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# Wholesale Trade

December 2012



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Statistics Canada  
Distributive Trades Division

# Wholesale Trade

December 2012

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# User information

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## Symbols

The following standard symbols are used in Statistics Canada publications:

- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0<sup>s</sup> value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- p preliminary
- r revised
- x suppressed to meet the confidentiality requirements of the *Statistics Act*
- E use with caution
- F too unreliable to be published
- \* significantly different from reference category ( $p < 0.05$ )

## Note to users

Figures may not add up to totals because of rounding.

## Acknowledgements

This publication was prepared under the direction of:

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## Highlights

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- Wholesale sales fell 0.9% in December to \$49.0 billion, after rising 0.7% in November. The decrease was largely a result of lower sales in the computer and communications equipment and supplies industry. The same industry was behind November's increase.

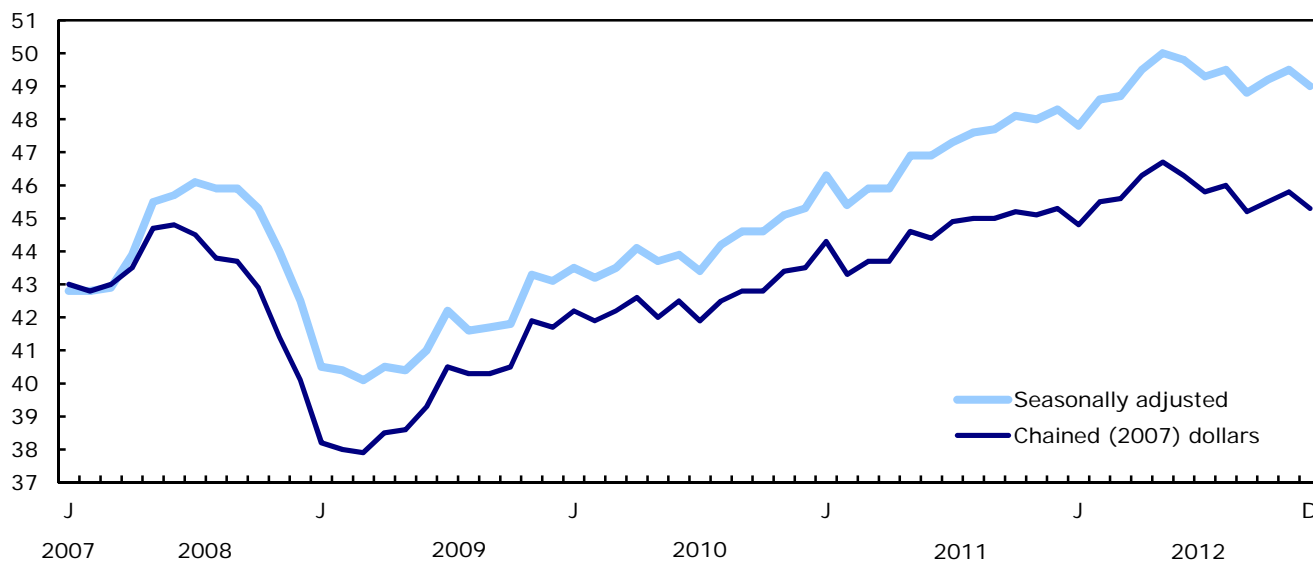
## Analysis — December 2012

Wholesale sales fell 0.9% in December to \$49.0 billion, after rising 0.7% in November. The decrease was largely a result of lower sales in the computer and communications equipment and supplies industry. The same industry was behind November's increase.

In volume terms, wholesale sales were down 0.9% in December.

**Chart 1**  
**Wholesale sales**

billions of dollars



### Computer and communications equipment and supplies post the largest decline

In December, five of the seven subsectors were down. The majority of the decrease was concentrated in the machinery, equipment and supplies subsector.

Sales in the machinery, equipment and supplies subsector decreased by 4.1%. Every industry in the subsector reported lower sales. The computer and communications equipment and supplies industry (-8.6%) accounted for two-thirds of the decrease.

The decline in the computer and communications equipment and supplies industry in December came in the wake of a 6.3% advance in November, which coincided with a sharp gain in imports of communications and audio and video equipment. Sales in this industry can be affected by the timing of new product releases.

The second-largest decline was in the personal and household goods subsector. Sales fell 0.7%, mainly as a result of decreases in the toiletries, cosmetics and sundries industry and the home entertainment equipment and household appliance industry.



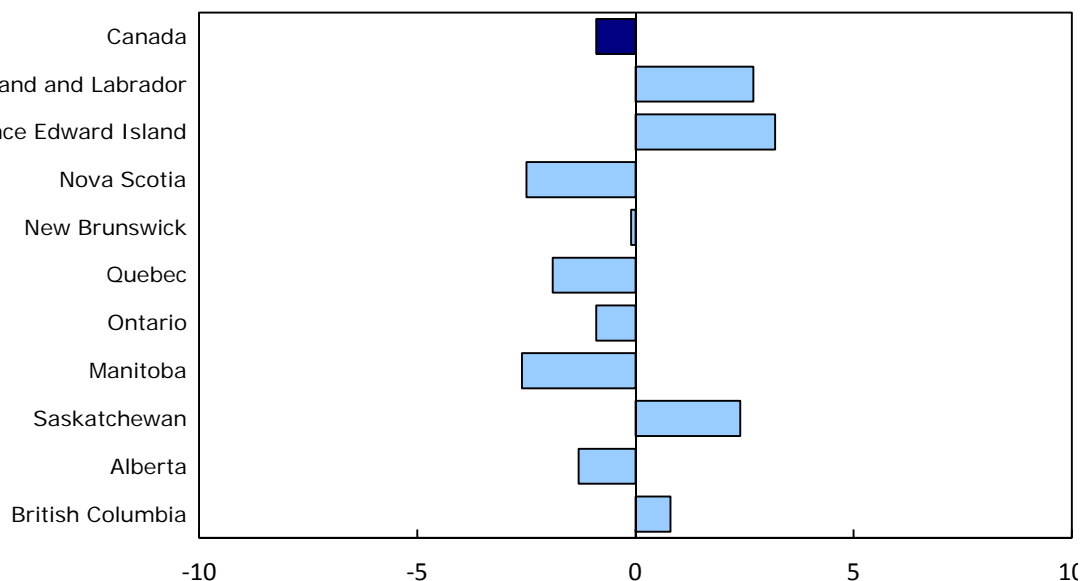
The miscellaneous subsector declined 0.6%, its ninth decrease in 2012. In December, four of the five industries in the subsector had lower sales.

The largest increase in dollar terms was in the building material and supplies subsector. Sales were up 1.4% in December, their third consecutive advance.

## Lower sales in six provinces

Wholesale sales were down in six provinces in December. The majority of the national decrease was attributable to Ontario, Quebec and Alberta.

**Chart 2**  
**Monthly % change of provincial sales**



Ontario posted a 0.9% decline in sales, the fourth decrease in the second half of 2012. December's decline was largely a result of lower sales in the computer and communications equipment and supplies industry.

In Quebec, weaker sales in the personal and household goods subsector in particular contributed to the 1.9% decline observed in December.

Sales fell 1.3% in Alberta, the first decrease in three months. The December result was due to several industries, including the computer and communications equipment and supplies industry.

## Decrease in inventories

Wholesalers' inventories declined 0.6% in December to \$60.7 billion, the third decrease in four months. Inventories were down in 12 of the 25 industries.

The largest inventory declines in dollar terms were in the construction, forestry, mining and industrial machinery, equipment and supplies industry (-4.1%) and the motor vehicle industry (-2.9%).

The inventory-to-sales ratio was 1.24 in December.

The inventory-to-sales ratio is a measure of the time in months required to exhaust inventories if sales were to remain at their current level.

