Poverty and the Incidence of Material Hardship, Revisited*

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Abstract

The last two decades 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 thought to be 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, 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.

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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 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 examine 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; Mayer 1995; 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 debt) that might reduce hardship, errors in the reporting of income, and the different time horizon of each measure, 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 ownership of consumer durables, 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 increase 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 (e.g., 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. There also have been other social and demographic changes—such as the continued increase in racial and ethnic diversity and the prevalence of single parenthood and people living in non-family households; these are groups that tend to experience higher levels of material hardship even when controlling for income (Mayer and Jencks 1989). There might be countervailing trends as well, such as the aging of the population (the elderly are less likely to report hardship) and a dramatic decline in crime (Ortman, Velkoff, and Hogan 2014; Kearney et al. 2014).

These social, economic, and demographic 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 the poverty-hardship 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 being 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 3 to 5 years. At least once during each panel there are a set of questions on material hardship. We document trends in hardship by poverty 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 analyses on this issue, and we end by describing our contributions to the literature.

Trends in Poverty and Material Hardship

During the 1992 to 2011 period covered by this study, poverty initially was high due to 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). The same sort of trend was evident for median household income, which rose in the 1990s, fell in the 2000s, and only slowly recovered thereafter (U.S. Census Bureau 2017c). General patterns of economic growth and decline have thus generally 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 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 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 the 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 general 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 a number 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.

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 resources households have, 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" (see also Mayer and Jencks 1989; Rector 1999; Rector and Sheffield 2011).

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. Similarly, Hamilton and colleagues (1997) found a 0.33 correlation between poverty and food security. There are households who are poor who report no hardships, and conversely a number of households with incomes above the poverty line who report experiencing hardships (Short 2005; Iceland and Bauman 2007; Sullivan, Turner, and Danziger 2008).

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 are also often under-reported in household surveys (Meyer and Sullivan 2012; Czajka and Denmead 2008; Sullivan, Turner, and Danziger 2008; Mayer and Jencks 1989; Meyer and Sullivan 2018). Third, 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 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).

Along these lines, the measures of material hardship themselves often have different time horizons. So while food insecurity and trouble paying medical bills or utilities might occur with even a short spell of low income, reports of housing and neighborhood problems likely have a longer time horizon (Heflin, Sandberg, and Rafail 2009). Similarly, ownership of consumer durables might not depend that much on current income (Iceland and Bauman 2007). Finally, hardship measures vary in the extent to which they measure objective versus subjective conditions (Beverley 2001; Issacs 2004). Objective measures are those that ask about specific conditions, such as whether someone owns a consumer durable or not or whether there is a whole in the roof or not. Some measures are more subjective, such as whether one feels safe in one's neighborhood. Objective measures may have a higher correlation with actual income than more subjective measures, which might be more affected by assessments of one's well-being relative to others in a given peer group.

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 given income levels 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 (e.g., Reeves 2017; Piketty and Saez 2003; Frank 2013). For example, the Gini Index, a common indicator of income inequality, increased from 0.433 in 1992

to 0.481 in 2016 (U.S. Census Bureau 2017d). This occurred even as median household income grew slowly, from $51,000 in 1992 to $54,000 in 2014 (U.S. Census Bureau 2017e). 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.

To give one example, new housing stock is typically larger than in the past. The average size of houses grew 15 percent to 2,277 square feet in just 10 years between 1997 and 2007 (Financial Crisis Inquiry Commission 2011). For many people, this means spending more to try to maintain a middle class living standard. As Frank (2013: xi) argues, "When the very rich build bigger mansions, they shift the frame of reference that shapes demand for those with slightly smaller incomes, who travel in overlapping social circles. The near-rich respond by building bigger houses as well, which shifts the frame of reference for others just below them, and so on, all the way down the income ladder." Frank notes that this thinking extends beyond housing to clothing, gifts, birthday parties, and other kinds of celebrations.

In addition, changes in the safety net over the past couple of decades may have affected the income-hardship relationship. These changes, however, might have mixed effects. Changes in the safety net since the early 1990s include welfare reform in 1996, which ended cash entitlements to low income families. 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, especially those who are not employed (McKernan and Ratcliffe 2006; Danziger et al. 2000; Kalil, Seefeldt, and Wang 2002). Though it is important to note that the decline in receipt of these cash benefits should be reflected in lower reported incomes among affected household.

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; this basically provides a wage supplement to low-wage workers who qualify. Over the past couple of decades, spending on Supplemental Nutrition Assistance Program (SNAP), which money to buy food has increased, as has 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 more recently, 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 captured in household surveys (which includes cash income) or are underreported, as described above. This might serve to weaken the association between income and poverty, as seemingly poor households actually have additional resources to meet basic needs. Pilkauskas, Currie, and Garfinkel (2012), in a study of changes in hardship during the Great Recession, find that while hardship increased during the economic downturn, if not for SNAP, food hardships would have been substantially higher than actually observed. Renters with government housing subsidies were also slightly less likely to experience a hardship during the Great Recession than those

without such subsidies (Lerman and Zhang 2014). Shaefer and Rivera (2018), however, note a strong correlation in the trends in poverty and their selected measures of hardship.

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. Furthermore the problem of under-reporting may have gotten worse over time, especially of government transfers (as opposed to earnings) (Bee and Mitchell 2017; Czajka and Denmead 2008; Meyer and Sullivan 2003a, 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 household with a married couple and accompanying increases in nonfamily and single-parent households (U.S. Census Bureau 2017). There also been a continued aging of the population, with a greater proportion of the population over 65 over the past few decades (Ortman, Velkoff, and Hogan 2014). Likewise, the U.S. population has become racially and ethnically diverse, with whites 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 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 that 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 River 2018; Meyer and Sullivan 2018). We present trends for seven broad categories of hardship over the 1992 to 2011 period: health hardship, food security, bill paying, housing, possession of consumer durables, neighborhood problems, and fear of crime (Iceland and Bauman 2007). 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 above, 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 at least 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 increased the price of many basic goods, making hardship more common among the poor over the study period.
- Hypothesis 1b: Income inequality increases 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 (the "keeping up with the Joneses effect).

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 should go down for all groups because of across-the-board underreported income.
- Hypothesis 3b: Hardship should go down for low income groups if income given that transfer income in particular has become more under-reported than in the past.

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 be 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 nationally-representative household survey conducted in the United States (U.S. Census Bureau 2001). The SIPP is longitudinal survey, where panels last from 3 to 5 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 in the SIPP covers a four month period. Specifically, we use data from

the following waves and SIPP panels: 1992 (wave 3), 1996 (wave 8), 2001 (wave 8), 2004 (wave 5), and 2008 (waves 6 and 9). 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. After the 2008 SIPP panel, the SIPP was redesigned and shortened, and most of the topical modules were eliminated. The first SIPP panel after the 2008 one was fielded in 2014, and it contained a much smaller set of measures of material hardship, and for some of them the questions were asked in slightly different ways. Thus, since our study focuses on changes in hardship over time, we use comparable data from the 1992 to 2008 panels, but not the more dissimilar 2014 panel.

