



Catalogue no. 31-001-XIE

# Monthly Survey of Manufacturing

November 2004



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

# Monthly Survey of Manufacturing

November 2004

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## Symbols

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- . 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

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- **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

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## Schedule of releases

<b>Schedule of releases</b>	<b>Monthly survey of manufacturing</b>
Reference period	Release date
November 2004	January 20, 2005
December 2004	February 14, 2005
January 2005	March 15, 2005
February 2005	April 15, 2005
March 2005	May 13, 2005
April 2005	June 14, 2005
May 2005	July 14, 2005
June 2005	August 15, 2005
July 2005	September 14, 2005
August 2005	October 14, 2005
September 2005	November 15, 2005
October 2005	December 14, 2005
November 2005	January 18, 2006
December 2005	February 16, 2006

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# Highlights

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## Monthly Survey of Manufacturing

- In November, both the backlog of unfilled orders and new orders received weakened for the fourth consecutive month. Despite the weakness, manufacturers managed to chalk up a modest 0.2% increase in shipments to \$50.0 billion. Manufacturers continued to face factors beyond their control; among them, rising costs and the soaring Canadian dollar have taken a bite out of manufacturing activity in recent months.

## Analysis – November 2004

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In November, both the backlog of unfilled orders and new orders received weakened for the fourth consecutive month. Despite the weakness, manufacturers managed to chalk up a modest 0.2% increase in shipments to \$50.0 billion. Manufacturers continued to face factors beyond their control; among them, rising costs and the soaring Canadian dollar have taken a bite out of manufacturing activity in recent months.

The Canadian dollar made strong gains in November, touching the US 85 cent mark by the end of the month, its highest level since 1992. The sustained strength of the dollar continued to render manufactured goods, priced in Canadian dollars, more expensive abroad, a challenge for manufacturers trying to secure and retain foreign customers. The latest Canadian international merchandise trade statistics reported a 2.9% decline in total exports for November, the fourth decrease in the last five months.

In addition to the impediments created by a high-valued dollar, input costs have also soared in 2004. For some manufacturers, the higher costs may be cutting into their profit margins.

### Orders trending down

The impact of these obstacles has been quite apparent. Canada's manufacturers saw their new orders decrease 0.5% to \$49.6 billion in November, a six-month low. The transportation equipment (-5.5%) and computer (-3.9%) industries were primarily responsible for the fourth decline in a row.

Unfilled orders, which may contribute to future shipments, have also dropped four straight months. In November, the backlog of orders fell 1.2% to \$36.7 billion, further weakening the trend. In November, orders stood 3.3% below the peak of 2004, set in July (\$37.9 billion). Manufacturers of computer equipment (-4.4%) and aerospace products and parts (-0.9%) contributed to the decline.

### Manufacturers slash jobs in 2004

As a further indication of the rough road in recent months, employment in manufacturing was essentially unchanged in December, capping off a lacklustre year. According to the most recent Labour Force Survey, the second half of 2004 was particularly difficult as manufacturers eliminated 51,000 factory jobs since July.

### Shipments carve out small gain

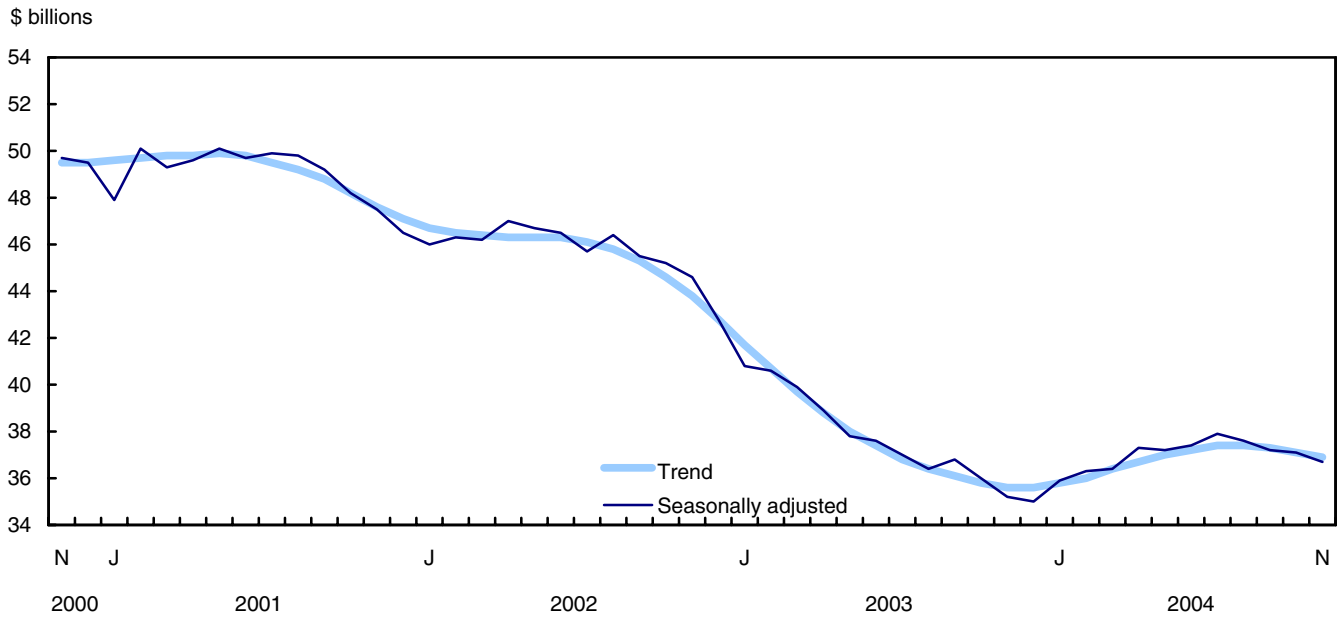
Despite the deteriorating state of orders, manufacturers posted a modest increase in the value of goods shipped in November. Shipments edged up 0.2% to \$50.0 billion following declines in September (-0.5%) and October (-1.0%). November's increase was widespread, with 15 of 21 industries, accounting for 69% of total shipments, contributing to the rise.

Measured in constant dollars, shipments rose 0.7% to \$47.0 billion, the first increase since August.



Chart 1

**Manufacturers' backlog of unfilled orders decline further**



**New Brunswick and the West report big gains**

Six provinces reported higher shipments in November, although they were largely offset by decreases in the two largest manufacturing provinces, Ontario and Quebec. New Brunswick led all provinces, posting a \$146 million (+12.6%) jump in shipments to a record \$1.3 billion. The province’s non-durable goods sector dominated in November, with a 16% surge in shipments to just over \$1.0 billion.

Both Alberta and British Columbia also reported strong shipments in November. Sizable gains in Alberta’s machinery and petroleum industries boosted shipments by \$112 million (+2.5%) to a record \$4.6 billion. In the first 11 months of 2004, manufacturing activity was up a robust 14.7% in Alberta. Moving west, shipments in British Columbia increased \$44 million (+1.2%) to \$3.6 billion. The food and primary metals industries were the main contributors to the gain.

## Text Table 1

## Shipments by province and territory

	October 2004	November 2004	October 2004 to November 2004
	seasonally adjusted		
	\$ millions		% change
<b>Canada</b>	<b>49,903</b>	<b>49,997</b>	<b>0.2</b>
Newfoundland and Labrador	287	273	-4.9
Prince Edward Island	115	115	-0.1
Nova Scotia	772	798	3.5
New Brunswick	1,160	1,306	12.6
Quebec	11,467	11,341	-1.1
Ontario	26,071	25,917	-0.6
Manitoba	1,091	1,109	1.6
Saskatchewan	828	872	5.3
Alberta	4,514	4,626	2.5
British Columbia	3,588	3,632	1.2
Yukon Territory	1	2	22.7
Northwest Territories including Nunavut	8	6	-27.9

Offsetting much of the gains in November were decreases in Canada's manufacturing heartland. A slowdown in the motor vehicle and parts industries contributed to the third successive decrease for Ontario. Shipments fell by \$155 million (-0.6%) to \$25.9 billion, the lowest since May. Manufacturing in Quebec also retreated by \$126 million (-1.1%) to \$11.3 billion. Production slowed in the aerospace and petroleum products industries, pulling down output for the third time in four months.

### Computer shipments jump

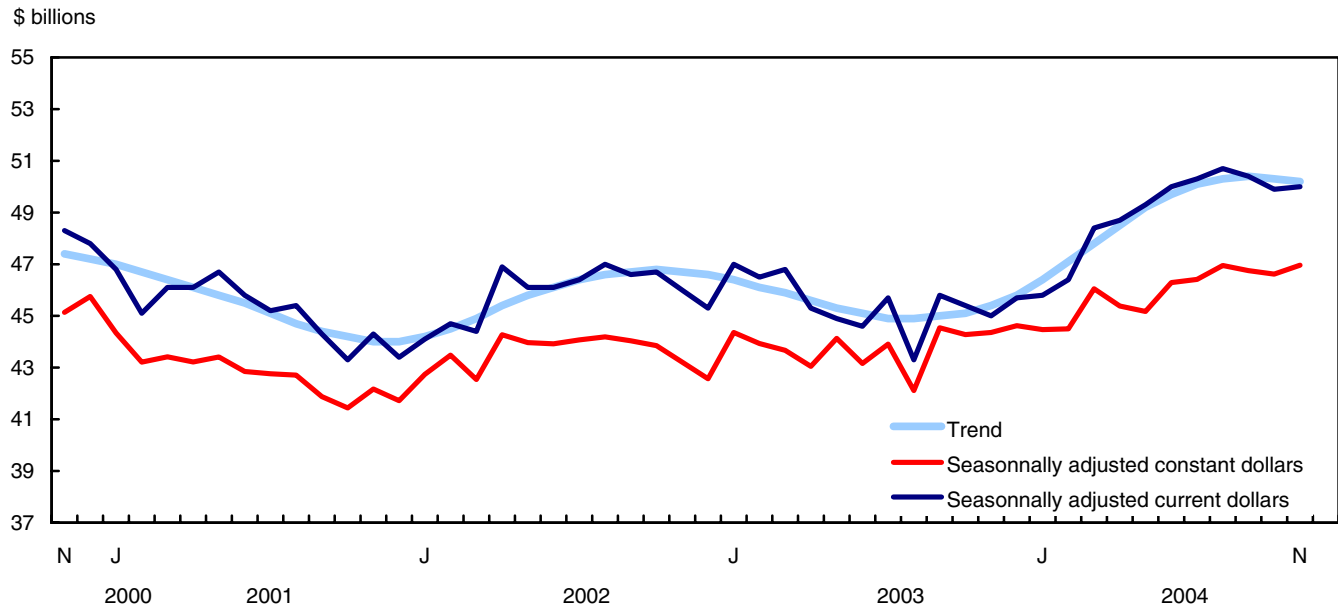
The computer and electronic products industry reported a robust 5.6% increase in shipments to \$1.6 billion, making up some of the ground lost in October (-7.3%). The beleaguered industry has been showing small gains in recent months, partly due to improvements in the communications equipment industry. Overall, shipments of computers and electronic products are on track to report the first annual increase since 2000. Shipments were up 7.3% from January to November.

High industrial prices, which were up almost 37% in November compared to last year, continued to set records in the petroleum and coal products industry. Shipments rose another 1.5% to \$4.3 billion, the highest level ever for the industry. In addition, exports of crude petroleum hit a record high of \$2.5 billion in November.

Other industries reporting increases include chemical products (+1.5%) and machinery (+2.2%) manufacturing.

