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Wholesale Trade

December 2006





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Statistics Canada Distributive Trades Division

Wholesale Trade

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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
- 0s 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 suppressed to meet the confidentiality requirements of the Statistics Act
- E use with caution
- F too unreliable to be published

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- Richard Evans, Director, Distributive Trades Division
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Highlights

•	Wholesalers ended the year largest monthly gain in over t	on a high note, wo years.	with the auto	motive sector pr	oviding much of th	e impetus for the

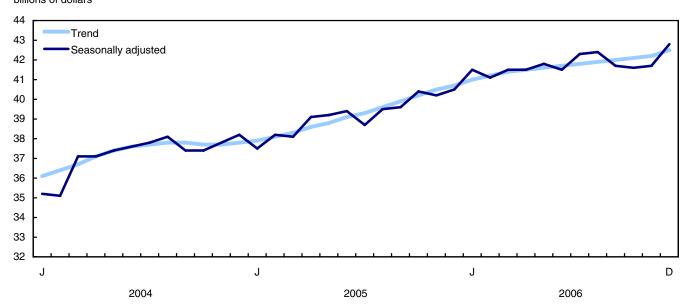
Analysis — December 2006

Wholesalers ended the year on a high note, with the automotive sector providing much of the impetus for the largest monthly gain in over two years.

Wholesale sales jumped 2.7% in December to \$42.8 billion, following a 0.3% rise in November. December's increase was the largest since March 2004.

Chart 1
Wholesale sales

billions of dollars



While a solid showing by the automotive sector (+7.5%) was behind much of December's rise, there were also notable gains in the "other products" (mainly agricultural products, chemicals and recycled metals), personal and household goods and building materials sectors. Three sectors registered drops in December, with the most significant decline coming in the food, beverage and tobacco products sector. Sales outside of the automotive sector increased 1.6% during the month.

Not surprisingly, the jump in auto sales was most keenly felt in Ontario (the home of Canada's auto sector) as sales in the province rose by 5.3%. Most other provinces and territories also registered gains during the month.

Also noteworthy was the 0.8% decline in total wholesale inventories in December. While seemingly small, this was the largest one month decline since May 2003 and, coupled with the large increase in sales in December, brought the inventory-to-shipment ratio off a three-year high.

Note to readers

At the end of each calendar year, seasonally adjusted figures are revised to equal the sum of the unadjusted estimates. Revisions for 2006 will be released in April 2007. In order to present sectoral and provincial analyses, all annual comparisons in this release use the sum of unadjusted estimates. As usual, the rest of the analysis is based on seasonally adjusted estimates.

Sales in constant dollars, which exclude the effects of price changes, rose by 1.3% in December.

Wholesalers maintain momentum in 2006

December's strong showing capped another robust year for wholesalers, as 2006 sales increased 6.5% to \$501 billion.

This was the third consecutive year of strong growth for the wholesale industry, which has proved to be one of the economy's leading lights in recent years. As key intermediaries in the economy, wholesalers have benefited from both strong business investment, which has been supported by healthy corporate balance sheets, as well as record employment levels that continue to support solid growth in consumer spending.

Overall, six out of seven wholesale sectors grew in 2006, the only exception being the farm products sector. The machinery and electronic equipment sector led the way with a 9.7% increase, its highest since 1997. Continued high levels of business investment in the oil and gas industry were again a key factor behind the growth in this sector.

With much of the recent business investment going to fuel the boom in Western Canada, 2006 also proved to be another excellent year for Alberta's wholesalers, who led the nation with a 13.0% increase in sales. The gain was all the more impressive in light of the 15.5% rise recorded in 2005 and marked the third consecutive year of double-digit growth for the province.

Sales in constant dollars, which exclude the effects of price fluctuations, increased by 8.7% in 2006. This was the fourth year in a row that constant dollar sales have exceeded sales in current dollars. The difference between the two series has been most apparent in the computer and electronics trade group, where rapid price declines have resulted in much lower growth rates in the current dollar series during this period.

A more detailed look at wholesale trade in 2006 will be release in the spring.

Auto sector gets a boost from new model launches

Motor vehicle sales jumped 9.9% in December to \$6.7 billion, the second largest increase of the year, trailing only the 10.9% increase in July. December's increase comes as good news for motor vehicle wholesalers, which had seen a fairly sharp decline in sales since hitting a record high in July.

The launch of new models (some of which had been delayed due to production setbacks) was a major factor behind the December increase, and follows a surge in motor vehicle manufacturing shipments in November. With many of these new vehicles destined for the US market, passenger car exports recorded their highest monthly increase (+17.4%) in over a year in December, according to the latest International Trade data.

December proved to be a little less rosy for wholesalers of motor vehicles and parts, as sales in this trade group declined 1.9% to \$1.5 billion. Wholesalers in this industry, who do not supply auto plants but sell mainly to retailers and dealers, have posted generally stable sales over the past two years.

Higher sales of pharmaceuticals and apparel drive up personal and household goods sector

Sales in the personal and household goods sector grew for the third straight month in December, rising 2.9% to \$6.4 billion.

After posting their largest monthly decline in three years in November, sales of pharmaceuticals bounced back strongly in December, up 5.6% to \$2.8 billion. Sales of pharmaceuticals have grown at a fairly steady pace over the past few years as consumers devote an increasing proportion of their expenditures to health care products. According to data from the Quarterly Retail Commodity Survey, prescription drugs have been one of the fastest growing retail segments over the past several years.

For apparel wholesalers, December also marked a positive end to the year as sales rose 7.5% to \$785 million, more than offsetting the decline in November. The unseasonably warm start to the winter may have been a contributing factor, possibly leading retailers to push back their purchases of winter clothing to later in the year.

After sales surged to a record high in November, wholesalers of household and personal products took a breather in December as sales eased down 0.9% to \$2.8 billion. The longer term trend for the household and personal products trade group remains extremely strong, thanks to record levels of retail sales and employment levels that continue to hit new highs.

Higher fertilizer sales halt a three month slide in the "other products" sector

A three month slide in the sale of "other products" came to an abrupt end in December, as sales bounced back sharply, up 7.3% to \$5.3 billion. A pickup in fertilizer sales was behind much of the increase in December, the largest since March 2005.

Despite ending the year on a high note, the sales trend for this sector has eased somewhat in 2006, mostly as a result of lower than anticipated fertilizer sales. Many of these sales are made to overseas markets and, while there was a sharp pickup in fertilizer exports over the second half of the year, earlier delays in implementing a new fertilizer pricing agreement led to a 13% drop in fertilizer exports in 2006.

Ontario, Saskatchewan and Newfoundland and Labrador lead the way

Although eight provinces and territories recorded higher sales in December, the lion's share of the increase came in Ontario, which recorded its highest monthly increase of the year. While higher sales in the auto sector were responsible for most of the growth in Ontario, wholesalers of personal and household goods and building materials also did well.

The jump in fertilizer sales gave a boost to Saskatchewan, as sales in the province rose 5.0% in December to \$1.2 billion. Although the province managed to record the highest growth of all provinces and territories during the second half of 2006, a poor start to the year meant that overall sales for the year ended up little changed from the previous year.

December was also a good month for wholesalers in Newfoundland and Labrador, as higher sales in the machinery and equipment and food product sectors drove overall sales in the province up 6.6% to \$261 million. This was the largest monthly increase since October 2004 and capped a strong year for the province which, like Alberta, has benefited from the recent boom in the energy sector.

The biggest decline in December came in Alberta (-2.1%), where lower sales of food and beverages were mostly to blame. This was the second decline in total sales in three months for the province.

Inventories post their largest monthly drop in over three years

Inventories recorded their largest one month drop since May 2004, down 0.8% to \$53.4 billion. Declines were registered in 9 out of 15 trade groups, accounting for around 80% of inventories, with the largest declines coming in the motor vehicle and pharmaceutical trade groups.

December's drop reverses a string of recent increases which, coupled with relatively stagnant sales, had pushed the inventory-to-shipment ratio to its highest level in over three years. The substantial rise in sales in December, coupled with the significant drop in inventories, resulted in a notable decline in the inventory-to-shipment ratio from 1.29 to 1.25.

With the exception of a few minor declines, wholesale inventories have been rising almost continuously since the end of 2003.