Our sample includes respondents 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. We use households as the units of analysis, as hardships are reported for the household as a whole. The sample sizes range from 17,965 in the 1992 to 37,368 in the 2004 panel. We use household weights provided by the SIPP for a given wave, and these are meant to ensure that the data are representative of all U.S. households in the given time period.

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 follows:

1) 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
2) Food hardship (two or more): 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 (one or more): did not pay utility bill, phone disconnected, did not pay rent/mortgage
4) Housing hardship (one or more): pests, leaks, broken windows, plumbing problems, cracks in walls, holes in floor
5) Consumer durables (lacks five or more): computer, dishwasher, air conditioner, dryer, washer, microwave, cell phone, telephone, refrigerator, color television, VCR/DVD, stove, food freezer
6) Neighborhood problems (two or more): noise, street repair problems, trash/litter, abandoned buildings, would like to move, smoke/odors
7) Fear of crime (two or more): 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 hardships in 1992; there were fewer questions about fear of crime in 1992 (four versus seven in other years), so we omit data from that year to ensure comparability; and 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 in the SIPP, though we do not include this here because the results are very similar to the bill-paying hardship measure also used in the analysis.

Main independent variable: Income-to-poverty ratio

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 for households only). The thresholds vary by household size and number of children. In 2017, the poverty threshold for a household with two parents and two children was $24,858 (Semega, Fontenot, and Kollar 2018). The income-to-poverty ratio basically indicates the ratio of household income to the poverty threshold for the household of a given size and composition. We use the following categories: (a) household income is 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.

Control variables

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 les 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), single female parent with children, 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.

Analytical Strategy

We begin by presenting descriptive statistics of the hardship measures over the 1992 to 2011 period, and then 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:

$$\text{Logit}\,(\text{P}(\text{Y}=1)) = \text{B}_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2 + \cdots + \beta_k X_k \qquad (1)$$

Specifically, we model the probability that a household experiences a 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 a model 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 hardship—housing, lack of consumer durables, neighborhood problems, and fear of crime—declined over the period. The drop in the lack of consumer durables (24 to 13 percent) and housing hardship (27 to 15 percent) were particularly substantial. The three other hardships—health hardship, food hardship, and bill-paying hardship—showed no such declines over the period, and bill-paying and food hardship in particular increased. Notably, these three hardships are often responsive to short-term income shortfalls, while the four that declined are less so. 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 all hardships, declines were more prominent from the 1990s through 2003, with smaller changes (or increases in some cases) after then, which coincides with stagnant economic growth in the 2000s followed by the Great Recession.

(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 household (under 50 percent of the poverty line) and slight increases for the next-lowest group (50 to 100 percent of the poverty line). For example, among households under 50 percent of the poverty line, the prevalence of health, food, and bill-paying hardships declined from 28 to 22 percent, 29 to 26 percent, and 41 to 31 percent, respectively, from the first time period (1992 in the case of health and bill-paying, 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 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 48 to 23 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 two common ones increased. However, the results also show that *all* hardship declined among the poorest income group, with such declined less prominent among the highest income group. This suggests that the income poverty measure has done less well at capturing the well-being of the very poor population over the time period.

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 these magnitude of these relationships change over time. Table 3 shows the descriptive statistics for all of the independent variables in the multivariate models. It shows a general increase in the percentage of people in the lowest income category (less than 50 percent of the poverty line), and an increase through 2003, then decline, in the percentage of people in the highest income category (five times or more above the poverty line). As expected, the average age of householder increased, as did the percentage of householders who are a minority group member and average educational levels. The percentage of married couple households and those where the householder was employed full time employment went down.

(Table 3 here)

Table 4 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 among all hardship. The year dummy variables indicate that hardships generally were less likely to be reported in all years compared to the first (1992). In some models the magnitude of the coefficient seems to get larger over time, in others it does not. The declines are least apparent in the bill, health, and food hardship models, where the descriptive statistics showed little decline over the 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 4 here)

Turning to those key 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. For example, in the bill-paying hardship models, the positive and statistically significant and positive interaction term between 1998*income-to-poverty ratio>=4.99 (0.43) indicates that households with incomes 5 times or greater than the poverty line were more likely to report hardships vis-à-vis the lowest income group (incomes less than 50 percent of the poverty line) in 1998 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 (-2.96 for bill 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 with the addition of control variables. For example, in the bill-paying hardship model, the coefficient of the income-to-poverty ratio of 4.99 times or more is reduced from -2.96 to -1.99 with the addition of control variables, though both of these coefficients are statistically significant. Likewise, the coefficients of the 1998*income-to-poverty ratio interaction terms are reduced in size with the control variables, and become nonsignificant. Note, however, that this is not true in all cases, as some of the interaction terms for other years do not change that much with the addition of control variables, and nearly all of the interaction terms for bill-paying hardship remain significant in 2010 and 2011. The fact that control variables often reduce the size of the coefficients of key independent variables indicates that other household characteristics help explain some of the bivariate relationship between hardships and income-to-poverty ratio, and the change in effect in some years. Those with lower incomes, for example, often have lower levels of education and are more likely to live in female-headed families, and these characteristics associated with greater likelihood of reporting hardships.

Figures 1-7 illustrate the magnitude of the year*income-to-poverty ratio interaction based on models with the full set of controls and setting the values of those variables at their means. The figures show that while hardships are generally lower for higher-income groups in all years, the gaps between the higher and lower-income groups narrow over time for most of the hardships (with Table 4 showing the instances when the narrowing is statistically significant). For example, the predicted probability that a household with an income below 50 percent of the poverty line experienced a housing hardship in 1993 was 0.39, holding the characteristics of all of the other variables in the models at their mean. This probability declined to 0.18 in 2011. Meanwhile, for a household with an income at or above 5 times the poverty line, the probability

of reporting a housing hardship declined more moderately over the period, from 0.19 in 1993 to 0.11 in 2011, holding all other factors constant.

(Figures 1-7 here)

With regards to the relationship between hardships and the control variables themselves, 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. Household size is positively associated with hardships, as is having a disabled person in the household and the householder being unemployed or employed only part time.

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

Conclusion

While trends in income and poverty have been well documented and much discussed in the academic literature, we know considerable 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 as being 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 security, bill paying, housing, possession 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 2003 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 steeper decline in hardship in the period when income poverty began declining. Among the other three hardships, there were initial declines, through 2003, 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, 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 were

general decline, and increases in the three for which there was little change or increase for the population as a whole. Controlling for household characteristics sometimes mediated part of the hardship-income relationship, including the moderating effect of time, but the general associations between hardships, income, and time remained significant in many instances even with the inclusion of controls.