Chart 2

Shipments on the upside in November



Some manufacturing industries pulled back in November, partly offsetting the modest rise in shipments. Following a large number of orders shipped in October, the railroad rolling stock industry reported a 34.4% drop in production in November to \$179 million. Manufacturers of motor vehicle parts have been feeling the pinch of a slowdown in the motor vehicle industry. Parts manufacturing fell back by 2.9% to \$2.7 billion, the third consecutive decrease.

Inventories hold their own

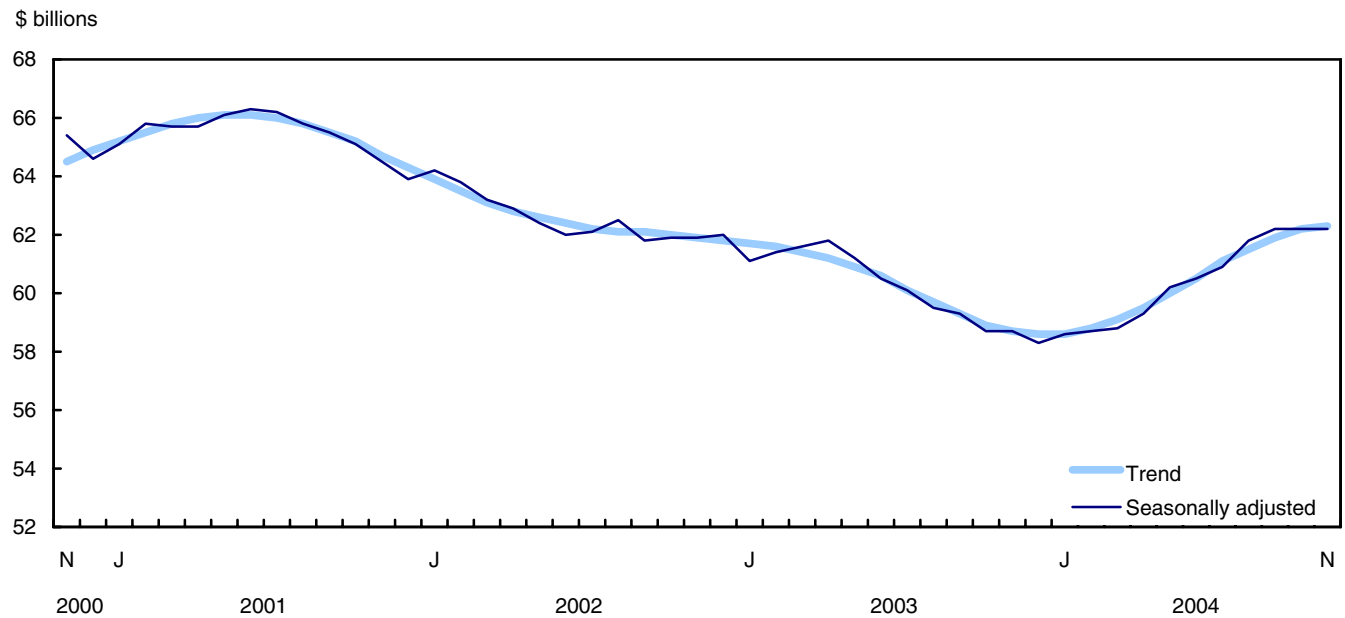
For the third month in a row, manufacturers’ inventories were essentially unchanged at \$62.2 billion. Inventories had been on a steady rise since the start of the year. November’s level is 6.7% higher than at the close of 2003.

Raw material inventories rose 0.3% to \$27.1 billion, following October’s 0.3% decrease. The trend for raw materials has been rising since the start of the year, although signs indicate the trend may be slowing.

Counterbalancing the build-up in raw materials, slight decreases were reported in both goods-in-process (-0.1%) and finished products (-0.2%) inventories. November marked the third drop in a row for goods-in-process inventories, which stood at \$13.8 billion at month’s end. Meanwhile, finished products, which have been trending upwards in recent months, edged back to \$21.3 billion, the first decline since July.

Chart 3

**Inventories hold steady**



Higher inventories for primary metals (+3.0%) and machinery (+2.5%) were offset by declines in the motor vehicle (-8.7%) and the wood products (-1.5%) industries.

**Slight uptake in shipments shifts down the inventory-to-shipment ratio**

November's modest gain in shipments resulted in a slight downward shift of the inventory-to-shipment ratio. The ratio edged down to 1.24 from 1.25 in October. 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 4

