Earnings, the social safety net, and poverty among rural American families

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Abstract

Changing labor markets and demographics are the most common explanations for the observed increase in child poverty in rural America. We add an additional dimension by examining the characteristics and functions of the rural social welfare system. Changes in earnings, income transfers, and poverty among working and non-working families with children between 2004 and 2015 were studied using the Current Population Survey. Earnings and disposable household income of the majority of rural families remain well below 2004 levels. Transfers constitute a greater proportion of rural income for both working and non-working families, and these have not declined post-Recession. Using an Alternative Poverty Measure to account for non-cash transfers and tax credit transfers, we show that rural poverty increased over time by 1.7 percentage points. The largest poverty increases were observed for two growing family demographics: married families with one worker and single parent families who were not working. In a static decomposition of poverty rate change over time, changes in earnings increased poverty the most for single parent families; changes in cash transfers reduced the most proportional poverty among married families with one worker, and non-cash and tax credits reduced considerable poverty for most families.

*Keywords:* social welfare policy, income transfers, poverty, families
The rising number of children growing up in poverty in rural America has been a growing concern for some policymakers (Council of Economic Advisors, 2015). Hertz and Farrigan (2016) attributed the increase from 2000 to 2013 to changes in income inequality and variation in family composition, marital status, and education. Others have focused on changes to the economy and labor markets. The high prevalence of working poor in rural America is striking (Lichter, Johnston, & McLaughlin, 1994; Slack, 2010; Thiede, Lichter, & Slack, 2016). Recent estimates suggest that the rates of working poor were 17% higher in rural America compared to metro areas and this gap has widened over time (Thiede et al., 2016). Others have documented a rise in the geographic concentration of poverty that has primarily taken place in nonmetro counties (Thiede, Kim, & Valasik, 2017); and a large reduction in the proportion of the poor who are working (Thiede, 2017). The noted changes in the economy and work landscape of rural America have directly affected families. And, children within families are indirectly affected as the family is the primary institution where economic resources are managed and distributed.

In the face of such large economic changes, the social welfare system is designed to offset family economic hardship caused by inability to work, low wages, and other types of unemployment. We consider the social welfare system to include the full array of income transfers, tax credits, social insurance policies, and other redistributive benefits that families rely upon in times of need. Examples include Social Security, tax credits such as the Earned Income Tax Credit (EITC), the Supplemental Nutrition Assistance Program (SNAP; formerly known as Food Stamps), Supplemental Security Income (SSI), Temporary Aid for Needy Families (TANF), and many others. Scholars have documented the changing nature of the social welfare system

3 The terms rural and nonmetro are used interchangeably.
and how the social welfare system responded to the recent Recession (Bitler & Hoynes, 2013; Moffitt, 2013). Most of these studies of the social welfare system have not considered differences across urban and rural America. A few studies have examined the social welfare system in rural American using long term historical trends (Nolan, Waldfogel, & Wimer, 2017) or cross-sectional designs (Warlick, 2017). However, relatively little is known about how the social welfare system affects poverty among families with children in rural America. To what extent are current social programs effectively protecting rural families with children from poverty and the significant, potentially irreversible consequences of “growing up poor”? Or are America’s rural families with children falling through holes in the safety net? We begin to address these questions by examining patterns of earnings, poverty, and the poverty-reducing effect of the safety net among rural families with children from 2005 through 2016, and drawing comparisons with trends in the metropolitan United States.

**Child poverty in rural America**

We focus on poverty among families with children—and rural families with children in particular—for at least three main reasons. First, exposure to poverty and correlated forms of disadvantage during childhood is associated with a range of negative outcomes over the life course. These consequences include increased risk of high school dropout and early pregnancy, poor health, and low socioeconomic attainment (Brooks-Gunn & Duncan, 1997; Evans & Schamberg, 2009; Harding, 2003). Many of these negative effects cannot be entirely reversed by later-life changes in economic status. The implication is that children who “grow up poor”, in situations they largely cannot control, may face certain permanent disadvantages vis-à-vis their peers who grew up in more affluent families (or neighborhoods). Policies that reduce poverty
among families raising children therefore have the potential to also enhance economic attainment over the longer-run as those children progress through the life course without the disadvantages that they may have otherwise had.

Second, children have faced disproportionately high rates of poverty over recent decades. In 2016, for example, 19 percent of children lived in families below the poverty line, and another 22 percent lived in near-poor families. In contrast, 13 and 16 percent adults ages 18 to 64 years lived in poor or near-poor families, respectively (Koball & Jiang, 2018). Rural children are particularly disadvantaged along these lines. The child poverty rate in nonmetropolitan areas was 23.5 percent in 2016, which was a full 3 percentage points higher than the metropolitan child poverty rate (20.5%) (Economic Research Service, 2017). Rural children also face the additional challenges of being exposed to high rates of spatially-concentrated and persistent poverty. For example, 64 percent of rural counties—compared to 47 percent of urban counties—had child poverty rates above 20 percent, and many of these rural places have been characterized by such high rates of poverty for multiple decades (Schaefer, Mattingly, & Johnson, 2016).

