News Release: G20 GDP growth

Methodological Notes
Compilation of G20 Quarterly Economic Growth

Introduction

In the aftermath of the 2008 global financial crisis, several data gaps were recognised. In response, twenty recommendations to address the data gaps and improve statistical information were agreed upon by the G20 Finance Ministers and Central Bank Governors: the so-called G20 Data Gaps Initiative (DGI). Progress on the recommendations is coordinated and monitored by the Inter Agency Group on Economic and Financial Statistics (IAG). The group consists of the International Monetary Fund (chair), the Bank for International Settlements, the European Central Bank, Eurostat, the Organisation for Economic Cooperation and Development, the United Nations and the World Bank. Annual progress reports are provided to the meeting of the G20 Finance Ministers and Central Bank Governors.

One of the goals of the G20 DGI is the compilation of zone-aggregates for the G20 area as a whole. Therefore, quarterly gross domestic product (GDP) growth for the G20 area was compiled by the OECD and released for the first time in March 2012. This has become part of a regular OECD quarterly News Release on economic growth of the G20 area at around 70 days after the reference quarter. The estimates are based on quarterly seasonally adjusted data reported by G20 economies and Eurostat. They cover 95% of G20 area GDP.

GDP for the G20 countries covers roughly 80% of world GDP. As such, economic growth of the G20 area provides a proxy of global economic growth.

In September 2023, the African Union became a permanent member of the G20. However, the African Union is not yet part of the OECD's G20 estimates of quarterly economic growth.

Note Outline

The objective of this note is to provide some more in-depth technical information on the compilation of the G20 GDP growth estimates. Attention will be paid to:

- geographical coverage;
- compilation sources;
- revisions policy and the reliability of initial estimates;
- aggregation of national data;
- chain-linking methodology;
- seasonal adjustment practices; and,
- data presentation.

2008 SNA / ESA 2010 standards

All countries in the G20 area compile national accounts according to the international standard known as the 2008 System of National Accounts (SNA) or its European equivalent, the European System of Accounts (ESA) 2010. Adherence to the 2008 SNA or ESA 2010 standards ensures a high degree of comparability across countries.

GDP definition

GDP is the standard measure of the value added created through the production of goods and services in a country during a certain period. It also measures the income earned from that production, or the total amount spent on final goods and services (less imports). The indicator shown in the press release is based on real GDP (also called GDP at constant prices or GDP in volume), i.e. the developments over time are adjusted for price changes. The numbers are also adjusted for seasonal influences.

Geographical Coverage

The G20 GDP growth estimates cover the following: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, the Russian Federation, Saudi Arabia, South Africa, Türkiye, the United Kingdom, the United States, and the European Union. The African Union is not included.

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The G20 area aggregate is calculated as: the sixteen individual country members of the G20 (other than France, Germany and Italy) plus the European Union as a whole. Although the Russian Federation is not shown separately, it is included in the G20 estimates.

Compilation Sources

National data for the G20 countries is mainly sourced from National Statistical Offices, Eurostat and sometimes from National Central Banks. The sources for each country are listed in the OECD's main dissemination tool, OECD.Stat, in the metadata that accompanies the quarterly national accounts data. Using Canada as an example, data can be found here. The relevant data is published and revised according to national schedules; see the OECD quarterly national accounts release calendar.

The statistical data in this publication is supplied by and under the responsibility of the relevant statistical authorities. The use of such data by the OECD is without prejudice the status of or sovereignty over any territory, or to the delimitation of international frontiers and boundaries.

Data for the euro area and the European Union is provided by Eurostat. More information on the compilation of the European aggregates is available on the Eurostat website (link).

Data for China corresponds to official figures from the National Bureau of Statistics of China (NBS). Quarterly data used to compile the G20 aggregate is based on estimates from the OECD's Economics Department, which are not shown in the tables.

This first estimate of GDP growth for the G20 aggregate in the latest quarter is produced by the OECD. It is based on quarterly seasonally adjusted data reported by G20 economies and Eurostat and it covers 95% of the G20 GDP (see also the tables on country shares in G20 GDP in volume, as listed in the annex). Weights based on current PPPs are usually used when deriving zone aggregates' growth from national growths (annex- Table 1). Weights based on constant PPPs may help to compare the relative share of members within the G20 which is free from impact of inflation (annex - Table 2).