Inventory-to-shipment ratio edges down

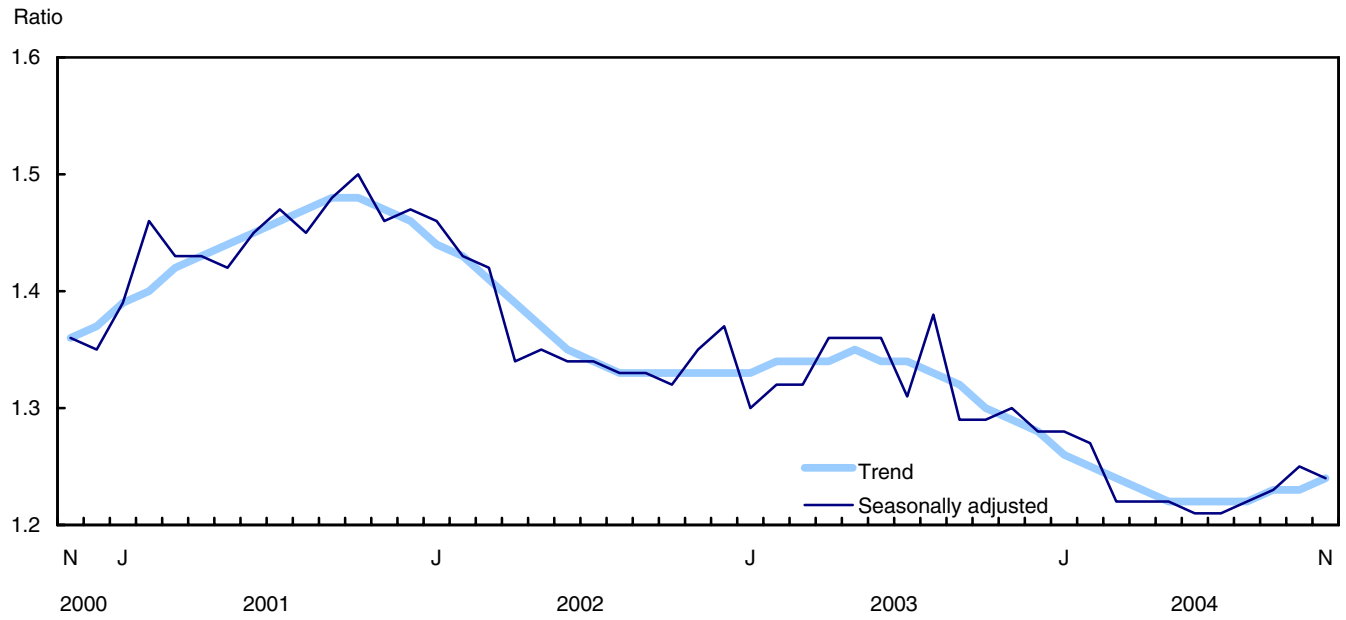


Chart 5

Inventories - Monthly change in trend

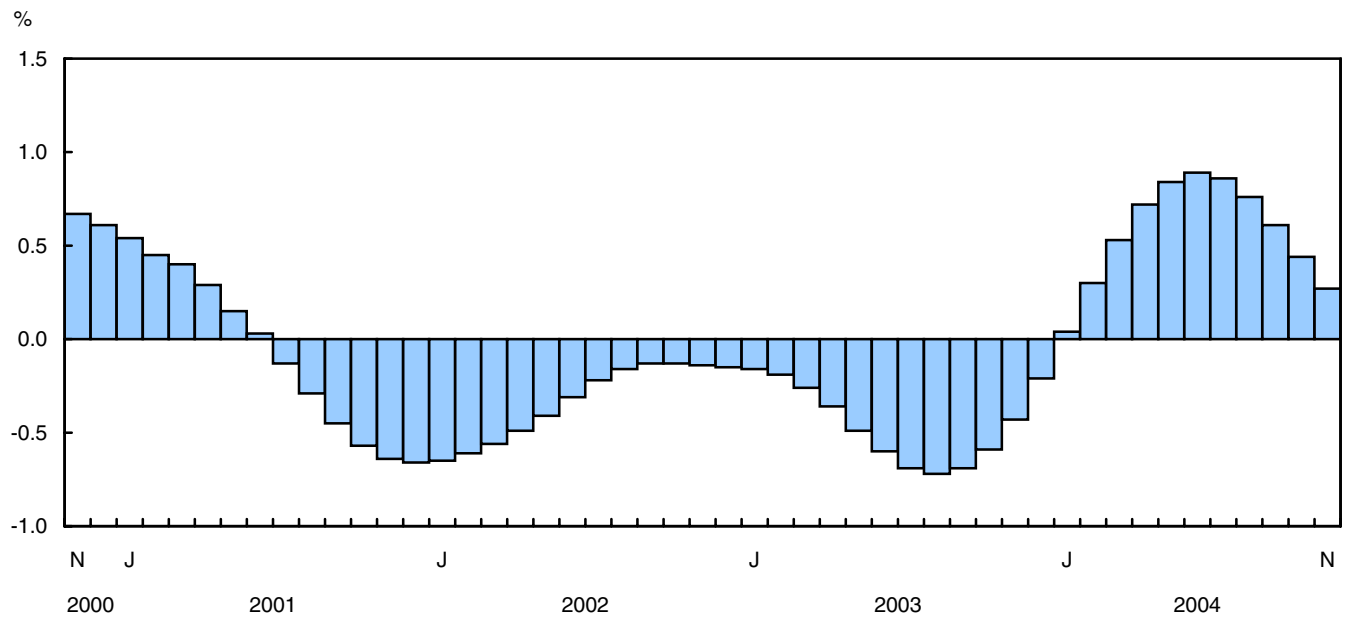


Chart 6

Shipments - Monthly change in trend

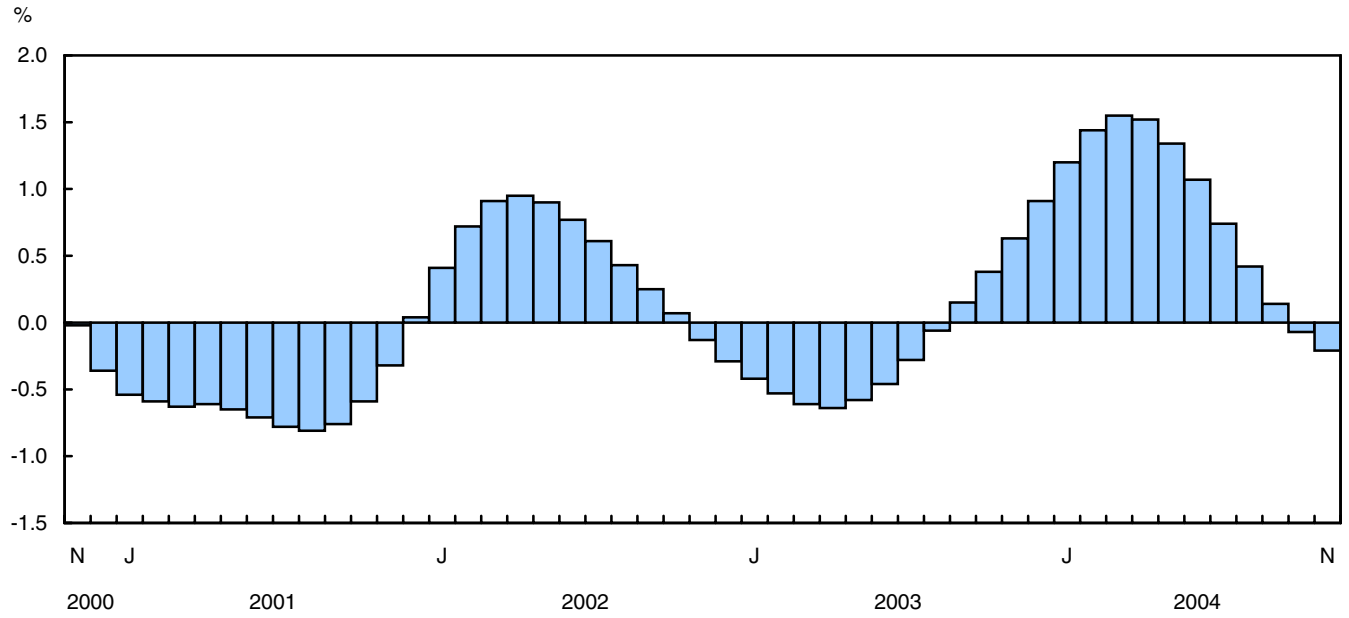
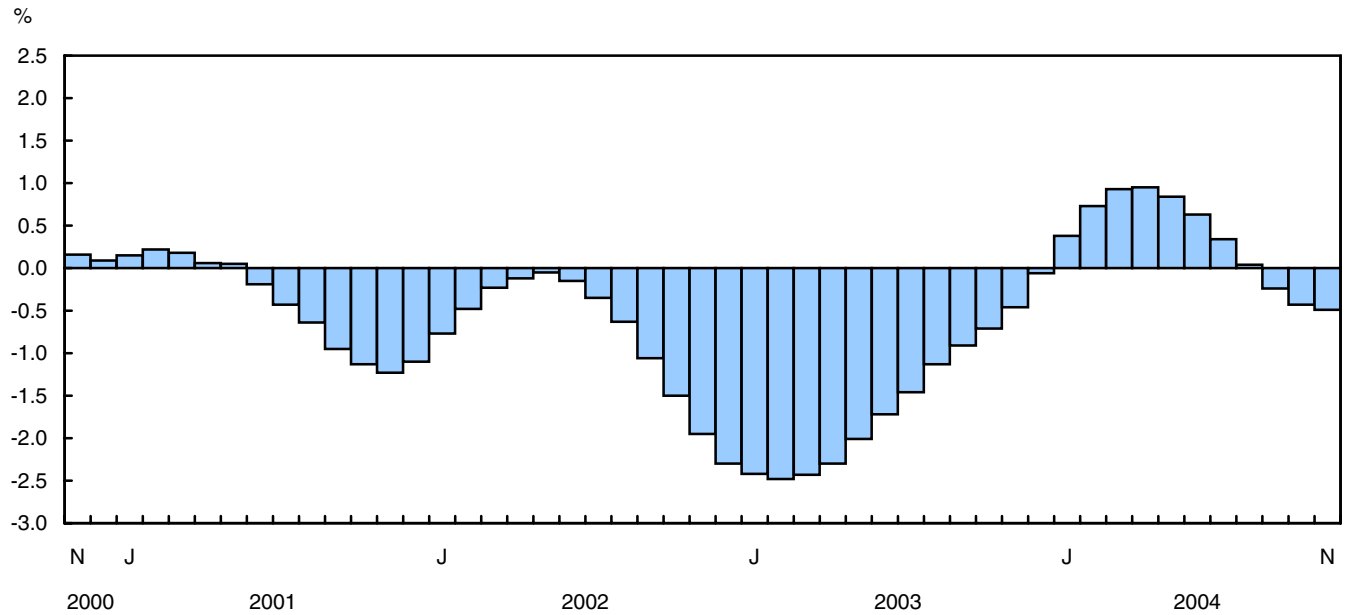


Chart 7

Unfilled orders - Monthly change in trend



**Note to readers**

**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 take 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							
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	45,551	60,314	38,248	46,442	50,325	60,938	37,906	50,856
August 2004	51,925	61,779	37,809	51,487	50,667	61,823	37,592	50,353
September 2004	52,833	61,904	37,432	52,456	50,410	62,191	37,157	49,975
October 2004	51,410	61,778	37,034	51,011	49,903	62,225	37,085	49,831
November 2004	51,099	62,052	36,415	50,480	49,997	62,234	36,651	49,563

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
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	1.5
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	1.5
May 2004	1.1	1.3	1.4	0.8	1.22	1.22	-0.1	0.8	-0.9	1.3
June 2004	1.4	1.1	0.6	0.9	1.21	1.22	0.4	0.6	1.8	0.9
July 2004	0.7	0.7	0.7	0.9	1.21	1.22	1.4	0.3	1.4	0.5
August 2004	0.7	0.4	1.5	0.8	1.22	1.22	-0.8	0.0	-1.0	0.2
September 2004	-0.5	0.1	0.6	0.6	1.23	1.23	-1.2	-0.2	-0.8	-0.1
October 2004	-1.0	-0.1	0.1	0.4	1.25	1.23	-0.2	-0.4	-0.3	-0.2
November 2004	0.2	-0.2	0.0	0.3	1.24	1.24	-1.2	-0.5	-0.5	-0.3

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							
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	5,629	3,351	2,126	5,733	8,959	3,442	2,119	9,024
August 2004	9,464	3,509	2,032	9,370	9,073	3,532	2,021	8,975
September 2004	9,532	3,459	1,932	9,433	9,076	3,487	1,921	8,976
October 2004	8,817	3,376	1,817	8,702	8,639	3,439	1,812	8,530
November 2004	8,949	3,382	1,829	8,961	8,514	3,332	1,811	8,512

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
November 2003	-3.7	-0.1	-0.5	0.4	0.39	0.38	3.0	2.9	-3.7	0.0
December 2003	3.2	0.3	-0.8	0.9	0.37	0.38	2.0	3.4	3.0	0.4
January 2004	-0.1	0.9	-0.1	1.3	0.37	0.38	2.1	3.7	-0.1	0.9
February 2004	-1.1	1.4	4.9	1.6	0.40	0.38	3.2	3.5	-0.9	1.4
March 2004	7.1	1.8	4.7	1.8	0.39	0.38	6.2	3.0	7.7	1.7
April 2004	1.5	1.8	4.2	1.7	0.40	0.38	5.5	2.2	1.4	1.6
May 2004	1.1	1.5	-1.8	1.5	0.39	0.38	0.5	1.2	0.0	1.3
June 2004	0.7	1.1	-1.0	1.1	0.38	0.38	-1.9	0.2	0.1	0.8
July 2004	-0.2	0.4	1.1	0.6	0.38	0.38	3.2	-0.8	0.9	0.2
August 2004	1.3	-0.2	2.6	0.1	0.39	0.39	-4.6	-1.7	-0.5	-0.4
September 2004	0.0	-0.7	-1.3	-0.3	0.38	0.39	-4.9	-2.2	0.0	-0.8
October 2004	-4.8	-1.1	-1.4	-0.7	0.40	0.39	-5.7	-2.2	-5.0	-1.1
November 2004	-1.4	-1.2	-3.1	-0.9	0.39	0.39	-0.1	-1.9	-0.2	-1.2

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							
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	39,922	56,963	36,122	40,709	41,366	57,496	35,787	41,832
August 2004	42,461	58,270	35,777	42,117	41,594	58,291	35,572	41,378
September 2004	43,301	58,445	35,500	43,023	41,334	58,705	35,236	40,999
October 2004	42,592	58,402	35,217	42,310	41,264	58,786	35,273	41,301
November 2004	42,150	58,670	34,586	41,519	41,484	58,902	34,840	41,051

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		Seasonally adjusted	Trend	Unfilled orders		New orders	
	Seasonally adjusted	Trend	Seasonally adjusted	Trend			Seasonally adjusted	Trend	Seasonally adjusted	Trend
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	-0.2	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	1.4	-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	0.8	-1.0	1.2
June 2004	1.6	1.1	0.7	0.9	1.39	1.40	0.5	0.7	2.2	0.9
July 2004	0.9	0.8	0.7	0.9	1.39	1.40	1.3	0.4	1.5	0.6
August 2004	0.6	0.6	1.4	0.8	1.40	1.40	-0.6	0.1	-1.1	0.3
September 2004	-0.6	0.3	0.7	0.7	1.42	1.41	-0.9	-0.1	-0.9	0.1
October 2004	-0.2	0.1	0.1	0.5	1.42	1.41	0.1	-0.3	0.7	0.0
November 2004	0.5	0.0	0.2	0.3	1.42	1.42	-1.2	-0.4	-0.6	-0.1

