Developing Statistics on the Distribution of State Personal Income

Dirk van Duym
BEA Advisory Committee Meeting, May 12, 2023
• Goal: produce distributional statistics for state personal income

• Motivation
  o Allows for analysis of inequality by state (cross-sectionally and across time)
  o Benchmarked to BEA state personal income aggregates
  o Contributes to BEA’s “GDP and Beyond” initiative
  o Fills need for subnational distributional and inequality statistics using a broad-based income measure

• Funding available for FY2023 to advance this work

• BEA working paper from last year with preliminary results for 2018
What we’re looking for from this presentation

• Thoughts on the results?

• Outreach and presentational strategy
  o What results would be most interesting to emphasize?

• Methodological feedback?

• Thoughts on next steps?
• The Census Bureau publishes state median household *money income* and Gini coefficients by state

• Several papers ((Rinz & Voorheis, 2023), (Manduca, 2021), (Sommeiller & Price, 2018)) estimate subnational inequality statistics

• National distribution of personal income (Fixler et al., 2021)
State personal income concept

• Includes income from production and current transactions (employment, businesses, ownership of assets, and transfers)

• Broad-based income concept
  o Captures wider array of transfer programs, imputed income types
  o Requires data to be combined from multiple sources
Source data

• CPS Annual Social and Economic Supplement (ASEC) microdata
  o Constitute the sample over which distributional statistics are computed
  o Contains very detailed income information
  o Small sample size in some states

• Supplemental data sources
  o Internal Revenue Service (IRS) Statistics of Income
  o Medical Expenditure Panel Survey
  o Survey of Consumer Finances
  o American Community Survey
  o Center for Medicare and Medicaid Services
Method

- Use 3-year-pooled CPS and supplementary data to allocate state personal income component totals to households
  - Household-level personal income sample consistent with state personal income component totals
- Household income is then equivalized for household size, using the number of people in the household, \( n \)
  - \( \text{Equivalent personal income} = \frac{\text{personal income}}{\sqrt{n}} \)
- Finally, distributional statistics are computed from the equivalized household personal income sample
Gini Coefficients, 2018

Max. Wyoming = 0.49
Min. Maine = 0.38

Quintiles of Gini coefficients

- 0.46 to 0.49
- 0.44 to 0.46
- 0.42 to 0.44
- 0.40 to 0.42
- 0.38 to 0.40
Gini Coefficients, 2018

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Gini</th>
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<tbody>
<tr>
<td>2000</td>
<td>0.45</td>
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<tr>
<td>2001</td>
<td>0.45</td>
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<td>2002</td>
<td>0.44</td>
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<td>2003</td>
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<td>2004</td>
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<td>2008</td>
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<td>2009</td>
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<td>2010</td>
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<td>2011</td>
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<td>2012</td>
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<td>2016</td>
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<td>2019</td>
<td>0.44</td>
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<tr>
<td>2020</td>
<td>0.42</td>
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<tr>
<td>2021</td>
<td>0.42</td>
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Deflating with regional prices

• We can deflate state personal income with BEA’s Regional Price Parities

• This does not affect a within-state distribution, because the same adjustment is applied to each household

• However, it does change the mean, median, and other percentiles of the distribution which can be compared across states

• A state-level-RPP-adjusted national Gini would be lower than the published national Gini
80th Percentile of Equivalized SPI, 2018

Income is equivalized for household size

Quintiles of 80th percentile income
- $126,045 to $163,352
- $107,409 to $126,045
- $96,044 to $107,409
- $94,192 to $99,044
- $79,844 to $94,192

Max. District of Columbia= $163,352
Min. Mississippi= $79,844

U.S. Bureau of Economic Analysis
20th Percentile of Equivalized SPI, 2018

Income is equivalized for household size

Max. Alaska= $47,321
Min. Mississippi= $29,332

Quintiles of 20th percentile income
- $40,797 to $47,321
- $37,641 to $40,797
- $35,009 to $37,641
- $31,774 to $35,009
- $29,332 to $31,774
20th Percentile of RPP-Adjusted Equiv. SPI, 2018

Income is equivalized for household size

Quintiles of 20th percentile RPP-adjusted income

- $40,853 to $44,995
- $38,338 to $40,853
- $36,694 to $38,338
- $34,426 to $36,694
- $32,630 to $34,426

Max. Alaska= $44,995
Min. New Mexico= $32,630

U.S. Bureau of Economic Analysis
Quintile shares of personal income components, 2018

2018 Texas Personal Income Distribution, by component

- Proprietors' income
- Other earnings
- Dividends and interest income
- Rental income
- Transfer receipts

Q1_share  Q2_share  Q3_share  Q4_share  Q5_share
Quintile shares of personal income components, 2018

2018 Minnesota Personal Income Distribution, by component

<table>
<thead>
<tr>
<th>Component</th>
<th>Q1_share</th>
<th>Q2_share</th>
<th>Q3_share</th>
<th>Q4_share</th>
<th>Q5_share</th>
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<tbody>
<tr>
<td>Personal income</td>
<td>47.6%</td>
<td>86.9%</td>
<td>71.9%</td>
<td>37.3%</td>
<td>11.1%</td>
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<tr>
<td>Net earnings by place of residence</td>
<td>5.9%</td>
<td>0.4%</td>
<td>3.3%</td>
<td>1.8%</td>
<td>7.8%</td>
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<tr>
<td>Proprietors' income</td>
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<td>Other earnings</td>
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<td>Dividends and interest income</td>
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<td>Dividends, interest, and rent</td>
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<td>Rental income</td>
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<td>Transfer receipts</td>
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Next steps

• Publish prototype state statistics for public comment

• Update time series for more recent years
  
  o Modify pooling strategy for pandemic years

• Update method to align as closely as possible with BEA’s methods for the production of national distributional statistics
Questions for discussion

• Thoughts on the results?

• Outreach and presentational strategy
  o What results would be most interesting to emphasize?

• Methodological feedback?

• Thoughts on next steps?