While we do not have the data available to test the mechanisms producing the changing association between income/poverty and hardship over time, we can reflect upon the hypotheses and rule out certain theoretical propositions. The first set of hypothesis 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 the relative increase in the price 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 ("keeping up with the Joneses"). The patterns in our findings are not fully consistent with either one of these since we saw declines in hardship for lower income groups, with larger increases for higher ones. The patterns don't rule out, however, that increases in hardships among higher income groups in particular is driven in part by the struggle to keep up with affluent peers.

The second and third sets of hypotheses focuses 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 household 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.

The fourth set of hypotheses focus on the role of social and demographic changes in explaining the hardship-income relationship. While we do find that controlling for household characteristics helps mediate part of the hardship-income association, and weakens some of the interaction effects with time, 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. Thus, 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 neighborhood hardship and in fear of crime among all income groups, but it does not explain the changing association between income and these hardships. In fact, it is for these two hardship outcomes where we see the smallest moderating effect of time.

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 (the official poverty rate in 2011 was 15.0 percent, virtually unchanged from the 14.8 percent in 1992 (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 vary, and this variation likely is not random. The hardships that declined the most in our study are those that likely are less affected for 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 has increased 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). For example, one 2018 survey indicated that only 39 percent of Americans say they have enough savings to cover a $1,000 emergency room visit or car repair (Fottrell 2018).

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 that 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 and tepid recovery. Many households continue to face economic insecurity, and often 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 grown, if slowly and unevenly, and this has reduced the prevalence of many, though not all, kinds of economic hardships that American households often 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, in the coming years.

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Table 1. Percentage Reporting Material Hardships, by Hardship and Year, 1992-2011						
	1992	1998	2003	2005	2010	2011
Health hardship (one or more)	**12.9**	**10.4**	**9.9**	**11.1**	**12.3**	**12.7**
Did not see a dentist	10.3	7.9	7.6	8.5	9.6	9.9
Did not see a doctor	7.9	6.1	6.3	6.8	7.9	7.9
Food hardship (two or more)		**9.0**	**8.1**	**9.0**	**10.9**	**11.5**
Food did not last		11.4	10.3	11.2	13.5	13.8
Did not eat balanced meals		9.7	9.1	9.7	12.1	12.7
Skipped meals		4.4	4.0	4.7	5.1	5.8
Ate less than should		4.6	4.4	5.0	5.5	6.2
Did not eat whole day		1.2	1.3	1.6	1.5	1.6
Bill-paying hardship (one or more)	**14.3**	**12.4**	**11.9**	**13.3**	**14.6**	**15.0**
Did not pay utility bill	10.0	9.1	8.7	9.8	10.4	10.5
Phone disconnected	3.6	3.9	4.2	4.2	3.6	3.8
Did not pay mortgage/rent	7.7	5.4	5.5	6.1	7.9	8.1
Housing hardship (one or more)	**26.6**	**20.7**	**16.2**	**15.9**	**14.1**	**15.1**
Insect, pest problems	14.7	12.7	9.5	9.9	7.5	8.7
Roof leak	8.6	6.9	5.5	4.9	4.9	4.7
Broken windows	7.5	4.1	3.0	3.0	2.8	3.1
Plumbing problems	5.0	2.6	2.1	1.9	1.9	2.2
Cracks in wall	4.7	4.0	3.0	2.8	2.6	2.9
Holes in floor	1.2	0.9	0.6	0.6	0.7	0.7
Lack of consumer durables (five or more)	**23.7**	**22.2**	**13.7**	**12.1**	**13.0**	**13.2**
Computer	79.3	58.0	36.9	32.9	24.8	22.0
Dishwasher	50.7	43.9	37.7	36.0	30.7	30.8
Air conditioner	30.7	22.3	15.4	14.3	11.5	11.3
Dryer	22.4	13.2	10.9	10.4	16.8	16.6
Washer	15.2	9.1	7.8	7.5	14.7	14.8
Microwave	17.8	9.3	4.1	3.6	2.9	3.2
Cell phone	--	63.7	37.2	28.7	12.8	11.0
Telephone	5.1	3.8	5.9	9.4	25.0	29.5
Refrigerator	0.9	0.7	0.7	0.7	0.7	0.8
color tv	3.5	1.6	1.2	1.1	1.5	1.7
VCR/DVD	26.0	14.8	10.0	7.8	7.9	9.1
Stove	1.0	1.3	1.2	1.2	1.4	1.4
Food Freezer	62.9	65.0	63.1	63.4	62.1	64.2
Neighborhood problems (two or more)	**19.7**	**15.8**	**13.1**	**13.0**	**10.9**	**12.2**
Noise problems	24.2	21.4	18.2	18.1	13.4	14.0
Street repair problems	19.8	16.4	14.0	12.9	12.0	13.8
Trash, litter	11.2	8.2	7.4	7.3	5.9	6.5
Abandoned buildings	10.2	8.0	7.0	7.0	7.1	7.8
Would like to move	7.4	5.8	5.2	5.7	4.7	5.0
Smoke, odors	7.1	4.9	3.7	3.4	2.9	3.1
Fear of crime (two or more)		**19.2**	**14.4**	**15.6**	**14.5**	**14.5**
Afraid to walk alone at night		28.7	22.0	22.5	20.6	20.5
Stay at home for fear		12.8	9.7	10.8	10.5	10.6
Goes out with others		11.5	8.1	9.3	8.6	8.3
Neighborhood is unsafe		8.6	7.2	7.7	7.2	6.7
Carries something for protection		7.5	5.7	5.6	6.3	6.4
Would like to move due to crime		4.4	4.0	4.5	4.1	4.0
Home is unsafe		4.1	3.3	3.0	3.0	2.6
N	17,965	29,539	25,972	37,368	34,850	32,524
Sources: 1992, 1996, 2001, 2004, and 2008 SIPP panels						

