



POVERTY SOLUTIONS

UNIVERSITY OF MICHIGAN

Poverty Solutions at the University of Michigan
Working Paper Series
#5-17

**COMPARING TRENDS IN POVERTY AND MATERIAL HARDSHIP
OVER THE PAST TWO DECADES**

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Revised July 27, 2018

The authors thank Robert Moffitt and Jim Ziliak for helpful comments.

This paper is available online at the Poverty Solutions Research Publications index at:
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ABSTRACT

The U.S. Census Bureau releases two poverty metrics annually: 1) the official poverty measure (OPM), which divides family pre-tax money income by inflation-adjusted thresholds; and 2) the supplemental poverty measure (SPM), which incorporates taxes and in-kind government transfers and adjusts for geographic cost of living differences. Meyer and Sullivan (2017) offer an alternative poverty measure using consumption rather than income data and utilizing an inflation adjustment that slows the growth of the poverty threshold over time. In sharp contrast to the OPM and SPM, the Meyer and Sullivan consumption poverty series finds that poverty has fallen dramatically over the past two decades.

To arbitrate between these conflicting trends, we compare annual poverty rates by these measures to a set of material hardship and labor market outcomes for years in which data are available. We use official food insecurity rates, a series of non-food material hardship outcomes taken from the Survey of Income and Program Participation (SIPP), and official unemployment rates released by the Bureau of Labor Statistics.

In the most recent year for which all measures are available, the rate of consumption poverty indicated by Meyer and Sullivan's baseline rate is two to four times lower than the rates of food insecurity and the primary SIPP material hardship outcomes.

In terms of trends in poverty and hardship over the past two decades, OPM and SPM income poverty rates both follow trajectories in close alignment with a series commonly utilized material hardship and labor market outcomes. In contrast, the Meyer and Sullivan consumption poverty series follows a path that is dissimilar to all of the other metrics during the past two decades, and yields very different conclusions about trends in poverty and hardship. For instance, the Meyer and Sullivan consumption series would lead to the conclusion that poverty was markedly lower during the Great Recession than in the early 2000s, even as income poverty, food insecurity, non-food material hardship, and medical hardship were markedly higher.

BACKGROUND

Since the late 1960s, the U.S. Census Bureau has released annual poverty rates based on the official poverty measure (OPM). The OPM divides family pre-tax money income by a poverty threshold that equates to three times the cost of a minimum food diet in 1963, adjusted for inflation (Dalaker, 2017). Since 2011, the U.S. Census Bureau has also released an alternative to the OPM that seeks to address a number of its shortcomings. The Supplemental Poverty Measure (SPM) accounts for taxes and non-cash income public benefits, updates the family unit, and updates the poverty threshold (Fox, 2017).¹

Yet some scholars argue that income-based measures of poverty fail to paint an accurate picture of hardship. Meyer and Sullivan (2009, 2017) argue that the quality of income data in major household surveys is low—and perhaps getting worse—due to the underreporting of public benefits and some categories of income. Some economists instead favor using consumption data to assess levels and trends in poverty, arguing that expenditure data that measures consumption “appears to be a better predictor of deprivation than income” (Meyer and Sullivan 2003, 2012).

Meyer and Sullivan (2017) offer a poverty measure using consumption rather than income data and adopt an inflation adjustment that slows the growth of the poverty threshold over time, based on concerns raised by the Boskin Commission report that the CPI adjustment used for the OPM may overstate rates of inflation over time (Boskin et al. 1997). In sharp contrast to the OPM and SPM, this consumption poverty series indicates that poverty has fallen dramatically over the past two decades.

Understanding the divergence between the official income-based poverty measure and the consumption measure provided by Meyer and Sullivan (2017) over the past two decades is critical, given that a primary goal of any poverty metric is to indicate whether poverty is rising or falling over time. To arbitrate between these conflicting trends, we compare annual poverty rates by these measures to a set of material hardship and labor market outcomes for years in which data are available, seeking to determine which metric appears to be a “better predictor of deprivation” in the aggregate. We use official food insecurity rates, a series of non-food material hardship outcomes taken from the Survey of Income and Program Participation (SIPP), and official unemployment rates released by the Bureau of Labor Statistics. We argue that an accurate depiction of trends in poverty over time should follow a similar path to that taken by direct measures of material hardship.

¹ Specifically, the SPM accounts for non-cash benefits like the Supplemental Nutrition Assistance Program, (formerly food stamps), tax liabilities including refundable tax credits (like the Earned Income Tax Credit), and subtracts certain work expenses and out-of-pocket medical costs. It adds the income of non-married co-habiting partners which the OPM omits, and it divides these resources by an alternative threshold which is a five-year rolling average based on national levels of expenditures on core necessities.

