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Rural-urban disparity in poverty persistence

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TAKEAWAYS

In rural compared to urban areas, a larger proportion of residents experience poverty.

Poverty rates calculated from monthly income data are much higher than those based on annual data, especially in rural areas. This suggests that people in rural areas tend to experience short-term poverty spells more frequently.

On average, poverty spells last longer in rural compared to urban areas, whereas spells of nonpoverty are shorter, implying higher persistence of poverty in rural than urban areas.

The longer someone is out of poverty, the more likely he or she is to stay out. However, this effect is much stronger in urban areas than in rural areas within the first two years after exiting poverty.

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Extensive evidence shows that poverty is more prevalent in rural compared to urban areas.[1] According to the U.S. Census Bureau, the 2016 official poverty rate in rural areas was almost 16 percent compared to just over 12 percent in urban areas. The study described in this article explores this poverty divide by looking at poverty persistence (that is, how long people remain below the poverty line), comparing the experiences of those living in rural areas to those in urban areas.

Most of the prior research in this area has examined whether the persistence of poverty varies between urban and rural areas at the county level. As a result, we know little about the dynamics of poverty at the person-specific (individual or family) level. For example, do the same people stay poor year after year, or do some people rise above the poverty line while others fall below it? My study seeks to add to the literature by analyzing urban-rural differences in the persistence of poverty at the person-specific level.

I address the following research questions:

- Does the amount of time that individuals spend below the poverty line differ between rural and urban areas?
- What is the probability of exiting (or reentering) poverty in rural and urban areas given the length of time spent poor (or nonpoor)?
- Which individual and family characteristics are associated with the amount of time that individuals remain below, or stay above, the poverty line?

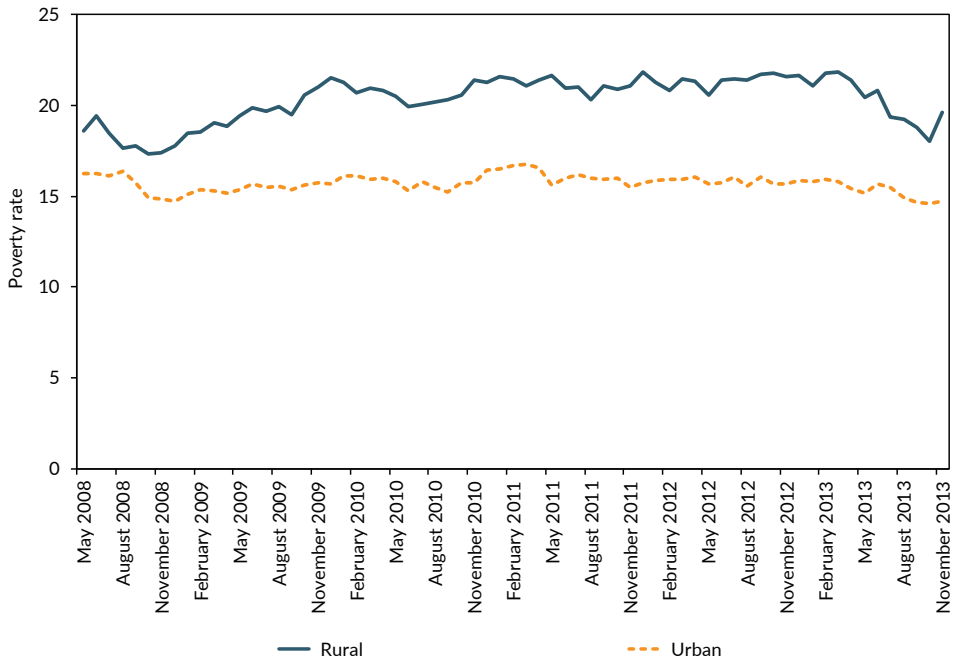
Methods and analysis

This study uses over five years of monthly survey data from the 2008 Panel of the Survey of Income and Program Participation (SIPP). Family members were interviewed every four months from September 2008 through December 2013. At each interview, they were asked questions about their socioeconomic situation in each of the previous four months.