Chart 2 Inventory-to-sales ratio

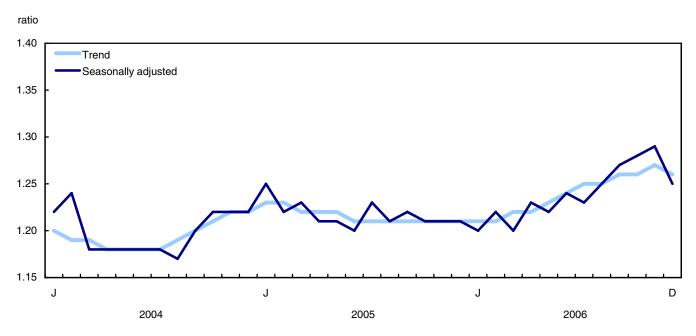
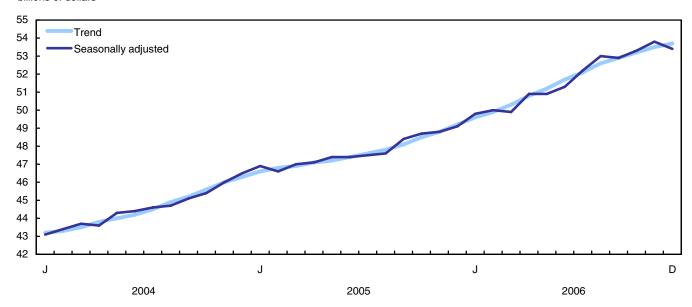


Chart 3 Inventories

billions of dollars



Related products

Selected technical and analytical products from Statistics Canada

11-621-M2005026	Wholesalers: A Key Link in Canada's Economy
11-621-M2006040	Between the Producer and Retailer: A Review of Wholesale Trade for 2005

Selected CANSIM tables from Statistics Canada

081-0007	Wholesale trade, sales by trade group based on the North American Industry Classification System (NAICS), monthly
081-0008	Wholesale trade, inventories by trade group based on the North American Industry Classification System (NAICS), monthly
081-0009	Wholesale trade, sales, chained dollars and price index, monthly
081-0010	Wholesale trade, sales and sales trend, seasonally adjusted, by trade sector based on the North American Industry Classification System (NAICS), monthly

Selected surveys from Statistics Canada

	2401	Wholesale Trade Survey (Monthly)
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Selected summary tables from Statistics Canada

- Wholesale merchants' sales, by industry (monthly)
- Wholesale merchants' sales, by province and territory (monthly)
- Wholesale merchants' inventories, by industry (monthly)
- Wholesale merchants' sales, by industry
- Wholesale merchants' sales, by province and territory
- Wholesale merchants' inventories, by industry

Statistical tables

Table 1-1 Wholesale merchants — Sales, by trade group and region, seasonally adjusted — Sales

	December ^p 2006	November ^r 2006	October ^r 2006	September ^r 2006	Year-to-date 2006		
_	millions of dollars						
Trade Group - Canada							
Farm products	454	468	484	464	5,241		
Food products	6,935	7,004	6,996	7,054	83,008		
Alcohol and tobacco	638	654	656	661	7,890		
Apparel	785	730	746	728	9,197		
Home and personal products	2,784	2,809	2,651	2,638	31,287		
Pharmaceuticals	2,794	2,645	2,733	2,724	32,057		
Motor vehicles	6,719	6,116	5,940	6,167	79,587		
Motor vehicle parts and accessories	1,539	1,569	1,567	1,613	18,590		
Building supplies	3,632	3,615	3,575	3,605	42,694		
Metal products	1,355	1,255	1,270	1,253	15,106		
Lumber and millwork	1,040	1,022	987	1,002	12,713		
Machinery and equipment	4,169	4,140	4,110	4,043	49,457		
Computers and other electronic equipment	2,673	2,681	2,653	2,598	31,534		
Office and professional equipment	1,989	2,037	2,069	2,034	23,839		
Other products	5,310	4,949	5,127	5,132	59,233		
Total, all trade groups	42,816	41,694	41,564	41,716	501,432		
Regions							
Newfoundland and Labrador	261	244	238	228	2,771		
Prince Edward Island	37	38	34	35	432		
Nova Scotia	522	530	554	563	6,479		
New Brunswick	418	419	415	412	4,901		
Quebec	7,997	7,935	7,846	7,831	93,793		
Ontario	22,011	20,910	20,766	20,838	254,542		
Manitoba	1,012	999	1,025	1,030	12,135		
Saskatchewan	1,240	1,180	1,167	1,242	13,534		
Alberta	5,132	5,243	5,155	5,240	61,700		
British Columbia	4,156	4,168	4,332	4,260	50,774		
Yukon Territory	10	7	10	11	119		
Northwest Territories	19	19	20	24	230		
Nunavut	2	1	2	3	23		

Table 1-2 Wholesale merchants — Sales, by trade group and region, seasonally adjusted — Percentage change from previous month

	December ^p 2006	November ^r 2006	October ^r 2006	September ^r 2006
		percentage		
Trade Group - Canada				
Farm products	-3.0	-3.3	4.4	3.5
Food products	-1.0	0.1	-0.8	-1.2
Alcohol and tobacco	-2.5	-0.3	-0.8	-1.0
Apparel	7.5	-2.2	2.5	-0.5
Home and personal products	-0.9	6.0	0.5	-1.8
Pharmaceuticals	5.6	-3.2	0.3	0.5
Motor vehicles	9.9	3.0	-3.7	-6.0
Motor vehicle parts and accessories	-1.9	0.1	-2.9	0.9
Building supplies	0.5	1.1	-0.8	1.6
Metal products	8.0	-1.2	1.4	-1.6
Lumber and millwork	1.8	3.5	-1.5	3.1
Machinery and equipment	0.7	0.7	1.6	-2.9
Computers and other electronic equipment	-0.3	1.0	2.1	-4.0
Office and professional equipment	-2.4	-1.5	1.7	-1.8
Other products	7.3	-3.5	-0.1	-0.4
Total, all trade groups	2.7	0.3	-0.4	-1.7
Regions				
Newfoundland and Labrador	6.6	2.6	4.6	-1.8
Prince Edward Island	-2.4	10.0	-2.9	2.5
Nova Scotia	-1.5	-4.4	-1.6	0.1
New Brunswick	-0.2	0.8	0.9	0.5
Quebec	0.8	1.1	0.2	-1.0
Ontario	5.3	0.7	-0.3	-2.4
Manitoba	1.2	-2.5	-0.5	3.4
Saskatchewan	5.0	1.2	-6.0	2.4
Alberta	-2.1	1.7	-1.6	0.7
British Columbia	-0.3	-3.8	1.7	-5.1
Yukon Territory	38.6	-29.3	-5.2	-2.4
Northwest Territories	0.2	-5.4	-15.6	10.4
Nunavut	33.2	-39.2	-27.9	9.4

Table 1-3
Wholesale merchants — Sales, by trade group and region, seasonally adjusted — Percentage change from previous year

	December ^p 2006	November ^r 2006	October ^r 2006	September ^r 2006	Year-to-date 2006
_			percentage		
Trade Group - Canada					
Farm products	-5.9	-8.8	-15.1	-7.3	-5.5
Food products	3.8	4.7	4.9	3.7	4.7
Alcohol and tobacco	3.8	-2.0	6.1	7.0	4.4
Apparel	-19.9	-19.5	-17.2	-12.3	-8.7
Home and personal products	18.6	7.9	11.5	18.2	12.8
Pharmaceuticals	9.6	1.7	4.1	8.1	6.1
Motor vehicles	2.3	1.6	-10.5	-6.1	8.9
Motor vehicle parts and accessories	0.3	-5.0	3.2	6.6	0.5
Building supplies	3.3	6.1	5.6	6.7	8.6
Metal products	14.1	5.3	12.6	10.4	11.4
Lumber and millwork	-7.3	-5.6	-6.6	-3.3	-4.2
Machinery and equipment	4.9	7.4	6.3	11.3	9.3
Computers and other electronic equipment	15.2	8.7	5.5	9.3	10.2
Office and professional equipment	6.4	12.4	11.8	10.0	9.9
Other products	10.7	4.0	10.2	11.8	4.5
Total, all trade groups	5.6	3.6	3.0	5.4	6.6
Regions					
Newfoundland and Labrador	16.9	13.2	9.5	5.9	7.1
Prince Edward Island	5.9	5.3	-5.2	4.1	-17.7
Nova Scotia	4.0	-0.4	5.4	2.4	3.8
New Brunswick	5.1	4.2	5.7	3.7	0.8
Quebec	6.2	2.0	1.1	2.3	3.5
Ontario	7.4	3.9	1.8	5.7	7.4
Manitoba	-12.3	-9.6	-8.0	-3.8	-4.4
Saskatchewan	10.2	-1.7	-1.9	7.2	-0.8
Alberta	5.3	10.0	9.5	11.9	13.1
British Columbia	-0.4	3.3	8.1	4.4	7.4
Yukon Territory	0.0	-41.6	65.2	46.6	25.7
Northwest Territories	20.1	3.0	34.2	47.9	10.6
Nunavut	6.7	-33.7	9.0	19.9	-9.3

Table 2-1 Wholesale merchants — Sales, by trade group and region, not seasonally adjusted — Sales