Table 4-1

## Shipments by major group and selected industries - Unadjusted

NAICS Code	Current periods				Previous year		Year to date		Annual		
	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% change from 2003	2004	% change from 2002	2003	
\$millions											
Food manufacturing	311	5,796	5,908	6,002	5,944	5,452	5,783	8.3	62,818	1.7	63,436
Beverage and tobacco product manufacturing	312	909	941	982	1,106	976	1,013	-1.3	10,820	3.2	12,032
Textile mills	313	273	281	299	270	281	295	-3.7	3,057	-11.0	3,421
Textile product mills	314	212	216	203	201	183	202	-0.3	2,130	-10.3	2,297
Clothing manufacturing	315	587	579	580	584	606	689	-8.1	6,062	-6.3	7,075
Leather and allied product manufacturing	316	56	71	77	66	63	82	-16.2	577	-13.7	743
Wood product manufacturing	321	2,952	3,219	3,486	3,576	2,641	2,942	20.4	34,968	-3.4	31,248
Paper manufacturing	322	2,710	2,739	2,803	2,827	2,625	2,772	-1.1	30,348	-3.6	33,204
Printing and related support activities	323	1,093	1,063	1,071	1,008	1,038	1,028	2.4	10,898	-0.7	11,590
Petroleum and coal products manufacturing	324	4,234	4,346	4,153	4,130	2,932	2,955	21.0	41,558	9.0	37,355
Chemical manufacturing	325	3,885	3,855	3,924	3,948	3,215	3,468	10.9	42,032	3.6	41,187
Plastics and rubber products manufacturing	326	2,229	2,310	2,302	2,292	2,048	2,279	4.8	24,056	1.0	24,722
Non-metallic mineral product manufacturing	327	1,188	1,262	1,293	1,249	1,015	1,229	6.0	11,885	5.3	11,994
Primary metal manufacturing	331	3,960	3,918	3,899	3,750	3,074	3,407	18.9	40,921	2.3	37,606
Fabricated metal product manufacturing	332	3,255	3,263	3,332	3,105	2,649	2,913	11.6	32,012	0.4	31,026
Machinery manufacturing	333	2,492	2,395	2,531	2,280	2,118	2,275	7.8	25,238	-2.9	25,576
Computer and electronic product manufacturing	334	1,692	1,486	1,866	1,545	1,691	1,532	7.3	18,108	-13.1	18,790
Electrical equipment, appliance and component manufacturing	335	917	908	943	858	862	864	5.2	9,675	-5.7	9,984
Transportation equipment manufacturing	336	10,684	10,732	11,146	11,277	9,697	10,840	5.3	117,945	-3.9	120,949
Motor vehicle manufacturing	3361	6,239	5,922	6,534	6,440	5,477	6,028	4.4	67,255	-6.4	69,258
Motor vehicle body and trailer manufacturing	3362	372	355	342	303	284	329	5.2	3,586	0.1	3,695
Motor vehicle parts manufacturing	3363	2,710	2,895	2,999	3,024	2,639	2,994	5.9	30,823	-0.1	31,433
Aerospace product and parts manufacturing	3364	970	1,077	827	1,127	848	1,098	9.6	11,514	1.5	11,586
Railroad rolling stock manufacturing	3365	212	244	218	169	212	178	-1.0	2,147	-7.7	2,370
Ship and boat building	3366	103	94	99	94	82	82	14.6	1,153	-5.4	1,100
Furniture and related product manufacturing	337	1,328	1,305	1,279	1,242	1,161	1,244	3.6	13,410	1.2	14,035
Miscellaneous manufacturing	339	649	612	662	666	654	697	2.9	7,041	3.5	7,495
<b>Non-durable goods industries<sup>1</sup></b>		<b>21,983</b>	<b>22,309</b>	<b>22,396</b>	<b>22,377</b>	<b>19,420</b>	<b>20,566</b>	<b>7.4</b>	<b>234,355</b>	<b>1.5</b>	<b>237,062</b>
<b>Durable goods industries<sup>2</sup></b>		<b>29,116</b>	<b>29,101</b>	<b>30,437</b>	<b>29,548</b>	<b>25,563</b>	<b>27,942</b>	<b>9.3</b>	<b>311,203</b>	<b>-2.6</b>	<b>308,703</b>
<b>Manufacturing</b>		<b>51,099</b>	<b>51,410</b>	<b>52,833</b>	<b>51,925</b>	<b>44,983</b>	<b>48,508</b>	<b>8.5</b>	<b>545,558</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 October	Current periods				Change from previous month			Trend change from previous month			
			Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2004	Oct. 2004	Sept. 2004	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004
				\$ millions				percentage					
Food manufacturing	311	31	5,723	5,692	5,753	5,770	0.5	-1.1	-0.3	-0.1	-0.1	0.0	0.1
Beverage and tobacco product manufacturing	312	-8	952	960	966	990	-0.9	-0.7	-2.4	-0.5	-0.7	-0.8	-0.8
Textile mills	313	-4	267	271	274	266	-1.6	-1.0	3.1	-0.3	-0.4	-0.5	-0.5
Textile product mills	314	1	202	201	196	194	0.5	2.3	1.5	0.8	1.2	1.5	1.6
Clothing manufacturing	315	29	534	504	522	523	5.8	-3.5	0.0	0.0	-0.3	-0.6	-1.0
Leather and allied product manufacturing	316	-3	48	52	49	49	-6.3	4.5	1.7	-0.1	-0.1	-0.3	-0.7
Wood product manufacturing	321	-78	3,081	3,159	3,241	3,335	-2.5	-2.5	-2.8	-1.3	-1.2	-0.8	-0.1
Paper manufacturing	322	15	2,675	2,660	2,729	2,763	0.5	-2.5	-1.2	-0.8	-1.0	-0.9	-0.7
Printing and related support activities	323	2	1,002	1,000	1,011	1,007	0.2	-1.1	0.4	0.1	0.2	0.3	0.5
Petroleum and coal products manufacturing	324	64	4,292	4,228	4,049	3,939	1.5	4.4	2.8	1.1	1.8	2.3	2.9
Chemical manufacturing	325	58	3,970	3,912	3,987	4,030	1.5	-1.9	-1.1	0.0	0.3	0.6	1.0
Plastics and rubber products manufacturing	326	12	2,192	2,179	2,198	2,180	0.6	-0.8	0.8	0.1	0.2	0.3	0.5
Non-metallic mineral product manufacturing	327	48	1,116	1,068	1,064	1,051	4.5	0.4	1.2	1.0	1.0	0.8	0.6
Primary metal manufacturing	331	30	3,895	3,865	3,810	3,868	0.8	1.4	-1.5	0.3	0.5	0.7	0.8
Fabricated metal product manufacturing	332	11	3,055	3,044	3,031	2,969	0.4	0.4	2.1	0.7	1.0	1.2	1.4
Machinery manufacturing	333	51	2,400	2,349	2,403	2,410	2.2	-2.2	-0.3	0.1	0.4	0.7	1.1
Computer and electronic product manufacturing	334	86	1,627	1,541	1,662	1,634	5.6	-7.3	1.7	-0.6	-0.7	-0.8	-0.9
Electrical equipment, appliance and component manufacturing	335	-17	872	889	884	883	-1.9	0.5	0.1	0.0	0.1	0.1	0.1
Transportation equipment manufacturing	336	-294	10,214	10,508	10,744	10,961	-2.8	-2.2	-2.0	-1.2	-1.0	-0.7	-0.2
Motor vehicle manufacturing	3361	-46	5,853	5,899	6,250	6,239	-0.8	-5.6	0.2	-1.4	-1.2	-0.8	-0.1
Motor vehicle body and trailer manufacturing	3362	20	364	344	337	333	5.8	2.2	1.1	1.5	1.9	2.2	2.3
Motor vehicle parts manufacturing	3363	-79	2,661	2,740	2,826	2,834	-2.9	-3.1	-0.3	-0.8	-0.8	-0.6	-0.3
Aerospace product and parts manufacturing	3364	-34	967	1,001	886	1,133	-3.4	13.0	-21.8	-1.9	-2.3	-2.4	-2.0
Railroad rolling stock manufacturing	3365	-94	179	273	194	193	-34.4	40.6	0.4	-0.9	-0.7	-0.1	0.4
Ship and boat building	3366	6	112	106	124	108	5.7	-14.1	14.1	0.3	0.9	1.6	2.3
Furniture and related product manufacturing	337	18	1,265	1,247	1,208	1,188	1.4	3.2	1.7	0.9	0.9	0.9	0.9
Miscellaneous manufacturing	339	43	616	574	628	658	7.4	-8.7	-4.5	-0.7	-1.0	-1.1	-1.0
<b>Non-durable goods industries<sup>1</sup></b>		<b>197</b>	<b>21,856</b>	<b>21,659</b>	<b>21,735</b>	<b>21,709</b>	<b>0.9</b>	<b>-0.4</b>	<b>0.1</b>	<b>0.1</b>	<b>0.3</b>	<b>0.5</b>	<b>0.7</b>
<b>Durable goods industries<sup>2</sup></b>		<b>-102</b>	<b>28,141</b>	<b>28,244</b>	<b>28,675</b>	<b>28,957</b>	<b>-0.4</b>	<b>-1.5</b>	<b>-1.0</b>	<b>-0.4</b>	<b>-0.3</b>	<b>-0.1</b>	<b>0.2</b>
<b>Manufacturing</b>		<b>94</b>	<b>49,997</b>	<b>49,903</b>	<b>50,410</b>	<b>50,667</b>	<b>0.2</b>	<b>-1.0</b>	<b>-0.5</b>	<b>-0.2</b>	<b>-0.1</b>	<b>0.1</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 5-1

