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Annual Report on U.S. Consumption Poverty: 2016

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Introduction

This report presents estimates of consumption and income based poverty in the United States derived from information collected in the U.S. Bureau of Labor Statistics' Consumer Expenditure Survey and the U.S. Census Bureau's Current Population Survey.

Summary of findings

- The consumption poverty fell from 3.4 percent in 2015 to 3.0 percent in 2016.
- The pattern of decline in the consumption poverty rate continues a trend that goes back to 2011 when poverty began to fall after two years of rising consumption poverty during the Great Recession.
- Between 1980 and 2015 the consumption poverty rate fell by 9.4 percentage points, while the official poverty rate rose by 0.5 percentage points.
- The long-term fall in consumption poverty relative to the official poverty measure that is apparent since 1960 is due to three factors: 1) a bias-corrected measure of inflation, 2) implicitly incorporating taxes and in-kind transfers in family resources by using consumption, and 3) avoiding the bias due to the under-reporting of certain types of income that are commonly received by those with low reported income.

Measuring Poverty

The Office of Management and Budget established the procedure for measuring the official poverty rate in the United States through a Policy Directive in 1978. This official rate is determined by comparing the pre-tax money income of a family or a single unrelated individual to poverty thresholds that vary by family size and composition. For example, in 2016, the poverty threshold for a one-parent, two-child family is \$19,337. The underlying data on pre-tax money income come from the Current Population Survey Annual Social and Economic Supplement. If a family has income below the poverty cutoff for that size family, all family members are classified as poor. Except for a few minor changes, the only adjustment to these thresholds over the past five decades has been for inflation using the Consumer Price Index for all Urban Consumers (CPI-U).

The release of this report is motivated by several longstanding criticisms of the Official Poverty Measure (OPM). Many criticisms can be found in sources such as Citro and Michael (1995), Blank (2008), and U.S. Census Bureau (2016b), but two are probably of greatest importance. First, the price index that the OPM relies on to adjust the poverty thresholds for inflation, the CPI-U, is known to overstate the extent of inflation (e.g. Hausman 2008). Second, the OPM does not reflect in-kind transfers and tax credits that have grown over time, such as the Supplemental Nutrition Assistance Program (SNAP), housing benefits and the Earned Income Tax Credit (EITC). The first problem means that the poverty cutoffs rise too quickly over time, leading more and more people to be below the cutoff in the absence of countervailing increases in income. The implication of the second problem, is that the OPM fails to reflect much of what the government does to reduce poverty.

The first problem can be reduced by using an unbiased price index. A potential solution to the second problem is to include SNAP, housing, tax and other benefits in the measure of income used to determine poverty status. This is the approach taken in the Census Bureau's Supplemental Poverty Measure report that is also being released today. Unfortunately, the data sources for these benefits suffer from substantial reporting problems, and consequently they substantially understate the in-kind and tax benefits mentioned earlier: SNAP, housing benefits, the EITC (Meyer, Mok and Sullivan 2015). Some forms of income included in the OPM are also sharply under-reported such as cash welfare and pension income (Bee and Mitchell 2017).

The case for consumption

A better solution to this second problem is to use consumption, which measures what families are able to purchase in terms of food, housing, transportation and other goods and services. Consumption offers several important advantages over income. First, conceptually speaking, consumption does a better job of capturing the material circumstances of individuals and families. For example, annual income will not reflect the standard of living of individuals who smooth consumption by drawing upon savings. Also, income-based measures of well-being will not capture differences over time or across households in wealth accumulation, ownership of durable goods such as houses and cars, or access to credit. In addition, many anti-poverty programs provide an insurance value to households that will not be reflected in their income. The conceptual benefits of consumption are the subject of a large literature (Cutler and Katz 1991; Poterba 1991; Slesnick 1993, Meyer and Sullivan 2003, 2011, 2012a, 2012b).

A second advantage of consumption is that it appears to be a better predictor of deprivation than income; in particular, material hardship and other adverse family outcomes are more severe for those with low consumption than for those with low income (Meyer and Sullivan 2003, 2011). Third, consumption appears to be more accurately reported than income for the most disadvantaged families (Meyer and Sullivan 2003, 2011). While consumption data also suffer from some under-reporting, it is not as severe as that for income and alternative methods using the well-measured components can be used to check results.