	December ^p 2006	November ^r 2006	October 2006	September 2006	Year-to-date 2006
_			millions of dolla	ars	
Trade Group - Canada					
Farm products	432	499	524	474	5,244
Food products	7,310	7,096	7,068	7,140	83,014
Alcohol and tobacco	631	691	691	633	7,891
Apparel	532	733	853	893	9,180
Home and personal products	2,721	3,368	3,032	2,825	31,265
Pharmaceuticals	2,829	2,862	2,913	2,742	32,043
Motor vehicles	5,942	6,096	6,332	6,044	79,320
Motor vehicle parts and accessories	1,281	1,633	1,689	1,710	18,617
Building supplies	2,976	3,741	3,866	3,945	42,676
Metal products	1,073	1,356	1,328	1,277	15,097
Lumber and millwork	803	999	1,012	1,103	12,709
Machinery and equipment	3,869	4,007	4,247	3,949	49,361
Computers and other electronic equipment	3,200	2,860	2,739	2,707	31,537
Office and professional equipment	2,008	2,099	2,039	2,106	23,879
Other products	4,634	4,815	4,920	4,714	59,166
Total, all trade groups	40,243	42,856	43,253	42,264	501,001
Regions					
Newfoundland and Labrador	256	241	253	228	2,766
Prince Edward Island	30	33	32	34	431
Nova Scotia	509	526	577	574	6,476
New Brunswick	393	426	445	424	4,911
Quebec	7,295	8,418	8,308	8,101	93,695
Ontario	20,821	21,803	21,693	21,095	254,412
Manitoba	911	938	1,063	1,002	12,090
Saskatchewan	1,088	1,056	1,152	1,189	13,550
Alberta	5,067	5,160	5,312	5,187	61,618
British Columbia	3,848	4,232	4,389	4,389	50,680
Yukon Territory	9	7	10	12	119
Northwest Territories	15	15	17	25	229
Nunavut	1	1	2	5	24

Table 2-2
Wholesale merchants — Sales, by trade group and region, not seasonally adjusted — Percentage change from previous year

	December ^p 2006	November ^r 2006	October 2006	September 2006	Year-to-date 2006
			percentage		
Trade Group - Canada					
Farm products	-8.1	-6.8	-11.1	-5.3	-5.5
Food products	1.1	4.3	5.2	4.4	4.7
Alcohol and tobacco	0.7	-0.7	8.3	2.2	4.4
Apparel	-19.2	-19.5	-13.7	-15.5	-8.9
Home and personal products	16.8	6.5	10.4	13.8	12.7
Pharmaceuticals	7.7	0.1	6.8	6.8	6.1
Motor vehicles	5.4	-1.8	-9.8	-9.3	8.5
Motor vehicle parts and accessories	-3.7	-4.7	4.3	4.9	0.6
Building supplies	1.0	5.1	8.4	4.9	8.6
Metal products	11.4	3.4	15.1	6.9	11.3
Lumber and millwork	-10.1	-5.7	-5.4	-8.1	-4.2
Machinery and equipment	1.2	7.9	8.1	6.0	9.1
Computers and other electronic equipment	13.1	8.7	6.9	8.0	10.2
Office and professional equipment	3.2	10.3	15.5	8.4	10.1
Other products	8.6	5.1	11.3	9.3	4.4
Total, all trade groups	4.3	2.9	4.2	3.1	6.5
Regions					
Newfoundland and Labrador	18.3	10.8	10.7	2.4	6.9
Prince Edward Island	2.9	5.5	-6.7	2.5	-18.0
Nova Scotia	-1.8	-0.4	7.4	3.1	3.8
New Brunswick	3.9	2.7	8.4	1.0	1.0
Quebec	4.4	1.7	1.5	0.9	3.4
Ontario	6.8	2.8	3.0	2.4	7.3
Manitoba	-13.9	-9.3	-5.0	-6.5	-4.8
Saskatchewan	11.6	-1.4	-1.6	9.2	-0.7
Alberta	2.8	8.7	11.7	10.8	13.0
British Columbia	-3.1	3.7	10.1	2.3	7.2
Yukon Territory	5.8	-40.3	61.8	46.4	25.2
Northwest Territories	17.9	0.5	33.8	57.6	10.5
Nunavut	-19.1	-44.9	0.3	37.3	-4.6

Table 3 Wholesale merchants — Sales (current periods) — Coefficient of variation

	December ^p 2006	November ^r 2006	October 2006	September 2006
		percentage		
Trade Group - Canada				
Farm products	3.2	2.3	2.5	2.5
Food products	2.1	2.2	2.1	1.9
Alcohol and tobacco	1.4	1.3	1.1	1.1
Apparel	5.4	5.0	5.7	4.9
Home and personal products	4.0	3.4	3.8	3.9
Pharmaceuticals	0.9	1.1	1.0	1.4
Motor vehicles	1.4	2.4	2.4	1.6
Motor vehicle parts and accessories	3.0	3.1	2.6	3.2
Building supplies	3.3	3.3	3.2	3.3
Metal products	3.8	3.3	3.3	3.2
Lumber and millwork	4.5	4.2	3.9	3.5
Machinery and equipment	2.3	2.4	2.3	2.1
Computers and other electronic equipment	1.7	2.1	2.5	2.1
Office and professional equipment	3.4	3.3	3.4	3.6
Other products	2.5	3.0	2.8	3.0
Total, all trade groups	0.7	0.8	0.8	0.7
•		0.0	0.0	U. .
Regions				
Newfoundland and Labrador	1.6	1.7	1.1	1.3
Prince Edward Island	2.2	1.8	2.4	3.0
Nova Scotia	2.2	2.2	2.4	2.2
New Brunswick	1.3	1.6	1.6	1.7
Quebec	2.1	2.0	1.9	1.8
Ontario	1.0	1.2	1.3	1.1
Manitoba	1.8	1.9	1.8	2.0
Saskatchewan	1.7	2.1	2.0	1.9
Alberta	1.9	1.7	1.4	2.0
British Columbia	2.3	2.1	2.2	2.3
Yukon Territory	0.0	0.0	0.0	0.0
Northwest Territories	0.0	0.0	0.0	0.0
Nunavut	0.0	0.0	0.0	0.0

Table 4-1 Wholesale merchants — Inventories, by trade group, seasonally adjusted — Inventories

	December ^p 2006	November ^r 2006	October ^r 2006	September r 2006
	2000	2000	2000	2000
		millions of doll	ars	
Trade Group - Canada				
Farm products	212	205	201	196
Food products	4,243	4,301	4,296	4,277
Alcohol and tobacco	278	269	273	284
Apparel	1,700	1,668	1,665	1,660
Home and personal products	3,808	3,870	3,852	3,882
Pharmaceuticals	3,075	3,212	3,256	3,173
Motor vehicles	5,021	5,181	5,009	4,865
Motor vehicle parts and accessories	3,263	3,281	3,326	3,284
Building supplies	5,852	5,773	5,721	5,588
Metal products	3,035	3,062	3,024	3,007
Lumber and millwork	1,151	1,115	1,090	1,059
Machinery and equipment	11,510	11,590	11,324	11,242
Computers and other electronic equipment	1,606	1,583	1,602	1,591
Office and professional equipment	2,686	2,689	2,723	2,679
Other products	5,978	6,037	5,948	6,080
Total, all trade groups	53,417	53,836	53,310	52,867
	55,417	55,050	33,310	32,007

Table 4-2
Wholesale merchants — Inventories, by trade group, seasonally adjusted — Percentage change from previous month

	December ^p 2006	November ^r 2006	October ^r 2006	September ^r 2006
		percentage		
Trade Group - Canada				
Farm products	3.3	2.0	2.6	-0.6
Food products	-1.3	0.1	0.5	-2.4
Alcohol and tobacco	3.2	-1.6	-3.7	-0.7
Apparel	2.0	0.2	0.3	-0.9
Home and personal products	-1.6	0.5	-0.8	-0.5
Pharmaceuticals	-4.3	-1.3	2.6	1.0
Motor vehicles	-3.1	3.4	2.9	-2.2
Motor vehicle parts and accessories	-0.6	-1.4	1.3	-1.9
Building supplies	1.4	0.9	2.4	-0.7
Metal products	-0.9	1.3	0.6	0.6
Lumber and millwork	3.2	2.2	2.9	2.6
Machinery and equipment	-0.7	2.4	0.7	1.5
Computers and other electronic equipment	1.4	-1.2	0.7	-1.3
Office and professional equipment	-0.1	-1.3	1.6	0.4
Other products	-1.0	1.5	-2.2	0.2
Total, all trade groups	-0.8	1.0	0.8	-0.2

Table 4-3
Wholesale merchants — Inventories, by trade group, seasonally adjusted — Percentage change from previous year