I use these data to assess family member poverty status using the Census Bureau's official poverty measure. By this measure, all members of a family are considered poor if the total family income is below an officially established poverty threshold. The threshold is established using the minimum amount needed to purchase food and other essential goods by family size. Although the official definition of poverty has shortcomings in terms of comprehensively measuring both needs and resources, the government still uses it for tracking poverty at the national level over time and as a starting point for defining eligibility of individuals for public transfer programs. (See text box on measuring poverty later in article for more information.)

I consider poverty spells to begin in the first month that family income falls below the poverty line, and to end in the first month that family income moves above that line. Similarly, nonpoverty spells begin with the first month above the poverty line and end in the first month below it. Since the length of time spent

Figure 1. Monthly poverty rates were consistently higher in rural compared to urban areas.



Source: 2008 SIPP Panel, weighted monthly estimates.

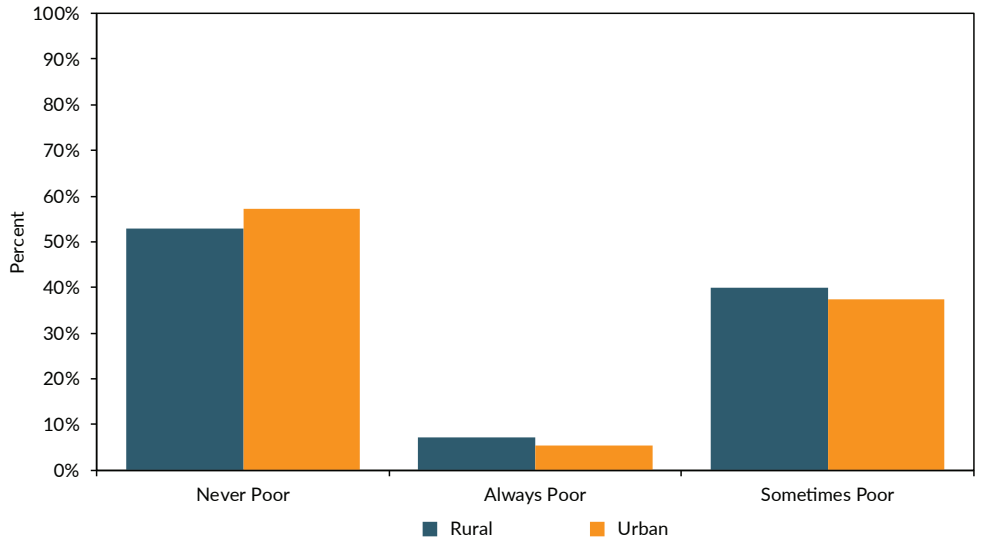
in poverty is an important variable in the analysis, when calculating length of spells, I included in the sample only spells (of either poverty or nonpoverty) that began during the data period, because without knowing when a spell began, it would be impossible to calculate its length.

The larger gap between monthly and annual poverty rates in rural compared to urban areas suggests that rural residents tend to experience short-term poverty spells more frequently.

Comparing rural and urban poverty rates

As Figure 1 illustrates, monthly poverty rates were consistently higher in rural compared to urban areas. While previous studies using annual data have found this gap, it is also notable that the monthly poverty rates shown in Figure 1 are considerably higher than corresponding annual poverty rates, particularly in rural areas.[2] For example, the average monthly poverty rate in rural areas was almost 4 percentage points higher than the annual poverty rate reported by the U.S. Census Bureau. The difference was less extreme in urban areas, where the average monthly poverty rate was just over 1 percentage point higher than the annual poverty rate reported by the Census Bureau. The larger gap between monthly and annual poverty rates in rural compared to urban areas suggests that rural residents tend to experience short-term poverty spells more frequently.

Figure 2. More than half of all sample members were never poor during the research period, regardless of whether they resided in an urban or rural area.



Source: Author's calculations using data from the 2008 SIPP Panel, weighted monthly estimates.

