

Technical Note

Gross Domestic Product, Fourth Quarter and Year 2021 (Second Estimate)

February 24, 2022

This technical note provides background information about the source data and estimating methods used to produce the estimates presented in the GDP news release; a brief summary of "highlights" is available on BEA's website at www.bea.gov.

COVID-19 Impact on Fourth-Quarter 2021 GDP

Real GDP increased 7.0 percent at an annual rate (1.7 percent at a quarterly rate¹) in the fourth quarter of 2021, following an increase of 2.3 percent at an annual rate (0.6 percent at a quarterly rate) in the third quarter. In the fourth quarter, COVID-19 cases resulted in continued restrictions and disruptions in the operations of establishments in some parts of the country. Government assistance payments in the form of forgivable loans to businesses, grants to state and local governments, and social benefits to households all decreased as provisions of several federal programs expired or tapered off. Real GDP for the fourth quarter of 2021 is 3.2 percent above the level of real GDP for the fourth quarter of 2019².

The increase in real GDP primarily reflected increases in private inventory investment, exports, consumer spending, and nonresidential fixed investment that were partly offset by decreases in both federal and state and local government spending. Imports, which are a subtraction in the calculation of GDP, increased. The full economic effects of the COVID-19 pandemic cannot be quantified in the GDP estimate for the fourth quarter of 2021 because the impacts are generally embedded in source data and cannot be separately identified.

The acceleration in real GDP in the fourth quarter (that is, the increase in real GDP in the fourth quarter compared to the increase in the third quarter) primarily reflected upturns in exports and in residential fixed investment, and accelerations in private inventory investment and consumer spending that were partly offset by a downturn in state and local government spending. Imports accelerated.

Sources of Revision to Real GDP

The increase in fourth-quarter real GDP was revised up 0.1 percentage point from the "advance" estimate. The updated estimates primarily reflected upward revisions to nonresidential fixed

¹ Percent changes in quarterly seasonally adjusted series are displayed at annual rates, unless otherwise specified. For more information, refer to the FAQ [Why does BEA publish percent changes in quarterly series at annual rates?](#).

² The fourth quarter of 2019 was the most recent quarter prior to the onset of the COVID-19 pandemic. Calculated as the percent change from the fourth quarter of 2019 to the fourth quarter of 2021 in news release table 3, line 1.

investment, state and local government spending, and residential fixed investment that were partly offset by downward revisions to consumer spending and exports. Imports were revised down.

- The upward revision to nonresidential fixed investment reflected upward revisions to equipment and structures. For equipment the leading contributor to the upward revision was information processing equipment (notably, communication equipment), primarily reflecting new and revised Census trade in goods data for December. For structures, the leading contributor to the upward revision was manufacturing, based primarily on new December and revised October and November Census Value of Construction Put in Place (VPIP) data.
- The revision to state and local government spending primarily reflected an upward revision to consumption expenditures (specifically, for education compensation), based on updated Bureau of Labor Statistics (BLS) employment data. This upward revision was partly offset by a downward revision to gross investment (led by structures) based on new and revised VPIP data.
- The upward revision to residential fixed investment was led by single-family structures, based on new and revised VPIP data.
- Within consumer spending, a downward revision to services was partly offset by an upward revision to goods.
 - For services, the revision primarily reflected a downward revision to health care (both hospital and outpatient services), based on new fourth-quarter data from the Census Quarterly Services Survey.
 - For goods, the leading contributors to the upward revision were motor vehicles and parts (notably, new light trucks), based primarily on revised Wards Intelligence unit sales data as well as new and revised IHS Automotive/Polk registrations data; food and beverages purchased for off-premises consumption, based on revised Census Monthly Retail Trade Survey data; and "other" nondurable goods (mainly pharmaceuticals) reflecting a revised BLS consumer price index for prescription drugs.
- For both exports and imports, the revised estimates primarily reflected updated data from BEA's International Transactions Accounts as well as new and revised Census trade in goods data for December. Within exports, the downward revision was to goods, led by industrial supplies and materials (both durable and nondurable). Within imports, a downward revision to services (specifically, transport services) was partly offset by an upward revision to goods.

