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Real Import and Export Adjustments to Account for Exchange Rate Fluctuations

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Real Import and Export Adjustments to Account for Exchange Rate Fluctuations

Statistics Canada produces monthly import and export merchandise trade price indexes. For the majority of these prices, Statistics Canada uses a variety of proxy measures to derive the price index in lieu of collecting observed import and export prices. The ability of these proxy measures to reflect international trade price movements during times of exchange rate volatility is limited. For this reason, the constant dollar trade estimates derived using these proxy price indexes have been refined with constant dollar adjustments following the appreciation of the Canadian exchange rate beginning at the end of 2002. This paper explains the rationale and methodology behind these adjustments, as well as the impact on published trade and GDP estimates.

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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^S** 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

Real Import and Export Adjustments to Account for Exchange Rate Fluctuations

Background and rationale behind the adjustment

International trade is an integral part of the Canadian economy. Canadian firms ship goods and provide services to export markets while Canadian consumers and firms rely on foreign producers to supply goods and services for final consumption, as well as to provide inputs into domestic production. In 2008, Canadian exports totalled \$562 billion, while imports totalled \$537 billion, relative to an aggregate gross domestic product of \$1,600 billion.

Effectively measuring these transactions is central to monitoring Canada's trade performance and balance of payments, as well as to the derivation of the expenditure-based gross domestic product (GDP) estimate. GDP estimates serve to measure the total value of production in the Canadian economy and the growth in this production over time. This growth measure is derived both in terms of the value at the current prices of produced goods and services, as well as the real or volume growth of this output. The real measure requires the deflation of GDP components, which removes price or inflationary effects over the period. The deflation process for international trade statistics relies on dividing the import and export value series by appropriate price indexes to arrive at volume, or real, movements.

Statistics Canada produces monthly import and export merchandise trade price indexes which are used in this deflation. For the majority of these indexes, Statistics Canada uses a variety of proxy measures to derive these indexes in lieu of collecting observed import and export prices. These proxy measures include average prices derived from customs documentation, Canadian domestic prices from Statistics Canada's Industrial Product Price Index (IPPI) program, or U.S. domestic price indexes adjusted for the Canada/U.S. exchange rate. In the case of the latter, 100% of the fluctuation in the exchange rate is applied to the U.S. domestic indexes to arrive at the Canadian import price variation.

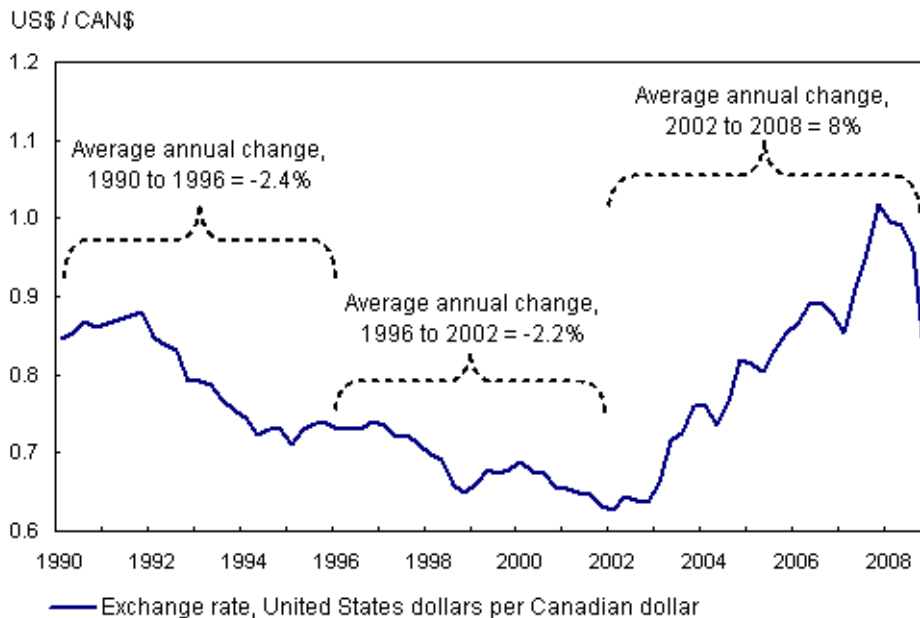
These methodologies, therefore, are based on assumptions concerning the relationship between domestic prices, international trade prices and exchange rates. Namely,

- export and domestic prices behave in the same manner
- Canadian importers are subject to the same price changes as U.S. domestic purchasers, denominated in U.S. dollars.

