

PAST DUE: COMBINATIONS OF UTILITY AND HOUSING HARDSHIP IN THE UNITED STATES

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Abstract

Millions of households in the United States are forced to juggle different basic needs. Housing and utility costs consume the majority of many households' monthly incomes. Consequences for missed payments include large fees, utility shut-offs, and evictions. Either hardship puts households at risk of losing adequate shelter. This study examines the prevalence and persistence of different combinations of housing and/or utility hardship using nationally representative panel data from the Survey of Income and Program Participation (SIPP). It also predicts transitions into these hardship combinations following commonly studied household dynamics: income changes, household composition changes, and poor health. Utility hardship is both more common and persistent than housing hardship, and households experiencing utility hardship have more disadvantaged characteristics. Entries into poor health are the strongest predictor of hardship. Other shocks predict one form of hardship more than the other. Most notably, income losses predict housing hardship but not utility hardship.

Introduction

Millions of households in the United States experience complex webs of deprivation. Commonly faced with more expenses than resources, millions of families can fulfill only a limited set of basic needs, such as housing, transportation, food, and heating/cooling (Bhattacharya et al. 2003; Desmond 2016; Edin and Shaefer 2015; Heflin, London, and Scott 2011; Mayer and Jencks 1989). Research on economically disadvantaged households often examines transitions into and out of income-based poverty as defined by the federal income poverty measure. Income-based poverty only indirectly measures households' abilities to meet

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basic needs, however (Brady 2003; Sen 1999). A growing literature examines more direct measures of material hardship, including missed rent and utility payments, food insecurity, and missed medical bills or forgone medical treatments (Beverly 2001; Heflin 2017; Mayer and Jencks 1989; Rector, Johnson, and Youssef 1999). Various material hardships are correlated with income-based poverty, but these two concepts are distinct; many households above the federal poverty line experience material hardship, and many households below the poverty line manage to avoid it (Iceland and Bauman 2007; Mayer and Jencks 1989; Nolan and Whelan 2011; Short 2005). Different domains of material hardship, such as food, bills, and housing, have also been found to affect some demographic subgroups more than others and persist at different rates (Heflin 2017; Heflin, Sandberg, and Rafail 2009); for example, non-Hispanic Black households have a higher risk of housing and food hardship than non-Hispanic White households but a lower risk of medical hardship (Heflin 2017).

Qualitative studies demonstrate that low-income households manage scarce resources by juggling different needs (Desmond 2016; Edin and Lein 1997; Edin and Shaefer 2015), but we know very little about the prevalence of particular combinations of material hardship in nationally representative survey data. Most research on material hardship has examined composite measures of hardship (e.g., Gershoff et al. 2007; Mayer and Jencks 1989; Short 2005) or different domains of material hardship separately (e.g., Heflin 2016, 2017; Iceland and Bauman 2007). Furthermore, nationally representative data on longitudinal experiences of material hardship have only very recently become available (Heflin 2017). This paper aims to bridge these literatures by analyzing specific combinations of housing and utility hardships and transitions between them over time.

Our analysis focuses on housing and utility payments because they represent significant and related expenses for households but with distinct consequences for well-being.² Housing is most households' single greatest monthly expense (Joint Center for Housing Studies 2016). Evictions and foreclosures can have profound negative spillover effects for employment and well-being, contributing to the reproduction of poverty (Desmond 2016). Aside from maintaining housing payments, adequate shelter also requires uninterrupted utility service, including water,

² Many households balance household expenses between housing or utilities and other basic needs, like food or medical services (Bhattacharya et al. 2003). Beyond their natural pairing, our focus on housing and utility expenses is partly pragmatic; introducing additional forms of hardship quickly eliminates parsimony when examining all possible combinations.

electricity, and heat or cooling. Utility costs can be substantial; low-income households typically spend 10 to 20 percent of their incomes on energy expenses (Hernández and Bird 2010). Foregoing potentially costly winter heating or summer cooling increases risks for illness and even death (APPRISE 2011; Hernández and Bird 2010). Previous research has examined housing hardship (Heflin 2016, 2017), but explicit focus on utility hardship is less common. Examination of these hardships in combination is crucial because either hardship puts households at risk of inadequate shelter. Even without eviction or utility cut-offs, fees applied to missed or late payments can have a negative ‘ripple effect’ on economic security that persists over time (Morduch and Schneider 2017). Understanding the prevalence of different combinations of housing and utility hardship (i.e., housing hardship only, utility hardship only, and both hardships) provides a more comprehensive picture of inadequate housing than either measure alone. Any observed differences across hardship combinations may deepen our understanding of how specific combinations of material hardship are related to household dynamics and allow policymakers to design more targeted interventions.

