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Published by authority of the Minister responsible for Statistics Canada

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# The 2019 to 2021 Revisions of the Income and Expenditure Accounts

## Introduction

This article presents revisions to the Gross Domestic Product (GDP) by Income and by Expenditure from the Income and Expenditure Accounts (IEA) for the 2019-to-2021 period. These revisions were reflected in the 2021 Provincial and Territorial Economic Accounts estimates, released on November 8, 2022.

The first and second quarters of 2022 have also been revised. In accordance with standard revision practice, these estimates will continue to be revised in upcoming cycles, and therefore, are excluded from the analysis in this article.

## Revision process and phases

GDP estimates by IEA are subject to several types of revisions that take place with each quarterly release depending on the availability of data and the practicality of implementation. The first-quarter release includes revisions to all quarters of the previous year; the second-quarter release revises only the first quarter of the same year; the third-quarter release (the annual revision) includes revisions to all quarters back three years; and the fourth-quarter release includes revisions to all quarters of the same year.

Occasionally, substantial changes that are made to incorporate new concepts or methods (for example, integration of new SNA concepts) result in comprehensive revisions (back to 1961) and can occur with the annual revision. Appendix A illustrates the revision cycle for GDP, including an explanation of the open period and the vintages.

In this release, new benchmark values from the supply-use tables (SUTs) for the 2019 reference year have been incorporated into the GDP by IEA. SUTs integrate data from a wide range of sources into a balanced accounting framework. They represent the most detailed, coherent accounting system for the structure of the Canadian economy and are considered the most accurate benchmarks on which to base estimates.

Revisions for the 2020 and 2021 reference years incorporated up-to-date information from the Annual Survey of Manufacturing and Logging, the Annual Survey of Research and Development in Canadian Industry, the Annual Census of Mines, government public accounts, and updated administrative data. These revisions also reflect incorporation of T4 data for 2020 and preliminary T4 data for 2021 which is used to estimate wages and salaries.

Results from the Annual Capital and Repair Expenditure Survey, Actual, were incorporated for 2020, whereas 2021 was revised to incorporate major project updates from the upcoming 2021 Actual release (February 2023).

International trade in commercial services has been revised in 2020 and 2021 as the coverage of enterprises in the digital economy has been enhanced, as was estimation of imports of digital products and services. Revisions were mostly related to audio and video streaming and downloaded software activities. In addition, the coverage of imports of advertising services has been expanded significantly to better capture the extent of Canadian payments to foreign entities for online advertising made on social media, Internet browsers, etc.

Appendix B contains the timeline for data source integration into the IEA by major component of income-based GDP and expenditure-based GDP, using the first quarter of 2019 as an example.

Revisions for the 2020 and 2021 reference years also reflect updates to data sources and estimation methodologies due to pandemic-related disruptions. As a result, some initial estimates contained assumptions that evolved as more information became available, and revisions were necessary in subsequent releases.

This article summarizes the combined impact of revisions from all sources on annual and quarterly GDP, on a nominal and a real basis.

## Revisions to growth of nominal gross domestic product

**Table 1**  
**Revisions to the growth in nominal GDP, annual**

	Revised nominal GDP	Previously published	Revision	Revised average growth in annual GDP	Previously published average growth in annual GDP	Mean absolute revision to the growth in annual GDP
	billions of dollars			percentage		percentage points
2019 to 2021	2,344.29	2,337.06	7.23	4.19	3.95	0.24
2019	2,313.56	2,311.29	2.27	3.48	3.38	0.10
2020	2,209.68	2,206.76	2.92	-4.49	-4.52	0.03
2021	2,509.62	2,493.13	16.49	13.57	12.98	0.59

Source: Statistics Canada.

With incorporation of new benchmark data from the supply-use tables, the level of nominal GDP was revised up by \$2.3 billion in 2019. The nominal GDP growth rate was revised up 0.10 percentage point, largely because of revised business capital investment, exports and household spending.

In 2020, nominal GDP was revised up by \$2.9 billion, or 0.03 percentage points. Upward revisions in business capital investment and government final consumption expenditure were offset by a downward revision to net trade of -\$4 billion as the upward revision to exports couldn't match the significant revision to imports.

