

Consumption and Income Inequality and the Great Recession[†]

By BRUCE D. MEYER AND JAMES X. SULLIVAN*

Many studies have documented a sharp rise in income inequality in the United States in recent decades. According to official statistics, the Great Recession has done little to stem this tide of rising income inequality—the 90/10 ratio for income rose 11 percent between 2007 and 2011 (US Census Bureau 2012). In fact, according to the census bureau, the rise in income inequality during the first decade of the 2000s is slightly greater than the rise during the 1980s. Evidence from a related literature that has looked at consumption inequality is somewhat mixed. While these studies have tended to find that consumption inequality has risen less than income inequality in recent decades (Cutler and Katz 1991; Krueger and Perri 2006; Heathcote, Perri, and Violante 2010; Fisher, Johnson, and Smeeding 2013, Meyer and Sullivan 2013), some studies find that the rise has been fairly similar (Aguiar and Bils 2011; Attanasio, Hurst, and Pistaferri 2012).

In this study we examine changes in consumption and income inequality between 2000 and 2011. Examining differences in the patterns for income and consumption inequality before and after the Great Recession is particularly interesting given its severity. During the recession, unemployment quickly rose, and asset prices fell sharply. Between the official start and end dates for the Great Recession, the S&P 500 Index fell by 36 percent and the Case-Shiller Home Price Index dropped 22 percent. These declines may have had important effects on consumption and well-being, even among those for whom income did not change. Thus, this period may test whether income accurately captures

well-being when there are large changes in wealth. Our study also adds to the existing literature by providing new evidence on the patterns of inequality after the end of the recession. We also address important concerns about the rise in underreporting of consumption data.

We find very distinct patterns for income and consumption inequality. Inequality based on a comprehensive measure of income that incorporates taxes and noncash benefits rose throughout the period from 2000–2011. The 90/10 ratio was 19 percent higher at the end of this period than at the beginning. In contrast, consumption inequality rose during the first half of this period but then fell after 2005, and most noticeably during the recession. By 2011, the 90/10 ratio for consumption was slightly lower than it was in 2000.

I. Income or Consumption?

Most studies of inequality focus on wages, earnings, or income. However, if one is concerned with inequality in well-being, consumption is the more appropriate measure. Conceptual arguments almost always favor consumption as a better measure of material well-being than income. For example, consumption better reflects long-run resources. Income measures fail to capture disparities in consumption that result from differences across families in the accumulation of assets or access to credit.

In addition to these conceptual arguments, there is empirical evidence that consumption provides a better measure of well-being than income (Meyer and Sullivan 2011, 2012). For example, other measures of material hardship or adverse family outcomes are more severe for those with low consumption than for those with low income.

Differences between income and consumption may be particularly interesting during a severe recession characterized by a sharp decline in asset prices. Many households were adversely affected by the Great Recession even if they did not lose their jobs or their income did not change.

*Meyer: Harris School of Public Policy Studies, University of Chicago, 1155 E. 60th Street, Chicago, IL 60637 (e-mail: bdmeyer@uchicago.edu); Sullivan: University of Notre Dame, Department of Economics, 447 Flanner Hall, Notre Dame, IN 46556 (e-mail: sullivan.197@nd.edu). We would like to thank Eric French, Robert Moffitt, Kevin Rinz, and Paula Worthington for comments.

[†] To view additional materials, and author disclosure statement(s), visit the article page at <http://dx.doi.org/10.1257/aer.103.3.178>.

For example, many families saw the value of their homes or retirement savings plummet. As these families revised their expectations about long-run resources, their consumption and material well-being likely declined even if income did not.