Results

This report applies the best available methods to solve the two problems discussed above. The main results can be seen in Table 1 and Figure 1. Column (1) of Table 1 reports the OPM which relies on pre-tax money income data from the Current Population Survey (CPS) and accounts for inflation using the CPI-U. The official measure fell during the 1960s but has had little trend since. In 2015 the poverty rate was 13.5 percent, the same value as in 1990 and close to the 1980 value.

The poverty series reported in Column (2) makes two important adjustments to the OPM. It accounts for taxes and uses a price index that is close to unbiased based on the research on errors in price indices. Here we see a substantial fall in poverty over time, with the poverty rate fall from 13.0 percent in 1980 to 11.4 percent in 1990 and 7.2 percent in 2000, after which it has shown little improvement.

We now turn to the consumption poverty measures reported in the last two columns. In Column (3), we report our measure that relies on all types of consumption. This measure falls from 13.0 in 1990 to 3.4 percent in 2015. It fell an additional 0.4 percentage points in 2016, down to 3.0 percent. This most recent fall continues a pattern than began in 2011 after two years of increases in poverty during the Great Recession. The drop from 2015 to 2016 also continues a steady long-term trend decline in consumption poverty from 30.2 percent in 1960/61 to 13.0 percent in 1980, 10.8 percent in 1990, 6.1 percent in 2000, 4.5 percent in 2010, and 3.0 percent in 2016. Consumption poverty shows a decline in each decade since 1960, and a decline in the years since 2010.

In the very last column, Column (4), we report a second consumption poverty series that only relies on the types of consumption that are measured well, including housing, food consumed at home, and automobiles (Bee, Meyer and Sullivan 2015). This series shows a similar pattern to the overall consumption poverty measure, with a steady decline but a noticeable upturn in the poverty rate during the Great Recession. This measure fell slightly in the most recent year.

To calculate the consumption poverty rates reported in Table 1, we set the threshold in 1980 to the value that yields a poverty rate equal to the official poverty rate in 1980 (13 percent). We then adjust these thresholds over time using a bias-corrected price index. This yields consumption-based poverty rates for recent years that are quite low by historical standards. Because the official poverty thresholds are adjusted using a biased price index, the bar for determining poverty status changes over time. Anchoring our alternative estimates to the official rate in 1980 is arbitrary. In Table 2 and Figure 2, we re-estimate alternative poverty rates, anchoring the rates in 2015 rather than 1980. Anchoring our estimates to the official poverty rate in 2015 results in a high level of the poverty rate in recent years, but the general pattern over time is quite similar. Between 1980 and 2015, after-tax income poverty fell by 15 percentage points, while consumption poverty fell by 20 percentage points.

Table 3 breaks down the after-tax and consumption poverty rates for the three major age groups, children under 18, those 18-64, and those 65 and older (using the thresholds anchored in 1980). In recent years, poverty rates for children are the highest, followed by those for non-aged

adults, and then those 65 and older with the lowest rates. After-tax income poverty rates for children were steady in the 1980s, before falling sharply in the 1990s. There is little trend since then, though the rate rose sharply in the recession. Consumption poverty rates for children have steadily fallen, though the fall accelerated in the 1990s and early 2000s, and has been much slower since. The consumption poverty rate for children fell sharply last year from 5.2 to 4.1 percent.

The after-tax income poverty rates for non-elderly adults have had a shallow U-shaped pattern over the past 30 years, with the rate in 2015 almost the same as that in 1989. On the other hand, consumption poverty has shown a steady decline, falling each decade. In 2016 it fell from 3.1 percent to 2.8 percent. The rates for those 65 and older show the sharpest declines. The after-tax rate for the elderly fell through the Great Recession, but has risen somewhat since. For the elderly, the consumption poverty rate has fallen sharply in each decade. Starting at over 45 percent in 1960/61 it fell to 17.4 percent in 1980, 8.6 percent in 1990, and has continued that fall in recent years, though it showed an uptick last year from 1.8 percent to 2.2 percent.