Although these assumptions are reasonable during times of exchange rate stability, a review was triggered by the rapid appreciation of the Canadian dollar, which began in 2002. At that time, imbalances between the supply of goods (production plus imports) and the disposition of goods (consumption, exports, inventories and intermediate use) became apparent. This resulted in differences between expenditure-based and production-based gross domestic product estimates. The result of that research indicated that during times of large exchange rate fluctuations, export and domestic prices behave differently, and that Canadian importers are not subject to the same price changes as U.S. domestic purchasers. Based on this research, Statistics Canada has been adjusting its aggregate estimates of real exports and real imports. These adjustments serve to improve the overall coherence of the real expenditure- and real production-based accounts¹. The purpose of this note is to explain the methodology behind these adjustments. The impact these adjustments have on estimates of real merchandise trade and gross domestic product is provided in Appendix 1.

1. The export volume adjustment was incorporated with the first quarter release of gross domestic product in 2004. The import volume adjustment was incorporated in two phases, one in the first quarter of 2007 (included from 2003 forward), and a second in the first quarter of 2008 (included from 2004 forward).

Chart 1
Exchange rate



Note: Average annual growth calculated as total change in exchange rate over the period, divided by the numbers of years.

Adjustment to real exports

The adjustment to real exports is based on the analysis of three sets of information.

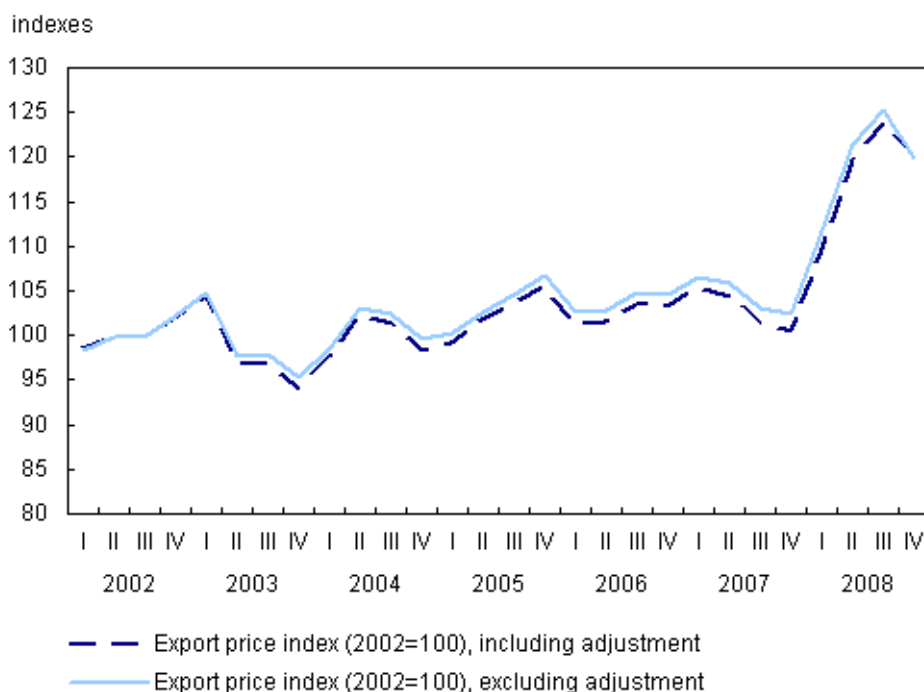
1. A comparison is made between constant dollar exports and the actual quantity² of units exported. This comparison is performed for a subset of commodities (Appendix 2). The commodities selected for the comparison are relatively homogeneous over time, consistently report quantity information on customs documentation, and are currently deflated using IPPI's (domestic prices). The movements in export quantities are compared with the movements in the constant dollar exports for the same commodities. Divergences between these two series have been found to correlate strongly with exchange rate fluctuations and indicate that in times of Canadian dollar appreciation, growth measured through quantities outpaces the growth of the constant dollar estimate for the same series. The implication is that the constant dollar growth estimate is too low, and that the true export price growth is lower than the price growth of the domestic IPPI when the Canadian dollar is appreciating. When the Canadian dollar is depreciating, the opposite is true. The difference in growth rates between the quantity series and the constant dollar export series (using the domestic IPPI) is used to derive the first component of the adjustment to real exports.
2. The second adjustment makes use of directly observed export prices which are available through the Industrial Product Price Index program (IPPI). Although the export prices used to produce these price indexes are not based on an adequate number of price quotes to be published, they are nevertheless analytically useful. For two machinery and equipment commodity prices (industrial machinery and agricultural machinery), the domestic prices are compared to specific machinery and equipment export prices to determine if an exchange rate driven bias exists. The research showed that divergences between the export prices and domestic prices for these commodities are correlated with exchange rate fluctuations.

