The Change in Poverty from 1995 to 2016 among Single Parent Families

By KEVIN CORINTH, BRUCE D. MEYER, AND DEREK WU*

*Corinth: University of Chicago (e-mail: kcorinth@uchicago.edu); Meyer: University of Chicago (email: bdmeyer@uchicago.edu); Wu: University of Chicago (email: derekwu@uchicago.edu). This paper, which has been subject to a limited Census Bureau review, is released to inform interested parties of research and to encourage discussion. Any opinions and conclusions expressed herein are those of the authors and do not represent the views of the U.S. Census Bureau. The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied to this release, authorization number: CBDRB-FY2022-CES005-005. We thank Connor Murphy and Matthew Stadnicki for excellent research assistance, and our discussant Richard Burkhauser for helpful comments. We appreciate the financial support of the Alfred P. Sloan Foundation, the Russell Sage Foundation, the Charles Koch Foundation, the Menard Family Foundation, and the American Enterprise Institute.

Whether poverty has risen or fallen over time is a key barometer of societal progress in reducing material deprivation. Between 1970 and 2020, the official poverty rate in the U.S. fell by just 1.2 percentage points (9.5%), suggesting limited economic gains for the disadvantaged despite large investments in anti-poverty programs. In contrast, several recent studies have found much larger declines in poverty. These studies rely on broader resource measures and/or account for price index bias in the updating of poverty thresholds (e.g., Meyer and Sullivan 2012; Fox et al. 2015; Burkhauser et al. 2019). However, these estimates of changes in poverty over time rely on surveys that suffer from substantial and growing income misreporting (Meyer, Mok, and Sullivan 2015), leaving uncertain the true decline in poverty in the U.S. over time.

This paper is the first to use comprehensive income data to examine changes in poverty over time in the U.S., implementing many of the recommendations of Interagency Technical Working Group (ITWG) (2022). By comprehensive, we mean survey data linked to an extensive set of administrative tax and program records, such as those of the Comprehensive Income Dataset (CID) Project. Using the CID allows us to correct for measurement error in survey-reported incomes while analyzing family sharing units identified using surveys. In this paper, we focus on individuals in single parent families in 1995 and 2016, providing a two-decade-plus assessment of the change in poverty for a policy-relevant subpopulation. Single parents were greatly affected by welfare reform policies in the 1990s that imposed work requirements in the main cash welfare program and rewarded work through refundable tax credits. Single parents are also currently targeted by many other policies, including a 2021 proposal to expand the Child Tax Credit

to all low- and middle-income families regardless of earnings.

Using our preferred estimates, we find that single parent family poverty, after accounting for taxes and non-medical in-kind transfers, declined by 62% between 1995 and 2016 using the CID. In contrast, it fell by only 45% using survey data alone. Moreover, survey-reported deep poverty among single parent families increased over time. Linked survey and administrative data, however, reveal that this misleading result is due to declining survey quality, as linked CID data show that deep poverty decreased between 1995 and 2016. Our paper builds on previous efforts to use linked survey and administrative data to improve our understanding of poverty at a point in time (Meyer and Mittag 2019; Meyer et al. 2021).

I. Data

We use the Current Population Survey Annual Social and Economic Supplement (CPS ASEC), covering reference years 1995 and 2016. We link the CPS ASEC to individual tax records and an extensive set of administrative government program data to correct for survey misreporting. Administrative data on earnings, asset income, retirement income, and adjusted gross income come from Internal Revenue Service Forms 1040s and 1099-Rs and the Detailed Earnings Record from the Social Security Administration. Data on government program benefits including Old Age, Survivors, and Disability Insurance (OASDI) and Supplemental Security Income come from the Social Security Administration. Rental housing assistance data come from the Department of Housing and Urban Development, and Supplemental Nutrition Assistance Program (SNAP) benefit information from 14 states in 2016. Our tax extracts lack tax payments or liabilities, but we use information from tax records to calculate federal and state income and payroll tax liabilities using NBER TAXSIM.

We link each administrative data source to the CPS ASEC using Protected Identification Keys (PIKs), which can be thought of as anonymized Social Security Numbers. Over 99% of most administrative records have a PIK, and 93% and 92% of CPS ASEC families have at least one PIKed member in 1995 and 2016, respectively. We drop families with no PIKed members or any whole-imputed individuals, reweighting appropriately. We include families with both PIKed and unPIKed members even though administrative data cannot be linked to those without PIKs.