In 2021, the revised nominal GDP growth rate (+13.6%) was stronger than the previously published 13.0%; which followed a 4.5% decline in 2020 owing to a widespread shutdown of economic activities to contain the spread of COVID-19 in 2020. Nominal GDP was revised up by \$16.5 billion, or 0.59 percentage points. Upward revisions in business capital investment, government final consumption expenditure were again mitigated by a downward revision to net international trade.

The absolute revision to the growth rate—the difference between the revised average growth rate and the previously published average growth rate—was 0.24 percentage points for the 2019-to-2021 period.

**Table 2**  
**Revisions to the growth in nominal GDP, quarterly**

	Revised average growth in quarterly GDP	Previously published average growth in quarterly GDP	Mean absolute revision to the growth in quarterly GDP
	percentage		percentage points
2019 to 2021	1.47	1.40	0.07
2019	1.25	1.21	0.04
2020	0.06	0.02	0.04
2021	3.11	2.97	0.14

Source: Statistics Canada.

On a quarterly basis, the absolute revision to the growth rate was 0.07 percentage points for the 2019-to-2021 period, with 2021 recording the largest upward revision of 0.14 percentage points. Throughout the period, the quarterly trend remained similar to the trend based on previously published estimates.

## Revisions to growth of real gross domestic product

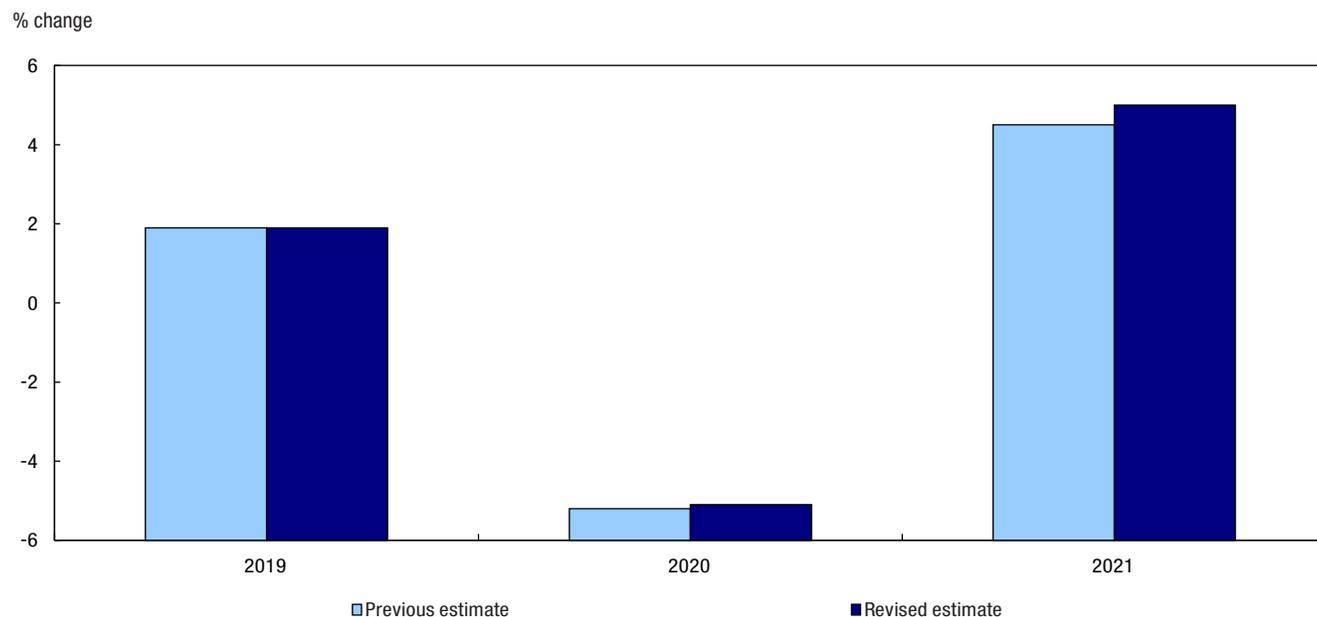
**Table 3**  
**Revisions to the growth in real GDP, annual**

	Revised average growth in annual real GDP	Previously published average growth in annual real GDP	Mean absolute revision to the growth in annual real GDP
	percentage		percentage points
2019 to 2021	0.61	0.40	0.21
2019	1.89	1.88	0.01
2020	-5.07	-5.23	0.16
2021	5.01	4.54	0.47

Source: Statistics Canada.

