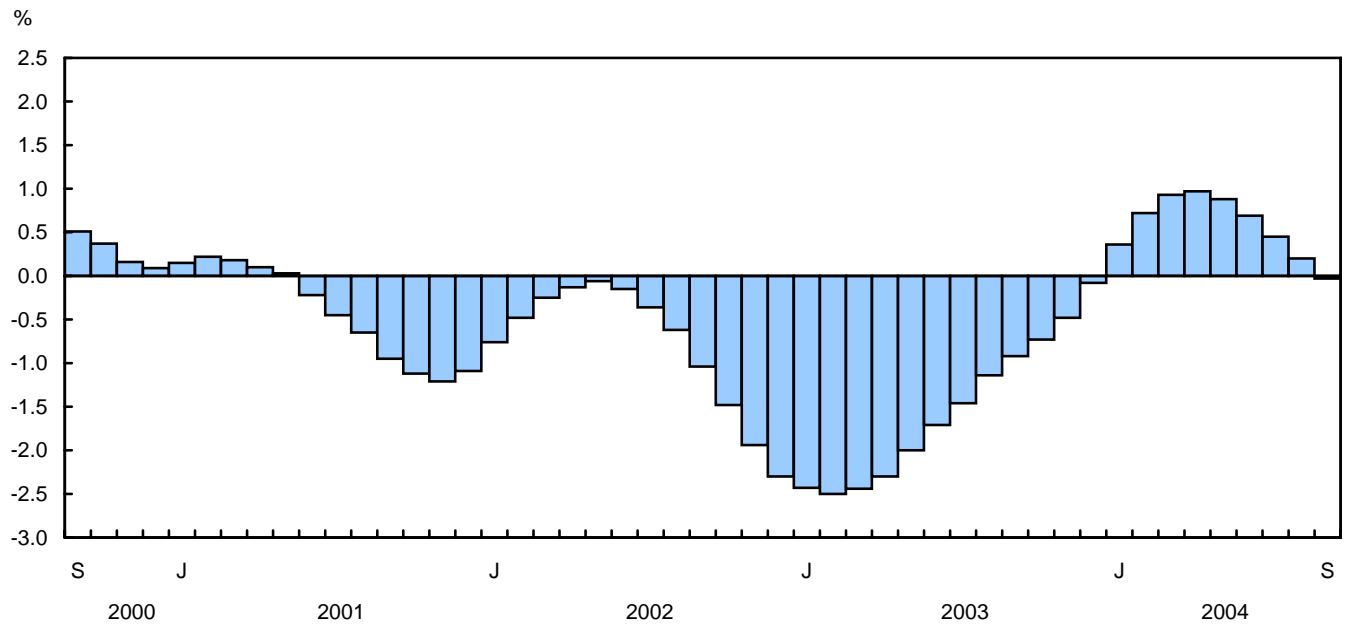


Chart 7

Unfilled orders - Monthly change in trend



### Note to readers

To reduce respondent burden, data previously collected via questionnaire for approximately 50% of the simple establishments in the Monthly Survey of Manufacturing (MSM) sample are now replaced with modeled estimates based on the Goods and Services Tax (GST) returns (effective the August 2004 reference month). Revenue data based on the GST are received from the Canada Revenue Agency on a monthly basis. Data for shipments are derived through the use of statistical modeling. The model takes into account the shipments to revenue relationship, as well as the time lag between the reference month for the MSM and the reference period of the GST estimates.

For additional information, refer to the online article *Monthly Survey of Manufacturing: Use of administrative data (31-533-XIE, free)*.

**Non-durable goods industries** include food, beverage and tobacco products, textile mills, textile product mills, clothing, leather and allied products, paper, printing and related support activities, petroleum and coal products, chemicals and plastic and rubber products.

**Durable goods industries** include wood products, non-metallic mineral products, primary metals, fabricated metal products, machinery, computer and electronic products, electrical equipment, appliances and components, transportation equipment, furniture and related products and miscellaneous manufacturing.

**Unfilled orders** are a stock of orders that will contribute to future shipments assuming that the orders are not cancelled.

**New orders** are those received whether shipped in the current month or not. They are measured as the sum of shipments for the current month plus the change in unfilled orders. Some people interpret new orders as orders that will lead to future demand. This is inappropriate since the "new orders" variable includes orders that have already been shipped. Readers should note that the month-to-month change in new orders may be volatile. This will happen particularly if the previous month's change in unfilled orders is closely related to the current month's change.

Not all orders will be translated into Canadian factory shipments because portions of large contracts can be subcontracted out to manufacturers in other countries.

## Related products

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### Selected publications from Statistics Canada

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31-203-XPB	Manufacturing industries of Canada, national and provincial areas
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### A note on CANSIM

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The data published in Monthly Survey of Manufacturing (Tables 304-0014 and 304-0015) (Catalogue No. 31-001-XIE) are also available in machine-readable form through CANSIM (Canadian Socio-Economic Information Management System). Users interested in accessing data via CANSIM should contact one of Statistics Canada's regional centres at the numbers listed on the inside front cover of this Publication, or contact the Marketing Division, Statistics Canada R.H. Coats Building, Ottawa, Ontario, K1A 0T6 (613) 951-8200.

### Selected CANSIM tables from Statistics Canada

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304-0014	Manufacturers' shipments, inventories, orders and inventory to shipment ratios, by North American Industry Classification System (NAICS), Canada
304-0015	Manufacturing shipments, by North American Industry Classification System (NAICS) and province
377-0008	Real manufacturing shipments, orders, inventory owned and inventory/shipment ratio, 1997 dollars, seasonally adjusted
302-0007	Business conditions survey, by North American Industrial Classification System (NAICS), manufacturing industries, Canada
302-0008	Business conditions survey, Canadian manufacturing industries, by province
028-0002	Industrial capacity utilization rates, by North American Industry Classification System (NAICS)

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### Selected surveys from Statistics Canada

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2101	Monthly Survey of Manufacturing
2152	Business Conditions Survey (BCS)
2821	Capacity Utilization Rates

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## **Selected tables of Canadian statistics from Statistics Canada**

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- *Canadian Statistics - Manufacturing shipments, provinces and territories, monthly*
- *Canadian Statistics - Manufacturing shipments by industry groups (monthly)*
- *Economic indicators - Canada*
- *Canadian Statistics - Manufacturing shipments*
- *Canadian Statistics - Manufacturing shipments, provinces and territories*
- *Canadian Statistics - Business condition survey of the manufacturing sector*
- *Canadian Statistics - Business condition survey of the manufacturing sector, provinces*
- *Canadian Statistics - Industrial capacity utilization rates*



# Statistical Tables

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Table 1-1

## All manufacturing industries - Shipments, inventories and orders

Period	Unadjusted				Seasonally adjusted			
	Shipments	Inventories	Unfilled orders	New orders	Shipments	Inventories	Unfilled orders	New orders
	\$ millions							
September 2003	47,961	58,801	37,228	48,372	45,818	59,307	36,838	46,223
October 2003	48,508	58,200	36,005	47,286	45,373	58,748	35,984	44,519
November 2003	44,983	58,646	35,049	44,027	44,993	58,708	35,204	44,213
December 2003	42,991	57,195	34,653	42,595	45,678	58,301	35,020	45,493
January 2004	42,408	58,233	35,548	43,303	45,801	58,572	35,931	46,712
February 2004	43,757	59,751	36,284	44,493	46,355	58,671	36,346	46,770
March 2004	52,181	60,081	36,343	52,239	48,366	58,838	36,362	48,381
April 2004	49,460	60,186	37,216	50,332	48,749	59,304	37,279	49,667
May 2004	51,363	60,696	37,510	51,658	49,296	60,154	37,226	49,243
June 2004	53,572	60,203	37,357	53,418	49,988	60,492	37,375	50,136
July 2004	45,553	60,354	38,142	46,339	50,371	60,985	37,800	50,796
August 2004	51,771	61,848	37,653	51,281	50,695	61,911	37,452	50,347
September 2004	52,613	61,883	37,401	52,360	50,404	62,206	37,090	50,042

Table 1-2

## All manufacturing industries - Month to month % change and trend

Period	Month to month % change				Inventory to shipments ratio		Month to month % change			
	Shipments		Inventories				Unfilled orders		New orders	
	Seasonally adjusted	Trend	Seasonally adjusted	Trend			Seasonally adjusted	Trend	Seasonally adjusted	Trend
September 2003	5.8	0.1	-0.4	-0.7	1.29	1.32	1.1	-0.9	8.2	0.3
October 2003	-1.0	0.4	-0.9	-0.6	1.29	1.31	-2.3	-0.7	-3.7	0.5
November 2003	-0.8	0.6	-0.1	-0.4	1.30	1.29	-2.2	-0.5	-0.7	0.8
December 2003	1.5	0.9	-0.7	-0.2	1.28	1.28	-0.5	-0.1	2.9	1.2
January 2004	0.3	1.2	0.5	0.0	1.28	1.26	2.6	0.4	2.7	1.6
February 2004	1.2	1.4	0.2	0.3	1.27	1.25	1.2	0.7	0.1	1.7
March 2004	4.3	1.6	0.3	0.5	1.22	1.24	0.0	0.9	3.4	1.7
April 2004	0.8	1.5	0.8	0.7	1.22	1.23	2.5	1.0	2.7	1.6
May 2004	1.1	1.4	1.4	0.9	1.22	1.22	-0.1	0.9	-0.9	1.3
June 2004	1.4	1.1	0.6	0.9	1.21	1.22	0.4	0.7	1.8	1.0
July 2004	0.8	0.8	0.8	0.9	1.21	1.22	1.1	0.4	1.3	0.6
August 2004	0.6	0.6	1.5	0.7	1.22	1.22	-0.9	0.2	-0.9	0.4
September 2004	-0.6	0.3	0.5	0.6	1.23	1.22	-1.0	0.0	-0.6	0.1

Table 2-1

## Motor vehicle, and parts and accessories industries - Shipments, inventories and orders

Period	Unadjusted				Seasonally adjusted			
	Shipments	Inventories	Unfilled orders	New orders	Shipments	Inventories	Unfilled orders	New orders
	\$ millions							
September 2003	8,696	3,167	1,649	8,728	8,337	3,164	1,624	8,347
October 2003	9,022	3,082	1,710	9,083	8,286	3,110	1,680	8,342
November 2003	8,116	3,166	1,771	8,177	7,980	3,093	1,730	8,030
December 2003	7,139	3,001	1,797	7,165	8,233	3,067	1,765	8,267
January 2004	7,785	3,091	1,821	7,810	8,221	3,065	1,801	8,258
February 2004	8,329	3,276	1,872	8,380	8,128	3,214	1,859	8,185
March 2004	10,209	3,440	1,970	10,306	8,701	3,365	1,974	8,817
April 2004	9,592	3,551	2,036	9,659	8,828	3,505	2,083	8,936
May 2004	9,552	3,511	2,070	9,586	8,922	3,441	2,093	8,933
June 2004	10,219	3,338	2,022	10,171	8,980	3,406	2,054	8,941
July 2004	5,627	3,354	2,070	5,676	8,988	3,448	2,079	9,012
August 2004	9,455	3,512	1,932	9,317	9,154	3,548	1,959	9,034
September 2004	9,473	3,480	1,826	9,366	9,132	3,515	1,830	9,003

Table 2-2

## Motor vehicle, and parts and accessories industries - Month to month % change and trend

Period	Month to month % change				Inventory to shipments ratio		Month to month % change			
	Shipments		Inventories				Unfilled orders		New orders	
	Seasonally adjusted	Trend	Seasonally adjusted	Trend			Seasonally adjusted	Trend	Seasonally adjusted	Trend
September 2003	14.1	-0.6	4.3	-0.3	0.38	0.38	0.7	1.6	13.6	-0.4
October 2003	-0.6	-0.3	-1.7	0.0	0.38	0.38	3.5	2.3	-0.1	-0.2
November 2003	-3.7	-0.1	-0.5	0.4	0.39	0.38	3.0	2.9	-3.7	0.1
December 2003	3.2	0.4	-0.8	0.8	0.37	0.38	2.0	3.3	3.0	0.5
January 2004	-0.1	0.9	-0.1	1.2	0.37	0.38	2.1	3.5	-0.1	0.9
February 2004	-1.1	1.4	4.9	1.6	0.40	0.38	3.2	3.4	-0.9	1.4
March 2004	7.1	1.7	4.7	1.7	0.39	0.38	6.2	2.9	7.7	1.6
April 2004	1.5	1.8	4.2	1.7	0.40	0.38	5.5	2.1	1.4	1.6
May 2004	1.1	1.6	-1.8	1.6	0.39	0.38	0.5	1.2	0.0	1.4
June 2004	0.7	1.3	-1.0	1.3	0.38	0.38	-1.9	0.3	0.1	1.1
July 2004	0.1	1.0	1.2	1.0	0.38	0.38	1.2	-0.5	0.8	0.8
August 2004	1.8	0.7	2.9	0.7	0.39	0.38	-5.8	-0.9	0.2	0.6
September 2004	-0.2	0.4	-0.9	0.4	0.38	0.38	-6.6	-1.1	-0.3	0.4

Table 3-1

**All manufacturing industries except motor vehicle, parts and accessories industries - Shipments, inventories and orders**