Explaining the trends

There are several factors that contribute to the sharp decline in poverty that we report using improved, consumption-based measures. Poverty has been sharply reduced through tax rate cuts and tax credits and the expansion of other anti-poverty programs. Increases in Social Security benefits have also played a large role, and rising educational attainment also accounts for some of the decline. However, these explanations cannot account for all of the improvement in economic well-being at the bottom, indicating that economic growth has played an important role in the sharp reduction in poverty. See Meyer and Sullivan (2012b) for more discussion.

Methods

Consumption poverty status is calculated by comparing a family's consumption to the poverty thresholds that vary by family size and composition. If a family's consumption is less than the poverty threshold, all members of the family are considered to be in poverty.

We adjust our thresholds for family size and composition in a way suggested in the "Measuring Poverty" report from the National Academy of Sciences. We proportionately scale, or anchor, our thresholds so that the consumption poverty rate and the official poverty rate are the same in a baseline year, either 1980 or 2015.

We adjust the thresholds over time using a bias corrected price index rather than the CPI-U, which is known to overstate the extent of inflation. We obtain the bias corrected price index by subtracting 0.8 percentage points each year from the change in the BLS CPI-U-RS (research series). The adjustment is based on arguments found in Advisory Commission to Study the Consumer Price Index (1996), Hausman (2003), Berndt (2006) and related research.

Instead of using pretax money income as the measure of resources at the disposal of a household, we use total consumption. We also consider an alternative consumption measure that we call well-measured consumption as a check on our estimates. Well-measured consumption consists

of only those components that are reported at a high rate consistently over time when compared to national income account data.

Sources of the Estimates

We use two main sources for our data, the Consumer Expenditure (CE) Survey and the Current Population Survey Annual Social and Economic Supplement (CPS ASEC):

Consumer Expenditure Survey

The CE is a nationally representative survey primarily used to calculate expenditure shares for construction of the Consumer Price Index. We rely on it for data on income, expenditures, housing and vehicle ownership. The CE surveys about 7,500 households each quarter, yielding about 30,000 interviews over a calendar year. The survey provides data going back to 1960/61, though was intermittent until 1980/81. Data for households (referred to as consumer units) for calendar year 2016 were released on August 29, 2017.