Third and relatedly, recent demographic trends in rural America are likely to place upward pressure on child poverty rates. Between 2000 and 2010, the nonmetropolitan population grew by about half the rate of the previous decade, and this explained most by a slowdown in net migration (Johnson, 2017). At the same time, rural America is becoming more racially and ethnically diverse (Lichter, 2012). Racial and ethnic minorities account for 21 percent of the rural population, and a full 83 percent of the population gain between 2000 and 2010 (Johnson, 2017). Because minority status carries heightened risk of poverty risk, the patterns of population change in rural America are putting upward pressure on the poverty rate. As just one indicator, consider that on average between 2008 and 2014, 25.7 percent of non-Hispanic white infants in
nonmetropolitan areas were born into poor families, with corresponding rates of 55.5 and 41.7 percent among non-Hispanic black and Hispanic infants, respectively (Thiede, Sanders, & Lichter, 2017). These are exceptional levels of poverty by any standard. Others have pointed to changes in family structure that have arguably occurred more rapidly in rural than metro America. And, as family and work compositions move away from traditional breadwinner families, we expect additional upward demographic pressure on poverty (Snyder & McLaughlin, 2004). In the context of such demographic changes, new cohorts of rural children are likely to grow up in poor families. Many have noted that children and the families in which they grow and develop are at the vanguard of the major demographic transitions (Hernandez, 2005; Lichter & Qian, 2018). Overall, the consequences of childhood poverty brought about by economic and demographic changes will depend in part upon the extent to which families are protected by the U.S. social welfare system.

**The social welfare system and poverty in rural America**

The social welfare system includes the various policy mechanisms that in some form or another redistribute the income of some to offset insufficient market incomes of others (Marx, Nolan, & Olivera, 2014). Garfinkel et al (2010) provide conceptual categories for understanding social welfare systems. *Floors* are universal benefits that serve all regardless of income.4 Examples of floors include public education, and old age and disability insurance (often called social insurance). *Safety nets* are the second category and mainly target the poor and near-poor. Medicaid and housing subsidies as well as cash assistance such as Temporary Aid for Needy Families (TANF) are examples of safety net programs. Many consider safety nets as welfare

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4 Although not means-tested with current income, eligibility for the major social insurance programs in the US are based on earnings history and contributions.
programs. Last, platforms are the third pillar of the social welfare system that are targeted toward a portion of the population that is working. Via platforms, income is redistributed via employers and the tax system, e.g., employer-sponsored health insurance and the home mortgage interest deduction. The American social welfare system is characterized by heavy reliance on safety nets and platforms.

Understanding the current social welfare system requires some historical context. The system was born in 1935 with the Social Security Act that established two floor programs and a safety net: Social Security as a retirement program, Unemployment Insurance, and Aid to Dependent Children. The key distinction is that the floor insurance programs are targeted to all workers who have been employed and contributed sufficiently, while the latter safety net program that would eventually become Temporary Aid for Needy Families is means-tested. During the 1960s and 1970s nearly all of the major welfare programs that exist today were created or modified. Major developments included the formalization of Food Stamps, and creation of Medicaid and Medicare, Supplemental Security Income (SSI), and the Earned Income Tax Credit (EITC). During the Great Recession, the federal government expanded many of the social welfare programs. A sample of the actions included more relaxed eligibility and elevated benefits of SNAP, the Child Tax Credit, Unemployment Insurance, and EITC (for large families) (Moffitt, 2013). Taking the long view on the social welfare system three overarching trends have been observed. First, contrary to popular opinion, aggregate spending on the social welfare system has experienced steady growth since the 1960s (Moffitt, 2015). Second, with the 1996 change from AFDC to TANF and massive expansion in the Earned Income Tax Credit (EITC), the social welfare system has shifted aware from entitlements and towards a work-based system (Berger, Cancian, & Magnuson, 2018; Haveman et al., 2015). The number of workers in
the family is now a much more important risk factor for child poverty than it was a generation ago (Baker, 2015). Third, across the various programs, the welfare system has changed its redistributive objectives to families with older adults, families with recipients of disability programs, married families, and to the working poor (Moffitt, 2015). In the last 30 years, the safety net has shifted to benefit families with incomes above 50% the poverty line, leaving those at the bottom of the skills and earnings distribution with less support than in the past (Ben-Shalom, Moffitt, & Scholz, 2012).

