Poverty and the Incidence of Material Hardship, Revisited^{*}

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Abstract

The last twenty years have seen little decline in the incidence of poverty in the United States. In fact, after a decline in poverty during the strong economy of the 1990s, poverty increased in the wake of two recessions. Much less is known about trends in *material hardships*, such as food insufficiency and housing problems, which are intrinsically important outcomes. Using data from the 1992-2011 Survey of Income and Program Participation, we examine trends in seven types of material hardship (food, housing, neighborhood, bill paying, health, fear of crime, and lack of consumer durables) and how their incidence by poverty status changed over the period. We find declines in four of the seven hardships, with little change or moderate increases for the others. Declines were larger for hardship more dependent on longer-term income flows, while those more sensitive to short-term income fluctuations declined by less (or increased), suggesting that income volatility imposes important challenges for many households. Of key interest, declines in hardship were evident across all measures among the lowest-income groups over the period. This may result from a greater under-reporting of income over time and/or that family resources are not comprehensively counted in the official poverty measure.

Poverty and the Incidence of Material Hardship, Revisited

Despite continued, if uneven, economic growth, wages and poverty have stagnated over the past couple of decades, and growing income inequality is thought to be one of the primary culprits. This growth in inequality is often discussed in terms of both the rich are getting richer and the poor are getting poorer, as some research points to a rising number of people with very low incomes (Reich 2009; Edelmen 2012; Shaefer and Edin 2013). While the incomes of those at the top of the income distribution have undoubtedly increased substantially in recent years, it is less clear if those at the bottom of the income distribution are doing worse than before, or if their well-being is simply not growing as fast as those at the top (Meyer and Sullivan 2003a, 2011). We study this issue by examining trends in *material hardship*, and, specifically, the extent to which experiences of such hardships are becoming more or less prevalent among low-income households.

In one of the early influential papers that examined the occurrence and distribution of material hardship, Mayer and Jencks (1989) concluded that there was only a moderate correlation between poverty and hardship, and this has been confirmed by a number of subsequent studies (Mayer and Jencks 1993; Beverly 2000; Bradshaw and Finch 2003; Sullivan, Turner, and Danziger 2008; Iceland and Bauman 2005; Meyer and Sullivan 2018). There are a number of reasons for the moderate correlation, including differences in the measure of income used to measure poverty (mainly cash income) and the actual consumption of goods and services (perhaps funded by wealth or debt) that might reduce hardship. Additionally, errors in the reporting of income and the different time horizon of each measure could reduce the correlation, as poverty is based on income in the previous year while some hardships such as food security may have shorter time horizons while others, such as housing hardship, have longer ones.

The goal of this study is to examine trends in several material hardships and how their incidence by poverty status has changed over the 1992 to 2011 period. There are a number of reasons to believe why some hardships might have increased and others declined among the low income population. For one, as noted above, income inequality has increased markedly. This increase might have put additional pressures on households near the bottom of the income distribution, and thus increased hardship among the poor. On the other hand, the provision of government transfers has also changed in important ways, including a decline in cash welfare but an increase in other kinds of benefits, such as health insurance and food purchasing support, that are not captured by the current measure of income; the result might be a decrease in hardship among those who officially are counted as poor.

These economic and policy changes might have different effects on different measures of material hardship. For example, the expansion of the Supplemental Nutrition and Assistance Program (SNAP) and the relatively low continued cost of food may have made food insecurity (for a given level of cash income) less prevalent (McKernan, Ratcliffe, and Iceland 2018), while the increasing cost of housing (above and beyond the general measure of inflation) and the bursting of the housing bubble at the outset of the Great Recession might have served to increase the incidence of housing hardship. Thus, it is important to examine different types of hardships when investigating the poverty-hardship association, and to examine some of the mechanisms that might help explain changes in this association. Notably, no previous study that we are aware of has examined the changing incidence of hardship by level of income, nor how this might vary by hardship measure.

In short, our study is guided by the following research questions:

- 1) What are the trends in material hardship over the 1992 to 2011 period?
- 2) Has the incidence of hardship by poverty status changed over time?
- 3) Do trends vary by the dimension of material hardship considered?

We address these questions using data from multiple panels of the Survey of Income and Program (SIPP) covering the period from 1992 to 2011. The SIPP is a nationally-representative longitudinal survey, where panels last from three to five years. At least once during each panel there are a set of questions on material hardship. We document trends in hardship by poverty status with descriptive analyses, and then examine the association between poverty and hardship—and how this has changed over time—with a series of logistic regression models. In doing so, we hope to gain a greater understanding of how experiences of material hardship in the United States have shifted during this period of considerable economic and social change.

Background

We begin this section by documenting trends in poverty and material hardship, and follow with a discussion of the conceptual and empirical connection between the two. We then discuss why the correlation between the two might have changed over time, the empirical studies on this issue, and we end by describing our contributions to the literature and the hypotheses that guide our analysis.

Trends in Poverty and Material Hardship

During the 1992 to 2011 period covered by this study, poverty (as measured in the Current Population Survey Annual Social and Economic Supplement) initially was high due to a recession in the early 1990s (the

poverty rate reached a high of 15.1 percent in 1993) before declining through the rest of the decade during a period of strong economic growth, hitting a low of 11.3 percent in 2000. There was a stagnation in poverty rates in the 2000s, then a spike in the aftermath of the Great Recession—matching its 1993 peak—and it did not substantially decline until after 2014 (U.S. Census Bureau 2017a). General patterns of economic growth and decline have thus played a critical role in trends in income and poverty.

There has been less research on trends in material hardship. Siebens (2013) and Rogers and Ryan (2007) provide trends on very specific indicators of material well-being, such as ownership of particular consumer items (e.g., TVs), housing conditions (e.g., problems with pests), or paying bills (e.g., unpaid rent or mortgage). They provide a mixed picture, with, on the positive side, a small increase in the percentage of households that have a TV and a small decline in those that have problems with pests. They also find a decrease in those who could not pay their rent or mortgage from 1992 to 2003, followed by a modest increase thereafter, which is consistent with the rise in mortgage defaults leading up to the Great Recession. Heflin (2017), using data from the SIPP, likewise provides trends in some specific hardships and one broader one (food insecurity). She shows declines in these hardships in the 1990s, followed by increases since the mid 2000s.

Shaefer and Rivera (2018) offer a more negative assessment of trends in hardship, noting a net increase in food insecurity from 1998 to 2015, as well as an increase in the percent who fell behind on utilities, rent/mortgage, those who experience unmet medical needs, and those who did not meet household expenses over the 1992 to 2011 period. In contrast, Meyer and Sullivan (2018), in response to Shaefer and Rivera (2018), offer a more positive assessment, finding a decline in those reporting water leaks and an increase in ownership of consumer durables from 1989 to 2015. As we discuss in more detail in our data and methods section, we focus on a more comprehensive set of measures than any of these studies, encompassing health hardship, food hardship, bill-paying hardship, housing hardship, lack of consumer durables, neighborhood problems, and fear of crime. Considering this broad array of hardships could help reconcile some of the mixed findings in the literature.

Differences Between Poverty and Hardship

Income poverty and material hardship measure different, if related, dimensions of economic well-being. Poverty, as typically measured, indicates the flow of cash resources households have available, and it is usually measured using a one-year accounting period. The conceptual underpinning of this kind of measure is that money is useful because it can be used to meet basic needs, such as food, clothing, and shelter. In this way, money is

instrumentally important. In contrast, material hardship measures are thought to be of *intrinsic* importance in that they measure actual deprivation of one type or another, such as food insecurity or housing problems (Sen 1999). As Heflin (2017: 2) notes, "scholars on both the left and right have shown a clear interest in examining the provision of basic needs and recognized the distinction from meeting an income standard."

So while people who lack income do often struggle to meet their basic needs, there is, empirically, only a moderate correlation between the two (Mayer and Jencks 1989, 1993; Mayer 1995; Beverly 2000; Bradshaw and Finch 2003; Sullivan, Turner, and Danziger 2008; Iceland and Bauman 2005; Meyer and Sullivan 2018). For example, Mayer and Jencks (1989), in their study of poverty and hardship using data collected in Chicago, found that the income-to-needs ratio explained only 24 percent of the variance in the amount of material hardship reported.

There are a number of reasons why the correlation between income poverty and material hardship is moderate. For one, poverty is based on a flow of income in a given time, such as in the form of earnings or government transfers (e.g., Social Security income), whereas one might have access to money in other forms, such as in the form of wealth or credit card debt or bank loans. As such, people often consume more in a given time period than would seem to be possible given their reported income (Meyer and Sullivan 2003a, 2003b). Second, there might be errors in the reporting of income in surveys. People may not report income earned from informal sources or criminal activity (Edin and Lein 1997). Transfer income, such as Supplemental Security Income, is also often under-reported in household surveys (Meyer and Sullivan 2012, 2018; Czajka and Denmead 2008; Sullivan, Turner, and Danziger 2008; Mayer and Jencks 1989). Furthermore, households vary in their income and consumption needs. The elderly consistently report lower levels of hardship than others with similar incomes. Part of this could be due to the fact that they consume less, such as in terms of fewer grocery expenditures, and are more likely to own homes and have good health coverage—items often not captured well in income poverty measures (Mayer and Jencks 1989; Heflin 2017).

