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# WORKING PAPER SERIES

## Material Hardship Across Place

Jane Mosley  
Kathleen K. Miller

RPRC Working Paper No. 04-10

November 2004

## Rural Poverty Research Center

<http://www.rprconline.org/>

RUPRI Rural Poverty Research Center  
214 Middlebush Hall  
University of Missouri  
Columbia MO 65211-6200  
PH 573 882-0316

RUPRI Rural Poverty Research Center  
Oregon State University  
213 Ballard Hall  
Corvallis OR 97331-3601  
PH 541 737-1442



# Material Hardship Across Place<sup>1</sup>

By Jane Mosley & Kathleen K. Miller<sup>2</sup>

## Introduction

It is often assumed that the cost of living is lower in particular regions of the country, as well as in rural areas, and hence traditional poverty measures may overstate both regional and residential differences. However, standard poverty measures are based on income level, and geographic variations in cost of living are not taken into account. Material hardship and material deprivation offer an important alternative measure of economic vulnerability (Mayer and Jencks 1989; Beverly 2001). When examined in conjunction with income levels and rates, these measures may provide a fuller picture of characteristics and circumstances of the low-income population. Additionally, material hardship measures will be less susceptible to regional variations in cost of living and may provide a more comprehensive understanding of the characteristics and circumstances of the poor population in various regions of the country.

In this brief, we examine trends in material hardship for families, focusing specifically on geographic variations. Using data from the Census Bureau Public Use Microdata Samples (PUMS), we assess how the levels of material hardship among families compare to those in various regions of the country. Are families equally likely to experience material hardship across different types of residences? Additionally, we

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<sup>1</sup> Funding for this project was provided by the RUPRI Rural Poverty Research Center, which is funded by the Assistant Secretary of Planning and Evaluation, Department of Health and Human Services.

<sup>2</sup> Jane Mosley Harry S Truman School of Public Affairs University of Missouri Columbia  
Kathleen K. Miller Rural Policy Research Institute (RUPRI) University of Missouri-Columbia

assess whether there are differences in material hardship between metropolitan and nonmetropolitan areas within the various regions.

### **Poverty and Place**

Poverty rates are highest in central cities and in nonmetro areas. The South experiences the highest nonmetro poverty rates across the four U.S. regions. However, geographic variation is not accounted for in the current poverty standards. Because of that, the National Academy of Sciences recommends constructing cost of living indices for regions of the country, metropolitan and nonmetropolitan areas, and different community sizes to be used in estimating poverty (Citro and Michael 1995). Nord and Cook (1995) found that using the revised poverty measure would “lower the rural poverty rate by 3 percentage points, and raise urban poverty rates by 1 percentage point.”

Poverty measures have also been criticized for excluding major government benefits such as the Earned Income Tax Credit and Food Stamps and for excluding major expenses for families, such as taxes and child care costs (Citro and Michael 1995). Low-income working families may be particularly vulnerable to economic hardship because these families often do not qualify for government benefits, which are generally reserved for poor families. Working low-income families also incur higher child care costs than do non-working families and their employers often do not offer health insurance. Almost half of all low-income children live in primarily rural areas of the South (Koball and Douglas-Hall 2003).

### **Material Hardship**

Material hardship and material deprivation offer an important alternative measure of economic vulnerability (Mayer and Jencks 1989; Beverly 2001). Direct measures of

material hardship will be less susceptible to regional variations in cost of living. Therefore, examined in conjunction with income levels and rates, these measures may provide a fuller picture of characteristics and circumstances of the poor population. Ultimately, society may be more concerned with issues of hardship than whether household income exceeds a particular level.

Research has clearly shown that income level and material hardship are overlapping, but distinct constructs. Work by Mayer and Jencks (1989) in Chicago neighborhoods concluded that income explained less than one quarter of the variation in material hardship. Similarly, Beverly (2001) finds that while hardship is correlated with income levels, the relationship is not linear. Recently, Short (2003) compared the revised poverty measure to various measures of material hardship. She concluded the alternative poverty measure was more similar to material hardship than traditional poverty measure, but that “material hardship is a different concept and worth of measurement in its own right.”