	December ^p 2006	November ^r 2006	October ^r 2006	September ^r 2006
		percentage		
Trade Group - Canada				
Farm products	53.1	9.2	4.1	1.7
Food products	-1.3	-0.6	-0.4	-1.0
Alcohol and tobacco	-3.5	-4.3	-5.7	-0.2
Apparel	7.1	4.9	-0.4	2.4
Home and personal products	8.4	12.8	13.8	14.0
Pharmaceuticals	1.7	2.2	0.7	0.2
Motor vehicles	7.5	15.7	13.8	10.7
Motor vehicle parts and accessories	2.2	0.6	2.6	3.6
Building supplies	11.3	13.3	11.3	10.8
Metal products	29.7	31.5	29.9	29.8
Lumber and millwork	8.7	6.1	4.7	8.6
Machinery and equipment	20.5	23.0	22.2	22.7
Computers and other electronic equipment	10.3	6.1	5.1	5.3
Office and professional equipment	14.6	7.9	8.4	9.3
Other products	-6.8	-2.9	-3.9	-5.1
Total, all trade groups	8.7	10.3	9.4	9.2

Table 5-1 Wholesale merchants — Inventories, by trade group, not seasonally adjusted — Inventories

	December ^p 2006	November ^r 2006	October 2006	September 2006
		millions of doll	ars	
Trade Group - Canada				
Farm products	197	192	190	193
Food products	4,408	4,462	4,387	4,313
Alcohol and tobacco	288	259	283	287
Apparel	1,604	1,513	1,587	1,677
Home and personal products	3,766	4,005	4,120	4,027
Pharmaceuticals	3,137	3,326	3,207	3,157
Motor vehicles	4,791	5,063	4,874	4,648
Motor vehicle parts and accessories	3,220	3,174	3,262	3,287
Building supplies	5,606	5,553	5,632	5,576
Metal products	2,997	3,013	2,944	2,961
Lumber and millwork	1,117	1,028	1,012	1,007
Machinery and equipment	11,056	11,170	11,064	11,050
Computers and other electronic equipment	1,719	1,651	1,639	1,542
Office and professional equipment	2,636	2,709	2,713	2,628
Other products	5,977	5,757	5,614	5,665
Total, all trade groups	52,518	52,875	52,527	52,019

Table 5-2 Wholesale merchants — Inventories, by trade group, not seasonally adjusted — Percentage change from previous year

	December ^p 2006	November ^r 2006	October 2006	September 2006
		percentage		
Trade Group - Canada				
Farm products	53.5	9.5	5.5	4.0
Food products	-1.8	-0.2	-0.5	-1.5
Alcohol and tobacco	-1.5	-6.0	-5.0	1.9
Apparel	7.0	3.2	-0.9	2.0
Home and personal products	7.9	11.8	12.3	12.9
Pharmaceuticals	0.7	3.7	2.3	1.0
Motor vehicles	6.6	20.5	13.3	10.0
Motor vehicle parts and accessories	1.7	0.6	3.2	2.4
Building supplies	11.7	11.5	11.2	9.9
Metal products	29.6	34.5	31.3	30.5
Lumber and millwork	10.2	6.1	4.1	7.1
Machinery and equipment	20.2	24.2	22.3	23.6
Computers and other electronic equipment	10.6	5.5	5.3	5.6
Office and professional equipment	10.7	8.5	10.2	9.4
Other products	-4.1	-2.4	-4.2	-4.0
Total, all trade groups	8.6	10.9	9.5	9.3

Table 6-1
Wholesale merchants — Inventories/sales ratio, seasonally adjusted, by trade group — Current period

		Inventories/sales	Inventories/sales ratio			
	December ^p 2006	November ^r 2006	October ^r 2006	September ^r 2006		
Trade Group - Canada						
Farm products	0.47	0.44	0.42	0.42		
Food products	0.61	0.61	0.61	0.61		
Alcohol and tobacco	0.44	0.41	0.42	0.43		
Apparel	2.17	2.28	2.23	2.28		
Home and personal products	1.37	1.38	1.45	1.47		
Pharmaceuticals	1.10	1.21	1.19	1.17		
Motor vehicles	0.75	0.85	0.84	0.79		
Motor vehicle parts and accessories	2.12	2.09	2.12	2.04		
Building supplies	1.61	1.60	1.60	1.55		
Metal products	2.24	2.44	2.38	2.40		
Lumber and millwork	1.11	1.09	1.10	1.06		
Machinery and equipment	2.76	2.80	2.76	2.78		
Computers and other electronic equipment	0.60	0.59	0.60	0.61		
Office and professional equipment	1.35	1.32	1.32	1.32		
Other products	1.13	1.22	1.16	1.18		
Total, all trade groups	1.25	1.29	1.28	1.27		

Table 6-2
Wholesale merchants — Inventories/sales ratio, seasonally adjusted, by trade group — Historical

	Inventories/sales ratio			
	December 2005	November 2005	October 2005	September 2005
Trade Group - Canada				
Farm products	0.29	0.37	0.34	0.39
Food products	0.64	0.65	0.65	0.63
Alcohol and tobacco	0.47	0.42	0.47	0.46
Apparel	1.62	1.75	1.86	1.95
Home and personal products	1.50	1.32	1.42	1.52
Pharmaceuticals	1.19	1.21	1.23	1.26
Motor vehicles	0.71	0.74	0.66	0.67
Motor vehicle parts and accessories	2.08	1.98	2.13	2.10
Building supplies	1.50	1.50	1.52	1.49
Metal products	1.97	1.95	2.06	2.04
Lumber and millwork	0.94	0.97	0.99	0.94
Machinery and equipment	2.40	2.44	2.40	2.52
Computers and other electronic equipment	0.63	0.61	0.61	0.64
Office and professional equipment	1.25	1.38	1.36	1.33
Other products	1.34	1.31	1.33	1.40
Total, all trade groups	1.21	1.21	1.21	1.22

Table 7 Wholesale merchants — Inventories (current periods) — Coefficient of variation

	December ^p 2006	November ^r 2006	October 2006	September 2006
		percentage		
Trade Group - Canada				
Farm products	21.1	12.8	12.1	12.2
Food products	3.4	3.2	3.1	3.2
Alcohol and tobacco	2.0	2.4	2.6	2.2
Apparel	5.1	4.9	5.1	5.3
Home and personal products	5.0	4.7	4.7	4.6
Pharmaceuticals	2.3	2.1	2.2	2.3
Motor vehicles	2.6	2.3	2.3	3.2
Motor vehicle parts and accessories	4.3	4.3	4.0	4.0
Building supplies	4.4	4.4	4.3	4.3
Metal products	3.6	3.5	3.7	3.5
Lumber and millwork	5.1	4.5	4.4	4.3
Machinery and equipment	3.0	3.5	3.3	3.2
Computers and other electronic equipment	3.4	3.3	3.2	3.6
Office and professional equipment	4.5	4.3	4.2	4.3
Other products	3.7	3.7	3.3	3.2
Total, all trade groups	1.1	1.2	1.1	1.1

Objective, uses and users

Objectives

The Monthly Wholesale Trade Survey (MWTS) provides information on the performance of the wholesale trade sector and is an important indicator of the health of the Canadian economy. In addition, the business community uses the data to analyse market performance.

Uses

The estimates provide a measure of the health and performance of the wholesale trade sector. Information collected is used to estimate level and monthly trend for wholesale sales and inventories. At the end of each year, the estimates provide a preliminary look at annual wholesale sales and performance.

Users

A variety of organizations, sector associations, and levels of government make use of the information. Wholesalers can use the survey results to compare their performance against similar types of businesses, as well as for marketing purposes. Wholesale associations are able to monitor industry performance and promote their wholesale industries. Investors can monitor industry growth, which can result in better access to investment capital by wholesalers. Governments are able to understand the role of wholesalers in the economy, which aid in the development of policies and tax incentives. As an important industry in the Canadian economy (5-6% of the Gross Domestic Product, depending on the year), governments are able to better determine the overall health of the economy through the use of the estimates in the calculation of the nation's Gross Domestic Product (GDP).

Concepts, variables and classifications

Concepts

Wholesale trade is generally the intermediate step in the distribution of merchandise. The sector comprises establishments primarily engaged in the buying and selling of merchandise and providing logistics, marketing and support services.

Wholesalers are organized to sell merchandise in large quantities to retailers, business and institutional clients. However, some wholesalers, in particular those that supply non-consumer capital goods, sell merchandise in single units to final users.

The sector recognizes two main types of wholesalers: wholesale merchants and wholesale agents and brokers.

Wholesale merchants buy and sell merchandise on their own account, that is, they take title to the goods they sell. They generally operate from warehouse or office locations and they may ship from their own inventory or arrange for the shipment of goods directly from the supplier to the client.

In addition to the sales of goods, they may provide, or arrange for the provision of, logistics, marketing and support services, such as packaging and labelling, inventory management, shipping, handling of warranty claims, in-store or co-op promotions, and product training.