### Widespread growth in wholesale sales in 2012

On an annual basis, wholesale sales totalled about \$590 billion in 2012, up 4.5% from the previous year. This increase followed two consecutive years of 6.6% growth.

After peaking in May 2012, the sales of Canadian wholesalers showed a slight downward trend late in the year.

In 2012, five of the seven wholesale trade subsectors posted increases. The motor vehicle and parts subsector had the largest gain in dollar terms, followed by the machinery, equipment and supplies subsector.

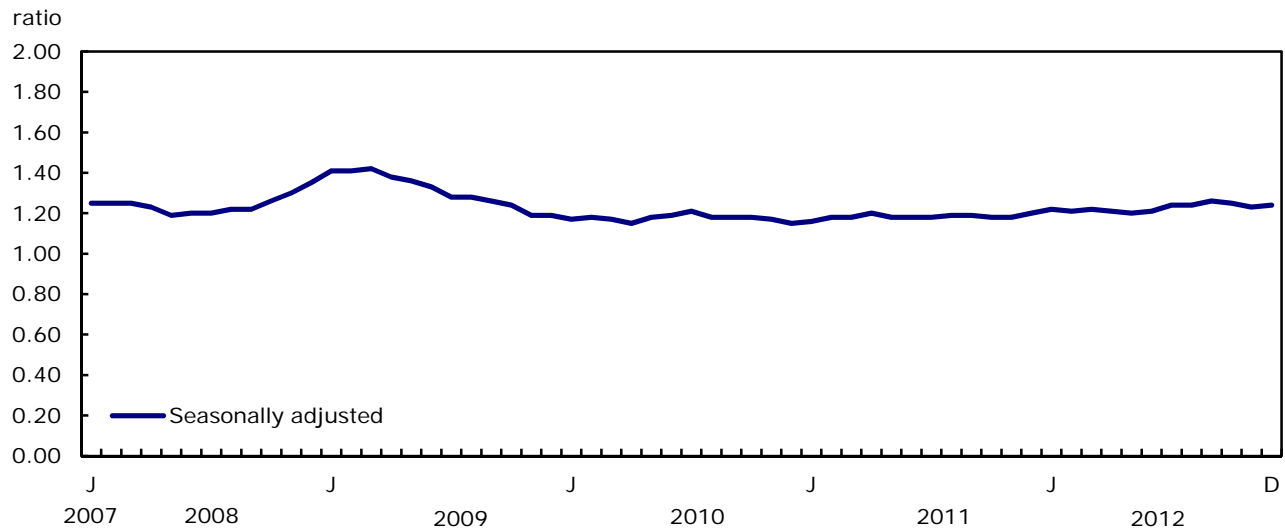
At the provincial level, Alberta registered the largest increase in 2012, with a growth rate of more than 10%.

#### Note to readers

All the data in this release are seasonally adjusted and in current dollars, unless otherwise noted. For more information on seasonal adjustment, see *Seasonal adjustment and identifying economic trends*.

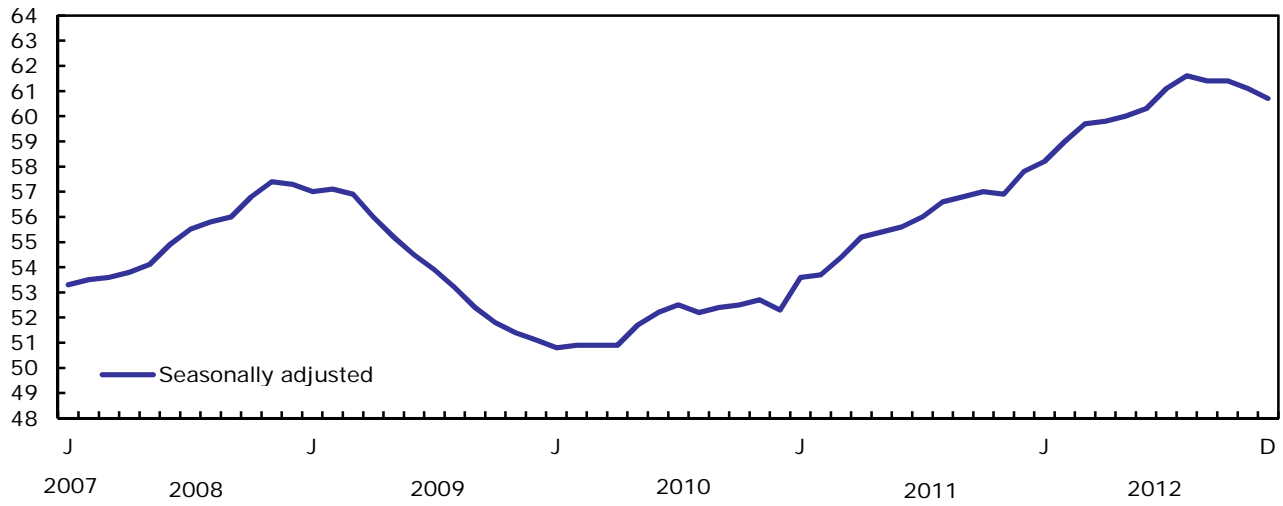
Total wholesale sales expressed in volume are calculated by deflating current dollar values using relevant price indexes. The wholesale sales series in chained (2007) dollars is a chained Fisher volume index with 2007 as the reference year. For more information, see *Sales in volume for Wholesale Trade*.

**Chart 3**  
Inventory-to-sales ratio



**Chart 4  
Inventories**

billions of dollars



## Related products

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### Selected technical and analytical products from Statistics Canada

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11-621-M2009079 Wholesale Trade: The Year 2008 in Review

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### Selected CANSIM tables from Statistics Canada

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081-0011 Wholesale trade, sales by the North American Industry Classification System (NAICS), monthly

081-0012 Wholesale trade, inventories by the North American Industry Classification System (NAICS), monthly

081-0015 Wholesale trade, sales, chained dollars and price index based on the North American Industry Classification System (NAICS), monthly

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### Selected surveys from Statistics Canada

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2401 Wholesale Trade Survey (Monthly)

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### Selected summary tables from Statistics Canada

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

# Statistical tables

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**Table 1-1**  
**Wholesale merchants — Sales, by NAICS and region, seasonally adjusted — Sales**

