Measuring the Trends in Inequality of Individuals and Families: Income and Consumption

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I. Inequality

The *2012 Economic Report of the President* states: "The confluence of rising inequality and low economic mobility over the past three decades poses a real threat to the United States as a land of opportunity" (p 181). President Obama stated that "[t]his kind of gaping inequality gives lie to the promise that's at the very heart of America: that this is a place where you can make it if you try."[1] Virtually all competent researchers show that American income inequality has increased over the past three decades (e.g., Atkinson, Piketty, and Saez 2011; Jenkins et al. 2011). While not denying that income inequality rose, researchers dispute the extent of the increase, which depends on the resource measure used, the definition of the resource measure, the time period over which inequality is measured and the population of interest.

This paper examines the distribution of both income and consumption from the same set of individuals using the 1985-2010 Consumer Expenditure (CE) Surveys. Differing from the findings in other recent research, we find that the trends in income and consumption inequality are similar between 1985 and 2006, but diverge during the Great Recession. For the entire twenty-five year period we find that consumption inequality increases about two-thirds as much as income inequality. Nevertheless, given the differences in the trends in inequality in the last five years alone, using measures of both income and consumption provide useful information.

Most inequality studies use annual income data. A difficulty with using annual income to measure inequality is that if everyone goes through a life-cycle current-income path, annual snapshots of income would suggest greater inequality than that which actually exists in permanent income. In addition, people may experience many transitory changes in income that would cause the distribution of annual income to indicate more inequality than actually exists.[2]

Economists have suggested that consumption may be a more appropriate indicator of permanent income. Slesnick (2001) and Cutler and Katz (1991) were among the first to show different trends in income and consumption inequality. Most recent research shows that consumption inequality is lower than income inequality, and its increase is less than the increase in income inequality (e.g., Heathcote, Perri and Violante 2010).

Some studies find similar increases in consumption and income inequality by adjusting the CE Interview Survey data or by using an alternative data source (Aguiar and Bils 2011; Attansio, Hurst, and Pistaferri 2012). In addition to finding similar increases in income and consumption inequality, these three papers claim that the CE Interview Survey data are flawed. However, Bee, Meyer, and Sullivan (2012) conduct a validation study of the CE Survey and find that the CE data compare favorably for some of the largest components of expenditures.

II. Methodology and Data

It is important to use a consistent theoretical framework to define income and consumption. The most comprehensive concept of income and consumption is drawn from the writings of Haig and Simons. However, no current household survey has the necessary variables to create a full measure of Haig-Simons income.[3]

Our goal is to have measures of disposable income and consumption that are accurate and as closely linked as possible, given the data limitations, to compare their distributions. While

[1] "Remarks by the President on the Economy in Osawatomie, Kansas," Dec 6, 2011. http://www.whitehouse.gov/the-press-office/2011/12/06/remarks-president-economy-osawatomie-kansas

[2] See Fisher, et al. (2012) for examples.

[3] Smeeding and Thompson (2011) construct a more complete income measure that attempts to account for the realized and unrealized returns on asset income.

there may be reasons to exclude education, medical care or durable goods from the measurement of consumption, removing these items from consumption while leaving income unadjusted distorts the relationship between income, consumption, and the change in net worth.

We use the only data set in the United States that contains both income and consumption-expenditure information for the same households, the CE Interview Survey data, to compute measures of consumption and income inequality. We begin our analysis in 1985 as this is the first year with the most consistently comparable data. We examine two resource measures: disposable income and consumption. Disposable income is money income from employment, investment, government transfers, and inter-household transfers of money, plus the value of food stamps and federal tax credits less the cost of federal and state income taxes, FICA taxes, and property taxes. Consumption is spending on all goods and services for current consumption, but excluding life insurance, pensions, and cash contributions minus the purchase price of vehicles minus the expenditures for home-ownership plus the service flow from vehicles plus the reported rental equivalence of home-ownership plus the value of federal government rental assistance.[4]

To match the income and consumption for each household and obtain annual measures of consumption, we only use those consumer units who participated in the survey for all four quarters. In this manner, we obtain the income and consumption for the same 12-month period. We do not restrict our sample by age, place of residence, or income reporting status. Previous papers restricted their samples to "complete income reporters" as defined by the CE Survey.[5]

The CE Survey began imputing income in 2004 but did not impute previous years. We replicate the BLS methodology as closely as possible and impute income for 1985-2010. For income taxes we use the National Bureau of Economic Research's TAXSIM program (see Feenberg and Coutts, 1993) to estimate federal, state and FICA taxes and tax credits such as the Earned Income Tax Credit.[6] All values are equivalized using the square root of household size and the weights are adjusted to account for only using four-quarter consumer units and to reflect person weights.