2. Quantity as reported on the customs documentation.

3. Finally, a set of economy wide supply disposition models, as well as extensive coherence analysis between production and export estimates are used as an input into the adjustment to real exports.

Because the supply disposition analysis is focused on total exports rather than specific commodities, and because the results of the commodity level analysis are believed to be more accurate at the aggregate level, the three adjustments are combined together and applied at the aggregate level in the real export series 'other balance of payments adjustments'³. The price of the 'other balance of payments adjustments' series is also adjusted as a consequence. The effect of the adjustment on the aggregate merchandise exports price series is evident when comparing the implicit price with, and without, the adjustment.

Chart 2
Merchandise export price



Adjustment to real imports

The adjustment to real imports is derived from three sources.

1. The first adjustment is based on the timing difference between when goods imported to Canada were shipped from their country of origin and their date of arrival in Canada. Although imports may have been shipped prior to the month when they arrived in Canada, the current import prices are based solely on the foreign domestic price of the current month. For example, suppose a commodity was shipped in May and should correspond to a foreign price of 100. The commodity arrives in Canada in June, at which point the foreign price has risen to 110. Unadjusted, the value of the commodity would be deflated with the price index of 110. To address this issue, the aggregate import price deflator, excluding energy, is lagged and reconstructed to include 90% of the current month's price, and 10% from the previous month. The 90% to 10% weighting is based on research on transaction level import data, comparing when imports were shipped versus when they arrived in Canada⁴.

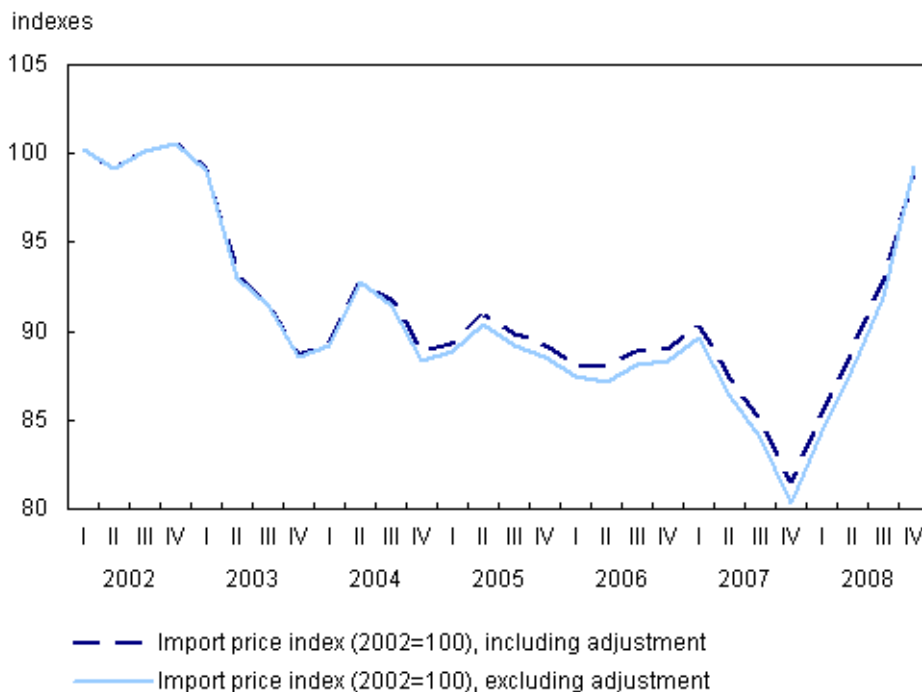
3. The other balance of payments adjustment nominal value series includes the Balance of Payments Division's estimates of inland freight, as well as adjustments for merchandise trade transactions not captured through customs documentation. Prior to the aggregate trade price adjustment, the export 'other balance of payments adjustments' series is deflated using adjustment-specific prices for inland freight and not captured trade transactions.

4. On-going research is preformed to verify the stability of this ratio.

2. Further, import prices based on U.S. domestic price indexes assume a 100% pass-through effect of all exchange rate fluctuations. Fixed contracts, or the ability of some foreign producers to take advantage of a strengthening Canadian currency to raise export prices relative to prices charged in their home country, lead to the need to re-examine the 100% pass-through assumption. Based on aggregate supply-disposition analysis of the Canadian economy, as well as analysis of individual import prices, an adjustment has been included which limits this pass-through to 96%.⁵ As previously mentioned, not all import commodities use foreign domestic price deflators; therefore this aggregate adjustment is applied to only 67% of the total import value. The 67% represents approximately the reliance of import prices on U.S. domestic prices and has been held constant over time.
3. A quantity versus constant dollar analysis, similar to that described for exports, and commodity balancing, is performed on the import side to refine the adjustment to total real imports.