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October <sup>r</sup> 2012	September <sup>r</sup> 2012	Year-to-date 2012
millions of dollars					
<b>NAICS - Canada</b>					
<b>Wholesale trade[41]</b>	<b>49,048</b>	<b>49,505</b>	<b>49,155</b>	<b>48,767</b>	<b>589,794</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>609</b>	<b>594</b>	<b>568</b>	<b>525</b>	<b>6,900</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>9,423</b>	<b>9,426</b>	<b>9,511</b>	<b>9,463</b>	<b>112,917</b>
Food[4131]	8,457	8,456	8,534	8,497	101,014
Beverage[4132]	472	468	472	469	5,808
Cigarette and tobacco product[4133]	494	502	505	497	6,095
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>6,910</b>	<b>6,959</b>	<b>6,939</b>	<b>6,825</b>	<b>83,582</b>
Textile, clothing and footwear[4141]	922	925	943	925	11,113
Home entertainment equipment and household appliance[4142]	709	733	713	699	8,717
Home furnishings[4143]	443	456	471	475	5,391
Personal goods[4144]	710	692	715	705	8,741
Pharmaceuticals and pharmacy supplies[41451]	3,504	3,503	3,511	3,379	41,844
Toiletries, cosmetics and sundries[41452]	621	649	585	643	7,778
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>8,336</b>	<b>8,362</b>	<b>8,232</b>	<b>8,119</b>	<b>98,628</b>
Motor vehicle[4151]	6,260	6,270	6,165	6,135	74,269
New motor vehicle parts and accessories[4152]	2,027	2,038	2,016	1,933	23,776
Used motor vehicle parts and accessories[4153]	49	54	52	51	583
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>7,022</b>	<b>6,923</b>	<b>6,870</b>	<b>6,822</b>	<b>81,654</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	2,123	2,111	2,138	2,112	25,713
Metal service centres[4162]	1,640	1,601	1,561	1,567	18,869
Lumber, millwork, hardware and other building supplies[4163]	3,259	3,211	3,171	3,143	37,072
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>10,557</b>	<b>11,012</b>	<b>10,839</b>	<b>10,782</b>	<b>128,191</b>
Farm, lawn and garden machinery and equipment[4171]	1,266	1,286	1,293	1,239	14,719
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	3,622	3,664	3,702	3,716	44,512
Computer and communications equipment and supplies[4173]	3,234	3,539	3,329	3,295	39,077
Other machinery, equipment and supplies[4179]	2,435	2,523	2,515	2,532	29,883
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>6,191</b>	<b>6,229</b>	<b>6,196</b>	<b>6,230</b>	<b>77,922</b>
Recyclable material[4181]	667	674	647	701	8,602
Paper, paper product and disposable plastic product[4182]	870	873	860	893	10,715
Agricultural supplies[4183]	1,624	1,551	1,633	1,534	21,319
Chemical (except agricultural) and allied product[4184]	1,159	1,211	1,201	1,181	14,365
Other miscellaneous[4189]	1,870	1,921	1,854	1,921	22,920
<b>Regions</b>					
Newfoundland and Labrador	343	334	347	331	4,082
Prince Edward Island	50	48	48	46	566
Nova Scotia	696	714	723	716	8,516
New Brunswick	493	494	497	486	5,978
Quebec	9,265	9,441	9,576	9,389	112,947
Ontario	23,812	24,036	23,572	23,594	286,245
Manitoba	1,352	1,389	1,322	1,346	16,063
Saskatchewan	1,806	1,764	1,800	1,742	22,091
Alberta	6,513	6,599	6,541	6,487	77,743
British Columbia	4,641	4,602	4,643	4,556	54,589
Yukon	13	12	13	12	155
Northwest Territories	54	56	56	54	715
Nunavut	11	17	16	8	103

**Note(s):** NAICS: North American Industry Classification System Canada

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

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October <sup>r</sup> 2012	September <sup>r</sup> 2012
	percent			
<b>NAICS - Canada</b>				
<b>Wholesale trade[41]</b>	<b>-0.9</b>	<b>0.7</b>	<b>0.8</b>	<b>-1.5</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>2.6</b>	<b>4.6</b>	<b>8.2</b>	<b>-7.4</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>0.0</b>	<b>-0.9</b>	<b>0.5</b>	<b>-0.6</b>
Food[4131]	0.0	-0.9	0.4	-0.4
Beverage[4132]	0.8	-0.9	0.8	-1.7
Cigarette and tobacco product[4133]	-1.5	-0.6	1.5	-3.0
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>-0.7</b>	<b>0.3</b>	<b>1.7</b>	<b>-2.0</b>
Textile, clothing and footwear[4141]	-0.4	-1.9	2.0	-2.7
Home entertainment equipment and household appliance[4142]	-3.2	2.8	2.0	2.2
Home furnishings[4143]	-3.0	-3.1	-0.9	0.7
Personal goods[4144]	2.6	-3.2	1.5	-3.8
Pharmaceuticals and pharmacy supplies[41451]	0.0	-0.2	3.9	-3.1
Toiletries, cosmetics and sundries[41452]	-4.3	10.9	-8.9	0.4
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>-0.3</b>	<b>1.6</b>	<b>1.4</b>	<b>-3.4</b>
Motor vehicle[4151]	-0.2	1.7	0.5	-4.1
New motor vehicle parts and accessories[4152]	-0.5	1.1	4.3	-1.3
Used motor vehicle parts and accessories[4153]	-9.5	5.0	1.6	4.5
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>1.4</b>	<b>0.8</b>	<b>0.7</b>	<b>-0.3</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	0.6	-1.3	1.2	-1.6
Metal service centres[4162]	2.4	2.6	-0.4	-0.4
Lumber, millwork, hardware and other building supplies[4163]	1.5	1.2	0.9	0.5
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>-4.1</b>	<b>1.6</b>	<b>0.5</b>	<b>-1.6</b>
Farm, lawn and garden machinery and equipment[4171]	-1.6	-0.6	4.4	-1.2
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	-1.2	-1.0	-0.4	-0.8
Computer and communications equipment and supplies[4173]	-8.6	6.3	1.0	-1.8
Other machinery, equipment and supplies[4179]	-3.5	0.3	-0.7	-2.4
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>-0.6</b>	<b>0.5</b>	<b>-0.6</b>	<b>-0.4</b>
Recyclable material[4181]	-1.0	4.1	-7.7	4.4
Paper, paper product and disposable plastic product[4182]	-0.3	1.5	-3.7	3.7
Agricultural supplies[4183]	4.8	-5.0	6.4	-5.6
Chemical (except agricultural) and allied product[4184]	-4.2	0.8	1.7	0.4
Other miscellaneous[4189]	-2.7	3.6	-3.5	0.1
<b>Regions</b>				
Newfoundland and Labrador	2.7	-3.8	4.7	-0.7
Prince Edward Island	3.2	-0.2	6.3	-3.8
Nova Scotia	-2.5	-1.3	1.1	-1.1
New Brunswick	-0.1	-0.6	2.2	-0.2
Quebec	-1.9	-1.4	2.0	-1.8
Ontario	-0.9	2.0	-0.1	-1.8
Manitoba	-2.6	5.0	-1.8	3.0
Saskatchewan	2.4	-2.0	3.3	-4.3
Alberta	-1.3	0.9	0.8	-0.6
British Columbia	0.8	-0.9	1.9	-1.0
Yukon	10.2	-10.6	11.5	-11.7
Northwest Territories	-3.8	0.3	4.5	-9.8
Nunavut	-39.3	11.8	90.5	22.4