Real final sales to private domestic purchasers, which measures private demand in the domestic economy and is derived as the sum of consumer spending and private fixed investment, increased 3.0 percent in the fourth quarter, an upward revision of 0.2 percentage point. The upward revision was led by an upward revision to private fixed investment.

Prices

BEA's featured measure of inflation in the U.S. economy, the price index for gross domestic purchases, increased 7.0 percent in the fourth quarter, an upward revision of 0.1 percentage point from the

previous estimate. The price index for personal consumption expenditures (PCE) increased 6.3 percent in the fourth quarter, a downward revision of 0.2 percentage point. The revision primarily reflected a downward revision to the prices paid for gasoline and other energy goods, based on new and revised price data, based on [updated seasonal factors for BLS consumer price indexes](#).

Excluding food and energy, the “core” PCE price index increased 5.0 percent, an upward revision of 0.1 percentage point, primarily reflecting updated BLS consumer price indexes. For a comparison of PCE prices to BLS consumer price indexes, refer to NIPA [Table 9.1U. Reconciliation of Percent Change in the CPI with Percent Change in the PCE Price Index](#).

Federal Government Economic Response to the COVID-19 Pandemic

Since the onset of the COVID-19 pandemic, several [legislative acts](#), including the Coronavirus Aid, Relief, and Economic Security (CARES) Act; the Coronavirus Response and Relief Supplemental Appropriations (CRRSA) Act; and the American Rescue Plan (ARP) Act, were signed into law. The Acts established several temporary programs and provided additional funding for existing federal programs to support individuals, communities, and businesses impacted by the pandemic. Because the effects of the Acts were in the form of transfers to individuals, subsidies to businesses, and grants to state and local governments, their effects on GDP show up indirectly through the components of GDP, such as consumer spending, business investment, and government spending. Thus, BEA cannot separately identify the total effect of the Acts on changes in GDP.

It is possible, however, to identify the impacts of select recovery programs on aggregate federal government spending. Further information on these and other pandemic response programs, including estimates of the effects of these programs on federal government spending is available in [Effects of Selected Federal Pandemic Response Programs on Federal Government Receipts, Expenditures, and Saving](#).

Updates to Third-Quarter Wages and Salaries

In addition to presenting updated estimates for the fourth quarter, today's release presents revised estimates of third-quarter wages and salaries, personal taxes, and contributions for government social insurance, based on new data from the BLS Quarterly Census of Employment and Wages program. Wages and salaries are now estimated to have increased \$306.8 billion in the third quarter of 2021, an upward revision of \$27.7 billion. Real GDI increased 6.4 percent (annual rate) in the third quarter, an upward revision of 0.6 percentage point from the previously published estimate.

GDP for 2021

Real GDP increased 5.7 percent, unchanged from the prior estimate, in 2021 (from the 2020 annual level to the 2021 annual level), in contrast to a decrease of 3.4 percent in 2020. The increase in real GDP primarily reflected increases in consumer spending, nonresidential fixed investment, exports, residential fixed investment, and private inventory investment. Imports increased.

Measured from the fourth quarter of 2020 to the fourth quarter of 2021, real GDP increased 5.6 percent (revised) during the period, in contrast to a decrease of 2.3 percent from the fourth quarter of 2019 to the fourth quarter of 2020.

Updated GDP and Personal Income Per Capita Statistics

BEA's per capita income and product statistics, featured in [NIPA table 7.1](#), have been updated beginning with the second quarter of 2010. The revised historical time series reflects an update to the intercensal years to align with the 2020 Census results and with the latest Census Bureau [population statistics](#).

Looking Ahead: 2022 Annual Update of the National Economic Accounts

BEA will release results from the 2022 annual update of the National Economic Accounts, which includes the National Income and Product Accounts as well as the Industry Economic Accounts, on September 29, 2022. The update will present revised statistics for GDP, GDP by Industry, and gross domestic income that cover the first quarter of 2017 through the first quarter of 2022. Refer to BEA's recent blog post, "[National, Industry, and State Annual Updates Will Be United in 2022](#)", for additional detail.

More Information

The complete set of statistics for the fourth quarter is available on [BEA's website](#), along with a table presenting the "[Key Source Data and Assumptions](#)" that underlie the statistics. In a few weeks, the *Survey of Current Business*, BEA's online monthly journal, will present a more detailed analysis of the estimates ("GDP and the Economy").

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