

Latest Developments in the Canadian Economic Accounts

The 1981 to 2012 revisions of the Income and Expenditure Accounts



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- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^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
- * significantly different from reference category ($p < 0.05$)

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The 1981 to 2012 revisions of the Income and Expenditure Accounts

This article highlights the revisions to the Gross Domestic Product (GDP) by Income and by Expenditure Accounts for the period 1981 to 2012. This is the first time these accounts are being revised under the Canadian System of Macroeconomic Accounts (CSMA) new revision policy. For more information on the policy consult the article "[*An overview of the upcoming planned revisions to the Canadian System of Macroeconomic Accounts*](#)" in the publication *Latest Developments in the System of National Accounts*.

Statistical, conceptual and methodological revisions are carried out regularly in the [CSMA \(Canadian System of Macroeconomic Accounts\)](#). Conceptual and methodological revisions occur less frequently than statistical revisions. The 1981 to 2012 revisions to the [GDP \(Gross Domestic Product\)](#) by Income and by Expenditure Accounts do not include any conceptual revisions and only one methodological revision. The majority of the revisions are statistical in nature.

The statistical revisions to [GDP \(Gross Domestic Product\)](#) reflect the incorporation of the most current data sources, including survey results, administrative data, public accounts and the Input-Output Tables. The Input-Output Tables incorporate Statistics Canada's highest quality data sources in a rigorous and detailed accounting framework. As such, they represent the most detailed and coherent accounting system for the structure of the Canadian economy and are considered the most accurate benchmarks on which to anchor estimates in the [CSMA \(Canadian System of Macroeconomic Accounts\)](#). With this release, data from the input-output tables (revised 2009 and updated 2010) have been integrated into the [GDP \(Gross Domestic Product\)](#) by Income and by Expenditure Accounts. New benchmark information (from annual surveys and administrative data) is incorporated for the more recent periods (2011 and 2012).

This article describes and explains the revisions. It examines the revisions to annual and quarterly gross domestic product on both a nominal and real basis. It also examines the revisions to the various components of gross domestic product with emphasis on the period 2009 to 2012, where the majority of the revisions have taken place.

Revisions to annual [GDP \(Gross Domestic Product\)](#)

Revisions to nominal [GDP \(Gross Domestic Product\)](#)

On a nominal basis the average annual growth rate of GDP (Gross Domestic Product) for the period 1982 to 2008 remained 5.7%. For the period 2009 to 2012 the annual growth rate was revised upward in 2009 and 2012, and downward in both 2010 and 2011. The revisions in 2010 and 2012 are large by historical standards. The downward revision in 2010 was mainly due to a reduction in the growth of business investment in machinery and equipment and government final consumption expenditure. The upward revision in 2012 was largely attributable to an increase in the growth rate of investment in non-residential structures and business inventories.

Revisions to real GDP (Gross Domestic Product)

For the period 1982 to 2008, there was no revision to the average annual growth rate of real GDP (Gross Domestic Product). For the period 2009 to 2012 the largest revision occurred in 2010, where the annual growth of real GDP was revised from 3.2% to 3.4%, a 0.2 percentage point increase. Increases for 2009, 2011 and 2012 were less pronounced with 2009 revised upwards by 0.1 percentage point, and both 2011 and 2012 revised downward by 0.1 percentage points.

Revisions to quarterly GDP (Gross Domestic Product)

The average quarterly growth rate of real GDP (Gross Domestic Product) over the 1981 to 2008 period was unchanged, at 0.6% (see Table 4). The average quarterly growth rates from 2009 to 2012 were also little changed.

Revisions to the GDP (Gross Domestic Product) by Income and by Expenditure Accounts

1981 to 2008

For the period 1981 to 2008 the largest revision to the GDP (Gross Domestic Product) by Income and by Expenditure Accounts was due to the incorporation of revised estimates of consumption of fixed capital for the government sector. In December 2012, new estimates from Statistics Canada's fixed capital flows and stocks program were released for the period 1961 to 2012. These new estimates resulted in revisions to government consumption of fixed capital. The revised estimates have been incorporated in the CSMA (Canadian System of Macroeconomic Accounts) for the period 1981 to the present.

Government consumption of fixed capital represents the gross operating surplus of governments in the GDP (Gross Domestic Product) by income account and a portion of government final consumption expenditure in the GDP (Gross Domestic Product) by expenditure account. As such, this revision served to increase the overall level of GDP (Gross Domestic Product) for the entire period. The impact on the quarterly and annual growth rates of GDP (Gross Domestic Product) was minimal.