Period	Unadjusted				Seasonally adjusted			
	Shipments	Inventories	Unfilled orders	New orders	Shipments	Inventories	Unfilled orders	New orders
	\$ millions							
September 2003	39,265	55,633	35,579	39,644	37,482	56,143	35,213	37,876
October 2003	39,487	55,118	34,295	38,203	37,087	55,638	34,303	36,177
November 2003	36,867	55,480	33,278	35,850	37,013	55,615	33,474	36,183
December 2003	35,852	54,194	32,856	35,430	37,445	55,234	33,255	37,226
January 2004	34,622	55,142	33,726	35,493	37,579	55,507	34,130	38,454
February 2004	35,428	56,475	34,412	36,113	38,228	55,457	34,487	38,585
March 2004	41,972	56,641	34,373	41,933	39,665	55,473	34,387	39,564
April 2004	39,867	56,635	35,180	40,674	39,922	55,799	35,196	40,731
May 2004	41,811	57,185	35,440	42,071	40,374	56,713	35,133	40,311
June 2004	43,352	56,865	35,335	43,247	41,007	57,086	35,321	41,195
July 2004	39,926	56,999	36,072	40,664	41,383	57,536	35,722	41,784
August 2004	42,315	58,336	35,720	41,964	41,542	58,363	35,493	41,313
September 2004	43,140	58,403	35,575	42,994	41,272	58,691	35,260	41,039

Table 3-2

**All manufacturing industries except motor vehicle, parts and accessories industries - Month to month % change and trend**

Period	Month to month % change				Inventory to shipments ratio		Month to month % change			
	Shipments		Inventories				Unfilled orders		New orders	
	Seasonally adjusted	Trend	Seasonally adjusted	Trend			Seasonally adjusted	Trend	Seasonally adjusted	Trend
September 2003	4.2	0.3	-0.6	-0.7	1.50	1.53	1.1	-1.0	7.1	0.5
October 2003	-1.1	0.5	-0.9	-0.6	1.50	1.51	-2.6	-0.9	-4.5	0.7
November 2003	-0.2	0.8	0.0	-0.5	1.50	1.49	-2.4	-0.6	0.0	1.0
December 2003	1.2	1.0	-0.7	-0.3	1.48	1.47	-0.7	-0.3	2.9	1.4
January 2004	0.4	1.3	0.5	0.0	1.48	1.45	2.6	0.2	3.3	1.7
February 2004	1.7	1.5	-0.1	0.2	1.45	1.44	1.0	0.6	0.3	1.8
March 2004	3.8	1.5	0.0	0.5	1.40	1.42	-0.3	0.8	2.5	1.7
April 2004	0.6	1.5	0.6	0.7	1.40	1.41	2.4	0.9	2.9	1.5
May 2004	1.1	1.3	1.6	0.8	1.40	1.40	-0.2	0.9	-1.0	1.3
June 2004	1.6	1.1	0.7	0.9	1.39	1.40	0.5	0.7	2.2	1.0
July 2004	0.9	0.8	0.8	0.9	1.39	1.40	1.1	0.5	1.4	0.6
August 2004	0.4	0.5	1.4	0.7	1.40	1.40	-0.6	0.3	-1.1	0.3
September 2004	-0.7	0.3	0.6	0.6	1.42	1.41	-0.7	0.0	-0.7	0.1

Table 4-1

## Shipments by major group and selected industries - Unadjusted

NAICS Code	Current periods				Previous year		Year to date		Annual		
	Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% change from 2003	2004	% change from 2002	2003	
\$millions											
Food manufacturing	311	5,998	5,938	6,011	6,145	5,489	5,299	9.2	51,113	1.7	63,436
Beverage and tobacco product manufacturing	312	981	1,109	1,141	1,171	1,028	1,120	-0.1	8,971	3.2	12,032
Textile mills	313	287	270	242	302	305	283	-4.0	2,493	-11.0	3,421
Textile product mills	314	192	193	178	202	192	184	-3.8	1,683	-10.3	2,297
Clothing manufacturing	315	605	578	490	491	648	638	-7.3	4,917	-6.3	7,075
Leather and allied product manufacturing	316	75	66	44	40	96	84	-17.3	449	-13.7	743
Wood product manufacturing	321	3,388	3,450	3,323	3,551	2,891	2,746	21.8	28,572	-3.4	31,248
Paper manufacturing	322	2,776	2,812	2,802	2,849	2,818	2,774	-1.7	24,835	-3.6	33,204
Printing and related support activities	323	1,029	988	896	985	1,015	906	1.2	8,680	-0.7	11,590
Petroleum and coal products manufacturing	324	4,151	4,134	4,022	3,804	3,060	3,252	15.9	32,982	9.0	37,355
Chemical manufacturing	325	3,994	3,983	3,758	4,058	3,393	3,080	10.2	34,408	3.6	41,187
Plastics and rubber products manufacturing	326	2,267	2,271	1,995	2,372	2,188	1,969	4.4	19,452	1.0	24,722
Non-metallic mineral product manufacturing	327	1,289	1,247	1,161	1,274	1,223	1,165	5.1	9,428	5.3	11,994
Primary metal manufacturing	331	3,882	3,735	3,373	3,855	3,331	2,818	18.1	33,010	2.3	37,606
Fabricated metal product manufacturing	332	3,382	3,112	2,698	3,076	2,887	2,560	10.5	25,556	0.4	31,026
Machinery manufacturing	333	2,499	2,270	2,179	2,494	2,283	1,899	6.9	20,321	-2.9	25,576
Computer and electronic product manufacturing	334	1,836	1,566	1,490	1,883	1,954	1,441	9.3	14,921	-13.1	18,790
Electrical equipment, appliance and component manufacturing	335	952	865	790	947	915	791	5.4	7,868	-5.7	9,984
Transportation equipment manufacturing	336	11,076	11,279	7,242	12,143	10,316	8,823	5.4	96,459	-3.9	120,949
Motor vehicle manufacturing	3361	6,534	6,439	3,708	7,314	5,930	4,842	4.1	55,094	-6.4	69,258
Motor vehicle body and trailer manufacturing	3362	335	312	276	350	303	269	2.4	2,862	0.1	3,695
Motor vehicle parts manufacturing	3363	2,939	3,016	1,919	2,905	2,766	2,497	7.1	25,148	-0.1	31,433
Aerospace product and parts manufacturing	3364	826	1,131	954	1,150	899	881	10.7	9,469	1.5	11,586
Railroad rolling stock manufacturing	3365	218	169	177	187	198	123	-4.9	1,692	-7.7	2,370
Ship and boat building	3366	97	91	101	118	73	75	12.9	950	-5.4	1,100
Furniture and related product manufacturing	337	1,283	1,230	1,127	1,237	1,268	1,165	2.1	10,761	1.2	14,035
Miscellaneous manufacturing	339	672	676	591	693	661	612	5.6	5,799	3.5	7,495
<b>Non-durable goods industries<sup>1</sup></b>		<b>22,354</b>	<b>22,343</b>	<b>21,580</b>	<b>22,419</b>	<b>20,232</b>	<b>19,590</b>	<b>6.7</b>	<b>189,982</b>	<b>1.5</b>	<b>237,062</b>
<b>Durable goods industries<sup>2</sup></b>		<b>30,259</b>	<b>29,428</b>	<b>23,974</b>	<b>31,153</b>	<b>27,729</b>	<b>24,020</b>	<b>9.3</b>	<b>252,695</b>	<b>-2.6</b>	<b>308,703</b>
<b>Manufacturing</b>		<b>52,613</b>	<b>51,771</b>	<b>45,553</b>	<b>53,572</b>	<b>47,961</b>	<b>43,610</b>	<b>8.2</b>	<b>442,676</b>	<b>-0.8</b>	<b>545,765</b>

1. Non-durable goods industries include the following NAICS: 311, 312, 313, 314, 315, 316, 322, 323, 324, 325, 326

2. Durable goods industries include the following NAICS: 321, 327, 331, 332, 333, 334, 335, 336, 337, 339

Table 4-2

## Shipments by major group and selected industries - Seasonally adjusted

	NAICS Code	Change from August	Current periods				Change from previous month			Trend change from previous month				
			Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2004	Aug. 2004	July 2004	Sept. 2004	Aug. 2004	July 2004	June 2004	
			\$ millions				percentage							
Food manufacturing	311	-15	5,765	5,780	5,890	5,783	-0.3	-1.9	1.9	0.1	0.2	0.3	0.5	
Beverage and tobacco product manufacturing	312	-26	969	995	978	1,011	-2.6	1.7	-3.2	-0.4	-0.4	-0.4	-0.3	
Textile mills	313	0	266	266	293	278	-0.1	-9.1	5.3	-0.5	-0.6	-0.6	-0.6	
Textile product mills	314	1	187	186	186	186	0.3	0.2	-0.2	0.1	0.1	0.2	0.2	
Clothing manufacturing	315	25	546	522	525	547	4.7	-0.6	-4.0	-0.1	-0.3	-0.6	-0.9	
Leather and allied product manufacturing	316	0	48	48	54	48	1.0	-11.7	13.6	-0.5	-1.3	-2.1	-2.9	
Wood product manufacturing	321	-52	3,197	3,249	3,332	3,197	-1.6	-2.5	4.2	-0.3	0.2	0.8	1.6	
Paper manufacturing	322	-42	2,713	2,755	2,844	2,813	-1.5	-3.1	1.1	-0.8	-0.5	-0.1	0.4	
Printing and related support activities	323	-12	981	992	980	980	-1.2	1.3	-0.1	0.0	0.1	0.3	0.4	
Petroleum and coal products manufacturing	324	97	4,034	3,937	3,913	3,837	2.5	0.6	2.0	1.0	1.8	2.6	3.4	
Chemical manufacturing	325	-10	4,060	4,069	3,938	3,823	-0.2	3.3	3.0	1.1	1.5	1.8	2.1	
Plastics and rubber products manufacturing	326	3	2,174	2,171	2,181	2,150	0.1	-0.4	1.4	0.2	0.4	0.5	0.6	
Non-metallic mineral product manufacturing	327	9	1,057	1,048	1,035	1,060	0.8	1.2	-2.3	0.0	0.0	0.1	0.2	
Primary metal manufacturing	331	-67	3,790	3,857	3,760	3,735	-1.7	2.6	0.7	0.2	0.5	0.8	1.3	
Fabricated metal product manufacturing	332	88	3,064	2,976	2,871	2,899	2.9	3.7	-1.0	1.2	1.5	1.6	1.6	
Machinery manufacturing	333	-21	2,379	2,400	2,349	2,350	-0.9	2.2	0.0	0.6	0.9	1.3	1.6	
Computer and electronic product manufacturing	334	0	1,654	1,654	1,666	1,720	0.0	-0.7	-3.2	-0.5	-0.7	-0.8	-0.7	
Electrical equipment, appliance and component manufacturing	335	4	894	891	855	880	0.4	4.2	-2.9	0.4	0.4	0.4	0.4	
Transportation equipment manufacturing	336	-266	10,785	11,051	10,889	10,847	-2.4	1.5	0.4	0.4	0.7	0.9	1.2	
Motor vehicle manufacturing	3361	16	6,330	6,314	6,277	6,282	0.2	0.6	-0.1	0.6	0.9	1.2	1.7	
Motor vehicle body and trailer manufacturing	3362	-8	329	337	332	321	-2.4	1.4	3.3	0.6	1.1	1.5	1.7	
Motor vehicle parts manufacturing	3363	-37	2,802	2,839	2,711	2,698	-1.3	4.8	0.5	0.2	0.2	0.3	0.4	
Aerospace product and parts manufacturing	3364	-261	880	1,141	1,096	1,149	-22.9	4.1	-4.6	-0.3	-0.1	0.1	0.5	
Railroad rolling stock manufacturing	3365	1	192	191	262	171	0.4	-26.8	53.3	-0.2	0.1	0.3	0.3	
Ship and boat building	3366	17	124	107	105	107	15.5	2.5	-1.6	2.3	2.9	3.0	2.6	
Furniture and related product manufacturing	337	22	1,196	1,175	1,200	1,182	1.8	-2.1	1.5	0.2	0.2	0.1	0.1	
Miscellaneous manufacturing	339	-28	646	674	635	661	-4.2	6.3	-4.0	-0.2	-0.1	0.0	0.3	
<b>Non-durable goods industries<sup>1</sup></b>		<b>20</b>	<b>21,742</b>	<b>21,721</b>	<b>21,780</b>	<b>21,456</b>	<b>0.1</b>	<b>-0.3</b>	<b>1.5</b>	<b>0.3</b>	<b>0.6</b>	<b>0.9</b>	<b>1.2</b>	
<b>Durable goods industries<sup>2</sup></b>		<b>-312</b>	<b>28,662</b>	<b>28,974</b>	<b>28,591</b>	<b>28,532</b>	<b>-1.1</b>	<b>1.3</b>	<b>0.2</b>	<b>0.3</b>	<b>0.5</b>	<b>0.8</b>	<b>1.0</b>	
<b>Manufacturing</b>		<b>-292</b>	<b>50,404</b>	<b>50,695</b>	<b>50,371</b>	<b>49,988</b>	<b>-0.6</b>	<b>0.6</b>	<b>0.8</b>	<b>0.3</b>	<b>0.6</b>	<b>0.8</b>	<b>1.1</b>	