## Inventories by major group and selected industries - Unadjusted

	NAICS Code	Current periods				Previous year		Year to date		Average per month	
		Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% change from 2003	Average 2004	% change from 2002	2003
\$millions											
Food manufacturing	311	5,012	5,051	4,936	4,775	4,735	4,716	4.5	4,775	0.2	4,564
Beverage and tobacco product manufacturing	312	1,694	1,635	1,593	1,625	1,639	1,618	-0.4	1,652	2.7	1,650
Textile mills	313	459	474	484	491	486	499	-9.0	476	-8.0	519
Textile product mills	314	362	371	364	361	355	358	-1.8	360	-4.2	365
Clothing manufacturing	315	1,167	1,200	1,265	1,279	1,340	1,406	-12.6	1,277	0.9	1,451
Leather and allied product manufacturing	316	121	124	138	151	118	126	-6.9	133	-9.8	141
Wood product manufacturing	321	4,129	4,165	4,164	4,138	3,956	3,930	-3.3	4,416	-0.9	4,533
Paper manufacturing	322	3,562	3,614	3,653	3,658	3,549	3,521	-0.5	3,579	-1.1	3,588
Printing and related support activities	323	882	909	917	904	864	866	0.5	876	-2.4	870
Petroleum and coal products manufacturing	324	2,264	2,360	2,370	2,377	1,901	1,891	11.7	2,261	0.8	2,009
Chemical manufacturing	325	6,210	6,196	6,109	6,105	5,728	5,561	8.6	6,127	9.3	5,652
Plastics and rubber products manufacturing	326	2,316	2,278	2,297	2,312	2,233	2,229	1.6	2,320	4.4	2,279
Non-metallic mineral product manufacturing	327	1,091	1,087	1,110	1,123	1,090	1,062	0.6	1,135	-0.2	1,125
Primary metal manufacturing	331	5,761	5,578	5,451	5,311	4,764	4,686	2.0	5,021	-1.5	4,902
Fabricated metal product manufacturing	332	4,293	4,281	4,270	4,223	3,466	3,504	6.5	3,941	1.3	3,676
Machinery manufacturing	333	4,940	4,830	4,813	4,800	4,533	4,528	2.9	4,667	-3.2	4,522
Computer and electronic product manufacturing	334	3,864	3,895	3,791	3,920	4,279	4,305	-11.0	3,942	-11.3	4,398
Electrical equipment, appliance and component manufacturing	335	1,929	1,915	1,903	1,940	1,806	1,806	0.0	1,884	-2.8	1,870
Transportation equipment manufacturing	336	9,493	9,321	9,779	9,817	9,369	9,210	-3.9	9,331	-17.9	9,637
Motor vehicle manufacturing	3361	1,350	1,459	1,560	1,587	1,258	1,254	13.9	1,478	-8.6	1,288
Motor vehicle body and trailer manufacturing	3362	476	481	465	462	456	443	-2.7	458	12.3	466
Motor vehicle parts manufacturing	3363	2,032	1,917	1,898	1,922	1,908	1,828	3.3	1,911	13.1	1,847
Aerospace product and parts manufacturing	3364	4,545	4,415	4,794	4,752	4,668	4,585	-9.5	4,450	-30.5	4,875
Railroad rolling stock manufacturing	3365	819	813	819	864	774	795	-11.8	783	-7.5	876
Ship and boat building	3366	116	112	104	100	137	131	-13.7	111	-1.8	129
Furniture and related product manufacturing	337	1,304	1,287	1,277	1,264	1,195	1,202	-0.9	1,232	2.7	1,238
Miscellaneous manufacturing	339	1,198	1,205	1,219	1,205	1,241	1,175	1.0	1,230	4.1	1,217
<b>Non-durable goods industries<sup>1</sup></b>		<b>24,048</b>	<b>24,213</b>	<b>24,126</b>	<b>24,039</b>	<b>22,948</b>	<b>22,792</b>	<b>3.0</b>	<b>23,836</b>	<b>2.3</b>	<b>23,087</b>
<b>Durable goods industries<sup>2</sup></b>		<b>38,004</b>	<b>37,565</b>	<b>37,777</b>	<b>37,741</b>	<b>35,698</b>	<b>35,408</b>	<b>-1.4</b>	<b>36,798</b>	<b>-7.1</b>	<b>37,118</b>
<b>Manufacturing</b>		<b>62,052</b>	<b>61,778</b>	<b>61,904</b>	<b>61,779</b>	<b>58,646</b>	<b>58,200</b>	<b>0.3</b>	<b>60,634</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 October	Current periods				Change from previous month			Trend change from previous month				
			Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2004	Oct. 2004	Sept. 2004	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	
			\$ millions				percentage							
Food manufacturing	311	-32	4,845	4,877	4,810	4,778	-0.7	1.4	0.7	0.1	0.2	0.3	0.4	
Beverage and tobacco product manufacturing	312	22	1,682	1,661	1,652	1,647	1.3	0.5	0.3	0.3	0.4	0.4	0.4	
Textile mills	313	-13	460	473	484	490	-2.7	-2.3	-1.1	-0.7	-0.6	-0.4	0.0	
Textile product mills	314	-7	364	371	367	365	-1.8	1.2	0.5	-0.1	0.1	0.3	0.6	
Clothing manufacturing	315	0	1,228	1,228	1,239	1,245	0.0	-0.9	-0.4	0.0	-0.1	-0.4	-0.7	
Leather and allied product manufacturing	316	1	134	133	138	134	0.5	-3.2	2.6	0.2	0.4	0.6	0.8	
Wood product manufacturing	321	-70	4,446	4,515	4,488	4,489	-1.5	0.6	0.0	0.1	0.2	0.3	0.4	
Paper manufacturing	322	-60	3,585	3,646	3,707	3,643	-1.6	-1.7	1.8	0.2	0.4	0.5	0.6	
Printing and related support activities	323	-18	872	890	908	885	-2.0	-1.9	2.6	-0.2	0.0	0.3	0.5	
Petroleum and coal products manufacturing	324	-8	2,388	2,397	2,340	2,271	-0.4	2.4	3.0	0.1	0.5	0.9	1.2	
Chemical manufacturing	325	0	6,342	6,342	6,240	6,168	0.0	1.6	1.2	0.2	0.5	0.7	0.8	
Plastics and rubber products manufacturing	326	12	2,341	2,328	2,337	2,338	0.5	-0.4	-0.1	0.1	0.2	0.3	0.3	
Non-metallic mineral product manufacturing	327	-6	1,143	1,149	1,146	1,138	-0.5	0.2	0.7	0.2	0.3	0.4	0.4	
Primary metal manufacturing	331	167	5,655	5,488	5,357	5,226	3.0	2.5	2.5	1.7	2.1	2.5	2.7	
Fabricated metal product manufacturing	332	17	4,315	4,298	4,289	4,202	0.4	0.2	2.1	0.9	1.4	2.0	2.5	
Machinery manufacturing	333	120	4,908	4,788	4,801	4,752	2.5	-0.3	1.0	0.9	1.0	1.0	1.0	
Computer and electronic product manufacturing	334	-12	3,829	3,841	3,863	3,870	-0.3	-0.6	-0.2	-0.4	-0.5	-0.5	-0.4	
Electrical equipment, appliance and component manufacturing	335	16	1,928	1,913	1,924	1,948	0.8	-0.6	-1.2	0.1	0.1	0.3	0.5	
Transportation equipment manufacturing	336	-108	9,265	9,373	9,615	9,774	-1.2	-2.5	-1.6	-0.5	-0.3	-0.1	0.3	
Motor vehicle manufacturing	3361	-130	1,357	1,487	1,554	1,586	-8.7	-4.3	-2.0	-2.6	-2.2	-1.5	-0.6	
Motor vehicle body and trailer manufacturing	3362	-4	477	481	471	466	-0.8	2.1	0.9	0.2	0.6	0.9	1.2	
Motor vehicle parts manufacturing	3363	23	1,975	1,952	1,933	1,946	1.2	1.0	-0.7	0.4	0.5	0.6	0.7	
Aerospace product and parts manufacturing	3364	-22	4,382	4,404	4,600	4,674	-0.5	-4.2	-1.6	-0.3	-0.3	-0.2	0.1	
Railroad rolling stock manufacturing	3365	6	819	813	819	864	0.8	-0.7	-5.3	-0.5	-0.1	0.6	1.5	
Ship and boat building	3366	0	106	106	105	107	0.0	0.7	-1.1	0.1	-0.3	-0.7	-1.0	
Furniture and related product manufacturing	337	17	1,310	1,293	1,270	1,250	1.3	1.8	1.5	1.0	1.3	1.5	1.5	
Miscellaneous manufacturing	339	-29	1,193	1,222	1,216	1,210	-2.4	0.4	0.5	-0.4	-0.4	-0.5	-0.5	
<b>Non-durable goods industries<sup>1</sup></b>		<b>-104</b>	<b>24,242</b>	<b>24,346</b>	<b>24,223</b>	<b>23,964</b>	<b>-0.4</b>	<b>0.5</b>	<b>1.1</b>	<b>0.1</b>	<b>0.3</b>	<b>0.5</b>	<b>0.6</b>	
<b>Durable goods industries<sup>2</sup></b>		<b>113</b>	<b>37,992</b>	<b>37,879</b>	<b>37,969</b>	<b>37,859</b>	<b>0.3</b>	<b>-0.2</b>	<b>0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.7</b>	<b>0.8</b>	
<b>Manufacturing</b>		<b>9</b>	<b>62,234</b>	<b>62,225</b>	<b>62,191</b>	<b>61,823</b>	<b>0.0</b>	<b>0.1</b>	<b>0.6</b>	<b>0.3</b>	<b>0.4</b>	<b>0.6</b>	<b>0.8</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		
	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% Change from 2003	Average 2004	% Change from 2002	2003	
\$millions											
Textile mills	313	234	246	236	222	206	211	-5.3	222	-20.6	233
Textile product mills	314	101	108	106	106	83	85	8.6	95	6.6	86
Clothing manufacturing	315	151	173	183	198	165	170	-5.9	190	3.6	199
Leather and allied product manufacturing	316	13	12	17	22	25	24	-24.7	21	-2.2	28
Plastics and rubber products manufacturing	326	474	478	494	464	373	378	18.0	436	1.9	366
Primary metal manufacturing	331	1,921	1,813	1,982	1,909	1,758	1,758	7.0	1,886	-2.8	1,757
Fabricated metal product manufacturing	332	4,461	4,527	4,496	4,374	3,490	3,568	17.1	4,128	-1.7	3,522
Machinery manufacturing	333	5,079	5,065	5,111	5,193	4,155	4,290	12.1	4,912	-14.5	4,380
Computer and electronic product manufacturing	334	2,992	3,130	3,123	3,203	3,267	3,363	-10.5	3,142	-5.5	3,483
Electrical equipment, appliance and component manufacturing	335	912	905	907	918	879	866	-3.3	879	-3.5	901
Transportation equipment manufacturing	336	17,170	17,505	17,652	18,035	18,118	18,513	-9.9	18,263	-26.7	20,074
Motor vehicle manufacturing	3361	725	715	782	833	562	564	37.0	773	-25.1	566
Motor vehicle body and trailer manufacturing	3362	510	472	460	464	398	405	9.4	476	-1.5	430
Motor vehicle parts manufacturing	3363	1,104	1,102	1,151	1,199	1,209	1,146	9.4	1,184	25.4	1,093
Aerospace product and parts manufacturing	3364	11,099	11,289	11,184	11,171	11,466	11,863	-12.9	11,594	-34.2	13,167
Ship and boat building	3366	45	48	45	34	78	78	-44.4	47	230.1	83
Miscellaneous manufacturing	339	220	231	190	198	160	185	17.3	190	-13.4	162
<b>Non-durable goods industries <sup>1</sup></b>		<b>2,086</b>	<b>2,165</b>	<b>2,231</b>	<b>2,210</b>	<b>1,872</b>	<b>2,015</b>	<b>0.5</b>	<b>2,066</b>	<b>7.1</b>	<b>2,029</b>
<b>Durable goods industries <sup>2</sup></b>		<b>34,329</b>	<b>34,869</b>	<b>35,201</b>	<b>35,599</b>	<b>33,177</b>	<b>33,990</b>	<b>-2.6</b>	<b>34,951</b>	<b>-18.7</b>	<b>35,629</b>
<b>Manufacturing</b>		<b>36,415</b>	<b>37,034</b>	<b>37,432</b>	<b>37,809</b>	<b>35,049</b>	<b>36,005</b>	<b>-2.4</b>	<b>37,018</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 October	Current periods				Change from previous month			Trend change from previous month							
		Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2004	Oct. 2004	Sept. 2004	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004				
\$ millions													percentage			
Textile mills	313	-11	240	251	237	226	-4.4	6.0	4.8	1.8	1.8	1.8	1.8			
Textile product mills	314	-2	107	109	109	104	-1.9	0.8	4.5	1.2	2.0	2.9	3.6			
Clothing manufacturing	315	-17	176	193	197	195	-8.8	-2.1	1.0	0.3	0.3	0.5	0.7			
Leather and allied product manufacturing	316	0	15	15	19	19	-1.0	-19.0	-3.2	-3.0	-3.3	-3.6	-3.9			
Plastics and rubber products manufacturing	326	13	467	453	466	442	3.0	-2.8	5.4	0.8	1.1	1.3	1.5			
Primary metal manufacturing	331	42	1,964	1,923	1,995	1,920	2.2	-3.6	3.9	0.6	0.7	0.8	1.0			
Fabricated metal product manufacturing	332	-66	4,461	4,527	4,496	4,374	-1.5	0.7	2.8	0.4	0.7	1.2	1.9			
Machinery manufacturing	333	14	5,079	5,065	5,111	5,193	0.3	-0.9	-1.6	0.3	0.6	0.9	1.1			
Computer and electronic product manufacturing	334	-138	2,992	3,130	3,123	3,203	-4.4	0.2	-2.5	-1.1	-0.9	-0.5	-0.2			
Electrical equipment, appliance and component manufacturing	335	7	912	905	907	918	0.8	-0.3	-1.2	0.0	0.3	0.6	0.8			
Transportation equipment manufacturing	336	-256	17,238	17,493	17,468	17,941	-1.5	0.1	-2.6	-1.2	-1.3	-1.4	-1.2			
Motor vehicle manufacturing	3361	10	725	715	782	833	1.4	-8.5	-6.1	-1.7	-2.4	-2.3	-1.4			
Motor vehicle body and trailer manufacturing	3362	35	530	495	483	482	7.0	2.4	0.3	1.6	1.8	1.7	1.6			
Motor vehicle parts manufacturing	3363	-12	1,085	1,097	1,139	1,188	-1.1	-3.7	-4.1	-1.9	-2.1	-2.1	-1.9			
Aerospace product and parts manufacturing	3364	-98	11,161	11,259	10,987	11,065	-0.9	2.5	-0.7	-0.5	-0.7	-0.9	-1.0			
Ship and boat building	3366	2	51	49	46	38	4.8	5.9	19.7	4.7	4.9	4.7	3.3			
Miscellaneous manufacturing	339	13	219	206	182	192	6.2	13.2	-5.0	0.2	0.5	0.7	1.0			
<b>Non-durable goods industries <sup>1</sup></b>		<b>-52</b>	<b>2,118</b>	<b>2,170</b>	<b>2,223</b>	<b>2,185</b>	<b>-2.4</b>	<b>-2.4</b>	<b>1.8</b>	<b>-0.4</b>	<b>0.3</b>	<b>1.3</b>	<b>2.3</b>			
<b>Durable goods industries <sup>2</sup></b>		<b>-382</b>	<b>34,533</b>	<b>34,915</b>	<b>34,934</b>	<b>35,408</b>	<b>-1.1</b>	<b>-0.1</b>	<b>-1.3</b>	<b>-0.5</b>	<b>-0.5</b>	<b>-0.3</b>	<b>-0.1</b>			
<b>Manufacturing</b>		<b>-434</b>	<b>36,651</b>	<b>37,085</b>	<b>37,157</b>	<b>37,592</b>	<b>-1.2</b>	<b>-0.2</b>	<b>-1.2</b>	<b>-0.5</b>	<b>-0.4</b>	<b>-0.2</b>	<b>0.0</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		
	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% Change from 2003	2004	% Change from 2002	2003	
\$ millions											
<b>311 Food manufacturing</b>											
Animal food manufacturing	3111	407	418	430	431	430	468	1.5	4,731	-1.9	5,099
Starch and vegetable fat and oil manufacturing	31122	262	272	268	299	276	294	14.5	3,251	11.4	3,117
Sugar and confectionery product manufacturing	3113	335	392	373	360	339	390	3.1	3,552	10.0	3,764
Fruit and vegetable preserving and specialty food manufacturing	3114	583	574	603	572	518	547	8.9	5,932	-0.9	5,974
Dairy product manufacturing	3115	999	989	954	965	932	965	5.1	10,534	9.8	10,958
Meat product manufacturing	3116	1,727	1,707	1,789	1,786	1,503	1,523	18.9	18,500	-3.9	17,027
Cookie, cracker and pasta manufacturing	31182	144	149	153	141	139	154	3.7	1,500	-2.1	1,577
Other food manufacturing	3119	399	407	406	403	433	456	-1.5	4,430	4.1	4,936
<b>312 Beverage and tobacco product manufacturing</b>											
Soft drink and ice manufacturing	31211	239	240	258	311	234	259	-3.2	2,944	12.7	3,336
Breweries	31212	334	329	359	425	300	330	13.8	3,944	1.0	3,858
Wineries	31213	71	57	80	68	70	67	8.5	698	-2.6	706
Distilleries	31214	63	62	49	50	77	80	-27.5	561	-18.0	831
Tobacco manufacturing	3122	201	253	235	252	294	276	-12.2	2,672	5.1	3,301
<b>313 Textile mills</b>											
Fibre, yarn and thread mills	3131	57	59	64	47	43	48	12.5	570	-12.6	547
Fabric mills	3132	161	168	178	170	178	186	-6.9	1,882	-10.6	2,180
Textile and fabric finishing and fabric coating	3133	55	54	57	53	60	62	-6.2	605	-10.8	694
<b>314 Textile product mills</b>											
Carpet and rug mills	31411	84	82	73	74	65	70	2.5	785	-8.6	824
Textile bag and canvas mills	31491	21	22	20	25	19	23	-6.6	235	-30.9	267
<b>315 Clothing manufacturing</b>											
Hosiery and sock mills	31511	49	41	38	37	52	50	-14.6	402	-5.1	511
Other clothing knitting mills	31519	56	55	48	50	64	65	-4.6	515	-0.4	587
Men's and boys' cut and sew clothing manufacturing	31522	175	162	170	153	199	206	-12.5	1,684	-4.6	2,078
Women's and girls' cut and sew clothing manufacturing	31523	190	204	213	219	181	231	-7.3	2,164	-3.5	2,471
Clothing accessories and other clothing manufacturing	3159	32	29	28	27	24	32	2.7	276	-4.1	289
<b>316 Leather and allied product manufacturing</b>											
Footwear manufacturing	3162	39	54	60	48	35	53	-4.6	358	-17.7	401
<b>321 Wood product manufacturing</b>											
Sawmills and wood preservation	3211	1,440	1,586	1,759	1,822	1,141	1,317	24.1	17,318	-16.1	14,961
Veneer, plywood and engineered wood product manufacturing	3212	684	779	880	895	796	873	24.9	9,134	19.5	7,928
Other wood product manufacturing	3219	828	854	847	860	705	752	9.5	8,516	6.2	8,359
<b>322 Paper manufacturing</b>											
Pulp, paper and paperboard mills	3221	1,835	1,873	1,916	1,977	1,777	1,842	1.2	20,989	-6.6	22,490
Paperboard container manufacturing	32221	456	446	450	439	445	476	-6.7	4,797	6.6	5,538
Paper bag and coated and treated paper manufacturing	32222	236	237	249	228	232	270	-8.1	2,594	0.8	3,033
Other converted paper product manufacturing	32229	141	144	148	145	130	140	1.4	1,517	-2.7	1,624
<b>323 Printing and related support activities</b>											
Printing	32311	1,018	983	998	939	967	957	2.9	10,127	-1.5	10,730
Support activities for printing	32312	75	80	73	68	72	71	-3.3	771	10.5	860
<b>324 Petroleum and coal products manufacturing</b>											
Petroleum refineries	32411	3,982	4,044	3,825	3,838	2,710	2,685	21.9	38,883	10.6	34,729
<b>325 Chemical manufacturing</b>											
Other basic inorganic chemical manufacturing	32518	276	264	284	277	252	256	9.3	3,023	12.8	3,023
Other basic organic chemical manufacturing	32519	327	323	317	344	281	277	14.2	3,575	-6.6	3,423
Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	3252	789	770	782	797	577	614	17.2	8,030	0.6	7,461
Pesticide and other agricultural chemical manufacturing	32532	14	7	8	10	6	6	21.9	530	21.2	444
Pharmaceutical and medicine manufacturing	3254	806	733	796	718	704	706	7.3	8,294	4.9	8,506
Paint and coating manufacturing	32551	167	172	188	194	156	176	5.3	1,995	3.5	2,028
Adhesive manufacturing	32552	66	72	72	75	57	70	6.7	769	8.4	772
Soap and cleaning compound manufacturing	32561	121	127	138	131	118	122	-7.3	1,454	-16.2	1,689
Toilet preparation manufacturing	32562	113	126	134	139	101	118	9.2	1,290	2.3	1,289
Printing ink manufacturing	32591	41	42	36	40	41	45	0.4	432	1.6	467
All other chemical product manufacturing	32599	395	397	399	394	327	366	10.2	4,044	2.8	3,989