To what extent does the social welfare system function differently in rural America? The prevailing claim is that the social welfare system underserves rural families (Lichter & Schafft, 2016). Examining the 1996 welfare reform, scholars argued that rural residents who are eligible for assistance are less likely to receive help from the government and if they do, the levels of assistance are lower than metro counterparts. (Lichter & Jenson, 2002). Using recent data, Warlick (2017) examined the pre- and post-Supplemental Poverty rates with and without several social welfare programs. She described that 8 of 10 major social safety net programs lift a proportionately greater number of individuals above poverty in rural America (compared to metro) with the largest effects for SNAP, Social Security, refundable tax credits (EITC) and SSI. This difference is probably attributed to higher rates of disability in rural America (Ruffing, 2015). For children, refundable tax credits (EITC and Child Tax Credit), Social Security, and SNAP reduced the largest proportions poverty. The proportional impacts of SNAP and Social Security were higher for rural compared to urban children. E.g., Social Security reduced child poverty by 18% for rural children compared to 10% for urban children. Tiehen and colleagues (2012) examined the extent to which SNAP reduced child poverty prevalence, depth, and
severity across metro and nonmetro areas and found that SNAP had a stronger effect on the depth and severity of poverty in nonmetro areas.

Several mechanisms may explain rural-urban differences in takeup and effectiveness. These include geographic distance from other cities, lack of public transportation, and lack of diverse economies that make it difficult for families in rural America to obtain education, skills, and full-time employment at a livable wage (Warlick, 2017). Other lines of work highlight other factors. Ethnographic data collection in the rural West suggests unique social and cultural norms may discourage some eligible individuals from accessing the safety net (Sherman, 2009). The story is complex because there are likely different patterns across the various floors, safety nets, and platforms that constitute the welfare system. For example, if accessing the social welfare system, a strong work ethic inclines many rural individuals to prefer unemployment and SSI over TANF (Sherman, 2009). Others suggest that safety net use has been viewed as acceptable—or at least necessary—among certain rural sub-populations, although such groups were often stigmatized by other community members (Duncan, 2014; Fitchen, 1995).

Contemporary patterns of SNAP use belie the idea that rural America is underserved by the safety net. Comparing participation rates across rural and metro America in 2010, Mills (2013) showed that rural residents now participate in SNAP at 86% compared to 73% for urban America. This marks a large turnaround from 15 years prior when the participation rates favored urban areas (78 compared to 66). Others report similar patterns in nonmetro areas (Leftin, 2010).

Research questions

We advance the understanding of poverty among families with children in rural America by studying income, income transfers, and poverty trends from 2005 to 2016. Our study is motivated by the following questions specifically for households with children:
(1) How did earnings and total income change during the study period?  
(2) What were the trends in poverty rates?  
(3) How did trends in earnings, income transfers, and poverty vary across family-work structure?  
(4) How much of the changes in child poverty were accounted for by changes in earnings and transfers?

By addressing these questions across metropolitan and nonmetropolitan families, we aim to provide insight into the distinct labor market and policy mechanisms shaping family well-being in rural America.

Method

Our sample included the Annual Social and Economic Supplement (ASEC) to the Current Population Survey for years 2005 to 2016, and were accessed from the IPUMS database (Ruggles, Genadek, Goeken, Grover, & Sobek, 2015). The ASEC provides detailed information on employment and income during the prior calendar year. Our analyses therefore describe trends in poverty between 2004 and 2015. This time period allows to adequately capture trends before, during, and after the Great Recession of 2007-2009. Notably, we cannot extend our pre-recession time series back to earlier years in a continuous manner since data for a number of safety net programs are not available (for undisclosed reasons) in the 2004 ASEC. Annual datasets were pooled across the 11-year period, excluding members of the fifth through eighth rotating groups in the 2006-2016 samples to account for the rotating sampling structure of the CPS. We also excluded observations from the three-eighths experimental sample of the 2014 CPS.

Measurement

Rural families were those residing in nonmetro counties as defined by the U.S. Office of Management and Budget at the time of the survey. Families with children were the unit of analysis and families without children were dropped from the analytic sample. Family was
defined as the primary family and related subfamilies based on the Census Bureau definition for poverty measurement.

We analyze income composition and poverty using the following measures. Throughout our analyses, all dollar values were adjusted for inflation and reported in 2016 values.

**Earnings.** Market earnings (sometimes called factor income) included wages, salaries, self-employment, and property income.

**Other income sources.** Pensions, private transfers, and other income were measured separately.

**OPM transfers.** Income transfers were central to our study. Accordingly, we included the various transfers measured in the CPS into two categories: OPM transfers and Other transfers. OPM transfers included social security, cash assistance (Temporary Aid for Needy Families, welfare), Supplemental Security Income (SSI), unemployment benefits, workers compensation, Veteran’s benefits, survivors benefits, and disability benefits. This set of transfers is referred to as OPM transfers because these transfers are included in family income when calculating the Official Poverty Measure.

**Other transfers.** The second set included transfers that are excluded from the OPM calculation but play a major role in alleviating poverty. In this study, these included non-cash benefits such as the Supplemental Nutritional Assistance Program (SNAP) and free and reduced school lunches, as well as tax-related transfers such as the Earned Income Tax Credit (EITC), the child tax credit and additional child tax credit.\(^5\)\(^6\)

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\(^5\) We impose a top code of $9,999 in SNAP receipt per household across the years in our sample. In the 2015 and 2016 CPS, values up to $24,999 could be recorded for this variable. In all other years, the maximum value was $9,999. We use the latter figure as our ceiling for consistency. WIC was not included because amounts were not measured in the CPS ASEC.