1. Non-durable goods industries include the following NAICS: 311, 312, 313, 314, 315, 316, 322, 323, 324, 325, 326

2. Durable goods industries include the following NAICS: 321, 327, 331, 332, 333, 334, 335, 336, 337, 339

Table 5-1

## Inventories by major group and selected industries - Unadjusted

	NAICS Code	Current periods				Previous year		Year to date		Average per month	
		Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% change from 2003	Average 2004	% change from 2002	2003
\$millions											
Food manufacturing	311	4,865	4,767	4,748	4,744	4,706	4,522	3.9	4,709	0.2	4,564
Beverage and tobacco product manufacturing	312	1,590	1,625	1,638	1,691	1,596	1,625	-1.0	1,649	2.7	1,650
Textile mills	313	530	530	517	479	511	524	-7.4	491	-8.0	519
Textile product mills	314	369	366	366	360	358	353	-2.4	360	-4.2	365
Clothing manufacturing	315	1,237	1,272	1,285	1,256	1,481	1,508	-12.7	1,294	0.9	1,451
Leather and allied product manufacturing	316	132	151	157	153	136	152	-8.7	134	-9.8	141
Wood product manufacturing	321	4,104	4,121	4,111	4,214	4,036	4,042	-5.1	4,467	-0.9	4,533
Paper manufacturing	322	3,630	3,650	3,602	3,581	3,494	3,562	-1.1	3,573	-1.1	3,588
Printing and related support activities	323	908	901	892	855	865	882	-0.4	870	-2.4	870
Petroleum and coal products manufacturing	324	2,368	2,376	2,339	2,277	1,951	2,155	9.5	2,249	0.8	2,009
Chemical manufacturing	325	6,168	6,169	6,093	6,050	5,571	5,614	8.6	6,126	9.3	5,652
Plastics and rubber products manufacturing	326	2,294	2,303	2,329	2,345	2,207	2,235	1.2	2,324	4.4	2,279
Non-metallic mineral product manufacturing	327	1,107	1,115	1,135	1,147	1,089	1,103	0.4	1,143	-0.2	1,125
Primary metal manufacturing	331	5,431	5,300	5,091	4,914	4,741	4,852	-1.9	4,872	-1.5	4,902
Fabricated metal product manufacturing	332	4,314	4,271	4,111	3,935	3,597	3,717	3.3	3,875	1.3	3,676
Machinery manufacturing	333	4,826	4,785	4,604	4,624	4,454	4,482	1.8	4,618	-3.2	4,522
Computer and electronic product manufacturing	334	3,859	3,911	3,852	3,802	4,258	4,378	-11.2	3,963	-11.3	4,398
Electrical equipment, appliance and component manufacturing	335	1,893	1,954	1,947	1,907	1,801	1,860	-1.2	1,877	-2.8	1,870
Transportation equipment manufacturing	336	9,787	9,824	9,145	9,455	9,524	9,438	-4.9	9,316	-17.9	9,637
Motor vehicle manufacturing	3361	1,560	1,587	1,443	1,442	1,348	1,232	14.4	1,495	-8.6	1,288
Motor vehicle body and trailer manufacturing	3362	469	465	456	469	441	438	-4.5	454	12.3	466
Motor vehicle parts manufacturing	3363	1,920	1,925	1,911	1,896	1,820	1,773	-3.0	1,900	13.1	1,847
Aerospace product and parts manufacturing	3364	4,785	4,753	4,281	4,595	4,801	4,881	-10.9	4,442	-30.5	4,875
Railroad rolling stock manufacturing	3365	811	864	831	800	835	864	-14.9	775	-7.5	876
Ship and boat building	3366	105	100	100	101	129	109	-13.2	111	-1.8	129
Furniture and related product manufacturing	337	1,261	1,256	1,197	1,217	1,228	1,233	-3.1	1,215	2.7	1,238
Miscellaneous manufacturing	339	1,211	1,201	1,195	1,198	1,196	1,183	1.2	1,234	4.1	1,217
<b>Non-durable goods industries<sup>1</sup></b>		<b>24,091</b>	<b>24,110</b>	<b>23,965</b>	<b>23,791</b>	<b>22,877</b>	<b>23,133</b>	<b>2.5</b>	<b>23,779</b>	<b>2.3</b>	<b>23,087</b>
<b>Durable goods industries<sup>2</sup></b>		<b>37,793</b>	<b>37,738</b>	<b>36,388</b>	<b>36,412</b>	<b>35,924</b>	<b>36,287</b>	<b>-3.1</b>	<b>36,580</b>	<b>-7.1</b>	<b>37,118</b>
<b>Manufacturing</b>		<b>61,883</b>	<b>61,848</b>	<b>60,354</b>	<b>60,203</b>	<b>58,801</b>	<b>59,420</b>	<b>-0.9</b>	<b>60,359</b>	<b>-3.7</b>	<b>60,205</b>

1. Non-durable goods industries include the following NAICS: 311, 312, 313, 314, 315, 316, 322, 323, 324, 325, 326

2. Durable goods industries include the following NAICS: 321, 327, 331, 332, 333, 334, 335, 336, 337, 339

Table 5-2

## Inventories by major group and selected industries - Seasonally adjusted

	NAICS Code	Change from August	Current periods				Change from previous month			Trend change from previous month				
			Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2004	Aug. 2004	July 2004	Sept. 2004	Aug. 2004	July 2004	June 2004	
			\$ millions				percentage							
Food manufacturing	311	-13	4,742	4,755	4,809	4,770	-0.3	-1.1	0.8	-0.1	0.0	0.1	0.3	
Beverage and tobacco product manufacturing	312	4	1,647	1,643	1,639	1,649	0.2	0.3	-0.6	0.1	0.2	0.2	0.2	
Textile mills	313	4	529	525	523	481	0.7	0.3	8.8	1.3	1.7	1.9	2.0	
Textile product mills	314	2	371	369	370	360	0.5	-0.3	2.9	0.5	0.8	0.9	1.0	
Clothing manufacturing	315	-20	1,216	1,236	1,231	1,199	-1.6	0.4	2.7	-0.4	-0.9	-1.3	-1.7	
Leather and allied product manufacturing	316	-2	131	133	131	131	-1.4	1.7	0.1	0.3	0.5	0.5	0.5	
Wood product manufacturing	321	-23	4,447	4,470	4,390	4,421	-0.5	1.8	-0.7	0.2	0.3	0.5	0.5	
Paper manufacturing	322	43	3,694	3,650	3,598	3,598	1.2	1.5	0.0	0.8	0.9	0.8	0.7	
Printing and related support activities	323	19	905	886	883	872	2.1	0.4	1.2	0.9	1.0	1.0	0.8	
Petroleum and coal products manufacturing	324	68	2,339	2,270	2,270	2,273	3.0	0.0	-0.1	0.8	1.2	1.5	1.8	
Chemical manufacturing	325	54	6,282	6,228	6,191	6,108	0.9	0.6	1.3	0.4	0.6	0.7	0.7	
Plastics and rubber products manufacturing	326	4	2,335	2,332	2,345	2,328	0.2	-0.6	0.7	0.2	0.3	0.4	0.5	
Non-metallic mineral product manufacturing	327	11	1,142	1,132	1,128	1,128	0.9	0.4	0.0	0.3	0.3	0.3	0.3	
Primary metal manufacturing	331	121	5,329	5,209	5,047	4,954	2.3	3.2	1.9	1.6	1.9	2.1	2.1	
Fabricated metal product manufacturing	332	87	4,334	4,247	4,075	3,905	2.1	4.2	4.3	1.8	2.4	2.8	3.0	
Machinery manufacturing	333	82	4,818	4,736	4,621	4,642	1.7	2.5	-0.4	0.8	0.8	0.8	0.8	
Computer and electronic product manufacturing	334	38	3,914	3,876	3,911	3,928	1.0	-0.9	-0.4	0.1	0.1	-0.1	-0.3	
Electrical equipment, appliance and component manufacturing	335	-45	1,914	1,959	1,942	1,882	-2.3	0.8	3.2	0.8	1.1	1.2	1.3	
Transportation equipment manufacturing	336	-159	9,647	9,805	9,469	9,451	-1.6	3.6	0.2	0.3	0.6	0.9	1.2	
Motor vehicle manufacturing	3361	-26	1,564	1,590	1,515	1,502	-1.6	5.0	0.9	0.4	0.8	1.3	1.9	
Motor vehicle body and trailer manufacturing	3362	7	474	467	463	463	1.4	0.9	0.0	0.5	0.8	1.1	1.3	
Motor vehicle parts manufacturing	3363	-7	1,951	1,958	1,934	1,905	-0.4	1.3	1.5	0.4	0.6	0.7	0.9	
Aerospace product and parts manufacturing	3364	-82	4,607	4,689	4,488	4,545	-1.7	4.5	-1.3	0.4	0.6	0.8	1.0	
Railroad rolling stock manufacturing	3365	-53	811	864	831	800	-6.2	4.1	3.8	0.0	1.1	2.1	2.9	
Ship and boat building	3366	-1	106	107	108	109	-0.7	-1.3	-1.3	-0.5	-1.1	-1.5	-1.7	
Furniture and related product manufacturing	337	11	1,253	1,242	1,201	1,212	0.9	3.4	-0.9	0.5	0.7	0.7	0.7	
Miscellaneous manufacturing	339	9	1,218	1,209	1,210	1,200	0.8	-0.1	0.9	-0.1	-0.3	-0.4	-0.5	
<b>Non-durable goods industries<sup>1</sup></b>		<b>163</b>	<b>24,191</b>	<b>24,028</b>	<b>23,990</b>	<b>23,769</b>	<b>0.7</b>	<b>0.2</b>	<b>0.9</b>	<b>0.4</b>	<b>0.5</b>	<b>0.6</b>	<b>0.7</b>	
<b>Durable goods industries<sup>2</sup></b>		<b>132</b>	<b>38,015</b>	<b>37,883</b>	<b>36,995</b>	<b>36,723</b>	<b>0.3</b>	<b>2.4</b>	<b>0.7</b>	<b>0.7</b>	<b>0.9</b>	<b>1.0</b>	<b>1.0</b>	
<b>Manufacturing</b>		<b>296</b>	<b>62,206</b>	<b>61,911</b>	<b>60,985</b>	<b>60,492</b>	<b>0.5</b>	<b>1.5</b>	<b>0.8</b>	<b>0.6</b>	<b>0.7</b>	<b>0.9</b>	<b>0.9</b>	

1. Non-durable goods industries include the following NAICS: 311, 312, 313, 314, 315, 316, 322, 323, 324, 325, 326

2. Durable goods industries include the following NAICS: 321, 327, 331, 332, 333, 334, 335, 336, 337, 339



Table 6-1

## Unfilled orders by selected major group and industries - Unadjusted

	NAICS Code	Current periods				Previous year		Year to date		Average per month	
		Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% Change from 2003	Average 2004	% Change from 2002	2003
\$millions											
Textile mills	313	238	224	217	223	218	233	-9.0	219	-20.6	233
Textile product mills	314	107	105	92	91	77	70	5.2	93	6.6	86
Clothing manufacturing	315	188	188	207	218	184	203	-6.8	196	3.6	199
Leather and allied product manufacturing	316	16	22	25	25	24	29	-20.8	23	-2.2	28
Plastics and rubber products manufacturing	326	495	464	435	410	388	372	16.1	427	1.9	366
Primary metal manufacturing	331	1,985	1,909	1,950	1,970	1,738	1,724	7.2	1,891	-2.8	1,757
Fabricated metal product manufacturing	332	4,507	4,395	4,262	4,124	3,575	3,501	14.9	4,050	-1.7	3,522
Machinery manufacturing	333	5,153	5,170	5,145	5,041	4,364	4,280	10.4	4,875	-14.5	4,380
Computer and electronic product manufacturing	334	3,130	3,203	3,122	3,190	3,526	3,279	-11.1	3,161	-5.5	3,483
Electrical equipment, appliance and component manufacturing	335	903	911	886	856	861	896	-5.0	872	-3.5	901
Transportation equipment manufacturing	336	17,616	17,934	18,777	18,302	19,396	19,283	-10.9	18,447	-26.7	20,074
Motor vehicle manufacturing	3361	782	833	899	838	538	554	39.0	785	-25.1	566
Motor vehicle body and trailer manufacturing	3362	462	463	470	468	407	403	6.8	472	-1.5	430
Motor vehicle parts manufacturing	3363	1,044	1,100	1,171	1,184	1,111	1,063	10.5	1,173	25.4	1,093
Aerospace product and parts manufacturing	3364	11,255	11,171	11,708	11,314	12,596	12,410	-14.6	11,691	-34.2	13,167
Ship and boat building	3366	45	34	34	34	89	87	-45.4	47	230.1	83
Miscellaneous manufacturing	339	190	197	187	180	196	179	14.3	182	-13.4	162
<b>Non-durable goods industries<sup>1</sup></b>		<b>2,224</b>	<b>2,184</b>	<b>2,185</b>	<b>2,144</b>	<b>2,158</b>	<b>2,218</b>	<b>-1.6</b>	<b>2,048</b>	<b>7.1</b>	<b>2,029</b>
<b>Durable goods industries<sup>2</sup></b>		<b>35,176</b>	<b>35,469</b>	<b>35,957</b>	<b>35,213</b>	<b>35,070</b>	<b>34,598</b>	<b>-3.8</b>	<b>35,003</b>	<b>-18.7</b>	<b>35,629</b>
<b>Manufacturing</b>		<b>37,401</b>	<b>37,653</b>	<b>38,142</b>	<b>37,357</b>	<b>37,228</b>	<b>36,817</b>	<b>-3.7</b>	<b>37,050</b>	<b>-17.7</b>	<b>37,658</b>