**Note(s):** NAICS: North American Industry Classification System Canada

Table 1-3

## Wholesale merchants — Sales, by NAICS and region, seasonally adjusted — Percentage change from previous year

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October <sup>r</sup> 2012	September <sup>r</sup> 2012	Year-to-date 2012
	percent				
<b>NAICS - Canada</b>					
<b>Wholesale trade[41]</b>	<b>1.6</b>	<b>3.0</b>	<b>2.1</b>	<b>2.2</b>	<b>4.5</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>-0.4</b>	<b>-14.3</b>	<b>-12.9</b>	<b>-17.1</b>	<b>-1.2</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>0.9</b>	<b>1.8</b>	<b>2.7</b>	<b>3.1</b>	<b>4.0</b>
Food[4131]	1.2	1.9	3.0	3.6	4.2
Beverage[4132]	0.9	-0.8	1.9	1.8	4.9
Cigarette and tobacco product[4133]	-3.2	2.6	-0.2	-4.6	0.2
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>-2.0</b>	<b>-1.9</b>	<b>-1.3</b>	<b>-3.3</b>	<b>0.0</b>
Textile, clothing and footwear[4141]	-1.3	0.7	2.7	-3.0	0.3
Home entertainment equipment and household appliance[4142]	-7.8	-4.3	-11.1	-7.9	0.1
Home furnishings[4143]	-2.8	1.2	6.6	14.1	6.5
Personal goods[4144]	3.0	-9.2	-3.4	-6.9	-4.5
Pharmaceuticals and pharmacy supplies[41451]	-0.9	-0.5	1.2	-3.9	0.4
Toiletries, cosmetics and sundries[41452]	-7.0	-3.7	-11.0	-1.7	-1.6
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>8.2</b>	<b>12.3</b>	<b>9.7</b>	<b>8.5</b>	<b>11.3</b>
Motor vehicle[4151]	10.6	13.8	10.2	8.8	12.5
New motor vehicle parts and accessories[4152]	1.6	7.8	7.9	7.4	7.9
Used motor vehicle parts and accessories[4153]	5.4	13.9	14.6	9.2	1.1
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>6.6</b>	<b>5.6</b>	<b>4.8</b>	<b>5.2</b>	<b>5.3</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	2.6	1.3	-0.3	0.7	2.5
Metal service centres[4162]	9.4	8.7	9.4	11.4	13.1
Lumber, millwork, hardware and other building supplies[4163]	8.1	7.1	6.3	5.5	3.6
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>1.3</b>	<b>6.0</b>	<b>6.8</b>	<b>7.1</b>	<b>7.4</b>
Farm, lawn and garden machinery and equipment[4171]	8.6	7.5	8.4	3.2	4.0
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	-4.4	-2.6	1.3	2.6	7.6
Computer and communications equipment and supplies[4173]	5.0	16.9	15.6	16.5	11.0
Other machinery, equipment and supplies[4179]	1.9	5.0	3.9	4.7	4.5
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>-5.5</b>	<b>-5.6</b>	<b>-11.4</b>	<b>-8.8</b>	<b>-2.3</b>
Recyclable material[4181]	-24.4	-25.2	-28.9	-19.5	-18.1
Paper, paper product and disposable plastic product[4182]	-6.1	-4.9	-7.6	-4.0	-2.8
Agricultural supplies[4183]	1.5	-3.7	-11.9	-11.1	5.3
Chemical (except agricultural) and allied product[4184]	-4.5	-1.0	-3.4	-1.1	4.5
Other miscellaneous[4189]	-3.0	-1.4	-9.6	-8.9	-5.5
<b>Regions</b>					
Newfoundland and Labrador	1.0	0.9	5.9	0.7	3.6
Prince Edward Island	0.7	-3.1	-2.5	-5.2	-0.8
Nova Scotia	0.7	4.2	7.0	6.3	8.3
New Brunswick	-0.9	0.9	3.2	1.7	0.9
Quebec	1.6	4.0	5.1	3.2	4.8
Ontario	0.8	3.0	1.2	0.6	2.6
Manitoba	0.2	6.5	-0.4	5.2	6.2
Saskatchewan	-1.1	-7.3	-12.1	-5.9	3.0
Alberta	4.1	4.6	4.1	7.2	11.1
British Columbia	4.2	2.9	3.7	3.6	5.0
Yukon	10.1	-15.9	10.9	4.1	7.3
Northwest Territories	3.2	5.1	9.8	11.1	18.1
Nunavut	46.9	200.8	207.0	71.7	55.6

Note(s): NAICS: North American Industry Classification System Canada



**Table 2-1**  
**Wholesale merchants — Sales, by NAICS and region, not seasonally adjusted — Sales**

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October 2012	September 2012	Year-to-date 2012
	millions of dollars				
<b>NAICS - Canada</b>					
<b>Wholesale trade[41]</b>	<b>45,733</b>	<b>51,171</b>	<b>52,434</b>	<b>48,193</b>	<b>589,408</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>608</b>	<b>718</b>	<b>646</b>	<b>514</b>	<b>6,926</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>9,546</b>	<b>9,568</b>	<b>9,923</b>	<b>9,365</b>	<b>112,912</b>
Food[4131]	8,590	8,580	8,861	8,446	101,021
Beverage[4132]	486	501	533	431	5,794
Cigarette and tobacco product[4133]	470	487	528	488	6,097
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>6,610</b>	<b>7,797</b>	<b>7,865</b>	<b>7,054</b>	<b>83,602</b>
Textile, clothing and footwear[4141]	668	921	1,093	1,061	11,097
Home entertainment equipment and household appliance[4142]	772	1,123	903	730	8,729
Home furnishings[4143]	384	526	551	483	5,402
Personal goods[4144]	718	884	872	750	8,758
Pharmaceuticals and pharmacy supplies[41451]	3,435	3,648	3,786	3,322	41,839
Toiletries, cosmetics and sundries[41452]	633	696	660	709	7,778
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>7,098</b>	<b>8,401</b>	<b>8,968</b>	<b>7,903</b>	<b>98,791</b>
Motor vehicle[4151]	5,359	6,066	6,526	5,862	74,436
New motor vehicle parts and accessories[4152]	1,695	2,279	2,388	1,993	23,771
Used motor vehicle parts and accessories[4153]	43	56	54	48	585
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>5,615</b>	<b>7,124</b>	<b>7,499</b>	<b>7,015</b>	<b>81,554</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	1,849	2,286	2,418	2,209	25,678
Metal service centres[4162]	1,394	1,610	1,639	1,536	18,834
Lumber, millwork, hardware and other building supplies[4163]	2,372	3,228	3,441	3,271	37,043
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>10,844</b>	<b>11,539</b>	<b>11,461</b>	<b>10,621</b>	<b>128,149</b>
Farm, lawn and garden machinery and equipment[4171]	988	1,066	1,515	1,241	14,712
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	3,539	3,783	3,958	3,645	44,487
Computer and communications equipment and supplies[4173]	3,929	4,011	3,368	3,219	39,071
Other machinery, equipment and supplies[4179]	2,388	2,679	2,621	2,516	29,880
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>5,412</b>	<b>6,024</b>	<b>6,072</b>	<b>5,720</b>	<b>77,473</b>
Recyclable material[4181]	580	687	691	671	8,585
Paper, paper product and disposable plastic product[4182]	786	913	931	893	10,704
Agricultural supplies[4183]	1,101	1,135	1,359	1,118	20,914
Chemical (except agricultural) and allied product[4184]	996	1,193	1,220	1,151	14,372
Other miscellaneous[4189]	1,949	2,096	1,871	1,887	22,897
<b>Regions</b>					
Newfoundland and Labrador	317	333	375	331	4,078
Prince Edward Island	46	47	53	42	566
Nova Scotia	642	710	779	719	8,513
New Brunswick	443	498	547	490	5,968
Quebec	8,476	9,895	10,298	9,613	112,878
Ontario	22,913	25,304	25,022	23,274	286,069
Manitoba	1,143	1,332	1,432	1,271	16,040
Saskatchewan	1,419	1,507	1,803	1,562	22,074
Alberta	6,077	6,699	7,040	6,312	77,697
British Columbia	4,183	4,770	5,005	4,504	54,559
Yukon	9	11	14	14	155
Northwest Territories	56	53	53	47	713
Nunavut	7	13	12	13	100

