BEA Regional Statistics

Mauricio Ortiz

Maryland State Date Center Annual Meeting
September 20, 2018
BEA’s Regional Program

• Statistics provide a picture of the economic activity within a state, metro area, or county.
  
  – Personal Income statistics
  – Employment
  – Gross Domestic Product
  – Regional Price Parities
  – Personal Consumption Expenditures
  – Satellite Accounts

• Regional Statistics are tied to the National Income and Product Accounts (NIPA).
BEA’s Regional Program

• Why “Regional”?  
  – Comprehensive and consistent data allow for regional comparisons across geographies:  
    • States  
    • Counties (more than 3,000)  
    • Metropolitan Areas (300+)  
    • Micropolitan Areas (500+)  
    • Others
Regional Income & Employment Statistics
Personal Income and Employment

• Detailed data on the geographic distribution of personal income and jobs
  – Personal Income
    • State Annual (1929 – forward)
    • State Quarterly (1948 – forward)
    • County Annual (1969 – forward)
  – Employment
    • State Annual (1969 – forward)
    • County Annual (1969 – forward)
What is Personal Income?

Personal income = Net earnings by place of residence + Dividends, Interest, and Rent + Personal Current Transfer Receipts

Net earnings by place of residence = Earnings by place of work - Contributions for Gov’t Social Insurance + Adjustment for residence

Earnings by place of work = Wages and Salaries + Supplements to Wages and Salaries + Proprietors’ Income
What is Personal Income?

Components of Personal Income, U.S. 2016

- Net earnings by place of residence: 19%
- Dividends, interest, and rent: 18%
- Personal current transfer receipts: 63%

Components of Personal Income, Maryland 2016

- Net earnings by place of residence: 19%
- Dividends, interest, and rent: 14%
- Personal current transfer receipts: 67%
What is Employment?

• Number of jobs, full and part-time
• Consistent with income statistics

\[
\text{Total Employment} = \text{Wage & Salary Employment} + \text{Proprietors’ employment}
\]
What is Employment?

Components of Employment, U.S. 2016

- Wage and salary employment: 77%
- Proprietors employment: 23%

Components of Employment, Maryland 2016

- Wage and salary employment: 77%
- Proprietors employment: 23%
County Personal Income, 2016

105 counties account for 50% of Total Personal Income
County Per Capita Personal Income, 2016

Top 105 counties
## County Personal Income

<table>
<thead>
<tr>
<th>Component</th>
<th>Baltimore County, MD [Per capita, 2016]</th>
<th>Washington County, MD [Per capita, 2016]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings by place of work</td>
<td>35,870</td>
<td>28,274</td>
</tr>
<tr>
<td>Less: Contributions for government social insurance</td>
<td>4,151</td>
<td>3,302</td>
</tr>
<tr>
<td>Employee and self-employed contributions for government social insurance</td>
<td>2,173</td>
<td>1,751</td>
</tr>
<tr>
<td>Employer contributions for government social insurance</td>
<td>1,978</td>
<td>1,551</td>
</tr>
<tr>
<td>Plus: Adjustment for residence</td>
<td>3,792</td>
<td>1,961</td>
</tr>
<tr>
<td>Equals: Net earnings by place of residence</td>
<td>35,511</td>
<td>26,932</td>
</tr>
<tr>
<td>Plus: Dividends, interest, and rent</td>
<td>11,684</td>
<td>7,059</td>
</tr>
<tr>
<td>Plus: Personal current transfer receipts</td>
<td>9,077</td>
<td>9,479</td>
</tr>
<tr>
<td><strong>Personal income</strong></td>
<td><strong>56,273</strong></td>
<td><strong>43,470</strong></td>
</tr>
</tbody>
</table>
Major Data Sources

• Bureau of Labor Statistics (BLS)
• Internal Revenue Service (IRS)
• Census Bureau
• Social Security Admin. (SSA)
• Center for Medicare/Medicaid Services (CMS)
• Others
Regional GDP Statistics
Regional GDP Statistics

- Regional Gross Domestic Product (GDP)
  - GDP by State
  - GDP by Metropolitan Area
  - GDP by County (coming soon)
GDP by State

• Years
  – Annual 1963 – forward
  – Quarterly GDP by State 2005 Q1 – forward

• Components
  – Current and Real (inflation adjusted) dollars
  – Per capita real GDP
  – Quantity Indexes
  – Contributions to Growth
GDP by State – Methodology

• GDP can be measured in 3 ways:

  – Expenditures approach
    • GDP = consumption + investment + government spending + net exports

  – Value added approach
    • GDP = gross output (sales) - intermediate inputs

  – Income approach
    • GDP = sum of charges against production
GDP by State – Methodology