1. Non-durable goods industries include the following NAICS: 311, 312, 313, 314, 315, 316, 322, 323, 324, 325, 326

2. Durable goods industries include the following NAICS: 321, 327, 331, 332, 333, 334, 335, 336, 337, 339

Table 6-2

## Unfilled orders by selected major group and industries - Seasonally adjusted

	NAICS Code	Change from August	Current periods				Change from previous month			Trend change from previous month					
			Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2004	Aug. 2004	July 2004	Sept. 2004	Aug. 2004	July 2004	June 2004		
\$ millions												percentage			
Textile mills	313	13	240	227	224	226	5.8	1.3	-1.1	2.1	2.0	1.7			
Textile product mills	314	7	110	103	92	94	6.5	12.5	-2.5	2.3	3.2	3.7			
Clothing manufacturing	315	11	203	192	194	190	5.6	-0.9	2.4	1.1	1.2	1.3			
Leather and allied product manufacturing	316	-1	18	19	19	18	-5.0	-0.3	8.9	-0.7	-1.6	-3.2			
Plastics and rubber products manufacturing	326	25	469	444	441	428	5.6	0.5	3.0	1.5	1.7	1.9			
Primary metal manufacturing	331	78	2,007	1,928	1,946	1,934	4.1	-0.9	0.6	1.0	1.2	1.4			
Fabricated metal product manufacturing	332	112	4,507	4,395	4,262	4,124	2.5	3.1	3.4	1.1	1.9	2.6			
Machinery manufacturing	333	-17	5,153	5,170	5,145	5,041	-0.3	0.5	2.1	1.4	1.7	1.8			
Computer and electronic product manufacturing	334	-73	3,130	3,203	3,122	3,190	-2.3	2.6	-2.1	0.1	0.2	0.2			
Electrical equipment, appliance and component manufacturing	335	-9	903	911	886	856	-1.0	2.8	3.5	0.5	0.7	0.9			
Transportation equipment manufacturing	336	-467	17,375	17,842	18,521	18,383	-2.6	-3.7	0.8	-1.1	-1.1	-0.9			
Motor vehicle manufacturing	3361	-51	782	833	899	838	-6.1	-7.4	7.3	-1.3	-0.7	0.4			
Motor vehicle body and trailer manufacturing	3362	1	482	480	482	475	0.3	-0.4	1.5	0.3	0.5	0.9			
Motor vehicle parts manufacturing	3363	-78	1,048	1,126	1,180	1,216	-6.9	-4.5	-3.0	-1.0	-1.1	-1.1			
Aerospace product and parts manufacturing	3364	-38	10,991	11,030	11,431	11,358	-0.3	-3.5	0.6	-1.0	-1.1	-1.1			
Ship and boat building	3366	5	44	39	33	32	13.3	15.8	5.0	-5.2	-7.3	-8.6			
Miscellaneous manufacturing	339	-9	176	185	191	188	-4.8	-2.8	1.6	-1.0	-0.8	-0.2			
<b>Non-durable goods industries<sup>1</sup></b>		<b>54</b>	<b>2,220</b>	<b>2,166</b>	<b>2,179</b>	<b>2,132</b>	<b>2.5</b>	<b>-0.6</b>	<b>2.2</b>	<b>1.1</b>	<b>2.1</b>	<b>2.8</b>			
<b>Durable goods industries<sup>2</sup></b>		<b>-416</b>	<b>34,870</b>	<b>35,286</b>	<b>35,622</b>	<b>35,243</b>	<b>-1.2</b>	<b>-0.9</b>	<b>1.1</b>	<b>-0.1</b>	<b>0.1</b>	<b>0.3</b>			
<b>Manufacturing</b>		<b>-362</b>	<b>37,090</b>	<b>37,452</b>	<b>37,800</b>	<b>37,375</b>	<b>-1.0</b>	<b>-0.9</b>	<b>1.1</b>	<b>0.0</b>	<b>0.2</b>	<b>0.4</b>			

1. Non-durable goods industries include the following NAICS: 311, 312, 313, 314, 315, 316, 322, 323, 324, 325, 326

2. Durable goods industries include the following NAICS: 321, 327, 331, 332, 333, 334, 335, 336, 337, 339

Table 7-1

## New orders by selected major group and industries - Unadjusted

	NAICS Code	Current periods				Previous year		Year to date		Annual	
		Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% Change from 2003	2004	% Change from 2002	2003
\$millions											
Textile mills	313	300	277	236	298	289	297	-0.7	2,523	-13.6	3,356
Textile product mills	314	194	206	180	204	199	172	-1.7	1,716	-11.2	2,290
Clothing manufacturing	315	606	559	478	498	629	631	-7.0	4,948	-6.4	7,066
Leather and allied product manufacturing	316	69	63	44	40	91	80	-19.5	440	-12.6	747
Plastics and rubber products manufacturing	326	2,297	2,299	2,020	2,351	2,203	1,998	5.3	19,612	0.1	24,666
Primary metal manufacturing	331	3,958	3,694	3,354	3,947	3,344	2,829	19.4	33,289	0.8	37,522
Fabricated metal product manufacturing	332	3,494	3,245	2,837	3,057	2,961	2,627	14.2	26,593	0.7	31,096
Machinery manufacturing	333	2,482	2,294	2,283	2,533	2,367	1,893	12.3	21,111	-0.7	25,351
Computer and electronic product manufacturing	334	1,763	1,647	1,423	2,022	2,201	1,408	11.1	14,873	-17.1	18,169
Electrical equipment, appliance and component manufacturing	335	944	890	820	942	881	810	8.0	7,963	-6.8	9,835
Transportation equipment manufacturing	336	10,758	10,435	7,717	11,576	10,430	8,200	11.5	96,152	-6.3	114,188
Motor vehicle manufacturing	3361	6,483	6,373	3,769	7,287	5,914	4,865	4.7	55,283	-6.5	69,172
Motor vehicle body and trailer manufacturing	3362	335	305	278	326	307	267	6.5	2,947	-2.2	3,637
Motor vehicle parts manufacturing	3363	2,884	2,944	1,907	2,884	2,814	2,530	6.3	24,988	-1.0	31,557
Aerospace product and parts manufacturing	3364	910	593	1,348	566	1,085	445	147.5	9,199	-17.0	5,676
Ship and boat building	3366	107	91	101	107	75	62	3.4	931	-3.2	1,134
Miscellaneous manufacturing	339	665	686	597	685	678	634	5.3	5,831	4.1	7,498
<b>Non-durable goods industries<sup>1</sup></b>		<b>22,394</b>	<b>22,342</b>	<b>21,621</b>	<b>22,548</b>	<b>20,171</b>	<b>19,595</b>	<b>6.8</b>	<b>190,471</b>	<b>1.4</b>	<b>236,934</b>
<b>Durable goods industries<sup>2</sup></b>		<b>29,966</b>	<b>28,939</b>	<b>24,718</b>	<b>30,870</b>	<b>28,201</b>	<b>23,475</b>	<b>13.0</b>	<b>254,953</b>	<b>-3.8</b>	<b>301,074</b>
<b>Manufacturing</b>		<b>52,360</b>	<b>51,281</b>	<b>46,339</b>	<b>53,418</b>	<b>48,372</b>	<b>43,069</b>	<b>10.2</b>	<b>445,424</b>	<b>-1.6</b>	<b>538,008</b>

1. Non-durable goods industries include the following NAICS: 311, 312, 313, 314, 315, 316, 322, 323, 324, 325, 326

2. Durable goods industries include the following NAICS: 321, 327, 331, 332, 333, 334, 335, 336, 337, 339

Table 7-2

## New orders by selected major group and industries - Seasonally adjusted

	NAICS Code	Change from August	Current periods				Change from previous month			Trend change from previous month					
			Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2004	Aug. 2004	July 2004	Sept. 2004	Aug. 2004	July 2004	June 2004		
\$ millions												percentage			
Textile mills	313	10	279	269	290	278	3.8	-7.3	4.5	-0.4	-0.5	-0.4	-0.2		
Textile product mills	314	-4	193	197	183	191	-2.1	7.7	-4.1	-0.3	-0.1	0.2	0.4		
Clothing manufacturing	315	37	557	520	529	553	7.2	-1.8	-4.3	-0.1	-0.4	-0.6	-0.8		
Leather and allied product manufacturing	316	0	47	48	56	47	-0.9	-14.4	18.1	-0.2	-0.6	-1.2	-2.0		
Plastics and rubber products manufacturing	326	25	2,199	2,173	2,194	2,153	1.2	-0.9	1.9	0.2	0.3	0.4	0.5		
Primary metal manufacturing	331	29	3,868	3,839	3,772	3,851	0.8	1.8	-2.1	0.1	0.4	0.8	1.3		
Fabricated metal product manufacturing	332	67	3,176	3,109	3,009	2,881	2.2	3.3	4.4	0.2	0.5	0.9	1.3		
Machinery manufacturing	333	-63	2,362	2,425	2,453	2,389	-2.6	-1.1	2.7	0.0	0.7	1.3	1.5		
Computer and electronic product manufacturing	334	-154	1,581	1,735	1,598	1,859	-8.9	8.6	-14.0	-0.7	-0.7	-0.7	-0.4		
Electrical equipment, appliance and component manufacturing	335	-30	886	916	885	876	-3.3	3.5	1.1	0.1	0.2	0.3	0.4		
Transportation equipment manufacturing	336	-54	10,318	10,372	11,027	10,537	-0.5	-5.9	4.6	0.4	0.3	0.3	0.5		
Motor vehicle manufacturing	3361	31	6,279	6,248	6,338	6,254	0.5	-1.4	1.3	0.5	0.7	1.1	1.5		
Motor vehicle body and trailer manufacturing	3362	-5	330	335	340	316	-1.4	-1.3	7.4	0.3	0.6	0.9	1.1		
Motor vehicle parts manufacturing	3363	-62	2,724	2,786	2,674	2,687	-2.2	4.2	-0.5	0.2	0.2	0.2	0.2		
Aerospace product and parts manufacturing	3364	102	841	739	1,170	793	13.8	-36.8	47.5	1.3	-0.1	-2.0	-3.0		
Ship and boat building	3366	17	129	113	106	97	14.7	5.9	9.6	3.2	3.7	4.0	3.9		
Miscellaneous manufacturing	339	-32	637	669	638	661	-4.7	4.9	-3.6	-0.2	-0.3	-0.2	0.1		
<b>Non-durable goods industries<sup>1</sup></b>		<b>87</b>	<b>21,796</b>	<b>21,709</b>	<b>21,826</b>	<b>21,611</b>	<b>0.4</b>	<b>-0.5</b>	<b>1.0</b>	<b>0.2</b>	<b>0.6</b>	<b>0.9</b>	<b>1.3</b>		
<b>Durable goods industries<sup>2</sup></b>		<b>-392</b>	<b>28,246</b>	<b>28,638</b>	<b>28,970</b>	<b>28,525</b>	<b>-1.4</b>	<b>-1.1</b>	<b>1.6</b>	<b>0.1</b>	<b>0.2</b>	<b>0.5</b>	<b>0.8</b>		
<b>Manufacturing</b>		<b>-305</b>	<b>50,042</b>	<b>50,347</b>	<b>50,796</b>	<b>50,136</b>	<b>-0.6</b>	<b>-0.9</b>	<b>1.3</b>	<b>0.1</b>	<b>0.4</b>	<b>0.6</b>	<b>1.0</b>		

