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Is the Census Bureau's supplemental poverty measure a relative measure of poverty?

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The threshold for the Census Bureau's new supplemental poverty measure, below which a family would be classified as poor, will be set based on annual expenditures on necessities—food, clothing, shelter, and utilities (FCSU)—among certain types of families.[1] Some poverty experts argue that increases in income result in equivalent increases in expenditures on necessities, and thus, the poverty threshold will always rise together with median income. As a result, the poverty rate under this measure would not decrease unless the incomes of those at the bottom of the income distribution increase relative to those at the middle. However, other experts argue that as Americans' incomes rise, they will spend a smaller share on necessities. If true, this would imply that the supplemental poverty threshold would not rise one-to-one with income, and the supplemental measure would not be relative.[2]

The simplest way to test the assertion that the supplemental poverty measure is a relative measure is to plot the trend in expenditures on necessities and a trend in income across time. If the measure is relative, the FCSU trend and the income trend would likely increase at about the same rate across time. Unfortunately, data limitations preclude an ideal analysis. For one, the FCSU thresholds available use the original National Academy of Sciences (NAS) recommendations. Thus, these thresholds are based on two-adult, two-child families at the median of the distribution rather than all two-child families at about the 33rd percentile.[3] In addition, the thresholds available are based on the average of three years of expenditures on necessities, while the new Census Bureau measure is based on the average of five years. Moreover, these data are only available across a limited range of years. The FCSU-CE threshold, which excludes mortgage principal repayment, is available between 1989 and 2008, while the FCSU threshold, which includes mortgage principal repayment (the

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[1] The supplemental poverty measure, pending the appropriation of funding, would be set based on the equivalized FCSU expenditures of two-child families at about the 33rd percentile of this distribution. For more details on this procedure, see "Observations from the Interagency Technical Working Group on Developing a Supplemental Poverty Measure," U.S. Census Bureau, March 2010 (http://www.census.gov/hhes/www/poverty/SPM_TWGObservations.pdf).

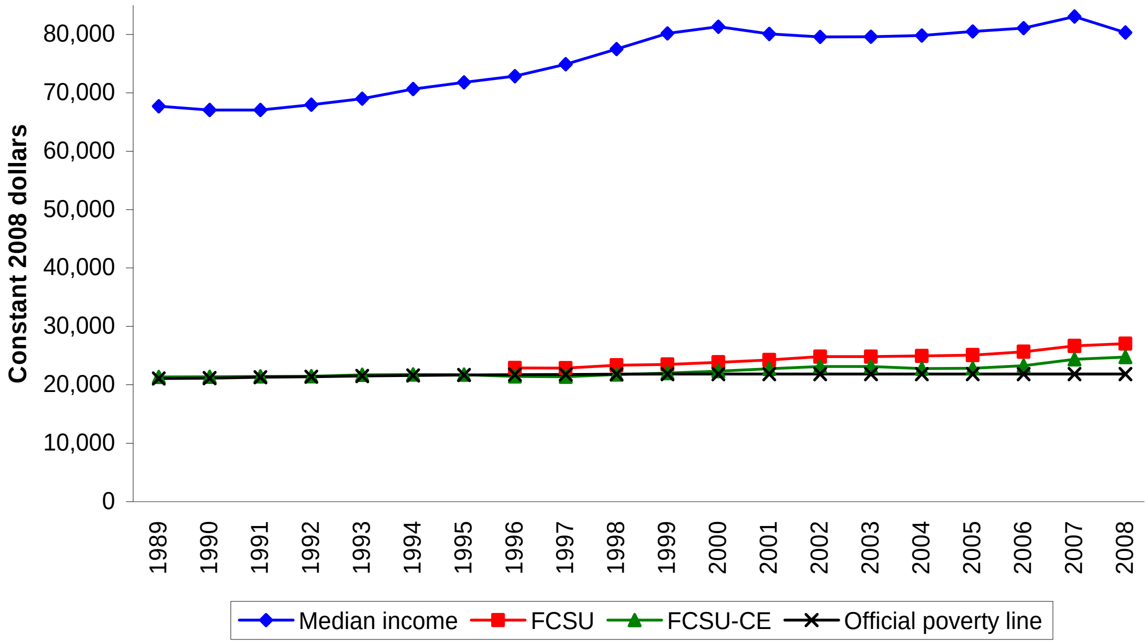
[2] The actual claim that we are investigating is whether the income elasticity of the FCSU threshold is equal to one. The income elasticity is equal to one if a one percent increase in income is associated with a one percent increase in the FCSU threshold. Kilpatrick first discussed the concept of income elasticity of the poverty threshold. Garner and Short analyze the income elasticity of the FCSUM threshold (which includes out-of-pocket medical expenses) between 1996 and 2005 and find that the elasticity is equal to 0.66. See Robert W. Kilpatrick, "The Income Elasticity of the Poverty Line," *The Review of Economics and Statistics* 55, no. 3 (1973): 327-332; Thesia I. Garner and Kathleen S. Short, "Identifying the Poor: Poverty Measurement for the U.S. from 1965 to 2005," *Review of Income and Wealth* 56, no. 2 (2010): 237-258.

