

Technical Note

Gross Domestic Product for Puerto Rico, 2020

July 26, 2022

This technical note provides background information about the estimates presented in the Puerto Rico gross domestic product (GDP) news release. The complete set of estimates for 2012–2020 is available on the U.S. Bureau of Economic Analysis (BEA) website at www.bea.gov/data/gdp/gdp-puerto-rico. A description of the data sources and estimating methods is available; see [Summary of Methodologies: Puerto Rico Gross Domestic Product](#).

Preliminary estimates and update cycles

Much of the source data that BEA uses to prepare the Puerto Rico GDP estimates is drawn from administrative or survey data that, over time, will provide more comprehensive or relevant information. For the earliest “preliminary” estimates, the GDP statistics are based on partial information sets that are supplemented with less comprehensive or less direct indicators of economic activity. Due to lags in the availability of source data, in particular for private inventory investment and central government spending, the 2020 estimates presented in the news release are preliminary estimates.

As improved source data become available, BEA will incorporate the information and will release updated estimates once a year. See [“Updates to GDP.”](#)

Approximately every 5 years, BEA will conduct a “comprehensive” update, which will incorporate the most extensive source data available and will introduce major methodological changes. These comprehensive updates may affect the estimates of Puerto Rico GDP for all years. By following this process, BEA will ensure that the estimates are as timely, consistent, and accurate as possible, given the availability of the data sources.

Updates to GDP

Estimates of GDP and its components for 2017–2019 that were released on September 27, 2021, have been revised to incorporate updates to source data. The largest revision was in 2018, as shown in table 1.

The largest source of revision over this period was the incorporation of data collected from newly available audited government financial statements and unaudited operating and budget statements for the Puerto Rico Commonwealth government and its component units for fiscal years 2018 to 2020.

Table 1. Puerto Rico: Revisions to Real GDP

Line		Current release			Revision from prior release		
		2017	2018	2019	2017	2018	2019
	Real GDP						
1	Millions of chained (2012) dollars	102,038	99,144	99,337	57	-411	-514
2	Percent change from preceding period	-4.6	-2.8	0.2	0.1	-0.4	-0.1

Note. The revision from prior release is calculated as the value reported in the current release minus the value reported in the prior release.

Other sources of revision include the incorporation of the following:

- Newly available company financial statements filed on the Puerto Rico Department of State's online [Registry of Corporations and Entities](#)
- Updated information on business inventories and sales from the Puerto Rico Planning Board
- Updated federal administrative data on hospital revenues from the Centers for Medicare & Medicaid Services, higher education revenues from the National Center for Education Statistics, and government contract obligations from the Federal Procurement Data System

Key gaps and lags in Puerto Rico GDP source data

The U.S. territories, including Puerto Rico, are not included in many of the federal data sources that BEA relies on to prepare national estimates of GDP and related measures.¹ Key data sources from which Puerto Rico is excluded are (1) the U.S. Census Bureau's annual and other higher frequency surveys covering the manufacturing, construction, retail trade, wholesale trade, services, and government sectors and (2) the U.S. Bureau of Labor Statistics' consumer and producer price programs.^{2,3}

For its estimates of Puerto Rico GDP, BEA relies heavily on information provided by Puerto Rico government agencies to fill several of the gaps in federal statistical agency data. For example, to estimate the value of construction spending in each year, BEA uses data on construction activity provided by the Puerto Rico Planning Board. These data are collected by the Planning Board through its construction survey program. BEA also uses data from the Planning Board and the Puerto Rico Department of Treasury (Hacienda) to estimate annual levels of private inventory investment by manufacturers, retailers and wholesalers, and other businesses; BEA supplements these data with information collected from company financial statements filed on the Puerto Rico Department of State online [Registry of Corporations and Entities](#). For government spending, BEA collects data from hundreds of publicly available financial statements, budget documents, and unaudited operating and financial statements from the central and municipal governments and their independent agencies. BEA also uses data from the Planning Board to estimate select components of government spending. For exports and imports of services other than travel and freight, BEA uses balance-of-payments and industry sales data from the Planning Board.