In addition, different dimensions of hardship likely have different time horizons. As noted above, income poverty typically measures the amount of income during the previous year. A household might have sufficient income to be considered not poor during the year, but if there was, for example, an economic shock such as a medical crisis that created a short-term income shortfall, the household might still very well experience a hardship such as food insecurity or trouble paying medical bills (Sullivan, Turner, and Danziger 2008; Shaefer 2020). The measures of material hardship themselves often have different time horizons. While food insecurity and trouble

paying bills might occur with even a short spell of low income, reports of housing and neighborhood problems likely are more stable (Heflin, Sandberg, and Rafail 2009). Similarly, ownership of consumer durables might not depend much on current income (Iceland and Bauman 2007).

Has the incidence of hardship by poverty status changed?

There are reasons to believe that the incidence of hardship by poverty status might have changed over time, in that people at a given income level might be more or less likely to report various hardships, depending on the hardship being considered. First, income inequality has grown over the last few decades, even as median household income showed moderate growth (e.g., Reeves 2017; Piketty and Saez 2003; Frank 2013; U.S. Census Bureau 2017c). The growth of income inequality over the past several decades even as average living standards increased slowly may make the cost of basic goods and services less affordable to those near the bottom of the income distribution (Kanbur and Squire 1999). Part of this is because businesses often respond to rising affluence by producing higher quality goods and services for which they can charge higher prices (Frank 2013).

In addition, changes in the safety net over the past couple of decades may have affected the incomehardship relationship. These changes, however, might have mixed effects. Changes in the safety net since the early 1990s include welfare reform in 1996, where Federal support in the form of Aid to Families with Dependent Children (AFDC) was replaced with block grants to states, who administered the renamed benefit, Temporary Assistance to Needy Families (TANF). The number of people receiving AFDC/TANF plummeted in the years after welfare reform (Greenberg 2001). As a result, many argue that the safety net for very needy families has been weakened, which might increase the extent of deep poverty and/or hardship among such families (McKernan and Ratcliffe 2006; Danziger et al. 2000; Kalil, Seefeldt, and Wang 2002). However, it should be noted that the decline in receipt of these cash benefits should also be reflected in lower reported incomes among such households.

Notably, the safety net has been strengthened in other respects, especially for households with a working parent. The Earned Income Tax Credit (EITC) was expanded in the 1990s and provides a wage supplement to low-wage workers who qualify. Over the past couple of decades, spending on the Supplemental Nutrition Assistance Program (SNAP), which provides resources to buy food, has increased, as have expenditures on the Supplemental Security Income program (SSI), which provides support to people with disabilities. Spending on Medicaid has also increased considerably, such as through the creation of the Children's Health Insurance Program (CHIP) and passage of the Affordable Care Act (Scholz, Moffitt, and Cowan 2009). These programs likely served to reduce

hardship (Mckernan, Radcliffe, and Iceland 2018). However, benefits from many of these programs are either not captured by the conventional measure of income measured by household surveys (which includes cash income) or are underreported, as described above (Fox et al. 2015). This might serve to weaken the association between income and poverty, as seemingly poor households actually have additional resources to meet basic needs.

Not only does the poverty measure not capture certain kinds of government transfers that have grown over time, but a number of studies have indicated that people under-report the income they receive, including items included in the official income measure. Meyer and Sullivan (2004), for example, find that single mothers did not reduce their consumption of goods and services in the period after welfare reform, as many expected, and one of their conclusions is that consumption is a better proxy for well-being than income in part because it is less likely to be under-reported. Furthermore the problem of under-reporting may have gotten worse over time, especially for government transfers (Bee and Mitchell 2017; Czajka and Denmead 2008; Meyer and Sullivan 2003a, 2006, 2011). This suggests that under-reporting of total income may be higher among the low-income population in particular.

Finally, there have been a number of social and demographic changes in the U.S. population over the 1992 to 2011 period, and these could change the association between poverty and hardship. Among these changes, there has been a decline in the proportion of married-couple households and accompanying increases in nonfamily and single-parent households (U.S. Census Bureau 2017). There also has been a continued aging of the population, with the aged 65 and older population comprising a greater proportion of the population over the past few decades (Ortman, Velkoff, and Hogan 2014). Likewise, the U.S. population has become racially and ethnically diverse, with whites occupying a smaller share of the population over time (Iceland 2017). These trends are relevant for our analysis because single-parent and nonfamily households, the nonelderly, and racial and ethnic minorities are more likely to report hardships, even when controlling for income, than married-couple families, the elderly, and the white population (Mayer and Jencks 1989; Heflin 2017). There are other economic and social processes at work that could affect the likelihood that people at certain income levels might report hardships, including a general reduction in crime (Gramlich 2018; Kearney et al. 2014) that could affect how people rate their fear of crime or their neighborhood conditions, or the proliferation of many cheap consumer durables (e.g., televisions and computers) that could make people more likely to report having such durables than in the past (Newman 2010).

Our study builds on the existing literature in a few important ways. First, we describe trends in hardship in a more comprehensive way than previous work, which has focused on specific measures of hardship or just one or

two broad categories of hardship (Siebens 2013; Heflin 2017; Schaefer and Rivera 2018; Meyer and Sullivan 2018). We present trends for seven broad categories of hardship over the 1992 to 2011 period: health hardship, food hardship, bill-paying hardship, housing hardship, lack of consumer durables, neighborhood problems, and fear of crime. Beyond this basic descriptive work, we also examine the extent to which the incidence of hardships has changed among the poor and other income groups, and examine if changes in household characteristics help explain these changes.

Based on the theoretical and empirical literature reviewed, we offer a number of hypotheses, some of them competing. We note that with our data we cannot test many of the mechanisms involved, but we can rule out some explanations and point to those which are consistent with the data available, and thus targets for future research. Effects of income inequality

- Hypothesis 1a. Income inequality has increased the price of many basic goods, making hardship more common among the poor over the study period.
- Hypothesis 1b: Alternatively, income inequality has increased the incidence of hardship among all income levels, as rising living standards means people across the income spectrum are consuming more to keep up with their peer group.

Change in the safety net

• Hypothesis 2: Hardship has gone down among the poor due to uncounted noncash transfers not included in the official measure of income.

Changes in income reporting

- Hypothesis 3a: Hardship has gone down for all groups because of across-the-board under-reported income.
- Hypothesis 3b: Hardship has gone down for low income groups, given that under-reporting of transfer income in particular has increased over time.

Social and demographic changes

- Hypothesis 4a: The change in hardship-poverty relationship is explained by population characteristics, such as the increase in single-parent families or the aging of the population.
- Hypothesis 4b: There may have been general declines in some hardships for all groups given broad social/economic changes, such as declines in crime.

Data and Methods

We use data from several panels of the Survey of Income and Program Participation (SIPP), a nationallyrepresentative household survey conducted in the United States (U.S. Census Bureau 2001). The SIPP is a longitudinal survey, where panels last from three to five years. It is a rich source of data on income, program participation, labor force activity, and is one of the relatively few surveys that collects information on experiences with various kinds of material hardship. The data on hardships come from the topical module on Adult Well Being, which was typically administered once per panel, with the exception of 2008 when it was administered in two waves. Each wave of the SIPP panels used in this study covers a four month period. Specifically, we use data from the following waves and SIPP panels: 1992 (waves 3, 4 and 5), 1996 (waves 6, 7 and 8), 2001 (waves 6, 7 and 8), 2004 (waves 3, 4 and 5), and 2008 (waves 4, 5, 6, 7, 8 and 9). The core waves are appended together and merged to the topical module using the sample address identifiers and person number in the public use files. As a result, our hardship indicators from the Adult Well Being Topic Model provided information on material hardships experienced in 1992, 1998, 2003, 2005, 2010, and 2011.