DATA AND METHODS

The primary metric of material hardship we employ is food insecurity, official estimates of which are released annually by the U.S. Department of Agriculture (USDA) using data collected from the Current Population Survey Food Security Supplement (CPS-FSS). Food security is defined as “access by all people at all times to enough food for an active, healthy life,” while food insecurity is the absence of food security (Coleman-Jensen et al., 2017). The USDA measures food security status based on the number of conditions and behaviors reported by households that are characteristic of having difficulty meeting basic food needs. Annual rates of food insecurity include low and very low food insecure households. We draw annual food insecurity rates from official published sources for the years 1998-2015, the period for which food insecurity rates drawn from the CPS Food Security Supplement were consistently collected.²

We also include the primary non-food material hardship outcomes available from the nationally representative Survey of Income and Program Participation (SIPP).³ The material hardship measures in the SIPP come from the Adult Well-Being topical module and were developed, in part, as a supplement to official poverty statistics (U.S Census Bureau, 1998). The battery of questions in the Adult Well-Being module capture a variety of circumstances brought on by insufficient resources to meet basic needs (Bauman, Carle, and Short, 2006). For our analysis, we include indicators used in other research (Heflin, 2014) for whether households in the SIPP reported that they 1) did not meet essential household expenses; 2) fell behind on rent or mortgage; 3) fell behind on utilities; and 4) did not access a doctor or hospital when needed (medical hardship). Consistent indicators are available in the SIPP for (approximate calendar) years 1992, 1998, 2003, 2005, 2010, and 2011 (see footnote ⁴ for discussion of 1995 values).

We compile annual estimates of these material hardship outcomes and merge them with annual estimates of income and consumption poverty. Official poverty rates for all years come from the U.S Census Bureau. Supplemental poverty rates are drawn from Wimer and colleagues at Columbia University, who simulated historical SPM rates (Wimer et al., 2016).⁵

Meyer and Sullivan consumption poverty rates are drawn from publicly released sources (Meyer and Sullivan, 2017). Meyer and Sullivan construct their consumption poverty measure using data from the interview component of the Consumer Expenditure Survey (CEX), which collects information on household characteristics and expenditures. From the CEX, information on core

² In addition to differences in screening procedures from 1995 to 1998, there were some changes to skip patterns in the protocols and the timing of the FSS up until 2001. We re-run our estimates just with data starting in 2001, and the findings are substantively similar. For more information, see USDA. Food Security in the U.S. History & Background. <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/history-background/>

³ Special thanks to Colleen Heflin and Richard Rodems for validating our SIPP non-food material hardship rates.

⁴ The SIPP also included these hardship questions in a module in the 1993 panel (reporting on 1995). However, this module was in a late wave (late waves experience the most attrition), and the module omitted numerous other questions included in the material hardship modules in other panels. We find the point estimates for 1995 are out-of-line with the other point estimates in both 1992 and 1998, and so we drop them from our primary analyses. However, including the 1995 does not substantively change our conclusions. Note also that values for 1992 are the averaged values from the 1991 and 1992 concurrent modules.

⁵ Historical SPM rates by Wimer and colleagues vary slightly from official values.

consumption such as rent plus utilities, transportation, gasoline, and food at home is combined with the imputed value of items such as owner-occupied housing and vehicles to produce a measure of core consumption spending (Meyer and Sullivan, 2009).

The consumption poverty indicator is produced by comparing a household's consumption to poverty thresholds that vary by family size and composition, that are then proportionally scaled to the official poverty rate in a given baseline year. Recent published data on consumption poverty by Meyer and Sullivan anchors the consumption poverty threshold to the official poverty threshold in 1980. They also report an alternative series anchored to the rate of official income poverty in 2015.

RESULTS

Before examining trends over time, Figure 1 presents levels of poverty and hardship indicated by the different metrics in 2011, the most recent year for which all measures are available.

The Meyer and Sullivan baseline consumption poverty series threshold is set to a value that "yields a poverty rate equal to the official poverty rate in 1980, then adjusted for inflation" (Meyer and Sullivan, 2017, p.3). They note that this makes the level in any given year "arbitrary." Yet this baseline rate is sometimes used to make arguments that poverty is much lower in the United States than official estimates suggest (Council of Economic Advisers, 2018; Doar, 2017). The consumption poverty series yields a poverty rate in 2011 of 4.2%, one of the lowest rates in recorded history. In contrast, OPM poverty was 15.0% and SPM poverty was 16.4%, both roughly four times higher. The difference between these estimates would equate to more than 30 million fewer people living in poverty.