Similar to the real export adjustment, these real import adjustments are combined together and included at the aggregated level in the real import series 'other balance of payments adjustments'⁶. There is an adjustment effect on the aggregate real merchandise imports series, and consequently, the aggregate merchandise import price series. This is evident when comparing the implicit price with, and without, the real import adjustment.

Chart 3
Merchandise import price



Impact on imports, exports and gross domestic product

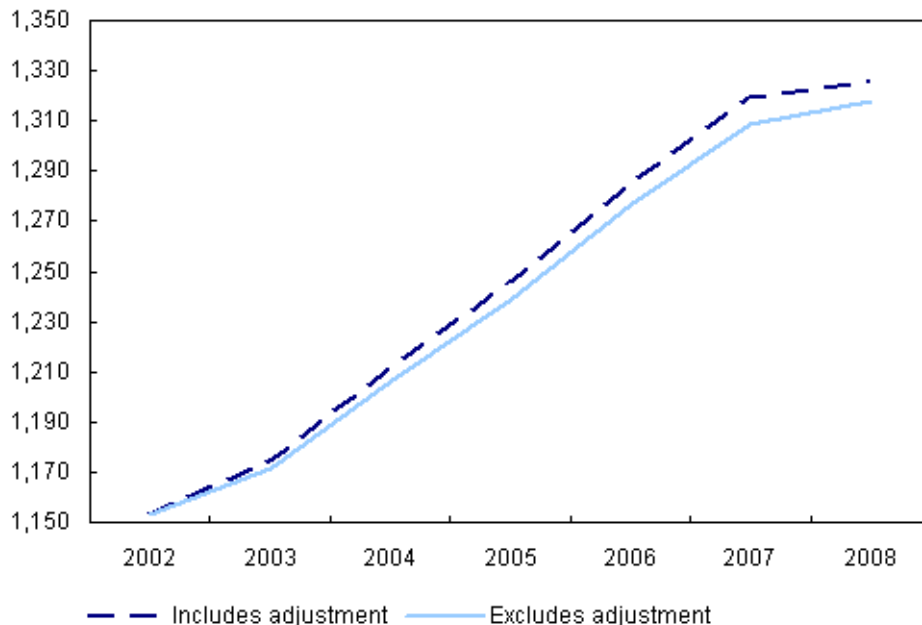
By comparing real aggregate export and import estimates, with and without these adjustments, we can see the impact on the external trade data. As expected, the adjustments serve to raise real export growth and diminish real import growth during times of Canadian dollar appreciation. Further, the magnitude of the effect on the export or

5. The estimate of exchange rate pass-through is reviewed each production cycle, based on newly available supply-use data.
 6. The other balance of payments adjustment nominal value series includes the Balance of Payments Division's estimates of inland freight, as well as adjustments for merchandise trade transactions not captured through customs documentation. Prior to the aggregate real trade adjustment, the import 'other balance of payments adjustments' series is deflated using an inland freight price.

import growth rate is closely related to the magnitude of appreciation or depreciation for that quarter. Given the overall appreciation of the exchange rate from the end of 2002 to 2007, the level of the adjustments also tended to increase over time. However, with the significant currency depreciation in the fourth quarter of 2008, the adjustments served to reduce real export growth, and increase real import growth. The effects on total GDP are less pronounced than those on external trade, but are nevertheless significant in several quarters. The detailed adjustments are provided in Appendix 1.

Chart 4
Gross domestic product (GDP)

billions of chained (2002) dollars



Appendix 1 Detailed adjustments to exports and imports

Data as published for the fourth quarter, 2008 release.