We use households, or more specifically householders, as the units of analysis, as hardships are reported for the household as a whole by the householder. Our sample determines annual hardship and poverty at the household level based on householders who were in the SIPP survey during the wave that the topical module was administered and who provided valid answers to the material well-being questions. Monthly household income and poverty thresholds of the householder are summed together to create an annual poverty estimate. We note that for most householders the income and poverty information are consistent through the entire household for the given time period. In the cases where members of the household enter or move out, using the householder's monthly information to sum up to an annual measure may not perfectly describe the poverty status of each person in the household. Householders with missing income and poverty threshold information are supplemented using multiple imputation methods. This imputed data, based on information from the topical module, is used to create the annual poverty estimate for these households. Imputation rates range from 2.0 percent in 1992 and 11.7 percent for 2011. The sample sizes range from 17,932 households in the 1992 to 37,368 households in the 2004 panel. To ensure that the data are representative of all U.S. households in the given time period, estimates are weighted using the monthly weight for the householder in reference month four of the Adult Well-Being topical module. After the 2008 SIPP panel, the SIPP was redesigned, with the regular core interview incorporating content from the topical modules, rather than having a core interview with separate topical modules at sporadic intervals. The first redesigned SIPP panel was fielded in 2014, and it contained a much smaller set of material hardship measures, and some questions were asked in different ways, such as having different accounting periods (e.g., a year versus a wave). Thus, since our study focuses on changes in hardship over time, we use comparable data from the 1992 to 2008 panels, but not the 2014 panel, which does not provide comparable measures.

Measures of material hardship

We analyze seven types of material hardship included in the SIPP survey. For each type, there are a series of questions, and we categorize a household as experiencing a hardship if they answer affirmatively to a certain number of questions, typically based on how previous studies have measured such hardships (Heflin 2017; Iceland and Bauman 2007) and yielding percentages that somewhat approximate poverty rates. The hardships are defined as:

- Health hardship (one or more of the following): did not see or go to a doctor/hospital when needed care, did not see a dentist when needed care
- Food hardship (2+): food did not last (and didn't have money for more), could not afford balanced meals, cut or skipped meals, ate less than should, did not eat for a full day
- 3) Bill-paying hardship (1+): did not pay utility bill, phone disconnected, did not pay rent/mortgage
- 4) Housing hardship (1+): pests, leaks, broken windows, plumbing problems, cracks in walls, holes in floor
- Consumer durables (5+): computer, dishwasher, air conditioner, dryer, washer, microwave, cell phone, telephone, refrigerator, color television, VCR/DVD, stove, food freezer
- Neighborhood problems (2+): noise, street repair problems, trash/litter, abandoned buildings, would like to move, smoke/odors
- 7) Fear of crime (2+): afraid to walk alone at night, stay at home for fear, goes out with others, neighborhood is unsafe, carries something for protection, unsatisfied with crime, home is unsafe

These measures are comparable across panels over the 1992 to 2011 period with the following exceptions: there were no food hardship questions in 1992 and there were fewer questions about fear of crime in 1992 (four versus seven in other years). To account for this, we omit fear of crime data from 1992 to ensure comparability. Finally, there was no question about cell phone phones in 1992, since so few people had them at that time. We also analyzed a "difficulty meeting basic expenses" hardship based on answers provided to that subjective question, though we do not include it because the results are very similar to the bill-paying hardship measure in the analysis.

Independent variables

Our main independent variable consists of income-to-poverty ratio categories based on the official poverty measure. Briefly, the official poverty measure, originally devised in the 1960s, has two components: poverty thresholds and the definition of income that is compared to these thresholds. The thresholds remain the same over time, updated only for inflation. While the official poverty measure uses families as the unit of analysis, here we use households in order to use comparable units for both the hardship and poverty measures (since hardships are measured only at the household level). The thresholds vary by household size and number of children. The definition of income used in the official poverty measure includes income from all cash sources, such as earnings, Social Security income, and investment income. It does not include noncash or near cash income, such as transfers from SNAP or energy assistance. We conducted a supplementary analysis adding the value of select noncash benefits to income, and these are discussed at the end of the results section. The income-to-poverty ratio indicates the ratio of household income to the poverty threshold for the household of a given size and composition. We use the following categories: household income is (a) less than 0.50 of the poverty line; (b) 0.50-0.99 of poverty line; (c) 1.00-1.99 of poverty line; (d) 2.00-4.99 times poverty line; and (e) 5 times or more of the poverty line.

We include a number of control variables in our models, including: age of the householder; race/ethnicity of householder, defined as non-Hispanic white, non-Hispanic black, non-Hispanic other, or Hispanic; education of the householder, defined as less than high school, high school diploma, 1-3 years of college, B.A. degree or more; family type, defined as married couple (with and without children), female headed, other household types; employment status of householder, defined as employed full time, employed part time, unemployed, and out of the labor force; lives in a metropolitan area dummy variable; region, with the categories of Northeast, Midwest, South, and West; number of people in household; number of children under 18 present; the household has a person 65 years or older present; the household has a disabled individual present.

We begin by presenting descriptive statistics of the hardship measures over the 1992 to 2011 period, and then of how hardships vary by the household's income-to-poverty ratio over time. Our subsequent multivariate analysis involves pooling observations from all of the SIPP panels and running a series of logistic regression models with each hardship as a separate dependent variable as specified by:

Logit (P(Y = 1)) = B₀ +
$$\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2 + \dots + \beta_k X_k$$
 (1)

where household hardship (Y) as a function of a series of covariates, including household income-to-poverty ratio (X_1) , year (X_2) , the interaction between household income-to-poverty ratio and year $(X_1 X_2)$, and the series of control variables described above. Our inclusion of the income-to-poverty ratio*year interaction terms answers the question of whether the likelihood that households at a particular level of poverty experienced a material hardship changed over the 1992 to 2011 period. We run one set of models without controls and then one with controls to see if respondent and household characteristics help explain some of the poverty-hardship relationship.

Results

Table 1 shows trends in our summary measures of material hardship, as well as the constituent elements within them over the 1992 to 2011 period. Overall, four hardships—housing, lack of consumer durables, neighborhood problems, and fear of crime—declined over the period. The drop in the lack of consumer durables (23.4 percent to 13.2 percent) and housing hardship (26.7 percent to 15.1 percent) were particularly notable. The three other hardships—health hardship, food hardship, and bill-paying hardship—showed no such declines over the period, while food hardship in particular increased. Notably, the latter two are often responsive to short-term income shortfalls, while the four that declined are less so. It is not entirely clear if the final measure—health hardship—falls into the category of being sensitive to short- or long-term income shortfalls. Heflin, Sandberg, and Rafail (2009) note that conceptually it shares commonalities with both, though empirically they conclude it should be considered more like a longer-term measure.

Within each hardship dimension, component hardship indicators tended to move in the same direction as the summary measure. For example, all constituent food hardships increased, while all constituent neighborhood hardships declined. For every hardship except for neighborhood problems, declines were more prominent from the 1990s through 2003, with smaller changes (or increases in some cases) after 2003, which coincides with stagnant economic growth in the 2000s, followed by the Great Recession. Changes in component measures for health, billpaying, some consumer durables, and wanting to move due to fear of crime are not statistically different.

(Table 1 here)

Table 2 provides information on how the summary hardship measures vary by the income-to-poverty ratio over time. Notably, among the hardship measures where there was stable or increasing hardship (health, food, and bill paying), we see *declines* in hardship for the lowest income group. For two of the three (health and food), we see

a decline in the second lowest income group as well. For example, among households under 50 percent of the poverty line, the prevalence of health, food, and bill-paying hardships declined from 28.8 to 22.7 percent, 29.1 to 26.6 percent, and 45.2 to 32.8 percent, respectively, from the first time period (1992 in the case of health and bill-paying and 1998 in the case of food hardship) to the last (2011). In contrast, the prevalence of all three of these hardships increased (from a considerably lower base) among households with income-to-poverty ratios of five times the poverty line or more. For the four other hardships that registered declines over the period, the declines occurred among all income groups, sometimes with especially large declines among households with income less than 50 percent of the poverty threshold. For example, the prevalence of housing hardships declined from 57.4 to 23.6 percent among this group between 1992 and 2011.

(Table 2 here)

Overall, the descriptive results indicate that four of the seven hardship indicators fell over the period, though the food hardship increased for two of the income–to-poverty groups However, the results also show that *all* hardships declined among the lowest income groups, and for six of the seven hardships (bill-paying excluded), the declines are significant for the lowest two income to poverty ratio groupings. Additionally, declines were statistically significant among the highest income group for the same six hardships. The results suggest that the income poverty measure captures a different component of well-being for the very poor population.

We next run multivariate models to see if hardship-income-to-poverty ratio relationships persist when we control for a variety of household characteristics, and if the magnitude of these relationships change over time. Table 3 shows results of logistic regressions with different hardship indicators as the dependent variables and two models for each: one with no controls and the second with the control variables added. We find that, as expected, hardships are less likely among households with higher income-to-poverty ratios. This is true for all hardship measures. The year dummy variables indicate that hardships generally were less likely to be reported in all years compared to the first (1992 for most hardships). Differences in the magnitude of the coefficients across models are not statistically different, but still support the finding that hardship is less likely as time progresses over the studied period. Note that to estimate the net decline by year (and income), one needs to take into account both the first order terms and the interaction terms.