Dealers of machinery and equipment, such as dealers of farm machinery and heavy-duty trucks, also fall within this category.

They are known by a variety of trade designation depending on their relationship with suppliers or customers, or the distribution method they employ. Examples include wholesale merchant, wholesale distributor, drop shipper, rack-jobbers, import-export merchants, buying groups, dealer-owned cooperatives and banner wholesalers.

For purposes of industrial classification, wholesale merchants are classified by industry according to the principal lines of commodities sold. A description of each trade group included in the accompanying statistical data is shown in Appendix I. As most businesses sell several kinds of commodities, the classification assigned to a business generally reflects either the individual commodity or the commodity group which is the primary source of the establishment's receipts, or some mixture of commodities which characterizes the establishment's business.

Wholesale Agents and Brokers buy and sell merchandise owned by others on a fee or commission basis. They do not take title to the goods they buy or sell, and they generally operate at or from an office location.

Wholesale agents and brokers are known by a variety of trade designations including import-export agents, wholesale commission agents, wholesale brokers, and manufacturer's representatives' ad agents.

Variables

Sales Defined as the sales of all goods purchased for resale, net of returns and discounts. This includes parts used in generating repair and maintenance revenue, labour revenue from repair and maintenance, sales of goods manufactured as a secondary activity by the wholesaler, and revenue from rental and leasing of office space, other real estate, and goods and equipment.

As well, any commission revenue and fees earned from buying and selling merchandise on account of others by wholesale merchants is also included.

Other operating revenue such as operating subsidies and grants, shipping, handling, and storing goods for others are excluded.

Inventories are defined as the book value, .i.e., the value maintained in the accounting records, of all stock owned at month end and intended for resale. This includes stock in selling outlets, in warehouses, in transit, or on consignment to others. It also includes stock owned within and outside Canada.

Inventories held on consignment from others (not owned), and store and office supplies and any other supplies not to be sold are excluded.

Trading Location is the physical location(s) in which business activity is conducted in each province and territory, and for which sales are credited or recognized in the financial records of the company. For wholesalers, this would normally be a distribution centre.

Current Price refers to the prices prevailing during the period being referred to.

Constant Price is the valuation expressed at the prices prevailing during a fixed reference or base period.

Classifications

The Monthly Wholesale Trade Survey is based on the definition of wholesale trade under the NAICS (North American Industrial Classification System). NAICS is the agreed upon common framework for the production of comparable statistics by the statistical agencies of Canada, Mexico and the United States. The agreement defines the boundaries of twenty sectors. NAICS is based on a production-oriented, or supply based conceptual framework in that establishments are groups into industries according to similarity in production processes used to produce goods and services.

Estimates appear for 15 major trade groups based on special aggregations of the 2002 North American Industrial Classification System (NAICS) industries. The 15 trade groups are further aggregated to 7 trade group sectors which correspond exactly to the 3-digit NAICS codes for wholesale trade industries, with the exception of the following: wholesale agents and brokers; and petroleum and oilseed and grain wholesaler-distributors.

Geographically, sales estimates are produced for Canada and each province and territory. Inventory estimates are produced only for Canada as a whole.

Coverage and frames

Statistics Canada's Business Register (BR) provides the frame for the Monthly Wholesale Trade Survey. The BR is a structured list of businesses engaged in the production of goods and services in Canada. It is a centrally maintained database containing detailed descriptions of most business entities operating within Canada. The BR includes all incorporated businesses, with or without employees. For unincorporated businesses, the BR includes all employer businesses, and businesses with no employees with annual sales greater than \$30,000 that have a Goods and Services Tax (GST) account (the BR does not include unincorporated businesses with no employees and with annual sales less than \$30,000).

The businesses on the BR are represented by a hierarchical structure with four levels, with the statistical enterprise at the top, followed by the statistical company, the statistical establishment and the statistical location. An enterprise can be linked to one or more statistical companies, a statistical company can be linked to one or more statistical establishments, and a statistical establishment to one or more statistical locations.

The target population for the MWTS consists of all statistical establishments on the BR that are classified to the wholesale sector using the North American Industry Classification System (NAICS) (approximately 110,000 establishments). The NAICS code range for wholesale sector is 410000 to 419999. A statistical establishment is the production entity or the smallest grouping of production entities which: produces a homogeneous set of goods or services; does not cross provincial/territorial boundaries; and provides data on the value of output together with the cost of principal intermediate inputs used along with the cost and quantity of labour used to produce the output. The production entity is the physical unit where the business operations are carried out. It must have a civic address and dedicated labour.

The exclusions to the target population are ancillary establishments (producers of services in support of the activity of producing goods and services for the market of more than one establishment within the enterprise, and serves as a cost centre or a discretionary expense centre for which data on all its costs including labour and depreciation can be reported by the business), future establishments, establishments with a zero gross business income (GBI) value on the BR and establishments in the following non-covered NAICS:

- 41112 (oilseed and grain)
- 412 (petroleum products)
- 419 (agents and brokers)

Sampling

The MWTS sample consists of 8,000 groups of establishments (clusters) classified to the Wholesale Trade sector selected from the Statistics Canada Business Register. A cluster of establishments is defined as all establishments belonging to a statistical enterprise that are in the same industrial group and geographical region. The MWTS uses a stratified design with simple random sample selection in each stratum. The stratification is done by trade group groups using the NAICS-four digit level, and the geographical regions consisting of the provinces and territories. We further stratify the population by size. The size measure is created using a combination of independent survey data and three administrative variables: the GBI, the GST sales, and the T2-revenue (from corporation tax return).

The size strata consist of one take-all (census), at most two take-some (partially sampled) strata, and one take-none (none sampled) stratum. Take-none strata serve to reduce respondent burden by excluding the smaller businesses from the surveyed population. These businesses should represent at most five percent of total sales. Instead of sending questionnaires to these businesses, the estimates are produced through the use of administrative data.

The sample was allocated optimally in order to reach target coefficients of variation at the national, provincial/territorial, industrial, and trade group by province/territory levels. The sample was also inflated to compensate for dead, non-responding, and misclassified units.

MWTS is a repeated survey with maximization of monthly sample overlap. The sample is kept month after month and every month births are added to the sample and dead units are identified. MWTS births, i.e., new clusters of establishment(s), are identified every month via the BR's latest universe. They are stratified according to the same criteria as the initial population. A sample of these births is selected according to the sampling fraction of the stratum to which they belong and is added to the monthly sample. Deaths also occur on a monthly basis. A death can be a cluster of establishment(s) that have ceased their activities (out-of-business) or whose major activities are no longer in wholesale trade (out-of-scope). The status of these businesses is updated on the BR using administrative sources and survey feedback, including feedback from the MWTS. Methods to treat dead units and misclassified units are part of the sample and population update procedures.

Questionnaire design

The questionnaire collects monthly data on wholesale sales and the number of trading locations by province or territory and inventories of goods owned and intended for resale from a sample of wholesalers. For the 2004 redesign, most questionnaires were subject to cosmetic changes only, with the exception of the inclusion of Nunavut. The modifications were discussed with stakeholders and the respondents were given an opportunity to comment before the new questionnaire was finalized. If further changes are needed to any of the questionnaires, proposed changes would go through a review committee, and a field test with respondents and data users to ensure its relevancy.

Response and non-response

Response and non-response

Despite the best efforts of survey managers and operations staff to maximize response in the MWTS, some non-response will occur. For statistical establishments to be classified as responding, the degree of partial response (where an accurate response is obtained for only some of the questions asked a respondent) must meet a minimum threshold level below which the response would be rejected and considered a unit non-response. In such an instance, the business is classified as not having responded at all.

Non-response has two effects on data: first it introduces bias in estimates when non-respondents differ from respondents in the characteristics measured; and second, it contributes to an increase in the sampling variance of estimates because the effective sample size is reduced from that originally sought. The degree to which efforts are made to get a response from a non-respondent is based on budget and time constraints, its impact on the overall quality and the risk of non-response bias.

The main method to reduce the impact of non-response at sampling is to inflate the sample size through the use of over-sampling rates that have been determined from similar surveys.

Besides the methods to reduce the impact of non-response at sampling and collection, the non-responses to the survey that do occur are treated through imputation.

In order to measure the amount of nonresponse that occurs each month various response rates are calculated. For a given reference month, the estimation process is run at least twice (a preliminary and a revised run). Between each run, respondent data can be identified as unusable and imputed values can be corrected through respondent data. As a consequence, response rates are computed following each run of the estimation process.

For the MWTS, two types of rates are calculated (unweighted and weighted). In order to assess the efficiency of the collection process, unweighted response rates are calculated. Weighted rates, using the estimation weight and the value for the variable of interest, assess the quality of estimation. Within each of these types of rates, there are distinct rates for units that are surveyed and for units that are only modeled from administrative data that has been extracted from GST files.