II. Data Sources and Measurement Issues

A. Data

Our income data come from the 2001–2012 Current Population Survey (CPS) Annual Social and Economic Supplements, which provide data for our sample period from 2000 to 2011. The CPS is the source for official inequality measures in the United States, which are based on pretax money income. To calculate our measure of income, we add to pretax money income the value of tax credits such as the EITC and subtract state and federal income taxes and payroll taxes. We also add the face value of food stamps and the census' imputed value of housing and school lunch subsidies. In theory, this more comprehensive measure of income should more closely reflect the resources available to the family for consumption.

Our consumption data come from the 2000–2011 waves of the Consumer Expenditure (CE) Interview Survey, which is the most comprehensive source of consumption data in the United States. To convert reported expenditures into consumption, we replace spending on purchases of new and used vehicles with a service flow equivalent. We also subtract housing outlays, including mortgage payments, property taxes, and insurance, and add the reported rental equivalent of the home. Finally, we exclude spending that is better interpreted as an investment, such as spending on education and outlays for retirement, including pensions and Social Security. We exclude out of pocket medical expenses because high out of pocket expenses are arguably more likely to reflect substantial need or lack of good insurance rather than high well-being. See the data Appendix of Meyer and Sullivan (2013) for additional details on our income and consumption measures.

B. Data Quality and Underreporting in the CPS and CE Survey

Underreporting of both income and consumption is an important concern for studies

of inequality. Income in the CPS is substantially underreported, especially income sources important for those with few resources, and the extent of underreporting has increased over time (Meyer, Mok, and Sullivan 2009). Consistent with these results, reported income is often far below consumption for those with few resources, even for those with little or no assets or debts (Meyer and Sullivan 2011).

There is also substantial evidence that consumption is underreported in the CE and that this underreporting has increased over time. However, comparisons of aggregate CE spending to data from the National Income and Product Accounts (NIPA) overstate the extent of underreporting—half or more of the discrepancy between the two sources is due to definitional differences. Moreover, a recent study of the CE shows that many of the largest expenditure categories are reported well. Bee, Meyer, and Sullivan (forthcoming) show that among the eight largest comparable categories of expenditures, six are reported at a high rate in the CE Interview Survey (all above 0.77; three above 0.94), and the ratio of CE to NIPA for these categories has been roughly constant over time. In addition, these ratios are higher and more stable in the CE Interview survey than the alternative CE Diary survey. Ownership of durables such as houses and cars (from which we calculate service flows) is also reported reasonably well in the CE.

Evidence from Sabelhaus et al. (forthcoming) indicates that much of the underreporting of expenditures occurs at the very top of the income distribution, suggesting that the aggregate underreporting statistics likely overstate the weakness of the CE for the bulk of the distribution.

We adjust our measure of consumption to address concerns about underreporting by exploiting the fact that many of the large, important categories of spending in the CE have reporting ratios that are high and decline little over time. Specifically, we regress total consumption (in constant dollars) on a cubic in the large, well-measured categories of consumption and demographic characteristics of the family for families in the CE from the first quarter of 1980 through the third quarter of 1981, a time when the CE Survey compared more favorably to the NIPA. Coefficients from this regression are then used to predict a value of total consumption for