Beyond estimating the prevalence and persistence of different combinations of housing and/or utility hardship, the paper also examines their associations with other commonly studied household dynamics. Trigger events for entering poverty, such as job loss or marital dissolution, are well-known (Bane and Ellwood 1986; McKernan and Ratcliffe 2005; Stevens 1999). Their correspondence to material hardship has only recently been examined (Heflin 2016), and their associations to different forms of material hardship (e.g., missed housing payments and food insecurity) are varied. The discrepancies between income-based poverty and material hardship may indicate different underlying mechanisms. Household events, like marital dissolution or birth of a child, affect income-based poverty by changing either household income or the household’s poverty threshold, which is based on household size and composition. Material hardship can result from processes beyond just changes in income or presumed need, however. Even in the absence of income changes, household events like marital dissolution can disrupt household routines, introduce additional expenses, and increase uncertainty in long-term budgeting. Our paper analyzes three types of trigger events commonly studied in the poverty dynamics literature: income changes, changes to household composition, and poor health. Conditional on income and income changes, past research suggests any associations between material hardship and changes in household composition or health likely reflect households’

competing expenses, additional uncertainty in long-term budgeting, or disruptions to organizational capacities for ensuring basic expenses are covered.

The paper analyzes housing and utility hardship in 2009-10 and 2010-11 using the Survey of Income and Program Participation (SIPP). The analyses address the following questions: How common are different combinations of missed utility and/or housing payments in the population? How persistent are they over time? How do commonly studied household dynamics relate to transitions into housing and/or utility hardship?

Our results show that those falling behind on only utility payments have notably different observable characteristics than those falling behind on housing payments only. Poor health has the largest and most robust association with transitions into hardship, but other types of household resources and shocks more strongly predict one hardship than the other. For example, income losses predict housing hardship more strongly than utility hardship. The paper concludes by discussing additional salient hardships and the implications for subsidy programs targeting different types of hardship.

Combinations of Utility and Housing Hardships

Households with limited resources often use a complex array of coping strategies to mitigate material hardship. These strategies include taking additional jobs, enrolling in public assistance programs, reaching out to social networks, restricting food intake, shopping strategically for food and household items, accruing credit card debt, and sharing resources with acquaintances (Ahluwalia, Dodds, and Baligh 1998; Desmond 2012; Edin et al. 2013; Edin and Shaefer 2015; Halpern-Meehin et al. 2015; Hanson et al. 2016; Heflin et al. 2011; Morduch and Schneider 2017). Households often make strategic decisions about different domains of hardship, enduring one form of hardship to mitigate another (Ahluwalia et al. 1998; Hanson et al. 2016; Heflin et al. 2011). For example, many households juggle their bills and debts, paying them in alternating months or only partial amounts, to avoid eviction or utility shut-offs (Desmond 2016; Hanson et al. 2016; Heflin et al. 2011; Tach and Greene 2014). In a study of low-income families in Boston, Halpern-Meehin et al. (2015:93) find that a common coping strategy involves letting the heating bills pile up during the winter moratorium on utility shut-offs (from November 15 to March 15), then using tax returns and the Earned Income Tax Credit (EITC) to catch up on missed payments before the moratorium ends. Coping with material hardship is a dynamic

process involving shifting priorities and often calculated decisions about different domains of hardship (Halpern-Meekin et al. 2015; Morduch and Schneider 2017).

This qualitative literature provides detailed and rich accounts of hardship combinations among extremely poor (Desmond 2016; Edin and Shaefer 2015), low-income (Ahluwalia et al. 1998; Halpern-Meekin et al. 2015; Heflin et al. 2011), and ostensibly middle-class families (Morduch and Schneider 2017). Research has yet to estimate how many American households experience different combinations of housing and utility hardship using nationally representative data, however. The literature additionally lacks estimates for the persistence of these hardship combinations over time.