Table 1 Exports

Reference period	Exports including adjustments	Exports excluding adjustments	Export adjustments	Growth rate of exports including adjustments	Growth rate of exports excluding adjustments	Growth rate difference	CAN\$/US\$	Change in exchange rate
	2002 constant prices, seasonally adjusted at annual rates						exchange rate	percentage
	millions of dollars			percentage				
First quarter, 2002	411,604	411,874	-270	1.14	1.14	0.00	1.5944	0.89
Second quarter, 2002	410,248	410,521	-273	-0.33	-0.33	0.00	1.5542	-2.52
Third quarter, 2002	421,084	421,368	-284	2.64	2.64	0.00	1.5632	0.58
Fourth quarter, 2002	413,200	412,373	827	-1.87	-2.13	0.26	1.5695	0.40
First quarter, 2003	406,668	404,680	1,988	-1.58	-1.87	0.28	1.5098	-3.81
Second quarter, 2003	400,276	396,622	3,654	-1.57	-1.99	0.42	1.3984	-7.37
Third quarter, 2003	403,204	399,380	3,824	0.73	0.70	0.04	1.3801	-1.31
Fourth quarter, 2003	418,660	413,592	5,068	3.83	3.56	0.27	1.3158	-4.66
First quarter, 2004	414,672	410,235	4,438	-0.95	-0.81	-0.14	1.3178	0.15
Second quarter, 2004	435,280	431,702	3,578	4.97	5.23	-0.26	1.3595	3.17
Third quarter, 2004	436,100	431,531	4,569	0.19	-0.04	0.23	1.3072	-3.85
Fourth quarter, 2004	431,944	425,907	6,037	-0.95	-1.30	0.35	1.2207	-6.61
First quarter, 2005	431,648	426,539	5,109	-0.07	0.15	-0.22	1.2270	0.52
Second quarter, 2005	430,036	425,885	4,151	-0.37	-0.15	-0.22	1.2439	1.38
Third quarter, 2005	441,416	436,397	5,019	2.65	2.47	0.18	1.2015	-3.41
Fourth quarter, 2005	454,088	448,331	5,757	2.87	2.73	0.14	1.1732	-2.35
First quarter, 2006	446,492	440,304	6,188	-1.67	-1.79	0.12	1.1545	-1.59
Second quarter, 2006	438,952	432,791	6,161	-1.69	-1.71	0.02	1.1224	-2.79
Third quarter, 2006	440,556	435,066	5,490	0.37	0.53	-0.16	1.1212	-0.10
Fourth quarter, 2006	447,200	441,889	5,311	1.51	1.57	-0.06	1.1393	1.61
First quarter, 2007	451,852	447,012	4,840	1.04	1.16	-0.12	1.1716	2.84
Second quarter, 2007	453,120	446,700	6,420	0.28	-0.07	0.35	1.0981	-6.27
Third quarter, 2007	451,552	444,496	7,056	-0.35	-0.49	0.15	1.0446	-4.87
Fourth quarter, 2007 ¹	442,772	433,903	8,869	-1.94	-2.38	0.44	0.9818	-6.01
First quarter, 2008	428,492	420,550	7,942	-3.23	-3.08	-0.15	1.0041	2.27
Second quarter, 2008	423,100	415,950	7,150	-1.26	-1.09	-0.16	1.0100	0.59
Third quarter, 2008	418,380	413,068	5,312	-1.12	-0.69	-0.42	1.0418	3.15
Fourth quarter, 2008	390,416	389,965	451	-6.68	-5.59	-1.09	1.2125	16.38

1. During the fourth quarter of 2007, for example, there was an exchange rate appreciation of 6.01%. The export adjustment served to increase export growth by .44% during this period.

Table 2 Imports

Reference period	Imports including adjustments	Imports excluding adjustments	Import adjustments	Growth rate of imports including adjustments	Growth rate of imports excluding adjustments	Growth rate difference	CAN\$/US\$ exchange rate	Change in exchange rate percentage						
									2002 constant prices, seasonally adjusted at annual rates					
									millions of dollars	percentage				
First quarter, 2002	341,796	341,796	0	1.01	1.01	0.00	1.5944	0.89						
Second quarter, 2002	357,616	357,616	0	4.63	4.63	0.00	1.5542	-2.52						
Third quarter, 2002	363,780	363,780	0	1.72	1.72	0.00	1.5632	0.58						
Fourth quarter, 2002	363,720	363,720	0	-0.02	-0.02	0.00	1.5695	0.40						
First quarter, 2003	365,220	365,548	-328	0.41	0.50	-0.09	1.5098	-3.81						
Second quarter, 2003	366,296	367,216	-920	0.29	0.46	-0.16	1.3984	-7.37						
Third quarter, 2003	362,172	362,177	-5	-1.13	-1.37	0.25	1.3801	-1.31						
Fourth quarter, 2003	379,064	379,416	-352	4.66	4.76	-0.10	1.3158	-4.66						
First quarter, 2004	382,132	382,373	-241	0.81	0.78	0.03	1.3178	0.15						
Second quarter, 2004	396,260	396,230	30	3.70	3.62	0.07	1.3595	3.17						
Third quarter, 2004	409,268	410,537	-1,269	3.28	3.61	-0.33	1.3072	-3.85						
Fourth quarter, 2004	414,564	416,952	-2,388	1.29	1.56	-0.27	1.2207	-6.61						
First quarter, 2005	423,932	426,046	-2,114	2.26	2.18	0.08	1.2270	0.52						
Second quarter, 2005	423,748	426,010	-2,262	-0.04	-0.01	-0.04	1.2439	1.38						
Third quarter, 2005	433,868	437,132	-3,264	2.39	2.61	-0.22	1.2015	-3.41						
Fourth quarter, 2005	445,608	448,812	-3,204	2.71	2.67	0.03	1.1732	-2.35						
First quarter, 2006	444,136	447,654	-3,518	-0.33	-0.26	-0.07	1.1545	-1.59						
Second quarter, 2006	455,420	459,741	-4,321	2.54	2.70	-0.16	1.1224	-2.79						
Third quarter, 2006	462,404	466,187	-3,783	1.53	1.40	0.13	1.1212	-0.10						
Fourth quarter, 2006	464,832	468,210	-3,378	0.53	0.43	0.09	1.1393	1.61						
First quarter, 2007	466,568	470,019	-3,451	0.37	0.39	-0.01	1.1716	2.84						
Second quarter, 2007	470,148	475,142	-4,994	0.77	1.09	-0.32	1.0981	-6.27						
Third quarter, 2007	495,252	500,725	-5,473	5.34	5.38	-0.04	1.0446	-4.87						
Fourth quarter, 2007 ¹	501,392	507,696	-6,304	1.24	1.39	-0.15	0.9818	-6.01						
First quarter, 2008	490,112	495,294	-5,182	-2.25	-2.44	0.19	1.0041	2.27						
Second quarter, 2008	495,236	500,625	-5,389	1.05	1.08	-0.03	1.0100	0.59						
Third quarter, 2008	496,348	500,862	-4,514	0.22	0.05	0.18	1.0418	3.15						
Fourth quarter, 2008	457,148	455,632	1,516	-7.90	-9.03	1.13	1.2125	16.38						