Notes: Figure shows poverty status in rural and urban areas, May 2008 to November 2013. N = 24,302 rural, 101,336 urban. All rural-urban differences are significant at the 0.001 level.

Time spent in or out of poverty

Figure 2 shows that more than half of all sample members were never poor during May 2008 through September 2013, regardless of whether they resided in an urban or rural area. A relatively small proportion of people were poor over the entire research period. As expected given the trends shown in Figure 1, rural residents were more likely than urban residents to have been poor some or all of the time. On average, rural residents were in poverty for almost eight months out of the 64-month time period, compared to about six months for urban residents.

Table 1 shows the number, average length, and cumulative duration of poverty and nonpoverty spells. Note that the sample for this analysis includes only those spells for which the beginning occurs during the sample period, so all individuals in this sample

Table 1. Rural and urban individuals experienced the same number of poverty and nonpoverty spells, but in rural areas poverty spells were longer, nonpoverty spells were shorter, and individuals spent more time in poverty overall.

	Rural	Urban	Difference
Poverty spells			
Average number of spells per individual	1.8	1.8	0.0
Average spell duration (months)	7.0	6.4	0.6**
Average number of months an individual spends poor over multiple spells	11.4	10.1	1.3***
Non-poverty spells			
Average number of spells per individual	1.6	1.6	0.0
Average spell duration (months)	10.5	11.6	-1.2***
Average number of months an individual spends nonpoor over multiple spells	17.3	18.7	-1.3***

Source: Author's calculations using data from the 2008 SIPP, weighted monthly estimates.
Notes: *N* = 1,135,120 rural person-months and 311,348 urban person-months.
**Significant at the 0.01 level; ***significant at the 0.001 level.

spent at least some time both in and out of poverty. The table shows that rural and urban residents experienced the same number of poverty and nonpoverty spells, but that poverty spells in rural areas were longer on average by about half a month, and nonpoverty spells were shorter by over a month. Looking at the total time that an individual spent in poverty over all observed spells, those in rural areas spent an average of over a month longer in poverty than those in urban areas.

Next, I look at rural-urban differences in the number of months that individuals spend in poverty without interruption. I found that in both rural and urban areas, the probability of exiting poverty fell the longer one stayed poor. On average, poor individuals in urban areas exited poverty more quickly than those in rural areas. The rural-urban gap in the likelihood of exiting poverty was statistically significant but small, ranging from 1 to 3 percentage points over time. A similar analysis on the probability of re-entering poverty based on time spent out of poverty found somewhat larger rural-urban differences. Half of those who had exited poverty in rural areas dropped back below the poverty line within nine months. In urban areas, it took 12 months for half of those who had exited poverty to return to poverty. The rural-urban gap in the likelihood of re-entering poverty over time was statistically significant, and large relative to the gap in the likelihood of exiting poverty over time.

Demographic characteristics of individuals in rural and urban areas

A potential explanation for rural-urban differences in poverty trends is differences in individual characteristics of residents. Table 2 shows selected

Table 2. Rural and urban residents were notably different by race and ethnicity, and by educational attainment of the family head.

Demographic characteristics	Rural	Urban	Difference
Age			
Below 18	24.3	24.2	0.1
18–24	9.2	9.9	-0.6*
25–54	37.7	41.7	-4.1***
55–64	13.3	11.7	1.6***
65+	15.5	12.5	3.0***
Race and ethnicity			
White non-Hispanic	77.1	61.4	15.8***
African-American non-Hispanic	6.9	13.3	-6.4***
Hispanic	10.6	17.8	-7.2**
Other	5.4	7.6	-2.2**
Household type			
Single	16.6	16.9	-0.3
Single parent	11.9	11.5	0.5
Couple	64.2	62.4	1.7
Other	7.3	9.2	-1.9***
Educational attainment of household head			
Less than high school	15.1	10.9	4.3**
High school diploma or GED	31.1	22.9	8.2***
Some college	35.9	34.4	1.5
4-year college graduate or more	17.9	31.9	-14.0***
Number of observations	1,008,084	4,066,018	

Note: The table shows proportions of individuals in each demographic subgroup. All numbers are weighted estimates; differences are tested for significance accounting for the SIPP survey design.
* Significant at the 0.05 level; ** significant at the 0.01; *** significant at the 0.001 level.