\(^6\) When calculating tax credits, we retain only one of the two values reported for joint filers, and then sum all remaining reported tax credits among members of our family unit.
Disposable household income. Our measure of disposable household income was a sum of total earnings, other income, OPM transfers, and Other transfers. Altogether, disposable household income (dhi) was designed to represent the economic resources available to a given household.\textsuperscript{7}

Poverty. We constructed three poverty indicators that relied on poverty thresholds from the Official Poverty Measure (OPM) produced by the U.S. Census Bureau. The first is a measure of earnings poverty. This indicator, also known as pre-transfer or market income poverty, is generated by an income-to-needs ratio of earnings to the OPM poverty threshold. The second is an OPM-equivalent poverty measure that considers earnings plus other sources of income (pensions, private transfers, and other income), plus the OPM transfers. We created a third measure called an Alternative Poverty Measure (APM) based on dhi. The major difference between the OPM and APM is the inclusion of Other transfers into the dhi variable used to calculate the APM. In other words, the difference between the OPM and the APM reflects the influence of transfers not included in the OPM (i.e., Earned Income Tax Credit, Supplemental Nutritional Assistance Program (SNAP), free and reduced school lunches, child tax credit and additional child tax credit). For the three indicators of poverty, a household was considered to be poor if their resources fell below the OPM threshold for a given year, adjusting for family size. Our APM is different from the Census Supplemental Poverty measure in that it does not adjust for geography, family unit definition, and does not consider certain out of pocket expenses that are accounted for in the SPM (for details on SPM see Fox, 2017).\textsuperscript{8}

\textsuperscript{7} Taxes were not included in our measure of dhi because we want to reference the Official Poverty Measure and taxes are not considered in the OPM.
\textsuperscript{8} We do not measure the SPM poverty because the SPM variables in the CPS only start in 2009. Because we wanted to take a longer view on child poverty we elected to start earlier in 2005 and account for transfers with the APM.
Family-work structure. Among other characteristics, the American welfare system is defined by its close connection to work (Berger et al., 2018). We also know that family structure shapes the risk of poverty. For example, the poverty rate among married-couple families was just 5.1 percent in 2016, compared with 13.1 and 26.6 percent among families headed by single males and single females, respectively (Semega, Fontenot, & Kollar, 2017). Importantly, however, work and poverty are strongly correlated and this is in part because a family’s labor supply is a function of its structure. To simultaneously account for both factors, we adopt a five part mutually exclusive and exhaustive family-work structure variable originally designed by Waldfogel (2009). Households were coded into one of the following five categories: (1) married couple both work; (2) single parent who works; (3) married couple one works, (4) single parent not working; (5) couple neither working. For work, we used the CPS question on weeks-worked in the previous calendar year. The question asked respondent to report the number of weeks that they worked for profit, pay, or as an unpaid family worker during the preceding year. Any response greater than zero for any members of the family was coded as a working family.

Cohabitating households with children were considered in category 2 since detailed information on cohabitation only started being collected with the 2007 CPS. Other family structures that included children living with an adult not their parents (e.g., grandparents or other relatives) were coded based on the family structure and working status of the head.

Analysis

First we analyzed averages for the six income components over time across metro and nonmetro areas. To understand the relative importance of the six components we calculated the proportion that each component contributes to total disposable household income. Next, we focused on changes in the mean, 10th percentile, median, and 90th percentile of earnings and total
dhi. Shifting to poverty, we reported headcount poverty rates based on (1) earnings, (2) earnings + OPM transfers (i.e., Official Poverty Measure), and (3) earnings + OPM transfers + Other transfers (i.e., our Alternative Poverty Measure). Finally, we decomposed changes in poverty rates over time using our definition of dhi. The decomposition of the change in poverty rate is a descriptive, not causal endeavor. Two time periods were compared systematically and sought to understand how the poverty rate would have been different in the absence of changes of the components in the dhi equation. An example will illustrate the method. Consider the time period 1 (2005 to 2010). Let’s assume the poverty rate increased by 2 percentage points during this period. Because we know the poverty rates is based on household dhi, and household dhi is comprised of several sources, we can quantify the change in poverty between years that is attributable to the change in each particular income source. Our primary foci in this study are the changes in earnings, OPM transfers, and Other transfers. Procedurally, we replace one income component at a time and calculate the counterfactual poverty rate had nothing else changed in the dhi equation. We repeat the process one by one across all income sources. To avoid the problem of path dependence (estimated impact will vary depending on the order of the components) we implemented the Shapley decomposition method (Azevedo, Sanfelice, & Nguyen, 2012). Importantly, we acknowledge that this type of analysis does not consider other changes that would likely occur if, e.g., one of the income components did not change. Hoynes and colleagues (2015) have referred to this approach as a static analysis of changes in poverty rates over time. Overall, the purpose is to associate changes in poverty with the different components that determine overall economic resources for families with children.
Results

(1) How did earnings and total income change during the study period?