1. For information on federal data sources that do include Puerto Rico and are used in BEA's Puerto Rico GDP estimate, see [Federal Economic Data That Make BEA's Puerto Rico GDP Estimate Possible](#) on the BEA website.

2. Puerto Rico is not included in the following U.S. Census Bureau surveys: the Annual Wholesale Trade Survey; the Annual Retail Trade Survey; the Annual Capital Expenditures Survey; the Value of Construction Put in Place Survey; the Service Annual Survey; the Annual Survey of Manufactures; the Manufactures' Shipments, Inventories, and Orders Survey; and the Annual Survey of State and Local Government Finances. The U.S. Census Bureau does publish annual building permit data for Puerto Rico; the most recent year available is 2016.

3. Puerto Rico is included in the U.S. Bureau of Labor Statistics' International Price Program as part of the United States but cannot be separately identified from the rest of the nation.

However, a significant challenge associated with the use of Puerto Rico government data is lags in the availability of source data for major components of Puerto Rico GDP. The 2020 GDP estimates were subject to lags in the availability of the Planning Board data sets described above. As of early July 2022, Planning Board data on balance of payments and intermediate purchases by the Commonwealth government were not available for fiscal year 2021.⁴ The Planning Board had also not published its estimates of construction activity for fiscal year 2021; BEA's estimates for 2020 incorporate preliminary unpublished construction data that were provided by the Planning Board. Lags in the availability of Puerto Rico Treasury Department data for business inventories and of audited government financial statements for the Puerto Rico Commonwealth government continued through the 2020 GDP estimates.

Other gaps in Puerto Rico GDP source data include information covering research and development (R&D) activity and price trends in Puerto Rico.

The lack of annual information on R&D activity presents a measurement challenge for Puerto Rico GDP. Although BEA is able to estimate R&D performed by computer service providers and by businesses classified as scientific R&D service providers, R&D performed by other sectors in Puerto Rico, such as pharmaceutical and medical equipment manufacturing, are not well covered in the data sources. BEA is not aware of any current, systematic, comprehensive data on the value and other characteristics of private-sector R&D taking place in Puerto Rico.

For producing estimates of inflation-adjusted GDP, the primary challenge is that price information specific to Puerto Rico is limited. The Puerto Rico Department of Labor and Human Resources produces consumer price indexes, which BEA uses within the estimates of consumer spending, but there are no producer price indexes for Puerto Rico, nor are there price indexes that cover trade in goods and services between the Commonwealth of Puerto Rico and the rest of the United States.

Comparisons to existing macroeconomic statistics for Puerto Rico

BEA's GDP estimation methodology is substantially different from that used in published statistics about Puerto Rico's economy, such as those produced by the Puerto Rico Planning Board.

BEA's methodology incorporates a number of advances into the measurement of Puerto Rico GDP and its components. These enhancements include adopting modern approaches to calculate aggregate output, such as the following:

- Using chain-type indexes for inflation adjustment
- Benchmarking components of consumer spending, private fixed investment, and private inventory investment to information from the U.S. Census Bureau's 2012 and 2017 Economic Census of Island Areas
- Treating intellectual property products as investment
- Adjusting for inflation at a higher level of detail to ensure that the selected price indexes better reflect the mix of goods and services produced by the Puerto Rico economy

These advances result in macroeconomic statistics that are comparable with other data that BEA produces—for the nation, for states, and for the other U.S. territories. BEA's estimates are also presented on a calendar year basis. Thus, direct comparisons with fiscal year statistics that use older national accounting techniques may be misleading.

