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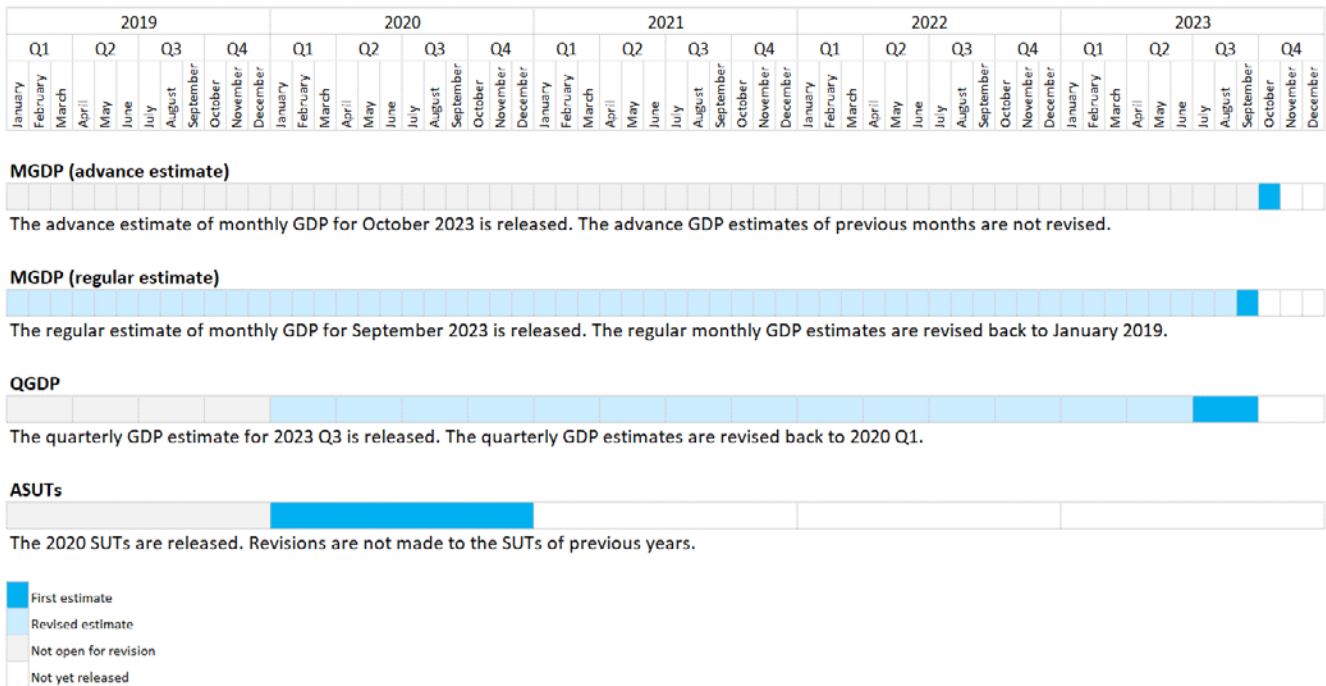
# Revisions to Canada's GDP

## Summary

To satisfy the opposing goals for both timeliness and accuracy, StatCan regularly updates (revises) its estimates of Canada's gross domestic product (GDP). The timeliest estimate of GDP is released through the [monthly GDP by Industry](#) (MGDP) program, which publishes an advance (or "flash") estimate 30 days after the end of the reference month. The flash estimate is based on partial data that gives an early signal of movements in the economy, and is followed by the release of a more precise estimate from the regular MGDP program 60 days after the end of the reference month. The [quarterly GDP by Income and Expenditure](#) (QGDP) program releases an estimate of quarterly GDP 60 days after the end of every quarter utilizing more comprehensive source data and methods. The GDP estimates of previous months and quarters are also updated as more source data become available to refine the estimates. The final regular update to Canada's GDP comes when the [annual supply and use tables](#) (SUTs) are compiled 34 months after the end of the reference year.

Updates to previous GDP estimates occur on a monthly and quarterly basis, but the annual update in November usually sees the most periods being revised. The infographic below illustrates the updates done to StatCan's GDP programs during the annual update of November 2023, right after the release of the 2020 SUTs. In the figure, the different GDP programs are shown in separate rows, and the reference periods are shown in columns. A period shaded in royal blue depicts the first release of the corresponding GDP estimate; light blue represents the periods that were open to revision; and grey represents periods that were closed to revision. So, at the end of November, the flash MGDP for October 2023 was released. Concurrently, the first regular MGDP estimate for September 2023 and the first official estimate of QGDP for the third quarter of 2023 were released. These releases were accompanied by updates to the regular MGDP estimates back to January 2019 and to the QGDP estimates back to the first quarter of 2020<sup>1</sup>.