1. Non-durable goods industries include the following NAICS: 311, 312, 313, 314, 315, 316, 322, 323, 324, 325, 326

2. Durable goods industries include the following NAICS: 321, 327, 331, 332, 333, 334, 335, 336, 337, 339

Table 8-1

## Shipments for selected industries - Unadjusted

NAICS Code	Current periods				Previous year		Year to date		Annual		
	Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% Change from 2003	2004	% Change from 2002	2003	
\$ millions											
<b>311 Food manufacturing</b>											
Animal food manufacturing	3111	429	430	454	442	432	400	3.8	3,905	-1.9	5,099
Starch and vegetable fat and oil manufacturing	31122	264	297	313	311	271	249	19.5	2,711	11.4	3,117
Sugar and confectionery product manufacturing	3113	371	352	310	317	362	337	3.7	2,815	10.0	3,764
Fruit and vegetable preserving and specialty food manufacturing	3114	584	568	542	510	521	477	8.4	4,751	-0.9	5,974
Dairy product manufacturing	3115	959	975	1,012	998	923	940	5.4	8,566	9.8	10,958
Meat product manufacturing	3116	1,801	1,783	1,786	1,776	1,372	1,376	20.3	15,077	-3.9	17,027
Cookie, cracker and pasta manufacturing	31182	151	141	134	130	135	129	4.5	1,205	-2.1	1,577
Other food manufacturing	3119	401	385	413	425	447	409	-0.2	3,601	4.1	4,936
<b>312 Beverage and tobacco product manufacturing</b>											
Soft drink and ice manufacturing	31211	257	313	323	310	274	321	-3.2	2,467	12.7	3,336
Breweries	31212	360	425	448	460	317	369	15.7	3,281	1.0	3,858
Wineries	31213	78	67	62	78	70	64	12.0	567	-2.6	706
Distilleries	31214	51	51	47	56	74	69	-29.0	438	-18.0	831
Tobacco manufacturing	3122	235	252	260	267	292	297	-10.3	2,218	5.1	3,301
<b>313 Textile mills</b>											
Fibre, yarn and thread mills	3131	54	47	43	55	47	47	7.0	446	-12.6	547
Fabric mills	3132	175	169	150	188	198	180	-6.5	1,550	-10.6	2,180
Textile and fabric finishing and fabric coating	3133	57	54	49	58	60	57	-4.7	497	-10.8	694
<b>314 Textile product mills</b>											
Carpet and rug mills	31411	73	74	63	76	65	63	-1.7	620	-8.6	824
Textile bag and canvas mills	31491	20	24	24	26	24	24	-8.6	192	-30.9	267
<b>315 Clothing manufacturing</b>											
Hosiery and sock mills	31511	38	38	33	29	44	45	-15.5	312	-5.1	511
Other clothing knitting mills	31519	49	47	45	43	59	55	-1.8	403	-0.4	587
Men's and boys' cut and sew clothing manufacturing	31522	170	148	120	135	185	176	-11.6	1,343	-4.6	2,078
Women's and girls' cut and sew clothing manufacturing	31523	229	225	181	166	234	243	-6.7	1,792	-3.5	2,471
Clothing accessories and other clothing manufacturing	3159	26	25	22	25	27	24	-1.0	211	-4.1	289
<b>316 Leather and allied product manufacturing</b>											
Footwear manufacturing	3162	57	48	26	19	68	59	-8.8	262	-17.7	401
<b>321 Wood product manufacturing</b>											
Sawmills and wood preservation	3211	1,733	1,796	1,742	1,803	1,332	1,285	23.8	14,240	-16.1	14,961
Veneer, plywood and engineered wood product manufacturing	3212	862	864	801	888	809	731	35.1	7,623	19.5	7,928
Other wood product manufacturing	3219	793	790	779	860	751	730	6.1	6,709	6.2	8,359
<b>322 Paper manufacturing</b>											
Pulp, paper and paperboard mills	3221	1,888	1,956	1,959	1,966	1,878	1,895	0.6	17,211	-6.6	22,490
Paperboard container manufacturing	32221	460	444	435	460	490	462	-7.4	3,909	6.6	5,538
Paper bag and coated and treated paper manufacturing	32222	242	230	228	239	265	234	-8.8	2,117	0.8	3,033
Other converted paper product manufacturing	32229	146	143	134	136	143	136	0.1	1,228	-2.7	1,624
<b>323 Printing and related support activities</b>											
Printing	32311	957	921	831	918	947	840	1.9	8,066	-1.5	10,730
Support activities for printing	32312	71	68	65	67	68	65	-6.4	613	10.5	860
<b>324 Petroleum and coal products manufacturing</b>											
Petroleum refineries	32411	3,825	3,838	3,750	3,517	2,772	3,010	16.4	30,858	10.6	34,729
<b>325 Chemical manufacturing</b>											
Other basic inorganic chemical manufacturing	32518	286	277	271	284	249	243	10.0	2,484	12.8	3,023
Other basic organic chemical manufacturing	32519	335	352	335	332	242	271	14.8	2,951	-6.6	3,423
Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	3252	794	812	729	775	605	562	15.0	6,511	0.6	7,461
Pesticide and other agricultural chemical manufacturing	32532	11	10	13	77	8	9	20.9	511	21.2	444
Pharmaceutical and medicine manufacturing	3254	810	730	717	809	738	595	7.3	6,782	4.9	8,506
Paint and coating manufacturing	32551	181	187	202	203	186	176	5.0	1,641	3.5	2,028
Adhesive manufacturing	32552	75	76	80	79	71	74	7.0	635	8.4	772
Soap and cleaning compound manufacturing	32561	139	133	137	146	148	139	-9.0	1,209	-16.2	1,689
Toilet preparation manufacturing	32562	150	139	108	123	125	107	10.8	1,066	2.3	1,289
Printing ink manufacturing	32591	36	40	37	39	40	39	1.3	349	1.6	467
All other chemical product manufacturing	32599	400	397	362	374	356	302	9.4	3,256	2.8	3,989
<b>326 Plastics and rubber products manufacturing</b>											
Plastics pipe, pipe fitting, and unlaminated profile shape manufacturing	32612	192	199	182	197	175	159	9.7	1,557	2.5	1,836
Polystyrene foam product manufacturing	32614	64	60	50	57	58	51	12.4	468	7.3	561
Other plastic product manufacturing	32619	1,080	1,093	935	1,175	1,065	958	4.3	9,312	2.5	11,881

Table 8-1 – continued

## Shipments for selected industries - Unadjusted

	NAICS Code	Current periods				Previous year		Year to date		Annual	
		Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% Change from 2003	2004	% Change from 2002	2003
Other rubber product manufacturing	32629	147	150	114	155	156	147	0.3	1,315	-11.6	1,750
<b>327 Non-metallic mineral product manufacturing</b>											
Clay product and refractory manufacturing	3271	60	56	63	74	62	60	-2.8	538	5.4	722
Glass and glass product manufacturing	3272	180	181	156	197	191	187	-1.5	1,564	0.0	2,084
Cement manufacturing	32731	178	169	165	174	162	158	7.9	1,188	1.2	1,479
Ready-mix concrete manufacturing	32732	358	339	300	324	324	301	10.6	2,260	5.1	2,761
Other concrete product manufacturing	32739	144	132	119	122	121	123	12.2	902	9.6	1,143
Abrasive product manufacturing	32791	24	28	26	33	21	21	1.8	238	-13.5	294
All other non-metallic mineral product manufacturing	32799	165	155	143	156	163	137	8.3	1,328	12.3	1,683
<b>331 Primary metal manufacturing</b>											
Iron and steel mills and ferro-alloy manufacturing	3311	1,169	1,163	1,018	1,128	831	737	24.1	9,222	-1.3	9,877
Iron and steel pipes and tubes manufacturing from purchased steel	33121	335	318	283	309	244	233	25.5	2,664	6.2	2,908
Foundries	3315	250	245	204	288	309	254	-5.0	2,322	1.4	3,223
<b>332 Fabricated metal product manufacturing</b>											
Cutlery and hand tool manufacturing	3322	62	57	48	54	48	40	17.3	505	4.4	583
Plate work and fabricated structural product manufacturing	33231	645	588	493	510	501	450	17.7	4,245	4.6	4,928
Power boiler and heat exchanger manufacturing	33241	95	83	83	102	131	99	-4.5	925	31.9	1,275
Spring and wire product manufacturing	3326	144	130	107	136	137	127	-5.6	1,155	-12.0	1,575
Coating, engraving, heat treating and allied activities	3328	328	313	247	317	268	232	12.6	2,576	-0.6	3,043
Other fabricated metal product manufacturing	3329	353	316	308	338	311	277	4.5	2,780	-6.5	3,486
<b>333 Machinery manufacturing</b>											
Agricultural implement manufacturing	33311	161	153	162	185	160	125	7.2	1,615	-12.0	1,956
Ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing	3334	263	224	186	218	237	213	5.3	1,889	-7.2	2,465
All other general-purpose machinery manufacturing	33399	227	224	216	249	214	180	8.9	1,855	-1.9	2,336
<b>334 Computer and electronic product manufacturing</b>											
Computer and peripheral equipment manufacturing	3341	228	197	184	250	367	248	-15.1	1,935	-22.7	3,046
Communications equipment manufacturing	3342	707	545	541	764	622	433	21.4	5,369	-20.2	6,180
Audio and video equipment manufacturing	3343	15	14	12	18	18	15	-10.3	136	-12.2	211
<b>335 Electrical equipment, appliance and component manufacturing</b>											
Lighting fixture manufacturing	33512	88	84	80	86	92	82	2.0	739	-9.3	968
Small electrical appliance manufacturing	33521	28	23	17	20	26	21	7.1	204	-1.7	263
Major appliance manufacturing	33522	141	128	121	183	140	128	3.4	1,377	-3.4	1,754
Battery manufacturing	33591	24	25	24	23	20	17	21.5	195	19.0	217
Communication and energy wire and cable manufacturing	33592	212	196	186	203	200	188	9.4	1,762	-14.5	2,170
All other electrical equipment and component manufacturing	33599	44	42	43	39	39	36	13.8	362	-0.1	429
<b>336 Transportation equipment manufacturing</b>											
Motor vehicle manufacturing	3361	6,534	6,439	3,708	7,314	5,930	4,842	4.1	55,094	-6.4	69,258
Motor vehicle parts manufacturing	3363	2,939	3,016	1,919	2,905	2,766	2,497	7.1	25,148	-0.1	31,433
Aerospace product and parts manufacturing	3364	826	1,131	954	1,150	899	881	10.7	9,469	1.5	11,586
Railroad rolling stock manufacturing	3365	218	169	177	187	198	123	-4.9	1,692	-7.7	2,370
Ship and boat building	3366	97	91	101	118	73	75	12.9	950	-5.4	1,100
<b>337 Furniture and related product manufacturing</b>											
Household and institutional furniture and kitchen cabinet manufacturing	3371	712	683	611	677	704	635	3.7	5,988	-1.3	7,751
Office furniture (including fixtures) manufacturing	3372	461	436	404	451	453	419	0.0	3,858	5.3	5,107
<b>339 Miscellaneous manufacturing</b>											
Medical equipment and supplies manufacturing	3391	227	203	192	217	203	171	18.2	1,949	10.7	2,287
Other miscellaneous manufacturing	3399	444	473	398	476	458	441	0.1	3,849	0.6	5,208

Table 8-2

## Inventory owned for selected industries - Unadjusted

	NAICS Code	Current periods				Previous year		Year to date		Average per month	
		Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% Change from 2003	Average 2004	% Change from 2002	2003
\$ millions											
<b>311 Food manufacturing</b>											
Animal food manufacturing	3111	308	313	326	322	284	288	7.9	303	4.2	281
Starch and vegetable fat and oil manufacturing	31122	121	138	157	198	157	141	12.7	197	4.6	180
Sugar and confectionery product manufacturing	3113	345	319	342	332	321	327	1.3	314	5.0	310
Fruit and vegetable preserving and specialty food manufacturing	3114	958	875	841	849	913	829	5.7	872	5.3	853
Dairy product manufacturing	3115	852	852	852	873	800	781	6.4	868	-3.6	813
Meat product manufacturing	3116	865	838	852	839	835	792	1.7	820	-5.5	797
Cookie, cracker and pasta manufacturing	31182	121	123	118	123	124	126	-6.0	122	7.1	128
Other food manufacturing	3119	496	505	493	490	485	464	9.1	486	2.9	455
<b>312 Beverage and tobacco product manufacturing</b>											
Soft drink and ice manufacturing	31211	245	266	270	267	253	261	-1.2	253	7.8	250
Breweries	31212	195	200	203	209	176	187	6.6	197	0.8	185
Wineries	31213	263	263	266	260	257	247	3.0	258	4.8	251
Distilleries	31214	484	498	494	506	507	529	-10.1	489	3.3	528
Tobacco manufacturing	3122	404	398	405	450	403	402	5.1	452	-1.1	434
<b>313 Textile mills</b>											
Fibre, yarn and thread mills	3131	69	68	70	67	68	69	-5.2	65	0.3	69
Fabric mills	3132	346	346	336	334	370	379	-12.8	337	-12.3	378
Textile and fabric finishing and fabric coating	3133	115	116	111	78	74	76	19.1	88	11.7	73
<b>314 Textile product mills</b>											
Carpet and rug mills	31411	100	98	95	92	103	101	-12.0	92	2.2	101
Textile bag and canvas mills	31491	43	44	43	41	40	41	-7.4	40	-32.1	42
<b>315 Clothing manufacturing</b>											
Hosiery and sock mills	31511	111	114	114	117	152	153	-14.7	123	6.8	142
Other clothing knitting mills	31519	170	179	178	176	167	173	-2.7	165	6.1	164
Men's and boys' cut and sew clothing manufacturing	31522	395	409	403	408	522	498	-19.3	419	6.1	507
Women's and girls' cut and sew clothing manufacturing	31523	362	370	379	347	422	456	-9.6	380	1.0	416
Clothing accessories and other clothing manufacturing	3159	61	59	61	60	67	69	-2.2	61	8.0	62
<b>316 Leather and allied product manufacturing</b>											
Footwear manufacturing	3162	90	106	111	107	91	109	-8.8	89	-7.3	92
<b>321 Wood product manufacturing</b>											
Sawmills and wood preservation	3211	2,258	2,317	2,328	2,422	2,375	2,402	-9.4	2,637	-5.3	2,769
Veneer, plywood and engineered wood product manufacturing	3212	803	800	775	783	678	684	4.0	814	5.4	761
Other wood product manufacturing	3219	1,043	1,004	1,008	1,009	982	957	0.2	1,016	8.0	1,003
<b>322 Paper manufacturing</b>											
Pulp, paper and paperboard mills	3221	2,561	2,559	2,539	2,506	2,435	2,498	-0.5	2,508	-3.1	2,508
Paperboard container manufacturing	32221	514	507	497	497	475	476	0.8	488	2.8	479
Paper bag and coated and treated paper manufacturing	32222	363	379	364	363	384	388	-6.1	371	4.9	391
Other converted paper product manufacturing	32229	144	150	149	151	140	143	-2.8	144	0.9	146
<b>323 Printing and related support activities</b>											
Printing	32311	873	869	858	822	832	851	0.2	837	-0.5	832
Support activities for printing	32312	35	32	34	33	33	31	-13.1	33	-32.0	37
<b>324 Petroleum and coal products manufacturing</b>											
Petroleum refineries	32411	2,049	2,050	1,992	1,935	1,649	1,848	10.1	1,920	1.4	1,703
<b>325 Chemical manufacturing</b>											
Other basic inorganic chemical manufacturing	32518	266	273	244	259	247	247	7.1	258	8.7	243
Other basic organic chemical manufacturing	32519	315	332	316	328	367	344	-6.6	329	8.8	346
Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	3252	616	616	632	624	545	546	7.4	611	3.2	566
Pesticide and other agricultural chemical manufacturing	32532	79	77	74	70	85	84	4.6	87	29.1	84
Pharmaceutical and medicine manufacturing	3254	2,866	2,844	2,805	2,765	2,536	2,551	13.0	2,823	14.4	2,543
Paint and coating manufacturing	32551	258	255	259	262	261	270	-1.9	267	2.8	268
Adhesive manufacturing	32552	112	109	110	113	97	95	13.4	107	12.8	95
Soap and cleaning compound manufacturing	32561	97	98	93	92	100	106	-11.7	96	-29.0	106
Toilet preparation manufacturing	32562	191	189	183	197	190	202	-3.1	191	8.6	194
Printing ink manufacturing	32591	89	91	89	85	73	76	17.7	86	12.0	74
All other chemical product manufacturing	32599	414	418	423	413	388	385	-1.9	399	1.3	399
<b>326 Plastics and rubber products manufacturing</b>											
Plastics pipe, pipe fitting, and unlaminated profile shape manufacturing	32612	323	332	345	359	313	325	-2.4	345	-8.5	340
Polystyrene foam product manufacturing	32614	64	63	65	67	52	51	13.3	61	16.6	54
Other plastic product manufacturing	32619	953	956	965	955	910	924	2.0	958	7.4	938