(Table 3 here)

Turning to the year*income-to-poverty ratio interaction terms, we generally see that, when statistically significant, those in higher income groups were more likely to report hardships over time relative to the lowest income group, even when controlling for other household characteristics. The interaction terms are for the most part nonsignificant in the health hardship and fear of crime hardship models, but significant in most instances in the other models, especially for the most recent years (2010 and 2011). For example, in the housing hardship models, the positive and statistically significant interaction term between 2011*income-to-poverty ratio>=5.0 (0.86 in model 1) indicates that households with incomes 5 times or greater than the poverty line were more likely to report housing hardship vis-à-vis the lowest income group (those with incomes less than 50 percent of the poverty line) in 2011 than in 1992 (the omitted year). At the same time, those with incomes greater than 5 times the poverty line were less likely to report hardships than those in the lowest income group in all years; for these calculations we would add the first-order coefficient (-1.89 for housing hardship) to the interaction term, and in all cases these sums are negative.

The magnitude of the income-to-poverty ratio and year*income-to-poverty ratio variables is sometimes reduced slightly with the addition of control variables. For example, in the housing hardship model, the coefficient of the income-to-poverty ratio of 5.0 times or more is reduced in absolute terms from -1.89 to -1.29 with the addition of control variables. In this case, both of these coefficients are statistically significant, as is the difference. Deeper examination of the controls show that characteristics such as being a in a female-headed household and having a householder with lower levels of education have a positive relationship with reporting hardships.

With regards to the relationship between hardships and the control variables in Table 4, most have associations in expected ways. As noted above, education has a strong negative association with hardships and female-headed and other households are more likely to report hardships than married-couple households. Households headed by blacks, Hispanics, and other-race individuals tend to be more likely to report hardships, with health hardships being an exception. Households with a disabled person present or where the householder is unemployed or employed only part time are also more likely to report hardships.

In summary, the multivariate results indicate that income is negatively associated with hardships. However, year effects moderate this positive association, such that the gap in hardships by income-to-poverty ratio groups narrowed over time for most hardships. Most of these relationships remain even after controlling for a number of household characteristics.

Because one of our hypotheses was that the exclusion of noncash benefits from the official measure of income may result in fewer hardships over time (since such benefits increased over the period studied) among a population defined as low-income using this incomplete measure, we conducted a final analysis where we examined the effect of adding the value of select noncash benefits to the official measure of income (tables available upon request). Specifically, we added the value of benefits from SNAP, the Women, Infants, and Children (WIC) program, and energy assistance, and calculated poverty based on this fuller measure of income. With the fuller measure of income, we might expect that the income-to-poverty*year indicators to be *smaller* than shown in Table 4, as accounting for undercounted resources over time will reduce the year*income interaction. We find moderate support for this: there are fewer results that are significantly different than zero in these models, and the magnitude of some of the interaction terms are reduced in the bill hardship, housing hardship, consumer durable, and neighborhood models, though these coefficients are not statistically different from each other. Coefficients do not change much in the food hardship model, and all of the interactions remained nonsignificant in the fear of crime models. The one slight outlier is the health hardship model, where most of the interaction terms are not significant in either case, though a couple are stronger and significant in models with the expanded measure of income.

Conclusion

While trends in income and poverty have been well documented and much discussed in the academic literature, we know considerably less about trends in material hardships. Unlike income, which is *instrumentally* important for the goods and services that it can purchase, hardships are often considered outcomes of *intrinsic* importance, as they represent experiences with various kinds of economic challenges.

In this study, we used data from Survey of Income and Program Participation (SIPP) over the 1992 to 2011 period to examine trends in seven broad categories of hardship— health hardship, food hardship, bill-paying hardship, housing hardship, lack of consumer durables, neighborhood problems, and fear of crime —and investigate how their incidence varies by reported income, and specifically, household income-to-poverty ratios. There are a number of reasons why the association between hardship and income/poverty might have changed over time, including increasing income inequality, which might put financial pressure on many households, trends in receipt of resources not counted in the official measure of income, greater under-reporting of income over time, and other social and demographic changes, such as changing family living arrangements, the aging of the population, or general declines in crime.

We find general declines for four hardships (housing hardship, lack of consumer durables, neighborhood problems and fear of crime) over the period, little change in health hardship and increases in bill paying and food hardship. Among the hardships that declined, the largest decreases were in the 1992 to 2005 period, with smaller changes thereafter as the economy softened, along with the subsequent deep recession. Our observation window was not long enough to see if there was a resumption of a decline in hardship in the period when income poverty began declining. Among the remaining three hardships (food hardships, health hardship and bill-paying hardship), there were initial declines through 2005, though increases thereafter.

Notably, trends in hardship were not the same across the income spectrum. While low income groups were much more likely to report hardships in all time periods, the lowest income households—those under 50 percent of the poverty threshold and 50 to 99 percent of the poverty threshold—experienced larger declines in hardship over the period, and even saw declines in the three hardships where declines were not apparent for the population as a whole (health, housing, and food hardship). In contrast, households in the top category (with incomes five times the poverty threshold or more), often saw the smallest declines in hardship among those where there was a decline, and increases in three hardships for which there was little change or increase for the population as a whole. Controlling for household characteristics sometimes mediated a modest part of the hardship-income relationship. In some cases, this included the moderating year effect to a smaller degree. Nonetheless, the general associations between hardships, income, and time remained significant in most instances even with the inclusion of controls.

While we do not have the data available to test all of the mechanisms producing the changing association between income and poverty and hardship, we can reflect upon the hypotheses and rule out certain theoretical propositions. The first set of hypotheses on income inequality predicted that increasing income inequality would have increased the report of hardships, especially for low-income groups who might struggle to pay for relative increases in the prices of goods and services. A related hypothesis is that increasing inequality might increase hardship for all income groups, as people even in higher income groups struggle to keep up with their aspirational peers. The patterns in our findings are not fully consistent with either one of these, since we saw declines in hardship for lower income groups and increases for higher groups. The patterns don't rule out, however, that increases in hardships particularly among higher income groups are affected by the struggle to keep up with affluent peers.

The second and third sets of hypotheses focus on changes in resources not captured by either the official measure of income or by the survey itself. With regards to the official measure of income, it does not capture

noncash sources of income, ranging from food assistance to subsidized health insurance. These might help households avoid hardship without raising their income. With regards to under-reporting of income, this might occur for all income groups, though past research indicates that under-reporting is more severe for government transfers (including cash transfers) than earnings (Czajka and Denmead 2008). Our findings are consistent with these explanations, as we find reduced hardships over time for poor households in particular. In supplemental analyses we also found that adding a few noncash benefits to income modestly reduced the year*income interaction term in a majority of the models.

The fourth set of hypotheses focused on the role of social and demographic changes in explaining the hardship-income relationship. While we find that controlling for household characteristics helps mediate part of the hardship-income association, our findings by-and-large hold even in models with the full set of controls, including family structure, age of the householder, and education, among others. Since the impact of the controls on the year*income-to-poverty ratio interaction terms was slight, the change in the association between income and hardship is not explained by demographic change. The role of other social changes may play a role in explaining general trends in some hardships, such as the decline in neighborhood hardship and in fear of crime among all income groups, but it does not explain the changing association between income and these hardships.

Overall, like past research, we see that while high-income households are much less likely to report various hardships than lower-income ones, the correlation is far from perfect, as even a nontrivial number of households living well above the poverty line report experiencing hardships (Short 2005; Iceland and Bauman 2007; Sullivan, Turner, and Danziger 2008). We see a distinctive decline among all groups in four important dimensions of hardship, with little change or increases in three others, even during a period when the overall poverty rate did not decline (U.S. Census Bureau 2017a).

Our research indicates the importance of looking at multiple dimensions of hardship. Previous studies had produced mixed conclusions about whether hardships have declined or not (e.g., Shaefer and River 2018; Meyer and Sullivan 2018; Heflin 2017). We find that the trends in reported hardship vary, and this variation likely is not random. The hardships that declined the most in our study are those that likely are less affected by short durations of income deprivation, like neighborhood conditions, housing hardship, lack of consumer durables, and fear of crime. Conversely, the ones that declined the least or increased—health, food, and bill-paying hardships—are more susceptible to short-term income shortfalls. This suggests that while rising standards of living and more permanent

income flows have reduced many hardships, short term economic insecurity among households has not declined over time. This is consistent with the notion that job insecurity is more prevalent in the economy today than in the past (Hacker 2006; Kalleberg 2009). More generally, surveys have shown that many Americans are vulnerable to financial crises (Fottrell 2018; Prosperity Now 2019).