In several articles, Beverly (e.g., 2001a; 2001b) has called for more inclusion of such measures into poverty studies. Using data from the 1995 Survey of Income and Program Participation (SIPP), she assessed the prevalence of five hardship measures: food insufficiency, telephone disconnection, utility disconnection, eviction and medical need. She found that approximately 11 percent of the population experienced at least one of those hardships, the most common of which were medical need and food insecurity. Among poor households, over one-third had at least one indicator of hardship, of which the most common was telephone disconnection. Interestingly, Beverly concluded that certain groups fared worse on these measures than others when using income-based

poverty thresholds. Children were more likely to experience hardship than other age groups, particularly the elderly. Additionally, working households experienced high levels of material hardship, even though they were not classified as poor by standard poverty measures. The most extensive work on housing hardship has been done by Gunderson (1996). He examined three areas of housing hardship: adequacy, comfort, and neighborhood. He found higher rates of housing hardship (relative to income) for certain subgroups, particularly Latino and African-Americans. On the other hand, the elderly had lower rates of housing hardship, relative to their poverty rates. Finally, he concluded that current income did not explain much of the variation in housing hardship, arguing that income doesn't necessarily translate into changes in housing status for low-income families.

Although more recent research argues for inclusion of material hardship measures, very little work has examined how these indicators vary by location. The one exception is work using measures of food insecurity (Nord, Andrews, and Carlson 2003). Researchers have assessed variation by region as well as between metropolitan and nonmetropolitan areas. They found rates of food insecurity to be highest in central cities (14.6%) as compared to either nonmetropolitan areas (11.6%) or suburban areas (8.8%). Additionally residents of the South and West had the highest rates of food insecurity. These patterns were similar when examining only households with children. However, there has been no research examining either multiple measures or an index of material hardship across place. And, as stated previously, differences in traditional poverty rates may be exacerbated by geography.

Our primary objectives are to examine the incidences of material hardship and how they vary across place for families, particularly across rural and urban areas. The measures of hardship we can use for this objective are limited due to a lack of available data. The Survey of Income and Program Participation (SIPP) contains the most extensive questions on hardships, and is the primary source of data on this topic (Beverly 2000; Short 2003; ASPE report 2004). However, one is unable to make either valid regional or metropolitan/nonmetropolitan estimates with this data due to small sample size and metropolitan area coding.<sup>3</sup> The Census Bureau Public Use Microdata Samples (PUMS) do allow us to make estimates at a finer level of geography; however, most of the material hardship measures included in this data are housing related. For that reason, this brief focuses on housing hardship among families.

### **PUMS data overview**

Analyses were conducted using the Census Bureau's Public Use Microdata (PUMS) 5% 2000 Samples.<sup>4</sup> These data allow a detailed examination of housing characteristics that indicate material hardship, including the existence of complete plumbing and kitchen facilities and presence of a telephone in the housing unit. The size of the unit, number of bedrooms, and number of rooms will allow a determination of crowdedness within the housing unit. The PUMS data also contains information on monthly housing costs as a percentage of household income.

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<sup>3</sup> The SIPP data "cannot be used to produce estimates of the nonmetropolitan population. To protect respondent confidentiality, the Census Bureau recoded and identified a small random sample of metropolitan households in the public use files as nonmetropolitan...the procedure 'contaminates' the nonmetropolitan sample, and estimates of nonmetropolitan characteristics based on that sample with be biased..." Survey of Income and Program Participation Users' Guide, page 10-39.

<sup>4</sup> This brief represents only one step in a larger line of research. In conjunction with colleagues at the National Center for Children in Poverty, we are also analyzing data from the Current Population Surveys (CPS).

Just as importantly, however, PUMS allows us to estimate rates of hardship for both state and PUMA levels. Levels of geography within the PUMS data set are “PUMAs”. Each PUMA in the 5 percent sample must meet a minimum population threshold of 100,000. A PUMA is made up of a county or group of counties, or sub-county geography, based on population size, and do not cross state lines. The data contains designations indicating the extent to which the PUMA contains part or all of a metropolitan statistical area. Utilization of the PUMS data along with the Census TIGER files allows the data to be mapped.

