Consumption and Comprehensive Income Poverty

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Based on work with Adam Bee, Pablo Celhay, Carla Medalia, Nikolas Mittag, Victoria Mooers, James X. Sullivan, Derek Wu and others

Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census Bureau or any other agency of the federal government. Reported results meet all of the U.S. Census Bureau's Disclosure Review Board (DRB) standards and were assigned DRB approval numbers CBDRB-FY18-324, CBDRB-FY19-173, and CBDRB-FY18-106.
Research on Poverty Measurement

- Strong commitment to good measurement
  - More than three plus decades of research at the Census Bureau
  - Much of research on the Supplemental Poverty Measure (SPM) done in cooperation with the BLS
- Official Poverty Measure (OPM) since 1969
  - Statistical agencies and research community have long recognized drawbacks in OPM
  - The SPM was developed in the early to mid 1990s
  - Declining data quality may mean SPM identifies less deprived population than OPM
  - Other solutions increasingly feasible
Emphasis on Resources not Thresholds
Goals of a Statistical Poverty Measure

- What questions do we want to answer (NAS 1995)?
  - Q1. Who is poor at a point in time?
  - Q2. How has poverty changed over time?
  - Q3. What is the effect of policy on poverty?
Q1. Who is Poor at a Point in Time?

- Do individuals classified as poor show other signs of material disadvantage?
  - Compare SPM to OPM
  - Compare consumption-based measure to OPM

- We find the SPM identifies a less deprived population than the OPM, which in turn identifies a less deprived population than consumption poverty
  - OPM v. SPM comparison found in three datasets
  - Consumption v. Income found in two datasets
  - Found at various cutoffs
<table>
<thead>
<tr>
<th></th>
<th>SPM Poor Only</th>
<th>Official Poor Only</th>
<th>+ Favors SPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>$37,030</td>
<td>$25,799</td>
<td>-</td>
</tr>
<tr>
<td>Any health insurance</td>
<td>68%</td>
<td>65%</td>
<td>-</td>
</tr>
<tr>
<td>Private health insurance</td>
<td>55%</td>
<td>20%</td>
<td>-</td>
</tr>
<tr>
<td>Homeowner</td>
<td>55%</td>
<td>36%</td>
<td>-</td>
</tr>
<tr>
<td>Own a car</td>
<td>89%</td>
<td>78%</td>
<td>-</td>
</tr>
<tr>
<td>Family size</td>
<td>3.205</td>
<td>4.268</td>
<td>-</td>
</tr>
<tr>
<td># of rooms</td>
<td>6.92</td>
<td>5.57</td>
<td>-</td>
</tr>
<tr>
<td># of Bedrooms</td>
<td>3.31</td>
<td>2.76</td>
<td>-</td>
</tr>
<tr>
<td># of Bathrooms</td>
<td>1.94</td>
<td>1.48</td>
<td>-</td>
</tr>
<tr>
<td>Appliances and Amenities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dishwasher</td>
<td>57%</td>
<td>42%</td>
<td>-</td>
</tr>
<tr>
<td>Any Air Conditioning</td>
<td>82%</td>
<td>77%</td>
<td>-</td>
</tr>
<tr>
<td>Central Air Conditioning</td>
<td>58%</td>
<td>51%</td>
<td>-</td>
</tr>
<tr>
<td>Washer</td>
<td>82%</td>
<td>70%</td>
<td>-</td>
</tr>
<tr>
<td>Dryer</td>
<td>79%</td>
<td>62%</td>
<td>-</td>
</tr>
<tr>
<td>Head is a College Graduate</td>
<td>14%</td>
<td>7%</td>
<td>-</td>
</tr>
<tr>
<td>Total Financial Assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75th Percentile</td>
<td>$3,000</td>
<td>$200</td>
<td>-</td>
</tr>
<tr>
<td>90th Percentile</td>
<td>$20,000</td>
<td>$1,400</td>
<td>-</td>
</tr>
<tr>
<td>Share of people</td>
<td>3%</td>
<td>3%</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Meyer and Sullivan JEP (2012)
Table 3: Means, Official and Consumption Poor by Poverty Status, CE Survey, 2010