Revisions Policy and Reliability

Presently, the OECD publishes for each quarter two News Releases on quarterly economic growth. The first one, containing the flash estimates of quarterly economic growth for the OECD member countries, is published at approximately 50 days (T+50) after the end of the quarter. The second one, containing the first estimate of the G20 area as well as the most recent estimates for quarterly economic growth of the individual G20 members, is released at approximately 70 days (T+70) after the end of the quarter. National data and data for the European Union is revised according to the revisions policy of the relevant country and area, respectively. Updates of the G20 aggregate are revised according to the release calendar of the OECD. After the first estimate at T+70, revisions to the initial estimate of the growth for the G20 area are made at the time of the release of the flash growth estimates for the OECD area for the following quarter (i.e. at T+140).

The reliability of the initial estimate for the G20 aggregate of course depends on the reliability of the estimates of the G20 members. As upward and downward revisions of the G20 members typically cancel out at the level of the G20 aggregate, the reliability of the zone aggregate is better than the reliability of the constituent countries. The OECD has previously carried out some revision analysis on GDP growth and results are available at: http://www.oecd.org/sdd/na/revisions-of-quarterly-gdp-in-selected-oecd-countries.htm.

Furthermore, taking the OECD aggregate as a point of reference for the reliability of zone aggregates more generally, the revision analysis shows that the reliability of the GDP flash estimate for the OECD area at T+50 is very good. Over the period 2003-2011, the first estimate of OECD economic growth has generally been revised less than -/+ 0.1 percentage point, as compared to the estimate at T+140. On average, the revision was 0.01 percentage point upwards and the absolute average revision was 0.06 percentage point. Looking at the revisions between the first estimate and the latest available estimate, the revisions generally remained in the range +/- 0.2 percentage points, with a major exception in the year 2008, at the beginning of the financial crisis. On average, the revision between the first estimate and the latest available estimate was 0.04 percentage points upwards, with an absolute average revision of 0.16 percentage point.

Aggregation of National Data

To compile zone aggregates, like the G20 aggregate, national data has to be converted into a single denomination. For this purpose, OECD national accounts data is converted from national currencies to US dollars using Purchasing Power Parities (PPPs) rather than exchange rates. PPPs reflect the price differentials between countries. For example, when comparing China and the United States using currency exchange rates, one may overstate the volume of United States GDP relative to China, as the price levels in the United States are generally higher than the price levels in China. As such, national data converted using PPPs measures the relative size of economies in volume terms which provide a more meaningful measure than the one using currency exchange rates. For further reading on the measurement and uses of PPPs, see "2008 Benchmark PPPs, Measurement and Uses".

Annual series of PPPs are calculated through the "Eurostat-OECD PPP Programme". Quarterly PPPs are interpolated from the annual series using a quarterly indicator, *i.e.* the ratio between the quarterly price deflator of GDP for a given country and the quarterly GDP deflator for the United States.

For current prices, GDP data reported by member countries is converted to US dollars using current PPPs of GDP. Then, G20 GDP at current prices and current PPPs are calculated by summing the national converted GDP series. For volume estimates, GDP data reported by member countries is converted to US dollars using2015 Purchasing Power Parities (PPPs) of GDP. The current OECD reference year for this purpose is 2015.

The GDP growth rate for the G20 area is derived from comparing two quarterly G20 GDP volume estimates. Therefore no explicit weight is assigned to each member country as the weight is implicitly fixed by the level of its GDP within the zone. The compilation of G20 GDP volume estimates is calculated using the chaining method detailed hereafter.

Chained Volume Estimates

To overcome the problem of using constant prices referring to a distant base year for which the prices structure may be out-of-date, the national accounts have adopted the so-called chain-linking method to measure volume changes over time. The advantage of this method is that it takes into consideration the price structure of the previous period which is more relevant than the structure of a fixed period from further in the past. The disadvantage is the loss of additivity for volume estimates. As a consequence, geographical aggregation should also be made on data at previous year prices first. Subsequently, data at prices of a fixed period can be calculated by "chaining" the growth rates to the current price data of the fixed reference period.

The OECD uses the "annual overlap method" to chain-link data. For further reading on chain-linking methods used in the National Accounts Division of the OECD's Statistics Directorate, see http://www.oecd.org/sdd/na/35440053.pdf.

Most countries have adopted the chain-linking method for deriving volume estimates. However, a few countries are still using fixed constant prices, details can be found here: http://stats.oecd.org/wbos/fileview2.aspx?IDFile=479ecd3c-28ec-4b04-bf6b-a6903ce31c55
For these countries, in order to derive zone aggregates, implicit previous year prices have been derived by "unchaining" fixed constant prices, using the annual GDP deflator of the previous year. This data is not published.

After "unchaining" the relevant national data, national GDP data at previous year prices is summed to derive the G20 GDP series at previous year prices, which are subsequently chained to arrive at the G20 GDP at 2015 prices and 2015 PPPs.