Table 8-1 – continued

## Shipments for selected industries - Unadjusted

NAICS Code	Current periods				Previous year		Year to date		Annual		
	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% Change from 2003	2004	% Change from 2002	2003	
<b>326 Plastics and rubber products manufacturing</b>											
Plastics pipe, pipe fitting, and unlaminated profile shape manufacturing	32612	171	181	195	199	138	173	10.5	1,911	2.5	1,836
Polystyrene foam product manufacturing	32614	60	62	64	60	49	54	13.6	590	7.3	561
Other plastic product manufacturing	32619	1,064	1,130	1,107	1,121	1,003	1,113	4.7	11,562	2.5	11,881
Other rubber product manufacturing	32629	142	153	149	150	140	170	-0.6	1,611	-11.6	1,750
<b>327 Non-metallic mineral product manufacturing</b>											
Clay product and refractory manufacturing	3271	58	63	61	56	60	60	-1.9	661	5.4	722
Glass and glass product manufacturing	3272	172	172	182	182	173	195	-2.3	1,910	0.0	2,084
Cement manufacturing	32731	152	170	176	169	125	169	8.1	1,507	1.2	1,479
Ready-mix concrete manufacturing	32732	316	348	355	342	239	316	12.6	2,925	5.1	2,761
Other concrete product manufacturing	32739	127	140	148	133	119	132	11.3	1,174	9.6	1,143
Abrasive product manufacturing	32791	25	26	22	28	20	21	3.5	284	-13.5	294
All other non-metallic mineral product manufacturing	32799	167	170	170	157	146	175	8.0	1,672	12.3	1,683
<b>331 Primary metal manufacturing</b>											
Iron and steel mills and ferro-alloy manufacturing	3311	1,151	1,204	1,173	1,162	817	878	26.9	11,578	-1.3	9,877
Iron and steel pipes and tubes manufacturing from purchased steel	33121	340	357	339	326	260	283	26.5	3,372	6.2	2,908
Foundries	3315	248	265	262	252	246	305	-4.8	2,853	1.4	3,223
<b>332 Fabricated metal product manufacturing</b>											
Cutlery and hand tool manufacturing	3322	66	65	59	56	52	52	18.4	633	4.4	583
Plate work and fabricated structural product manufacturing	33231	600	593	633	574	436	484	19.6	5,410	4.6	4,928
Power boiler and heat exchanger manufacturing	33241	118	98	96	88	116	109	-3.9	1,147	31.9	1,275
Spring and wire product manufacturing	3326	137	134	139	130	118	130	-3.3	1,422	-12.0	1,575
Coating, engraving, heat treating and allied activities	3328	316	328	317	312	250	282	13.7	3,205	-0.6	3,043
Other fabricated metal product manufacturing	3329	358	344	350	313	277	306	7.2	3,477	-6.5	3,486
<b>333 Machinery manufacturing</b>											
Agricultural implement manufacturing	33311	161	174	161	157	141	150	8.7	1,955	-12.0	1,956
Ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing	3334	269	257	263	225	227	252	6.2	2,415	-7.2	2,465
All other general-purpose machinery manufacturing	33399	226	204	219	239	195	257	6.3	2,292	-1.9	2,336
<b>334 Computer and electronic product manufacturing</b>											
Computer and peripheral equipment manufacturing	3341	190	158	228	197	253	210	-16.8	2,282	-22.7	3,046
Communications equipment manufacturing	3342	622	544	753	541	545	471	20.9	6,577	-20.2	6,180
Audio and video equipment manufacturing	3343	15	12	14	12	20	19	-16.0	161	-12.2	211
<b>335 Electrical equipment, appliance and component manufacturing</b>											
Lighting fixture manufacturing	33512	82	82	84	83	83	90	0.2	899	-9.3	968
Small electrical appliance manufacturing	33521	26	23	28	23	27	26	4.0	253	-1.7	263
Major appliance manufacturing	33522	149	145	143	129	149	154	2.3	1,673	-3.4	1,754
Battery manufacturing	33591	25	25	22	24	21	19	20.7	242	19.0	217
Communication and energy wire and cable manufacturing	33592	193	198	209	196	195	195	7.6	2,152	-14.5	2,170
All other electrical equipment and component manufacturing	33599	41	44	43	41	37	35	14.2	445	-0.1	429
<b>336 Transportation equipment manufacturing</b>											
Motor vehicle manufacturing	3361	6,239	5,922	6,534	6,440	5,477	6,028	4.4	67,255	-6.4	69,258
Motor vehicle parts manufacturing	3363	2,710	2,895	2,999	3,024	2,639	2,994	5.9	30,823	-0.1	31,433
Aerospace product and parts manufacturing	3364	970	1,077	827	1,127	848	1,098	9.6	11,514	1.5	11,586
Railroad rolling stock manufacturing	3365	212	244	218	169	212	178	-1.0	2,147	-7.7	2,370
Ship and boat building	3366	103	94	99	94	82	82	14.6	1,153	-5.4	1,100
<b>337 Furniture and related product manufacturing</b>											
Household and institutional furniture and kitchen cabinet manufacturing	3371	773	751	726	697	645	704	5.9	7,549	-1.3	7,751
Office furniture (including fixtures) manufacturing	3372	457	450	446	437	424	438	0.6	4,752	5.3	5,107
<b>339 Miscellaneous manufacturing</b>											
Medical equipment and supplies manufacturing	3391	209	197	219	195	216	202	13.2	2,340	10.7	2,287
Other miscellaneous manufacturing	3399	440	415	442	471	438	495	-1.6	4,701	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	
		Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% Change from 2003	Average 2004	% Change from 2002	2003
\$ millions											
<b>311 Food manufacturing</b>											
Animal food manufacturing	3111	294	293	307	313	290	282	6.9	301	4.2	281
Starch and vegetable fat and oil manufacturing	31122	145	148	124	138	185	191	6.1	188	4.6	180
Sugar and confectionery product manufacturing	3113	370	360	344	319	329	300	4.0	323	5.0	310
Fruit and vegetable preserving and specialty food manufacturing	3114	1,076	1,071	1,010	876	954	946	7.8	913	5.3	853
Dairy product manufacturing	3115	870	871	844	844	805	806	6.4	866	-3.6	813
Meat product manufacturing	3116	927	905	869	840	795	804	4.1	838	-5.5	797
Cookie, cracker and pasta manufacturing	31182	120	123	121	123	124	123	-5.2	122	7.1	128
Other food manufacturing	3119	485	506	522	513	487	490	8.4	491	2.9	455
<b>312 Beverage and tobacco product manufacturing</b>											
Soft drink and ice manufacturing	31211	249	243	245	266	244	246	-1.0	252	7.8	250
Breweries	31212	201	199	196	200	192	184	6.6	198	0.8	185
Wineries	31213	267	276	263	263	255	260	3.4	260	4.8	251
Distilleries	31214	515	508	485	498	483	489	-7.6	493	3.3	528
Tobacco manufacturing	3122	461	409	404	398	463	439	3.5	449	-1.1	434
<b>313 Textile mills</b>											
Fibre, yarn and thread mills	3131	58	62	64	67	68	68	-7.2	64	0.3	69
Fabric mills	3132	326	331	340	339	349	363	-12.3	335	-12.3	378
Textile and fabric finishing and fabric coating	3133	74	80	79	85	69	68	6.0	77	11.7	73
<b>314 Textile product mills</b>											
Carpet and rug mills	31411	99	101	96	98	94	99	-9.8	93	2.2	101
Textile bag and canvas mills	31491	38	40	43	43	39	39	-6.5	40	-32.1	42
<b>315 Clothing manufacturing</b>											
Hosiery and sock mills	31511	105	109	111	114	134	146	-16.3	120	6.8	142
Other clothing knitting mills	31519	149	158	166	175	147	157	-2.6	162	6.1	164
Men's and boys' cut and sew clothing manufacturing	31522	361	371	409	412	461	498	-19.7	411	6.1	507
Women's and girls' cut and sew clothing manufacturing	31523	375	376	382	381	401	410	-8.5	382	1.0	416
Clothing accessories and other clothing manufacturing	3159	55	58	61	59	61	61	-3.2	60	8.0	62
<b>316 Leather and allied product manufacturing</b>											
Footwear manufacturing	3162	82	85	96	107	74	80	-5.6	89	-7.3	92
<b>321 Wood product manufacturing</b>											
Sawmills and wood preservation	3211	2,242	2,313	2,309	2,317	2,284	2,278	-7.8	2,576	-5.3	2,769
Veneer, plywood and engineered wood product manufacturing	3212	801	797	805	799	694	666	6.2	811	5.4	761
Other wood product manufacturing	3219	1,087	1,056	1,050	1,022	977	986	2.0	1,028	8.0	1,003
<b>322 Paper manufacturing</b>											
Pulp, paper and paperboard mills	3221	2,517	2,562	2,570	2,566	2,482	2,473	0.1	2,516	-3.1	2,508
Paperboard container manufacturing	32221	463	480	512	507	479	464	0.7	485	2.8	479
Paper bag and coated and treated paper manufacturing	32222	386	375	377	380	378	377	-4.5	374	4.9	391
Other converted paper product manufacturing	32229	147	146	145	151	144	141	-1.6	145	0.9	146
<b>323 Printing and related support activities</b>											
Printing	32311	846	872	882	872	829	831	0.9	842	-0.5	832
Support activities for printing	32312	36	37	35	32	35	35	-10.2	34	-32.0	37
<b>324 Petroleum and coal products manufacturing</b>											
Petroleum refineries	32411	1,957	2,056	2,049	2,050	1,607	1,598	12.7	1,936	1.4	1,703
<b>325 Chemical manufacturing</b>											
Other basic inorganic chemical manufacturing	32518	247	252	244	248	250	248	3.8	252	8.7	243
Other basic organic chemical manufacturing	32519	277	289	315	332	325	347	-8.2	321	8.8	346
Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	3252	612	594	605	606	559	560	6.9	606	3.2	566
Pesticide and other agricultural chemical manufacturing	32532	81	85	80	77	87	84	3.3	86	29.1	84
Pharmaceutical and medicine manufacturing	3254	2,860	2,877	2,837	2,822	2,717	2,591	11.8	2,826	14.4	2,543
Paint and coating manufacturing	32551	257	257	258	255	261	263	-1.9	265	2.8	268
Adhesive manufacturing	32552	109	110	110	109	99	95	13.2	107	12.8	95
Soap and cleaning compound manufacturing	32561	91	90	96	98	99	98	-11.2	95	-29.0	106
Toilet preparation manufacturing	32562	193	195	192	189	191	183	-1.8	191	8.6	194
Printing ink manufacturing	32591	85	87	89	91	71	72	18.1	86	12.0	74
All other chemical product manufacturing	32599	416	414	410	414	370	378	0.1	401	1.3	399