<table>
<thead>
<tr>
<th></th>
<th>Consumption Poor Only</th>
<th>Official Poor Only</th>
<th>+ Favors Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>$18,956</td>
<td>$36,959</td>
<td></td>
</tr>
<tr>
<td>Any health insurance</td>
<td>55%</td>
<td>65%</td>
<td>+</td>
</tr>
<tr>
<td>Private health insurance</td>
<td>35%</td>
<td>34%</td>
<td>-</td>
</tr>
<tr>
<td>Homeowner</td>
<td>45%</td>
<td>48%</td>
<td>+</td>
</tr>
<tr>
<td>Own a car</td>
<td>83%</td>
<td>80%</td>
<td>-</td>
</tr>
<tr>
<td>Family size</td>
<td>4.696</td>
<td>3.103</td>
<td>+</td>
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<tr>
<td># of rooms</td>
<td>5.09</td>
<td>7.04</td>
<td>+</td>
</tr>
<tr>
<td># of Bedrooms</td>
<td>2.58</td>
<td>3.41</td>
<td>+</td>
</tr>
<tr>
<td># of Bathrooms</td>
<td>1.36</td>
<td>1.96</td>
<td>+</td>
</tr>
<tr>
<td>Appliances and Amenities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dishwasher</td>
<td>40%</td>
<td>50%</td>
<td>+</td>
</tr>
<tr>
<td>Any Air Conditioning</td>
<td>73%</td>
<td>77%</td>
<td>+</td>
</tr>
<tr>
<td>Central Air Conditioning</td>
<td>48%</td>
<td>53%</td>
<td>+</td>
</tr>
<tr>
<td>Washer</td>
<td>77%</td>
<td>75%</td>
<td>-</td>
</tr>
<tr>
<td>Dryer</td>
<td>68%</td>
<td>72%</td>
<td>+</td>
</tr>
<tr>
<td>Head is a College Graduate</td>
<td>10%</td>
<td>13%</td>
<td>+</td>
</tr>
<tr>
<td>Total Financial Assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75th Percentile</td>
<td>$800</td>
<td>$700</td>
<td>-</td>
</tr>
<tr>
<td>90th Percentile</td>
<td>$3,600</td>
<td>$4,200</td>
<td>+</td>
</tr>
<tr>
<td>Share of people</td>
<td>8%</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Meyer and Sullivan JEP (2012)
Surveys Understate Income from Government Programs

Misreporting in other sources

- Earnings (Abraham et al. 2013; Collins et al. 2019)
- Pensions (Bee and Mitchell 2018)
- Medicaid coverage, etc. (Davern et al. 2007; Pascale et al. 2007; Call et al. 2013)
Why SPM doesn’t capture economic deprivation

- Many identified as poor by SPM (and OPM) have incomes in admin data above poverty line
- The SPM excludes from poverty many needy in-kind benefit recipients, but includes badly misclassified members of the middle class
  - Especially stark for extreme and deep poverty
Share of Reported Cash Extreme Poor Households Raised Above Income Thresholds by Administrative Data

Source: Meyer, Wu, Mooers and Medalia (2019)
Mean Number of Material Hardships of Extreme Poor Subgroups
2011 SIPP (Wave 9 of 2008 Panel), Survey Data Only

Source: Meyer, Wu, Mooers and Medalia (2019)
Q2. How Has Poverty Changed Over Time?

- What are clear observable living standards for those at the bottom relative to in the past?

- Housing is by far a typical household’s largest expenditure. How has the housing of those at the bottom changed?
Material Life Has Improved

Figure 3: Mean Number of Rooms in Housing Unit, Adjusted for Household Size, 1960-2017, Decennial Census (1960-1970), and American Housing Survey (1974-2017)

Source: Meyer and Sullivan (2019)
Figure 14: Proportion of Units that have peeling paint over 1 square foot, 1975-2017, American Housing Survey
Figure 9: Proportion of Housing Units with Central Air Conditioning, 1960-2017, Decennial Census (1960-1970), and American Housing Survey (1974-2017)
Figure 10: Proportion of Housing Units with Dishwasher, 1970-2017, Decennial Census (1970), and American Housing Survey (1974-2017)
Changes over time

- OPM indexed by CPI-U which substantial research indicates overstates inflation, so poverty changes biased upward

- SPM poverty changes hard to interpret because
  - Goal posts move
  - SPM thresholds opaque
  - Example: tax increase for those between 30\textsuperscript{th} and 36\textsuperscript{th} percentiles would mean a decline in poverty

- Thus, SPM provides information likely to be misinterpreted
Q3. What are the Effects of Policy?
Poverty Rate Reduction from Combined vs. Survey Data: OASDI, SSI, SNAP, PA

Source: SIPP data for 2008-2013 reported in Meyer and Wu (2018)
What are the Effects of Policy?