Table 2. Hardship by Income-to-Poverty Ratio and Year, 1992-2011						
	1992	1998	2003	2005	2010	2011
Health hardship						
<.5 of inc-to-pov ratio	27.7	22.6	20.6	25.0	21.2	21.5
>=.5 & < .99	23.9	18.3	17.5	21.4	22.3	22.2
>=.99 & < 1.99	19.3	15.2	14.9	17.4	18.2	19.0
>=1.99 & <4.99	10.8	9.6	8.8	10.0	10.9	10.7
>=4.99	3.8	3.8	3.9	3.7	4.5	4.6
Food hardship						
<.5 of inc-to-pov ratio		29.2	24.3	26.7	23.4	25.5
>=.5 & < .99		27.7	23.6	25.1	23.9	26.0
>=.99 & < 1.99		14.0	11.7	15.1	16.7	17.1
>=1.99 & <4.99		6.0	5.5	6.1	8.0	8.1
>=4.99		1.9	2.5	1.6	3.2	2.8
Bill-paying hardship						
<.5 of inc-to-pov ratio	41.0	32.9	33.0	38.4	29.8	31.4
>=.5 & < .99	30.0	25.1	25.8	29.6	30.4	29.4
>=.99 & < 1.99	20.0	18.8	17.1	19.7	20.9	20.9
>=1.99 & <4.99	11.0	10.3	9.7	10.6	11.7	11.4
>=4.99	3.5	3.8	3.8	3.5	4.5	4.2
Housing hardship						
<.5 of inc-to-pov ratio	47.7	30.4	22.7	24.7	21.0	22.8
>=.5 & < .99	44.0	33.3	25.4	26.1	21.5	22.9
>=.99 & < 1.99	32.8	26.5	19.4	20.1	18.1	8.8
>=1.99 & <4.99	22.8	19.3	15.3	14.3	12.9	13.6
>=4.99	16.8	15.4	12.8	10.5	9.7	10.1
Lack of consumer durables						
<.5 of inc-to-pov ratio	54.3	50.6	34.2	29.1	29.1	26.8
>=.5 & < .99	56.1	57.3	38.8	32.3	33.5	33.3
>=.99 & < 1.99	35.8	37.2	23.7	20.8	21.8	20.9
>=1.99 & <4.99	15.1	16.5	9.3	7.4	8.6	7.9
>=4.99	7.0	6.3	2.7	1.9	2.8	3.1
Neighborhood problems						
<.5 of inc-to-pov ratio	32.1	25.0	20.8	21.1	15.9	16.3
>=.5 & < .99	27.9	23.6	18.9	21.1	17.6	18.4
>=.99 & < 1.99	23.8	18.9	15.8	16.1	13.7	15.5
>=1.99 & <4.99	17.4	15.8	12.8	12.4	10.2	11.5
>=4.99	12.9	11.0	9.4	8.4	7.4	7.9
Fear of crime						
<.5 of inc-to-pov ratio		30.0	23.0	25.5	20.7	20.3
>=.5 & < .99		33.8	26.8	29.0	25.3	24.5
>=.99 & < 1.99		25.3	19.0	20.9	19.4	19.3
>=1.99 & <4.99		17.8	12.9	14.3	13.1	13.0
>=4.99		13.1	9.2	9.0	8.6	8.7
Sources: 1992, 1996, 2001, 2004, and 2008 SIPP panels						

Table 3. Descriptive Statistics, 1992-2011						
	1992	1998	2003	2005	2010	2011
Income-to-poverty ratio						
Less than 0.5	4.5	4.8	5.1	5.3	6.8	7.0
0.5-0.99	8.2	7.4	7.8	7.3	8.0	8.2
1.0-1.99	21.5	19.4	19.1	19.5	19.8	21.1
2.0-4.99	44.9	45.1	43.1	43.1	41.4	40.9
5.0+	21.0	23.2	25.0	24.8	24.1	22.8
Age	48.1	48.9	49.4	49.5	50.6	51.0
Race						
Non-Hispanic white	79.4	76.5	74.0	71.5	70.6	70.2
Non-Hispanic black	10.2	11.6	11.5	12.0	12.0	12.1
Hispanic	7.6	8.6	10.4	10.9	11.7	11.9
Non-Hispanic other	2.8	3.4	4.1	5.6	5.7	5.8
Education						
Less than high school	21.7	17.4	14.6	12.9	10.8	10.3
High school	31.4	29.8	28.5	24.5	23.9	24.4
Some college	23.1	28.5	30.1	35.7	35.0	34.9
BA+	23.8	24.3	26.9	26.9	30.3	30.4
Family structure						
Married couple family	55.2	52.9	51.6	50.7	49.4	48.5
Female-headed family	12.3	12.2	12.1	12.3	12.9	13.0
Other family type	32.6	35.0	36.3	37.0	37.8	38.5
Labor force status						
Part-time employed	8.6	9.9	10.8	12.9	13.2	13.2
Full-time employed	59.8	57.0	55.0	52.8	49.5	49.6
Unemployed	2.5	2.9	3.2	2.0	4.5	3.8
Out of labor force	29.2	30.3	31.1	32.3	32.7	33.5
Household size	2.6	2.6	2.5	2.5	2.5	2.5
Children under 18 present	34.4	34.3	32.5	32.6	30.4	30.0
Person over 65 present	27.5	27.9	27.0	27.1	28.1	28.5
Disabled person present	18.7	15.9	16.1	20.0	19.8	20.7
In metro area	74.6	80.0	77.0	79.1	78.9	79.2
Region						
Northeast	20.8	19.7	19.3	18.9	18.3	18.3
Midwest	25.1	24.7	23.0	22.6	22.3	22.1
South	34.1	34.8	36.1	36.7	37.3	37.2
West	20.0	20.9	21.7	21.9	22.2	22.4

Sources: 1992, 1996, 2001, 2004, and 2008 SIPP panels. Note: age, race, education, and labor force status refer to the characteristics of the householder.