The sample for this analysis included only family households in occupied housing units (both rented and owned). Specifically, we choose family households that were either designated as married couples, male householders with no wife present, or female householders with no husband present.

### **Measures of Housing Hardship**

One of the biggest hurdles to examining material hardship is that there is no clearly agreed upon measure and a determination of material hardship can be fairly subjective. What is considered a necessity for some may be viewed as a luxury for others (Rector, Johnson and Youssef 1999). In their work, Mayer and Jencks(1989) measured material hardship with food insufficiency, lack of health insurance, housing problems, and inability to pay rent or utilities. On the other hand, Rector et al. (1999) suggest a shorter list: lacks sufficient food, housing is severely overcrowded or severely dilapidated or unsafe; or individual has significant health impairment; and medical condition requiring treatment one cannot afford. To minimize this difficulty, we choose only measures for which there is relatively high societal agreement.



Five individual measures of housing hardship were analyzed using PUMS:

- Crowding is moderate (1.01-1.50 persons per room not including bathrooms and hallways) or severe (more than 1.50 persons per room not including bathrooms and hallways).
- Lacking complete plumbing facilities (complete facilities consist of hot and cold piped water, a flush toilet, and a bathtub or shower)
- Lacking complete kitchen facilities (complete facilities consist of a sink with piped water, a range or stove, and a refrigerator)
- Lacking telephone service
- Costs of rent/mortgage and utilities account for 30% or more of income.

### **Housing Hardship Indices**

Three indexes of housing hardship were constructed from the above measures:

- **HARD-5:** A household experiencing any one of the five measures
- **HARD-POV5:** A household experiencing any one of the first four measures or the fifth measure in association with family income 200% or less of the official poverty threshold.
- **HARD-4:** A household experiencing any one of the first four measures (rent/mortgage and utility costs account for 30% of more of income was excluded)

For each of the scales above, items were weighted equally, and a family was considered to experience hardship if any of the conditions were met.

The following table summarizes the experience of housing hardship in the PUMS data. As expected, the highest number of families experience hardships when the most inclusive index is used (HARD-5). When family income is taken into account (HARD-POV5), the percent of families experiencing at least one hardship drops somewhat. This adjustment allows our analysis to discount families with high incomes that live in high housing cost areas. When the cost of rent/mortgage and utilities is not included in the index (HARD-4), the percent of families experiencing any housing hardship drops by more than half.

<b>Housing Hardship Index</b>	<b>Percent of Families Experiencing at least one of the Measures Included</b>
HARD-5	30.0 %
HARD-POV5	20.7 %
HARD-4	9.6 %

### **Regional Variation**

The data were divided into four geographic regions<sup>5</sup> (Northeast, Midwest, South and West), using the Census Bureau definitions.

The table below summarizes the percent of families experiencing housing hardship, using each of our housing hardship indexes, by region:

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<sup>5</sup> The following states are included in each region: Northeast (ME, NH, VT, MA, RI, CT, NY, NJ, PA), Midwest (OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS), South (DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN, AL, MS, AR, LA, OK, TX), West (MT, ID, WY, CO, NM, AZ, UT, NV, WA OR CA, AL, HI).

### Percent of Families Experiencing at least one of the form of Housing Hardship

<b>Region</b>	<b>HARD-5</b>	<b>HARD-POV5</b>	<b>HARD-4</b>
Northeast	30.3 %	18.4 %	7.0 %
South	28.8 %	21.6 %	9.5 %
Midwest	22.6 %	15.3 %	5.6 %
West	40.1 %	27.1 %	16.4 %
Total	30.0 %	20.7 %	9.6 %

When all five hardship measures are included in the index (HARD-5), the Midwest has the least percent of families experiencing at least one hardship (22.6 %). In the West, however, 40.1 percent of families experience at least one hardship. When the family income is included in conjunction with the rent/mortgage and utility costs (HARD-POV5), the highest rates continue to be in the West, and the lowest in the Midwest. When the costs of rent/mortgage and utilities are not included in the index (HARD-4), the lowest rates of hardship experience by families is still in the Midwest (5.6 %) and the Northeast (7.0 %). The West still has the highest rates of housing hardship, with 16.4 percent of families experiencing at least one of the four measures.

