

Preview of the 2023 Comprehensive Update of the Regional Economic Accounts

By Ledia Guci | August 15, 2023

This fall, the U.S. Bureau of Economic Analysis (BEA) will release the results of the comprehensive update of the Regional Economic Accounts (REAs). These results will be published concurrently with the results of the comprehensive update of the National Economic Accounts (NEAs), which include the National Income and Product Accounts (NIPAs) and the Industry Economic Accounts (IEAs). This concurrent release is a result of a multiyear effort across the Agency to harmonize the statistics and synchronize the release of these accounts.

BEA periodically updates its statistics to ensure its economic accounts reflect the best available data and accurately measure the dynamic U.S. economy. During annual updates, BEA revises its statistics to incorporate newly available and revised source data and new and improved methodologies, with the revisions typically focusing on more recent years. Every 5 years, BEA conducts comprehensive updates to integrate updated statistics from its benchmark Input-Output Accounts, which are based on the quinquennial Economic Census, and to introduce more complex and comprehensive improvements to its accounts, with the revisions typically extending back for many years. In addition to incorporating the most complete source data and methodology improvements, comprehensive updates provide an opportunity to introduce necessary changes to definitions and classifications and presentational changes to the published tables.

With the 2023 comprehensive update, the REAs will incorporate the results of the 2023 comprehensive update of the NEAs.¹ In addition, they will incorporate regional source data that are more complete and more detailed than those previously available as well as methodology improvements, of which the most notable are described in this article. These statistical improvements will not result in presentational changes to the published REA tables.

The release of the updated REAs will start with the publication of personal income by state, personal consumption expenditures by state, and gross domestic product (GDP) by state. The results of the comprehensive update for other regional statistics including GDP by county, personal income by county, and regional price parities will be released later in 2023 according to the dates outlined in the [BEA news release schedule](#).

The annual personal income by state statistics will be revised from 1979 to 2022. Quarterly personal income by state will be revised from the first quarter of 1979 through the first quarter of 2023. Annual personal consumption expenditures by state will be revised from 1997 to 2021. The annual current-dollar measures of GDP by state and related components will be revised from

1997 to 2022. Quarterly GDP by state statistics will be revised from the first quarter of 2005 through the first quarter of 2023. In addition, the reference year for chained-dollar GDP measures will be changed from 2012 to 2017.

The industry classification of regional measures will be updated to follow the 2017 North American Industry Classification System (NAICS). A notable change related to industry classification involves the regional income statistics for 2022. BEA prepares regional income statistics in accordance with the NAICS edition applicable to a given time period. For example, the 2002 edition of NAICS is used to prepare regional income statistics for the years 2002–2006, the 2007 edition is used for the years 2007–2011, the 2012 edition is used for the years 2012–2016, and the 2017 edition is used for more recent years. This year marks the first time BEA will prepare the 2022 regional income statistics on a 2017 NAICS basis for time series consistency as well as consistency with the GDP by state statistics and other BEA industry statistics.

The regional estimates will incorporate newly available and revised regional source data, including data from the U.S. Census Bureau 2017 Economic Census and annual source data that have become available since the last annual update of the REAs in September 2022. These data include Census Bureau Annual Survey of Manufactures and Annual Survey of State and Local Government Finances statistics, U.S. Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages statistics, Internal Revenue Service tabulations of tax returns, and U.S. Department of Agriculture farm statistics.

The remainder of this article describes some of the major methodology changes that will be introduced in the REAs as part of the upcoming comprehensive update. The results of the update and the effects of these changes on the regional estimates will be described in an upcoming *Survey of Current Business* article following the publication of the updated REAs.

Changes in Methodology

Housing services

With the 2021 annual update, BEA introduced a new methodology for estimating housing services using microdata on housing units from the American Community Survey (ACS). Housing services for both tenant- and owner-occupied housing are now estimated at the housing unit level based on observed rent expenditures (contract rent) and detailed housing characteristics (structure type, number of bedrooms, number of rooms, and age of structure), which are then aggregated at the state and national levels.² The use of the ACS data as a single transparent source not only improves the accuracy and reliability of BEA's housing measures but also provides a fully integrated approach to estimating housing services at the national and regional levels.

This year, BEA will further improve the measures of housing services by using a more detailed adjustment for utilities that are included in the contract rent. With the current methodology, ACS data for units with separate charges for rent and utilities are used to derive estimates of utility costs (electricity, gas, and water) as a share of the contract rent. The utility shares are then applied to contract rent observations that include utilities in similar housing units—those in the same location (ACS Public Use Microdata Areas (PUMAs)) sharing the same housing characteristics—to estimate and remove the cost of those utilities.³ This adjustment is only made to housing units where expenditures on both electricity and gas are included in the contract rent.

BEA will apply a more detailed utility adjustment that, in addition to electricity, gas, and water, includes expenditures on other fuels, such as heating oil and propane. Accounting for other fuels is important regionally, particularly for Alaska and states in the northeast. The new adjustment will be made to each housing unit where one or more utilities are included in the rent and will exclude only the utilities that are included in any given unit. Housing estimates will be revised from 1997 to 2021 and will impact regional measures of GDP, personal income, personal consumption expenditures, and regional price parities.⁴

Chained-dollar measures of GDP by state and GDP by county

BEA will improve the calculation of chained-dollar measures of annual and quarterly GDP by state and annual GDP by county statistics. In the REAs, chained-dollar measures of GDP are computed using national chain-type indexes following the same processes used in the national accounts to compute annual estimates of real (inflation-adjusted) GDP. For real quarterly GDP by state statistics, BEA uses Denton interpolation, also used in the national accounts, to compute the quarterly estimates of real GDP.