Table 8-2 – continued

## Inventory owned for selected industries - Unadjusted

	NAICS Code	Current periods				Previous year		Year to date		Average per month	
		Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% Change from 2003	Average 2004	% Change from 2002	2003
<b>326 Plastics and rubber products manufacturing</b>											
Plastics pipe, pipe fitting, and unlaminated profile shape manufacturing	32612	309	309	318	330	304	299	-1.8	338	-8.5	340
Polystyrene foam product manufacturing	32614	59	54	64	63	51	53	12.5	61	16.6	54
Other plastic product manufacturing	32619	952	937	946	949	945	939	1.5	954	7.4	938
Other rubber product manufacturing	32629	143	130	127	129	133	130	-3.2	134	-12.9	138
<b>327 Non-metallic mineral product manufacturing</b>											
Clay product and refractory manufacturing	3271	74	72	71	72	71	71	-5.5	73	-8.1	76
Glass and glass product manufacturing	3272	261	247	253	249	250	249	-1.0	251	-2.1	252
Cement manufacturing	32731	151	152	160	168	151	145	-0.2	182	-6.8	182
Ready-mix concrete manufacturing	32732	86	86	89	90	83	81	-2.7	85	-7.7	87
Other concrete product manufacturing	32739	114	118	119	127	124	119	12.1	131	11.8	117
Abrasive product manufacturing	32791	49	50	53	52	52	51	-19.4	50	-19.4	61
All other non-metallic mineral product manufacturing	32799	116	116	119	119	129	126	-6.1	123	8.2	131
<b>331 Primary metal manufacturing</b>											
Iron and steel mills and ferro-alloy manufacturing	3311	2,270	2,145	2,020	1,953	1,859	1,862	-4.9	1,862	-1.8	1,950
Iron and steel pipes and tubes manufacturing from purchased steel	33121	644	609	599	572	499	470	7.1	532	2.3	495
Foundries	3315	333	294	305	276	289	277	0.7	295	1.6	291
<b>332 Fabricated metal product manufacturing</b>											
Cutlery and hand tool manufacturing	3322	84	84	85	85	82	82	0.5	83	2.2	83
Plate work and fabricated structural product manufacturing	33231	852	876	879	876	630	638	16.1	793	-1.7	677
Power boiler and heat exchanger manufacturing	33241	109	106	94	94	86	89	-3.8	93	4.1	96
Spring and wire product manufacturing	3326	174	166	173	183	141	146	-6.3	164	-11.6	172
Coating, engraving, heat treating and allied activities	3328	184	174	176	170	159	153	2.4	173	-1.9	169
Other fabricated metal product manufacturing	3329	705	709	692	678	571	576	10.5	641	6.5	579
<b>333 Machinery manufacturing</b>											
Agricultural implement manufacturing	33311	511	479	449	422	466	461	-8.2	438	1.2	474
Ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing	3334	355	364	364	370	310	317	3.0	336	-7.2	324
All other general-purpose machinery manufacturing	33399	618	597	597	580	582	594	7.8	568	15.1	530
<b>334 Computer and electronic product manufacturing</b>											
Computer and peripheral equipment manufacturing	3341	521	560	565	574	640	688	-18.0	557	1.2	669
Communications equipment manufacturing	3342	2,160	2,154	2,085	2,135	2,319	2,309	-10.9	2,141	-12.2	2,387
Audio and video equipment manufacturing	3343	48	48	46	45	58	56	-15.5	50	5.0	59
<b>335 Electrical equipment, appliance and component manufacturing</b>											
Lighting fixture manufacturing	33512	119	120	119	122	131	133	-8.2	130	-9.1	141
Small electrical appliance manufacturing	33521	43	44	45	45	42	43	6.3	42	9.3	40
Major appliance manufacturing	33522	217	214	210	201	184	180	6.7	199	11.9	186
Battery manufacturing	33591	62	60	58	55	42	41	39.7	52	-10.8	37
Communication and energy wire and cable manufacturing	33592	778	785	780	826	774	766	-1.8	800	-0.1	808
All other electrical equipment and component manufacturing	33599	102	96	100	101	101	103	-2.6	101	-2.0	103
<b>336 Transportation equipment manufacturing</b>											
Motor vehicle manufacturing	3361	1,350	1,459	1,560	1,587	1,258	1,254	13.9	1,478	-8.6	1,288
Motor vehicle parts manufacturing	3363	2,032	1,917	1,898	1,922	1,908	1,828	3.3	1,911	13.1	1,847
Aerospace product and parts manufacturing	3364	4,545	4,415	4,794	4,752	4,668	4,585	-9.5	4,450	-30.5	4,875
Railroad rolling stock manufacturing	3365	819	813	819	864	774	795	-11.8	783	-7.5	876
Ship and boat building	3366	116	112	104	100	137	131	-13.7	111	-1.8	129
<b>337 Furniture and related product manufacturing</b>											
Household and institutional furniture and kitchen cabinet manufacturing	3371	829	820	806	802	746	746	-1.4	782	1.3	790
Office furniture (including fixtures) manufacturing	3372	367	355	357	348	342	343	1.0	339	8.9	335
<b>339 Miscellaneous manufacturing</b>											
Medical equipment and supplies manufacturing	3391	247	242	241	241	307	246	2.3	257	13.0	255
Other miscellaneous manufacturing	3399	951	962	978	964	934	929	0.6	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							
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	26,552	13,375	20,387	60,314	26,818	13,528	20,592	60,938
August 2004	26,919	14,111	20,749	61,779	27,029	14,014	20,780	61,823
September 2004	26,906	14,060	20,938	61,904	27,143	13,986	21,063	62,191
October 2004	26,957	13,829	20,991	61,778	27,064	13,845	21,317	62,225
November 2004	26,974	13,879	21,199	62,052	27,139	13,827	21,269	62,234