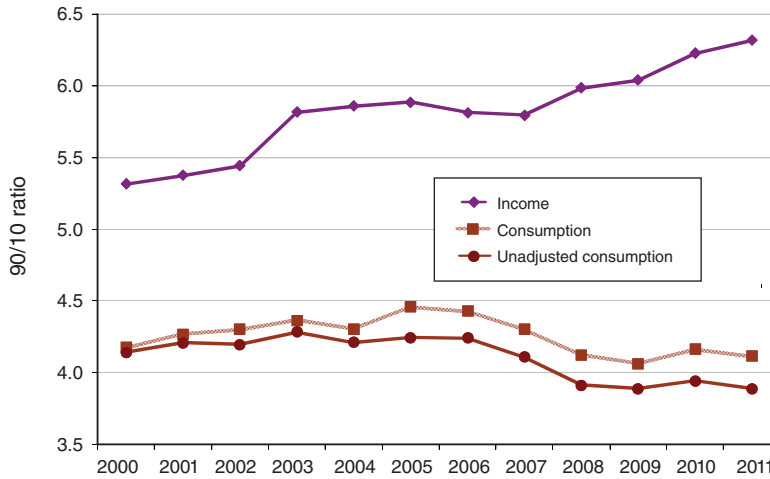


FIGURE 1. INCOME AND CONSUMPTION INEQUALITY, 2000–2011

Notes: Income is after-tax money income plus food stamps and housing and school lunch subsidies. Consumption is adjusted for underreporting by calculating a predicted value of consumption from a regression of unadjusted consumption on core consumption and demographic characteristics using data from 1980 and 1981. See text for more details.

each consumer unit in all years. The impact of this adjustment on our measure of consumption inequality is shown in Figure 1.

III. Inequality and the Great Recession

For our analyses of inequality between 2000 and 2011, we focus on the 90/10 ratio rather than the variance of the logarithm or the Gini coefficient because the ratios are not sensitive to the extreme tails of the distribution that we expect may be poorly measured in survey data, in particular the lower tail for income and the upper tail for consumption.

Figure 1 displays the ratio of the ninetieth percentile to the tenth percentile for our measures of income and consumption since 2000. Income inequality rose throughout this period, with a particularly large share of the increase in 2003. Between 2008 and 2011 income inequality again rose sharply. For the entire period from 2000 to 2011 the ratio grew by 19 percent. The pattern for consumption inequality is quite different. Consumption inequality rose slowly through 2005. If we did not account for the underreporting of consumption the rise would be barely noticeable. After 2005 consumption inequality fell, dipping below its 2000 level by 2009 and remaining at a lower level. During the

years of the Great Recession, consumption and income inequality moved in opposite directions. In fact, the differences between income and consumption inequality since 2007 are among the most striking differences between income and consumption patterns in recent decades.

To examine more fully the changes in the distribution of income and consumption, we plot various percentiles of income and consumption for our sample period. Figure 2 shows the changes in the fifth, tenth, twenty-fifth, fiftieth, seventy-fifth, and ninetieth percentiles of income after 2000. There was a pronounced spreading of the distribution. The seventy-fifth and ninetieth percentiles increased the most: both rose by 10 percent in real terms during this period. The increases at the median and twenty-fifth percentile were more modest. The tenth percentile in 2011 was only slightly higher than in 2000, and the fifth percentile fell nearly 15 percent during this period.

The percentiles of consumption followed a very different pattern, as shown in Figure 3. Consumption rose at all percentiles through 2006 but rose more at each successively higher percentile. The rise at the ninetieth percentile was about 7 percentage points higher than at the fifth percentile. In the following years, the pattern was sharply different. Consumption fell