Corporate consumption of fixed capital was also revised for the period 1981 to 2008 to align with the latest information from the capital flows and stocks program for the corporate sector. While these revisions do not change the level of gross domestic product they do change the level of Canada's net domestic product. Net domestic product represents the income generated from production after accounting for the income that is set aside to replace the capital used up in the production process. From 1981 to 1998, net domestic product was generally revised upward while for the period 1999 to 2008 net domestic product was generally revised downward.

Revised estimates of selected household expenditures were incorporated for the period 1981 to 2012. During the compilation of the 2009 and 2010 Input-Output Tables it was determined that a few series (such as expenditures on education and operation of transport equipment) were underestimated. New benchmarks were established and the level was revised through the entire time period.

The CSMA (Canadian System of Macroeconomic Accounts) also improved the price index used to deflate own-account research and development. In the previous version, own-account research and development was deflated using input prices (such as wages and salaries) for the professional and scientific services industry. The new methodology uses a weighted average of the wages and salaries of researchers in the industries where the own-account production takes place. For example the own-account research and development in the manufacturing industry is deflated using the wages and salaries of researchers in the manufacturing industry (rather than the wages and salaries of researchers in the professional and scientific services industry). This ensures a better alignment

between the nominal value and the real value of own-account research and development. In general, this did not change the quarterly or annual growth in GDP (Gross Domestic Product) with the exception of the late 1990s and early 2000s where there were significant changes in the wages and salaries of researchers.

2009 to 2012

For the period 2009 to 2012, revisions were chiefly the result of new Input-Output benchmarks and the incorporation of new source data.

Revisions to the components of the GDP (Gross Domestic Product) by income account are shown in Table 5. Compensation of employees was little changed in 2009 and 2010. The incorporation of tax-based estimates of compensation of employees resulted in a \$4.5 billion increase in 2011 and a further \$6.9 billion gain in level in 2012.

Estimates of surplus were higher in 2009 and 2010, the result of new benchmarks from the Input-Output system. The incorporation of tax based estimates of corporate sector surplus reduced the estimate in 2011.

Revisions to gross mixed income were chiefly due to incorporating new data from the Canada Revenue Agency.

Table 6 provides a summary of changes to the GDP (Gross Domestic Product) by expenditure account. Household final consumption was revised upward in all years from 2009 to 2012.

Government final consumption expenditure was revised downward for all years in the 2009 to 2012 period. This was due to new Input-Output benchmarks in 2009 and 2010 which were carried forward into 2011 and 2012. New public account information for provincial, territorial and local governments became available resulting in the majority of the revision.

Final expenditure of non-profit institutions serving households' was revised downward due to the incorporation of new tax benchmarks. Specifically, estimates of wages and salaries paid by non-profit institutions serving households were lowered in all years from 2009 to 2012. The initial estimate was based on growth rates for the non-profit industry as estimated by the survey of employment, hours and payrolls. The revised estimate was derived directly from administrative data records which represent a census of the actual wages and salaries paid by non-profit institutions serving households to their employees.

Business gross fixed capital formation was lowered by \$2.0 billion in 2009 as final estimates of capital investment data became available from the Input-Output Tables. The revisions were less significant in 2010, 2011 and 2012. In 2011, there was a large revision in the type of investment with purchases of machinery and equipment being revised down and investment in non-residential structures being revised upward.

Government gross fixed capital formation was revised downward in 2011 by \$2.5 billion and then upward in 2012 by \$2.5 billion with the incorporation of new data from the *Capital and Repair Expenditures Survey* released in February 2013.

There was a large upward revision to business inventories in 2011 (+\$6.3 billion) due to new data originating from the *Annual Survey of Manufacturing*, the *Annual Wholesale Trade Survey* and the *Annual Retail Trade Survey*.



Table 1 Revisions to the annual growth rate of nominal GDP

Period	Previous estimate	Current estimate	Revision
	%		percentage point
Annual average 1982 to 2008	5.7	5.7	0.0
Annual average 2009 to 2012	2.6	2.6	0.0
2009	-4.9	-4.8	0.1
2010	6.4	6.1	-0.3
2011	5.9	5.8	-0.1
2012	3.1	3.4	0.3



Table 2

Revisions to the annual growth rate of real GDP

Period	Previous estimate	Current estimate	Revision
	%		percentage point
Annual average 1982 to 2008	2.6	2.6	0.0
Annual average 2009 to 2012	1.2	1.2	0.0
2009	-2.8	-2.7	0.1
2010	3.2	3.4	0.2
2011	2.6	2.5	-0.1
2012	1.8	1.7	-0.1