1. During the fourth quarter of 2007, for example, there was an exchange rate appreciation of 6.01%. The import adjustment served to decrease import growth by .15% during this period.

Table 3 Gross domestic product (GDP), constant dollars

Reference period	GDP	GDP	GDP	Growth rate	Growth rate	Growth rate	CAN\$/US\$	Change in exchange rate
	including	excluding	adjustments	of GDP	of GDP	difference		
	adjustments	adjustments		including	excluding			
	2002 constant prices, seasonally adjusted at annual rates						exchange rate	percentage
	millions of dollars			percentage				
First quarter, 2002	1,140,386	1,140,656	-270	1.20	1.20	0.00	1.5944	0.89
Second quarter, 2002	1,147,298	1,147,571	-273	0.61	0.61	0.00	1.5542	-2.52
Third quarter, 2002	1,157,586	1,157,870	-284	0.90	0.90	0.00	1.5632	0.58
Fourth quarter, 2002	1,166,350	1,165,523	827	0.76	0.66	0.10	1.5695	0.40
First quarter, 2003	1,171,868	1,169,552	2,316	0.47	0.35	0.13	1.5098	-3.81
Second quarter, 2003	1,170,484	1,165,910	4,574	-0.12	-0.31	0.19	1.3984	-7.37
Third quarter, 2003	1,173,772	1,169,943	3,829	0.28	0.35	-0.06	1.3801	-1.31
Fourth quarter, 2003	1,186,416	1,180,995	5,421	1.08	0.94	0.13	1.3158	-4.66
First quarter, 2004	1,191,528	1,186,850	4,678	0.43	0.50	-0.06	1.3178	0.15
Second quarter, 2004	1,204,128	1,200,580	3,548	1.06	1.16	-0.10	1.3595	3.17
Third quarter, 2004	1,220,544	1,214,706	5,838	1.36	1.18	0.19	1.3072	-3.85
Fourth quarter, 2004	1,227,376	1,218,951	8,425	0.56	0.35	0.21	1.2207	-6.61
First quarter, 2005	1,230,024	1,222,801	7,223	0.22	0.32	-0.10	1.2270	0.52
Second quarter, 2005	1,236,668	1,230,255	6,413	0.54	0.61	-0.07	1.2439	1.38
Third quarter, 2005	1,251,512	1,243,229	8,283	1.20	1.05	0.15	1.2015	-3.41
Fourth quarter, 2005	1,264,688	1,255,728	8,960	1.05	1.01	0.05	1.1732	-2.35
First quarter, 2006	1,277,220	1,267,514	9,706	0.99	0.94	0.05	1.1545	-1.59
Second quarter, 2006	1,283,448	1,272,966	10,482	0.49	0.43	0.06	1.1224	-2.79
Third quarter, 2006	1,283,384	1,274,112	9,272	0.00	0.09	-0.09	1.1212	-0.10
Fourth quarter, 2006	1,290,020	1,281,330	8,690	0.52	0.57	-0.05	1.1393	1.61
First quarter, 2007	1,305,588	1,297,297	8,291	1.21	1.25	-0.04	1.1716	2.84
Second quarter, 2007	1,316,796	1,305,382	11,414	0.86	0.62	0.24	1.0981	-6.27
Third quarter, 2007	1,322,896	1,310,367	12,529	0.46	0.38	0.08	1.0446	-4.87
Fourth quarter, 2007 ¹	1,322,992	1,307,819	15,173	0.01	-0.19	0.20	0.9818	-6.01
First quarter, 2008	1,314,844	1,301,720	13,124	-0.62	-0.47	-0.15	1.0041	2.27
Second quarter, 2008	1,315,808	1,303,269	12,539	0.07	0.12	-0.05	1.0100	0.59
Third quarter, 2008	1,315,148	1,305,323	9,825	-0.05	0.16	-0.21	1.0418	3.15
Fourth quarter, 2008	1,307,380	1,308,445	-1,065	-0.59	0.24	-0.83	1.2125	16.38