Current Population Survey

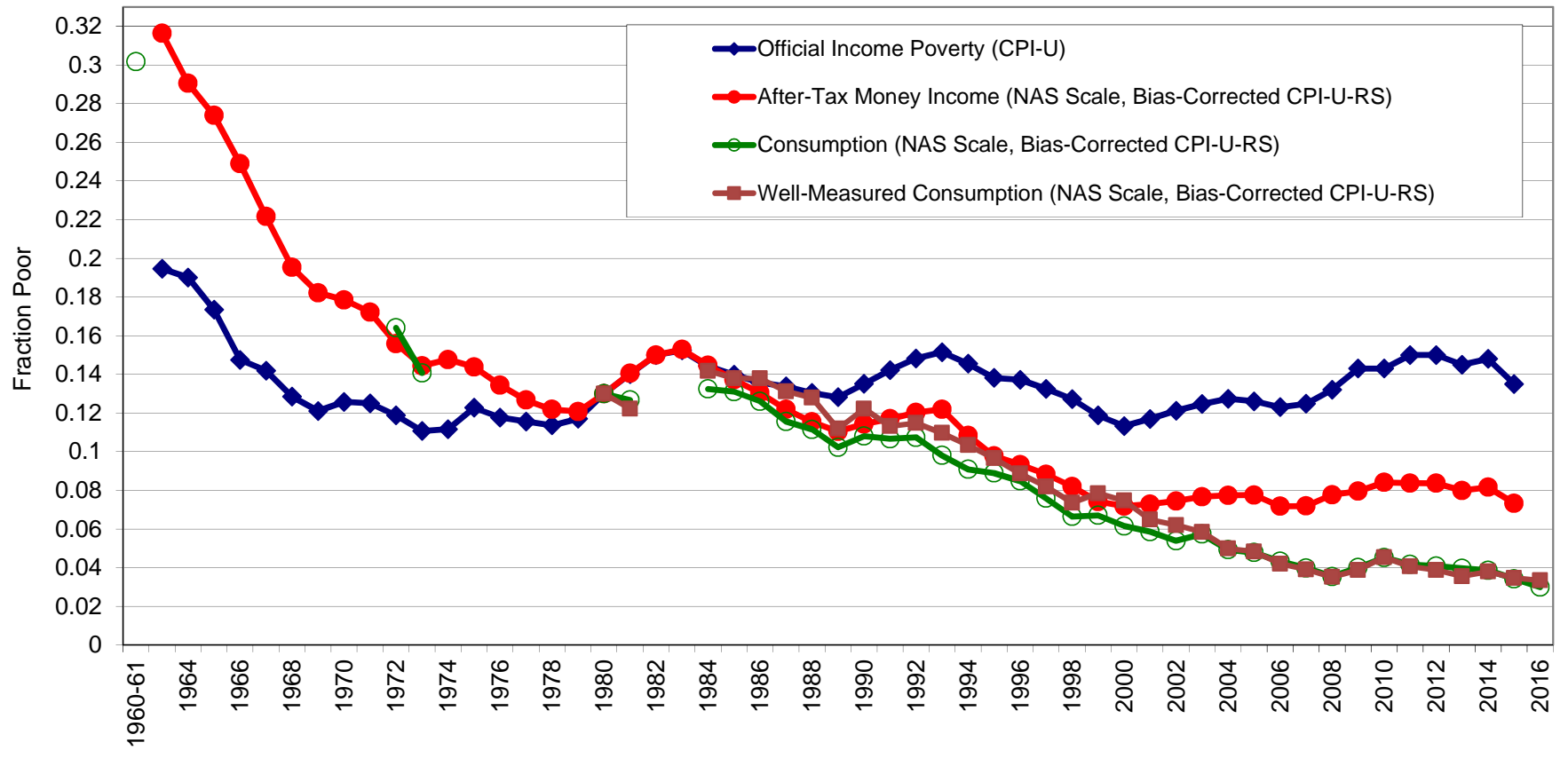
The CPS ASEC is a nationally representative survey primarily used to collect employment data. It is also the source of official income and poverty statistics. We rely on it for data on income. The CPS ASEC is a sample of about 75,000 households conducted annually in the early months of the calendar year. It provides poverty data going back until 1959, though the data on individual households are only available beginning in 1963. Data for individual households for calendar year 2016 will be released on September 12, 2017.

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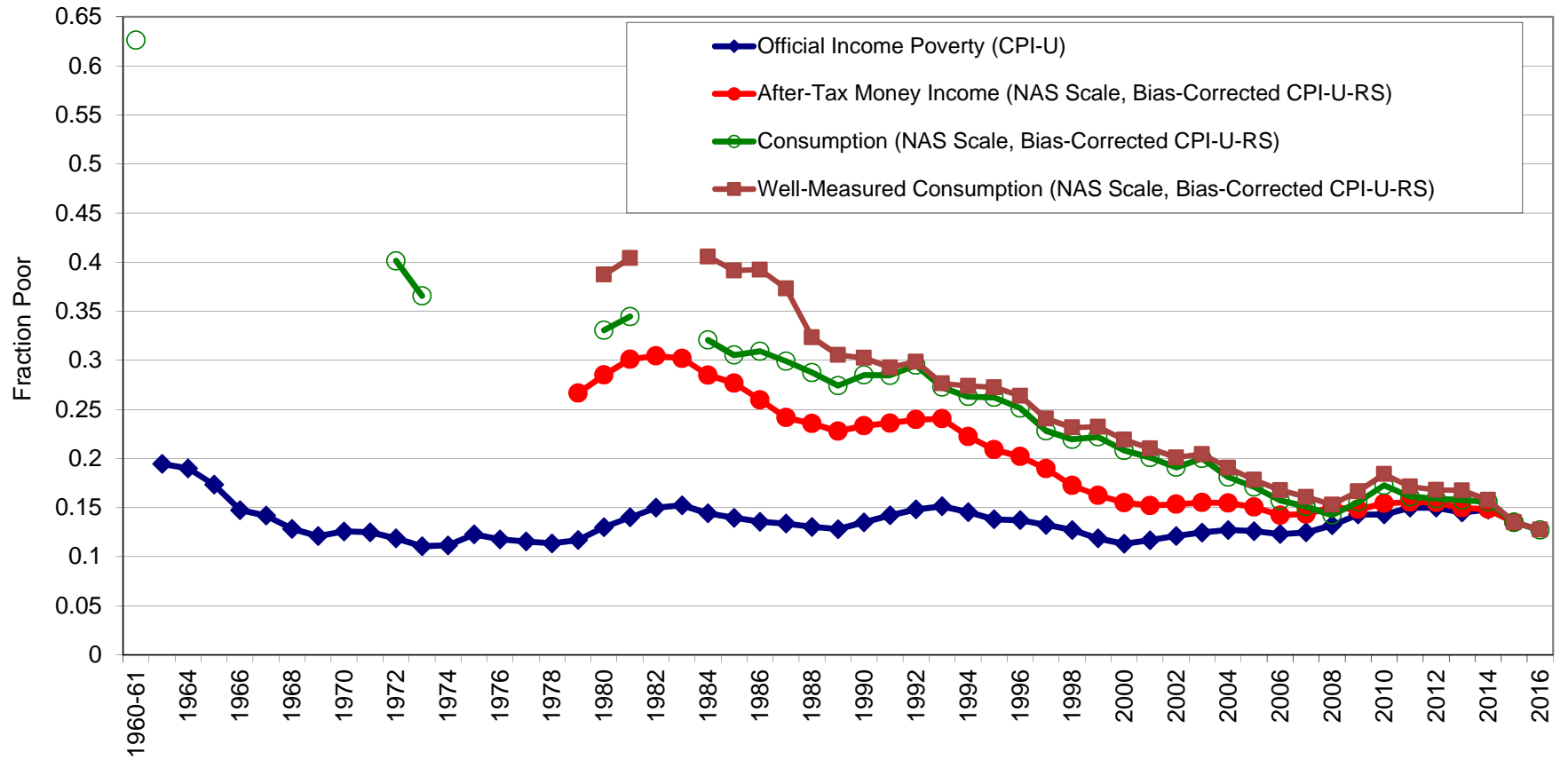
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Figure 1: Consumption and Income Poverty Rates, 1960-2016, Thresholds Anchored in 1980