This study focuses on combinations of hardship across two major essential household expenses: utility payments (i.e., gas, electric, and water bills) and housing payments (i.e., rent or mortgage). Our study seeks to determine whether meaningful differences exist between households experiencing distinct combinations of housing and utility hardship (i.e., missed utility payments, missed housing payments, or both). Literature on material hardship shows that different domains of hardship are differentially experienced by certain demographic groups (Beverly 2001; Sullivan, Turner, and Danziger 2008), have distinct consequences for health and well-being (Gershoff et al. 2007; Zilanawala and Pilkauskas 2012), involve different household coping strategies (Heflin et al. 2011), and are addressed by different local and federal assistance programs. Examining sociodemographic variations in combinations of housing and utility hardship may deepen our understanding of how different American households experience economic disadvantage.

Housing payments are the single greatest monthly expense for many households. Particularly within large cities, rent for most very low-income renters is more than half of their monthly income (Joint Center for Housing Studies 2016). Desmond (2012, 2016) demonstrates the profound negative consequences of eviction, often due to missed rent payments. Finding new housing can be extremely difficult and costly, and the disruptive effects of eviction can also spill over into job loss and poor health (Desmond and Gershenson 2016; Desmond and Kimbro 2015). Ultimately, the negative consequences of eviction reproduce the hardships that contributed to eviction in the first place. Even without eviction or foreclosure, the fees associated with late housing and mortgage payments can create a ‘ripple-effect,’ reproducing financial instability (Morduch and Schneider 2017).

Utility hardship carries its own negative consequences. Winter heating and summer cooling can be costly, particularly in regions with less temperate climates. Foregoing such needs increases risks for illness and even death (APPRISE 2011; Hernández and Bird 2010). For example, several hundred seniors die in high average-temperature years from heat-related disorders, and thousands more may die in extreme heat waves (Worfolk 2000). Meanwhile, children in families with high utility costs have greater odds of nutritional deficiencies, developmental problems, poor health, and hospitalizations since birth (Cook et al. 2008).

There is no clear prediction for which combination of hardships most households will experience. Households facing extreme deprivation may experience both forms of hardship over the study period. Among households experiencing only one of the two hardships, the predicted hardship domain is less clear. Many households may make housing payments over utility payments, as we might predict from the disparate consequences of non-payment; although households without running utilities will still have a place to live, those who are evicted lose both shelter and access to utilities. Many states also institute a winter moratorium on utility shut-offs, mitigating some of the potential consequences for missed utility payments. However, utility expenses are generally far less than rent/mortgage expenses, so they may be easier for households to cover. Additionally, some households may find it easier to negotiate missed payments with their landlords (with whom they have a personal relationship) than with the utility company; for example, Desmond (2016) documents cases of landlords agreeing to ignore missed rent payments in return for manual labor or a promise not to report building code violations. Household “bill juggling” involves a complex and dynamic set of considerations (Heflin et al. 2011), making the distribution of different combinations of housing and utility hardship an open empirical question. Though observation of these decisions is beyond the scope of this study, they underlie the combinations we examine.

Households also attempt to limit their housing and/or utility costs to afford both, but within constraint. Utility expenses are difficult to fully regulate, particularly in older housing without effective insulation or energy-efficient appliances. Rent or mortgage costs are generally more expensive but also more predictable. Households with limited economic resources may benefit most from finding cheap housing compared to strictly regulating utility consumption, although many households do both. However, housing costs have increased dramatically in recent years, and many cities have a dearth of affordable housing. Although consumption

preferences undoubtedly affect expenses and thus the likelihood of missed payments, Heflin (2017:518) argues that the “objective condition” of missed payments for crucial needs nevertheless “represents a social problem.”