The average income components of metropolitan and nonmetropolitan families by source for each year is presented in panel A of Table 1. Changes in average income overall and income composition were fairly modest over time. There are at least three points to note for urban and rural differences. First, average dhi was always higher in metro areas and is now about $5,000 higher than it was in 2005. As indicated by average dhi, the recovery from the Recession has been slow, but the pace of change in rural America has been slower. Across the 11 years, average real incomes have increased $1,465 in rural America compared to a much larger increase of $5,282 in urban counties. Last, at all years except 2011 (OPM transfers), non-metro families received more transfers from the social welfare system than metro families. Next, Panel B of Table 1 indicates the proportion of dhi by each component. The dhi of non-metro families was comprised of proportionally less earnings and somewhat more public transfers than metro families. For example, average non-metro families in 2016 had a total family income of $70,479 and approximately 87 percent of this was from earnings. On average, public transfers accounted for over 10% of non-metro family income (5.4 from OPM transfers and Other transfers alike). In contrast, the average metro family had a much higher income of $100,761, and nearly 92 percent of this came from earnings. Public transfers, combined, comprised the equivalent of about 6% of metropolitan families’ disposable income.⁹

[insert Table 1 about here]

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⁹ Note that taxes are not included in the original pre-tax disposable income figure.
Figure 1 displays total transfer income as a proportion of dhi across metro and non-metro family-work structures. Differences across metro and non-metro families persist across family-work structures. Notably, transfers comprise a much larger proportion of total income for non-metro families with only 1 worker (both married and single) than in metro areas. Figure 2a shows real earnings (factor income) over time at different percentiles of the distribution expressed as relative proportional change from 2005. Several points stand out. First, mean values of metro and non-metro families have closely mirrored each other. Average earnings of metro families are just slightly more than they were in 2005, while real earnings of non-metro families remain roughly unchanged over a decade later. Second, unlike average earnings, median earnings have diverged starting around 2011. Metro families with children have experienced a rebound of median earnings to be approximately the same as they were pre-Recession in 2005. However, median earnings of non-metro families are over 10% lower in 2016 than they were in 2005. And third, earners in the bottom of the distribution in metro and non-metro America have experienced the largest declines in real income. The lowest earners in non-metro communities have seen real earnings decline by about 85% over the 11 year period. The decline in real wages experienced at the bottom of the distribution make a compelling case for further study of the income transfer system.

[insert Figure 1 Transfers as a proportion of disposable household income]

[insert Figure 2 Relative Changes in Earnings]

Figure 2b shows the same plots for dhi. Gaps in dhi remain across metro and non-metro families across all measures. However, the gap between metro and non-metro families appears smaller when transfers and other income sources are considered, suggesting income transfers may have a larger impact for non-metro families.
(2) What were the trends poverty rates?

To initiate the discussion of poverty rate change over time, we first plotted the OPM rates for national, metro, and non-metro areas. Figure 3 shows that poverty rates increased from 2005 to 2013. Following the Recession, rates of poverty continued to increase for non-metro families at a higher rate than metro families, peaking in 2013 when 24% of families were below the poverty threshold. In the latest 2016 data, 21% of rural families were poor using the OPM. For rural families, the extent of poverty was 3 percentage points higher in 2016 than in 2005. And the rate was about 5.6 percentage points higher than in metro counties.

[insert Figure 3 Household OPM poverty rate among households with children across metro, non-metro]

We contrasted the OPM poverty rates with the two other measures – Earnings Poverty and the APM. Poverty rates using the three measures are plotted for the overall sample (see Figure 4). Results demonstrate that earnings shape the extent of poverty. Among families with children, earnings poverty ranged from approximately 17 percent to approximately 22 percent in 2013. The observed pattern of increasing poverty rates corresponded to the Great Recession and its protracted aftermath. The dashed line in Figure 4 shows the OPM. Importantly, the impact of the social welfare system can be measured by the distance between Earnings Poverty (sometimes called market income poverty or pre-transfer) and post-transfer poverty (Rainwater & Smeeding, 2005), at least to the extent of transfers that are accounted for in the OPM. In other words, the Earnings Poverty rate suggests a type of counterfactual poverty, i.e., what would the poverty rate be in the absence of all income transfers? Both earnings and OPM poverty rates have declined modestly overall since 2013, but remain above levels observed in 2005. The APM is also plotted in Figure 4. Results show that poverty rates that account for other transfers (non-cash and tax
credits) were consistently and considerably lower than the rate based on the OPM. For all years, the APM rate averages about 67 percent of the OPM rate. Furthermore, over the study time period, the APM showed less sensitivity to changes in the larger economic system. Whereas poverty based on Earnings and the OPM move in tandem up and down with the economy, the rate based on the APM displayed a more stable pattern (standard deviation across all years was .02, .017, and .007 for Earnings, OPM, and APM, respectively). The insensitivity suggests that the non-cash and tax credit transfers included in the APM offset economic hardship for American families during a time of considerable turmoil in the labor market as indicated by fewer jobs, rising unemployment rate, and real earnings decline.