Notes: Official Income Poverty follows the U.S. Census definition of income poverty using official thresholds. For measures other than the official one, the threshold in 1980 is equal to the value that yields a poverty rate equal to the official poverty rate in 1980 (13.0 percent). The thresholds in 1980 are then adjusted over time using the Bias-Corrected CPI-U-RS, which subtracts 1.1 percentage points from the CPI-U-RS each year from 1960-1977 and 0.8 percentage points from the CPI-U-RS each year from 1978-2016. Poverty status is determined at the family level and then person weighted. After-Tax Money Income includes taxes and credits (calculated using TAXSIM). Consumption data are from the CE and income data are from the CPS-ASEC/ADF. CE data are not available for the years 1962-1971, 1974-1979 and 1982-1983.

Figure 2: Consumption and Income Poverty Rates, 1960-2016, Thresholds Anchored in 2015



Notes: Official Income Poverty follows the U.S. Census definition of income poverty using official thresholds. For measures other than the official one, the threshold in 2015 is equal to the value that yields a poverty rate equal to the official poverty rate in 1980 (13.5 percent). The thresholds in 2015 are then adjusted over time using the Bias-Corrected CPI-U-RS. See Figure 1 for more details.

Table 1: Consumption and Income Poverty Rates, 1960-2016, Thresholds Anchored in 1980