GDP = Sum of Charges of Production
    =  
    Labor   Compensation of employees  
    +  
    Govt    (Taxes on production and imports – Subsidies)  
    +  
    Capital Proprietors’ Income (GOS)  
    +  
    Capital Corporate Capital Charges (GOS)
GDP by State – Methodology

Estimation method depends on source data

• **For goods-producing industries**
  – Estimate GDP
  – Capital = GDP – labor – government

• **For services-producing industries**
  – Estimate incomes earned
  – GDP = labor + capital + government
Real GDP growth in 2017

Chart 1. Percent Change in Real GDP by State, 2016–2017
GDP by Metropolitan Area

Percent Change in Real Gross Domestic Product (GDP) by Metropolitan Area, 2016

U.S. Metropolitan Areas = 1.7 percent
- 3.0 to 8.1
- 2.0 to 3.0
- 0.7 to 2.0
- -0.9 to 0.7
- -13.3 to -0.9
- Nonmetropolitan Areas
• Census Bureau
  – Census of Governments
  – Tax data from State and Local Government Finances
• BEA Income estimates
  – Wages & supplements to wages
  – Proprietors’ income
• Other miscellaneous data
Relation of Personal Income to GDP

| Place of work                          | ✓        | ✓        |
| Place of residence                    |          | ✓        |
| Accrual basis                         | ✓        | ✓        |
| Disbursement basis                    |          | ✓        |
| Wages and salaries                    | ✓        | ✓        |
| Proprietors’ income                   | ✓        | ✓        |
| Employer contributions for employee pension and insurance funds | ✓        | ✓        |
| Contributions for government social insurance | ✓        | ✓        |
| Taxes on production and imports less subsidies | ✓        |          |
| Corporate income                      | ✓        |          |
| Receipts on assets (dividends, interest) |          | ✓        |
| Transfer receipts (Social Security benefits, Medicare, Medicaid) |          | ✓        |
Regional Price Parities Statistics
Regional Price Parities (RPPs) Price indexes that measure price level differences for one period of time within the U.S.

**Real Personal Income** Personal income at RPPs divided by the national PCE price index.

- Annual 2008 – forward
- Industries
  - Goods
  - Rents
  - Services
- Components
  - Per capita real personal income
  - Implicit regional price deflator
Regional Price Parities (RPPs)

2015 Regional Price Parities by State (US = 100)

- Hawaii
- District of Columbia
- New York
- New Jersey
- California
- Maryland
- Connecticut
- Massachusetts
- Alaska
- New Hampshire
- Washington
- Colorado
- Virginia
- Vermont
- Delaware
- Illinois
- Florida
- Oregon
- Rhode Island
- Nevada
- Maine
- Pennsylvania
- Minnesota
- Utah
- Texas
- Wyoming
- Arizona
- Montana
- New Mexico
- Michigan
- Idaho
- Wisconsin
- Georgia
- North Dakota
- North Carolina
- Indiana
- Nebraska
- Louisiana
- Kansas
- Iowa
- South Carolina
- Oklahoma
- Tennessee
- Missouri
- Ohio
- West Virginia
- Kentucky
- South Dakota
- Arkansas
- Alabama
- Mississippi

[Graph showing regional price parity by state with a comparison to the United States set at 100.]

9/21/2018
State Regional Price Parities (RPPs) 2015

- RPPs show percent difference in price levels:
  - $109.7 / 100 = 0.097$  
    Price level in Maryland is 9.7% higher than the national average.
  - $115.3 / 109.7 = 1.051$  
    Price level in New York is 5.1% higher than in Maryland.

<table>
<thead>
<tr>
<th>Selected States</th>
<th>2015 Regional Price Parities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Items</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Maryland</td>
<td>109.7</td>
</tr>
<tr>
<td>California</td>
<td>113.4</td>
</tr>
<tr>
<td>Hawaii</td>
<td>118.8</td>
</tr>
<tr>
<td>Mississippi</td>
<td>86.2</td>
</tr>
<tr>
<td>New York</td>
<td>115.3</td>
</tr>
<tr>
<td>All States*</td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

* Includes the District of Columbia
Real PI = \frac{\text{PI at RPPs}}{\text{PCE Price Index}}

Implicit Regional Price Deflator (IRPD) = \frac{\text{PI}}{\text{Real PI}}
RPPS and Real Personal Income – Source Data

• Bureau of Labor Statistics (BLS), Consumer Price Index program.
  – Detailed expenditure categories
  – Large sample:
    • 1,000,000+ price observations per year

• Census Bureau, American Community Survey (ACS).
  – Detailed rent price levels
  – Large sample:
    • 500,000+ price observations per year