[3] Specifically, the NAS threshold is set equal to about 97 percent of the median two-adult, two-child family's FCSU expenditures, while the supplemental poverty threshold is set equal to 120 percent of the equivalized FCSU expenditures of two-child families at about the 33rd percentile.

method of the new supplemental poverty measure), is available between 1996 and 2008.[4] Given these data restrictions, one should interpret this simple analysis with caution.

Figure 1 displays the trends across time of median family income, the FCSU threshold (which includes mortgage principal repayment), the FCSU-CE threshold (which excludes mortgage principal repayment), and the official poverty line. This figure shows the absolute differences in real terms between the three poverty thresholds and median income. The reference family for median income as well as the three poverty thresholds is the two-adult, two-child family.

Figure 1: Median Income and Poverty Thresholds in Real Dollars, 1989-2008



Median income is the median family income of two-adult, two-child families.[5] FCSU is the poverty threshold based on expenditures on necessities (including mortgage principal repayment) at the median of two-adult, two-child families.[6] FCSU-CE is the poverty threshold based on expenditures on necessities (excluding mortgage principal repayment) at the median of two-adult, two-child families.[7] The official poverty line is the official poverty threshold for a two-adult, two-child family.[8] All data are in constant 2008 dollars, adjusted for inflation using the CPI-U-RS.

[4] Some past proposals did not consider mortgage principal repayment an FCSU expenditure on a necessity. Repayment of the principal is a cost borne by homeowners, but at the same time they are either accruing assets in the form of home equity or repaying debt (if home values are falling).

[5] These data are from the authors' tabulations of the Annual Social and Economic Supplement to the Current Population Survey, 1990-2009. The sample used to calculate median family income includes all primary families with two married adults and two unmarried children less than 18 years of age. The sample is restricted to non-institutionalized, civilian families in which family income is non-negative and the householder is between the ages of 16 and 64.

