An Overview of the GDP by County Methodology

On December 12, 2019, the Bureau of Economic Analysis (BEA) released the first official measures of gross domestic product (GDP) by county. GDP can be measured as the sum of income payments and other costs incurred in the production of goods and services. This "income approach" to measuring GDP is conceptually equivalent to the production approach that measures gross output minus intermediate inputs and the final expenditures approach that measures the sum of personal consumption, private investment, government spending, and exports less imports. As with BEA's GDP by state statistics, the county statistics employ the income approach to measuring GDP; i.e., GDP is computed as the sum of compensation of employees, taxes on production and imports less subsidies, and gross operating surplus (eq. 1).

$$GDP_{cnty,i} = Compensation_{cnty,i} + Taxes\ on\ Production\ and\ Imports\ less\ Subsidies_{cnty,i} + Gross\ Operating\ Surplus_{cnty,i}\ \text{(eq. 1)}$$

BEA produces county level statistics for the compensation of employees and the proprietors' income portion of gross operating surplus in its estimation of county-level personal income.[1] By a simple rearrangement of terms in equation 1, a residual component of GDP, representing the sum of 1) gross operating surplus minus proprietors' income and 2) taxes on production and imports less subsidies can be calculated. It is this residual component of GDP that needs to be estimated to complete the measurement of GDP by county (eq. 2).

$$GDP_{cnty,i} = Compensation_{cnty,i} + Proprietors'\ income_{cnty,i} + (Gross\ Operating\ Surplus\ less\ Proprietors'income + Taxes\ on\ Prouduction\ and\ Imports\ less\ Subsdies)_{cnty,i}\ \text{(eq. 2)}$$

GDP by county is published at the sector level, however, many industries are estimated at the three-digit North American Industry Classification System (NAICS) level. To estimate the county residual portion of GDP for each industry, BEA first calculates the state-level residual value for each industry from BEA's GDP by state statistics. County level industry source data are used as indicators to distribute the calculated state-level residual portion for each industry to produce county estimates. The resulting county statistics sum to published GDP by state by industry.

The source data fall into one of two categories—general or industry-specific. General data sources capture data on all published industries and were incorporated into the methodology for most industries, while industry-specific data sources were incorporated into one industry. Tables 1 and 2 below lists the two categories of data sources and which industries rely upon those data.

Chained-dollar values of GDP by county are derived by applying national chain-type price indexes to the current dollar values of GDP by county for 65 detailed NAICS-based industries. The chain-type index formula that is used in the national accounts is then used to calculate the values of total real GDP by county and real GDP by county at more aggregated industry levels.

Because of the sensitivity of some of the source data used in estimation, the GDP by county statistics are subject to suppressions via disclosure avoidance of confidential source data. These suppressions have been applied according to the guidance accompanying any sensitive source data. A full discussion of the methodology is forthcoming in the February 2020 publication of the *Survey of Current Business*.

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[1] Proprietors' income reflects inventory valuation and capital consumption adjustments. BEA estimates proprietors' income by county to estimate the earnings component of personal income but does not publish these estimates.

Table 1

Industry	Census Economic Census	National Establishment Time Series Database	Additional Source Data
Agriculture, forestry, fishing, and hunting*			✓
Mining*			✓
Utilities			
Construction**			✓
Manufacturing	✓	✓	
Wholesale trade	✓	✓	
Retail trade	✓	✓	
Transportation and warehousing*	✓	✓	✓
Information	✓	✓	
Finance and insurance*	✓	✓	✓
Real estate and rental and leasing*	✓	✓	✓
Professional and technical services	✓	✓	
Management of companies and enterprises			
Administrative and waste services	✓	✓	
Educational services	✓	✓	
Healthcare and social assistance	✓	✓	
Arts, entertainment, and recreation	✓	✓	
Accommodation and food services	✓	✓	
Other services, except government	✓	✓	
Government*			✓

* Denotes additional source data in the sub-industry detail.

** Denotes additional source data at the sector level.

Table 2

Industry	Additional Source Data
Agriculture, forestry, fishing, and hunting	
Farms	BEA farm receipts and expenses
Mining Data	
Oil and gas extraction	Drilling Edge
Mining except oil and gas extraction	Energy Information Agency (EIA)
Construction	Dodge Analytics
Transportation and warehousing	
Air transportation	Bureau of Transportation Statistics (BTS)
Rail transportation	AMTRAK, Surface Transportation Board (STB)
Finance and insurance	
Banking	Federal Deposit Insurance Corporation (FDIC)
Real estate and rental and leasing	
Real estate	BEA imputed rent, BEA rental income from farms owned by nonoperator landlords, American Housing Survey
Government	
Federal civilian	Bureau of Labor Statistics (BLS), EIA
Federal military	BLS