**Note(s):** NAICS: North American Industry Classification System Canada

Table 2-2

## Wholesale merchants — Sales, by NAICS and region, not seasonally adjusted — Percentage change from previous year

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October 2012	September 2012	Year-to-date 2012
	percent				
<b>NAICS - Canada</b>					
<b>Wholesale trade[41]</b>	<b>-2.2</b>	<b>2.5</b>	<b>6.8</b>	<b>-3.0</b>	<b>4.4</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>0.3</b>	<b>-7.5</b>	<b>-12.2</b>	<b>-19.2</b>	<b>-0.9</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>-2.2</b>	<b>0.8</b>	<b>6.7</b>	<b>0.1</b>	<b>4.0</b>
Food[4131]	-1.9	1.3	6.5	1.0	4.2
Beverage[4132]	-3.8	-3.7	10.2	-6.0	4.6
Cigarette and tobacco product[4133]	-6.2	-2.5	6.8	-8.0	0.3
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>-4.7</b>	<b>-3.2</b>	<b>4.2</b>	<b>-7.3</b>	<b>0.0</b>
Textile, clothing and footwear[4141]	-3.0	-1.5	7.9	-7.3	0.1
Home entertainment equipment and household appliance[4142]	-9.4	-3.1	-3.5	-11.6	0.3
Home furnishings[4143]	-7.4	2.1	15.4	9.0	6.7
Personal goods[4144]	0.3	-11.9	1.8	-11.0	-4.3
Pharmaceuticals and pharmacy supplies[41451]	-3.9	-2.0	6.5	-7.8	0.4
Toiletries, cosmetics and sundries[41452]	-7.9	-3.0	-7.6	-5.1	-1.6
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>5.0</b>	<b>11.9</b>	<b>15.3</b>	<b>0.6</b>	<b>11.5</b>
Motor vehicle[4151]	7.3	14.0	15.3	1.1	12.8
New motor vehicle parts and accessories[4152]	-1.5	6.7	15.2	-0.6	7.9
Used motor vehicle parts and accessories[4153]	0.0	16.8	24.2	1.7	1.3
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>2.3</b>	<b>4.8</b>	<b>10.6</b>	<b>-2.4</b>	<b>5.2</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	-1.4	0.4	5.9	-6.2	2.4
Metal service centres[4162]	7.7	5.4	14.7	5.4	12.9
Lumber, millwork, hardware and other building supplies[4163]	2.4	7.9	12.1	-3.1	3.5
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>-2.1</b>	<b>6.7</b>	<b>11.4</b>	<b>2.5</b>	<b>7.4</b>
Farm, lawn and garden machinery and equipment[4171]	10.0	11.0	9.2	2.3	3.9
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	-8.3	-2.3	7.4	-3.7	7.5
Computer and communications equipment and supplies[4173]	1.6	17.9	18.4	13.3	11.0
Other machinery, equipment and supplies[4179]	-2.6	4.0	10.5	-0.3	4.5
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>-11.7</b>	<b>-7.0</b>	<b>-9.1</b>	<b>-14.2</b>	<b>-2.9</b>
Recyclable material[4181]	-27.7	-21.1	-25.5	-27.9	-18.2
Paper, paper product and disposable plastic product[4182]	-10.6	-4.2	-2.7	-9.4	-2.9
Agricultural supplies[4183]	-10.2	-14.4	-14.7	-18.8	3.3
Chemical (except agricultural) and allied product[4184]	-8.4	-0.3	1.3	-6.2	4.6
Other miscellaneous[4189]	-8.6	-1.7	-6.3	-12.3	-5.6
<b>Regions</b>					
Newfoundland and Labrador	-3.7	0.2	12.0	-3.5	3.5
Prince Edward Island	1.3	-2.2	3.2	-10.4	-0.8
Nova Scotia	-4.0	2.9	11.0	2.5	8.3
New Brunswick	-4.9	-0.3	8.7	-5.0	0.7
Quebec	-2.3	2.3	8.8	0.0	4.8
Ontario	-2.0	2.6	5.2	-4.5	2.5
Manitoba	-4.3	9.3	4.2	-1.6	6.1
Saskatchewan	-9.9	-11.6	-5.8	-13.3	2.9
Alberta	-1.0	5.2	10.0	0.9	11.0
British Columbia	-0.4	2.8	11.0	-3.4	4.9
Yukon	0.5	-31.2	31.1	-12.5	6.8
Northwest Territories	-4.3	2.7	7.0	11.3	17.8
Nunavut	49.6	242.9	233.0	53.9	51.7

Note(s): NAICS: North American Industry Classification System Canada

**Table 3-1**  
**Wholesale merchants — Inventories, by NAICS, seasonally adjusted — Inventories**

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October <sup>r</sup> 2012	September <sup>r</sup> 2012
	millions of dollars			
<b>NAICS - Canada</b>				
<b>Wholesale trade[41]</b>	<b>60,722</b>	<b>61,070</b>	<b>61,430</b>	<b>61,380</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>173</b>	<b>169</b>	<b>177</b>	<b>171</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>5,636</b>	<b>5,612</b>	<b>5,605</b>	<b>5,564</b>
Food[4131]	5,095	5,067	5,041	5,011
Beverage[4132]	323	318	327	323
Cigarette and tobacco product[4133]	218	227	237	230
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>10,258</b>	<b>10,321</b>	<b>10,364</b>	<b>10,501</b>
Textile, clothing and footwear[4141]	1,817	1,818	1,847	1,840
Home entertainment equipment and household appliance[4142]	736	717	691	721
Home furnishings[4143]	984	968	962	990
Personal goods[4144]	1,363	1,442	1,469	1,542
Pharmaceuticals and pharmacy supplies[41451]	4,710	4,718	4,727	4,702
Toiletries, cosmetics and sundries[41452]	648	659	668	706
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>8,053</b>	<b>8,157</b>	<b>8,284</b>	<b>8,317</b>
Motor vehicle[4151]	4,125	4,248	4,372	4,374
New motor vehicle parts and accessories[4152]	3,819	3,799	3,805	3,835
Used motor vehicle parts and accessories[4153]	109	110	107	108
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>11,321</b>	<b>11,250</b>	<b>11,198</b>	<b>11,270</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	3,107	3,148	3,143	3,131
Metal service centres[4162]	3,389	3,299	3,221	3,298
Lumber, millwork, hardware and other building supplies[4163]	4,825	4,803	4,834	4,841
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>17,804</b>	<b>18,087</b>	<b>18,208</b>	<b>18,058</b>
Farm, lawn and garden machinery and equipment[4171]	3,770	3,764	3,705	3,727
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	8,830	9,206	9,461	9,303
Computer and communications equipment and supplies[4173]	1,838	1,772	1,715	1,662
Other machinery, equipment and supplies[4179]	3,367	3,345	3,327	3,366
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>7,476</b>	<b>7,474</b>	<b>7,593</b>	<b>7,499</b>
Recyclable material[4181]	580	561	562	609
Paper, paper product and disposable plastic product[4182]	705	718	709	717
Agricultural supplies[4183]	2,616	2,651	2,747	2,632
Chemical (except agricultural) and allied product[4184]	1,012	1,063	1,107	1,152
Other miscellaneous[4189]	2,562	2,479	2,468	2,388

**Note(s):** NAICS: North American Industry Classification System Canada

**Table 3-2**  
**Wholesale merchants — Inventories, by NAICS, seasonally adjusted — Percentage change from previous month**