Table 8-2 – continued

## Inventory owned for selected industries - Unadjusted

	NAICS Code	Current periods				Previous year		Year to date		Average per month	
		Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% Change from 2003	Average 2004	% Change from 2002	2003
Other rubber product manufacturing	32629	127	128	137	130	129	131	-4.6	134	-12.9	138
<b>327 Non-metallic mineral product manufacturing</b>											
Clay product and refractory manufacturing	3271	71	72	72	71	70	73	-7.1	73	-8.1	76
Glass and glass product manufacturing	3272	241	242	242	248	250	252	-2.4	248	-2.1	252
Cement manufacturing	32731	160	168	181	189	154	162	-0.6	189	-6.8	182
Ready-mix concrete manufacturing	32732	89	88	91	83	94	93	-4.4	85	-7.7	87
Other concrete product manufacturing	32739	118	127	135	138	116	119	15.8	134	11.8	117
Abrasive product manufacturing	32791	54	52	50	48	54	57	-22.0	50	-19.4	61
All other non-metallic mineral product manufacturing	32799	127	120	121	123	130	132	-4.8	126	8.2	131
<b>331 Primary metal manufacturing</b>											
Iron and steel mills and ferro-alloy manufacturing	3311	2,020	1,953	1,873	1,742	1,878	1,936	-9.8	1,786	-1.8	1,950
Iron and steel pipes and tubes manufacturing from purchased steel	33121	604	572	520	504	472	469	2.4	511	2.3	495
Foundries	3315	304	276	293	296	265	275	-1.5	290	1.6	291
<b>332 Fabricated metal product manufacturing</b>											
Cutlery and hand tool manufacturing	3322	85	85	80	81	81	80	0.2	83	2.2	83
Plate work and fabricated structural product manufacturing	33231	919	903	876	818	682	710	13.1	785	-1.7	677
Power boiler and heat exchanger manufacturing	33241	94	94	87	90	89	94	-9.1	90	4.1	96
Spring and wire product manufacturing	3326	171	183	178	178	145	157	-10.8	163	-11.6	172
Coating, engraving, heat treating and allied activities	3328	176	171	174	168	159	171	0.0	172	-1.9	169
Other fabricated metal product manufacturing	3329	693	678	629	620	586	589	7.8	627	6.5	579
<b>333 Machinery manufacturing</b>											
Agricultural implement manufacturing	33311	448	422	389	398	446	437	-11.4	426	1.2	474
Ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing	3334	357	369	348	341	323	339	0.2	330	-7.2	324
All other general-purpose machinery manufacturing	33399	599	578	534	530	577	569	8.9	559	15.1	530
<b>334 Computer and electronic product manufacturing</b>											
Computer and peripheral equipment manufacturing	3341	569	574	545	526	690	708	-17.8	561	1.2	669
Communications equipment manufacturing	3342	2,096	2,134	2,063	2,067	2,280	2,323	-11.7	2,139	-12.2	2,387
Audio and video equipment manufacturing	3343	46	45	43	44	57	57	-15.3	51	5.0	59
<b>335 Electrical equipment, appliance and component manufacturing</b>											
Lighting fixture manufacturing	33512	123	127	131	129	141	137	-7.3	133	-9.1	141
Small electrical appliance manufacturing	33521	43	45	46	41	40	39	7.2	42	9.3	40
Major appliance manufacturing	33522	196	197	187	186	174	178	3.2	194	11.9	186
Battery manufacturing	33591	63	57	57	53	39	38	39.7	50	-10.8	37
Communication and energy wire and cable manufacturing	33592	779	827	840	833	780	812	-2.4	804	-0.1	808
All other electrical equipment and component manufacturing	33599	102	103	101	104	103	106	-2.3	102	-2.0	103
<b>336 Transportation equipment manufacturing</b>											
Motor vehicle manufacturing	3361	1,560	1,587	1,443	1,442	1,348	1,232	14.4	1,495	-8.6	1,288
Motor vehicle parts manufacturing	3363	1,920	1,925	1,911	1,896	1,820	1,773	3.0	1,900	13.1	1,847
Aerospace product and parts manufacturing	3364	4,785	4,753	4,281	4,595	4,801	4,881	-10.9	4,442	-30.5	4,875
Railroad rolling stock manufacturing	3365	811	864	831	800	835	864	-14.9	775	-7.5	876
Ship and boat building	3366	105	100	100	101	129	109	-13.2	111	-1.8	129
<b>337 Furniture and related product manufacturing</b>											
Household and institutional furniture and kitchen cabinet manufacturing	3371	796	795	749	768	771	766	-4.2	770	1.3	790
Office furniture (including fixtures) manufacturing	3372	354	350	334	334	345	353	0.0	333	8.9	335
<b>339 Miscellaneous manufacturing</b>											
Medical equipment and supplies manufacturing	3391	247	248	241	232	252	256	6.4	261	13.0	255
Other miscellaneous manufacturing	3399	963	953	954	965	945	927	-0.2	973	2.0	962

Table 9

## Inventories owned by stage of fabrication

Period covered	Unadjusted				Seasonally adjusted			
	Raw materials	Goods in process	Finished products	Total Inventories	Raw materials	Goods in process	Finished products	Total Inventories
	\$ millions							
September 2003	25,155	13,396	20,250	58,801	25,527	13,401	20,379	59,307
October 2003	25,050	13,298	19,852	58,200	25,208	13,313	20,227	58,748
November 2003	24,917	13,593	20,136	58,646	25,053	13,459	20,196	58,708
December 2003	24,883	12,896	19,415	57,195	24,981	13,184	20,137	58,301
January 2004	25,505	12,991	19,737	58,233	25,272	13,253	20,046	58,572
February 2004	25,911	13,416	20,424	59,751	25,197	13,238	20,237	58,671
March 2004	26,051	13,320	20,710	60,081	25,483	13,224	20,130	58,838
April 2004	25,943	13,449	20,795	60,186	25,724	13,317	20,263	59,304
May 2004	25,970	13,777	20,949	60,696	26,128	13,505	20,521	60,154
June 2004	25,932	13,543	20,727	60,203	26,370	13,512	20,610	60,492
July 2004	26,570	13,403	20,381	60,354	26,842	13,579	20,563	60,985
August 2004	26,933	14,173	20,742	61,848	27,047	14,097	20,767	61,911
September 2004	26,912	14,128	20,843	61,883	27,146	14,073	20,987	62,206

Table 10

## Shipments by major group and province - Unadjusted

Province	Current year				Previous year		Year to date		Annual	
	Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% Change from 2003	2004	% Change from 2002	2003
\$ millions										
<b>Total</b>										
Newfoundland and Labrador	262	313	342	353	288	288	6.6	2,300	12.5	2,827
Prince Edward Island	120	128	123	145	131	114	6.5	1,073	2.2	1,356
Nova Scotia	834	777	788	801	736	734	6.9	6,805	2.7	8,524
New Brunswick	1,278	1,301	1,288	1,367	1,138	1,148	9.8	10,641	2.7	12,864
Quebec	11,939	11,788	10,914	12,100	11,462	10,760	6.7	102,179	-1.3	128,514
Ontario	27,749	27,063	22,109	28,426	25,317	21,999	6.8	232,252	-1.7	289,216
Manitoba	1,102	1,068	976	1,136	1,025	904	10.2	9,348	1.3	11,413
Saskatchewan	869	862	795	836	677	615	22.7	7,287	3.7	7,913
Alberta	4,648	4,664	4,461	4,583	3,870	3,830	14.0	38,889	5.0	45,838
British Columbia	3,806	3,799	3,752	3,817	3,311	3,210	13.1	31,841	-3.3	37,223
<b>311 Food manufacturing</b>										
Newfoundland and Labrador	100	126	170	176	102	123	7.1	898	-9.3	1,056
Prince Edward Island	70	78	77	84	88	75	-0.2	668	-1.0	902
Nova Scotia	185	186	183	172	185	182	2.4	1,502	-0.7	1,999
New Brunswick	273	222	220	304	231	172	16.6	1,734	0.6	2,035
Quebec	1,352	1,350	1,382	1,425	1,317	1,282	7.8	12,057	5.2	15,170
Ontario	2,385	2,279	2,295	2,300	2,144	2,012	8.5	19,894	1.9	25,005
Manitoba	255	259	259	255	207	198	19.4	2,139	1.0	2,457
Saskatchewan	174	172	182	182	162	156	11.5	1,596	4.0	1,947
Alberta	764	798	805	795	628	655	16.9	6,894	-3.5	7,976
British Columbia	439	469	436	452	424	444	1.1	3,731	3.5	4,890
<b>312 Beverage and tobacco product manufacturing</b>										
Nova Scotia	x	x	x	x	x	x	x	x	0.0	x
Quebec	297	321	332	356	343	371	-7.3	2,732	9.4	3,965
Ontario	450	511	514	537	458	481	3.2	4,092	0.6	5,316
Saskatchewan	3	3	4	4	3	3	5.6	26	-48.8	33
British Columbia	93	110	113	112	88	106	3.8	852	0.4	1,091
<b>313 Textile mills</b>										
Quebec	164	158	141	176	181	177	-7.4	1,444	-13.6	2,046
Ontario	89	81	77	92	91	77	1.6	784	-10.0	1,028
<b>314 Textile product mills</b>										
Quebec	75	74	66	74	78	79	-8.0	635	-11.0	912
Ontario	86	88	81	95	83	76	-3.2	775	-9.7	1,038
Alberta	x	x	x	x	x	x	x	x	0.0	x
British Columbia	x	x	x	x	x	x	x	x	0.0	x
<b>315 Clothing manufacturing</b>										
Quebec	379	358	288	292	390	395	-7.5	2,996	-7.0	4,247
Ontario	152	146	131	140	170	159	-7.5	1,302	-6.1	1,923
Manitoba	25	23	24	21	29	26	5.5	199	-5.0	264
Saskatchewan	3	2	2	2	2	2	1.5	19	7.6	28
Alberta	8	6	6	8	10	11	-15.6	83	-1.2	139
British Columbia	x	x	x	x	x	x	x	x	0.0	x
<b>316 Leather and allied product manufacturing</b>										
Quebec	51	42	26	24	62	54	-10.7	257	-9.4	390
Ontario	15	14	9	7	25	23	-34.0	111	-15.5	239
<b>321 Wood product manufacturing</b>										
Nova Scotia	63	59	60	72	52	51	16.9	486	-1.8	544
Quebec	894	872	811	959	818	778	14.2	7,602	-0.9	8,848
Ontario	563	581	570	628	551	520	7.5	4,927	-2.0	6,058
Manitoba	78	83	78	73	74	67	24.7	642	4.5	697
Saskatchewan	82	72	50	55	48	44	63.1	526	14.6	468
Alberta	327	346	332	350	293	270	38.2	2,901	11.3	2,932
British Columbia	1,194	1,231	1,230	1,216	883	846	31.1	9,901	-12.0	9,913
<b>322 Paper manufacturing</b>										
Nova Scotia	92	71	88	70	68	74	6.9	703	1.3	875
Quebec	867	874	866	865	897	894	-4.8	7,727	-8.4	10,620
Ontario	893	887	895	923	921	871	-4.3	7,892	-1.9	10,825
Alberta	144	167	153	156	137	161	-0.6	1,347	1.4	1,788
British Columbia	500	497	493	517	498	479	3.6	4,457	2.8	5,652