- More than half of (static) poverty reduction missed for several programs for single mothers
- This was a best case scenario for SPM like measure—SIPP in its heyday with much less misreporting than CPS and ACS
- Meyer and Mittag (2019) finds large biases in the CPS for many policy relevant statistics
- Changes over time in policy effects? Will be badly biased due to secular increase in under-reporting of transfers
Success at Achieving Goals of Poverty Measure

- Q1. Point in time?
- Q2. Over time?
- Q3. Effect of policy?

Current measures can’t accurately answer any of these key questions

How prominent are the appropriate caveats in our press releases and reports?
Alternatives to the current OPM and SPM

- Consumption measures (improved with administrative data links)
- Comprehensive Income based poverty measures with administrative data integrated
Outline of Comprehensive Income Measure

- CPS and ACS Survey Income
- Incorporate in-kind transfers
  - SNAP, Public and Subsidized Housing, WIC
  - School meals?
  - Health insurance?
- Link administrative data to CPS and ACS
  - In most cases substitute administrative data
  - Earnings, housing require additional research
  - Imputation as a back up and for historical versions
Obstacles and Potential

- **Obstacles**
  - Requires working with many agencies and maybe many states
  - Varying data quality and formats
  - Might delay release of statistics

- **Potential**
  - Would ease survey burden
  - Would aid multiple programs: ACS, SIPP, CE and Decennial Census
  - CID provides a prototype
# Data for CID (provides a prototype)

<table>
<thead>
<tr>
<th>Source type</th>
<th>Phase I</th>
<th>Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Survey of Income and Program Participation (SIPP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>American Community Survey (ACS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax Data</td>
<td>Forms 1040, W-2, 1099-R</td>
<td>Better 1040 extracts, more extensive info returns (subject to approval)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tax credits (e.g., EITC, CTC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unemployment Insurance (UI)</td>
</tr>
<tr>
<td>Federal Programs</td>
<td>SSA: Social Security and Supplemental Security Income</td>
<td>VA: Veterans Benefits</td>
</tr>
<tr>
<td></td>
<td>HUD: Federal housing assistance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HHS: Medicare and Medicaid enrollment, TANF</td>
<td></td>
</tr>
<tr>
<td>State Programs</td>
<td>Public Assistance (e.g., TANF, General Assistance)</td>
<td>More Public Assistance, SNAP, WIC, LIHEAP</td>
</tr>
<tr>
<td></td>
<td>SNAP, WIC</td>
<td>Workers’ Compensation</td>
</tr>
<tr>
<td></td>
<td>LIHEAP</td>
<td>Child Support Payments</td>
</tr>
</tbody>
</table>
Outline of a Consumption Measure

- Use BLS Consumer Expenditure Interview Survey
- Convert expenditures to consumption by
  - Subtracting investments like pension contributions, education spending, health spending
  - Subtract out spending on owner occupied housing (mortgage, property taxes) and vehicle purchases
  - Replace with rental equivalent (or other measure) of housing and vehicles
- Consider extrapolating from well-measured components of expenditures given underreporting
Issues

- Many researchers just don’t trust expenditure data
- Conceptual advantages to consumption
- Measurement issues more mixed
Income v. Consumption: Conceptual

- Conceptual issues favor consumption
  - Consumption captures permanent income
    - Income can be temporarily low (or high) and your living standard may not change much
  - Consumption captures durables such as housing and vehicles
  - Older households often dissaving, have durables, so income not that relevant
  - Consumption should reflect risk and insurance
Income v. Consumption: Data Quality

- Reporting issues are split between income and consumption
  - Ease of reporting v. sensitive topics
  - Nonresponse
  - Under-reporting
- Low percentiles of expenditures greatly exceed low percentiles of income
- Consumption is more strongly associated with other measures of well-being
Overconsuming?