Defining "urban" and "rural"

Note that determining which areas are urban and which are rural is challenging. The Current Population Survey (CPS) and federal data sources that use counties as their base geography do not permit identification of "urban" and "rural" areas. Instead, counties are divided into only "metro" and "nonmetro," where each metro area must contain either a place with a minimum population of 50,000, or a Census Bureau-defined urbanized area and a total population of at least 100,000 (75,000 in New England). In this article, metro areas are called "urban" and nonmetro areas are called "rural." While this is not a perfect match, it is the best possible choice given available data.

population-level demographic characteristics for rural and urban areas. In my sample and generally, rural and urban residents are notably different by race and ethnicity, with whites making up a larger share of rural residents than urban, and African Americans and Hispanics making up a much larger share of urban residents than rural. Another established large difference between rural and urban areas is in the educational attainment of the family head, which was borne out in my study, with nearly one-third of urban residents having at least a college degree, compared to only 18 percent of rural residents.

Probabilities of exiting and reentering poverty

Next I conducted regression analyses to look at the associations between person-level characteristics and the probability of exiting or re-entering poverty by rural and urban status. The results indicate that characteristics typically associated with the probability of being poor, such as gender, age, ethnicity, family composition, and the level of education, were also associated with the length of time an individual spends in or out of poverty. On average, men were more likely than women to exit poverty and were less likely to reenter it regardless of where they live. A similar finding applied to households with more than one member compared to those who lived alone. In contrast, I found that children, older individuals, individuals of any race or ethnicity other than white, and members of households where the educational achievement of the household head was less than a college degree, on average faced longer episodes of poverty and shorter episodes of nonpoverty than their counterparts between the ages of 25 and 54, white, and highly educated.

There were notable rural-urban differences in the probability of exiting poverty for specific subgroups.

In a comparison of rural and urban areas, I found that after controlling for demographic characteristics, the relationship between the amount of time spent in poverty and the likelihood of exiting poverty was the same in both areas. All else equal, the longer one was in poverty, the more difficult it was to exit. However, there were notable rural-urban differences in the probability of exiting poverty for specific subgroups. Individuals over the age of 55, Hispanics, and those in the "other" race and ethnicity category (that is, those who are not white, black, or Hispanic) were more likely to exit poverty (and thus less likely to experience long poverty spells) in rural than in urban areas. In contrast, single parents and those in couple-based families were more likely to experience long spells of poverty if they resided in rural areas.[3]

Measuring poverty

The U.S. Census Bureau uses two primary poverty measures—the official poverty measure (OPM) and the Supplemental Poverty Measure (SPM). For each measure, analysts calculate the poverty rate by comparing family resources to the established poverty threshold.

OPM poverty thresholds are calculated as three times the cost of a nutritionally adequate diet in 1964, adjusted for inflation and family size. Resources are calculated as pre-tax cash income.

SPM thresholds are based on expenditures on food, clothing, shelter, and utilities, with adjustments for family size and composition, and for geographic differences in housing costs. Resources are measured as post-tax post-transfer cash income, counting tax credits and near-cash in-kind benefits such as the Supplemental Nutrition Assistance Program (SNAP) and housing assistance. Non-discretionary expenditures such as medical out-of-pocket costs, child care, work expenses, and child support paid to another household are subtracted.

The study described in this article uses the OPM.

To learn more about the official and alternative poverty measures, see: https://www.irp.wisc.edu/resources/how-is-poverty-measured/

With respect to re-entering poverty, again, all else equal, the longer one was out of poverty, the more likely one was to stay out. However, this effect was much stronger in urban areas than in rural areas. Blacks and families where the household head did not have a four-year college degree were more likely to re-enter poverty if they resided in urban areas compared to rural areas.