1. During the fourth quarter of 2007, for example, there was an exchange rate appreciation of 6.01%. The combined export and import adjustment served to increase GDP growth by .20% during this period.

Table 4 Gross domestic product (GDP), chained dollars

Reference period	GDP	GDP	Growth rate	Growth rate	Growth rate	CAN\$/US\$ exchange rate	Change in exchange rate percentage
	including	excluding	of GDP	of GDP	difference		
	adjustments	adjustments	including	excluding			
	chained (2002) dollars, seasonally adjusted at annual rates						
	millions of dollars		percentage				
First quarter, 2002	1,140,589	1,140,859	1.22	1.22	0.00	1.5944	0.89
Second quarter, 2002	1,147,293	1,147,561	0.59	0.59	0.00	1.5542	-2.52
Third quarter, 2002	1,157,542	1,157,820	0.89	0.89	0.00	1.5632	0.58
Fourth quarter, 2002	1,166,196	1,165,380	0.75	0.65	0.09	1.5695	0.40
First quarter, 2003	1,171,246	1,169,582	0.43	0.36	0.07	1.5098	-3.81
Second quarter, 2003	1,169,756	1,166,187	-0.13	-0.29	0.16	1.3984	-7.37
Third quarter, 2003	1,173,426	1,169,747	0.31	0.31	0.01	1.3801	-1.31
Fourth quarter, 2003	1,183,940	1,180,675	0.90	0.93	-0.04	1.3158	-4.66
First quarter, 2004	1,192,065	1,187,421	0.69	0.57	0.11	1.3178	0.15
Second quarter, 2004	1,206,213	1,201,934	1.19	1.22	-0.04	1.3595	3.17
Third quarter, 2004	1,219,183	1,214,796	1.08	1.07	0.01	1.3072	-3.85
Fourth quarter, 2004	1,227,491	1,220,788	0.68	0.49	0.19	1.2207	-6.61
First quarter, 2005	1,229,861	1,223,481	0.19	0.22	-0.03	1.2270	0.52
Second quarter, 2005	1,238,674	1,232,662	0.72	0.75	-0.03	1.2439	1.38
Third quarter, 2005	1,251,251	1,243,558	1.02	0.88	0.13	1.2015	-3.41
Fourth quarter, 2005	1,264,467	1,256,276	1.06	1.02	0.03	1.1732	-2.35
First quarter, 2006	1,277,525	1,269,305	1.03	1.04	0.00	1.1545	-1.59
Second quarter, 2006	1,282,621	1,273,588	0.40	0.34	0.06	1.1224	-2.79
Third quarter, 2006	1,286,250	1,277,589	0.28	0.31	-0.03	1.1212	-0.10
Fourth quarter, 2006	1,292,881	1,284,850	0.52	0.57	-0.05	1.1393	1.61
First quarter, 2007	1,305,843	1,297,894	1.00	1.02	-0.01	1.1716	2.84
Second quarter, 2007	1,318,339	1,307,820	0.96	0.76	0.19	1.0981	-6.27
Third quarter, 2007	1,325,934	1,314,289	0.58	0.49	0.08	1.0446	-4.87
Fourth quarter, 2007 ¹	1,328,606	1,315,533	0.20	0.09	0.11	0.9818	-6.01
First quarter, 2008	1,325,715	1,313,931	-0.22	-0.12	-0.10	1.0041	2.27
Second quarter, 2008	1,327,572	1,316,560	0.14	0.20	-0.06	1.0100	0.59
Third quarter, 2008	1,330,435	1,320,652	0.22	0.31	-0.10	1.0418	3.15
Fourth quarter, 2008	1,319,149	1,318,955	-0.85	-0.13	-0.72	1.2125	16.38

1. During the fourth quarter of 2007, for example, there was an exchange rate appreciation of 6.01%. The combined export and import adjustment served to increase GDP growth by .11% during this period.