III. The levels and trends in inequality

To obtain a summary measure of inequality, we use the Gini index, the most commonly used measure of inequality that satisfies all of the key properties of an inequality index.

Similar to previous work, and consistent with the life-cycle permanent income hypothesis, the levels of consumption inequality are lower than those for income. The trends, however, are similar between 1985 and 2010. Figure 1 shows the Gini index for before-tax income, disposable income and consumption and compares these to the Gini obtained using before-tax income from the CPS. The CE income Gini shows similar trends as the Gini index for income in the CPS data, with fairly close end points in 1985 and 2010. The CE income Gini is more volatile because of the smaller sample size in the CE survey as compared to CPS.[7]

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[4] See Fisher, Johnson, and Smeeding (2012) for details.

[5] Fisher (2006) finds that incomplete income reporters have lower consumption than complete income reporters, which may affect any conclusions about the level of and trend in inequality.

[6] http://www.nber.org/taxsim/. See Fisher et al (2012) for a description of the tax estimation.

[7] There is an increase in income inequality in 1996 that may in part be due to changes in top-coding in the CE. It is not yet known whether and how much of the increase in 1996 is due to the change in top-coding. There were changes in the top-coding that should decrease inequality and changes that should increase inequality. Also note that there were analogous changes in top-coding for many components of consumption. When we adjust income inequality for changes in top-coding, a similar change will need to be made to consumption. See Jenkins et al (2011) for a description of how changes in top-coding affect trends in inequality.

Figure 1 shows that disposable income inequality and consumption inequality track each other between 1985 and 2006 but diverge during the past five years. Between 1985 and 2006, consumption inequality increases 7.2 percent, while disposable income inequality increases 6.4 percent. But from 2006 to 2010, consumption inequality fell 0.55 percent and income inequality increased by 3.3 percent. Over the entire period, disposable income inequality increased 9.9 percent, while consumption inequality increased 6.6 percent, about two-thirds of the increase in income inequality.

A. Comparison to other consumption measures

Other researchers compare the change in income inequality to the change in consumption inequality. While Heathcote et al. (2010) find similar increases in income and consumption inequality between 1985 and 2005, Attanasio et al. (2012) find a much smaller increase in consumption inequality. Meyer and Sullivan (2013) find a decline in consumption inequality but an increase in income inequality. These researchers, however, are not comparing consistently defined measures of income and consumption and/or are using two different data sources, with different sample and non-sampling errors, to measure income and consumption.

We replicate their consumption measures using the CE Survey and our sample. Heathcote et al. (2010) and Attanasio et al. (2012) both create a measure referred to as non-durable consumption, but the definitions differ. For example, Heathcote et al. include education expenses but exclude utilities while Attanasio et al. do the opposite. Meyer and Sullivan (2013) create a measure of what they call core consumption. A notable difference between Meyer and Sullivan and the other two is that Meyer and Sullivan include rental equivalence for homeowners and rent for renters along with the service flow from vehicles.

Figure 2 shows the trend in the Gini coefficient for our disposable income and consumption measures along with the three other definitions of consumption. The trends are all broadly similar but the four measures differ on how consumption inequality changed relative to income inequality. The Attanasio et al. (2012) measure of non-durables increased by only 3.9 percent over the entire period, considerably less than income inequality, while the Meyer and Sullivan (2013) and Heathcote et al. (2011) consumption measures increased by about the same amount as our income inequality measure. Between 1985 and 2006, all measures increase at rates similar to the increase in disposable income inequality, but they all vary over the recession. These findings demonstrate the importance of using consistent definitions of consumption and not restricting the sample by age or place of residence.

IV. Conclusion

We present evidence on the level and trend in inequality over the last twenty-five years in the U.S. using disposable income and consumption for the same sample of individuals from the CE Survey. Using a sample that includes all individuals, not just those that live in urban areas or those that are of working age, we find that income and consumption inequality increase at approximately the same rate between 1985 and 2006 and, over the entire 25-year period, consumption inequality increases by about two-thirds of the increase in disposable income inequality.