To get a better picture of the success of the collection process, two unweighted rates called the 'collection results rate' and the 'extraction results rate' are computed. They are computed by dividing the number of respondents by the number of units that we tried to contact or tried to receive extracted data for them. Non-monthly reporters (respondents with special reporting arrangements where they do not report every month but for whom actual data is available in subsequent revisions) are excluded from both the numerator and denominator for the months where no contact is performed.

In summary, the various response rates are calculated as follows:

Weighted rates:

Survey Response rate (estimation) = Sum of weighted sales of units with response status *i* Sum of survey weighted sales

where i = units that have either reported data that will be used in estimation or are converted refusals, or have reported data that has not yet been resolved for estimation.

Admin Response rate (estimation) = Sum of weighted sales of units with response status *ii* Sum of administrative weighted sales

where ii = units that have data that was extracted from administrative files and are usable for estimation.

Total Response rate (estimation) = Sum of weighted sales of units with response status *i* or response status *ii* Sum of all weighted sales

Unweighted rates:

Survey Response rate (collection) = <u>Number of questionnaires with response status iii</u> Number of questionnaires with response status iv

where iii = units that have either reported data (unresolved, used or not used for estimation) or are converted refusals.

where iv = all of the above plus units that have refused to respond, units that were not contacted and other types of nonrespondent units.

Admin Response rate (extraction) = Number of questionnaires with response status *vii* Number of questionnaires with response status *vii*

where vi = in-scope units that have data (either usable or non-usable) that was extracted from administrative files

where *vii* = all of the above plus units that have refused to report to the adminstrative data source, units that were not contacted and other types of nonrespondent units.

(% of questionnaire collected over all in-scope questionnaires)

Collection Results Rate =

Number of questionnaires with response status *iii*Number of questionnaires with response status *viii*

where iii = same as iii defined above

where *viii* = same as *iv* except for the exclusion of units that were contacted because their response is unavailable for a particular month since they are non-monthly reporters.

Extraction Results Rate =

Number of questionnaires with response status ix

Number of questionnaires with response status vii

where ix =same as vi with the addition of extracted units that have been imputed or were out of scope

where vii = same as vii defined above

(% of questionnaires collected over all questionnaire in-scope we tried to collect)

All the above weighted and unweighted rates are provided at the trade group, geography and size group level or for any combination of these levels.

Use of Administrative Data

Managing response burden is an ongoing challenge for Statistics Canada. In an attempt to alleviate response burden and survey costs, especially for smaller businesses, Statistics Canada has been investigating various alternatives to survey taking. Administrative data files are a rich source of information for business data and Statistics Canada is working at bringing this rich data source to its full potential. As such, effective the October 2005 reference month, the MWTS has reduced the number of simple establishments in the sample that are surveyed directly and instead derives sales data for these establishments from Goods and Service Tax (GST) files using a statistical model. The model accounts for differences between sales and revenue (reported for GST purposes) as well as for the time lag between the survey reference period and the reference period of the GST file.

Inventories for establishments where sales are GST-based are derived using the MWTS imputation system. The imputation system applies to the previous month values, the month-to-month and year-to-year changes in similar establishments which are surveyed.

For more information on the methodology used for modeling sales from administrative data sources, refer to 'Monthly Wholesale Survey: Use of Administrative Data' under 'Documentation' of the IMDB.

Methods used to reduce non-response at collection

Significant effort is spent trying to minimize non-response during collection. Methods used, among others, are interviewer techniques such as probing and persuasion, repeated re-scheduling and call-backs to obtain the information, and procedures dealing with how to handle non-compliant (refusal) respondents.

If data are unavailable at the time of collection, a respondent's best estimates are also accepted, and are subsequently revised once the actual data become available.

To minimize total non-response for all variables, partial responses are accepted. In addition, questionnaires are customized for the collection of certain variables, such as inventory, so that collection is timed for those months when the data are available.

Finally, to build trust and rapport between the interviewers and respondents, cases are generally assigned to the same interviewer each month. This action establishes a personal relationship between interviewer and respondent, and builds respondent trust.

Data collection and capture operations

Collection of the data is performed by Statistics Canada's Regional Offices. Respondents are sent a questionnaire or are contacted by telephone to obtain their sales and inventory values, as well as to confirm the opening or closing of business trading locations. There is also follow-up of non-response. Collection of the data begins approximately 7 working days after the end of the reference month and continues for the duration of that month.

New entrants to the survey are introduced to the survey via an introductory letter that informs the respondent that a representative of Statistics Canada will be calling. This call is to introduce the respondent to the survey, confirm the respondent's business activity, establish and begin data collection, as well as to answer any questions that the respondent may have.

Editing

Data editing is the application of checks to detect missing, invalid or inconsistent entries or to point to data records that are potentially in error. In the survey process for the MWTS, data editing is done at two different time periods.

First of all, editing is done during data collection. Once data are collected via the telephone, or via the receipt of completed mail-in questionnaires, the data are captured using customized data capture applications. All data are subjected to data editing. Edits during data collection are referred to as field edits and generally consist of validity and some simple consistency edits. They are also used to detect mistakes made during the interview by the respondent or the interviewer and to identify missing information during collection in order to reduce the need for follow-up later on. Another purpose of the field edits is to clean up responses. In the MWTS, the current month's responses are edited against the respondent's previous month's responses and/or the previous year's responses for the current month. Field edits are used to identify problems with data collection procedures and the design of the questionnaire, as well as the need for more interviewer training.

Follow-up with respondents occurs to validate potential erroneous data following any failed preliminary edit check of the data. Once validated, the collected data is regularly transmitted to the head office in Ottawa.

Secondly, editing known as statistical editing is also done after data collection and this is more empirical in nature. Statistical editing is run prior to imputation in order to identify the data that will be used as a basis to impute non-respondents. Large outliers that could disrupt a monthly trend are excluded from trend calculations by the statistical edits. It should be noted that adjustments are not made at this stage to correct the reported outliers.

The first step in the statistical editing is to identify which responses will be subjected to the statistical edit rules. Reported data for the current reference month will go through various edit checks.

The first set of edit checks is based on the Hidiroglou-Berthelot method whereby a ratio of the respondent's current month data over historical (i.e. last month, or same month last year) or administrative (i.e. GST sales or GBI) data is analyzed. When the respondent's ratio differs significantly from ratios of respondents who are similar in terms of trade group and/or geography group, the response is deemed an outlier.

The second set of edits consists of an edit known as the share of market edit. With this method, one is able to edit all respondents even those where historical and auxiliary data is unavailable. The method relies on current month data only. Therefore, within a group of respondents that are similar in terms of trade group and/or geography, if the weighted contribution of a respondent to the group's total is too large, it will be flagged as an outlier.

For edit checks based on the Hidiroglou-Berthelot method, data that are flagged as an outlier will not be included in the imputation models (those based on ratios). Also, data that are flagged as outliers in the share of market edit will not be included in the imputation models where means and medians are calculated to impute for responses that have no historical responses.

In conjunction with the statistical editing after data collection of reported data, there is also error detection done on the extracted GST data. Modeled data based on the GST are also subject to an extensive series of processing steps which thoroughly verify each record that is the basis for the model as well as the record being modeled. Edits are performed at a more aggregate level (industry by geography level) to detect records which deviate from the expected range, either by exhibiting large month-to-month change, or differing significantly from the remaining units. All data which fail these edits are subject to manual inspection and possible corrective action.

Imputation

Imputation in the MWTS is the process used to assign replacement values for missing data. This is done by assigning values when they are missing on the record being edited to ensure that estimates are of high quality and that a plausible, internal consistency is created. Due to concerns of response burden, cost and timeliness, it is generally impossible to do all follow-ups with the respondents in order to resolve missing responses. Since it is desirable to produce a complete and consistent micro data file, imputation is used to handle the remaining missing cases.

In the MWTS, imputation for missing values can be based on either historical or administrative data. The appropriate method is selected according to a strategy that is based on whether historical data is available, administrative data is available and/or which reference month is being processed.

There are three types of historical imputation methods. The first type is a general trend that uses one historical data source (previous month, data from next month or data from same month previous year). The second type is a regression model where data from previous month and same month previous year are used simultaneously. The third type uses the historical data as a direct replacement value for a non-respondent. Depending upon the particular reference month, there is an order of preference that exists so that a top quality imputation can result. The historical imputation method that was labelled as the third type above is always the last option in the order for each reference month.

The imputation methods using administrative data are automatically selected when historical information is unavailable for a non-respondent. The administrative data source (annual GST sales) is the basis of these methods. The annual GST sales are used for two types of methods. One is a general trend that will be used for simple structure, e.g. enterprises with only one establishment, and a second type is called median-average that is used for units with a more complex structure.

Finally, it should be noted that inventories in the MWTS are also imputed from all records for which sales are derived from monthly GST data. The imputed values are calculated automatically for inventories using the same imputation methods that are in place for missing data from non-respondents.