**Figure 1**  
GDP updates during the annual revision of November 2023



1. The annual update of November 2023 also included an update to the reference year and the rebasing of the GDP volume estimates, thereby resulting in revisions back to January 1997 for MGDP and to 1961 Q1 for QGDP. These irregular revisions are not depicted in the infographic.

## The need for revisions

**Timeliness and accuracy are elements of the quality of statistics.** Users want timely statistics in order to make decisions based on the most recent economic events; but they also want those estimates to be accurate and as close as possible to the “true” value of the target measure. However, there is a trade-off that national statistics compilers must consider between timeliness and accuracy. Accuracy increases when more comprehensive data and better statistical methods are used to compile statistics. On the other hand, it takes time to collect such data and implement such methods.

**To balance user requirements for both timeliness and accuracy, StatCan has a well-established policy to regularly update estimates of GDP.** Such updates are standard practice in most countries, and in Canada they are a result of a predetermined revision cycle, where different datasets and statistical methods are used to produce and release GDP estimates through three StatCan products: [monthly GDP by Industry](#) (MGDP), [quarterly GDP by Income and Expenditure](#) (QGDP), and [annual Supply and Use Tables](#) (SUTs). Occasionally, more comprehensive updates are made in addition to the cyclical ones to incorporate new classifications, concepts, or methods, such as the integration of new national accounting standards. When comprehensive updates are made, they affect a longer GDP time series than in a regular revision cycle. This note explains the regular GDP revision cycle as the occasional comprehensive updates are usually accompanied by a detailed explanation of the reasons behind them<sup>2</sup>.

## Monthly GDP by industry

**The timeliest measure of Canadian GDP is provided by StatCan's MGDP program, which publishes an advance (flash) estimate in addition to the regular estimate of real GDP on a monthly basis.** The flash estimate is published one month after the reference month, whereas the regular estimate is published through the regular monthly release 60 days after the end of the reference month. The MGDP program uses data that are collected from monthly surveys and administrative sources to develop production indicators to estimate value added by industry. Due to time constraints, such monthly surveys by their nature have a smaller sample size than their annual counterparts. They also collect fewer key variables such as sales or labour inputs, whose growth rates are correlated but not necessarily equal to those of value added.

**Source data updates may lead to revisions in the MGDP estimates.** Both the flash and the earliest regular estimates of MGDP are based on partial datasets. The datasets are incomplete because it is possible, for example, that not all units report to the monthly surveys in time. As more data come in, the indicators are updated, which may in turn impact the corresponding GDP estimates. For the third month that comprises the quarter, the estimates from both the MGDP and the QGDP programs are released concurrently.

**To avoid having widely different GDP movements between the MGDP and the QGDP, and to improve the accuracy of both sets of estimates, a quarterly reconciliation process takes place before the release of the third month in the quarter.** As a result, the GDP estimates of the first two months of the quarter may be updated to align the combined three-month MGDP growth rate with that of the corresponding quarter in the QGDP, while simultaneously maintaining the movements between months to the extent possible. While the combined three-month MGDP growth rate is aligned and comparable with the QGDP growth rate for the three months that make up the quarter, there may be differences due to the use of different data sources and methods for the two estimates. Three main reasons explain the differences between the two programs. First, the MGDP program measures gross value added of industries, which, albeit by far the largest component of GDP by the production approach, does not include taxes and subsidies on products. Second, the MGDP program measures volumes using a chained Laspeyres index formula in the months after the year of the latest SUTs. On the other hand, due to more data being available on current prices, the QGDP program measures volumes of final expenditures using a chained Fisher index formula, the method preferred by the international standards. The two volume measurement methods lead to different GDP growth rates, especially during periods of shifting expenditure patterns. Third, the official quarterly GDP estimate includes a statistical discrepancy to account for differences between the estimates of GDP by the income and expenditure approaches.

2. StatCan publishes articles on comprehensive and other major updates in the [Latest Developments Canadian Economic Accounts](#) series.

**MGDP estimates are also updated due to benchmarking and seasonal adjustment.** When the annual SUTs are compiled, a comprehensive benchmarking process occurs to set the sum of the 12 months equal to the corresponding annual benchmark estimates. Finally, during the entire period that monthly GDP estimates are open to revision, adjustments to account for seasonal factors<sup>3</sup> may lead to revisions. StatCan's revision policy specifies the following updates to the regular monthly GDP estimates, resulting in up to 24 vintages for any one reference month, as articulated in Figure 2:

- January to August: updates are applied back to January of the previous year.
- September (once the annual SUTs are released): updates are applied back to January of the fourth previous year.
- October to December: updates are applied back to January of the current year.