II. Methodology

We calculate head count poverty rates by determining the share of all people who are in

families, as defined by the Supplemental Poverty Measure (SPM), that have resources below given thresholds. We consider three resource measures: (i) pre-tax money income (the income concept used for the Official Poverty Measure), (ii) post-tax money income, and (iii) post-tax money income plus the value of non-medical in-kind transfers (namely housing assistance, SNAP, school lunch, and energy assistance). In future work, we plan to account for health insurance and the flow of resources from home and car ownership as recommended by the ITWG. To calculate CID versions of these income concepts, we replace survey reports of most income sources with administrative counterparts where available. For earnings and housing assistance, we continue to bring in survey values if they reflect incomes plausibly missed in the administrative records. Our methods for combining survey and administrative values for these income sources are likely to err on the side of understating income. In particular, our combined measure of earnings using the CID yields a total of $8.84 trillion in 2016, which falls short of the $9.18 trillion in earnings found in NIPA aggregates (Table 1).

To construct absolute poverty thresholds in 1995 and 2016, we use as a starting point the official threshold in each year for a family of two adults and two children multiplied by the SPM 3-parameter equivalence scale to account for family size and composition. Note that the official thresholds are updated for inflation using the CPI-U, which has a widely documented upward bias (see Moulton 2018 for a recent review and additional citations). We therefore also construct alternative poverty thresholds in 2016, which use an adjusted inflation measure that subtracts 0.8 percentage points off the annual growth in the CPI-U-RS each year starting from the 1995 baseline (Meyer and Sullivan 2012). While the baseline threshold is scientifically arbitrary, we use the 1995 official threshold because it allows us to show how the poverty rate in 1995 falls after using a broader income definition and correcting for survey misreporting.

We focus on poverty (income below 100% of the threshold) and deep poverty (income below 50% of the threshold). See Corinth et al. (2022) for details of our data and methods.

III. Results

Before describing the poverty estimates, we first discuss how the share of dollars reported in the CPS ASEC for key income sources has changed over time. For most income sources (8 out of 10) in Table 1, the percent of total dollars reported in the survey fell between 1995 and 2016. Across all income sources in Table 1, the

Table 1. Aggregate Dollars for Selected Income Sources (real 2016 $ billions) from Survey and Public-Use Administrative Sources, 1995 and 2016

Income Source	1995		2016		Dollar Change in Reporting	% Pt Change in Reporting
	Survey	Admin	Survey	Admin	[(3)–(4)] – [(1)–(2)]	[(3)/(4)] – [(1)/(2)]
	(1)	(2)	(3)	(4)	(5)	(6)
Earnings	4,865.3	5,108.6	8,425.4	9,149.2	-480.5	-3.1
OASI	333.6	358.4	664.2	725.5	-36.4	-1.5
DI	48.6	49.7	105.1	134.1	-28.0	-19.5
SSI	26.0	35.9	51.5	54.9	6.6	21.6
UI	25.0	29.5	18.7	32.1	-8.9	-26.6
Workers Comp.	15.6	32.2	16.3	30.6	2.4	5.0
AFDC/TANF	20.2	28.7	4.5	7.3	5.7	-8.8
General Assistance	4.2	4.6	2.6	19.8	-16.8	-78.5
SNAP	19.3	30.1	34.1	65.3	-20.4	-11.8
EITC	24.9	34.5	43.4	66.7	-13.7	-7.1
Total	5,382.6	5,712.2	9,366.0	10,285.6	-590.0	-3.2

Sources: 1996 CPS ASEC, 2017 CPS ASEC, NIPA, various program records

Notes: Survey aggregates are dollars (summed over households) reported in the CPS ASEC for a given reference year. Administrative aggregates are dollars according to administrative sources such as NIPA and program records. The administrative aggregates for earnings and General Assistance are created using the methodology in Rothbaum (2015), while the other income sources are created using the methodology in Meyer, Mok, and Sullivan (2015). Where applicable, we remove income received by the institutionalized, those living overseas, military personnel, and decedents from the administrative aggregates. We adjust for inflation using the annual percent change in the CPI-U-RS minus 0.8 percentage points.

share of dollars reported decreased by 3.2 percentage points between 1995 and 2016. These aggregate comparisons suggest that estimates of poverty changes relying solely on survey data are likely be biased upward. It is worth noting that Table 1 does not include many other income sources that may be increasingly underreported over time in surveys. In addition, our available administrative income sources do not include several key income sources (e.g., AFDC/TANF, General Assistance) with increased percent underreporting in Table 1. In Corinth et al. (2022), we report comparisons between the survey aggregate dollars reported by single parents and the weighted totals obtained using the CID. These numbers indicate that, for single parents in 2016, CID earnings are below survey totals, while retirement income and SNAP in the CID substantially exceed survey reports.