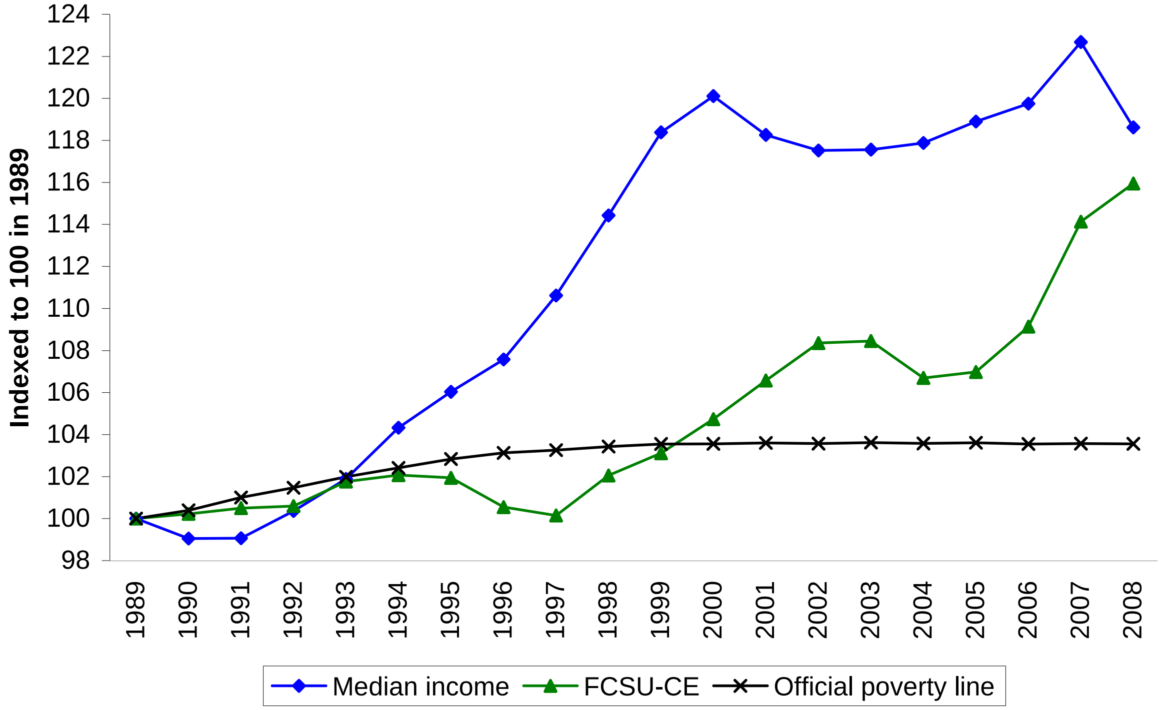
[6] Thesia I. Garner and Kathleen S. Short, "Creating a Consistent Poverty Measure over Time Using NAS Procedures: 1996-2005" (http://stats.bls.gov/osmr/pdf/ec080030.pdf); "Poverty Thresholds following NAS Recommendations" (http://www.census.gov/hhes/www/povmeas/web_tab5_povertythres2008.xls).

[7] Kathleen Short, "Experimental Poverty Measures: 1999," Current Population Reports, P60-216, Table A-1 (http://www.census.gov/prod/2001pubs/p60-216.pdf); "Poverty Thresholds following NAS Recommendations" (http://www.census.gov/hhes/www/povmeas/web_tab5_povertythres2008.xls).

[8] "Poverty Thresholds" (http://www.census.gov/hhes/www/poverty/threshld.html).

Figure 2 displays the trends between 1989 and 2008 in the FCSU-CE threshold (which excludes mortgage principal repayment), median family income, and the official poverty line. All three series are indexed to 100 in 1989 to allow for easy comparison of the growth rate of each series. During most but not all of this limited time sample, median income of two-adult, two-child families grows at a faster rate than expenditures on necessities at the median of this same type of family.[9]

Figure 2: Growth in Median Income, the FCSU-CE Threshold, and the Official Poverty Threshold, 1989-2008