Conclusions

In my study of person-level poverty dynamics in rural versus urban areas, I found that a higher proportion of rural residents experienced poverty, and they stayed in poverty longer than those in urban areas. On average, in rural compared to urban areas, an uninterrupted episode of poverty was half a month longer, and an uninterrupted episode of nonpoverty was one month shorter. While statistically significant, these rural-urban differences in the average duration of poverty and nonpoverty episodes are relatively small. However, the rural and urban distributions of the total amount of time spent below or above the poverty line differed more substantially. For example, the median length of a nonpoverty spell over the 64 months included in the analysis was nine months in rural areas compared to 12 months in urban areas.

A higher proportion of rural residents experienced poverty, and they stayed in poverty longer than those in urban areas.

The regression results for probabilities of exiting or re-entering poverty, controlling for the amount of time spent above and below the poverty line and for the demographic characteristics of individuals, also reveal substantial differences between rural and urban areas. While individuals in both rural and urban areas were less likely to re-enter poverty the longer they stay out of it, this effect was much stronger in urban areas. All else equal, single parents and couple-based families were more likely to experience long episodes of poverty if they resided in rural areas. In contrast, older individuals and Hispanics are actually less likely to experience long poverty spells in rural areas. Blacks and those in families with a household head without a four-year college degree were much more likely to re-enter poverty if they resided in urban places compared to their rural counterparts.

Further research in this field is still needed. Although the research discussed in this article provides some evidence on the differences in the persistence of poverty between rural and urban areas, many questions remain open. As an example, one might think about the dependence of the results on the definition of poverty used in the analysis. In this article, I focus only on

the official poverty measure, which, among other things, does not take into account differences in the costs of living between various geographical regions of the United States, including rural and urban areas. Using an alternative measure of poverty that takes into account these differences might yield a completely different picture of the rural-urban divide in the persistence of poverty. Examining the factors lying behind the difference in the persistence of poverty between rural and urban areas in general, and in the length of time spent below the poverty line by various population sub-groups in particular, may also yield useful results. Is it the prevalence of these subgroups in certain areas that makes them more vulnerable in the face of poverty or the role of institutions which operate in those areas? I leave these questions for future research.■

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[1]See, for example, J. L. Semega, K. R. Fontenot, and M. A. Kollar, "Income and poverty in the United States: 2016," Current Population Reports. Washington, D.C.: U.S. Census Bureau, 2017.

[2]Note, however, that the study by José Pacas and Elizabeth Davis, summarized in this issue and using the Supplemental Poverty Measure and data from the Current Population Survey (CPS), finds that poverty rates in rural areas are lower than those in urban areas. For a 2005 summary of rural poverty research, see B. Weber, L. Jensen, K. Miller, J. Mosley, and M. Fisher, "A Critical Review of Rural Poverty Literature: Is There Truly a Rural Effect?" *International Regional Science Review* 28, No. 4 (2005): 381–414.

[3]"Other" race includes those who in census data do not identify as Hispanic and do identify as American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, or who identify as two or more races.

Sources & Methods

Type of analysis:

- Descriptive analyses of (1) the persistence of poverty in urban and rural areas, and (2) the amount of time spent in or out of poverty by area.
- Regression analysis of the probabilities of exiting and reentering poverty

Data source: 2008 Panel of the Survey of Income and Program Participation (SIPP). The SIPP is a representative survey of U.S. families. Family members are interviewed every four months; for the 2008 panel, families were interviewed 16 times, covering the period from September 2008 through December 2013. The SIPP provides longitudinal monthly data, making it possible to identify even short episodes of poverty.

Type of data: Survey

Unit of analysis: Individual

Sample definition: Spells where the beginning occurs during the sample period; all individuals in the sample spent at least some time both in and out of poverty.

Time frame: Data were collected from September 2008 through December 2013, covering the period May 2008 through November 2013

Poverty definition used: Official poverty measure (OPM)

Limitations: Metropolitan and non-metropolitan definitions do not line up perfectly with urban and rural. Individuals whose only poverty spell began before the sample period are excluded; since such spells are likely to be long, estimates of poverty persistence should be considered to be lower bounds.