This paper bridges qualitative research on “bill juggling” as a survival strategy for low-income households, described above, with quantitative approaches from the literatures on poverty dynamics and material hardship, described below. Existing empirical research with nationally representative data gives little indication of how commonly households miss either housing payments or utility payments when they are unable to afford both. Moreover, research on material hardship does not commonly examine missed utility payments (Heflin 2016, 2017). Our first research question therefore asks, how common are different combinations of missed utility and housing payments in the population? Second, how persistent are they over time? Prior research finds that around half of households experiencing hardship in one year continue to experience it in the next (Heflin 2017), and our study extends this work to examine the persistence of different combinations of hardship. Finally, how do household shocks commonly associated with poverty relate to transitions into or out of different combinations of housing and/or utility hardship?

Household Events Precipitating Poverty and Hardship

Despite a long tradition of research on poverty dynamics, research on material hardship dynamics has been constrained by limited data; nationally representative longitudinal data for measuring transitions into and out of material hardship have only very recently become available (Heflin 2016, 2017). Here we describe the household events consistently predicting transitions into and out of poverty, as well as the empirical differences when predicting material hardship. The discrepancies are likely due to the more complex underlying mechanisms leading to hardship: income-based poverty is strictly affected by changes in household income and household size, but hardship can also reflect additional expenses and household (in)stability that undermine financial planning. Moreover, hardship is considered a more direct measure of household well-being, and the official poverty measure has been critiqued as an arbitrary and inaccurate proxy for meeting basic needs (Brady 2003; National Research Council 1995; Sen 1999).

The extensive empirical literature on poverty dynamics in the U.S. paints a consistent picture of the events associated with transitions into and out of income-based poverty. Changes in employment and earnings are the most significant triggers of both poverty entries and exits. Changes in health/disability status and household composition, including transitions from a two-parent to a female-headed household and children entering a household, are also important predictors of poverty entries (Cellini, McKernan, and Ratcliffe 2008; McKernan and Ratcliffe 2005; Stevens 1999). The findings for poverty exits are similar, with increased employment and earnings precipitating more transitions out of poverty than changes to household composition or disability status (Cellini et al. 2008; McKernan and Ratcliffe 2005).

Trigger events lead to income-based poverty strictly through changes in economic resources, needs, and household composition. (Cellini et al. 2008). Job loss and decreased earnings obviously reduce household income. Previous research shows that job losses, seasonal work, and variable working hours are common among low-income workers, for whom employment uncertainty is “not the exception; it is the rule” (Halpern-Meehin et al. 2015:31). Adults leaving the household due to death, union dissolution, or incarceration also reduces household earnings. For example, prior research shows that union dissolution is associated with large income losses, particularly for women and children, and that the effects of union dissolution on women’s household income can be long-lasting (Bane and Ellwood 1986; Holden and Smock 1991; Tach and Eads 2013). Similarly, illness, disability, and pregnancy often increase household expenses and caretaking needs while decreasing earnings. Finally, additional people entering the household increases its poverty threshold, making poverty more likely if income does not also increase. This is most commonly the case with children, which may also reduce work and earnings.

Material hardship is more variable than income-based poverty in many ways. Empirical studies consistently report only a moderate correlation between income-based poverty and various forms of material hardship, including the inability to make housing or utility payments, inability to afford medical care, and food insecurity (Iceland and Bauman 2007; Mayer and Jencks 1989; Short 2005). Poor people are more likely than the non-poor to experience material hardship, yet some non-poor people report hardship and many poor people do not (Boushey and Gundersen 2001; Iceland and Bauman 2007; Mayer and Jencks 1989; Short 2005). Unlike income-based poverty, material hardship is best understood as a multidimensional phenomenon

with differences between health, food, paying bills, and housing (Heflin et al. 2009). Each type of material hardship emerges from processes not reducible to fluctuations in income, and different subgroups may experience unique combinations of hardship.

Recent work on trigger events for material deprivation shows some consistency with trigger events for poverty, but also variation across types of hardship. Using data from the Survey of Income and Program Participation (SIPP), Heflin (2016) finds that changes in disability status are the only trigger consistently associated with different domains of material hardship. Changes in employment, residence, household size, and income are associated with some forms of hardship but not others. Despite the established association between changes in marital status and poverty transitions (Bane and Ellwood 1986; Cellini et al. 2008; McKernan and Ratcliffe 2005), marital status is not associated with any of the domains of material hardship in the study (Heflin 2016). The triggers reviewed above also do not exhibit a symmetric influence on hardship; some triggers are strong predictors of hardship, but their reversal does not reduce the probability of hardship by an equal magnitude. For example, income losses predict hardship more strongly than income gains. These findings suggest that certain triggers may create disruptions from which many households find it difficult to recover.