Year	Official Income	After-Tax Money	Consumption (NAS	Well-Measured
	Poverty (CPI-U)	Income (NAS Scale, Bias-Corrected CPI-U-RS)	Scale, Bias-Corrected CPI-U-RS)	Consumption (NAS Scale, Bias-Corrected CPI-U-RS)
	(1)	(2)	(3)	(4)
1960-61/1963	0.195	0.316	0.302	
1972	0.119	0.156	0.164	
1973	0.111	0.144	0.141	
1980	0.130	0.130	0.130	0.130
1981	0.140	0.141	0.127	0.122
1982	0.150	0.150		
1983	0.152	0.153		
1984	0.144	0.145	0.132	0.142
1985	0.140	0.137	0.131	0.138
1986	0.136	0.130	0.126	0.138
1987	0.134	0.122	0.116	0.131
1988	0.130	0.115	0.111	0.128
1989	0.128	0.110	0.102	0.112
1990	0.135	0.114	0.108	0.122
1991	0.142	0.117	0.107	0.113
1992	0.148	0.120	0.107	0.115
1993	0.151	0.122	0.098	0.110
1994	0.145	0.108	0.091	0.103
1995	0.138	0.098	0.089	0.097
1996	0.137	0.093	0.085	0.089
1997	0.133	0.088	0.076	0.082
1998	0.127	0.082	0.066	0.074
1999	0.119	0.074	0.067	0.078
2000	0.113	0.072	0.061	0.075
2001	0.117	0.073	0.059	0.065
2002	0.121	0.074	0.054	0.062
2003	0.125	0.077	0.057	0.058
2004	0.127	0.077	0.049	0.050
2005	0.126	0.078	0.048	0.048
2006	0.123	0.072	0.043	0.042
2007	0.125	0.072	0.040	0.039
2008	0.132	0.078	0.035	0.035
2009	0.143	0.080	0.040	0.039
2010	0.143	0.084	0.045	0.045
2011	0.150	0.084	0.042	0.041
2012	0.150	0.084	0.041	0.039
2013	0.145	0.080	0.040	0.036
2014	0.148	0.082	0.039	0.038
2015	0.135	0.073	0.034	0.035
2016			0.030	0.033
Change:				
1960*- 1972	-0.076	-0.161	-0.138	
1972 - 1980	0.011	-0.026	-0.034	0.130
1980 - 1990	0.005	-0.016	-0.022	-0.008
1990 - 2000	-0.022	-0.042	-0.047	-0.048
2000 - 2015	0.022	0.001	-0.027	-0.040
1980 - 2015	0.005	-0.057	-0.096	-0.095
1960*- 2015	-0.060	-0.243	-0.268	

See notes to Figure 1.

Table 2: Consumption and Income Poverty Rates, 1960-2016, Thresholds Anchored in 2015

Year	Official Income	After-Tax Money	Consumption (NAS	Well-Measured
	Poverty (CPI-U)	Income (NAS Scale, Bias-Corrected CPI-U-RS)	Scale, Bias-Corrected CPI-U-RS)	Consumption (NAS Scale, Bias-Corrected CPI-U-RS)
	(1)	(3)	(4)	(5)
1960-61/1963	0.195		0.626	
1972	0.119		0.401	
1973	0.111		0.366	
1980	0.130	0.285	0.331	0.387
1981	0.140	0.301	0.345	0.404
1982	0.150	0.304		
1983	0.152	0.302		
1984	0.144	0.285	0.321	0.406
1985	0.140	0.277	0.305	0.391
1986	0.136	0.260	0.309	0.392
1987	0.134	0.242	0.299	0.373
1988	0.130	0.236	0.288	0.323
1989	0.128	0.228	0.274	0.306
1990	0.135	0.234	0.285	0.302
1991	0.142	0.236	0.285	0.293
1992	0.148	0.240	0.295	0.299
1993	0.151	0.241	0.273	0.276
1994	0.145	0.223	0.263	0.274
1995	0.138	0.209	0.262	0.273
1996	0.137	0.202	0.251	0.264
1997	0.133	0.190	0.228	0.241
1998	0.127	0.173	0.220	0.232
1999	0.119	0.163	0.222	0.232
2000	0.113	0.155	0.208	0.219
2001	0.117	0.152	0.201	0.210
2002	0.121	0.153	0.191	0.201
2003	0.125	0.155	0.200	0.204
2004	0.127	0.155	0.181	0.191
2005	0.126	0.151	0.171	0.178
2006	0.123	0.142	0.157	0.168
2007	0.125	0.143	0.151	0.161
2008	0.132	0.150	0.142	0.153
2009	0.143	0.148	0.156	0.167
2010	0.143	0.154	0.173	0.184
2011	0.150	0.156	0.161	0.171
2012	0.150	0.155	0.159	0.168
2013	0.145	0.150	0.158	0.167
2014	0.148	0.148	0.156	0.158
2015	0.135	0.135	0.135	0.135
2016			0.127	0.127
Change:				
1960*- 1972	-0.076		-0.225	
1972 - 1980	0.011		-0.071	0.387
1980 - 1990	0.005	-0.052	-0.046	-0.085
1990 - 2000	-0.022	-0.078	-0.077	-0.083
2000 - 2015	0.022	-0.020	-0.073	-0.084
1980 - 2015	0.005	-0.150	-0.196	-0.252
1960*- 2015	-0.060		-0.491	

See notes to Figure 2.