Seasonal Adjustment

Figures for the G20 aggregate are calculated from seasonally (and calendar) adjusted data of the countries (*i.e.* the indirect method). The seasonally adjusted data includes a working-day correction for all G20 countries except Argentina, Brazil, China, India, Indonesia and South Africa. When seasonally adjusted

national data is not available, data is seasonally adjusted by the OECD's Statistics Directorate with the TRAMO/SEATS method; this is the case for India and Indonesia.

Data Presentation

The results are published on the following websites:

- OECD.Stat: http://stats.oecd.org/index.aspx?queryid=33940
- OECD National Accounts Statistics Page: http://www.oecd.org/sdd/na/

Growth over the previous quarter is not annualised in this publication. Therefore, quarterly growth for the United States shown in this release is different from data published by the US Bureau of Economic Analysis.

Two indicators are presented for GDP: percentage change on the previous quarter and percentage change on the same quarter of the previous year. Estimates of cumulative growth since Q4-2019 (before the start of the COVID-19 pandemic) have been discontinued from the December 2023 edition of the G20 GDP growth News Release, but they are still accessible on the OECD Database.

When Q4 data is released, preliminary estimates of annual growth are included. These are calculated as the sum of the four quarters of year Y divided by the sum of the four quarters of year Y-1, based on data not seasonally or calendar adjusted. However, when unadjusted data is not yet available for the last quarter, the preliminary growth for the last year is based on seasonally and calendar adjusted data.

The charts presented in the G20 GDP growth News Release are based on data with more than one decimal.

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ANNEX

Table 1. Country Share in G20 Aggregate: Nominal GDP, Current PPPs

	2000	2005	2010	2015	2020	2021
Argentina	1.2	1.0	1.0	1.0	0.9	0.9
Australia	1.3	1.3	1.3	1.2	1.3	1.3
Brazil	4.0	3.8	3.9	3.4	3.0	3.0
Canada	2.3	2.2	1.9	1.8	1.7	1.7
China	9.2	12.4	17.3	19.9	22.6	23.2
France	4.0	3.6	3.3	3.0	3.0	2.9
Germany	5.6	4.9	4.5	4.4	4.4	4.1
India	5.4	6.1	7.0	7.8	8.1	8.3
Indonesia	2.7	2.9	2.9	3.0	3.1	3.0
Italy	3.9	3.3	2.9	2.5	2.4	2.3
Japan	8.7	7.7	6.3	5.8	4.9	4.5
Korea	2.2	2.3	2.2	2.2	2.2	2.1
Mexico	2.7	2.5	2.4	2.5	2.2	2.1
Russian Federation						
Saudi Arabia	0.0	2.1	2.0	1.8	1.6	1.5
South Africa	1.0	1.0	0.9	0.9	0.7	0.7
Turkey	1.5	1.5	1.8	2.3	2.2	2.2
United Kingdom	3.9	3.7	3.2	3.1	2.9	2.8
United States	25.7	24.5	21.1	20.4	19.6	19.7
European Union	23.7	21.9	20.3	19.0	19.1	18.5

Note*:* The Russian Federation is included in the G20 estimates, but it is not shown separately.

Table 2. Country share in G20 Aggregate: Volume GDP, Constant PPPs

	2000	2005	2010	2015	2020	2021
Argentina	1.1	1.0	1.1	1.0	0.8	0.8
Australia	1.3	1.3	1.3	1.2	1.2	1.2
Brazil	3.7	3.6	3.8	3.4	3.0	2.9
Canada	2.2	2.1	1.9	1.8	1.7	1.6
China	8.3	11.2	16.2	19.9	23.8	24.3
France	4.3	3.9	3.4	3.0	2.7	2.7
Germany	6.1	5.3	4.8	4.4	4.1	3.9
India	4.6	5.3	6.7	7.8	8.6	8.8
Indonesia	2.3	2.4	2.7	3.0	3.2	3.1
Italy	4.2	3.7	3.1	2.5	2.2	2.2
Japan	8.7	7.8	6.6	5.8	5.2	5.0
Korea	2.0	2.1	2.2	2.2	2.2	2.1
Mexico	3.1	2.8	2.6	2.5	2.2	2.2
Russian Federation						
Saudi Arabia	0.0	0.0	1.6	1.8	1.6	1.6
South Africa	0.9	0.9	0.9	0.9	0.7	0.7
Turkey	1.8	1.9	1.9	2.3	2.4	2.5
United Kingdom	4.1	3.9	3.3	3.1	2.7	2.7
United States	25.7	24.6	21.8	20.4	19.6	19.5
European Union	26.5	24.3	21.5	19.0	17.7	17.5

Note*:* The Russian Federation is included in the G20 estimates, but it is not shown separately.