Trigger events may affect material hardship by disrupting households' capacities for balancing basic needs, above and beyond any changes in income or expenses (Heflin 2016; Houle and Keene 2015). The introduction of small children or someone in poor health to the household requires greater time and effort for caregiving. Relationship changes may completely derail long-term budgeting and introduce new expenses, increasing their probabilities of hardship. Previous research also finds that trigger events and experiences of material hardship can lead to mental health challenges such as depression and stress (Desmond and Kimbro 2015; Laraia et al. 2006; Meadows, McLanahan, and Brooks-Gunn 2008; Osborne, Berger, and Magnuson 2012; Sobolewski and Amato 2005). Similarly, a growing body of research demonstrates that economic hardship can constrain people's cognitive "bandwidth" and make it difficult to engage in long-term financial planning (Mullainathan and Shafir 2013; Shah, Mullainathan, and Shafir 2012). Trigger events are differentially related to different forms of hardship, and we extend this examination into combinations of two distinct but related forms of hardship.

Like the poverty dynamics literature (McKernan and Ratcliffe 2005) and Heflin (2016), this study examines three kinds of trigger events for falling into utility and/or housing hardship: income changes, household composition changes, and poor health. Each of these trigger events can create household instability. Income losses obviously decrease a household's resources for meeting its expenses. Past research shows income volatility also undermines long-term budgeting (Morduch and Schneider 2017). After accounting for changes in income, changes to household composition or the health status of its members could lead to hardship by increasing expenses, introducing greater caregiving burdens, disrupting long-term budgeting, or undermining attention to covering all basic needs.

Data & Method

The SIPP is a nationally representative panel survey of approximately 30,000 households administered by the U.S. Census Bureau. Respondents are interviewed every four months for two to five years, depending on the length of the particular panel. Our analysis begins by estimating recent trends in the prevalence of missed housing and utility payments using data from the 2004, 2008, and 2014 SIPP panels. We then conduct a more thorough analysis of the 2008 SIPP, which is the only currently available data with repeated measures of material hardship.

The 2008 SIPP was fielded every four months between 2008 and 2013. The SIPP collects a wide array of social, demographic, and economic information in each wave, with additional information in special batteries of questions administered intermittently. Although the SIPP collects information retrospectively about characteristics like income for each month (i.e., four income measurements in each four-month survey wave), it does not do so for most of our key variables. We analyze measures of material hardship that were collected in mid-2010 and mid-2011 (specifically in the 6th and 9th survey waves, both administered between April and July). Standard demographic and socioeconomic measures were collected in all waves. We use the 2008 SIPP extracts from the NBER, which include imputed information for missing values provided by the Census Bureau.³ The sample in our regression analysis includes one observation of each household in 2011 (wave 9), along with additional information from the previous two years (waves 4-8) to measure changes over time. We note again that the sample is not limited to

³ <http://www.nber.org/data/survey-of-income-and-program-participation-sipp-data.html>

low-income households, so our estimates include hardship among middle- and high-income households.

Housing and Utility Hardships

The SIPP asks respondents if they did not pay their “gas, oil, or electricity bills” or the “full amount of the rent or mortgage” in the past 12 months. For our dependent variable, this period covers mid-2010 to mid-2011. The prior measure of hardship covers mid-2009 to mid-2010. Such questions commonly measure material hardship in previous studies (Heflin 2016; Heflin et al. 2009; Mayer and Jencks 1989; Shaefer and Gutierrez 2013). We code missed payments into four categories: none, missed utility payments only (utility hardship), missed rent/mortgage payments only (housing hardship), and missed both payments (both hardships).