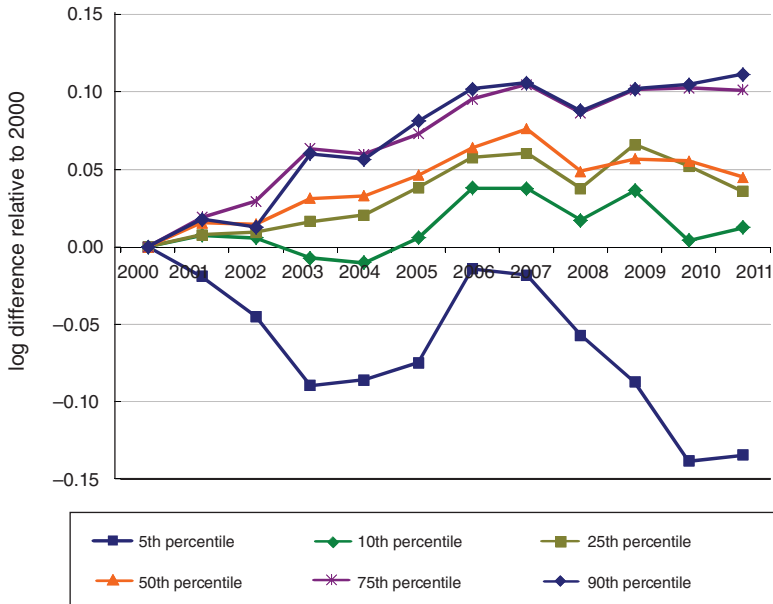


FIGURE 2. REAL CHANGES IN INCOME AT VARIOUS PERCENTILES, 2000–2011

Notes: Income is after-tax money income plus food stamps and housing and school lunch subsidies. Figures are adjusted for inflation using the adjusted CPI-U-RS (see Meyer and Sullivan 2013 for details).

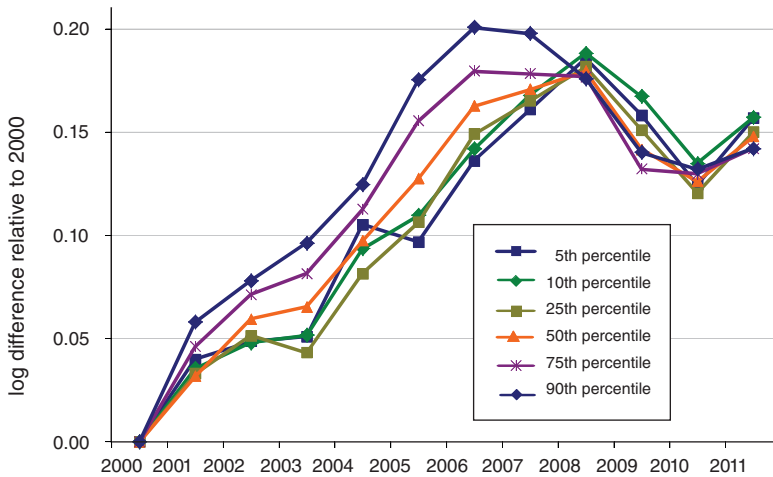


FIGURE 3. REAL CHANGES IN CONSUMPTION AT VARIOUS PERCENTILES, 2000–2011

Notes: Consumption is adjusted for underreporting by calculating a predicted value of consumption from a regression of unadjusted consumption on core consumption and demographic characteristics using data from 1980 and 1981. See text for more details. Figures are adjusted for inflation using the adjusted CPI-U-RS (see Meyer and Sullivan 2013 for details).

beginning in 2007 at the higher percentiles. At lower percentiles, it continued to rise through 2008. By 2011 it was the lowest percentiles that had risen the most since 2000, reversing the pattern we saw from 2000 through 2006.

What was behind this fall in consumption at the top and continued rise and later but smaller fall at the bottom? It seems likely that the fall in asset prices, first housing and then financial assets, had a disproportionate effect on those with higher consumption levels to begin with. In separate analyses we find homeowners tended to reduce their consumption more than nonhomeowners after 2006. We also examine changes in consumption separately for high and low asset groups. We find that between 2006 and 2011 consumption rose slightly for the lowest asset quintile, while it fell for the top three. Petev, Pistaferri, and Saporta-Eksten (2012) provide similar evidence for an earlier period. Given the distribution in asset holdings, it is easy to see why declining asset values would disproportionately impact the top of the consumption distribution. For the 2000–2011 period, families in the bottom quintile of consumption had very few assets—the median was zero throughout this period. Families in the top quintile of consumption, in contrast, had substantial asset holdings, and the value of their assets rose noticeably between 2000 and 2007 and then declined after 2007.

IV. Conclusions

We find that consumption and income inequality changed in very different ways after 2000. While income inequality steadily increased, consumption inequality rose and then fell back below its initial level. Past researchers including De Nardi, French, and Benson (2012) argue aggregate changes in consumption are consistent with past estimates of wealth effects. Future work should determine what elasticities are consistent with the distribution of changes in consumption and the changes in wealth at the household level.