Table 3

Revisions to the quarterly growth rate of nominal GDP

Period	Previous estimate	Current estimate	Revision
	%		percentage point
Quarterly average 1981 to 2008	1.4	1.4	0.0
Quarterly average 2009 to 2012	0.8	0.8	0.0
2009	0.0	0.0	0.0
2010	1.5	1.3	-0.2
2011	1.4	1.5	0.1
2012	0.5	0.5	0.0



Table 4 Revisions to the quarterly growth rate of real GDP

Period	Previous estimate	Current estimate	Revision
	%		percentage point
Quarterly average 1981 to 2008	0.6	0.6	0.0
Quarterly average 2009 to 2012	0.3	0.3	0.0
2009	-0.4	-0.3	0.1
2010	0.9	0.9	0.0
2011	0.6	0.6	0.0
2012	0.3	0.3	0.0



Table 5

Revisions to the components of the gross domestic product by income account

	Previous estimate	Current estimate	Revision
	\$ millions		
	2009		
Compensation of employees	812,981	812,983	2
Gross operating surplus	401,022	404,611	3,589
Gross mixed income	185,999	185,990	-9
Taxes less subsidies on production	69,991	70,101	110
Taxes less subsidies on products	93,826	93,826	0
GDP at market prices	1,564,790	1,567,007	2,217
	2010		
Compensation of employees	839,425	839,376	-49
Gross operating surplus	459,827	460,731	904
Gross mixed income	193,136	193,368	232
Taxes less subsidies on production	72,519	71,775	-744
Taxes less subsidies on products	98,356	98,653	297
GDP at market prices	1,664,762	1,662,757	-2,005
	2011		
Compensation of employees	879,225	883,753	4,528
Gross operating surplus	501,772	497,803	-3,969
Gross mixed income	202,256	202,270	14
Taxes less subsidies on production	75,551	73,598	-1,953
Taxes less subsidies on products	103,616	102,874	-742
GDP at market prices	1,762,432	1,760,011	-2,421
	2012		
Compensation of employees	916,505	923,424	6,919
Gross operating surplus	502,989	501,470	-1,519
Gross mixed income	212,313	211,160	-1,153
Taxes less subsidies on production	77,062	75,479	-1,583
Taxes less subsidies on products	109,046	108,968	-78
GDP at market prices	1,817,604	1,819,967	2,363



Table 6

Revisions to the components of the gross domestic product by expenditure account

	Previous	Revised	Revision
	\$millions		
	2009		
Household final consumption expenditure	871,557	872,738	1,181
Government final consumption expenditure	352,883	352,047	-836
Non-profit institutions serving households' final consumption expenditure	23,724	23,457	-267
Business gross fixed capital formation	277,255	275,288	-1,967
Government gross fixed capital formation	70,981	70,905	-76
Non-profit institutions serving households' gross fixed capital formation	1,565	2,111	546
Inventories	-9,262	-7,030	2,232
Exports	445,653	445,689	36
Imports	468,595	468,702	107
Gross domestic product at market prices	1,564,790	1,567,007	2,217
	2010		
Household final consumption expenditure	914,813	915,271	458
Government final consumption expenditure	369,990	366,346	-3,644
Non-profit institutions serving households' final consumption expenditure	25,080	23,502	-1,578
Business gross fixed capital formation	307,501	307,240	-261
Government gross fixed capital formation	78,601	78,501	-100
Non-profit institutions serving households' gross fixed capital formation	1,858	2,235	377
Inventories	316	125	-191
Exports	482,335	483,212	877
Imports	514,233	514,821	588
Gross domestic product at market prices	1,664,762	1,662,757	-2,005
	2011		
Household final consumption expenditure	955,950	955,985	35
Government final consumption expenditure	385,364	381,774	-3,590
Non-profit institutions serving households' final consumption expenditure	27,550	24,138	-3,412
Business gross fixed capital formation	334,830	334,223	-607
Government gross fixed capital formation	77,611	75,126	-2,485
Non-profit institutions serving households' gross fixed capital formation	1,928	2,688	760
Inventories	1,323	7,659	6,336
Exports	539,286	540,657	1,371
Imports	561,398	562,525	1,127
Gross domestic product at market prices	1,762,432	1,760,011	-2,421
	2012		
Household final consumption expenditure	986,268	987,388	1,120
Government final consumption expenditure	394,677	394,499	-178
Non-profit institutions serving households' final consumption expenditure	28,052	24,998	-3,054
Business gross fixed capital formation	360,167	359,726	-441
Government gross fixed capital formation	74,706	77,208	2,502
Non-profit institutions serving households' gross fixed capital formation	1,885	2,335	450
Inventories	7,983	9,491	1,508
Exports	545,827	546,617	790

Imports	582,271	582,829	558
Gross domestic product at market prices	1,817,604	1,819,967	2,363