Table 10 – continued

## Shipments by major group and province - Unadjusted

Province	Current year				Previous year		Year to date		Annual	
	Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% Change from 2003	2004	% Change from 2002	2003
<b>323 Printing and related support activities</b>										
Quebec	249	234	218	232	234	225	1.9	2,087	-3.7	2,758
Ontario	575	559	495	548	567	473	2.1	4,847	0.4	6,423
Manitoba	48	40	37	47	46	39	1.3	378	-1.2	510
Saskatchewan	15	14	12	13	15	14	1.1	110	5.4	147
Alberta	52	51	48	55	58	52	-2.6	476	-5.6	662
British Columbia	66	66	60	64	69	78	-1.6	553	-8.5	758
<b>324 Petroleum and coal products manufacturing</b>										
Quebec	910	882	871	784	639	706	16.9	7,061	12.2	8,007
Ontario	1,351	1,337	1,297	1,284	987	964	22.0	10,751	6.8	11,670
Alberta	921	923	870	803	690	749	12.0	7,092	10.2	8,200
British Columbia	x	x	x	x	x	x	x	x	0.0	x
<b>325 Chemical manufacturing</b>										
Quebec	781	760	751	823	705	676	5.5	6,861	0.0	8,556
Ontario	2,150	2,083	1,944	2,082	1,830	1,588	10.1	17,774	3.1	21,357
Manitoba	60	69	57	80	82	46	2.1	620	28.2	814
Saskatchewan	49	61	50	109	60	22	24.0	825	16.5	799
Alberta	813	857	802	791	608	627	14.2	7,096	5.5	8,285
British Columbia	116	124	125	126	86	99	16.9	974	6.6	1,084
<b>326 Plastics and rubber products manufacturing</b>										
Nova Scotia	x	x	x	x	x	x	x	x	0.0	x
Quebec	584	571	498	596	542	498	7.4	4,854	5.8	6,038
Ontario	1,307	1,320	1,149	1,409	1,297	1,142	3.0	11,505	-0.9	14,790
Manitoba	56	56	53	60	50	47	8.5	462	5.7	568
Saskatchewan	16	16	13	9	9	9	23.3	103	3.5	107
Alberta	85	84	77	83	80	76	6.7	670	0.9	836
British Columbia	108	108	103	102	98	98	-1.0	873	9.6	1,156
<b>327 Non-metallic mineral product manufacturing</b>										
Nova Scotia	x	x	x	x	x	x	x	x	0.0	x
Quebec	295	303	262	312	285	280	8.1	2,184	4.3	2,679
Ontario	570	554	526	574	554	512	4.6	4,299	5.6	5,560
Saskatchewan	12	11	9	10	9	9	10.3	62	-7.7	71
Alberta	187	168	159	163	163	158	4.2	1,229	-0.7	1,556
British Columbia	152	141	138	146	137	128	9.6	1,174	11.6	1,416
<b>331 Primary metal manufacturing</b>										
Quebec	1,423	1,442	1,355	1,522	1,376	1,189	19.5	13,086	3.1	14,769
Ontario	1,818	1,694	1,477	1,747	1,426	1,169	16.4	14,723	-2.9	16,907
Alberta	195	179	177	157	137	136	14.1	1,506	41.3	1,812
<b>332 Fabricated metal product manufacturing</b>										
Newfoundland and Labrador	30	33	22	20	16	16	64.5	184	49.4	153
Prince Edward Island	3	3	1	2	2	2	12.7	19	19.2	27
Nova Scotia	x	x	x	x	x	x	x	x	0.0	x
New Brunswick	x	x	x	x	x	x	x	x	0.0	x
Quebec	702	647	521	609	616	568	7.7	5,210	0.5	6,597
Ontario	1,909	1,718	1,487	1,740	1,611	1,387	9.7	14,395	-3.9	17,460
Manitoba	72	65	64	66	57	56	16.6	543	6.0	620
Saskatchewan	46	43	41	45	35	35	17.0	344	4.9	389
Alberta	356	359	327	353	309	282	15.1	2,862	22.7	3,410
British Columbia	205	185	180	182	180	144	15.9	1,521	0.4	1,721
<b>333 Machinery manufacturing</b>										
Quebec	490	436	383	473	484	382	4.4	3,756	-3.7	4,920
Ontario	1,256	1,165	1,154	1,302	1,202	981	2.3	10,544	-6.8	13,688
Manitoba	71	68	73	92	62	54	13.1	684	-9.0	802
Saskatchewan	59	54	52	50	51	45	9.3	511	-10.7	611
Alberta	373	333	302	354	288	252	23.9	2,942	13.0	3,308
British Columbia	206	184	186	179	155	152	15.7	1,562	9.1	1,837
<b>334 Computer and electronic product manufacturing</b>										
Quebec	618	463	406	592	616	434	5.6	4,554	-17.3	5,856
Ontario	967	889	851	951	1,004	771	12.6	7,958	-7.6	9,773
Saskatchewan	x	x	x	x	x	x	x	x	0.0	x
Alberta	119	86	96	186	172	102	3.3	1,117	-31.8	1,520
British Columbia	90	84	93	98	123	95	5.0	842	-10.0	1,101

Table 10 – continued

## Shipments by major group and province - Unadjusted

Province	Current year				Previous year		Year to date		Annual	
	Sept. 2004	Aug. 2004	July 2004	June 2004	Sept. 2003	Aug. 2003	% Change from 2003	2004	% Change from 2002	2003
<b>335 Electrical equipment, appliance and component manufacturing</b>										
Quebec	334	311	267	341	314	278	7.1	2,710	-1.3	3,405
Ontario	504	449	422	507	501	419	4.0	4,268	-7.9	5,458
Manitoba	14	13	10	12	15	12	-11.0	110	-22.0	166
Saskatchewan	16	16	16	15	13	13	21.6	128	-31.9	145
Alberta	39	36	35	32	36	32	21.2	311	9.7	356
British Columbia	x	x	x	x	x	x	x	x	0.0	x
<b>336 Transportation equipment manufacturing</b>										
Nova Scotia	64	57	69	64	60	52	11.2	574	-10.6	707
Quebec	932	1,158	1,023	1,148	995	952	6.3	9,834	-7.1	12,570
Ontario	9,706	9,716	5,816	10,521	8,912	7,487	5.3	82,682	-3.3	103,510
Manitoba	157	135	126	167	143	131	1.9	1,334	3.6	1,697
Saskatchewan	26	22	18	26	19	17	8.2	201	-11.5	240
Alberta	57	57	57	62	64	63	-6.7	554	9.0	780
British Columbia	80	84	83	100	83	77	6.1	812	-36.7	991
<b>337 Furniture and related product manufacturing</b>										
Quebec	344	335	283	335	346	339	-1.0	2,925	-5.6	3,940
Ontario	706	671	635	679	703	623	3.4	5,930	6.2	7,627
Manitoba	45	46	44	47	48	45	-1.4	402	-1.0	544
Saskatchewan	6	6	6	6	6	6	-0.7	52	8.7	68
Alberta	73	74	65	73	72	69	-1.3	631	-10.5	851
British Columbia	84	77	74	75	74	67	7.3	648	5.6	799
<b>339 Miscellaneous manufacturing</b>										
Newfoundland and Labrador	x	x	x	x	x	x	x	x	0.0	x
Quebec	202	195	163	162	223	204	4.8	1,607	-1.1	2,221
Ontario	297	320	283	359	282	263	3.1	2,797	2.6	3,560
Manitoba	18	17	12	20	15	12	19.4	147	-2.1	175
Saskatchewan	5	5	5	6	5	4	9.6	44	13.6	55
Alberta	54	51	50	67	51	48	10.3	443	44.3	534
British Columbia	64	58	52	52	60	54	12.0	518	1.7	651

## About the Monthly Survey of Manufacturing

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The statistics contained in this publication are based on information obtained through a sample survey of 11,000 representative manufacturing establishments across Canada. The Monthly Survey of Manufacturers started in 1947 and although its content has remained essentially the same, it underwent a major redesign with respect to the frame in 1999.

The values (in Canadian dollars) of shipments, inventories and orders are used as indicators of the economic condition of manufacturing industries; as inputs to Canada's Gross Domestic Product; as two components in the Statistics Canada composite indicator; as input to macro- and micro-economic studies and in econometric models (e.g. to determine market share, apparent domestic availability, etc.).

Since 1999, Statistics Canada's Business Register provides the sampling frame for the Monthly Survey of Manufacturing (MSM). The target population for the MSM consists of all statistical establishments on the business register that are classified to the manufacturing sector. The sampling frame for the MSM is determined from the target population after subtracting establishments that represent the bottom 2% of the total manufacturing shipments estimate for each province. These establishments are excluded from the frame so that the sample size can be reduced without significantly affecting quality.

# Concepts and definitions

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The Monthly Survey of Manufacturing (MSM) publishes statistical series for manufacturers – shipments, inventories, unfilled orders and new orders. The values of these characteristics represent current monthly estimates of the more complete Annual Survey of Manufactures (ASM) data.

The MSM is a sample survey of approximately 11,000 Canadian manufacturing establishments, which are categorized into over 200 industries. Industries are classified according to the 1997 North American Industrial Classification System (NAICS), which replaced the 1980 Standard Industrial Classification (SIC) system. Reference year 2000 is the last year for which data are released on a SIC basis. The MSM adopted the NAICS for its 2001 reference, while previous years' data have been re-calculated to the new classification system back to 1992. Seasonally adjusted series are available for the main aggregates.

An establishment comprises the smallest manufacturing unit capable of reporting the variables of interest. Data collected by the MSM provides a current 'snapshot' of shipment values by the Canadian manufacturing sector, enabling analysis of the state of the Canadian economy, as well as the health of specific industries in the short- to medium-term. The information is used by both private and public sectors including Statistics Canada, federal and provincial governments, business and trade entities, international and domestic non-governmental organizations, consultants, the business press and private citizens. The data are used for analyzing market share, trends, corporate benchmarking, policy analysis, program development, tax policy and trade policy.

## 1. Shipments

Shipments are defined as the value of goods manufactured by establishments that have been shipped to a customer. Shipments exclude any wholesaling activity, and any revenues from the rental of equipment or the sale of electricity. Note that in practice, some respondents report financial transactions rather than payments for work done. Shipments are available by 3-digit NAICS, broken down by province.

For the aerospace product and parts, and shipbuilding industries, the value of production is used instead of shipments. This value is calculated by adjusting monthly shipments by the monthly change in goods in process and finished product inventories. Raw materials are not included in the calculation since production tries to measure "work done" during the month. This is done in order to reduce distortions caused by the shipment of high value items as completed sales.

## 2. Inventories

Measurement of component values of inventory is important for economic studies as well as for derivation of production values. Respondents are asked to report their book values (at cost), of raw materials, any goods in process, and finished product inventories separately. In some cases, respondents estimate a total inventory figure, which is allocated on the basis of proportions reported on the ASM. Inventory levels are calculated on a Canadawide basis, not by province.

## 3. Orders

a) *Unfilled orders*

Unfilled orders represent a backlog or stock of orders that will generate future shipments assuming that they are not cancelled. As with inventories, unfilled orders and new orders levels are calculated on a Canadawide basis, not by province.

The MSM produces estimates for unfilled orders for all industries except for those industries where orders are customarily filled from stocks on hand and order books are not generally maintained. In the case of the aircraft companies, options to purchase are not treated as orders until they are entered into the accounting system.

*b) New orders*

New orders represent current demand for manufactured products. Estimates of new orders are derived from shipments and unfilled orders data. All shipments within a month result from either an order received during the month or at some earlier time. New orders can be calculated as the sum of shipments adjusted for the monthly change in unfilled orders.

## **4. Non-durable / durable goods**

*a) Non-durable goods industries*

Non-durable goods industries include Food (NAICS 311), Beverage and Tobacco Products (312), Textile Mills (313), Textile Product Mills (314), Clothing (315), Leather and Allied Products (316), Paper (322), Printing and Related Support Activities (323), Petroleum and Coal Products (324), Chemicals (325) and Plastic and Rubber Products (326).

*b) Durable goods industries*

Durable goods industries include Wood Products (NAICS 321), Non-Metallic Mineral Products (327), Primary Metals (331), Fabricated Metal Products (332), Machinery (333), Computer and Electronic Products (334), Electrical Equipment, Appliance and Components (335), Transportation Equipment (336), Furniture and Related Products (337) and Miscellaneous Manufacturing (339).

# Survey design and methodology

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Beginning with the August 1999 reference month, the Monthly Survey of Manufacturing (MSM) has undergone an extensive redesign.

## Concept review

It was decided that before any redesign work could begin the basic concepts and definitions of the program would be confirmed.

This was done in two ways: First, a review of user requirements was initiated. This involved revisiting an internal report to ensure that the user requirements from that exercise were being satisfied. As well, another round of internal review with the major users in the National Accounts was undertaken. This was to specifically focus on any data gaps that could be identified.

Secondly, with these gaps or requirements in hand, a survey was conducted in order to ascertain respondent's ability to report existing and new data. The study was also to confirm that respondents understood the definitions, which were being asked by survey analysts.

The result of the concept review was a reduction of the number of questions for the survey from sixteen to seven. Most of the questions that were dropped had to do with the reporting of shipments for work that was partially completed.

## Methodology

The new sample design incorporates the 1997 North American Industrial Classification Standard (NAICS) and gives a much higher profile to provincial estimates. Stratification is done by province with equal quality requirements for each province. Large size units are selected with certainty and small units are selected with a probability based on the desired quality of the estimate within a cell.

The opportunity was also taken at this time to allow for the introduction of sample rotation into the survey design. Most of the smaller companies who are asked to participate in the survey will do so only for a set period.

The estimation system generates estimates using the NAICS. The estimates will also continue to be reconciled to the ASM. Provincial estimates for all variables will be produced. A measure of quality (CV) will also be produced.

## Components of the redesigned survey

### Target population and sampling frame

Statistics Canada's business register provides the sampling frame for the MSM. The target population for the MSM consists of all statistical establishments on the business register that are classified to the manufacturing sector (by NAICS). The sampling frame for the MSM is determined from the target population after subtracting establishments that represent the bottom 2% of the total manufacturing shipments estimate for each province. These establishments were excluded from the frame so that the sample size could be reduced without significantly affecting quality.

### The sample

The MSM sample is a probability sample comprised of approximately 11,000 establishments.

Prior to selection, the sampling frame is subdivided into industry-province cells. For the most part, NAICS codes were used. Depending upon the number of establishments within each cell, further subdivisions were made to group similar sized establishments' together (called stratum). An establishment's size was based on its most recently available annual shipments or sales value.

Each industry by province cell has a 'take-all' stratum composed of establishments sampled each month with certainty. This 'take-all' stratum is composed of establishments that are the largest statistical enterprises, and have the largest impact on estimates within a particular industry by province cell. These large statistical enterprises comprise 45% of the national manufacturing shipment estimates.

Each industry - province cell can have at most three 'take-some' strata. Not all establishments within these strata need to be sampled with certainty. A random sample is drawn from the remaining strata. The responses from these sampled establishments are weighted according to the inverse of their probability of selection.

The initial sample was selected in late 1998 and has been refreshed each month by including a sample of new entrants in the frame.

### **Data collection**

Only a subset of the sample establishments is sent out for data collection. For the remaining units, information from administrative data files is used as a source for deriving shipment data. For those establishments that are surveyed, data collection, data capture, preliminary edit and follow-up of non-respondents are all performed in Statistics Canada regional offices. Sampled establishments are contacted by mail or telephone according to the preference of the respondent. Data capture and preliminary editing are performed simultaneously to ensure the validity of the data.

In some cases, combined reports are received from enterprises or companies with more than one establishment in the sample where respondents prefer not to provide individual establishment reports. Businesses, which do not report or whose reports contain errors, are followed up immediately.