[Figure 4. Overall Poverty Rates Across Three Measures: Earnings, OPM, and APM] Next we disaggregate the three poverty rates in Figure 4 and juxtapose them across metro and non-metro areas. We showed that Earnings Poverty was significantly higher among non-metro families. Juxtaposing the two geographies, the metro area Earnings Poverty rate in 2016 was lower than the non-metro Earning Poverty rate in 2005. We also observe that the differences between the three poverty measures were larger among non-metro families compared to metro. The average difference between Earnings Poverty and OPM and Earnings Poverty and APM was 4.5 and 11.1 among non-metro families, compared to 3.0 and 8.3 for metro families. Furthermore, the impact of the transfer system on poverty rates increased in years after the Great Recession as indicated by the widening gap over time, mostly among non-metro families. In 2016, the gap in poverty between metro and non-metro using OPM was 5.6 percentage points (21.1-15.5). Using the APM it was 4.3 (14.1-9.8). Again, this pattern suggests that the additional transfers included in the APM close the metro/non-metro poverty gap proportionally by about 23%. The inclusion of non-cash transfers and tax credits in our APM partly explains why the
SPM measure shows a reversal in the metro/non-metro gap in child poverty, (the geographic adjustment for cost of living likely accounts for the remainder of the difference (Nolan et al., 2017)).

[Figure 5. Earnings, OPM, and APM poverty rates across metro and non-metro America]

(3) How did trends in poverty vary across family-work structure?

Next we focus solely on non-metropolitan families with children and examine how the APM poverty rates varied by family-work structure. Not surprising, we see substantial gaps across the five-part typology. Families composed of two parents who are both working had very low risk of poverty. In the latest year of data, the poverty rate among this most prevent family structure was less than 1%. For similar two parent families with only one worker the poverty rate jumps to about 10%. And the penalty for single-parent families increased an additional 5 percentage points in the latest data. Over all years, the poverty rates for single parent families who were working were on average 53 percent higher than for two parent families with one worker. Sizeable dips around 2014 for both groups appear to be anomalies in the long-term trends. APM poverty rates for non-working families were very high, averaging around 67 percent for single parent families, and 47 percent for married families. Large year-to-year fluctuations in the married but not working family structure should be interpreted cautiously due to the larger confidence intervals around the point estimates that resulted from smaller sample sizes (See Appendix A).

(4) How much of the changes in child poverty were accounted for by changes in earnings and transfers?

The APM poverty rate decreased by 0.2 percentage points over the study period. APM poverty in non-metro America increased by 1.7 percentage points, and was driven by a combination of market forces and changes in policy. How much of the change can be accounted for by changes
in earnings and transfers? We turn to address these questions by decomposing the 1.7 percentage point increase of APM poverty as a function of the six income components. Results are shown in Table 2.

[Table 2. Decomposition of change in APM poverty 2005 to 2016]

Focusing on non-metro America, Table 2 shows that changes in earnings between 2005 and 2016 were the most influential income component driving the overall poverty rate increase of 1.7 percentage points. More specifically, if none of the other income components would have varied during the time period, changes in earnings would have increased the poverty rate by about 3 percentage points. In absolute terms, that means the poverty rate in 2016 would have been about 17.1 instead of 14.1, a difference of approximately 152,000 families. Declines in smaller income components such as pension income, other income, and private transfers accounted for relatively small increases in the APM poverty rate. In contrast, the decomposition shows that changes in OPM transfers such as TANF, SSI, and UI reduced poverty by 0.76 percentage points. In comparison, the overall poverty-reducing impact of Other (APM) transfers was associated with reducing the poverty rate by about 1.2 percentage points. Proportionally, the Other transfers reduced about 58% more poverty than OPM transfers.