The table below shows the comparison of the percent of families below the poverty line with the percent of families experiencing at least one housing hardship (using the HARD-POV5 index). Both poverty rates and housing hardship are highest in the South and West. While there is some overlap with poverty and housing hardship, not all families in poverty experience housing hardship, and clearly not all families experiencing housing hardship are poor.

	<b>Percent of families in Poverty</b>	<b>% of families with Housing Hardship (HARD-POV5)</b>	<b>Percent of Families in Poverty <i>and</i> with Housing Hardship</b>
Northeast	8.1 %	18.4 %	7.1 %
South	11.1 %	21.6 %	9.1 %
Midwest	7.1 %	15.3 %	6.0 %
West	9.6 %	27.1 %	8.8 %
Total	9.2 %	20.7 %	7.9 %

### **Residential Differences**

The PUMS data sets delineate PUMAs by their metropolitan status. PUMAs may include all metropolitan territory (including central city and other metropolitan), a combination of metropolitan and nonmetropolitan territory, and all nonmetropolitan territory. For this analysis, the PUMAs were classified into four categories:

- Central City territory only
- Mix of central city and other metro and balance of metro
- Mix of metropolitan and nonmetropolitan
- Nonmetropolitan territory only

The central city category does not contain 100 percent of the central city territory in the U.S., because some PUMAs include a mix of central city and other metropolitan territory. However, this breakdown does allow a comparison of how central city families fare in comparison to nonmetropolitan families.

### **Percent of Families Experiencing at least one of the form of Housing Hardship**

<b>Residence Category</b>	<b>HARD-5</b>	<b>HARD-POV5</b>	<b>HARD-4</b>
Central City Only	41.8 %	33.2 %	17.9 %
Mix CC/Metro and Other Metro	30.0 %	18.7 %	8.9 %
Mix of Metro and Nonmetro	24.7 %	17.8 %	6.7 %
Nonmetro Only	25.6 %	20.0 %	8.0 %
Total	30.0 %	20.7 %	9.6 %

In all three of the indices used, the highest experiences of housing hardship are in central city PUMAs. When the HARD-5 index is used, nearly 42 percent of families residing in central cities experience at least one hardship (again, this category does not include 100% of central city territory in the United States). With this index, 25.6 percent of nonmetro residents experience at least one of the five hardship measures (likewise, this category does not include 100% of the nonmetropolitan territory in the United States). When incorporating family income in the index (HARD-POV5), the percentages drop, but the central city residents still have the highest rate (33.2 percent) followed by nonmetro residents (20 percent). When the costs of rent/mortgage and utilities is excluded from the index (HARD-4), only 17.9 percent of central city residents and 8 percent of nonmetro residents experience at least one of the four housing hardships.

Below is a comparison of families below poverty with families experiencing housing hardship (using the HARD-POV5 index). The poverty rates are highest in the central city only and the nonmetro only categories as are the housing hardship rates. As above, while there is some overlap between poverty and housing hardship, they are clearly distinct concepts.

<b>Residence Category</b>	<b>Percent of families in Poverty</b>	<b>Percent of families with Housing Hardship (HARD-POV5)</b>	<b>Percent of Families in Poverty <i>and</i> with Housing Hardship</b>
Central City Only	15.4%	33.2 %	13.9%
Mix CC/Metro and Other Metro	7.1%	18.7 %	6.3%
Mix of Metro and Nonmetro	9.2%	17.8 %	7.4%
Nonmetro Only	11.0%	20.0 %	8.8%
Total	9.2 %	20.7 %	7.9 %

Although the rates for a specific area or residence category change slightly depending on which of the three indices of hardship is used, the overall geographic pattern does not. That is, the same areas are faring poorly (and conversely faring well) regardless of which of the three measures we use. This is also true of the maps at the PUMA level. Given that, and because we believe the Hard-Pov5 is the most accurate measure of housing hardship (it incorporates low income families with high housing costs, but not middle class families who may simply live in high housing markets), in the remaining sections we display results for this measure only.