- What about people spending beyond their means?
  - If people overspend, you want to measure it
  - If people sharply cut their consumption to pay debts, you want to capture that as well
  - Income would miss both
Underreporting of Consumption?
Apples to Oranges

- Aggregate comparisons often misleading
- NIPA and CE Survey are intended to measure different things
- By 2009, nearly 30 percent of NIPA PCE not intended to be captured by CE Survey up from 7 percent in 1959
- NIPA captures all goods and services in economy that people consume whoever pays
- CE Survey covers out-of-pocket expenditures by households
  - Employer contributions to health insurance
  - In-kind social benefits
# CE – PCE Comparisons

## Table 1: CE PCE Comparisons for 10 Large Categories, 2010 [In millions of dollars]

<table>
<thead>
<tr>
<th>PCE category</th>
<th>PCE</th>
<th>DS/ PCE</th>
<th>IS/ PCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imputed rental of owner-occupied nonfarm housing</td>
<td>1,203,053</td>
<td>1.065</td>
<td></td>
</tr>
<tr>
<td>Rent and utilities</td>
<td>668,759</td>
<td>0.797</td>
<td>0.946</td>
</tr>
<tr>
<td>Food and nonalcoholic beverages purchased for off-premises consumption (food at home)</td>
<td>659,382</td>
<td>0.656</td>
<td>0.862</td>
</tr>
<tr>
<td>Purchased meals and beverages (food away from home)</td>
<td>533,078</td>
<td>0.508</td>
<td>0.528</td>
</tr>
<tr>
<td>Gasoline and other energy goods</td>
<td>354,117</td>
<td>0.725</td>
<td>0.779</td>
</tr>
<tr>
<td>Clothing</td>
<td>256,672</td>
<td>0.487</td>
<td>0.317</td>
</tr>
<tr>
<td>Communication</td>
<td>223,385</td>
<td>0.686</td>
<td>0.800</td>
</tr>
<tr>
<td>New motor vehicles</td>
<td>178,464</td>
<td></td>
<td>0.961</td>
</tr>
<tr>
<td>Furniture and furnishings</td>
<td>140,960</td>
<td>0.433</td>
<td>0.439</td>
</tr>
<tr>
<td>Alcoholic beverages purchased for off-premises consumption</td>
<td>106,649</td>
<td>0.253</td>
<td>0.220</td>
</tr>
</tbody>
</table>

Well Reported Expenditures: cars, homes

Figure 1a: Comparisons of CE Diary and CE Interview Aggregates to PCE Aggregates, New Motor Vehicles and Imputed Rent (Interview Only)

Figure 1b: Comparisons of CE Diary and CE Interview Aggregates to PCE Aggregates, Rent and Utilities

Well Reported Expenditures: food at home

Figure 1c: Comparisons of CE Diary and CE Interview Aggregates to PCE Aggregates, Food at Home

Poorly Reported Expenditures: clothing

Figure 1f: Comparisons of CE Diary and CE Interview Aggregates to PCE Aggregates, Clothing and Shoes

Poorly Reported Expenditures: Alcohol

Figure 1i: Comparisons of CE Diary and CE Interview Aggregates to PCE Aggregates, Alcoholic Beverages

Consumption Poverty Improved by Linking

- Rent paid in public and subsidized housing
- Poverty reduction cannot be done accurately without linked program (and tax) data
- BLS investigating steps to improve ability to link the CE Survey, working with Census
Caveats, Comments

- The relative advantages of consumption resource measure should weaken if we improve income through linking.

- A consumption measure would have less fine geography than a CPS income measure or an ACS measure.

- A consumption measure could be implemented immediately and done historically; both steps harder with a Comprehensive Income measure; historical admin data missing.
Other Important Features of Measures

- Incorporating a value of health insurance; MOOP
- Geographic cost of living adjustments
- Separable issues; can do with or without admin data; can do with income or consumption
My thoughts on Thresholds

- There is demand for both absolute poverty measures and easy to interpret relative measures
- Absolute poverty measure indexed to C-CPI-U or PCE
- Set thresholds so initial rate same as OPM—so politics doesn’t prevent good measurement
- Relative poverty measure half of median income or consumption
Summary

- OPM and SPM do not meet the goals of a poverty measure
- The state of research and the availability of administrative data now allow production of:
  - Consumption poverty measure
  - Comprehensive Income measure
- Would have benefits to other statistical programs and potentially reduce survey burden
Selected References

Selected References cont.