These results contradict much of the existing research that finds that consumption inequality was relatively flat since the mid-1980s. Our straightforward approach uses the entire CE Survey sample for both income and consumption and takes the consumption data as reported by the households. Examining income and consumption together using the same sample provides

an important contribution to the literature on the economic well-being of individuals. That the trends in the two measures are nearly identical provides even more confidence in the results.

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Figure 1: Inequality using the Gini Coefficient (1985-2010)

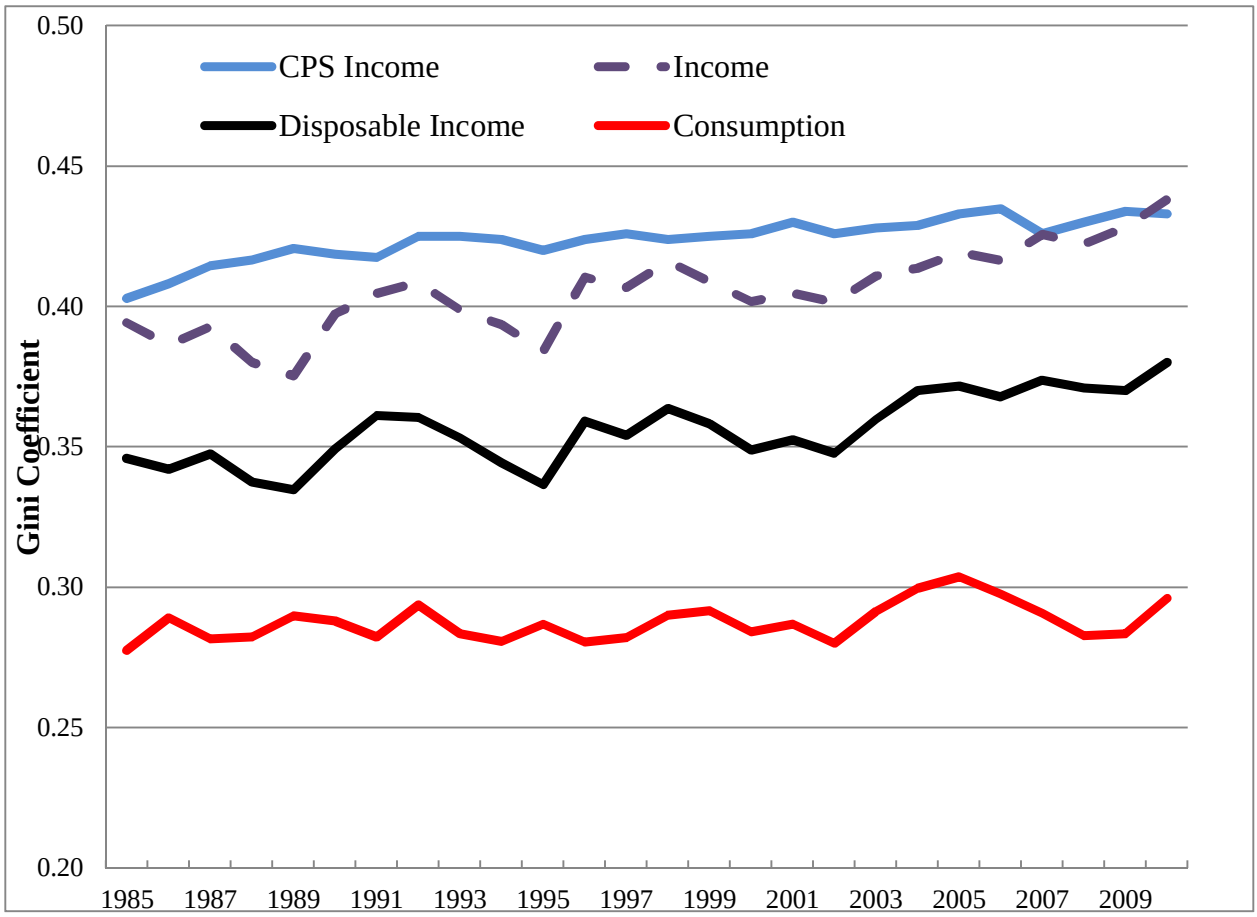

Figure 2: The Consumption Measure Matters – Comparing the Trends in Inequality using Different Consumption Measures and Disposable Income (1985=1.0)