The mean absolute percentage-point revision to the annual average growth rate of real GDP for the 2019-to-2021 period was 0.21. The revision was lowest in 2019 (+0.01 percentage points) and highest in 2021 (+0.47 percentage points). The growth rate was revised up (+0.16 percentage points) in 2020.

**Chart 1**  
Revisions to real gross domestic product by year, chained (2012) dollars



Source: Statistics Canada, Latest Developments in the Canadian Economic Accounts, catalogue number 13-605-X.

Based on chained dollars, the growth rate of real GDP was unchanged in 2019; up 0.10 percentage points in 2020 and up by 0.50 percentage points in 2021.

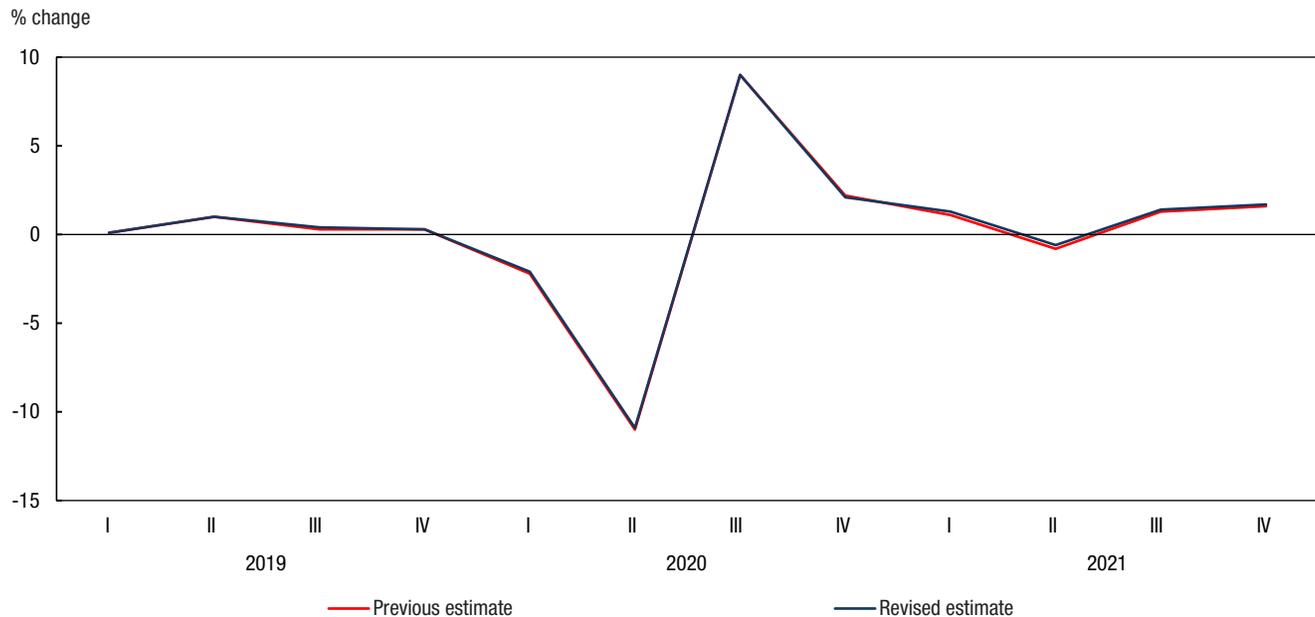
**Table 4**  
Revisions to the growth in real GDP, quarterly

	Revised average growth in quarterly real GDP	Previously published average growth in quarterly real GDP	Mean absolute revision to the growth in quarterly real GDP
	percentage	percentage	percentage points
2019 to 2021	0.31	0.24	0.07
2019	0.44	0.43	0.01
2020	-0.48	-0.51	0.03
2021	0.96	0.80	0.16

Source: Statistics Canada.