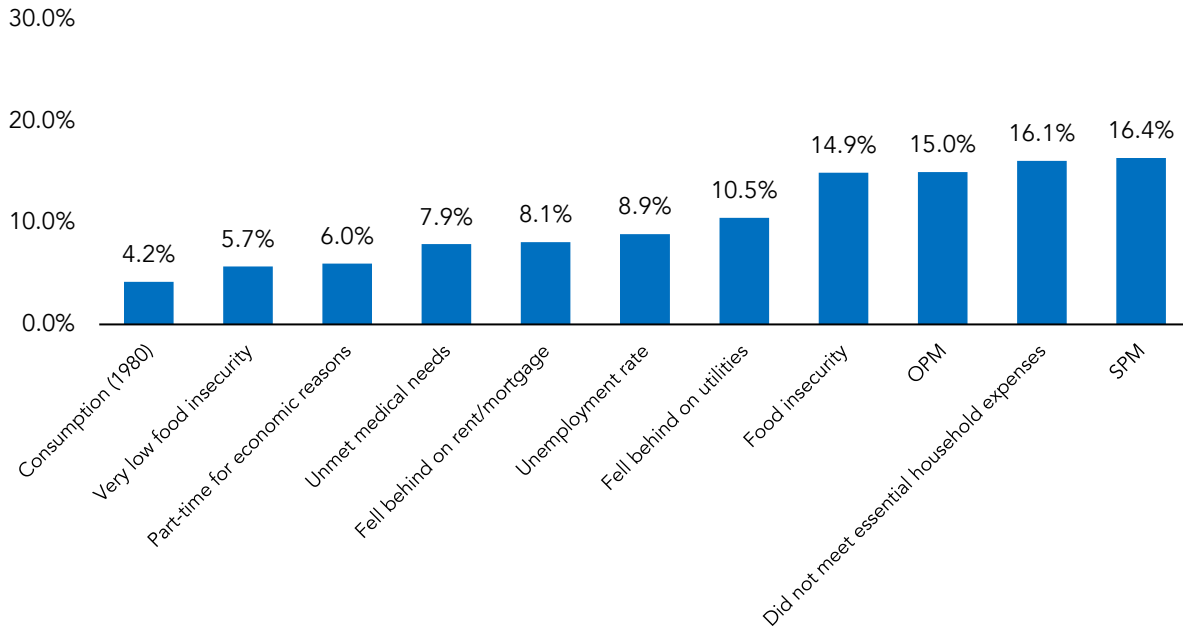
What do measures of hardship indicate? The official food insecurity rate for 2011 was 14.9%, roughly the same as OPM. Even the rate of very low food insecurity (more severe cases of food insecurity) was 5.7%, more than 30% higher than the overall rate of poverty according to Meyer and Sullivan's baseline rate.

Of the SIPP outcomes, the proportion of households reporting that they did not meet essential expenses was 16.1%, about the same as OPM and SPM poverty. About 8% of households reported falling behind on their rent and medical hardship, and 10.5% reported falling behind on utilities. In all cases, these outcomes suggest rates of hardship that are at double and as much as quadruple the rate of consumption poverty reported by and Meyer and Sullivan.

Beyond differences in data, an important driver in these differences is the inflation adjustment, which slows the growth of the poverty threshold (the denominator) over time relative to the Consumer Price Index used by the OPM. By slowing the growth of inflation since 1980, the poverty threshold for a family of four for this consumption series in 2011 was about \$17,000. The official poverty threshold in 2011 was \$22,800. Thus, the difference between official rates

of poverty and the Meyer and Sullivan consumption series is driven in part by differences in the denominator (poverty threshold), as well as differences in data (income versus expenditures).