Estimation

Estimation is a process that approximates unknown population parameters using only the part of the population that is included in a sample. Inferences about these unknown parameters are then made, using the sample data and associated survey design.

In the MWTS, new estimation processes have been developed using Statistics Canada's Generalized Estimation System (GES), addressing the need to deal with influential units and allowing for implementation of special corrections during processing. Different methodologies have been put in place to estimate wholesale sales and inventories.

For wholesale sales, the population is divided into a survey portion (take-all and take-some strata) and a non-survey portion (take-none stratum). From the sample that is drawn from the survey portion, an estimate for the population is determined through the use of a Horvitz-Thompson estimator where responses for sales are weighted by using the inverses of the inclusion probabilities of the sampled units. Such weights (called sampling weights) can be interpreted as the number of times that each sampled unit should be replicated to represent the entire population. The calculated weighted sales values are summed by domain, to produce the total sales estimates by each industrial trade group / geographic area combination. A domain is defined as the most recent classification values available from the BR for the unit and the survey reference period. These domains may differ from the original sampling strata because units may have changed size, trade group or location. Changes in classification are reflected immediately in the estimates and do not accumulate over time. For the nonsurvey portion, a ratio type estimator is calculated using auxiliary data. The estimate of the total wholesale sales is equal to the sum of the survey and nonsurvey portion estimates.

For wholesale inventories, the sample selected for estimating sales is used to derive an estimate through the use of a Horvitz-Thompson estimator for the survey portion. A sample-based ratio is then used to produce the estimate for the non-survey portion, and the estimate of the total is derived as the sum of the survey and non-survey portion estimates.

For more information on the methodology for modeling sales from administrative data sources (i.e. GST data) which also contributes to the estimates of the survey portion, refer to 'Monthly Wholesale Trade Survey: Use of Administrative Data' under 'Documentation' of the IMDB.

The measure of precision used for the MWTS to evaluate the quality of a population parameter estimate and to obtain valid inferences is the variance. The variance from the survey portion is derived directly from a stratified simple random sample without replacement.

Sample estimates may differ from the 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.

Seasonal adjustment and trend cycle estimation

Revisions in the raw data are required to correct known non-sampling errors. These normally include replacing imputed data with reported data, corrections to previously reported data, and estimates for new births that were not known at the time of the original estimates.

Raw data are revised, on a monthly basis, for the month immediately prior to the current reference month being published. That is, when data for December are being published for the first time, there will also be revisions, if necessary, to the raw data for November. In addition, revisions are made once a year, with the initial release of the February data, for all months in the previous year. The purpose is to correct any significant problems that have been found that apply for an extended period. The actual period of revision depends on the nature of the problem identified, but rarely exceeds three years.

Wholesale trade data are seasonally adjusted using the X11ARIMA/2000¹ model. This consists of extrapolating a year's worth of raw data with the ARIMA model (auto-regressive integrated moving average model), and of seasonally adjusting the raw time series.

Socio-economic time series such as data from the MWTS can be broken down into five main components: the trend-cycle, seasonality, the trading-day effect, the Easter holiday effect and the irregular component.

The trend represents the long-term change in the series, whereas the cycle represents a smooth, quasi-periodical movement about the trend, showing a succession of growth and decline phases (e.g., the business cycle). These two components—the trend and the cycle—are estimated together, and the trendcycle reflects the fundamental evolution of the series. The other components reflect short-term transient movements.

The seasonal component represents sub-annual, monthly or quarterly fluctuations that recur more or less regularly from one year to the next. Seasonal variations are caused by the direct and indirect effects of the climatic seasons, institutional factors (attributable to social conventions or administrative rules; e.g., Christmas) and technological factors.

The trading day component originates from the fact that the relative importance of the days varies systematically within the week and that the number of each day of the week in a given month or a given quarter varies from year to year. This effect is present when activity varies with the day of the week. For instance, Sunday is typically less active than the other days, and the number of Sundays, Mondays, etc. in, say, July changes from year to year.

The Easter holiday effect is the variation due to the shift of part of April's activity to March when Easter falls in March rather than April.

Lastly, the irregular component includes all other more or less erratic fluctuations not taken into account in the preceding components. It is a residual that includes errors of measurement on the variable itself as well as unusual events (e.g., strikes, drought, floods or other unexpected events causing variations in respondents' commercial activities).

Thus, the latter four components—seasonal, irregular, trading day and Easter holiday effect—all conceal the fundamental trend-cycle component of the series. Seasonal adjustment (correction of seasonal variation) consists in removing the seasonal, trading day and Easter holiday effect components from the series, and it thus helps reveal the trend-cycle. However, one must bear in mind that the seasonally adjusted series contains not only the trend-cycle but also the irregular component (which is technically difficult to isolate for the current months).

^{1.} For further information, see X11ARIMA version 2000, an update of the seasonal adjustment method X11ARIMA/88, developed by Estelle Bee Dagum, Time Series Research and Analysis Centre, Statistics Canada.

The X-11 method is used for analysing monthly and quarterly series. It is based on an iterative principle applied in estimating the different components, with estimation being done at each stage using adequate moving averages.² The moving averages used to estimate the main components—the trend and seasonality—are primarily smoothing tools designed to eliminate any undesirable component from the series. Since moving averages react poorly to the presence of atypical values, the X-11 method includes a tool for detecting and correcting atypical points. This tool is used to clean up the series prior to seasonal adjustment.

Lastly, the trading day effect and the Easter holiday effect are components that are estimated using linear regression models, based on the irregular component. To evaluate the different components of the series, taking account of the possible presence of atypical points, X-11 proceeds iteratively: estimation of components, search for unwanted effects in the irregular component, estimation of components on a corrected series, search for unwanted effects in the irregular component, etc.

Wholesale trade forms a system of 29 series: the Canada grand total, the 15 trade group totals, and the 13 provincial/territorial totals. For non-seasonally adjusted series, the summing of the 15 trade group totals produces the grand total (Canada) for each month and is equal to the sum of the 13 provincial/territorial totals.

Unfortunately, seasonal adjustment removes the sub-annual additivity of a system of series; small discrepancies, which generally vary between -1% and 1%, are observed between the sum of the seasonally adjusted trade groups and the sum of the seasonally adjusted provinces and territories. To restore additivity, a reconciliation process is applied to the seasonally adjusted wholesale trade series. The reconciliation process operates as follows:

- 1. The seasonally adjusted grand total for Canada is obtained "indirectly" by summing up the trade group totals, which have previously been seasonally adjusted separately. And
- 2. the seasonally adjusted provincial and territorial totals are then reconciled so that their sum is equal to the seasonally adjusted grand total for Canada, obtained previously. The procedure is such that:
- (a) the system's seasonally adjusted components are modified as little as possible in percentage,
- (b) the seasonally adjusted components add up to the grand total for each month, and
- (c) the seasonally adjusted monthly values add up to the yearly totals for the nonadjusted series.

^{2.} Ladiray, D. and Quenneville, B. (2001). Seasonal Adjustment with the X-11 Method. New York: Springer-Verlag, Lecture Notes in Statistics #158.

Adjustment for historical series

The historical series for the MWTS begins in January 1993. The data from January 1993 to March 2004 were backcasted based on conversion coefficients from the MWTS on a 1980 SIC basis. Before the first release of the redesigned MWTS results for the April 2004 reference month, estimates were produced from December 2003 on to establish a comparison basis between the old and the new survey. The backcasted series were adjusted to the level of the redesigned survey.

In the first phase, the backcasted series were benchmarked beginning in January 1993. To do so, individual ratios of series from the new survey were calculated. These ratios were then applied to the backcasted series.

This benchmarking removes the additivity to the system of series because the series are benchmarked individually. For example, this process brings forth differences between the sum of the trade group and the sum of the provinces and territories. To restore additivity, a reconciliation process is applied to the benchmarked series.

Data quality evaluation

The methodology of this survey has been designed to control errors and to reduce their potential effects on estimates. However, the survey results remain subject to errors, of which sampling error is only one component of the total survey error. Sampling error results when observations are made only on a sample and not on the entire population. All other errors arising from the various phases of a survey are referred to as non-sampling errors. For example, these types of errors can occur when a respondent provides incorrect information or does not answer certain questions; when a unit in the target population is omitted or covered more than once; when GST data for records being modeled for a particular month are not representative of the actual record for various reasons; when a unit that is out of scope for the survey is included by mistake or when errors occur in data processing, such as coding or capture errors.

Prior to publication, combined survey results are analyzed for comparability; in general, this includes a detailed review of individual responses (especially for large businesses), general economic conditions and historical trends.

A common measure of data quality for surveys is the coefficient of variation (CV). The coefficient of variation, defined as the standard error divided by the sample estimate, is a measure of precision in relative terms. Since the coefficient of variation is calculated from responses of individual units, it also measures some non-sampling errors.