Table 2 shows poverty rates in 1995 and 2016. Focusing first on 1995 survey levels, we find that the poverty rate for single parent families using survey-reported pre-tax money income is 47.4% (Column 1). Incorporating tax liabilities and credits in the resource measure leads to a reduction of 3.8 percentage points (8%), while the combination of taxes and non-medical in-kind transfers reduces survey poverty by 17.1 percentage points (36%) to a rate of 30.3%. Switching to the CID further

reduces the poverty rate (relative to the survey baseline) for each income concept, as it falls by 5% for pre-tax money income, 2% for post-tax money income, and 14% for post-tax/in-kind transfer income – yielding a final rate of 26.1%.

In 2016, using thresholds adjusted by the CPI-U, the poverty rate for single parent families is 39.9% using survey-reported pre-tax money income (Column 2). The poverty rate falls by 7.6 percentage points (19%) after incorporating taxes, and by 18.3 percentage points (46%) after incorporating both taxes and in-kind transfers. Again, switching to the CID causes the poverty rate to fall for each income concept, with post-tax/in-kind transfer poverty falling the most by 28% to a final rate of 15.5%. Not only is the percent decline in poverty due to changes in the income concept larger in 2016 (reflecting increased spending on tax credits and in-kind transfers over time), but the percent decline due to employing the CID is also larger in 2016 than in 1995. The latter result is consistent with increased underreporting of survey incomes, indicating that survey estimates of changes in poverty – regardless of income concept – will be biased upward.

Changes in poverty from 1995 to 2016 are explicitly shown in Column 4 and 5 of Table 2. When updating thresholds based on the CPI-U, the percent decline in poverty is greater using the CID than using the survey alone. Poverty based on pre-tax money income fell by 21% using the CID, compared to 16% using the survey. Poverty based on post-tax money

Table 2. Poverty and Deep Poverty Rates, those in Single Parent Families, 1995, 2016

Data Source	Poverty Rates (%) 1995	2016 CPI-U	2016 Adjusted CPI-U-RS	% Change from 1995 to 2016 CPI-U	% Change from 1995 to 2016 Adjusted CPI-U-RS
	(1)	(2)	(3)	(4)	(5)
A. POVERTY					
Pre-Tax Money Income					
Survey	47.4	39.9	34.4	-15.8	-27.3
CID	44.9	35.5	28.4	-21.0	-36.7
Post-Tax Money Income					
Survey	43.5	32.3	27.6	-25.8	-36.5
CID	42.5	26.4	20.9	-37.8	-50.8
Post-Tax Income + In-Kind Transfers					
Survey	30.3	21.6	16.8	-28.9	-44.6
CID no SNAP	26.1	15.5	11.4	-40.7	-56.2
CID w/ SNAP	--	15.5	9.8	-40.4	-62.2
B. DEEP POVERTY (0.5x Poverty Line)					
Pre-Tax Money Income					
Survey	22.8	21.1	18.0	-7.6	-21.0
CID	18.4	12.7	10.0	-30.9	-45.5
Post-Tax Money Income					
Survey	21.2	18.0	16.1	-15.2	-23.8
CID	16.8	11.0	8.9	-34.3	-47.1
Post-Tax Income + In-Kind Transfers					
Survey	6.5	8.0	7.0	22.9	8.6
CID no SNAP	4.4	4.8	3.8	9.9	-12.8
CID w/ SNAP	--	4.4	≤3.5*	-0.4	≤-20.3*
N	8,600	9,100	9,100		
Pop (mil)	20.13	17.99	17.99		

* Actual figure suppressed due to disclosure rules; bounded assuming equal weights

Sources: 1996 and 2017 CPS ASEC, Various Administrative Records

Notes: The samples consist of all individuals in SPM single parent units where at least one member is PIKed and no one is whole imputed, and survey weights are adjusted for non-PIKing and whole imputes using inverse probability weighting. To obtain poverty rates that incorporate admin SNAP data, we multiply the CID poverty rate prior to bringing in admin SNAP (calculated over the entire nation) by the ratio of the CID poverty rate including admin SNAP to the CID poverty rate excluding admin SNAP (calculated over the 14 states with admin SNAP data). The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied to this release, authorization number: CBDRB-FY2022-CES005-005.

income fell by 38% using the CID, compared to 26% using the survey. And poverty based on post-tax/in-kind transfer income fell by 41% using the CID, compared to 29% using the survey. The poverty reductions are even larger after correcting for the upward bias in the CPI-U by updating thresholds instead by the adjusted CPI-U-RS. Using the CID, poverty fell by 37% using pre-tax money income, 51% using post-tax money income, and 56% using post-tax/in-kind transfer income. Further accounting for administrative SNAP in 2016 leads to a 62% decrease in poverty over time and a 2016 poverty rate among single parent families of 9.8%. This final estimate of the change in poverty is our preferred estimate because it reflects the broadest set of income sources available for consumption, corrects for survey misreporting using the CID, and corrects for bias in the inflation measure used to adjust official poverty thresholds. Given the large increase in aggregate SNAP underreporting and its bias toward poverty rate increases, we prefer estimates that include administrative SNAP data for 2016 even though we do not have administrative data