The mean absolute percentage-point revision to the annual average growth rate of quarterly real GDP for the 2019-to-2021 period was 0.07. The largest revision was in 2021 (+0.16 percentage points) and the smallest in 2019 (+0.01 percentage point). The growth rate was revised up (+0.03 percentage point) in 2020. The extent of these revisions was minimal and well within historical limits, ranging from -0.33 to 0.43 percentage points over the last decade.

**Chart 2**  
**Revisions to real gross domestic product by quarter, chained (2012) dollars**



**Source:** Statistics Canada, Latest Developments in the Canadian Economic Accounts, catalogue number 13-605-X.

Based on chained dollars, the movement of real GDP recorded the largest upward revision in 2021, with revisions to each quarter. In 2021, the first and second quarters each recorded an upward revision of 0.2 percentage points, while the third and fourth quarters each recorded a 0.1 percentage point upward revision.

In 2019, real GDP quarterly growth rates underwent limited revisions, with the only revision occurring in the third quarter (+0.1 percentage point). In 2020, real GDP recorded a minor upward revision in the first and second quarter (+0.1 percentage point) and a downward revision in the fourth quarter (-0.1 percentage point). The growth rate was unchanged in the third quarter. At this point in the revision cycle for 2021, revisions are within range of the historical average.

## Appendix A

### GDP revision cycle

Figure 1  
GDP revision cycle

Reference year Reference quarter	Year-3				Year-2				Year-1				Current year				Year+1				Year+2				Year+3							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Main production period													May	Aug	Nov	Feb																
									[ v1 ]																							
May release									[ v2 ]	[ v1 ]																						
August release										[ v2 ]	[ v1 ]																					
November release	[										v3		v3	v2	v1																	
February release													[ v4 ]	[ v3 ]	[ v2 ]	[ v1 ]																
													[ v5 ]	[ v4 ]	[ v3 ]	[ v2 ]	[ v1 ]															
																	[ v2 ]	[ v1 ]														
					[						v4		v6	v5	v4	v3	v3		v1													
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**Notes:**

Revision cycles

- [ ] On first-quarter releases, all four quarters in previous year are revised.
- [ ] On second-quarter releases, first quarter in same year is revised.
- [ ] On third-quarter releases, first and second quarters in same year and all quarters back to Supply-Use year are revised (annual revision)\*.
- [ ] On fourth-quarter releases, first, second, and third quarters in same year are revised.

Vintages

- v1. First vintage, released with revisions to all quarters previous year.
- v2. Second vintage of first quarter, released with second-quarter release.
- v3. Third vintage of first quarter, released with third-quarter release (annual revision).
- v4. Fourth vintage of first quarter, released with fourth-quarter release.
- v5. Fifth vintage of first quarter, released with first-quarter of following year.
- v6. Sixth vintage of first quarter, released with third-quarter release of following year (annual revision).
- v7. Seventh vintage of first quarter, released with third quarter of two years after (annual revision).
- v8. Eighth vintage of first quarter, third-quarter release three years after, incorporation of SUT benchmark for this year.

\* Comprehensive revisions (back to 1961) can occur with the annual revision if substantial changes are made to concepts or methods, such as integration of new SNA concepts.

## Appendix B

Revisions due to different vintages of source data

**Table B1**  
**GDP by income components, example reference period first quarter of 2019**

Revision	Initial quarterly estimate	First annual revision	Second annual revision	Third annual revision	Fourth annual revision
Release	2019Q1 (May 2019)	2019Q3 (November 2019)	2020Q3 (November 2020)	2021Q3 (November 2021)	2022Q3 (November 2022)
<i>General notes</i>	<i>Incorporation of monthly surveys</i>	<i>Revisions to monthly surveys</i>	-	<i>Incorporation of annual surveys</i>	<i>Incorporation of Supply-use table</i>
Compensation of employees	Survey of Employment, Payroll and Hours (SEPH), Labour Force Survey (LFS), Employment and Social Development Canada data	-	T4 preliminary (RY2019) for provincial/territorial (PT) aggregates	T4 final (RY2019) by PT and by industry	SUT industry refinements (RY2019)
Gross operating surplus	Quarterly Survey of Financial Statements (QSFS), Regulatory data (for banks); GFS for Government Business Enterprises	-	Third party data	Annual Financial and Taxation Statistics	SUT benchmark
Gross mixed income:	SEPH, LFS, Monthly Retail Trade Survey, Monthly Survey of Manufacturing, gross output by industry	-	Tax data (T1 and T5013)	Tax data updates	SUT benchmark
Rent portion	Consumer Price Index, Stock in units	-	-	-	-
Farm portion	Farm cash receipts	Crop data	-	-	SUT benchmark
Taxes less subsidies <sup>1</sup>	Government Finance Statistics (GFS): preliminary/modelled	Updated GFS: late filers, Public Accounts (PA)	Revised GFS: late PA, local government first estimate	Revised GFS: local government updates	SUT benchmark