Figure 1 Levels of Poverty and Hardship in 2011



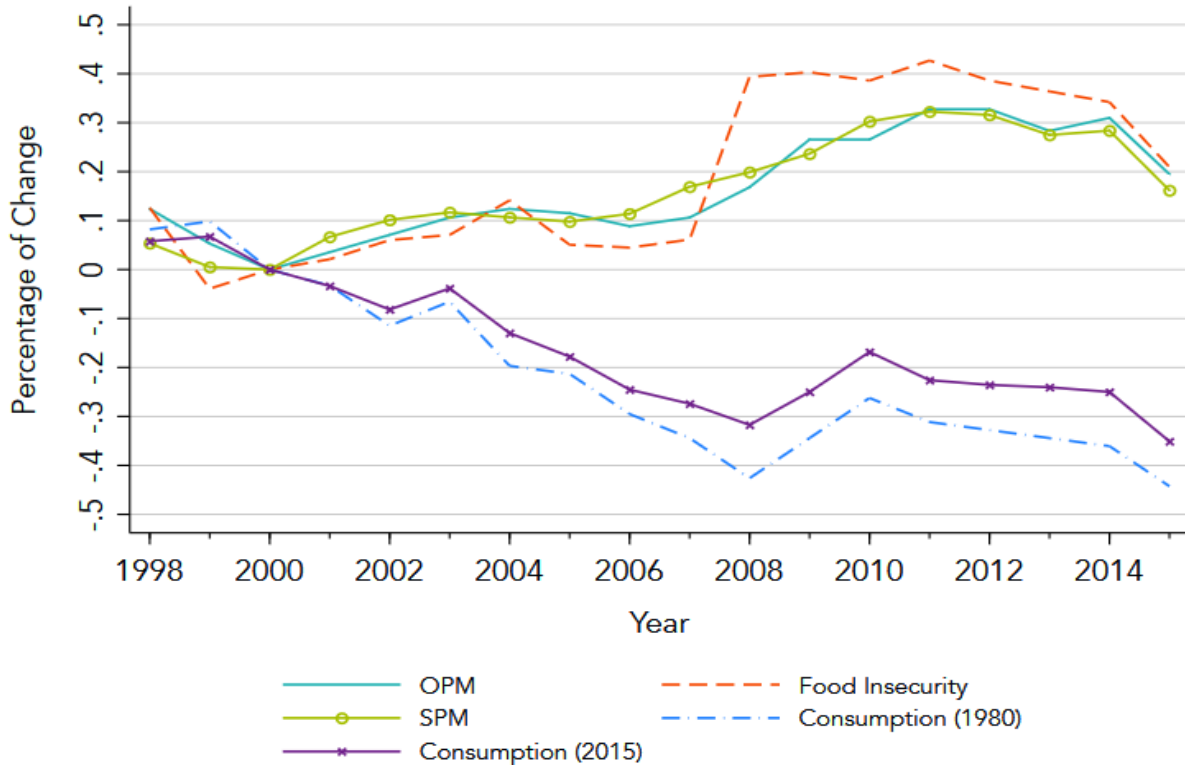
Trends in Consumption Poverty, Income Poverty, and Food Insecurity

To visually represent trends over time, Figure 2 presents the percentage change since 2000 in annual rates of poverty by OPM, SPM, consumption poverty, and food insecurity. Since 2000, OPM and food insecurity follow similar trajectories, particularly in the run up to the Great Recession. OPM and food insecurity rise modestly from 2000 to 2004, increasing 12.4% and 14.1%, respectively, and then shock upward after 2007. The change in food insecurity at the start of the Great Recession is somewhat sharper than for either income poverty measure. SPM rises gradually over the course of a decade, trending more smoothly in comparison to the sudden spike in food insecurity in 2008 and the steep increase in official poverty from 2007 to 2010. In general, though, the three metrics tell qualitatively similar stories of trends over the study period.

The trajectory of consumption poverty over the study period tells a markedly different story. Focusing on the baseline Meyer and Sullivan series (anchored in 1980), we find that between 2000 and 2008, consumption poverty fell 42.6%—with steady declines in poverty in all but one year—departing from the modestly rising trends in income poverty and food insecurity. Furthermore, at the height of the Great Recession era in 2010, the Meyer-Sullivan consumption poverty series indicates that consumption poverty remained 26.2% lower than it was in the year 2000. This would mean that households were markedly better off at the height of the Great Recession than in the year 2000, which is largely considered the very strongest year of the historic 1990s economic boom (Frankel, 2002). In contrast, food insecurity was 38.5% higher in

2010 than in 2000. Thus, according to annual rates of OPM, SPM, and food insecurity, the years of the Great Recession were some of the worst in decades. According to the Meyer-Sullivan series, they were some of the best.

Figure 2 Percentage Change Since 2000: Official poverty (OPM), supplemental poverty (SPM), Meyer-Sullivan consumption poverty, and food insecurity 1998-2015



In an effort to quantify the above trends in a parsimonious, descriptive way, Table 1 presents simple correlations between annual rates of both income poverty measures, consumption poverty, and food insecurity. Over this time period, annual rates of both the OPM and SPM correlate strongly with food insecurity, with coefficients of 0.93 and 0.91. In contrast, we find that the baseline Meyer and Sullivan consumption poverty trend is negatively correlated with food insecurity at -0.69. The results are substantively similar when consumption poverty is anchored in 2015 or 1980.