Table 10

## Shipments by major group and province - Unadjusted

Province	Current year				Previous year		Year to date		Annual	
	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% Change from 2003	2004	% Change from 2002	2003
\$ millions										
<b>Total</b>										
Newfoundland and Labrador	255	291	273	313	208	258	8.9	2,857	12.5	2,827
Prince Edward Island	111	120	127	127	119	124	4.7	1,310	2.2	1,356
Nova Scotia	790	819	832	782	712	751	7.6	8,420	2.7	8,524
New Brunswick	1,308	1,210	1,272	1,296	1,062	1,054	11.4	13,154	2.7	12,864
Quebec	11,678	12,031	12,002	11,852	10,750	11,495	6.8	126,022	-1.3	128,514
Ontario	26,844	26,773	27,949	27,155	23,810	25,822	7.1	286,156	-1.7	289,216
Manitoba	1,134	1,112	1,118	1,071	936	1,038	11.0	11,611	1.3	11,413
Saskatchewan	809	827	857	862	629	715	22.4	8,912	3.7	7,913
Alberta	4,673	4,644	4,575	4,655	3,793	4,052	14.7	48,123	5.0	45,838
British Columbia	3,489	3,571	3,820	3,805	2,959	3,193	13.4	38,912	-3.3	37,223
<b>311 Food manufacturing</b>										
Newfoundland and Labrador	79	103	112	126	77	73	10.4	1,092	-9.3	1,056
Prince Edward Island	70	76	74	76	76	84	-1.6	816	-1.0	902
Nova Scotia	174	182	183	188	165	189	2.0	1,858	-0.7	1,999
New Brunswick	202	212	258	209	175	220	12.5	2,117	0.6	2,035
Quebec	1,395	1,396	1,371	1,360	1,330	1,389	6.9	14,875	5.2	15,170
Ontario	2,247	2,320	2,389	2,287	2,168	2,305	7.3	24,469	1.9	25,005
Manitoba	264	251	263	261	214	229	19.2	2,663	1.0	2,457
Saskatchewan	189	169	168	172	167	173	9.9	1,948	4.0	1,947
Alberta	750	767	735	796	695	706	14.9	8,380	-3.5	7,976
British Columbia	426	432	449	471	384	415	2.5	4,600	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	274	287	299	322	329	326	-8.5	3,297	9.4	3,965
Ontario	412	436	447	508	442	460	1.4	4,935	0.6	5,316
Saskatchewan	3	3	3	3	2	3	5.1	31	-48.8	33
British Columbia	90	87	94	110	81	90	3.9	1,030	0.4	1,091
<b>313 Textile mills</b>										
Quebec	154	158	167	158	168	172	-7.5	1,757	-13.6	2,046
Ontario	92	92	99	81	85	94	2.8	978	-10.0	1,028
<b>314 Textile product mills</b>										
Quebec	85	86	77	77	77	82	-4.6	810	-11.0	912
Ontario	96	97	95	93	76	90	1.7	983	-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	352	349	361	366	338	404	-7.5	3,685	-7.0	4,247
Ontario	164	155	148	146	184	189	-9.2	1,617	-6.1	1,923
Manitoba	22	25	26	24	25	30	1.4	247	-5.0	264
Saskatchewan	3	3	3	2	3	4	0.9	26	7.6	28
Alberta	7	6	6	6	16	15	-27.7	94	-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	38	47	54	41	32	47	-6.0	345	-9.4	390
Ontario	8	13	14	15	23	25	-38.6	133	-15.5	239
<b>321 Wood product manufacturing</b>										
Nova Scotia	57	60	65	62	46	49	18.8	607	-1.8	544
Quebec	825	862	941	911	762	853	13.4	9,375	-0.9	8,848
Ontario	525	587	591	631	513	560	8.2	6,117	-2.0	6,058
Manitoba	64	70	78	85	59	74	20.0	777	4.5	697
Saskatchewan	50	55	81	73	50	58	46.6	631	14.6	468
Alberta	277	300	330	353	284	299	30.1	3,490	11.3	2,932
British Columbia	997	1,106	1,210	1,252	769	866	31.0	12,042	-12.0	9,913
<b>322 Paper manufacturing</b>										
Nova Scotia	76	77	92	71	81	71	5.6	856	1.3	875
Quebec	857	854	882	888	821	885	-3.5	9,479	-8.4	10,620
Ontario	885	899	893	880	862	926	-3.6	9,670	-1.9	10,825
Alberta	141	141	144	167	135	149	-0.6	1,629	1.4	1,788
British Columbia	467	464	501	497	448	443	3.8	5,389	2.8	5,652

Table 10 – continued

## Shipments by major group and province - Unadjusted

Province	Current year				Previous year		Year to date		Annual	
	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% Change from 2003	2004	% Change from 2002	2003
<b>323 Printing and related support activities</b>										
Quebec	263	253	250	233	238	252	2.6	2,603	-3.7	2,758
Ontario	601	592	599	566	587	558	3.0	6,070	0.4	6,423
Manitoba	51	44	49	40	45	46	2.1	475	-1.2	510
Saskatchewan	15	15	15	15	11	14	5.3	142	5.4	147
Alberta	62	61	56	51	58	60	-0.6	603	-5.6	662
British Columbia	75	70	76	79	69	66	3.5	721	-8.5	758
<b>324 Petroleum and coal products manufacturing</b>										
Quebec	853	1,022	911	882	656	654	21.6	8,937	12.2	8,007
Ontario	1,350	1,392	1,351	1,335	936	1,022	25.2	13,493	6.8	11,670
Alberta	975	1,013	921	923	602	628	20.1	9,080	10.2	8,200
British Columbia	x	x	x	x	x	x	x	x	0.0	x
<b>325 Chemical manufacturing</b>										
Quebec	747	725	770	754	684	700	5.4	8,311	0.0	8,556
Ontario	2,026	2,029	2,131	2,074	1,667	1,812	11.1	21,802	3.1	21,357
Manitoba	72	64	59	68	66	69	1.6	754	28.2	814
Saskatchewan	52	55	50	61	40	58	22.2	933	16.5	799
Alberta	862	852	784	848	656	724	15.5	8,773	5.5	8,285
British Columbia	108	111	107	115	84	85	16.2	1,166	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	573	596	588	564	508	576	7.5	6,025	5.8	6,038
Ontario	1,307	1,349	1,347	1,366	1,227	1,347	3.6	14,248	-0.9	14,790
Manitoba	53	55	56	53	46	54	7.5	566	5.7	568
Saskatchewan	15	15	15	14	8	9	29.5	130	3.5	107
Alberta	73	78	81	80	68	78	4.9	812	0.9	836
British Columbia	95	100	104	102	91	102	-1.7	1,057	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	263	289	304	312	236	274	8.9	2,754	4.3	2,679
Ontario	543	565	568	552	487	577	4.4	5,403	5.6	5,560
Saskatchewan	7	10	11	11	3	9	13.2	78	-7.7	71
Alberta	168	178	185	169	111	165	8.1	1,574	-0.7	1,556
British Columbia	142	148	152	137	116	131	10.9	1,460	11.6	1,416
<b>331 Primary metal manufacturing</b>										
Quebec	1,472	1,477	1,439	1,449	1,172	1,318	19.4	16,058	3.1	14,769
Ontario	1,805	1,779	1,827	1,701	1,413	1,519	17.6	18,325	-2.9	16,907
Alberta	207	197	190	180	163	171	15.2	1,905	41.3	1,812
<b>332 Fabricated metal product manufacturing</b>										
Newfoundland and Labrador	36	37	30	33	15	15	79.9	257	49.4	153
Prince Edward Island	3	2	3	3	4	2	2.4	24	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	675	682	685	645	595	648	7.7	6,549	0.5	6,597
Ontario	1,819	1,833	1,888	1,716	1,456	1,623	11.2	18,021	-3.9	17,460
Manitoba	68	69	72	67	48	58	19.2	681	6.0	620
Saskatchewan	45	46	45	43	32	37	19.5	433	4.9	389
Alberta	373	360	353	357	309	309	15.6	3,589	22.7	3,410
British Columbia	188	184	201	184	131	149	18.4	1,887	0.4	1,721
<b>333 Machinery manufacturing</b>										
Quebec	486	459	487	437	469	408	4.9	4,695	-3.7	4,920
Ontario	1,265	1,234	1,290	1,169	1,081	1,209	3.8	13,075	-6.8	13,688
Manitoba	80	80	76	69	64	60	16.5	850	-9.0	802
Saskatchewan	54	59	58	56	42	54	10.9	625	-10.7	611
Alberta	376	336	370	336	267	336	22.7	3,652	13.0	3,308
British Columbia	194	189	205	183	162	173	15.3	1,942	9.1	1,837
<b>334 Computer and electronic product manufacturing</b>										
Quebec	507	461	612	460	481	444	5.3	5,514	-17.3	5,856
Ontario	936	826	993	867	907	819	10.6	9,725	-7.6	9,773
Saskatchewan	x	x	x	x	x	x	x	x	0.0	x
Alberta	105	68	122	86	152	116	-4.2	1,293	-31.8	1,520
British Columbia	97	83	94	87	104	104	1.8	1,028	-10.0	1,101

Table 10 – continued

## Shipments by major group and province - Unadjusted

Province	Current year				Previous year		Year to date		Annual	
	Nov. 2004	Oct. 2004	Sept. 2004	Aug. 2004	Nov. 2003	Oct. 2003	% Change from 2003	2004	% Change from 2002	2003
<b>335 Electrical equipment, appliance and component manufacturing</b>										
Quebec	330	333	330	312	297	307	7.6	3,374	-1.3	3,405
Ontario	482	472	506	446	464	456	3.8	5,214	-7.9	5,458
Manitoba	14	13	15	13	14	15	-10.6	137	-22.0	166
Saskatchewan	16	15	15	16	12	15	19.7	159	-31.9	145
Alberta	33	34	34	33	36	33	13.7	370	9.7	356
British Columbia	x	x	x	x	x	x	x	x	0.0	x
<b>336 Transportation equipment manufacturing</b>										
Nova Scotia	71	73	63	56	61	65	11.6	716	-10.6	707
Quebec	986	1,167	938	1,156	983	1,180	5.0	11,990	-7.1	12,570
Ontario	9,228	9,103	9,761	9,717	8,340	9,254	5.1	101,070	-3.3	103,510
Manitoba	163	162	161	133	122	135	6.0	1,661	3.6	1,697
Saskatchewan	24	24	25	21	17	19	11.4	247	-11.5	240
Alberta	68	62	58	57	60	67	-4.9	686	9.0	780
British Columbia	89	88	84	86	74	76	8.8	997	-36.7	991
<b>337 Furniture and related product manufacturing</b>										
Quebec	347	339	336	330	331	356	-1.2	3,598	-5.6	3,940
Ontario	754	738	721	692	625	668	6.3	7,465	6.2	7,627
Manitoba	49	47	44	46	45	49	-1.0	497	-1.0	544
Saskatchewan	6	6	6	6	5	6	0.0	63	8.7	68
Alberta	66	70	67	70	69	75	-3.2	758	-10.5	851
British Columbia	83	82	82	77	63	69	9.9	810	5.6	799
<b>339 Miscellaneous manufacturing</b>										
Newfoundland and Labrador	x	x	x	x	x	x	x	x	0.0	x
Quebec	194	190	201	195	244	219	-0.2	1,992	-1.1	2,221
Ontario	299	263	290	312	265	309	1.7	3,343	2.6	3,560
Manitoba	22	26	19	18	17	20	22.5	197	-2.1	175
Saskatchewan	5	5	6	5	5	5	8.3	54	13.6	55
Alberta	50	45	57	55	42	47	11.1	546	44.3	534
British Columbia	49	50	59	51	57	68	2.8	604	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](mailto: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
	%				
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
October 2004	0.62	1.11	0.95	1.32	2.75
November 2004	0.61	1.13	0.92	1.33	2.72

## 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	87.92	5.84	3.84	7.36	0.56	0.51
Raw Materials	79.97	13.40	3.80	0.00	9.74	0.10
Goods in process	66.85	9.10	22.36	0.00	5.73	0.18
Finished products	80.62	11.44	5.48	0.00	7.81	0.70
Unfilled Orders	67.32	9.28	21.75	0.00	4.18	0.45

## 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.