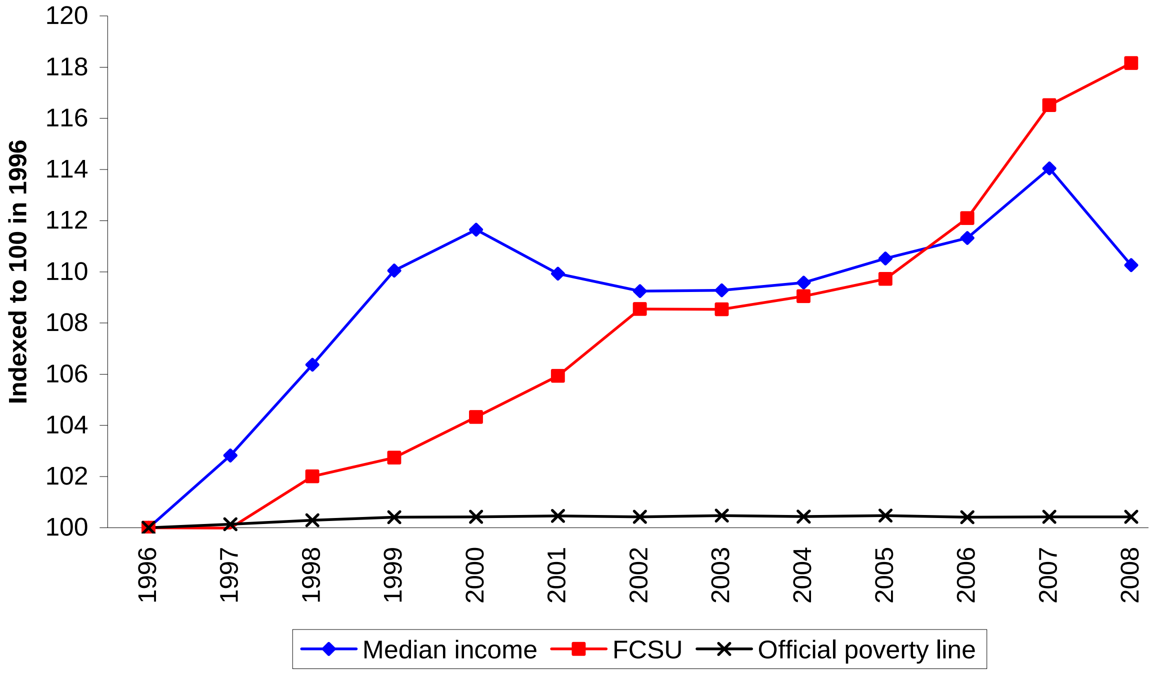
Median income is the median family income of two-adult, two-child families. FCSU-CE is the poverty threshold based on expenditures on necessities (excluding mortgage principal repayment) at the median of two-adult, two-child families. The official poverty line is the official poverty threshold for a two-adult, two-child family. All three series are adjusted for inflation using the CPI-U-RS and then indexed to 100 in 1989. For more details on the data and sources, see Figure 1.

Figure 3 displays the trends between 1996 and 2008 in the FCSU threshold (which includes mortgage principal repayment), median family income, and the official poverty line. As in Figure 2, all three series are indexed to 100 in the first year to better display the comparative growth rates of each series. In the first few years, median income grows at a faster rate than the FCSU threshold; in the middle section of the time sample, the FCSU threshold and

[9]An improvement in BLS data processing of interest-only mortgages and a change in the wording of the food consumed outside of the home question were implemented in the Consumer Expenditure Interview Survey in the second quarter of 2007. The change regarding interest-only mortgages affects the FCSU-CE threshold for 2007 and 2008, and the change regarding food consumed away from home affects the FCSU and FCSU-CE thresholds for 2007 and 2008. Thesia I. Garner, "Poverty Threshold Alternatives / Choices," Presentation at the Brookings / Census Bureau Conference on Improved Poverty Measurement, October 20, 2009.

median income grow at a similar rate; and in the last section of the time sample, the FCSU threshold grows at a faster rate than median income.[10]
It appears that family income at the median rises slightly faster than median family expenditures on necessities although the overall trends are very similar. In some years, expenditures on necessities grew at a faster rate than median income. Data limitations require that caution be used in interpreting these results.[11] Since this is a descriptive analysis, we can't tell whether growth in the cost of necessities is *caused* by changes in income. We don't know what the figures would show for a longer time period or for expenditures on necessities measured at the 33rd percentile as will be done for the supplemental poverty measure when Census has all the necessary data.

Figure 3: Growth in Median Income, the FCSU Threshold, and the Official Poverty Threshold, 1996-2008



Median income is the median family income of two-adult, two-child families. FCSU is the poverty threshold based on expenditures on necessities (including mortgage principal repayment) at the median of two-adult, two-child families. The official poverty line is the official poverty threshold for a two-adult, two-child family. All three series are adjusted for inflation using the CPI-U-RS and then indexed to 100 in 1996. For more details on the data and sources, see Figure 1.

[10] A partial explanation for the rise in the FCSU-CE threshold during this time period is increasing costs associated with mortgages. For more on these costs as well as the increase in two-adult, two-child families with mortgages, see Thesia I. Garner and Kathleen S. Short, "Identifying the Poor: Poverty Measurement for the U.S. from 1965 to 2005," *Review of Income and Wealth* 56, no. 2 (2010): 237-258.
[11] In light of the changes to the Consumer Expenditure Interview Survey which affect the FCSU and FCSU-CE thresholds in 2007 and 2008 (see note 9), readers should be especially cautious in analyzing data points from 2007 and 2008.