To further understand the impact of the market and social welfare system in rural America, we re-performed the decomposition analysis separately for the five types of families. Starting with married families who both work, poverty overall declined by 1.57 percentage points. The largest impact—an increase of 1.06 percentage points—was attributed to market earnings. Yet, changes in all the other components had poverty-reducing effects, ranging from -0.3 percentage points for private transfers to -0.8 percentage points for OPM transfers. Next, working single parent families experienced the largest decline in poverty among non-metro
families: from 19.2 to 14.8 percent. Declines in earnings alone would have pushed up the poverty rate by 4.1 percentage points, but changes in both OPM and APM transfers reduced the rate by 2.4 and 3.2 percentage points, respectively. The third largest family group, married families with one worker, experienced increases in poverty of 0.5. Earnings played the relatively largest role in changing poverty with an estimated increase of 3.9 percentage points. The effect of both transfers were insufficient to counter the impact of earnings: in total they reduced poverty by 2.7 percentage points. For non-working single parent families, the poverty rate increased by a net change of 1.7. Declines in earnings—presumably among other working family members—pushed up the poverty rate by 4.6 percentage points but were largely offset by transfers that reduced poverty by about 3.6 percentage points. Comparing the impact of the transfer system on poverty for single parents across work indicates major differences in the social welfare system, specifically the set of transfers that are included in the OPM (-2.4 for working; -1.0 for non-working). The smallest group of families – nonworking married – saw their extent of poverty decrease by 2.6. Other transfers promoted a net decline by contributing to a nearly 4 percentage point reduction. Findings from this group are more unstable because of the relatively small proportionate sample sizes.

Discussion

Rural America is undergoing rapid changes its economy, demographics, and social policies. Together these factors shape in complex and interconnected ways the extent to which the poverty rate increases or decreases. Similar to all places, poverty in rural America is shaped by the economic opportunities that families encounter. In the absence of sufficient income from the market, families turn to the social welfare system in an attempt to make ends meet. Among the many studies of poverty in rural America, relatively few have closely examined the role of
the social welfare system over time. We find the social welfare system – primarily transfers and tax credits – lifts many families out of poverty, especially during times of macroeconomic downturn. Estimates suggest that without the social welfare system, child poverty in rural America would have been 70 percent higher during the Recession years 2009 to 2011 (Council of Economic Advisors, 2015). During the study time period poverty increased for non-metro families and fell for metro families. Changes to earnings among rural families put strong upward pressure on poverty rates. We show that the magnitude of this influence among non-metro families (3 percentage points) was over double that among metro families (1.4 percentage points). For rural families, the poverty rate would have been 2 percentage points higher (16.1 instead of 14.1) without the combination of OPM and Other transfers.

Changes to earnings is one of the most striking findings in this study. We show dramatic real declines in earnings and disposable household income among rural families, with specific attention to the declines at the median and lower parts of the distribution. Throughout the country, families in the lower parts of the income distribution have endured significant declines in real income. Low skilled, low educated males have experienced the largest proportional declines (Autor, 2014). Using the CPS, we show that the lower parts of the distribution (10th percentile and median) of metro families have mostly recovered to 2005 levels, but the earnings and income among rural families in the same part of the income distribution remain well below 2005 levels in real terms. Income declines at the bottom of the distribution is directly related to poverty in rural America.

The poverty measures used in this study provide insight into the condition of poverty in rural America that would not otherwise be possible with the OPM. Among the most important findings, the Earnings Poverty measure reveals a substantial metro-non-metro gap in poverty
The gap in Earnings poverty was large at around 5 percentage points at the beginning of the study. Earnings poverty peaked two years later in rural America than it did in metro (2011). To understand the extent to which social policies offset this upward pressure on the poverty rate exerted by the market economy, we estimated an alternative poverty measure to capture non-cash and tax credits that are not observed in the OPM. The APM was motivated because 2 of the 3 largest poverty-reducing programs for rural children are not included in the OPM: SNAP and EITC (Warlick, 2017). Overall, we find that transfers comprise larger portions of dhi among rural families than among metro families. Further, OPM and APM transfers combined to reduce, on average, about 35% more APM poverty for rural families than non-rural families. Over time, we find evidence to support previous claims that the safety net as a whole responded successfully in the Recession (Moffitt, 2013). We would expect changes to the social welfare system over the last 30 years, such as targeting more benefits to poor families with higher relative incomes, to adversely affect rural families already below the poverty threshold that have experienced wage declines. Despite these trends, our analysis shows how the safety net played a vital role for rural families with children. The stability of the APM is likely due to important changes in the non-cash transfer system that were implemented in response to the Recession (Bitler, Hoynes, & Kuka, 2014; Rothwell & McEwen, 2017).

Our analysis of differences in transfers and poverty rates across family-work structures provide new insight in a couple ways. First, for the proportion of dhi made up of transfers, we find more within non-metro variation in family-work structure than between metro and non-metro (see Figure 1). Transfers constitute well over 10% of dhi for the majority of rural families. Future policy changes to these transfers will have a disproportionate impact on rural family well-being. Second, rural areas have witnessed rapid changes in family structure. For example,
married families with two workers – the family-work structure with by far the lowest risk of poverty – has declined quickly in the past decade. Our decomposition analysis show that changes in transfers nearly offset any increases in poverty due to earnings changes. Among two parent families, research has noted family strain and stress when a mother assumes greater responsibility because of shocks to the father’s earnings (Sherman, 2009). An increasing proportion of families are single parents, both working and nonworking. For single-parent families, the sole parent must manage caregiving and work. And, because the vast majority of single parents are women, the earnings and employment disparities experienced by women explain a large portion of their poverty risk. Our finding that changes in transfers (mostly non-cash and tax credits) reduce proportionally more poverty for rural single parents than married parents provide some evidence that the social welfare system may reduce inequalities across family structures. But, more work is needed to understand why poverty increased the most for the highly disadvantaged single parents who were not working. Additional policies such as family leave and affordable daycare would be expected to further reduce the economic burden of single parent families. We acknowledge that single parenthood alone does not cause poverty, but is largely explained by selection into single-parrenthood (Gibson-Davis, 2016).