Table 1 Correlation Matrix: Levels - Food Insecurity, OPM, SPM, and Consumption Poverty (1998-2015)

	OPM	SPM	Food insecurity	Consumption (1980)	Consumption (2015)
OPM	1				
SPM	0.93	1			
Food insecurity	0.93	0.91	1		
Consumption (1980)	-0.67	-0.76	-0.69	1	
Consumption (2015)	-0.61	-0.70	-0.62	0.99	1

Non-food Material Hardship

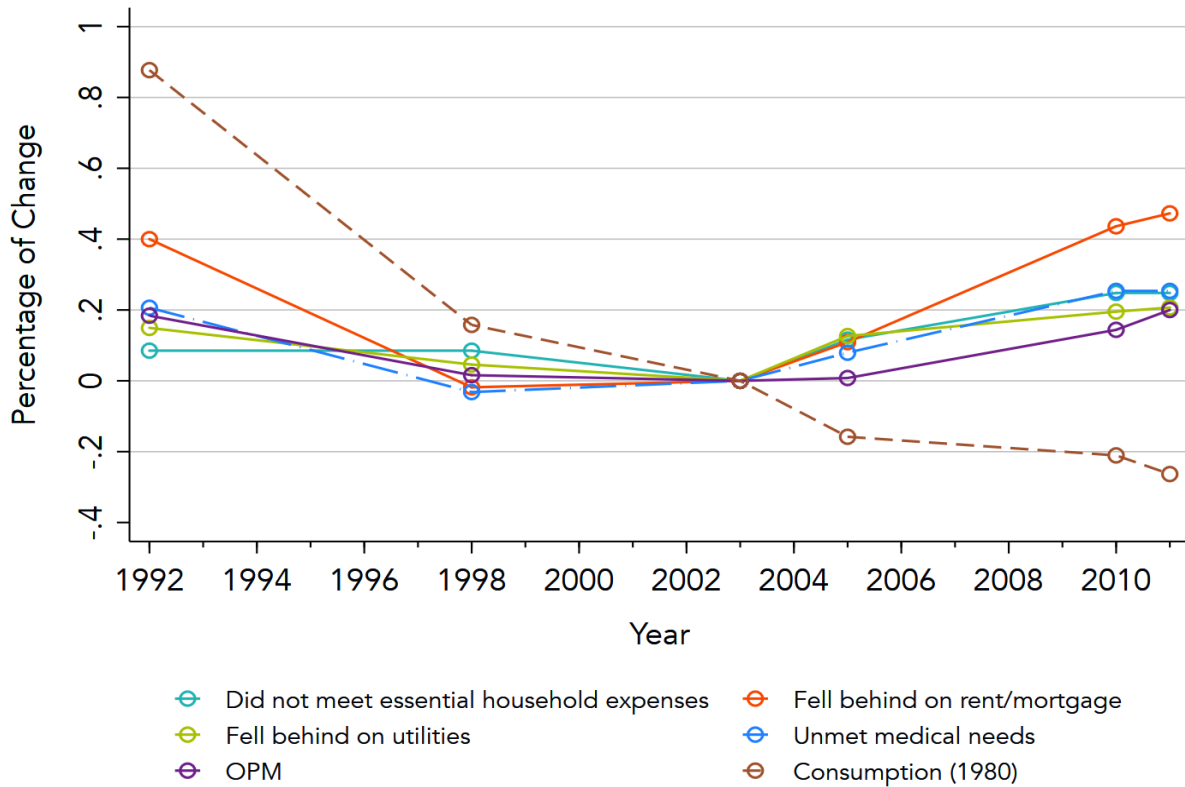
Food insecurity is just one form of hardship. Perhaps others take a different path over the same time period? The Survey of Income and Program Participation (SIPP) offers a number of non-food material hardship items in select years. From the SIPP data, we include the primary indicators for whether a SIPP household reported that they 1) did not meet essential household expenses; 2) fell behind on rent or mortgage; 3) fell behind on utilities; and 4) did not go to a doctor or hospital when needed.

Figure 3 presents the percentage change in measures of hardship—relative to 2003—for all four SIPP material hardship indicators described above, alongside OPM and consumption poverty.⁶ In 1992, all of the metrics indicated higher rates of material hardship than found in 2003. The percentage of households reporting that they fell behind on their rent or mortgage was 40.0% higher in 1992 relative to 2003, while 8.5% more households indicated difficulty meeting essential expenses in 1992, compared to 2003.