4. Fiscal year 2021 includes half of calendar year 2020 (July–December).

Exported Intellectual Property-Intensive Products Are Key Drivers of Puerto Rico GDP

Puerto Rico’s economic activity, as measured by GDP, includes a significant amount of exported products generated by intellectual property-intensive industries, particularly by pharmaceutical manufacturers, medical and scientific equipment manufacturers, and computer services providers. To assist data users in assessing the overall impact of these industries—which include several firms with global operations—on the Puerto Rico economy, BEA has conducted an analysis of GDP and its components that removes net exports of goods and services (that is, exports less imports) and private inventory investment that are closely associated with these industries. For this analysis, BEA excluded from GDP the exports and imports of pharmaceuticals and organic chemicals, exports and imports of medical and scientific equipment and appliances, exports of computer services including software, inventory investment by chemical manufacturers, and inventory investment by miscellaneous goods manufacturers including medical equipment and supplies manufacturers.

The resulting series (lines 1–2 of table I) are approximations of economic activity excluding the impact of these industries. A weakness of these measures is that they do not take into account all intermediate inputs that are imported by these industries for use in production, such as petroleum and other energy products. These series are not intended to be substitutes for estimates of gross national product (GNP); however, by removing much of the production in Puerto Rico that is associated with nonresident firms, they may exhibit levels and trends that are similar to GNP.

Table I. GDP and Net Exports Less Pharmaceuticals, Medical and Scientific Equipment, and Computer Services

Line	2012	2013	2014	2015	2016	2017 ^r	2018 ^r	2019 ^r	2020 ^p
GDP less pharmaceuticals, medical and scientific equipment, and computer services¹									
1 Millions of dollars	66,742	67,502	67,723	68,597	70,877	68,767	69,309	69,097	66,076
2 Millions of chained (2012) dollars	66,742	66,124	65,128	63,748	64,569	62,240	62,393	62,047	58,667
3 Percent change from preceding period	-0.9	-1.5	-2.1	1.3	-3.6	0.2	-0.6	-5.4
Net exports less pharmaceuticals, medical and scientific equipment, and computer services²									
4 Millions of dollars	-17,245	-16,186	-14,848	-12,571	-10,030	-13,068	-19,747	-17,507	-19,013

r Revised

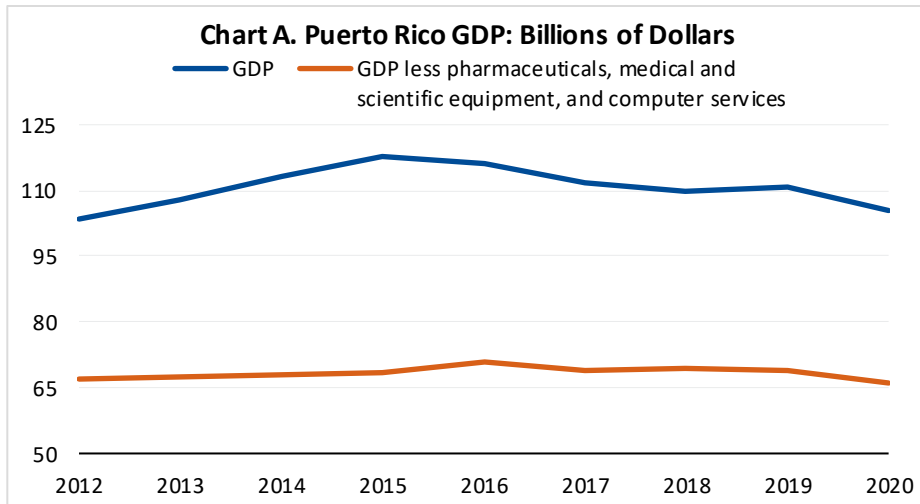
p Preliminary

... Growth rates are not available in 2012.