Table 4. Logistic Regressions Predicting Hardships

	Health Hardship						Bill Hardship						Food Hardship					
	Model 1			Model 2			Model 1			Model 2			Model 1			Model 2		
	Coef.	se		Coef.	se		Coef.	se		Coef.	se		Coef.	se		Coef.	se	
Income-to-poverty ratio																		
0.5-.49 (omitted)																		
>=.5&<.99	-0.15	0.10		0.01	0.11		-0.49	0.10	***	-0.18	0.10		-0.04	0.08		0.10	0.09	
>=.99&<1.99	-0.47	0.09	***	-0.20	0.10	*	-1.01	0.09	***	-0.50	0.09	***	-0.88	0.08	***	-0.47	0.08	***
>=1.99&<4.99	-1.13	0.09	***	-0.80	0.10	***	-1.71	0.08	***	-1.05	0.09	***	-1.82	0.08	***	-1.21	0.08	***
>=4.99	-2.28	0.12	***	-1.80	0.13	***	-2.96	0.12	***	-1.99	0.12	***	-3.10	0.11	***	-2.23	0.12	***
Year																		
1998	-0.27	0.11	*	-0.25	0.11	*	-0.37	0.10	***	-0.27	0.11	*						
2003	-0.38	0.11	***	-0.35	0.12	**	-0.36	0.10	***	-0.24	0.11	*	-0.19	0.09	*	-0.19	0.10	
2005	-0.16	0.10		-0.20	0.11		-0.14	0.09		-0.05	0.10		-0.13	0.09		-0.16	0.09	
2010	-0.38	0.10	***	-0.40	0.10	***	-0.49	0.09	***	-0.38	0.10	***	-0.23	0.08	**	-0.20	0.09	*
2011	-0.34	0.10	***	-0.38	0.11	***	-0.40	0.09	***	-0.30	0.10	**	-0.12	0.08		-0.10	0.09	
1998*inc-to-pov interactions																		
1998*>=.5&<.99	-0.06	0.14		-0.09	0.14		0.17	0.12		0.06	0.14							
1998*>=.99&<1.99	-0.01	0.12		0.02	0.13		0.27	0.11	*	0.19	0.12							
1998*>=1.99&<4.99	0.10	0.12		0.10	0.12		0.26	0.11	*	0.15	0.12							
1998*>=4.99	0.25	0.15		0.22	0.16		0.43	0.15	**	0.27	0.16							
2003*inc-to-pov interactions																		
2003*>=.5&<.99	-0.04	0.14		-0.10	0.15		0.19	0.13		0.06	0.14		-0.03	0.12		-0.03	0.13	
2003*>=.99&<1.99	0.10	0.13		0.11	0.13		0.18	0.12		0.08	0.12		0.01	0.12		0.00	0.12	
2003*>=1.99&<4.99	0.14	0.12		0.12	0.13		0.19	0.11		0.04	0.12		0.08	0.11		0.07	0.12	
2003*>=4.99	0.38	0.16	*	0.35	0.16	*	0.39	0.15	**	0.23	0.16		0.53	0.16	***	0.55	0.16	***
2005*inc-to-pov interactions																		
2005*>=.5&<.99	-0.07	0.13		-0.14	0.14		0.12	0.12		-0.04	0.13		0.00	0.11		-0.05	0.12	
2005*>=.99&<1.99	0.03	0.12		0.05	0.12		0.09	0.11		-0.04	0.11		0.23	0.10	*	0.19	0.11	
2005*>=1.99&<4.99	0.01	0.11		0.02	0.12		0.08	0.10		-0.06	0.11		0.14	0.10		0.12	0.11	
2005*>=4.99	0.18	0.15		0.19	0.15		0.20	0.14		0.08	0.15		0.12	0.16		0.14	0.16	
2010*inc-to-pov interactions																		
2010*>=.5&<.99	0.26	0.13	*	0.16	0.13		0.55	0.12	***	0.31	0.13	*	0.08	0.11		-0.05	0.11	
2010*>=.99&<1.99	0.32	0.11	**	0.29	0.12	*	0.57	0.10	***	0.41	0.11	***	0.46	0.10	***	0.35	0.10	***
2010*>=1.99&<4.99	0.38	0.11	***	0.43	0.11	***	0.56	0.10	***	0.49	0.11	***	0.58	0.10	***	0.56	0.10	***
2010*>=4.99	0.59	0.14	***	0.67	0.15	***	0.75	0.14	***	0.70	0.15	***	0.83	0.14	***	0.87	0.15	***
2011*inc-to-pov interactions																		
2011*>=.5&<.99	0.22	0.13		0.14	0.14		0.44	0.12	***	0.24	0.13		0.09	0.11		0.00	0.12	
2011*>=.99&<1.99	0.36	0.11	**	0.35	0.12	**	0.52	0.11	***	0.38	0.11	***	0.39	0.10	***	0.29	0.10	**
2011*>=1.99&<4.99	0.31	0.11	**	0.38	0.12	***	0.45	0.10	***	0.41	0.11	***	0.45	0.10	***	0.44	0.11	***
2011*>=4.99	0.55	0.15	***	0.65	0.15	***	0.60	0.14	***	0.58	0.15	***	0.63	0.15	***	0.68	0.15	***
Age				-0.01	0.00	***				-0.02	0.00	***				-0.02	0.00	***
Race																		
Non-Hispanic white (omitted)																		
Non-Hispanic black				-0.12	0.03	***				0.64	0.02	***				0.41	0.03	***
Non-Hispanic other				-0.02	0.04					0.10	0.04	**				0.34	0.04	***
Hispanic				-0.09	0.03	**				0.17	0.03	***				0.38	0.03	***
Education																		
Less than high school (omitted)																		
High school				-0.12	0.03	***				-0.02	0.03					-0.20	0.03	***
Some College				-0.03	0.03					-0.02	0.03					-0.26	0.03	***
BA+				-0.50	0.03	***				-0.70	0.03	***				-0.75	0.04	***
Family structure																		
Married-couple (omitted)																		
Female-headed				0.31	0.03	***				0.62	0.02	***				0.55	0.03	***
Other family type				0.27	0.02	***				0.28	0.02	***				0.41	0.03	***
Employment status																		
Employed full time (omitted)																		
Unemployed				0.45	0.04	***				0.57	0.04	***				0.49	0.05	***
Employed part time				0.29	0.03	***				0.29	0.03	***				0.23	0.03	***
Out of the labor force				-0.15	0.03	***				-0.17	0.02	***				0.10	0.03	***
Household size				0.08	0.01	***				0.08	0.01	***				0.05	0.01	***
Number of children				-0.08	0.01	***				0.06	0.01	***				-0.01	0.01	
Disabled person in household				0.83	0.02	***				0.80	0.02	***				0.83	0.02	***
Person over 65 in household				-0.39	0.03	***				-0.39	0.03	***				-0.35	0.03	***
Metro Area				0.03	0.02					0.06	0.02	**				0.08	0.02	***
Region																		
Northeast (omitted)																		
Midwest				0.14	0.03	***				0.06	0.02					0.03	0.03	
South				0.31	0.03	***				-0.12	0.03	***				-0.05	0.03	
West				0.37	0.03	***				0.02	0.03					0.11	0.03	***
Constant	-0.98	0.08	***	-1.12	0.10	***	-0.38	0.08	***	-0.52	0.10	***	-0.96	0.06	***	-1.22	0.09	***
N	178,218			178,218			178,218			178,218			160,253			160,253		

***p<.001 **p<.01 *p<.05

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 4. Logistic Regressions Predicting Hardships (Continued)