OPM trends similarly with these SIPP indicators, as the poverty rate was 18.4% higher in 1992 relative to 2003. Between 1992 and 2003, the Meyer Sullivan consumption poverty series trends in the same direction as these other indicators, but suggests by far the most extreme change over the time period, dropping 87%, relative to the rate in 2003.

⁶ SPM follows a similar path, so we omit for clarity.

Figure 3 Percentage Change from 2003: OPM, consumption poverty, and SIPP material hardship measures: 1992, 1998, 2003, 2005, 2010, and 2011



After 2003, the Meyer-Sullivan consumption poverty series diverges sharply from the other metrics. In 2010—the first year for which SIPP data is available during the Great Recession era—the percentage of households reporting that they fell behind on their mortgage or rent jumped by 43.6% relative to 2003. For that same timespan, the percentage of families reporting difficulty paying essential household expenses increased by 24.8%. In contrast, between 2003 and 2010, consumption poverty fell by 21.0%. By all the SIPP measures of material hardship examined here, conditions were substantially worse at the height of the Great Recession than in 2003. By the Meyer-Sullivan series, conditions were substantially better.

We report simple correlations between the SIPP material hardship measures, the official and supplemental poverty rates, food insecurity, and consumption poverty in Table 2. The first correlations are for years 1998-2011, in efforts to be comparable to the food insecurity analysis. We also report correlations for the full study period adding 1992 in brackets.

For either time period examined, OPM and SPM exhibit consistently strong and positive correlations with all of these indicators of hardship. Moreover, food insecurity taken from the CPS-FSS strongly correlates with all four measures of hardship in the SIPP, suggesting consistency in the measure of hardship across metrics and surveys.

In contrast, when examining the period 1998-2011, the correlation between annual rates of consumption poverty and the indicator for difficulty meeting essential expenses is -0.76. The correlations between consumption poverty and the remaining hardship measures range from -0.86, to -0.91, respectively. As would be expected given that all indicators trended in the same direction from 1992 to 1998, adding in 1992 leads consumption poverty to perform better. Even so, the consumption poverty series remain negatively correlated with two SIPP hardship indicators (essential expenses and utilities), and exhibits essentially zero correlation with the other two (difficulty paying rent and medical hardship).

Table 2 Correlation Matrix: SIPP Indicators, OPM, SPM, Food Insecurity and Consumption Poverty, 1998-2011* and 1992-2011* [1992-2011 in brackets]

(*SIPP data is only available for the following years: 1992, 1998, 2003, 2005, 2010, and 2011)

	Did not meet essential household expenses	Difficulty with Rent/Mortgage	Fell behind on utilities	Unmet medical needs	OPM	SPM	Food Insecurity ⁷	Consumption (1980)	Consumption (2015)
Did not meet essential household expenses	1								
Fell behind on rent/mortgage	0.95 [0.78]	1							
Fell behind on utilities	0.98 [0.9]	0.94 [0.92]	1						
Unmet medical needs	0.93 [0.8]	0.99 [0.99]	0.94 [0.94]	1					
OPM	0.91 [0.67]	0.96 [0.96]	0.86 [0.83]	0.95 [0.92]	1				
SPM	0.86 [0.71]	0.98 [0.98]	0.84 [0.74]	0.96 [0.97]	0.96 [0.95]	1			
Food Insecurity	0.91	0.94	0.83	0.9	0.98	0.95	1		
Consumption (1980)	-0.76 [-0.48]	-0.86 [0.04]	-0.86 [-0.15]	-0.91 [0.003]	-0.74 [0.21]	-0.83 [0.04]	-0.65	1	
Consumption (2015)	-0.72 [-0.51]	-0.81 [-0.061]	-0.85 [-0.21]	-0.86 [-0.08]	-0.68 [0.17]	-0.75 [0.0]	-0.58	0.99 [1]	1

⁷ Food insecurity is not officially published until 1998 and so we omit it for the correlations for 1992 -2011.

Labor Market Indicators and Measures of Poverty

Researchers often assume a relationship between the health of the labor market and poverty. In Table 3, we report a set of correlations between annual rates in OPM, SPM and consumption poverty and three indicators of labor market health: 1) the unemployment rate; 2) the unemployment rate for those with less than a high school education; and 3) the percent of adults working part-time for economic reasons. Like with the SIPP analysis, we report the results separately for the periods of 1998-2015 (mirroring available food insecurity rates), and then in brackets 1992-2015 (mirroring available SIPP non-food material hardship outcomes).