**Comparison across Region and Residence**

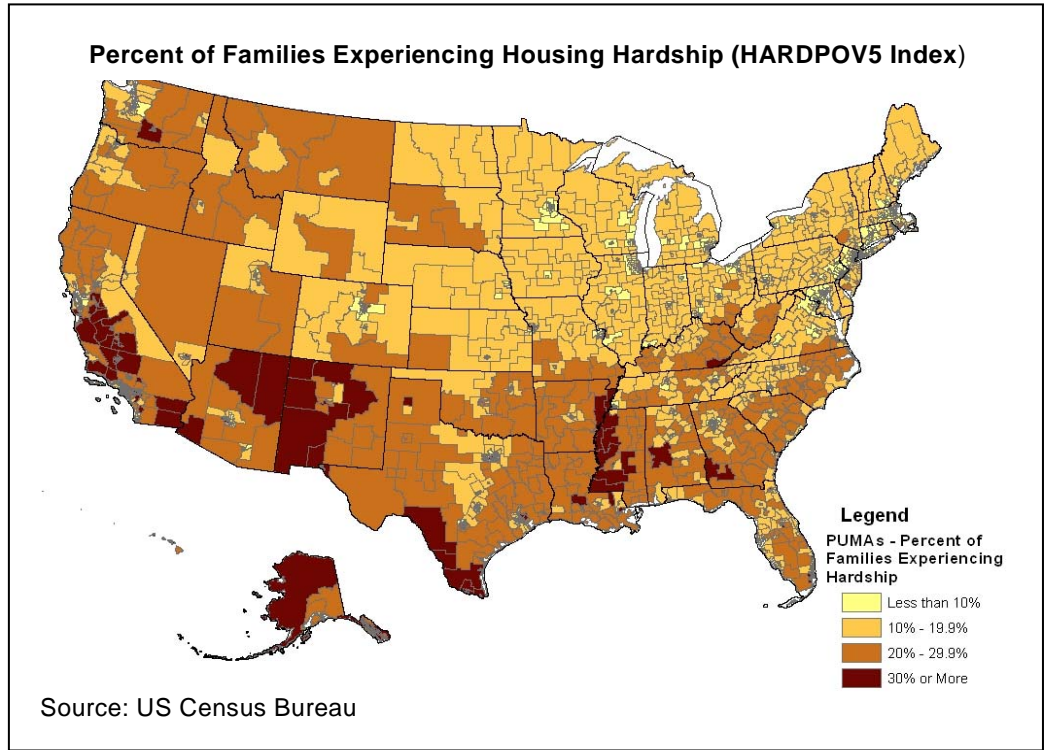
The following series of tables compare the experience housing of hardship across the four regions and the four residence categories using the HARD-POV5 index. The highest rates of housing hardship are among central city families in the Northeast and the West. The lowest housing hardship rates are in the Mixed central city/metro and balance of metro category. Nonmetro residents in the South and West experience higher rates of housing hardship than nonmetro residents in the Northeast and Midwest.

**Percent of Families Experiencing at least one of the Measures Included in the HARD-POV5 Index**

<b>Region</b>	<b>CC Only</b>	<b>Mix of CC/Metro &amp; other Metro</b>	<b>Mix of Metro &amp; Nonmetro</b>	<b>Nonmetro Only</b>	<b>Total</b>
Northeast	37.8	13.8	13.4	16.3	18.4
South	28.1	19.7	20.6	23.3	21.6
Midwest	28.9	12.8	13.7	15.2	15.3
West	38.2	26.0	22.2	24.5	27.1
Total	33.2	18.7	17.8	20.0	20.7