BEA uses the Fisher Price Index formula in the calculation of real GDP estimates. This formula fails in the presence of zero and negative values and causes breaks in the chain-type indexes that are computed. While zero and negative values rarely occur in GDP by state estimates, they are more prevalent in the GDP by county estimates. This year, BEA will implement a more systematic approach to address these occurrences using a rearrangement of the Fisher formula that uses the current-dollar estimates and ratios of prices in adjacent time periods (i.e., price relatives).

Depending on the location and prevalence of the breaks in the price index series, BEA will either use geometric interpolation between two existing price relatives to impute the missing values or use a price index value from the closest related series to complete the index.

This approach provides a consistent solution to the problem while preserving the desired index properties. This methodology change will result in small overall revisions, but it will streamline the calculations and improve the consistency of the regional and national accounts. This change will have limited impact on the annual estimates of GDP by state, but its impact will be more widespread in the quarterly GDP by state estimates from the first quarter of 2005 forward and in the annual GDP by county estimates from 2001 forward.

GDP by county measures of management of companies and enterprises

Management of companies and enterprises is a sector for which BEA prepares and publishes county GDP estimates. GDP by county statistics for most industries are estimated using the income approach to GDP—the sum of compensation, taxes on production and imports less subsidies, and gross operating surplus, which includes consumption of fixed capital, proprietors' income, corporate profits, and business current transfer payments (net).⁵ The current methodology for the county estimates of management of companies and enterprises uses a combination of compensation and proprietors' income data to form an allocator series for this industry. The volatility in the proprietors' income data for this industry introduces high volatility in the estimates and makes its estimation particularly challenging. At the national level, gross operating surplus for management of companies and enterprises consists only of consumption of fixed capital.⁶

BEA will change the allocator series used for this industry to rely only on compensation data. This change will improve consistency with the corresponding measures at the national level and provide more stability to this estimate. It will impact the annual GDP by county estimates from 2001 forward.

County measures of state unemployment insurance benefits

State unemployment insurance benefit payments mainly consist of the compensation received by individuals under state-administered unemployment insurance (UI) programs, including the extended benefits that are authorized by federal legislation for periods of high unemployment. For most states, BEA allocates the state unemployment insurance compensation to counties using the number of unemployed by county from the BLS Local Area Unemployment Statistics (LAUS) program. For the remaining states, county-level administrative data have been used for this allocation. Unfortunately, the routine and timely availability of the county-level administrative data for these states has deteriorated considerably.

To improve comparability and consistency across the county measures, BEA will use the number of unemployed by county from LAUS to allocate state totals of unemployment insurance benefits to counties for all states. This methodology change will be implemented from 2013 to 2022 and will impact the county personal income estimates.

Discount rate for private and state and local defined benefit pension plans

BEA uses a common discount rate for privately sponsored defined benefit pension plans and state and local government defined benefit pension plans that is based on the average AAA corporate bond rate published by Moody's Investors Service. Currently BEA is using a 4 percent discount rate. During a comprehensive update, BEA routinely assesses whether the discount rate needs to be adjusted. BEA is raising the discount rate for these pension plans in 2022. The increase, largely guided by the recent rise in the AAA corporate bond rate, will be in line with the historical returns of the AAA bond from 1929 to 2008, averaging 5 to 7 percent.

Raising the discount rate lowers liabilities (benefit entitlements) and employers' normal cost. For regional statistics, this change will impact supplements to wages, more specifically employer contributions to employee pension and insurance funds, which incorporate employers' normal cost and pension service charges. Thus, it will lower the regional compensation estimates. In addition, the lower liabilities will increase the funded ratio in the transactions of state and local government defined benefit pension plans tables.

Footnotes

1. For a discussion of changes planned for the comprehensive update of the NEAs, see Stephanie H. McCulla, Dorian L. Turner, and Lisa Mataloni, "[Preview of the 2023 Comprehensive Update of the National Economic Accounts: Changes in Methods, Definitions, and Presentations](#)," *Survey of Current Business* (June 23, 2023), and Robert J. Kornfeld, "[Improved Measures of Regulated Investment Companies and Real Estate Investment Trusts for the U.S. National Economic Accounts](#)," *Survey* (May 12, 2023).
2. For a detailed description of this methodology, see Dylan G. Rassier, Bettina H. Aten, Eric B. Figueroa, Solomon Kublashvili, Brian J. Smith, and Jack York, "[Improved Measures of Housing Services for the U.S. Economic Accounts](#)," *Survey* 101 (May 2021).
3. PUMAs are nonoverlapping Census Bureau statistical geographical areas that are built on census tracts and counties and contain at least 100,000 people. PUMAs cover the entire United States and do not span more than one state.
4. BEA introduced the improvements to the housing rents and utility expenditures outlined in this section with the release of the regional price parities (RPPs) on December 15, 2022, for the period 2017–2021. With the 2023 comprehensive update, these improvements to the RPPs will be extended to prior years. For more information, see Bettina Aten and Eric Figueroa, "[Revisions to Source Data for Regional Price Parities: Updates Back to 2017](#)," *Survey* (April 20, 2023).
5. For more information, see Kirubel D. Aysheshim, Jacob R. Hinson, and Sharon D. Panek, "[A Primer on Local Area Gross Domestic Product Methodology: First Official Release of Gross Domestic Product by County, 2001–2018](#)," *Survey* 100 (March 2020).
6. Detailed national statistics on [value-added components for the management of companies and enterprises industry](#) are available on the BEA website.



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