Appendix 2 Commodities

Table 1 Commodities used in derivation of quantity-based export adjustment, 2008

Chapter	Description	Harmonized System (HS) codes included in analysis	Exports 2002 constant prices, millions of dollars
1	Live animals	12	2,069
2	Meat and edible meat offal	4	193
3	Fish and crustaceans, molluscs and other aquatic invertebrates	15	60
4	Dairy produce; birds' eggs; natural honey; edible products of animal origin	4	19
5	Products of animal origin, not elsewhere specified or included	4	23
6	Live trees and other plants; bulbs, roots and the like; cut flowers	2	37
7	Edible vegetables and certain roots and tubers	3	20
8	Edible fruit and nuts; peel of citrus fruit or melons	2	25
9	Coffee, tea, maté and spices	1	93
10	Cereals	3	754
11	Products of the milling industry; malt; starches; inulin; wheat gluten	6	233
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit	7	470
15	Animal or vegetable fats and oils and their cleavage products; prepared	1	90
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	7	132
17	Sugars and sugar confectionery	1	39
18	Cocoa and cocoa preparations	1	37
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	9	368
20	Preparations of vegetables, fruit, nuts or other parts of plants	6	230
22	Beverages, spirits and vinegar	6	772
23	Residues and waste from the food industries; prepared animal fodder	6	105
24	Tobacco and manufactured tobacco substitutes	3	23
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	6	415
26	Ores, slag and ash	4	64
27	Mineral fuels, mineral oils and products of their distillation	6	861
28	Inorganic chemicals; organic or inorganic compounds of precious	15	1,027
29	Organic chemicals	2	428
31	Fertilisers	4	2,046
32	Tanning or dyeing extracts; tannins and their derivatives; dyes etc	4	191
34	Soap, organic surface-active agents, washing preparations, lubricating etc	1	26
35	Albuminoidal substances; modified starches; glues; enzymes	2	76
37	Photographic or cinematographic goods	1	396
39	Plastics and articles thereof	12	2,502
40	Rubber and articles thereof	5	1,731
41	Raw hides and skins (other than furskins) and leather	5	3
44	Wood and articles of wood; wood charcoal	22	371
47	Pulp of wood or of other fibrous cellulosic material; recovered	7	2,804
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	26	4,442
52	Cotton	2	1
54	Man-made filaments; strip and the like of man-made textile materials	6	70
55	Man-made staple fibres	7	29
56	Wadding, felt and nonwovens; special yarns; twine, cordage etc	1	26
57	Carpets and other textile floor coverings	1	112
58	Special woven fabrics; tufted textile fabrics; lace; tapestries etc	2	28
59	Impregnated, coated, covered or laminated textile fabrics;	3	79
60	Knitted or crocheted fabrics	3	11
61	Articles of apparel and clothing accessories, knitted or crocheted	5	183

Table 1 Commodities used in derivation of quantity-based export adjustment, 2008 (cont'd)

Chapter	Description	Harmonized System (HS) codes included in analysis	Exports 2002 constant prices, millions of dollars
62	Articles of apparel and clothing accessories, not knitted or crocheted	6	243
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	2	14
64	Footwear, gaiters and the like; parts of such articles	11	66
65	Headgear and parts thereof.	2	18
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	1	26
69	Ceramic products	1	45
70	Glass and glassware	4	50
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, etc.	7	227
72	Iron and steel	13	675
73	Articles of iron or steel	16	682
74	Copper and articles thereof	4	570
75	Nickel and articles thereof	1	2
76	Aluminium and articles thereof	8	7,391
79	Zinc and articles thereof	3	25
81	Other base metals; cermets; articles thereof	8	82
90	Optical, photographic, cinematographic, etc instruments	2	39
95	Toys, games and sports requisites; parts and accessories thereof.	2	49
	Total	346	33,921

For a complete list of Chapter titles and their subcomponents, please see *The Canadian Export Classification*, catalogue no. 65-209-XIE.

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The Income and Expenditure Accounts Division Technical Series (13-604) provide background information as well as in depth analysis on data reported in any of the following accounts: Income and Expenditure Accounts, Provincial Economic Accounts, Financial Flow Accounts, National Balance Sheet Accounts, Labour Income and the National Tourism Indicators. A list of the papers currently available is presented below. These papers are available on our website at www.statcan.gc.ca, by contacting us at 613-951-3810, by email to lead-info-dcrd@statcan.gc.ca or by writing to Client Services, IEAD, Statistics Canada, 21st floor R.H. Coats Building, 100 Tunney's Pasture Driveway, Ottawa, Ontario, K1A 0T6.

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