• BEA, National PCE Price Index

• BEA, RID Personal Income
Regional Personal Consumption Expenditure Statistics
PCE is a comprehensive measure of household consumption at the state level

– Annual 1997 – forward

– 16 spending categories
  • 8 categories of goods
  • 7 categories of services

– Components
  • Personal Consumption expenditures
  • Per capita personal consumption expenditures
Percent Change in Total PCE, 2015-2016

U.S. percent change = 4.0%

- 4.5% to 6.2%
- 3.9% to 4.5%
- 3.4% to 3.9%
- 2.8% to 3.4%
- 0.2% to 2.8%

U.S. Bureau of Economic Analysis
Utah PCE Category Growth, 2016

<table>
<thead>
<tr>
<th>Category</th>
<th>Utah</th>
<th>United states</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline and other energy goods</td>
<td>-8.8</td>
<td>-10.3</td>
</tr>
<tr>
<td>Off-premises food and beverages</td>
<td>3.8</td>
<td>1.8</td>
</tr>
<tr>
<td>All other goods</td>
<td>7.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Health care</td>
<td>9.6</td>
<td>5.0</td>
</tr>
<tr>
<td>Housing and utilities</td>
<td>5.0</td>
<td>4.3</td>
</tr>
<tr>
<td>Food services and accommodations</td>
<td>5.0</td>
<td>5.1</td>
</tr>
<tr>
<td>All other services</td>
<td>6.7</td>
<td>5.0</td>
</tr>
</tbody>
</table>
### Maryland PCE Category Growth, 2016

<table>
<thead>
<tr>
<th>Category</th>
<th>United States</th>
<th>Maryland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline and other energy goods</td>
<td>-10.3</td>
<td>-10.4</td>
</tr>
<tr>
<td>Off-premises food and beverages</td>
<td>1.8</td>
<td>0.8</td>
</tr>
<tr>
<td>All other goods</td>
<td>3.7</td>
<td>4.2</td>
</tr>
<tr>
<td>Health care</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Housing and utilities</td>
<td>4.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Food services and accommodations</td>
<td>5.1</td>
<td>4.4</td>
</tr>
<tr>
<td>All other services</td>
<td>5.0</td>
<td>5.1</td>
</tr>
</tbody>
</table>
North Dakota PCE Category Growth, 2016

<table>
<thead>
<tr>
<th>Category</th>
<th>North Dakota</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline and other energy goods</td>
<td>-22.1</td>
<td>-10.3</td>
</tr>
<tr>
<td>Off-premises food and beverages</td>
<td>1.2</td>
<td>1.8</td>
</tr>
<tr>
<td>All other goods</td>
<td>-1.4</td>
<td>3.7</td>
</tr>
<tr>
<td>Health care</td>
<td>3.7</td>
<td>5.0</td>
</tr>
<tr>
<td>Housing and utilities</td>
<td>7.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Food services and accommodations</td>
<td>-4.8</td>
<td>5.1</td>
</tr>
<tr>
<td>All other services</td>
<td>2.2</td>
<td>5.0</td>
</tr>
</tbody>
</table>
Personal Consumption Expenditures (PCE) – Source Data

• State-level data
  – Economic Census (EC)
  – Quarterly Census of Employment and Wages (QCEW)
  – Other annual data

• Census of Retail Trade and Census of Services (most goods and some services)
  – Geographic Area Series
  – Subject Series – Product Lines
  – Subject Series – Receipts/Revenue by Class of Customer

• Other data sources (mostly services)
  – American Community Survey
  – Energy Information Administration
  – National Center for Education Statistics
  – Center for Medicare and Medicaid Services
  – Survey of Consumer Finance
Dissemination of BEA Regional Statistics
Regional Data Dissemination

- www.bea.gov
- Press Releases
- Survey of Current Business
Research and Future Developments
Regional Satellite Account

• Arts and Cultural Production Satellite Account
  – Collaborative work between BEA and the National Endowment for the Arts (NEA)
  – Value Added (GDP), Employment, & Compensation

• Outdoor Recreation Satellite Account
  – Collaborative work between BEA and the Federal Recreation Commission
  – Researching feasibility of state level estimates

• Ocean Satellite Account
  – Collaborative work between BEA and the National Oceanic and Atmospheric Administration
GDP by County - Prototype

• Prototype release November 2018

• All U.S. counties

• Total, Goods, Services, Government

• 2013 - 2015
Mauricio Ortiz
Chief, Regional Income Division
mauricio.ortiz@bea.gov
301.278.9269

• Regional Income & Employment
  – REIS@bea.gov
• Regional GDP
  – GDPbyState@bea.gov
• Regional Personal Consumption Expenditures
  – PCEbyState@bea.gov
• RPPs
  – rpp@bea.gov