The findings also suggest that the official poverty measure has become increasingly deficient for measuring deprivation over time (National Research Council 1995). As noted above, it fails to include noncash government transfers, such as food assistance, housing subsidies, and the earned income tax credit, and these programs have grown considerably over the years (Iceland 2013; Scholz, Moffitt, and Cowan 2009). Moreover, the under-reporting of income, especially non-earnings income, is a growing problem in many surveys. This further points to the importance of looking at multiple measures of well-being, such as the hardship measures used here, as well as measures of consumption rather than income (Meyer and Sullivan 2003a, 2003b, 2018).

Economic growth and standards of living have grown more slowly in the last thirty years than at any time in post-World War II period. There have been several recessions, including the deep Great Recession which saw a doubling of the unemployment rate, only to be followed for a number of years by a slow recovery. Many households continue to face economic insecurity, and some live from paycheck to paycheck. Even with all the troubling features of the economy, it is important to note that standards of living have generally still increased, if slowly and unevenly, and this has reduced the prevalence of many, though not all, kinds of economic hardships that American households face. This decline has occurred even among the lowest-income households. It will be important to continue to track these kinds of hardships, and other well-being outcomes of intrinsic importance, especially during this time of considerable economic volatility and uncertainty.

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Table 1. Percentage Reporting Material I	lardships	, by Hard	ship and `	Year, 199	2-2011									
	1992		19	98	20	03	20	05	20	10	20	11		
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE		
Health hardship (one or more)	12.9	(0.006)	10.4	(0.003)	9.9	(0.004)	11.1	(0.004)	12.3	(0.003)	12.7	(0.004)		
Did not see a dentist	10.3	(0.006)	7.9	(0.002)	7.6	(0.004)	8.5	(0.003)	9.6	(0.003)	9.9	(0.003)		
Did not see a doctor	7.9	(0.005)	6.1	(0.002)	6.3	(0.003)	6.8	(0.003)	7.9	(0.003)	7.9	(0.003)		
Food hardship (two or more)			9.0	(0.003)	8.1	(0.004)	9.0	(0.003)	10.9	(0.003)	11.5	(0.004)		
Food did not last			11.4	(0.003)	10.3	(0.004)	11.2	(0.004)	13.5	(0.004)	13.8	(0.004)		
Did not eat balanced meals			9.7	(0.003)	9.1	(0.004)	9.7	(0.003)	12.1	(0.003)	12.7	(0.004)		
Skipped meals			4.4	(0.002)	4.0	(0.003)	4.7	(0.002)	5.1	(0.002)	5.8	(0.003)		
Ate less than should			4.6	(0.002)	4.4	(0.003)	5.0	(0.002)	5.5	(0.002)	6.2	(0.003)		
Did not eat whole day			1.2	(0.001)	1.3	(0.002)	1.6	(0.001)	1.5	(0.001)	1.6	(0.001)		
Bill-paying hardship (one or more)	14.3	(0.007)	12.4	(0.003)	11.9	(0.004)	13.3	(0.004)	14.6	(0.004)	15.0	(0.004)		
Did not pay utility bill	10.0	(0.006)	9.1	(0.003)	8.7	(0.004)	9.8	(0.003)	10.4	(0.003)	10.5	(0.004)		
Phone disconnected	3.6	(0.004)	3.9	(0.002)	4.2	(0.003)	4.2	(0.002)	3.6	(0.002)	3.8	(0.002)		
Did not pay mortgage/rent	7.7	(0.005)	5.4	(0.002)	5.5	(0.003)	6.1	(0.003)	7.9	(0.003)	8.1	(0.003)		
Housing hardship (one or more)	26.7	(0.009)	20.7	(0.004)	16.2	(0.005)	15.9	(0.004)	14.1	(0.004)	15.1	(0.004)		
Insect, pest problems	14.7	(0.007)	12.7	(0.003)	9.5	(0.004)	9.9	(0.003)	7.5	(0.003)	8.7	(0.003)		
Roof leak	8.6	(0.005)	6.9	(0.002)	5.5	(0.003)	4.9	(0.002)	4.9	(0.002)	4.7	(0.002)		
Broken windows	7.5	(0.005)	4.1	(0.002)	3.0	(0.002)	3.0	(0.002)	2.8	(0.002)	3.1	(0.002)		
Plumbing problems	5.0	(0.004)	2.6	(0.001)	2.1	(0.002)	1.9	(0.002)	1.9	(0.001)	2.2	(0.002)		
Cracks in wall	4.7	(0.004)	4.0	(0.002)	3.0	(0.002)	2.8	(0.002)	2.6	(0.002)	2.9	(0.002)		
Holes in floor	1.2	(0.002)	0.9	(0.001)	0.6	(0.001)	0.6	(0.001)	0.7	(0.001)	0.7	(0.001)		
Lack of consumer durables (five or more	23.4	(0.008)	22.2	(0.004)	13.7	(0.005)	12.1	(0.004)	13.0	(0.003)	13.2	(0.004)		
Computer	79.3	(0.008)	58.0	(0.005)	36.9	(0.007)	32.9	(0.005)	24.8	(0.004)	22.0	(0.005)		
Dishwasher	50.7	(0.010)	43.9	(0.005)	37.7	(0.007)	36.0	(0.005)	30.7	(0.005)	30.8	(0.005)		
Air conditioner	30.7	(0.009)	22.3	(0.004)	15.4	(0.005)	14.3	(0.004)	11.5	(0.003)	11.3	(0.004)		
Dryer	22.4	(0.008)	13.2	(0.003)	10.9	(0.004)	10.4	(0.003)	16.8	(0.004)	16.6	(0.004)		
Washer	15.2	(0.007)	9.1	(0.003)	7.8	(0.004)	7.5	(0.003)	14.7	(0.004)	14.8	(0.004)		
Microwave	17.8	(0.007)	9.3	(0.003)	4.1	(0.003)	3.6	(0.002)	2.9	(0.002)	3.2	(0.002)		
Cell phone			63.7	(0.000)	37.2	(0.000)	28.7	(0.005)	12.8	(0.003)	11.0	(0.004)		
Telephone	5.1	(0.005)	3.8	(0.002)	5.9	(0.003)	9.4	(0.003)	25.0	(0.004)	29.5	(0.005)		
Refrigerator	0.9	(0.004)	0.7	(0.001)	0.7	(0.001)	0.7	(0.001)	0.7	(0.001)	0.8	(0.001)		
color tv	3.5	(0.002)	1.6	(0.001)	1.2	(0.001)	1.1	(0.001)	1.5	(0.001)	1.7	(0.002)		
VCR/DVD	26.0	(0.004)	14.8	(0.003)	10.0	(0.004)	7.8	(0.003)	7.9	(0.003)	9.1	(0.003)		
Stove	1.0	(0.008)	1.3	(0.001)	1.2	(0.001)	1.2	(0.001)	1.4	(0.001)	1.4	(0.001)		
Food Freezer	62.8	(0.001)	65.0	(0.004)	63.1	(0.007)	63.4	(0.005)	62.1	(0.005)	64.2	(0.006)		
Neighborhood problems (two or more)	19.7	(0.009)	15.8	(0.003)	13.1	(0.005)	13.0	(0.004)	10.9	(0.003)	12.2	(0.004)		
Noise problems	24.1	(0.008)	21.4	(0.004)	18.2	(0.005)	18.1	(0.004)	13.4	(0.004)	14.0	(0.004)		
Street repair problems	19.8	(0.008)	16.4	(0.003)	14.0	(0.005)	12.9	(0.004)	12.0	(0.003)	13.8	(0.004)		
Trash, litter	11.2	(0.008)	8.2	(0.003)	7.4	(0.004)	7.3	(0.003)	5.9	(0.002)	6.5	(0.003)		
Abandoned buildings	10.2	(0.006)	8.0	(0.002)	7.0	(0.003)	7.0	(0.003)	7.1	(0.003)	7.8	(0.003)		
Would like to move	7.4	(0.006)	5.8	(0.002)	5.2	(0.003)	5.7	(0.003)	4.7	(0.002)	5.0	(0.003)		
Smoke, odors	7.1	(0.005)	4.9	(0.002)	3.7	(0.003)	3.4	(0.002)	2.9	(0.002)	3.1	(0.002)		
Fear of crime (two or more)			19.2	(0.004)	14.4	(0.005)	15.6	(0.004)	14.5	(0.004)	14.5	(0.004)		
Afraid to walk alone at night			28.7	(0.004)	22.0	(0.006)	22.5	(0.005)	20.6	(0.004)	20.5	(0.005)		
Stay at home for fear			12.8	(0.003)	9.7	(0.004)	10.8	(0.004)	10.5	(0.003)	10.6	(0.004)		
Goes out with others			11.5	(0.003)	8.1	(0.004)	9.3	(0.003)	8.6	(0.003)	8.3	(0.003)		
Neighborhood is unsafe			8.6	(0.003)	7.2	(0.004)	7.7	(0.003)	7.2	(0.003)	6.7	(0.003)		
Carries something for protection			7.5	(0.002)	5.7	(0.003)	5.6	(0.003)	6.3	(0.003)	6.4	(0.003)		
Would like to move due to crime			4.4	(0.002)	4.0	(0.003)	4.5	(0.002)	4.1	(0.002)	4.0	(0.002)		
Home is unsafe			4.1	(0.002)	3.3	(0.002)	3.0	(0.002)	3.0	(0.002)	2.6	(0.002)		
N	17,9	032	29,	539	25,	972	37,	368	34,	850	32,5	32,524		
Sources: 1992, 1996, 2001, 2004, and 2008	SIPP pan	els												
Standard errors in parentheses do not reflect	t the use of	f replicate	weights											