	Housing Hardship						Consumer Durable Hardship						Neighborhood Hardship						Fear of Crime Hardship					
	Model 1			Model 2			Model 1			Model 2			Model 1			Model 2			Model 1			Model 2		
	Coef.	se		Coef.	se		Coef.	se		Coef.	se		Coef.	se		Coef.	se		Coef.	se		Coef.	se	
Income-to-poverty ratio																								
0.5-.49 (omitted)																								
>=.5&<.99	-0.15	0.09		-0.09	0.09		0.08	0.09		0.00	0.10		-0.21	0.10	*	-0.07	0.10		0.18	0.08	*	0.20	0.08	*
>=.99&<1.99	-0.63	0.08	***	-0.41	0.08	***	-0.76	0.08	***	-0.57	0.09	***	-0.42	0.09	***	-0.11	0.09		-0.22	0.07	**	0.05	0.07	
>=1.99&<4.99	-1.14	0.08	***	-0.77	0.08	***	-1.89	0.08	***	-1.31	0.09	***	-0.80	0.08	***	-0.37	0.09	***	-0.66	0.07	***	-0.18	0.07	*
>=4.99	-1.52	0.09	***	-1.01	0.09	***	-2.73	0.10	***	-1.86	0.11	***	-1.16	0.09	***	-0.59	0.10	***	-1.02	0.07	***	-0.37	0.08	***
Year																								
1998	-0.81	0.10	***	-0.78	0.10	***	-0.28	0.09	**	-0.28	0.10	**	-0.42	0.10	***	-0.38	0.10	***						
2003	-1.19	0.10	***	-1.18	0.10	***	-0.91	0.10	***	-1.01	0.11	***	-0.62	0.11	***	-0.58	0.11	***	-0.36	0.10	***	-0.35	0.10	***
2005	-1.06	0.09	***	-1.05	0.10	***	-1.08	0.09	***	-1.17	0.10	***	-0.61	0.10	***	-0.58	0.10	***	-0.18	0.09	*	-0.19	0.09	*
2010	-1.26	0.09	***	-1.22	0.09	***	-1.11	0.09	***	-1.09	0.10	***	-0.95	0.10	***	-0.87	0.10	***	-0.43	0.09	***	-0.40	0.09	***
2011	-1.12	0.09	***	-1.09	0.10	***	-1.18	0.09	***	-1.15	0.10	***	-0.97	0.10	***	-0.90	0.10	***	-0.51	0.09	***	-0.50	0.09	***
1998*inc-to-pov interactions																								
1998*>=.5&<.99	0.34	0.12	**	0.30	0.12	*	0.23	0.12		0.18	0.13		0.18	0.13		0.12	0.13							
1998*>=.99&<1.99	0.43	0.11	***	0.42	0.11	***	0.27	0.10	**	0.26	0.12	*	0.08	0.12		0.05	0.12							
1998*>=1.99&<4.99	0.57	0.10	***	0.54	0.10	***	0.31	0.10	**	0.28	0.11	*	0.24	0.11	*	0.20	0.11							
1998*>=4.99	0.70	0.11	***	0.65	0.11	***	0.05	0.13		0.01	0.14		0.20	0.12		0.13	0.12							
2003*inc-to-pov interactions																								
2003*>=.5&<.99	0.32	0.13	*	0.29	0.13	*	0.11	0.12		0.10	0.13		0.08	0.14		0.02	0.14		0.03	0.12		0.04	0.12	
2003*>=.99&<1.99	0.47	0.12	***	0.44	0.12	***	0.26	0.11	*	0.26	0.12	*	0.08	0.12		0.05	0.12		0.03	0.11		0.00	0.11	
2003*>=1.99&<4.99	0.66	0.11	***	0.62	0.11	***	0.29	0.11	**	0.26	0.12	*	0.22	0.12		0.17	0.12		0.00	0.10		-0.03	0.11	
2003*>=4.99	0.87	0.12	***	0.83	0.12	***	-0.18	0.14		-0.18	0.15		0.21	0.13		0.16	0.13		-0.04	0.11		-0.05	0.11	
2005*inc-to-pov interactions																								
2005*>=.5&<.99	0.25	0.12	*	0.18	0.12		0.07	0.12		0.03	0.13		0.20	0.13		0.11	0.13		-0.04	0.11		-0.08	0.11	
2005*>=.99&<1.99	0.40	0.11	***	0.34	0.11	***	0.35	0.10	***	0.33	0.11	**	0.07	0.11		0.01	0.11		-0.06	0.10		-0.14	0.10	
2005*>=1.99&<4.99	0.49	0.10	***	0.43	0.10	***	0.30	0.10	**	0.24	0.11	*	0.17	0.11		0.11	0.11		-0.05	0.09		-0.13	0.10	
2005*>=4.99	0.57	0.11	***	0.52	0.11	***	-0.23	0.14		-0.23	0.15		0.13	0.12		0.07	0.12		-0.21	0.10	*	-0.28	0.11	**
2010*inc-to-pov interactions																								
2010*>=.5&<.99	0.19	0.12		0.08	0.12		0.10	0.11		0.04	0.13		0.36	0.13	**	0.22	0.13		0.06	0.11		0.00	0.11	
2010*>=.99&<1.99	0.44	0.10	***	0.35	0.11	***	0.35	0.10	***	0.24	0.11	*	0.23	0.11	*	0.11	0.12		0.09	0.10		-0.04	0.10	
2010*>=1.99&<4.99	0.53	0.10	***	0.47	0.10	***	0.42	0.10	***	0.27	0.11	*	0.27	0.11	*	0.19	0.11		0.09	0.09		-0.03	0.10	
2010*>=4.99	0.61	0.11	***	0.56	0.11	***	0.14	0.13		0.07	0.14		0.31	0.12	*	0.25	0.12	*	-0.02	0.10		-0.11	0.11	
2011*inc-to-pov interactions																								
2011*>=.5&<.99	0.11	0.12		0.03	0.12		0.19	0.12		0.14	0.13		0.42	0.13	***	0.30	0.13	*	0.08	0.11		0.03	0.11	
2011*>=.99&<1.99	0.34	0.11	***	0.26	0.11	*	0.38	0.10	***	0.26	0.11	*	0.42	0.12	***	0.31	0.12	**	0.19	0.10	*	0.06	0.10	
2011*>=1.99&<4.99	0.47	0.10	***	0.42	0.10	***	0.46	0.10	***	0.32	0.11	**	0.44	0.11	***	0.37	0.11	***	0.16	0.10		0.05	0.10	
2011*>=4.99	0.53	0.11	***	0.50	0.11	***	0.35	0.14	**	0.28	0.14	*	0.43	0.12	***	0.39	0.12	**	0.10	0.11		0.02	0.11	
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				0.28	0.02	***				0.83	0.02	***				0.55	0.02	***				0.64	0.02	***
Non-Hispanic other				0.24	0.03	***				0.73	0.04	***				0.12	0.04	***				0.20	0.03	***
Hispanic				0.23	0.03	***				1.06	0.03	***				0.20	0.03	***				0.38	0.03	***
Education																								
Less than high school (omitted)																								
High school				-0.18	0.02	***				-0.64	0.02	***				-0.16	0.02	***				-0.16	0.02	***
Some College				-0.16	0.02	***				-0.97	0.02	***				-0.15	0.02	***				-0.16	0.02	***
BA+				-0.26	0.03	***				-1.19	0.03	***				-0.42	0.03	***				-0.34	0.03	***
Family structure																								
Married-couple (omitted)																								
Female-headed				0.37	0.02	***				0.68	0.03	***				0.25	0.02	***				0.53	0.02	***
Other family type				0.28	0.02	***				1.17	0.02	***				0.14	0.02	***				0.26	0.02	***
Employment status																								
Employed full time (omitted)																								
Unemployed				0.13	0.04	***				0.09	0.04	*				0.16	0.04	***				0.17	0.04	***
Employed part time				0.17	0.02	***				0.11	0.03	***				0.16	0.02	***				0.19	0.03	***
Out of the labor force				0.01	0.02					0.23	0.02	***				0.07	0.02	**				0.26	0.02	***
Household size				0.10	0.01	***				-0.16	0.01	***				-0.01	0.01					-0.03	0.01	***
Number of children				0.00	0.01					0.03	0.01	*				-0.02	0.01					0.01	0.01	
Disabled person in household				0.51	0.02	***				0.16	0.02	***				0.45	0.02	***				0.42	0.02	***
Person over 65 in household				-0.10	0.02	***				0.16	0.02	***				-0.08	0.02	***				0.02	0.02	
Metro Area				-0.11	0.02	***				0.09	0.02	***				0.06	0.02	***				0.37	0.02	***
Region																								
Northeast (omitted)																								
Midwest				-0.20	0.02	***				-0.62	0.03	***				-0.19	0.02	***				0.08	0.03	***
South				0.00	0.02					-0.89	0.02	***				-0.38	0.02	***				0.16	0.02	***
West				0.12	0.02	***				-0.33	0.03	***				-0.07	0.02	**				0.42	0.03	***
Constant	-0.09	0.07		-0.49	0.09	***	0.21	0.07	**	0.86	0.10	***	-0.74	0.08	***	-0.45	0.09	***	-0.91	0.06	***	-1.93	0.09	***
N	178,218			178,218			178,218			178,218			178,218			178,218			160,253			160,253		