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October <sup>r</sup> 2012	September <sup>r</sup> 2012
	percent			
<b>NAICS - Canada</b>				
<b>Wholesale trade[41]</b>	<b>-0.6</b>	<b>-0.6</b>	<b>0.1</b>	<b>-0.4</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>2.4</b>	<b>-4.2</b>	<b>3.2</b>	<b>11.2</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>0.4</b>	<b>0.1</b>	<b>0.7</b>	<b>0.8</b>
Food[4131]	0.6	0.5	0.6	0.5
Beverage[4132]	1.5	-3.0	1.4	5.0
Cigarette and tobacco product[4133]	-4.1	-4.1	2.7	1.5
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>-0.6</b>	<b>-0.4</b>	<b>-1.3</b>	<b>-1.0</b>
Textile, clothing and footwear[4141]	0.0	-1.6	0.4	-0.5
Home entertainment equipment and household appliance[4142]	2.7	3.7	-4.0	-2.3
Home furnishings[4143]	1.6	0.6	-2.8	0.8
Personal goods[4144]	-5.5	-1.8	-4.7	0.4
Pharmaceuticals and pharmacy supplies[41451]	-0.2	-0.2	0.5	-1.9
Toiletries, cosmetics and sundries[41452]	-1.7	-1.4	-5.4	-1.3
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>-1.3</b>	<b>-1.5</b>	<b>-0.4</b>	<b>-4.0</b>
Motor vehicle[4151]	-2.9	-2.8	0.0	-8.2
New motor vehicle parts and accessories[4152]	0.5	-0.2	-0.8	1.2
Used motor vehicle parts and accessories[4153]	-0.6	2.7	-0.9	-5.2
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>0.6</b>	<b>0.5</b>	<b>-0.6</b>	<b>-0.3</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	-1.3	0.2	0.4	-0.7
Metal service centres[4162]	2.7	2.4	-2.3	-0.8
Lumber, millwork, hardware and other building supplies[4163]	0.5	-0.6	-0.1	0.2
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>-1.6</b>	<b>-0.7</b>	<b>0.8</b>	<b>0.8</b>
Farm, lawn and garden machinery and equipment[4171]	0.2	1.6	-0.6	2.5
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	-4.1	-2.7	1.7	1.1
Computer and communications equipment and supplies[4173]	3.7	3.3	3.2	2.5
Other machinery, equipment and supplies[4179]	0.6	0.5	-1.2	-2.7
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>0.0</b>	<b>-1.6</b>	<b>1.3</b>	<b>0.7</b>
Recyclable material[4181]	3.4	0.0	-7.8	3.9
Paper, paper product and disposable plastic product[4182]	-1.9	1.3	-1.1	-1.1
Agricultural supplies[4183]	-1.3	-3.5	4.3	0.0
Chemical (except agricultural) and allied product[4184]	-4.8	-4.0	-3.9	2.9
Other miscellaneous[4189]	3.3	0.4	3.3	0.3

**Note(s):** NAICS: North American Industry Classification System Canada

**Table 3-3**  
**Wholesale merchants — Inventories, by NAICS, seasonally adjusted — Percentage change from previous year**

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October <sup>r</sup> 2012	September <sup>r</sup> 2012
	percent			
<b>NAICS - Canada</b>				
<b>Wholesale trade[41]</b>	<b>5.1</b>	<b>7.3</b>	<b>7.7</b>	<b>8.1</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>-18.1</b>	<b>-17.7</b>	<b>-8.6</b>	<b>-6.0</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>4.1</b>	<b>5.0</b>	<b>5.4</b>	<b>7.3</b>
Food[4131]	3.5	4.4	4.8	6.9
Beverage[4132]	19.8	14.5	15.6	17.0
Cigarette and tobacco product[4133]	-1.6	5.3	5.9	3.6
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>0.3</b>	<b>4.9</b>	<b>5.0</b>	<b>5.5</b>
Textile, clothing and footwear[4141]	-6.5	-4.7	-2.9	-5.0
Home entertainment equipment and household appliance[4142]	1.6	1.9	-7.6	-6.2
Home furnishings[4143]	5.0	3.8	1.3	4.8
Personal goods[4144]	-1.4	9.2	3.9	12.8
Pharmaceuticals and pharmacy supplies[41451]	3.4	9.6	12.6	10.8
Toiletries, cosmetics and sundries[41452]	-6.1	-1.6	0.9	1.3
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>15.7</b>	<b>18.4</b>	<b>15.5</b>	<b>18.4</b>
Motor vehicle[4151]	15.5	16.6	13.5	18.0
New motor vehicle parts and accessories[4152]	16.1	20.6	18.0	18.7
Used motor vehicle parts and accessories[4153]	12.7	16.2	15.1	21.0
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>7.6</b>	<b>6.9</b>	<b>5.5</b>	<b>4.9</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	1.4	3.9	2.0	-0.6
Metal service centres[4162]	12.2	10.7	7.5	9.4
Lumber, millwork, hardware and other building supplies[4163]	8.7	6.3	6.6	5.7
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>8.0</b>	<b>10.5</b>	<b>11.6</b>	<b>11.4</b>
Farm, lawn and garden machinery and equipment[4171]	9.6	11.9	11.2	13.4
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	6.3	11.6	15.3	14.5
Computer and communications equipment and supplies[4173]	22.2	19.3	16.3	13.4
Other machinery, equipment and supplies[4179]	4.4	2.2	1.0	0.9
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>-5.8</b>	<b>-3.3</b>	<b>0.7</b>	<b>0.4</b>
Recyclable material[4181]	0.1	-14.4	-9.2	-3.5
Paper, paper product and disposable plastic product[4182]	-7.0	-5.4	-6.6	-4.4
Agricultural supplies[4183]	-14.8	-5.8	0.1	-0.6
Chemical (except agricultural) and allied product[4184]	3.2	10.5	15.0	25.1
Other miscellaneous[4189]	0.6	-2.1	0.5	-5.1

**Note(s):** NAICS: North American Industry Classification System Canada

**Table 4-1**  
**Wholesale merchants — Inventories, by NAICS, not seasonally adjusted — Inventories**

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October 2012	September 2012
	millions of dollars			
<b>NAICS - Canada</b>				
<b>Wholesale trade[41]</b>	<b>60,078</b>	<b>60,355</b>	<b>60,790</b>	<b>61,073</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>159</b>	<b>167</b>	<b>186</b>	<b>179</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>5,615</b>	<b>5,703</b>	<b>5,630</b>	<b>5,593</b>
Food[4131]	5,096	5,177	5,057	5,025
Beverage[4132]	286	309	343	347
Cigarette and tobacco product[4133]	233	218	230	221
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>10,243</b>	<b>10,498</b>	<b>10,366</b>	<b>10,570</b>
Textile, clothing and footwear[4141]	1,774	1,665	1,780	1,841
Home entertainment equipment and household appliance[4142]	709	817	836	807
Home furnishings[4143]	962	953	979	1,016
Personal goods[4144]	1,363	1,442	1,469	1,542
Pharmaceuticals and pharmacy supplies[41451]	4,789	4,963	4,634	4,659
Toiletries, cosmetics and sundries[41452]	648	659	668	706
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>7,839</b>	<b>7,881</b>	<b>8,272</b>	<b>8,414</b>
Motor vehicle[4151]	4,081	4,116	4,312	4,325
New motor vehicle parts and accessories[4152]	3,649	3,658	3,855	3,985
Used motor vehicle parts and accessories[4153]	108	108	105	104
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>11,130</b>	<b>10,990</b>	<b>11,064</b>	<b>11,230</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	3,061	3,106	3,152	3,146
Metal service centres[4162]	3,389	3,299	3,221	3,298
Lumber, millwork, hardware and other building supplies[4163]	4,680	4,585	4,690	4,786
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>17,605</b>	<b>17,929</b>	<b>17,981</b>	<b>17,941</b>
Farm, lawn and garden machinery and equipment[4171]	3,629	3,571	3,472	3,663
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	8,830	9,206	9,461	9,303
Computer and communications equipment and supplies[4173]	1,862	1,815	1,729	1,607
Other machinery, equipment and supplies[4179]	3,284	3,338	3,319	3,369
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>7,487</b>	<b>7,186</b>	<b>7,292</b>	<b>7,145</b>
Recyclable material[4181]	580	561	562	609
Paper, paper product and disposable plastic product[4182]	728	718	709	712
Agricultural supplies[4183]	2,720	2,514	2,457	2,240
Chemical (except agricultural) and allied product[4184]	1,042	1,032	1,081	1,124
Other miscellaneous[4189]	2,417	2,361	2,483	2,461

**Note(s):** NAICS: North American Industry Classification System Canada

**Table 4-2**  
**Wholesale merchants — Inventories, by NAICS, not seasonally adjusted — Percentage change from previous year**