The formula used to calculate coefficients of variation (CV) as percentages is:

$$CV(X) = \frac{S(X)}{Y} * 100\%$$

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

Confidence intervals can be constructed around the estimates using the estimate and the CV. 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 CV of 2%, the standard error will be \$240,000 (the estimate multiplied by the CV). It can be stated with 68% confidence that the expected values will fall within the interval whose length equals the standard deviation about the estimate, i.e. between \$11,760,000 and \$12,240,000. 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 \$11,520,000 and \$12,480,000.

Finally, due to the small contribution of the non-survey portion to the total estimates, bias in the non-survey portion has a negligible impact on the CVs. Therefore, the CV from the survey portion is used for the total estimate that is the summation of estimates from the surveyed and non-surveyed portions.

Disclosure control

Statistics Canada is prohibited by law from releasing any data which would divulge information obtained under the Statistics Act that relates to any identifiable person, business or organization without the prior knowledge or the consent in writing of that person, business or organization. Various confidentially rules are applied to all data that are released or published to prevent the publication or disclosure of any information deemed confidential. If necessary, data are suppressed to prevent direct or residual disclosure or identifiable data.

Confidentiality analysis includes the detection of possible "direct disclosure", which occurs when the value in a tabulation cell is composed of a few respondents or when the cell is dominated by a few companies.

Data comparability

In June 2004, estimates based on the 2002 North American Industrial Classification System (NAICS) were released. This followed a parallel production of four months where both NAICS and 1980 Standard Industrial Classification based estimates were generated for internal analysis. The change in classification and the new sample indicated a change in the level of the estimates. To avoid a break in the series, wholesale estimates were adjusted at the trade group by province/territory level back to January 1993.

Caution should be taken when comparing annualized monthly totals from the Monthly Wholesale Trade Survey to the estimates from the Annual Wholesale Trade Survey. Differences may result from sampling differences; conceptual and coverage differences (such as the inclusion of oilseed and grain and petroleum wholesaler-distributors and wholesale agents and brokers in the Annual Wholesale Trade Survey estimates and their exclusion from the Monthly Wholesale Trade Survey estimates); the timing of revisions within the two survey processes; the reporting period covered (fiscal or calendar year); different response rates to the two surveys; and how revenues are reported.

Each year, effort is made to evaluate the differences and correct known discrepancies in the data. However, benchmarking of the two surveys is not done.

Appendix I

Special aggregation: Wholesale trade

Based on the North American Industry Classification System (NAICS) 2002

М	Farm Products ¹
010 41111 41112 41113 41119	Farm Products Live Animal Wholesaler-Distributors Oilseed and Grain Wholesaler-Distributors (Not in scope for Monthly) Nursery Stock and Plant Wholesaler-Distributors Other Farm Product Wholesaler-Distributors
N	Petroleum Products (Not in scope for Monthly)
020 41211	Petroleum Products Petroleum Product Wholesaler-Distributors
0	Food, Beverage and Tobacco products
030 41311 41312 41313 41314 41315 41316 41319 41321 040 41322 41331	Food products General-Line Food Wholesaler-Distributors Dairy and Milk Products Wholesaler-Distributors Poultry and Egg Wholesaler-Distributors Fish and Seafood Product Wholesaler-Distributors Fresh Fruit and Vegetable Wholesaler-Distributors Red Meat and Meat Product Wholesaler-Distributors Other Specialty-Line Food Wholesaler-Distributors Non-Alcoholic Beverage Wholesaler-Distributors Alcohol and Tobacco Alcoholic Beverage Wholesaler-Distributors Cigarette and Tobacco Product Wholesaler-Distributors
P	Personal and Household Goods
050 41411 41412 41413	Apparel Clothing and Clothing Accessories Wholesaler-Distributors Footwear Wholesaler-Distributors Piece Goods, Notions and Other Dry Goods Wholesaler-Distributors
060 41421 41422	Home and Personal Products Home Entertainment Equipment Wholesaler-Distributors Household Appliance Wholesaler-Distributors

^{1.} Also published without NAICS 411120 Oilseed and Grain Wholesaler-Distributors as: Trade Group Sector "Aa" Farm Products (excluding oilseeds and grains), comprising Trade Group 11 Farm Products (excluding oilseeds and grain).

41431 41432 41433 41439 41441 41442 41443 41444 41445 41446 41447 41452	China, Glassware, Crockery and Pottery Wholesaler-Distributors Floor Covering Wholesaler-Distributors Linen, Drapery and Other Textile Furnishings Wholesaler-Distributors Other Home Furnishings Wholesaler-Distributors Jewellery and Watch Wholesaler-Distributors Book, Periodical and Newspaper Wholesaler-Distributors Photographic Equipment and Supplies Wholesaler-Distributors Sound Recording Wholesalers Video Cassette Wholesalers Toy and Hobby Goods Wholesaler-Distributors Amusement and Sporting Goods Wholesaler-Distributors Toiletries, Cosmetics and Sundries Wholesaler-Distributors
070 41451	Pharmaceuticals Pharmaceuticals and Pharmacy Supplies Wholesaler-Distributors
Q	Automotive Products
080 41511 41512 41519	Motor Vehicles New and Used Automobile and Light-Duty Truck Wholesaler-Distributors Truck, Truck Tractor and Bus Wholesaler-Distributors Recreational and Other Motor Vehicles Wholesaler-Distributors
090 41521 41529 41531	Motor Vehicle Parts and Accessories Tire Wholesaler-Distributors Other New Motor Vehicle Parts and Accessories Wholesaler-Distributors Used Motor Vehicle Parts and Accessories Wholesaler-Distributors
R	Building Materials
100 41611 41612 41631 41633 41634 41639	Building Supplies Electrical Wiring and Construction Supplies Wholesaler-Distributors Plumbing, Heating and Air-Conditioning Equipment and Supplies Wholesaler-Distributors General-Line Building Supplies Wholesaler-Distributors Hardware Wholesaler-Distributors Paint, Glass and Wallpaper Wholesaler-Distributors Other Specialty-Line Building Supplies Wholesaler-Distributors
110 41621	Metal Products Metal Service Centres
120 41632	Lumber and Millwork Lumber, Plywood and Millwork Wholesaler-Distributors
s	Machinery and Electronic Equipment
130 41711 41721 41722 41723 41799	Machinery and Equipment Farm, Lawn and Garden Machinery and Equipment Wholesaler-Distributors Construction and Forestry Machinery, Equipment and Supplies Wholesaler-Distributors Mining and Oil and Gas Well Machinery, Equipment and Supplies Wholesaler-Distributors Industrial Machinery, Equipment and Supplies Wholesaler-Distributors All Other Machinery, Equipment and Supplies Wholesaler-Distributors

140	Computers and Other Electronic Equipment	
41731 41732	Computer, Computer Peripheral and Pre-Packaged Software Wholesaler-Distributors Electronic Components, Navigational and Communications Equipment and Suppli Wholesaler-Distributors	es
450		
150 41791	Office and Professional Equipment Office and Store Machinery and Equipment Wholesaler-Distributors	
41792	Service Establishment Machinery, Equipment and Supplies Wholesaler-Distributors	
41793	Professional Machinery, Equipment and Supplies Wholesaler-Distributors	
т	Other Products	
160	Other Products	
41811	Recyclable Metal Wholesaler-Distributors	
41812	Recyclable Paper and Paperboard Wholesaler-Distributors	
41819	Other Recyclable Material Wholesaler-Distributors	
41821	Stationery and Office Supplies Wholesaler-Distributors	
41822	Other Paper and Disposable Plastic Product Wholesaler-Distributors	
41831	Agricultural Feed Wholesaler-Distributors	
41832	Seed Wholesaler-Distributors	
41839 41841	Agricultural Chemical and Other Farm Supplies Wholesaler-Distributors Chemical (except Agricultural) and Allied Product Wholesaler-Distributors	
41891	Log and Wood Chip Wholesaler-Distributors	
41892	Mineral, Ore and Precious Metal Wholesaler-Distributors	
41893	Second-Hand Goods (except Machinery and Automotive) Wholesaler-Distributors	
41899	All Other Wholesaler-Distributors	
U	Agents and Brokers	
170	Agents and Brokers (Not in scope for Monthly)	
41911	Farm Product Agents and Brokers	
41912	Petroleum Product Agents and Brokers	
41913	Food, Beverage and Tobacco Agents and Brokers	
41914	Personal and Household Goods Agents and Brokers	
41915	Motor Vehicle and Parts Agents and Brokers	
41916 41917	Building Material and Supplies Agents and Brokers	
41917 41919	Machinery, Equipment and Supplies Agents and Brokers Other Wholesale Agents and Brokers	
71313	Other Wholesale Agents and Diokers	