***p<.001 **p<.01 *p<.05

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.

Figure 1. Probability of Experiencing Health Hardship by Income-to-Poverty Ratio and Year

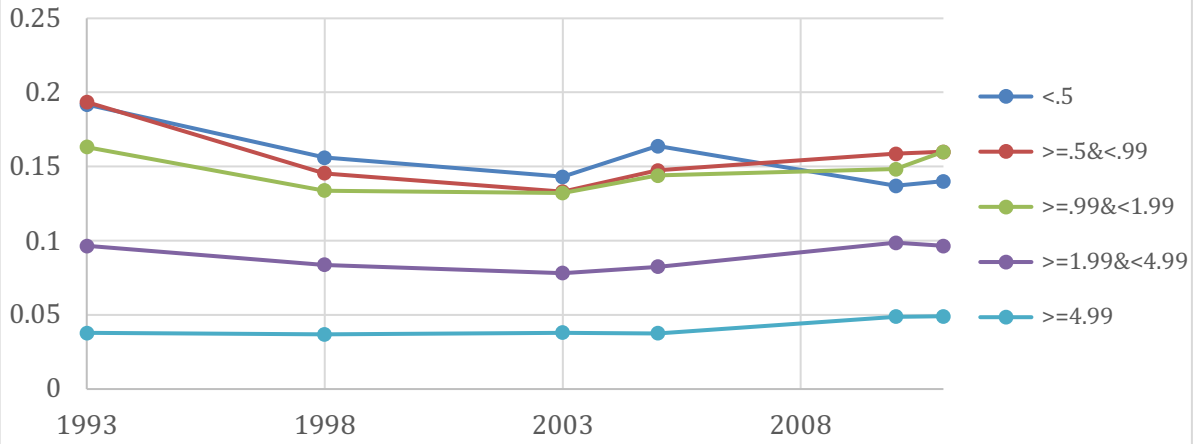

Figure 2. Probability of Experiencing Bill Hardship by Income-to-Poverty Ratio and Year

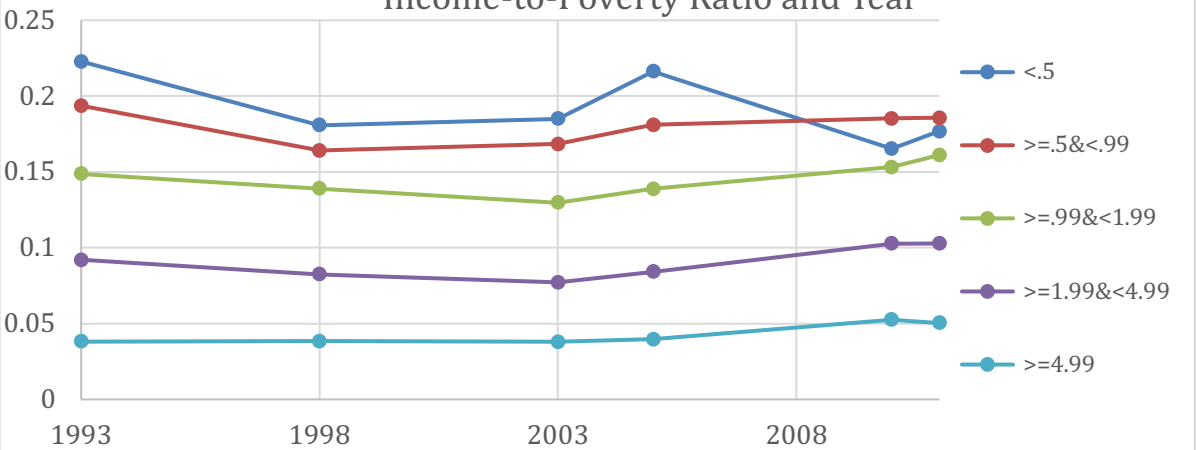

Figure 3. Probability of Experiencing Housing Hardship by Income-to-Poverty-Ratio and Year