	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October 2012	September 2012
	percent			
<b>NAICS - Canada</b>				
<b>Wholesale trade[41]</b>	<b>4.9</b>	<b>7.2</b>	<b>7.9</b>	<b>8.3</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>-15.7</b>	<b>-17.6</b>	<b>-7.3</b>	<b>-7.0</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>4.1</b>	<b>4.9</b>	<b>5.6</b>	<b>8.0</b>
Food[4131]	3.9	4.6	4.9	7.4
Beverage[4132]	16.6	12.5	16.4	20.3
Cigarette and tobacco product[4133]	-4.2	3.5	8.1	3.3
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>-0.1</b>	<b>4.8</b>	<b>4.4</b>	<b>5.1</b>
Textile, clothing and footwear[4141]	-6.9	-5.6	-3.2	-6.0
Home entertainment equipment and household appliance[4142]	1.0	2.5	-8.6	-6.6
Home furnishings[4143]	4.8	2.9	0.3	5.2
Personal goods[4144]	-1.4	9.2	3.9	12.8
Pharmaceuticals and pharmacy supplies[41451]	2.8	9.4	12.3	10.9
Toiletries, cosmetics and sundries[41452]	-6.1	-1.6	0.9	1.3
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>13.4</b>	<b>17.3</b>	<b>17.1</b>	<b>19.9</b>
Motor vehicle[4151]	12.0	15.9	16.1	19.3
New motor vehicle parts and accessories[4152]	14.9	19.0	18.3	20.5
Used motor vehicle parts and accessories[4153]	12.0	16.5	14.1	21.4
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>7.4</b>	<b>6.9</b>	<b>5.6</b>	<b>5.1</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	1.1	4.1	2.0	-0.7
Metal service centres[4162]	12.2	10.7	7.5	9.4
Lumber, millwork, hardware and other building supplies[4163]	8.4	6.2	6.9	6.3
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>8.1</b>	<b>10.6</b>	<b>11.4</b>	<b>11.6</b>
Farm, lawn and garden machinery and equipment[4171]	10.1	14.2	11.8	15.6
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	6.3	11.6	15.3	14.5
Computer and communications equipment and supplies[4173]	22.8	17.6	14.6	11.1
Other machinery, equipment and supplies[4179]	3.6	1.5	-0.1	0.7
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>-5.1</b>	<b>-3.1</b>	<b>1.3</b>	<b>-0.4</b>
Recyclable material[4181]	0.1	-14.4	-9.2	-3.5
Paper, paper product and disposable plastic product[4182]	-6.9	-4.5	-6.3	-3.6
Agricultural supplies[4183]	-13.8	-5.2	1.2	-1.9
Chemical (except agricultural) and allied product[4184]	2.2	9.9	16.8	28.0
Other miscellaneous[4189]	2.8	-2.5	0.6	-6.9

**Note(s):** NAICS: North American Industry Classification System Canada

**Table 5-1**  
**Wholesale merchants — Inventories/sales ratio, seasonally adjusted, by NAICS — Current period**

	Inventories/sales ratio			
	December <sup>p</sup> 2012	November <sup>r</sup> 2012	October <sup>r</sup> 2012	September <sup>r</sup> 2012
	percent			
<b>NAICS - Canada</b>				
<b>Wholesale trade[41]</b>	<b>1.24</b>	<b>1.23</b>	<b>1.25</b>	<b>1.26</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>0.28</b>	<b>0.29</b>	<b>0.31</b>	<b>0.33</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>0.60</b>	<b>0.60</b>	<b>0.59</b>	<b>0.59</b>
Food[4131]	0.60	0.60	0.59	0.59
Beverage[4132]	0.68	0.68	0.69	0.69
Cigarette and tobacco product[4133]	0.44	0.45	0.47	0.46
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>1.48</b>	<b>1.48</b>	<b>1.49</b>	<b>1.54</b>
Textile, clothing and footwear[4141]	1.97	1.96	1.96	1.99
Home entertainment equipment and household appliance[4142]	1.04	0.98	0.97	1.03
Home furnishings[4143]	2.22	2.12	2.04	2.08
Personal goods[4144]	1.92	2.08	2.05	2.19
Pharmaceuticals and pharmacy supplies[41451]	1.34	1.35	1.35	1.39
Toiletries, cosmetics and sundries[41452]	1.04	1.02	1.14	1.10
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>0.97</b>	<b>0.98</b>	<b>1.01</b>	<b>1.02</b>
Motor vehicle[4151]	0.66	0.68	0.71	0.71
New motor vehicle parts and accessories[4152]	1.88	1.86	1.89	1.98
Used motor vehicle parts and accessories[4153]	2.23	2.03	2.07	2.13
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>1.61</b>	<b>1.62</b>	<b>1.63</b>	<b>1.65</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	1.46	1.49	1.47	1.48
Metal service centres[4162]	2.07	2.06	2.06	2.10
Lumber, millwork, hardware and other building supplies[4163]	1.48	1.50	1.52	1.54
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>1.69</b>	<b>1.64</b>	<b>1.68</b>	<b>1.67</b>
Farm, lawn and garden machinery and equipment[4171]	2.98	2.93	2.86	3.01
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	2.44	2.51	2.56	2.50
Computer and communications equipment and supplies[4173]	0.57	0.50	0.52	0.50
Other machinery, equipment and supplies[4179]	1.38	1.33	1.32	1.33
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>1.21</b>	<b>1.20</b>	<b>1.23</b>	<b>1.20</b>
Recyclable material[4181]	0.87	0.83	0.87	0.87
Paper, paper product and disposable plastic product[4182]	0.81	0.82	0.82	0.80
Agricultural supplies[4183]	1.61	1.71	1.68	1.72
Chemical (except agricultural) and allied product[4184]	0.87	0.88	0.92	0.98
Other miscellaneous[4189]	1.37	1.29	1.33	1.24

**Note(s):** NAICS: North American Industry Classification System Canada



**Table 5-2**  
**Wholesale merchants — Inventories/sales ratio, seasonally adjusted, by NAICS — Historical**

	Inventories/sales ratio			
	December 2011	November 2011	October 2011	September 2011
	percent			
<b>NAICS - Canada</b>				
<b>Wholesale trade[41]</b>	<b>1.20</b>	<b>1.18</b>	<b>1.18</b>	<b>1.19</b>
<b>Farm product wholesaler-distributors[411]</b>	<b>0.35</b>	<b>0.30</b>	<b>0.30</b>	<b>0.29</b>
<b>Food, beverage and tobacco wholesaler-distributors[413]</b>	<b>0.58</b>	<b>0.58</b>	<b>0.57</b>	<b>0.56</b>
Food[4131]	0.59	0.58	0.58	0.57
Beverage[4132]	0.58	0.59	0.61	0.60
Cigarette and tobacco product[4133]	0.43	0.44	0.44	0.43
<b>Personal and household goods wholesaler-distributors[414]</b>	<b>1.45</b>	<b>1.39</b>	<b>1.40</b>	<b>1.41</b>
Textile, clothing and footwear[4141]	2.08	2.07	2.07	2.03
Home entertainment equipment and household appliance[4142]	0.94	0.92	0.93	1.01
Home furnishings[4143]	2.06	2.07	2.15	2.27
Personal goods[4144]	2.00	1.73	1.91	1.80
Pharmaceuticals and pharmacy supplies[41451]	1.29	1.22	1.21	1.21
Toiletries, cosmetics and sundries[41452]	1.03	0.99	1.01	1.07
<b>Motor vehicle and parts wholesaler-distributors[415]</b>	<b>0.90</b>	<b>0.92</b>	<b>0.96</b>	<b>0.94</b>
Motor vehicle[4151]	0.63	0.66	0.69	0.66
New motor vehicle parts and accessories[4152]	1.65	1.67	1.73	1.79
Used motor vehicle parts and accessories[4153]	2.08	1.99	2.06	1.92
<b>Building material and supplies wholesaler-distributors[416]</b>	<b>1.60</b>	<b>1.61</b>	<b>1.62</b>	<b>1.66</b>
Electrical, plumbing, heating and air-conditioning equipment and supplies[4161]	1.48	1.45	1.44	1.50
Metal service centres[4162]	2.02	2.02	2.10	2.14
Lumber, millwork, hardware and other building supplies[4163]	1.47	1.51	1.52	1.54
<b>Machinery, equipment and supplies wholesaler-distributors[417]</b>	<b>1.58</b>	<b>1.58</b>	<b>1.61</b>	<b>1.61</b>
Farm, lawn and garden machinery and equipment[4171]	2.95	2.81	2.79	2.74
Construction, forestry, mining, and industrial machinery, equipment and supplies[4172]	2.19	2.19	2.25	2.24
Computer and communications equipment and supplies[4173]	0.49	0.49	0.51	0.52
Other machinery, equipment and supplies[4179]	1.35	1.36	1.36	1.38
<b>Miscellaneous wholesaler-distributors[418]</b>	<b>1.21</b>	<b>1.17</b>	<b>1.08</b>	<b>1.09</b>
Recyclable material[4181]	0.66	0.73	0.68	0.72
Paper, paper product and disposable plastic product[4182]	0.82	0.83	0.82	0.81
Agricultural supplies[4183]	1.92	1.75	1.48	1.53
Chemical (except agricultural) and allied product[4184]	0.81	0.79	0.77	0.77
Other miscellaneous[4189]	1.32	1.30	1.20	1.19