Table 2. Hardship by I	992-2011												
	1992 1998				200)3	20	05	201	10	20	11	
Health hardship	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	
<.5 of inc-to-pov ratio	28.8	(0.009)	21.8	(0.004)	22.1	(0.006)	23.5	(0.005)	21.6	(0.004)	22.7	(0.005)	
>=.5 & <= .99	25.8	(0.008)	19.8	(0.004)	18.1	(0.005)	20.3	(0.005)	21.8	(0.004)	22.7	(0.005)	
>=1.00 & <=1.99	21.0	(0.008)	16.2	(0.003)	15.8	(0.005)	18.5	(0.004)	18.9	(0.004)	19.6	(0.005)	
>=2.0 & <=4.99	10.8	(0.006)	9.1	(0.003)	9.0	(0.004)	9.8	(0.003)	11.0	(0.003)	11.0	(0.004)	
>=5.00	3.1	(0.003)	3.7	(0.002)	3.2	(0.002)	3.6	(0.002)	4.5	(0.002)	4.3	(0.002)	
Food hardship													
<.5 of inc-to-pov ratio			29.1	(0.004)	25.4	(0.006)	27.1	(0.005)	23.9	(0.004)	26.6	(0.005)	
>=.5 & <= .99			28.3	(0.004)	22.8	(0.006)	25.2	(0.005)	24.7	(0.004)	27.1	(0.005)	
>=1.00 & <=1.99			14.7	(0.003)	13.6	(0.005)	15.9	(0.004)	17.5	(0.004)	18.5	(0.005)	
>=2.0 & <=4.99			5.9	(0.002)	5.4	(0.003)	6.3	(0.003)	8.5	(0.003)	8.4	(0.003)	
>=5.00			1.9	(0.001)	2.4	(0.002)	1.7	(0.001)	3.2	(0.002)	2.7	(0.002)	
Bill-paying hardship						``´´		, ,		- Á			
<.5 of inc-to-pov ratio	45.2	(0.010)	32.0	(0.004)	34.6	(0.006)	37.0	(0.005)	31.7	(0.005)	32.8	(0.005)	
>=.5 & <= .99	32.6	(0.009)	27.7	(0.004)	27.8	(0.006)	31.4	(0.005)	31.2	(0.005)	32.5	(0.005)	
>=1.00 & <=1.99	22.7	(0.008)	20.2	(0.004)	19.4	(0.005)	21.1	(0.005)	22.3	(0.004)	22.3	(0.005)	
>=2.0 & <=4.99	10.9	(0.006)	10.1	(0.003)	9.4	(0.004)	10.9	(0.004)	12.1	(0.003)	12.4	(0.004)	
>=5.00	3.4	(0.004)	3.4	(0.002)	3.1	(0.002)	3.3	(0.002)	4.3	(0.002)	4.0	(0.002)	
Housing hardship		(0.00.)		(0100-)		(01002)		(0100-)		(0100-)		(0.00-)	
<.5 of inc-to-pov ratio	57.4	(0.010)	31.7	(0.004)	24.3	(0.006)	25.5	(0.005)	22.5	(0.004)	23.6	(0.005)	
>=.5 & <= .99	45.7	(0.010)	33.7	(0.004)	24.8	(0.006)	26.4	(0.005)	20.8	(0.004)	22.6	(0.005)	
>=1.00 & <=1.99	34.9	(0.009)	25.7	(0.004)	19.6	(0.005)	21.4	(0.005)	18.8	(0.004)	19.2	(0.005)	
>=2.0 & <=4.99	23.0	(0.008)	18.6	(0.004)	15.0	(0.005)	14.3	(0.004)	12.3	(0.003)	13.6	(0.004)	
>=5.00	16.3	(0.007)	15.2	(0.003)	12.3	(0.004)	10.6	(0.004)	9.6	(0.003)	10.0	(0.003)	
Lack of consumer durab	les	(,		(,		((,		(,		(,	
<.5 of inc-to-pov ratio	66.7	(0.009)	55.4	(0.005)	37.5	(0.007)	34.4	(0.005)	30.4	(0.005)	31.1	(0.005)	
>=.5 & <= .99	60.6	(0.009)	57.4	(0.005)	40.3	(0.007)	34.3	(0.005)	33.5	(0.005)	32.5	(0.005)	
>=1.00 & <=1.99	37.7	(0.009)	36.8	(0.004)	23.8	(0.006)	22.7	(0.005)	22.5	(0.004)	21.6	(0.005)	
>=2.0 & <=4.99	16.1	(0.007)	16.0	(0.003)	9.4	(0.004)	8.1	(0.003)	8.9	(0.003)	8.8	(0.003)	
>=5.00	7.6	(0.005)	6.8	(0.002)	2.9	(0.002)	2.2	(0.002)	3.0	(0.002)	3.7	(0.002)	
Neighborhood problems		, ,		. ,		. ,		, ,		. ,		· ,	
<.5 of inc-to-pov ratio	41.8	(0.010)	25.2	(0.004)	21.1	(0.006)	21.9	(0.005)	16.7	(0.004)	17.5	(0.004)	
>=.5 & <= .99	30.7	(0.009)	23.7	(0.004)	21.1	(0.006)	21.0	(0.005)	17.4	(0.004)	18.1	(0.004)	
>=1.00 & <=1.99	23.9	(0.008)	19.7	(0.004)	15.2	(0.005)	16.6	(0.004)	13.6	(0.004)	15.2	(0.004)	
>=2.0 & <=4.99	18.2	(0.007)	14.7	(0.003)	12.5	(0.004)	12.1	(0.004)	9.8	(0.003)	11.3	(0.004)	
>=5.00	12.2	(0.006)	11.1	(0.003)	9.2	(0.004)	8.4	(0.003)	7.5	(0.003)	8.3	(0.003)	
Fear of crime		(,		(,		((,		(,		(,	
<.5 of inc-to-pov ratio			31.1	(0.004)	23.9	(0.006)	27.5	(0.005)	21.6	(0.004)	21.9	(0.005)	
>=.5 & <= .99			34.0	(0.004)	27.2	(0.006)	28.1	(0.005)	24.9	(0.004)	22.7	(0.005)	
>=1.00 & <=1.99			24.9	(0.004)	20.0	(0.005)	20.9	(0.005)	19.5	(0.004)	19.5	(0.005)	
>=2.0 & <=4.99			17.1	(0.003)	12.6	(0.004)	14.0	(0.004)	13.0	(0.003)	12.8	(0.004)	
>=5.00			12.4	(0.003)	8.5	(0.004)	9.3	(0.003)	8.5	(0.003)	8.8	(0.003)	
Sources: 1992 1996 2001	. 2004 au	nd 2008 ST	PP panels	(0.000)		(******)	- 10	((0.000)		(0.000)	
Standard errors in parer	theses do	not refle	ct the use	of replica	te weight	3							
purch				repneu		-							