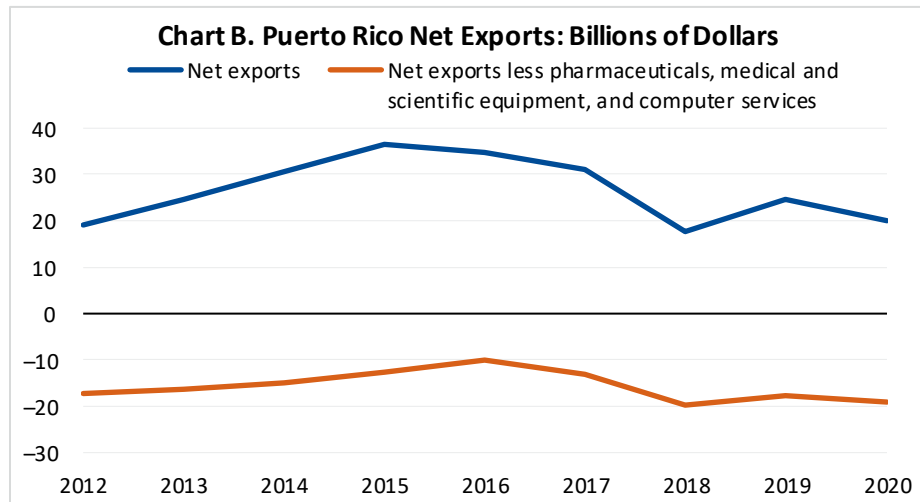
1. GDP less exports and imports of pharmaceuticals and organic chemicals, exports and imports of medical and scientific equipment and appliances, exports of computer services including software, inventory investment by chemical manufacturers, and inventory investment by miscellaneous goods manufacturers including medical equipment and supplies manufacturers.

2. Net exports of goods and services less exports and imports of pharmaceuticals and organic chemicals, exports and imports of medical and scientific equipment and appliances, and exports of computer services including software.

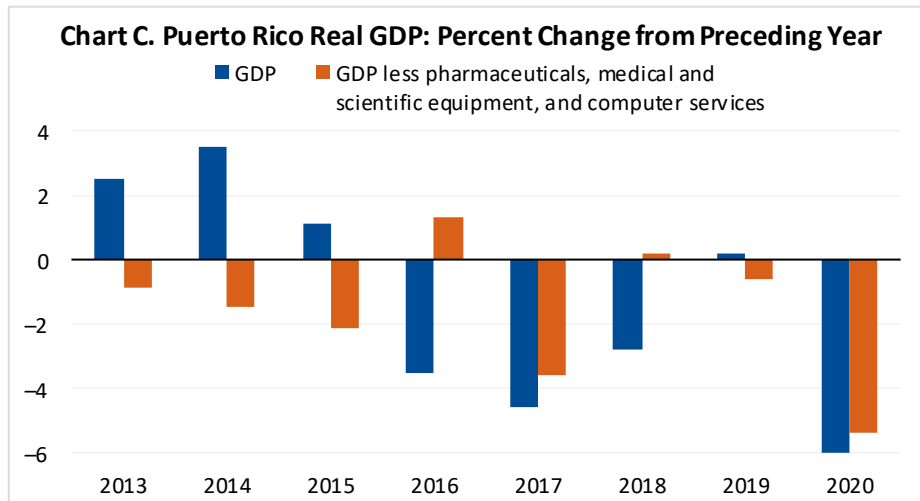
As shown in charts A–C, BEA’s analysis reveals different trends in most years for the Puerto Rico economy outside of the industries listed above. Chart A shows GDP less pharmaceuticals, medical and scientific equipment, and computer services, compared with GDP shown in table 1.1 of the news release. Chart B shows net exports of goods and services less pharmaceuticals, medical and scientific equipment, and computer services; this series was negative for the entire period, compared with the positive trade balance shown in table 1.1. Chart C shows the growth in real GDP less pharmaceuticals, medical and scientific equipment, and computer services, compared with the growth in real GDP shown in table 1.3.



U.S. Bureau of Economic Analysis



U.S. Bureau of Economic Analysis



U.S. Bureau of Economic Analysis