REFERENCES

- Aguiar, Mark A., and Mark Bils.** 2011. "Has Consumption Inequality Mirrored Income Inequality?" National Bureau of Economic Research Working Paper 16807.
- Attanasio, Orazio, Erik Hurst, and Luigi Pistaferri.** 2012. "The Evolution of Income, Consumption, and Leisure Inequality in The US, 1980-2010." National Bureau of Economic Research Working Paper 17982.
- Bee, Adam, Bruce D. Meyer, and James X. Sullivan.** Forthcoming. "The Validity of Consumption Data: Are the Consumer Expenditure Interview and Diary Surveys Informative?" In *Improving the Measurement of Consumer Expenditures*, edited by Christopher Carroll, Thomas Crossley, and John Sabelhaus. Chicago: University of Chicago Press.
- Cutler, David M., and Lawrence F. Katz.** 1991. "Macroeconomic Performance and the Disadvantaged." *Brookings Papers on Economic Activity* 2: 1–61.
- De Nardi, Mariacristina, Eric French, and David Benson.** 2012. "Consumption and the Great Recession." *Federal Reserve Bank of Chicago Economic Perspectives* 36 (1): 1–16.
- Fisher, Jonathan, David Johnson, and Timothy Smeeding.** 2013. "Inequality of Income and Consumption: Measuring the Trends in Inequality from 1985–2010 for the Same Individuals." Unpublished.
- Heathcote, Jonathan, Fabrizio Perri, and Giovanni L. Violante.** 2010. "Unequal We Stand: An Empirical Analysis of Economic Inequality in the United States, 1967–2006." *Review of Economic Dynamics* 13 (1): 15–51.
- Krueger, Dirk, and Fabrizio Perri.** 2006. "Does Income Inequality Lead to Consumption Inequality? Evidence and Theory." *Review of Economic Studies* 73 (1): 163–93.
- Meyer, Bruce D., and James X. Sullivan.** 2011. "Further Results on Measuring the Well-Being of the Poor Using Income and Consumption." *Canadian Journal of Economics* 44 (1): 52–87.
- Meyer, Bruce D., and James X. Sullivan.** 2012. "Identifying the Disadvantaged: Official Poverty, Consumption Poverty, and the New Supplemental Poverty Measure." *Journal of Economic Perspectives* 26 (3): 111–36.
- Meyer, Bruce D., and James X. Sullivan.** 2013. "Consumption and Income Inequality in the U.S. Since the 1960s." Unpublished.
- Meyer, Bruce D., Wallace K. C. Mok, and James X. Sullivan.** 2009. "The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences." National Bureau of Economic Research Working Paper 15181.

Petev, Ivaylo D., Luigi Pistaferri, and Itay Saporta-Eksten. 2012. "An Analysis of Trends, Perceptions, and Distributional Effects in Consumption." In *The Great Recession*, edited by David Grusky, Bruce Western, and Christopher Wimer, 161–95. New York: Russell Sage Foundation.

Sabelhaus, John, David Johnson, Stephen Ash, David Swanson, Thesia Garner, John Greenlees, and Steve Henderson. Forthcoming. "Is the

Consumer Expenditure Survey Representative by Income?" In *Improving the Measurement of Consumer Expenditures*, edited by Christopher Carroll, Thomas Crossley, and John Sabelhaus. Chicago: University of Chicago Press.

US Census Bureau. 2012. "Income, Poverty, and Health Insurance Coverage in the United States: 2011." Current Population Report P-60-243. Washington, DC: Department of Commerce.

This article has been cited by:

1. Jonathan D. Fisher,, David S. Johnson,, Timothy M. Smeeding. 2013. Measuring the Trends in Inequality of Individuals and Families: Income and Consumption. *American Economic Review* **103**:3, 184-188. [[Abstract](#)] [[View PDF article](#)] [[PDF with links](#)]