Once again, we find that from 1998 to 2015, annual OPM and SPM rates are strongly, positively correlated with all three labor market metrics, correlating at 0.81 and higher. During the same time period, the correlations between consumption poverty and the employment statistics range from -0.45 to -0.6.

When we take the study period back to 1992, the correlations between both income poverty measures and the labor market outcomes remain strong and positive. However, mirroring the findings from the SIPP analysis, the correlation between consumption poverty rates and the measures of labor market health are somewhat better than in the more recent time span, but still range from essential zero correlation to -0.14.

Table 3: Correlation Matrix: Labor force statistics, OPM, SPM, Consumption Poverty, 1998 to 2015 and 1992-2015 [1992-2015 in brackets]

	OPM	SPM	UR	Part-time for Economic Reasons	UR - Less than High School	Consumption (1980)	Consumption (2015)
OPM	1						
SPM	0.95 [0.94]	1					
UR	0.83 [0.77]	0.85 [0.81]	1				
Part-time for Economic Reasons	0.95 [0.88]	0.93 [0.88]	0.92 [0.91]	1			
UR - Less than High School	0.81 [0.78]	0.83 [0.80]	0.99 [0.99]	0.91 [0.9]	1		
Consumption (1980)	-0.67 [0.16]	-0.76 [0.02]	-0.48 [-0.13]	-0.6 [-0.09]	-0.45 [-0.07]	1	
Consumption (2015)	-0.61 [0.12]	-0.70 [-0.03]	-0.41 [-0.14]	-0.53 [-0.11]	-0.38 [-0.08]	0.99 [0.99]	1

Sensitivity Analysis

The analyses presented here are purposefully parsimonious and are meant to be descriptive. While we do not mean for this to be an exhaustive modeling of hardship over time, we do conduct a series of sensitivity tests to consider the robustness of our findings. In Appendix Table 1, we first difference our variables to examine period-by-period change instead of levels, to account for omitted factors that may influence the relationship between two variables. For food insecurity, we find attenuated correlations across all measures examined. However, consumption poverty remains negatively correlated with food insecurity at -0.32, whereas the relationship between food insecurity and the official income poverty remains positive (0.60).

While it may not be appropriate to first-difference the SIPP outcomes collected in only a few years, set apart at irregular intervals, we present first-difference results for these outcomes in Appendix Table 2, as well as first difference results for our labor market outcomes. We find that the correlations look similar across all measures—in this case consumption poverty performs comparably to income poverty and material hardship. Yet the strongest correlations appear to be between the income and consumption poverty rates. Thus, if first-differencing is the best way to compare the relationships between measures over time, the SIPP analysis would lead one to conclude that there has been no meaningful divergence between the income and consumption poverty data over the study period, which is clearly at odds with the graphical representation in Figures 1 and 2.

To test whether measurement error or differences in inflation adjustment are driving these results, we replicate our results using a consumption measure that includes only items from the expenditure data that Meyer and Sullivan consider “well-measured,” and examine whether the results are different when using the Consumer Price Index Research Series. As shown in Appendix Table 3, we find that a standard inflation adjustment attenuates the correlations presented in Table 1, yet consumption poverty remains negatively correlated with food insecurity while income poverty remains positively correlated. Thus, the relationships in Tables 1 and 2 are not driven singularly by differences in the treatment of inflation (see Appendix Table 2).

DISCUSSION

The sharp divergence in trends for consumption and income poverty rates since the late 1990s presents a dilemma for policymakers and scholars seeking to understand trends in poverty. We argue that one practical way to assess these competing trajectories is to compare them to trends in material hardship over the same time period. During the past two decades, annual official and supplemental poverty rates exhibit strong, positive associations with household food insecurity, non-food material hardship, and a series of metrics of labor market health. Researchers will continue to debate the validity of any or all of these indicators, and should add more indicators in future research. Yet what is most striking about these results is how similar

the trends are across nine different metrics of well-being measured in different ways and coming from different data sets.

The Meyer-Sullivan consumption poverty series takes a strikingly different path over the study period. Furthermore, to favor the trend in the Meyer-Sullivan series since the 1990s over the nine other indicators included in this study would mean overturning widely held assumptions about trends in well-being in the United States—for instance, we would be forced to conclude that conditions were markedly better at the height of the Great Recession than in the year 2000.

Recent research finds that income data used to derive official poverty statistics is underreported, an issue that is now well-documented (Meyer and Sullivan, 2009). Yet despite these shortcomings, we find that both the official poverty and supplemental poverty rates track numerous markers of hardship. We argue that, going forward, the external validity of any alternative poverty metric should be based in part on the degree to which it tracks closely with trends in material well-being over time.