Table 3. Logistic Regression	ns Predic	ting Ha	rdshi	ps														
		Healt	h Ha	rdship				Bill H	lards	hip				Food	Har	dship		
	Mod	iel 1		Model 2			Model 1			Model 2		_	Model 1			Model 2		
Income-to-poverty ratio	Coel.	se		Coel.	se		Coel.	se		Coel.	se		Coel.	se		Coel.	se	
0.549 (omitted)																		
>=.5&<=.99	-0.15	0.16		0.07	0.171		-0.52	0.15	***	0.01	0.17		-0.04	0.13		0.15	0.14	
>=1.0&<=1.99	-0.42	0.15	***	-0.09	0.159		-1.00	0.14	***	-0.26	0.15	*	-0.87	0.12	***	-0.43	0.13	***
>=2.0&<=4.99	-1.10	0.14	***	-0.73	0.155	***	-1.76	0.14	***	-0.89	0.15	***	-1.88	0.13	***	-1.21	0.13	***
>=5.00	-1.96	0.17	***	-1.45	0.179	***	-2.61	0.16	***	-1.44	0.17	***	-3.04	0.17	***	-2.10	0.18	***
Year																		
1998	-0.49	0.19	***	-0.39	0.193	**	-0.65	0.17	***	-0.40	0.19	**		0.00			0.00	
2003	-0.47	0.19	***	-0.40	0.196	**	-0.53	0.17	***	-0.25	0.19		-0.19	0.16		-0.21	0.17	_
2005	-0.39	0.18	**	-0.36	0.19	*	-0.43	0.16	***	-0.18	0.17		-0.10	0.16		-0.14	0.17	
2010	-0.50	0.17	***	-0.49	0.177	***	-0.66	0.15	***	-0.40	0.17	**	-0.27	0.14	*	-0.26	0.15	*
2011	-0.43	0.17	***	-0.45	0.176	***	-0.61	0.15	***	-0.36	0.17	**	-0.13	0.14		-0.12	0.15	
1998*inc-to-pov interactions														0.00				
1998*>=.5&<=.99	0.04	0.22		-0.07	0.228		0.32	0.20		0.05	0.22			0.00			0.00	
1998*>=1.0&<=1.99	0.06	0.20		-0.03	0.21		0.37	0.18	**	0.08	0.21			0.00			0.00	
1998*>=2.0&<=4.99	0.08	0.20		-0.01	0.204		0.33	0.18	*	0.05	0.20			0.00			0.00	
1998*>=5.0	-0.02	0.23		-0.12	0.235		0.00	0.22	-	-0.50	0.23			0.00			0.00	
2003*Inc-to-povinteractions	0.10	0.22		0.20	0 225		0.20	0.21		0.12	0.22		0.10	0.20		0.12	0.21	
2003*>=.5&<=.99	-0.10	0.22		-0.20	0.255		0.20	0.21		-0.12	0.23		-0.10	0.20		-0.13	0.21	
2003*>=1.0&<=1.99	0.01	0.21		-0.00	0.214		0.21	0.19		-0.08	0.21		0.09	0.19		0.11	0.20	
2003*>=2.0&<=4.99	-0.19	0.20		-0.02	0.211		-0.20	0.19		-0.10	0.20	**	0.10	0.19	*	0.10	0.20	*
2005 >= 5.0	-0.15	0.23		-0.25	0.24		-0.20	0.22		-0.50	0.25		0.40	0.24		0.45	0.25	
2005*>= 5&<= 99	-0.04	0.21		-0.18	0.222		0.27	0.19		-0.09	0.21		-0.06	0.19		-0.13	0.20	
2005*>=1.0&<=1.99	0.12	0.20		0.04	0.209		0.21	0.17		-0.11	0.19		0.19	0.17		0.16	0.19	
2005*>=2.0&<=4.99	0.06	0.19		0.00	0.2		0.19	0.17		-0.11	0.18		0.16	0.18		0.14	0.19	
2005*>=5.0	-0.16	0.22		-0.20	0.228		-0.24	0.21		-0.51	0.22	**	-0.04	0.25		0.00	0.26	
2010*inc-to-pov interactions																		
2010*>=.5&<=.99	0.16	0.20		0.00	0.212		0.49	0.19	***	0.08	0.21		0.09	0.17		-0.03	0.18	
2010*>=1.0&<=1.99	0.25	0.18		0.16	0.194		0.52	0.17	***	0.17	0.19		0.48	0.15	***	0.38	0.17	**
2010*>=2.0&<=4.99	0.30	0.18	*	0.29	0.188		0.55	0.17	***	0.30	0.18		0.66	0.16	***	0.65	0.17	***
2010*>=5.0	0.19	0.21		0.23	0.215		0.28	0.20		0.07	0.21		0.79	0.22	***	0.85	0.23	***
2011*inc-to-pov interactions																		
2011*>=.5&<=.99	0.15	0.20		0.03	0.214		0.50	0.19	***	0.14	0.21		0.07	0.17		-0.04	0.18	
2011*>=1.0&<=1.99	0.23	0.18		0.16	0.191		0.47	0.17	***	0.14	0.18		0.40	0.16	***	0.32	0.17	*
2011*>=2.0&<=4.99	0.24	0.18		0.27	0.185		0.52	0.17	***	0.31	0.18	*	0.50	0.16	***	0.50	0.17	***
2011*>=5.0	0.08	0.21		0.15	0.218		0.15	0.20		-0.03	0.21		0.46	0.22	**	0.52	0.24	**
Age				-0.01	1E-03	***				-0.02	0.00	***				-0.02	0.00	***
Race									_									
Non-Hispanic white (omitted)										0.64	0.00	a.a.a				0.40		
Non-Hispanic black				-0.13	0.037	***			_	0.61	0.03	***				0.40	0.04	***
Non-Hispanic other				-0.01	0.051	**			-	0.10	0.05	**				0.33	0.06	***
Hispanic				-0.08	0.04					0.10	0.04	***				0.37	0.04	***
Education																		
Less than high school (omitted)				0.10	0 025	***				0.01	0.03					0.10	0.04	***
Some College				-0.10	0.035				-	-0.01	0.03					-0.13	0.04	***
BA1				-0.01	0.030	***				-0.61	0.03	***				-0.23	0.04	***
Eamily structure				0.40	0.044					0.01	0.04					0.71	0.02	
Married-couple (omitted)																		
Female-headed				0.29	0.034	***				0.60	0.03	***				0.55	0.04	***
Other family type				0.25	0.032	***				0.27	0.03	***				0.41	0.04	***
Employment status																		
Employed full time (omitted)																		
Unemployed				0.53	0.054	***				0.70	0.05	***				0.64	0.06	***
Employed part time				0.32	0.034	***				0.32	0.03	***				0.28	0.04	***
Out of the labor force				-0.13	0.034	***				-0.12	0.03	***				0.16	0.04	***
Household size				0.07	0.012	***				0.07	0.01	***				0.05	0.01	***
Number of children				-0.08	0.016	***				0.05	0.02	***				-0.01	0.02	
Disabled person in household				0.80	0.026	***				0.76	0.03	***				0.83	0.03	***
Person over 65 in household				-0.38	0.036	***			-	-0.37	0.03	***				-0.35	0.04	***
Non-Metro Area				-0.04	0.028				-	-0.06	0.03	**				-0.10	0.03	***
Region					0				-		0.00						0.00	
Northeast (omitted)					0				_		0.00						0.00	
Midwest				0.13	0.038	***			-	0.03	0.03					0.03	0.04	
South				0.28	0.035	***			-	-0.14	0.03	***				-0.06	0.04	
West				0.34	0.038	***			-	0.00	0.04				a	0.11	0.04	***
Constant	-0.79	0.14	***	-0.93	0.164	***	-0.11	0.13		-0.38	0.16	***	-0.89	0.11	***	-1.11	0.15	***
IN	$ $ Γ	/8,185		178,	192		178,	192		178,1	.00		160,2	.53		160,	433	+

Sources: 1992, 1996, 2001, 2004, and 2008 SIPP panels. Note: 1992 is the omitted year for health and bill hardships; 1998 is the omitted year for food hardship.