Table 2 also reports results for deep poverty. Based on pre-tax money income, deep poverty between 1995 and 2016 fell by 8 to 21% (depending on the inflation measure used to update thresholds) when relying only on the survey and by 31 to 46% when relying on the CID. After incorporating both taxes and in-kind transfers into the resource measure, survey-reported deep poverty rose between 1995 and 2016 by 9 to 23% (depending on the inflation measure used to update thresholds). In contrast, CID deep poverty fell either slightly (when using the CPI-U) or by at least 20% when using the adjusted CPI-U-RS.

IV. Discussion

Since welfare reform in the 1990s, the trajectory of poverty among single parent families has been the subject of debate. Several studies find that survey-reported deep and extreme poverty increased for single parent families following welfare reform (Shaefer and Edin 2013; Brady and Parolin 2020). However, these results contrast sharply with those of other studies. Research relying on consumption data has found that the well-being of single mother families increased throughout the distribution after welfare reform, with larger gains for the most disadvantaged (Han et al. 2021). Substantial evidence shows that differences in the levels of income and consumption poverty could be due to the underreporting of income in surveys (Meyer et al. 2021 and the references cited there). Recent work using the CID has also found that the level of extreme poverty (income below

$2/person/day) for single parents in the U.S. is very low (Meyer et al. 2021).

Consistent with the estimates from consumption data, this paper shows that – after correcting for survey misreporting – poverty and deep poverty among single parent families fell by 62% and at least 20%, respectively, in the two decades after welfare reform. These results provide conclusive evidence that correcting for underreported incomes can substantially change poverty patterns over time, and they hold implications for current and future policies that would affect assistance to low-income families.

REFERENCES

Brady, David, and Zachary Parolin. 2020. "The Levels and Trends in Deep and Extreme Poverty in the United States, 1993–2016." *Demography* 57 (6): 2337–60.

Burkhauser, Richard, Kevin Corinth, James Elwell, and Jeff Larrimore. 2019. "Evaluating the Success of President Johnson's War on Poverty: Revisiting the Historical Record Using an Absolute Full-Income Poverty Measure." w26532. Cambridge, MA: National Bureau of Economic Research.

Corinth, Kevin, Bruce D. Meyer and Derek Wu. 2022. "The Change in Poverty from 1995 to 2016 among Single Parent Families." w28xxx. Cambridge, MA: National Bureau of Economic Research.

Fox, Liana, Christopher Wimer, Irwin Garfinkel, Neeraj Kaushal, and Jane Waldfogel. 2015. "Waging War on Poverty: Poverty Trends Using a Historical Supplemental Poverty Measure: Waging War on Poverty." *Journal of Policy Analysis and Management* 34 (3): 567–92.

Han, Jeehoon, Bruce D. Meyer, and James X. Sullivan. 2021. "The Consumption, Income, and Well-Being of Single Mother–Headed Families 25 Years After Welfare Reform." *National Tax Journal* 74 (3): 791–824.

Interagency Technical Working Group on Evaluating Alternative Measures of Poverty (ITWG). Final Report. 2021.

Meyer, Bruce D., and Nikolas Mittag. 2019. "Using Linked Survey and Administrative Data to Better Measure Income: Implications for Poverty, Program Effectiveness, and Holes in the Safety Net." *American Economic Journal: Applied Economics* 11 (2): 176–204.

Meyer, Bruce D., Wallace K. C. Mok, and James X. Sullivan. 2015. "Household Surveys in Crisis." *Journal of Economic Perspectives* 29 (4): 199–226.

Meyer, Bruce D., and James X. Sullivan. 2012. "Winning the War: Poverty from the Great Society to the Great Recession." *Brookings Papers on Economic Activity* Fall: 133–200.

Meyer, Bruce D., Derek Wu, Victoria Mooers, and Carla Medalia. 2021. "The Use and Misuse of Income Data and Extreme Poverty in the United States." *Journal of Labor Economics* 39 (S1): S5–58.

Moulton, Brent R. 2018. "The Measurement of Output, Prices, and Productivity: What's Changed Since the Boskin Commission?" Brookings Institution.

Shaefer, H. Luke, and Kathryn Edin. 2013. "Rising Extreme Poverty in the United States and the Response of Federal Means-Tested Transfer Programs." *Social Service Review* 87 (2): 250–68.