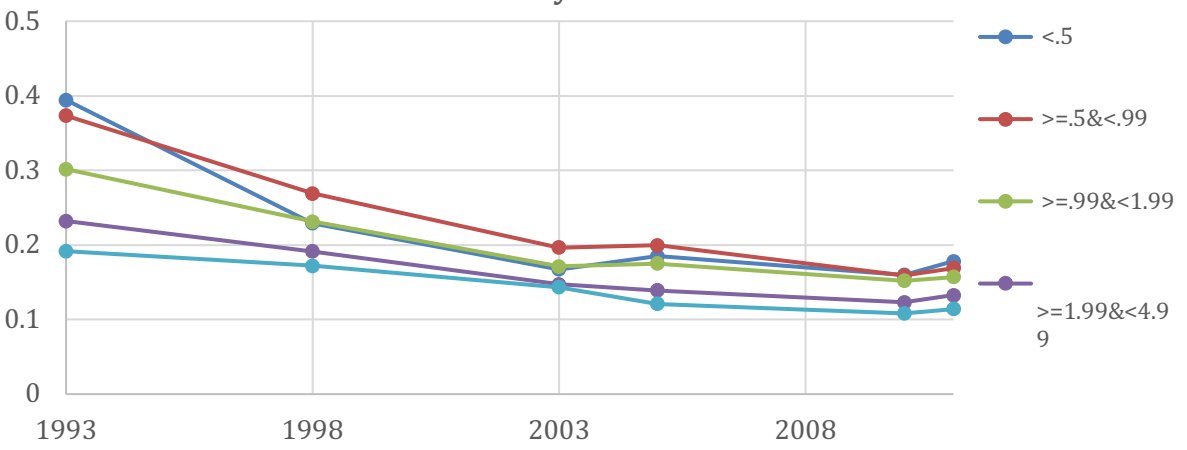

Figure 4. Probability of Experiencing Food Hardship by Income-to-Poverty Ratio and Year

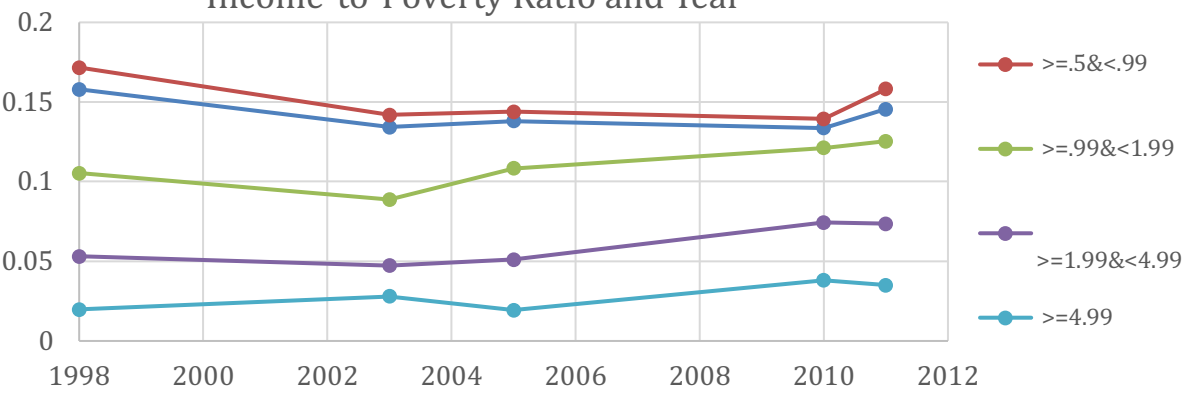

Figure 5. Probability of Experiencing Neighborhood Hardship by Income-to-Poverty Ratio and Year

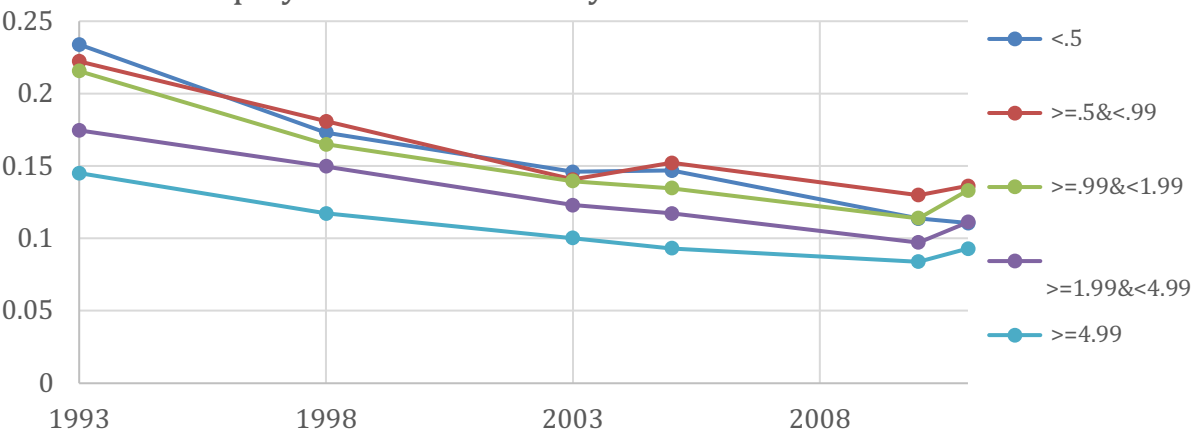

Figure 6. Probability of Experiencing Consumer Durable Hardship by Income-to-Poverty Ratio and Year

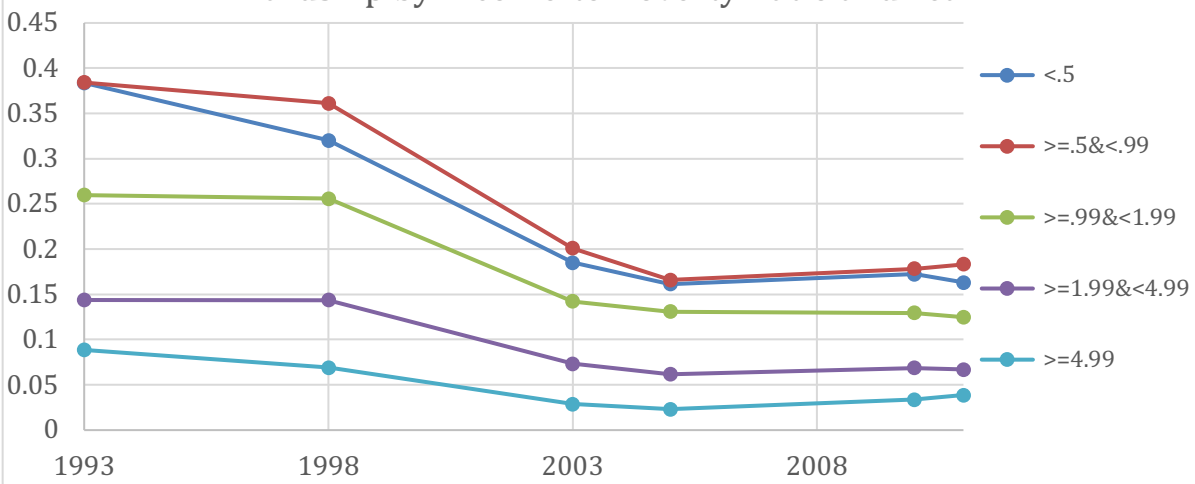

Figure 7. Probability of Experiencing Fear of Crime Hardship by Income-to-Poverty Ratio and Year