1. Indigenous general governments are estimated using Financial Statements, the estimates are refined as more statements become available

Source: The 2019 to 2021 revisions of the Income and Expenditure Accounts", *Latest Developments in the Canadian Economic Accounts (13-605-X)*, 2022.

**Table B2**  
**GDP by expenditure components, example reference period First quarter of 2019**

Revision	Initial quarterly estimate	First annual revision	Second annual revision	Third annual revision	Fourth annual revision
Release	2019Q1 (May 2019)	2019Q3 (November 2019)	2020Q3 (November 2020)	2021Q3 (November 2021)	2022Q3 (November 2022)
<i>General notes</i>	<i>Incorporation of monthly surveys</i>	<i>Revisions to monthly surveys</i>	-	<i>Incorporation of annual surveys</i>	<i>Incorporation of Supply-use table</i>
<b>Household Final consumption expenditure:</b>					
Goods	Monthly retail trade (MRTS), New motor vehicle survey, trade in goods, vehicle registrations	Retail commodity survey	-	Survey of Household Spending (SHS) <sup>1</sup>	SUT benchmark by product
Services	GST remittances, trade in services, Canadian Radio-television and Telecommunications Commission, monthly GDP by industry	-	-	SHS; Food services & drinking places; accommodation services	SUT benchmark by product
Government Final Consumption	Government Finance Statistics (GFS): preliminary/modelled	Updated GFS: late filers, Public Accounts (PA)	Revised GFS: late PA, local government first estimate	Revised GFS: local government updates	SUT benchmark by product
NPISH Final Consumption	Forecast	-	-	Tax data (T3010 and Non-Profit Organizations)	-
<b>Business Capital Investment:</b>					
Residential: new, renovations, ownership transfer costs	Labour estimates, Investment in Building Construction (IBC), CMHC, Wholesale/retail sales, Survey of Building Permits, Canadian Real Estate Association (CREA)	-	-	SHS <sup>2</sup> Real Estate Agents and Brokers survey	-
Non-residential buildings	IBC, CREA	Annual Capital and Repair Expenditures (CAPEX) intentions	CAPEX preliminary	CAPEX actual	SUT benchmark by asset
Non-residential engineering	Quarterly Oil and Gas CAPEX, labour indicators, drilling and rigging activities, financial reports				
Machinery and equipment	Imports, inventories, Monthly Survey of Manufacturing (MSM)				
Intellectual Property Products	Labour estimates, Research and development intentions, imports, drilling and rigging activities	-	Gross Domestic Expenditures on Research and Development	Research and Development in Canadian Industry	
Government capital investment	Similar to business for first vintage, by asset	CAPEX intentions: provincial government	CAPEX preliminary: provincial government; GFS: federal	CAPEX actual: provincial; GFS local government; Provincial housing corporations	
<b>Change in inventories:</b>					
Non-farm	MSM, MRTS, Monthly Wholesale Trade, energy surveys, QSFS	-	-	Annual Survey of Manufacturing and Logging, Annual Wholesale Trade Survey, Annual Census of Mines, Annual Retail Trade Survey	SUT benchmark
Farm	Farm cash receipts	Crop data	-	-	SUT benchmark
<b>International trade:</b>					
Goods	Canadian International Merchandise Trade, Canadian Energy Regulator	-	-	-	SUT benchmark
Services	Preliminary Balance of Payments (BOP) surveys	BOP commercial services surveys	Tourism/education surveys	-	

1. For reference years that SHS is available.

2. For reference years that SHS is available.

Source: Statistics Canada, "The 2019 to 2021 revisions of the Income and Expenditure Accounts", *Latest Developments in the Canadian Economic Accounts (13-605-X)*, 2022.