### **Use of Administrative Data**

Managing response burden is an ongoing challenge for Statistics Canada. In an attempt to alleviate response burden, especially for small businesses, STC has been investigating various alternatives to survey taking. Administrative data files are a rich source of information for business data and STC is working at mining this rich data source to its full potential. As such, effective the August 2004 reference month, the MSM has reduced the number of simple establishments in the sample that are surveyed directly and instead, derives shipments data for these establishments from Goods and Services Tax (GST) files using a statistical model. The model accounts for the difference between shipments and sales (reported for GST purposes) as well as the time lag between the reference period of the survey and the reference period of the GST file.

Inventories and unfilled orders estimates for establishments where shipments are GST-based are derived using the MSM's imputation system. The imputation system applies to the previous month values, the month-to-month and year-to-year changes in similar firms which are surveyed.

Detailed information on the methodology used for modelling shipment from administrative data sources can be found in the '*Monthly Survey of Manufacturing: Use of Administrative Data*' (Catalogue no. 31-533-XIE) document.

# Data quality

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## Statistical edit and imputation

Data are analyzed within each industry-province cell. Extreme values are listed for inspection by the magnitude of the deviation from average behavior. Respondents are contacted to verify extreme values. Records that fail statistical edits are considered outliers and are not used for imputation.

Values are imputed for the non-responses, for establishments that do not report or only partially complete the survey form. A number of imputation methods are used depending on the variable requiring treatment. Methods include using industry-province cell trends, historical responses, or reference to the ASM. Following imputation, the MSM staff performs a final verification of the responses that have been imputed.

## Revisions

In conjunction with preliminary estimates for the current month, estimates for the previous three months are revised to account for any late returns. Data are revised when late responses are received or if an incorrect response was reported earlier.

## Estimation

Estimates are calculated by multiplying an estimation weight to an establishment's reported responses. The estimation weight is the inverse of the sampled establishment's probability of selection. Take all units are self-representative.

## Benchmarking

The Annual Survey of Manufactures (ASM) released estimates for reference year 2002 and revisions for 2000 and 2001 on June 16, 2004. In the future, the Monthly Survey of Manufacturing (MSM) will re-benchmark to the ASM data for reference years 2000 and 2001 and benchmark to ASM 2002. Until these revisions take place, the MSM is currently benchmarked to the former ASM levels of 2000 and 2001.

As of January 2004, the Monthly Survey of Manufacturing (MSM) data were revised back to January 1999. Although the historical month-to-month movements were preserved, there were adjustments made to the levels.

The adjustments made to the MSM data were the result of several factors: the use of new and revised data; updates to the industrial classification (NAICS); the updating of the seasonal adjustment factors; and most significantly, the benchmarking of the MSM to the 2000 and 2001 ASM levels.

Starting with reference year 2000, the ASM incorporated some significant conceptual and methodological changes. The most important change was the expansion to include all manufacturing establishments in Canada. Previously only incorporated establishments that had employees and had sales greater than \$30,000 were covered by the ASM. Consequently, by benchmarking to the 2000 and 2001 ASM, the previously released MSM shipments data (which had been benchmarked to the 1998 ASM levels) were revised upwards by about 5.5% at the Canada level.



## Sampling and non-sampling errors

The statistics in this publication are estimates derived from a sample survey and, as such, can be subject to errors. The following material is provided to assist the reader in the interpretation of the estimates published.

Estimates derived from a sample survey are subject to a number of different kinds of errors. These errors can be broken down into two major types: sampling and non-sampling.

### 1. Sampling errors

Sampling errors are an inherent risk of sample surveys. They result from the difference between the value of a variable if it is randomly sampled and its value if a census is taken (or the average of all possible random values). These errors are present because observations are made only on a sample and not on the entire population.

The sampling error depends on factors such as the size of the sample, variability in the population, sampling design and method of estimation. For example, for a given sample size, the sampling error will depend on the stratification procedure employed, allocation of the sample, choice of the sampling units and method of selection. (Further, even for the same sampling design, we can make different calculations to arrive at the most efficient estimation procedure.) The most important feature of probability sampling is that the sampling error can be measured from the sample itself.

### 2. Non-sampling Errors

Non-sampling errors result from a systematic flaw in the structure of the data-collection procedure or design of any or all variables examined. They create a difference between the value of a variable obtained by sampling or census methods and the variable's true value. These errors are present whether a sample or a complete census of the population is taken. Non-sampling errors can be attributed to one or more of the following sources:

**a) Coverage error:** This error can result from incomplete listing and inadequate coverage of the population of interest.

**b) Data response error:** This error may be due to questionnaire design, the characteristics of a question, inability or unwillingness of the respondent to provide correct information, misinterpretation of the questions or definitional problems.

**c) Non-response error:** Some respondents may refuse to answer questions, some may be unable to respond, and others may be too late in responding. Data for the non-responding units can be imputed using the data from responding units or some earlier data on the non-responding units if available.

The extent of error due to imputation is usually unknown and is very much dependent on any characteristic differences between the respondent group and the non-respondent group in the survey. This error generally decreases with increases in the response rate and attempts are therefore made to obtain as high a response rate as possible.

**d) Processing error:** These errors may occur at various stages of processing such as coding, data entry, verification, editing, weighting, and tabulation, etc. Non-sampling errors are difficult to measure. More important, non-sampling errors require control at the level at which their presence does not impair the use and interpretation of the results.

Measures have been undertaken to minimize the nonsampling errors. For example, units have been defined in a most precise manner and the most up-to-date listings have been used. Questionnaires have been carefully designed to minimize different interpretations. As well, detailed acceptance testing has been carried out for the different stages of editing and processing and every possible effort has been made to reduce the non-response rate as well as the response burden.

## Measures of Sampling and Non-sampling Errors

### 1. Sampling Error Measures

The sample used in this survey is one of a large number of all possible samples of the same size that could have been selected using the same sample design under the same general conditions. If it was possible that each one of these samples could be surveyed under essentially the same conditions, with an estimate calculated from each sample, it would be expected that the sample estimates would differ from each other.

The average estimate derived from all these possible sample estimates is termed the expected value. The expected value can also be expressed as the value that would be obtained if a census enumeration were taken under identical conditions of collection and processing. An estimate calculated from a sample survey is said to be precise if it is near the expected value.

Sample estimates may differ from this expected value of the estimates. However, since the estimate is based on a probability sample, the variability of the sample estimate with respect to its expected value can be measured. The variance of an estimate is a measure of the precision of the sample estimate and is defined as the average, over all possible samples, of the squared difference of the estimate from its expected value.

The standard error is a measure of precision in absolute terms. The coefficient of variation, defined as the standard error divided by the sample estimate, is a measure of precision in relative terms. For comparison purposes, one may more readily compare the sampling error of one estimate to the sampling error of another estimate by using the coefficient of variation.

In this publication, the coefficient of variation is used to measure the sampling error of the estimates. However, since the coefficient of variation published for this survey is calculated from the responses of individual units, it also measures some non-sampling error.

The formula used to calculate the published coefficients of variation (CV) in Table 1 is:

$$CV(X) = \frac{S(X)}{X}$$

where X denotes the estimate and S(X) denotes the standard error of X.

In this publication, the coefficient of variation is expressed as a percentage.

Confidence intervals can be constructed around the estimate using the estimate and the coefficient of variation. Thus, for our sample, it is possible to state with a given level of confidence that the expected value will fall within the confidence interval constructed around the estimate. For example, if an estimate of \$12,000,000 has a coefficient of variation of 10%, the standard error will be \$1,200,000 or the estimate multiplied by the coefficient of variation. It can then be stated with 68% confidence that the expected value will fall within the interval whose length equals the standard deviation about the estimate, i.e., between \$10,800,000 and \$13,200,000. Alternatively, it can be stated with 95% confidence that the expected value will fall within the interval whose length equals two standard deviations about the estimate, i.e., between \$9,600,000 and \$14,400,000.

The text table 1 contains the national level CVs, expressed as a percentage, for all manufacturing for the MSM characteristics. For CVs at other aggregate levels, contact the Marketing and Dissemination Section at (613) 951-9497, toll free: 1-866-873-8789 or by e-mail at *manufact@statcan.ca* .

Text Table 1

## National Level CVs by Characteristic

Month	Shipments	Raw material Inventories	Goods in process Inventories	Finished products Inventories	Unfilled orders
%					
September 2003	0.57	0.99	0.91	1.42	2.07
October 2003	0.57	1.01	1.00	1.39	2.08
November 2003	0.59	1.03	0.98	1.31	2.04
December 2003	0.58	1.06	1.06	1.35	2.00
January 2004	0.57	1.08	1.04	1.36	1.89
February 2004	0.55	1.10	1.00	1.37	1.91
March 2004	0.59	1.10	0.98	1.37	2.12
April 2004	0.61	1.16	0.97	1.31	2.28
May 2004	0.61	1.13	0.94	1.28	2.32
June 2004	0.58	1.13	0.96	1.29	2.39
July 2004	0.60	1.19	0.97	1.25	2.40
August 2004	0.60	1.14	0.94	1.28	2.61
September 2004	0.62	1.12	0.91	1.29	2.68

## 2. Non-sampling Error Measures

The exact population value is aimed at or desired by both a sample survey as well as a census. We say the estimate is accurate if it is near this value. Although this value is desired, we cannot assume that the exact value of every unit in the population or sample can be obtained and processed without error. Any difference between the expected value and the exact population value is termed the bias. Systematic biases in the data cannot be measured by the probability measures of sampling error as previously described. The accuracy of a survey estimate is determined by the joint effect of sampling and non-sampling errors.

Three sources of non-sampling error in the MSM are nonresponse error, imputation error and the error due to editing. To assist users in evaluating these errors, weighted rates that are related to these three types of error are given in Table 2. The following is an example of what is meant by a weighted rate. A cell with a sample of 20 units in which five respond for a particular month would have a response rate of 25%. If these five reporting units represented \$8 million out of a total estimate of \$10 million, the weighted response rate would be 80%.

The definitions of the three weighted rates noted in Table 2 follow. The weighted response rate is the proportion of a characteristic's total estimate that is based upon reported data (excluding data that has been edited). The weighted imputation rate is the proportion of a characteristic's total estimate that is based upon imputed data. The weighted editing rate is the proportion of a characteristic's total estimate that is based upon data that was edited (edited data may have been originally reported or imputed).

The text table 2 contains the three types of weighted rates for each of the characteristics at the national level for all of manufacturing. In the table, the rates (expressed as percentages) are averages over the last thirteen months.

Text Table 2

**National weighted rates by source and characteristic**

Characteristics	Survey Source			Administrative Data Source		
	Response	Imputation	Editing	Modeled	Imputation	Editing
	%					
Shipments	88.91	6.23	3.66	7.27	0.44	0.59
Raw Materials	79.90	15.22	3.45	0.00	9.89	0.12
Goods in process	65.45	9.65	24.06	0.00	5.64	0.23
Finished products	79.55	12.28	6.92	0.00	8.01	0.70
Unfilled Orders	71.11	9.29	18.61	0.00	4.16	0.55

**Joint Interpretation of Measures of Error**

The measure of non-response error as well as the coefficient of variation must be considered jointly to have an overview of the quality of the estimates. The lower the coefficient of variation and the higher the weighted response rate, the better will be the published estimate.

**Seasonal Adjustment**

Economic time series contain the elements essential to the description, explanation and forecasting of the behavior of an economic phenomenon. They are statistical records of the evolution of economic processes through time. In using time series to observe economic activity, economists and statisticians have identified four characteristic behavioral components: the long-term movement or trend, the cycle, the seasonal variations and the irregular fluctuations. These movements are caused by various economic, climatic or institutional factors. The seasonal variations occur periodically on a more or less regular basis over the course of a year. These variations occur as a result of seasonal changes in weather, statutory holidays and other events that occur at fairly regular intervals and thus have a significant impact on the rate of economic activity.

In the interest of accurately interpreting the fundamental evolution of an economic phenomenon and producing forecasts of superior quality, Statistics Canada uses the X11ARIMA/88 seasonal adjustment method to seasonally adjust its time series. This method minimizes the impact of seasonal variations on the series and essentially consists of adding one year of estimated raw data to the end of the original series before it is seasonally adjusted per se. The estimated data are derived from forecasts using ARIMA (Auto Regressive Integrated Moving Average) models of the Box-Jenkins type.

The X-11 part of the X11ARIMA/88 program uses primarily a ratio-to-moving average method. It is used to smooth the modified series and obtain a preliminary estimate of the trend-cycle. It also calculates the ratios of the original series (fitted) to the estimates of the trend-cycle and estimates the seasonal factors from these ratios. The final seasonal factors are produced only after these operations have been repeated several times.

The procedures to determine the seasonal factors necessary to calculate the final seasonally adjusted data are executed every month. This approach ensures that the estimated seasonal factors are derived from an unadjusted series that includes all the available information about the series, i.e. the current month's unadjusted data as well as the previous month's revised unadjusted data.

While seasonal adjustment permits a better understanding of the underlying trend-cycle of a series, the seasonally adjusted series still contains an irregular component. Slight month-to-month variations in the seasonally adjusted series may be simple irregular movements. To get a better idea of the underlying trend, users should examine several months of the seasonally adjusted series.

The Canada seasonally adjusted total is derived indirectly by the summation of the individually seasonally adjusted kinds of business.

## Trend

A seasonally adjusted series may contain the effects of irregular influences and special circumstances and these can mask the trend. The short term trend shows the underlying direction in seasonally adjusted series by averaging across months, thus smoothing out the effects of irregular influences. The result is a more stable series. The trend for the last month may be, subject to significant revision as values in future months are included in the averaging process.