Table 3: Consumption and Income Poverty by Age Group, 1960-2016, Thresholds Anchored in 1980

Year	Under 18		18-64		65+	
	After-Tax Income	Consumption	After-Tax Income	Consumption	After-Tax Income	Consumption
	(1)	(2)	(5)	(6)	(3)	(4)
1960-61/1963		0.354		0.236		0.453
1972		0.200		0.125		0.262
1973		0.182		0.103		0.219
1980	0.183	0.168	0.102	0.104	0.151	0.174
1981	0.203	0.164	0.115	0.103	0.146	0.159
1982	0.226		0.125		0.135	
1983	0.233		0.131		0.134	
1984	0.227	0.184	0.125	0.111	0.118	0.123
1985	0.217	0.182	0.121	0.111	0.118	0.122
1986	0.213	0.178	0.114	0.104	0.117	0.120
1987	0.203	0.174	0.105	0.094	0.117	0.094
1988	0.192	0.171	0.102	0.090	0.110	0.085
1989	0.192	0.161	0.100	0.079	0.105	0.089
1990	0.201	0.161	0.103	0.089	0.105	0.086
1991	0.207	0.162	0.107	0.087	0.106	0.079
1992	0.211	0.164	0.112	0.089	0.112	0.071
1993	0.214	0.152	0.115	0.079	0.107	0.073
1994	0.197	0.135	0.105	0.076	0.095	0.062
1995	0.179	0.133	0.097	0.075	0.081	0.062
1996	0.172	0.132	0.094	0.071	0.086	0.047
1997	0.167	0.114	0.089	0.065	0.080	0.041
1998	0.154	0.101	0.086	0.058	0.080	0.033
1999	0.137	0.099	0.082	0.058	0.078	0.040
2000	0.131	0.089	0.079	0.055	0.080	0.036
2001	0.130	0.086	0.081	0.053	0.079	0.029
2002	0.130	0.075	0.086	0.049	0.084	0.031
2003	0.138	0.084	0.087	0.051	0.082	0.030
2004	0.136	0.071	0.092	0.045	0.080	0.024
2005	0.140	0.065	0.090	0.044	0.081	0.029
2006	0.133	0.064	0.087	0.038	0.076	0.024
2007	0.135	0.058	0.086	0.035	0.080	0.026
2008	0.144	0.049	0.094	0.033	0.080	0.022
2009	0.146	0.055	0.099	0.039	0.072	0.017
2010	0.154	0.062	0.104	0.043	0.072	0.023
2011	0.151	0.060	0.108	0.038	0.067	0.022
2012	0.158	0.062	0.108	0.037	0.073	0.018
2013	0.142	0.057	0.108	0.037	0.077	0.020
2014	0.148	0.056	0.107	0.036	0.082	0.021
2015	0.142	0.052	0.098	0.031	0.071	0.018
2016		0.041		0.028		0.022
Change:						
1960*- 1972		-0.154		-0.110		-0.191
1972 - 1980	0.183	-0.032	0.102	-0.022	0.151	-0.088
1980 - 1990	0.018	-0.007	0.001	-0.015	-0.046	-0.088
1990 - 2000	-0.070	-0.071	-0.024	-0.034	-0.026	-0.050
2000 - 2015	0.010	-0.037	0.018	-0.023	-0.008	-0.018
1980 - 2015	-0.041	-0.116	-0.004	-0.073	-0.080	-0.156
1960*- 2015		-0.302	0.098	-0.204		-0.436

Notes: Poverty status is determined at the family level and then person weighted. For each measure, thresholds are the same as those used in Figures 1-3. Thus, thresholds are anchored in 1980 for the full sample, rather than for each age group. Thresholds are adjusted over time using the Bias-Corrected CPI-URS. Consumption data are from the CE and income data are from the CPS-ASEC/ADF. Each series is adjusted using the NAS recommend equivalence scale. See notes to Figures 1 for additional details.