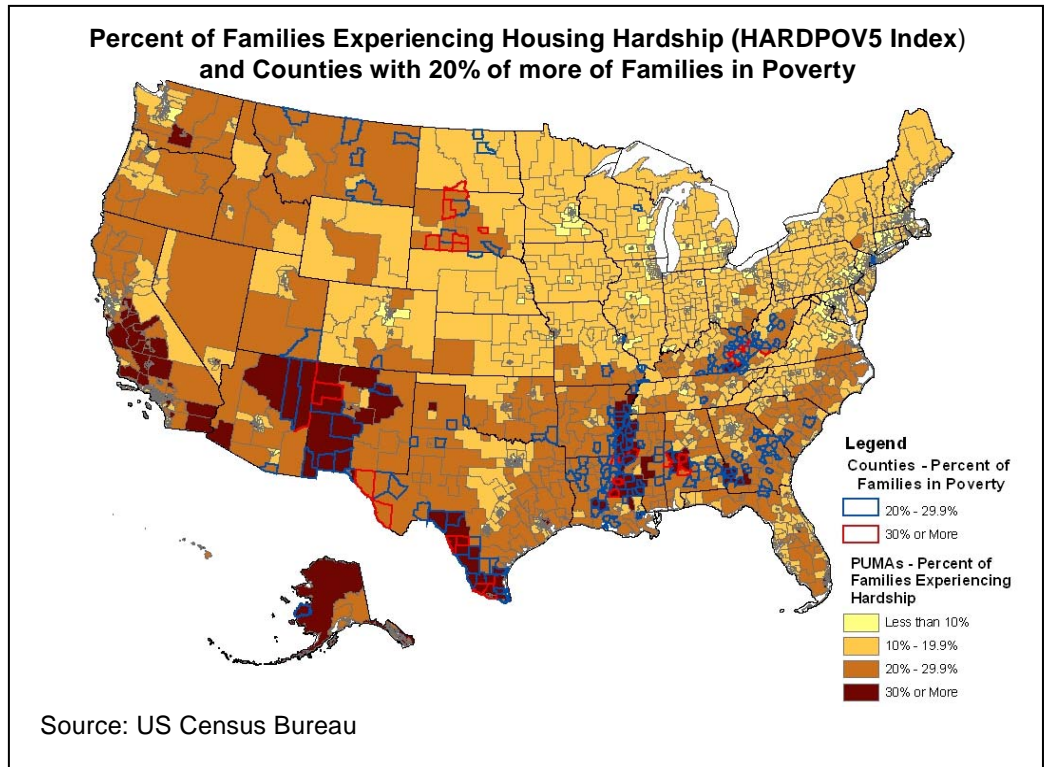
**Results by PUMA**

The following map illustrates the percent of families experiencing housing hardship (as measured by HARDPOV5) by PUMA. The areas experiencing the highest levels of



housing hardship (30 percent or more of families), are the Mississippi Delta, the lower Rio Grande, western New Mexico and the Four Corners region, and central California. Much of the Southeast, Southwest, and Northwest experience housing hardships as well, while the lowest rates of hardship are clearly found in the Northeast and Midwest.

The map to the right overlays counties in which



the more than 20 percent of families have incomes below the poverty line (using the Census Summary Tape Files).

What is striking is the similarity of the maps for high housing hardship areas and high poverty counties. Clearly, there is strong overlap in the Mississippi Delta, parts of the Black Belt and Appalachia, and the Rio Grande Valley. Virtually all high poverty areas are also high housing hardship areas. The converse, however, is not necessarily true. There are high levels of housing hardship areas in the Rockies and Pacific Northwest that are not traditional high poverty areas. Again, this map illustrates the similarity, yet distinctiveness of the two concepts across place.

### **Conclusion**

When examining rates of housing hardship by place, we find slightly different geographic patterns than when assessing poverty. Rates of housing hardship are clearly highest for families living in the West, followed by those in the South. Rates of hardship by residence status, however, are almost identical to poverty patterns. Specifically, residents of central cities fare the worst followed by those living in nonmetropolitan areas. Examining finer levels of geography, there is definite overlap between high poverty and high hardship areas, yet not all high hardship areas are high poverty areas. Expanding our view of economic vulnerability to include non-income based measures provides a fuller portrait of the relationship between place and economic well-being.



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Washington, D.C.

**Suggested Citation**

Mosley, J. & Miller, K. (2004). Material Hardship Across Place [Abstract]. Retrieved [Month, Day, Year],  
from Rural Poverty Research Center Web site: <http://www.rupri.org/rprc/WP0410.pdf>