**As of April 2020, and as a response to user demand for more timely data at the onset of the COVID-19 crisis, StatCan started publishing an advance estimate of monthly GDP 30 days after the end of the reference month.** The published figure is mostly based on advance estimates of the same set of indicators used to measure the regular estimates of MGDP, which continue to be published 60 days after the reference month. For example, the flash MGDP is estimated using advance indicators of sales in the manufacturing, wholesale, and retail sectors from the corresponding monthly StatCan surveys. Although these indicators are themselves advance survey estimates with earlier cut-offs, partial responses, and incomplete information, they nevertheless provide reasonable indications with respect to the directionality of growth.

**The increased timeliness of the advance estimate entails a reduction in accuracy and the likelihood of larger revisions to GDP, as it is developed with an even smaller set of data than that used to compile the regular estimate of MGDP.** The advance GDP estimate is therefore published at the total economy level only, with no industry breakdown other than a qualitative description of industry dynamics. Furthermore, it is not released through the official StatCan Data Repository, but only mentioned as part of the article accompanying the release of the prior month's regular MGDP estimates. As such, the advance estimate itself is effectively a precursor to the regular estimate and it is not published as a separate data series that is subject to revisions.

3. [Seasonal adjustment](#) is done to remove seasonal and other calendar effects like increased retail sales in December due to holiday shopping, or differences in the number of trading days between months, which may otherwise reduce comparability between periods. Such seasonal adjustments are based on statistical techniques that require the ability to adjust a longer time series for increased accuracy.



## Quarterly GDP

The QGDP program, which publishes the official quarterly estimates of GDP two months after the end of the reference quarter, relies primarily on quarterly surveys and other sub-annual sources to compile GDP by the income and the expenditure approaches. The data from quarterly surveys and administrative sources provide indicators that are of generally greater accuracy than those provided by monthly surveys, not only because of greater sample sizes, but also because some of them are based on corporate tax records that are more comprehensive in terms of units covered and variables collected. In addition, compiling GDP using two approaches, each of which utilizes different data sources to measure the same aggregate measure of economic activity, allows statisticians to do an internal confrontation of the data and adds a degree of coherency and accuracy to the overall estimates. However, the two measures of GDP by the income and expenditure approaches may not be equal, giving rise to a statistical discrepancy.

Like the MGDP, QGDP estimates are also revised due to source data updates, benchmarking, and seasonal adjustment. The first estimate of the quarter relies on indicators from source data that could be updated as more data are collected, or as different and more comprehensive source data become available. Benchmarking also occurs with the annual SUTs that are released in November, leading to revisions not just for the quarters of the current year, but for all quarters for the three years prior to the current reference year. In addition, seasonal adjustment may lead to revisions during the entire period that QGDP estimates are open to revision. StatCan's revision policy stipulates updating QGDP according to the following schedule, resulting in up to eight vintages for any one quarter, as shown in Figure 3:

- First quarter: updates are applied back to Q1 of the previous year.
- Second quarter: updates are applied back to Q1 of the same year.
- Third quarter (when the annual SUTs are released): updates are applied back to Q1 of the third previous year.
- Fourth quarter: updates are applied to Q1 of the same year.

**Figure 3**  
**Revision Cycle of the official QGDP Program**

Reference year	Year t-3				Year t-2				Year t-1				Year t				Year t+1				Year t+2				Year t+3			
Reference quarter	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
May release																												
August release																												
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## Annual SUTs

**The SUTs program publishes an annual estimate of GDP 34 months after the end of the reference year.** The SUTs program utilizes data from annual surveys and administrative sources to compile the most comprehensive and detailed statistics relating to production, intermediate use, and final consumption of goods and services in the Canadian economy. The SUTs are the “statistical anchor” for the rest of the Canadian System of Macroeconomic Accounts, providing estimates of annual GDP using the three approaches: income, expenditure, and production. The GDP estimates derived from SUTs serve as annual benchmarks for the monthly and quarterly measures of GDP – the sum of the 12 months and the four quarters of the year must equal the corresponding annual benchmark value.

**StatCan does not regularly revise the SUTs once published.** The main drivers behind updating the monthly and quarterly estimates of GDP are either absent or attenuated when it comes to the annual SUTs. Benchmarking is not required for a measure of GDP that is itself the benchmark estimate, nor is seasonal adjustment necessary for an annual estimate. While updates to annual data sources may occur, they are usually of insignificant effect.