**Note(s):** NAICS: North American Industry Classification System Canada

## Objective, uses and users

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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

## Concepts, variables and classifications

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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 IV. 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.

Sales are 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.

Sales in volume: The value of wholesale trade is measured in two ways; including the effects of price change on sales and net of the effects of price change. The first measure is referred to as wholesale trade in current dollars and the latter as wholesale trade in volume. The method of calculating the current dollar estimate is to aggregate

the weighted value of sales for all wholesale outlets. The method of calculating the volume estimate is to first adjust the sales values to a base year, using the price indexes, and then sum up the resulting values.

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 grouped into industries according to similarity in production processes used to produce goods and services.

Estimates appear for 24 industries based on the 2007 North American Industrial Classification System (NAICS) industries. The 24 industries are further aggregated to 7 sub-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

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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 annualized sales that have a Goods and Services Tax (GST) account or annual revenue coming from individual income tax.

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, excluding unincorporated businesses with no employees and with annual sales less than \$30,000, that are classified to the wholesale sector using the North American Industry Classification System (NAICS) (approximately 90,000 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 for which economic signals indicate a null or missing revenue, and establishments in the following non-covered NAICS:

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

## Sampling

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The MWTS sample consists of 7,500 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 industrial groups (mainly, but not only four digit level NAICS), 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 annual profiled revenue, the GST sales expressed on an annual basis, and the declared tax revenue (T1 or T2).

The size strata consist of one take-all (census), at most two take-some (partially sampled) strata, and one take-none (non-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 ten 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 industrial groups 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 new units are added (births) to the sample. 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

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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

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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 non-response 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:

**Figure 1**

### **Weighted rates: Survey response rate**

#### **Weighted rates:**

$$\text{Survey Response rate (estimation)} = \frac{\text{Sum of weighted sales of units with response status } i}{\text{Sum of survey weighted sales}}$$

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.



Figure 2

**Weighted rates: Admin Response rate**

$$\text{Admin Response rate (estimation)} = \frac{\text{Sum of weighted sales of units with response status } ii}{\text{Sum of administrative weighted sales}}$$

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

Figure 3

**Weighted rates: Total Response rate**

$$\text{Total Response rate (estimation)} = \frac{\text{Sum of weighted sales of units with response status } i \text{ or response status } ii}{\text{Sum of all weighted sales}}$$

Figure 4

**Unweighted rates: Survey Response rate****Unweighted rates:**

$$\text{Survey Response rate (collection)} = \frac{\text{Number of questionnaires with response status } iii}{\text{Number of questionnaires with response status } iv}$$

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.

Figure 5

**Unweighted rates: Admin Response rate**

$$\text{Admin Response rate (extraction)} = \frac{\text{Number of questionnaires with response status } vi}{\text{Number of questionnaires with response status } vii}$$

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 administrative data source, units that were not contacted and other types of nonrespondent units.

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

Figure 6

**Unweighted rates: Collection Results Rate**

$$\text{Collection Results Rate} = \frac{\text{Number of questionnaires with response status } iii}{\text{Number of questionnaires with response status } viii}$$

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.

**Figure 7**

**Unweighted rates: Extraction Results Rate**

$$\text{Extraction Results Rate} = \frac{\text{Number of questionnaires with response status } ix}{\text{Number of questionnaires with response status } vii}$$

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 industrial 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, 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 uses the previous month's values, the month-to-month and year-to-year changes in similar size establishments which are surveyed. For more information on the methodology used for modeling sales from administrative data sources, refer to 'Monthly Wholesale Trade 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

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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

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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 Hidioglou-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 data is analyzed. When the respondent's ratio differs significantly from ratios of respondents who are similar in terms of industrial 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 industrial 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 Hidioglou-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

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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 where sales are derived from monthly GST data are also imputed by the MWTS imputation systems. The imputed values are calculated using the same imputation methods that are in place for missing data from non-respondents.

## Estimation

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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. This stage uses Statistics Canada's Generalized Estimation System (GES).

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 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 non-survey portion, the sales are estimated with statistical models using monthly GST sales.

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.

## Revisions and seasonal adjustment

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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. Time series contain the elements essential to the description, explanation and forecasting of the behaviour of an economic phenomenon: "They are statistical records of the evolution of economic processes through time."<sup>1</sup> Economic time series such as the Monthly Wholesale Trade Survey 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 trend-cycle 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 and institutional factors (attributable to social conventions or administrative rules; e.g., Christmas).

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 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 a given month 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, major power blackout or other unexpected events causing variations in respondents' 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. 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.

Since April 2008, Monthly Wholesale Trade Survey data are seasonally adjusted using the X-12-ARIMA<sup>2</sup> software. The technique that is used essentially consists of first correcting the initial series for all sorts of undesirable effects, such as the trading-day and the Easter holiday effects, by a module called regARIMA. These effects are estimated

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1. A Note on the Seasonal adjustment of Economic Time Series», Canadian Statistical Review, August 1974.

2. For more information, see X-12-ARIMA Reference Manual Version 0.3 (2007), U.S. Census Bureau.

using regression models with ARIMA errors (auto-regressive integrated moving average models). The series can also be extrapolated for at least one year by using the model. Subsequently, the raw series—pre-adjusted and extrapolated if applicable—is seasonally adjusted by the X-11 method.

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<sup>3</sup>. The moving averages used to estimate the main components—the trend and seasonality—are primarily smoothing tools designed to eliminate an 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 during the seasonal adjustment. Outlying data points can also be detected and corrected in advance, within the regARIMA module.

Lastly, the annual totals of the seasonally adjusted series are forced to the annual totals of the original series.

Unfortunately, seasonal adjustment removes the sub-annual additivity of a system of series; small discrepancies can be observed between the sum of seasonally adjusted series and the *direct* seasonal adjustment of their total. To insure or restore additivity in a system of series, a reconciliation process is applied or *indirect* seasonal adjustment is used, i.e. the seasonal adjustment of a total is derived by the summation of the individually seasonally adjusted series.

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



## Data quality evaluation

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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:

**Figure 8**

### CV (X)

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

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

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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 confidentiality 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.

# Appendix I

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<http://stds.statcan.gc.ca/naics-scian/2007/cs-rc-eng.asp?criteria=41>