Why are the trends in the Meyer and Sullivan consumption series out of line with these other indicators? Some have argued that there may be problems with the sample of the consumer expenditure survey, especially among the most disadvantaged households (CEX) (Cuddy et al., 2015). However, there is no consensus regarding the extent to which this explains these results, and clearly more research is needed.

Perhaps the issue is not so much differences in samples, but rather differences in the treatment of data. As we show, the treatment of inflation is one element driving differences, but not the sole cause. Furthermore, Meyer and Sullivan rely on numerous assumptions in transforming CEX expenditure data for consumption poverty rates. For example, they “impute” rental income for homeowners, meaning that they add into a homeowner’s household income what they might expect to get were they to rent their home. Maybe these analytic decisions led to the results we report here.

Perhaps another likely culprit is the rise of credit and debt over the past few decades. Recent estimates drawing data from official credit bureaus finds that one third of credit account holders are in debt collection, a phenomenon that disproportionately affects communities of color (Ratcliffe et. Al, 2017). If consumption is fueled by debt, it may overstate the benefits accrued to families (Congressional Budget Office, 2016; Seefeldt, 2015).

Another area where consumption may inadequately capture changes in well-being is in the case of housing, a major component of household consumption. Recent research finds that there is a shortage of affordable housing units available to low-income renters, and that low-income households across the board, on average, put a very large proportion of their incomes toward housing, leading them to struggle with other expenses (Joint Center for Housing

Studies, 2017).⁸ In a consumption-based household survey, this run up in housing costs would appear to be a positive development in material well-being, especially if other spending was propped up by debt.

Perhaps over the long-term, consumption poverty performs better at tracking material hardship. However, the performance of the measure in the short-term raises questions about its utility for today's policymakers, and has important implications for spending on anti-poverty programs, evaluating program effectiveness, and our understanding of the well-being of low-income Americans. Policymakers should rely on the weight of the evidence when deciding which metrics should inform these important decisions.

⁸ Also note CPI for housing has outpaced CPI for all other items over this period, see https://fred.stlouisfed.org/graph/?graph_id=424948

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APPENDIX

Table 1 Correlation Matrix: First Differences - Food Insecurity, OPM, SPM, and Consumption Measures (1998-2015)

	OPM	SPM	Food Insecurity	Consumption (1980)	Consumption (2015)
OPM	1				
SPM	0.77	1			
Food Insecurity	0.6	0.49	1		
Consumption (1980)	0.24	0.26	-0.32	1	
Consumption (2015)	0.34	0.41	-0.11	0.95	1

Table 2 Correlation Matrix: First Differences - OPM, Consumption, Labor Market and SIPP Hardship Measures (1992-2011)

	OPM	Consumption (1980)	Consumption (2015)	Did not meet essential household expenses	Fell behind on rent/mortgage	Fell behind on utilities	Unmet medical needs	Unemployment Rate	Part-time for Economic Reasons
OPM	1								
Consumption (1980)	0.92	1							
Consumption (2015)	0.97	0.97	1						
Did not meet essential household expenses	0.49	0.25	0.28	1					
Fell behind on rent/mortgage	0.96	0.92	0.95	0.53	1				
Fell behind on utilities	0.71	0.69	0.62	0.78	0.79	1			
Unmet medical needs	0.93	0.91	0.92	0.5	0.99	0.8	1		
Unemployment Rate	0.82	0.69	0.83	0.31	0.85	0.4	0.84	1	
Part-time for Economic Reasons	0.96	0.84	0.93	0.51	0.97	0.67	0.95	0.93	1

Table 3 Correlation Matrix: SIPP Indicators, OPM, SPM, and multiple measures of Consumption Poverty (1998-2015)

	OPM	Food Insecurity	SPM	Well-measured Consumption (1980) CPI-U-RS	Well-measured Consumption (1980) Adjusted CPI-U-RS	Well-measured Consumption (2015) CPI-U-RS	Well-measured Consumption (2015) Adjusted CPI-U-RS
OPM	1						
Food Insecurity	0.93	1					
SPM	0.95	0.91	1				
Well-measured Consumption (1980) CPI-U-RS	-0.57	-0.62	-0.7	1			
Well-measured Consumption (1980) Adjusted CPI-U-RS	-0.72	-0.71	-0.8	0.96	1		
Well-measured Consumption (2015) CPI-U-RS	-0.09	-0.17	-0.19	0.79	0.7	1	
Well-measured Consumption (2015) Adjusted CPI-U-RS	-0.6	-0.6	-0.68	0.92	0.96	0.81	1