Limitations

This study is subject to a number of limitations that should be considered. The first limitation is the necessary but limiting categorization of non-metro. Rural America is large, diverse, and difficult to measure (Johnson, 2017). The omission of state policies is another. Beginning in the late 1970s, the American social welfare system has become increasing decentralized. The 1996 welfare reform that created TANF gave states considerable latitude in how to shape welfare assistance. There is now considerable variation in eligibility, time limits,
and reach (proportion of the eligible population receiving benefits); many states have state-EITC policies to complement the federal EITC. Analyzing several characteristics of the welfare systems, Bruch and colleagues (2018) claim there is now more variation in welfare policies across states than across many countries. State variation is important because the rural poor reside disproportionately in the South and agricultural states with less generous social welfare systems (Lichter & Schafft, 2016). The aggregate account we present in this study surely masks important effects of state-social welfare systems. Furthermore, in our descriptive account we focused on family-work structure. Our five-category family typology did not account for cohabitating family heads due to data limitations, treating them instead as single parents. Since cohabitating couples are likely somewhat better off than single adults, we likely underestimated the economic penalty of growing up in a single-parent family. Further, additional risk factors such as race and ethnicity have been left out. Despite this omission, we acknowledge the important role that race and ethnicity play in determining earnings, receipt of public transfers, and poverty in rural America (Slack & Jensen, 2002). Rural minority children clearly are among the most economically vulnerable populations in America (Lichter & Schafft, 2016). Last, the decomposition methods we used are considered static comparisons across time that do not assume or consider any behavioral responses to the changes in the economy and transfers (Hoynes & Patel, 2015).

**Future directions**

This descriptive study leaves several unanswered questions on the subject of poverty and social welfare policy in rural America. Future research that decomposes and isolates the relative contribution of specific policies such as EITC or SNAP changes will generate new insight into the relative importance of policies beyond clusters of transfers. There is also interest in more
formally decomposing the changes in poverty into compositional and coefficient differences using the standard regression methods (Fairlie, 2005; Oaxaca, 1973). Given the evidence on rising income inequality among families with children (Western, Bloome, & Percheski, 2008) declines in earnings we observed at the bottom of the distribution and the relative insulation experienced at the 90th percentile there is a need to better understand income inequality in rural America. Last, future research will need to use different methods and designs to further understand differences in the social welfare system’s application in rural America. This work would benefit from interdisciplinary work to understand the cultural settings within which families interface with the social safety net in rural America (Sherman, 2009)
References


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https://doi.org/10.1111/j.1549-0831.2002.tb00101.x


https://doi.org/10.1111/ruso.12166


Table 1.
Panel A. Income composition among families with children, by year and metropolitan status

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*Note.* Dollars in 2016 value adjusted for inflation.
Panel B. Income composition (proportions) among families with children, by year and metropolitan status

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<td>0.008</td>
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<td>0.033</td>
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Figure 1. Transfers as a proportion of disposable household income

Note. Married1w = married family with 1 adult working; mcbothwork = married family with both working; singlew = single parent family working; marriednw = married family neither parent working; singlenw = single parent family not working.
Figure 2a. Relative Changes in Earnings

Figure 2b. Relative Changes in DHI
Figure 3. Household OPM poverty rate among households with children across metro, nonmetro

Figure 4. Overall Poverty Rates Across Three Measures: Earnings, OPM, and APM

*Note.* OPM = poverty based on the Official Poverty Measure; Earnings Poverty = poverty based on earnings from employment; APM = poverty based on the Alternative Poverty Measure that includes non-cash transfers and tax credits.
Figure 5. Metro / nonmetro Poverty Rates Across Three Measures: Earnings, OPM, and APM

Note. OPM = poverty based on the Official Poverty Measure; Earnings Poverty = poverty based on earnings from employment; APM = poverty based on the Alternative Poverty Measure that includes non-cash transfers and tax credits.
Figure 6. APM poverty rates across working and non working nonmetro families.
## Table 2. Decomposition of change in APM poverty 2005 to 2016

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<th>Nonmetro</th>
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<td>Total change in APM poverty</td>
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Table 3. Decomposition of changes in poverty rates.

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Appendix A

Changes in family work structure
Appendix B

Median dhi across family types over time.
Appendix C

Income composition across family types, by year and metropolitan status

The following graph removes factor income, only considers transfers.

[Graph showing income composition]

The following graph removes factor income, only considers transfers.

[Graph showing income transfers]
### Appendix D

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