Table 3. Logistic Regressio	ns Predic	ting Hardship	s (Continue	ed)																	
		Housing I	lardship				Consumer Du	rable Hardship		_		Neighboı	rhood	Hardship			1	Fear of Crime	Hardship		
	Model 1	50	Model 2	64		Model 1	50	Model 2 Coaf		-	Model 1	50	-	Model 2 Coaf	50	—	Model I Coaf	50	Model 2	50	
Income-to-poverty ratio	COEI.	se	COEI.	se	-	COEI.	se	Coel.	se	-	COEI.	se		COEI.	se	-	COEI.	se	COEI.	se	
0.549 (omitted)																					
>=.5&<=.99	-0.48	0.15 *	-0.32	0.16	**	-0.30	0.16 *	-0.30	0.18	*	-0.49	0.16	***	-0.27	0.16	*	0.14	0.13	0.23	0.14	
>=1.0&<=1.99	-0.93	0.14 ***	-0.61	0.14	***	-1.19	0.14 ***	-0.94	0.16	***	-0.84	0.14	***	-0.47	0.15	***	-0.31	0.13 ***	0.01	0.14	
>=2.0&<=4.99	-1.48	0.14 ***	-1.01	0.14	***	-2.28	0.14 ***	-1.63	0.16	***	-1.20	0.14	***	-0.71	0.14	***	-0.78	0.12 ***	-0.24	0.13	*
>=5.00	-1.89	0.15 ***	-1.29	0.15	***	-2.97	0.16 ***	-2.07	0.17	***	-1.65	0.15	***	-1.04	0.15	***	-1.15	0.13 ***	-0.46	0.14	***
Year		0.00		0.00																	
1998	-1.12	0.18 ***	-1.01	0.18	***	-0.54	0.17 ***	-0.59	0.19	***	-0.93	0.17	***	-0.84	0.18	***					
2003	-1.49	0.18 ***	-1.41	0.19	***	-1.28	0.17 ***	-1.41	0.18	***	-1.16	0.20	***	-1.08	0.20	***	-0.36	0.17 **	-0.34	0.18	**
2005	-1.42	0.17 ***	-1.35	0.17	***	-1.42	0.16 ***	-1.54	0.18	***	-1.11	0.17	***	-1.04	0.18	***	-0.17	0.15	-0.16	0.16	
2010	-1.59	0.16 ***	-1.49	0.16	***	-1.60	0.17 ***	-1.60	0.18	***	-1.45	0.17	***	-1.33	0.17	***	-0.49	0.14 ***	-0.43	0.15	***
2011	-1.52	0.17 ***	-1.42	0.17	***	-1.56	0.17 ***	-1.55	0.19	***	-1.40	0.17	***	-1.28	0.17	***	-0.47	0.15 ***	-0.42	0.16	***
1998*inc-to-pov interactions		0.00																			
1998*>=.5&<=.99	0.57	0.21 *	0.47	0.21	**	0.38	0.20 *	0.37	0.22	*	0.40	0.21	**	0.31	0.21						
1998*>=1.0&<=1.99	0.64	0.19 ***	0.54	0.19	***	0.43	0.18 ***	0.47	0.20	***	0.52	0.19	***	0.43	0.19	**					
1998*>=2.0&<=4.99	0.77	0.18 **	0.65	0.19	***	0.40	0.18 **	0.40	0.19	**	0.52	0.18	***	0.43	0.18	***			_		
1998*>=5.0	0.94	0.19	0.83	0.20	***	0.13	0.20	0.11	0.21		0.64	0.19	***	0.55	0.20	***					
2003*inc-to-povinteractions	0.51	0.21 **	0.41	0.22		0.42	0.20 **	0.27	0.22		0.40	0.22		0.26	0.24		0.04045	0.20	0.01	0.20	
2003*>=.5&<=.99	0.51	0.21 **	0.41	0.22	***	0.42	0.20 **	0.37	0.22	***	0.49	0.23	**	0.30	0.24	*	0.04045	0.20	0.01	0.20	
2003*>=1.0&<=1.99	0.05	0.20	0.55	0.20	***	0.54	0.10	0.50	0.20	***	0.45	0.21	***	0.30	0.21	**	0.07056	0.19	0.05	0.19	
2003*>=2.0&<=4.99	1.04	0.19 -**	0.//	0.20	***	-0.02	0.18 -**	0.51	0.19		0.57	0.21	***	0.47	0.21	***	-0.0014	0.18	-0.04	0.19	
2005*>=5.0	1.00	0.20	0.90	0.21		-0.03	0.22	0.05	0.23		0.07	0.22		0.00	0.22		-0.0012	0.19	-0.08	0.19	
2003 · inc-to-pov interactions	0.52	0.00	0.41	0.20	**	0.20	0.10	0.26	0.22		0.42	0.21	**	0.28	0.21		0 10/5	0.18	0.19	0.10	
2005*>=.5&<=.99	0.55	0.20	0.41	0.20	***	0.50	0.19	0.20	0.22	***	0.43	0.21	***	0.20	0.21	**	-0.1045	0.16	-0.16	0.10	
2005*>=1.0&<=1.99	0.70	0.18 ***	0.50	0.19	***	0.02	0.18 ***	0.01	0.19	***	0.50	0.19	***	0.30	0.19	**	-0.0550	0.10	-0.15	0.17	
2005*>=2.0&<=4.99	0.70	0.18	0.02	0.10	***	0.47	0.10	0.40	0.13		0.40	0.10	***	0.37	0.10	**	0.0037	0.13	-0.10	0.10	
2003*>=3.0	0.05	0.19	0.72	0.19		-0.10	0.22	-0.11	0.23		0.33	0.19	-	0.44	0.20		-0.1000	0.17	-0.23	0.10	
2010*>= 58 90	0.38	0.00	0.21	0.20		0.45	0.20 **	0.42	0.22	*	0.54	0.20	***	0.36	0.21	*	0.05131	0.17	-0.04	0.18	
2010*>=1.0&<=1.00	0.50	0.17 ***	0.54	0.18	***	0.45	0.18 ***	0.42	0.22	***	0.54	0.18	***	0.43	0.21	***	0.17987	0.17	0.04	0.10	
2010*>-2.0&<-4.99	0.75	0.17 ***	0.61	0.10	***	0.75	0.18 ***	0.64	0.19	***	0.59	0.10	***	0.45	0.10	***	0.16788	0.15	0.03	0.16	
2010*>=5.0	0.88	0.17	0.01	0.17	***	0.70	0.10	0.04	0.12		0.55	0.19	***	0.40	0.10	***	0.06961	0.15	-0.02	0.10	
2011*inc to povinteractions	0.00	0.00	0170	0110		0101	0.21	0120	0.22		0170	0125	-	0102	0115		0100501	0120	0101	0117	
2011*>= 5&<= 99	0.42	0.20 *	0.27	0.20		0.37	0.20 *	0.29	0.23		0.53	0.20	***	0.36	0.20	*	-0.0895	0.18	-0.18	0.19	
2011*>=1.0&<=1.99	0.66	0.18 ***	0.50	0.18	***	0.70	0.18 ***	0.57	0.20	***	0.68	0.18	***	0.51	0.18	***	0.15994	0.16	0.02	0.17	
2011*>=2.0&<=4.99	0.80	0.17 ***	0.66	0.18	***	0.73	0.18 ***	0.57	0.20	***	0.69	0.18	***	0.57	0.18	***	0.13494	0.16	0.00	0.16	
2011*>=5.0	0.86	0.19 ***	0.74	• 0.00	***	0.49	0.21 ***	0.44	0.22	**	0.79	0.19	***	0.71	0.19	***	0.08513	0.17	-0.01	0.18	
Age			0.00	0.00	***			-0.01	0.00	***				-0.01	0.00	***			0.00	0.00	***
Race																					
Non-Hispanic white (omitted)																					
Non-Hispanic black			0.27	0.03	***			0.80	0.03	***				0.53	0.03	***			0.62	0.03	***
Non-Hispanic other			0.23	0.04	***			0.70	0.05	***				0.12	0.05	***			0.19	0.05	***
Hispanic			0.23	0.03	***			1.04	0.04	***				0.21	0.04	***			0.35	0.04	***
Education																					
Less than high school (omitted))																				
High school			-0.16	0.03	***			-0.61	0.03	***				-0.15	0.03	***			-0.15	0.03	***
Some College			-0.14	0.03	***			-0.93	0.03	***				-0.13	0.03	***			-0.14	0.03	***
BA+			-0.23	0.03	***			-1.12	0.04	***				-0.38	0.04	***			-0.32	0.04	***
Family structure																					
Married-couple (omitted)																					
Female-headed			0.35	0.03	***			0.65	0.03	***				0.24	0.03	***			0.51	0.03	***
Other family type			0.27	0.03	***			1.14	0.03	***				0.14	0.03	***			0.24	0.03	***
Employment status																					
Employed full time (omitted)			_																		
Unemployed			0.16	0.05	***			0.23	0.06	***				0.16	0.06	***			0.19	0.06	***
Employed part time			0.18	0.03	***			0.15	0.04	***				0.16	0.03	***			0.20	0.03	***
Out of the labor force			0.01	0.03				0.27	0.03	***				0.07	0.03	**			0.25	0.03	***
Household size			0.10	0.01	***			-0.16	0.01	***				-0.01	0.01				-0.04	0.01	***
Number of children			-0.01	0.01				0.02	0.02					-0.03	0.02	*			0.00	0.02	
Disabled person in household	-		0.51	0.02	***			0.15	0.03	***				0.43	0.03	***			0.43	0.03	***
Person over 65 in household	-		-0.09	0.03	***			0.16	0.03	***				-0.07	0.03	**			0.02	0.03	
Metro Area			0.12	0.02	***			0.08	0.03	***				-0.08	0.03	***			-0.47	0.03	***
Region																					
Northeast (omitted)					40.5																
Midwest			-0.18	0.03	***			-0.58	0.03	***			_	-0.18	0.03	***			0.07	0.03	**
South	-		0.01	0.03				-0.87	0.03	***				-0.38	0.03	***			0.14	0.03	***
West		0.65	0.13	0.03	***			-0.32	0.03	***				-0.08	0.03	***			0.41	0.03	***
Constant	0.35	0.13 ***	-0.27	0.15	*	0.77	0.14 ***	1.28	0.17	***	-0.16	0.13	_	0.10	0.15		-0.80	1.14	-1.47	0.14	***
181		178.185		178,185			178,185		178,185			178,185			178,185			160,253	1	60,253	

Sources: 1992, 1996, 2001, 2004, and 2008 SIPP panels. Note: 1992 is the omitted year for all hardships above except fear of crime, where 1998 is the omitted year.