Trigger Events

Two continuous variables measure income changes between years: *Lose Income* and *Gain Income*. First, we measure income changes between years with the arc-percent change—the income difference between years divided by the average income from both years,

$$\text{arc change} = \frac{\text{income}_t - \text{income}_{t-1}}{\frac{1}{2}(\text{income}_t + \text{income}_{t-1})}$$
 The arc change can be interpreted as the percent change of average income. For example, an arc change of -0.10 would be 10 percent lower income than the household’s average. Advantageously, the arc change is naturally bounded between -2 and 2, thus avoiding skew due to outliers.⁴ To allow for asymmetric effects for income losses and gains, we create two versions of the arc change variable. *Lose Income* includes the absolute value of arc changes less than zero, and all positive arc changes are zero. Conversely, *Gain Income* includes the values of all arc changes greater than zero and zero values for all negative changes. The paper’s main results are similar with alternative income measures, presented in Appendix IV.

Changes in household composition include changes to marital status and the presence of young children. Four categories measure marital status of the household head between waves: headed by a married couple in both waves (reference group); *Become Married HH*, transitioning from a single-person headed HH in 2010 to a married-couple headed HH in 2011; *Become Single HH*, the reverse; and *Single Head Both Waves*.⁵ The binary variable *Enter Child under 5* equals

⁴ For example, a change from \$0/month in household income to \$1,000/month yields an arc change of 2.0 ($2 = (1,000-0)/500$).

⁵ Changes in cohabitation could also be relevant trigger events. The 2008 SIPP unfortunately measures cohabiting relationships only in the second survey wave. Among the sample of household heads in that wave, 49.8 percent are married and 5.5 percent cohabit with an unmarried partner.

one if there is a child five or younger in 2011 but not 2010, and *Exit Child under 5* equals one for the opposite.

We measure health changes using the self-rated health measure from a special battery of questions in late 2009 and late 2010. The SIPP asks respondents 15 and older to rate their general health as excellent, very good, good, fair, or poor. Respondents rate the health for their children under 15. Though other analyses have measured health shocks with work-limiting disabilities (Heflin 2016; McKernan and Ratcliffe 2005), self-rated health captures poor health among non-working aged household members like seniors or children. Self-rated health strongly predicts functional limitations and mortality (Idler and Benyamini 1997; Idler and Kasl 1995) and is a standard measure in health research. We first create a dichotomous version of self-rated health with fair/poor equal to one, which generally yields similar results to more detailed categorizations (Manor, Matthews, and Power 2000). The binary variable *Enter Poor Health* equals one if the number of household members in fair/poor health in late 2010 is greater than the number in late 2009. The variable *Exit Poor Health* equals one if the number of household members in fair/poor health in 2010 is less than the number in 2009.

Control Variables

The regression models control for several demographic and socioeconomic characteristics of respondents and their households. Past research on material hardship, particularly Heflin's (2016, 2017) analyses of the same data, include these controls because they are theoretically associated with either material hardship or the trigger events of interest. Controls for expenses include: monthly rent or mortgage amounts measured in late 2010; total monthly utility amounts (electricity, gas, basic telephone, and other) in late 2010; and annual out-of-pocket medical costs between late 2009 and late 2010.⁶ The models include income in 2010, $\ln(HH\ Income)$, bottom coded at \$1 and logged to adjust for the skewed distribution. The count variable *HH Size* is the number of household members in 2010. A dummy variable, *Children under 5*, equals one if the household includes a child five years-old or younger in 2010. The binary variable *Poor Health in HH* equals one for households with a member in fair or poor health in late 2009. A single binary variable, *Moved*, equals one for households changing residence between 2010 and 2011. We control for household heads' age, sex, race/ethnicity (non-

⁶The measure for utility costs includes telephone and "other," but the measure for missed utility payments does not. Though these are slightly misaligned, these control variables are included to capture major household expenses.

Latino/a White, non-Latino/a Black, non-Latino/a Asian/Pacific Islander, Latino/a of any race, and non-Latino/a of another race), and nativity/citizenship status. The models also include the greatest educational attainment in the household (less than HS/GED, HS/GED, some college or associate's degree, bachelor's degree, and postgraduate degree) and homeownership in 2011. Finally, we also control for state of residence in 2011, capturing differences in climate, costs of living, and state-level policies seasonally restricting utility shut-offs.

Analytic Strategy

The first portion of the analysis assesses the extent of different combinations of housing and utility hardship in the 2004, 2008, and 2014 SIPP panels using all observations with hardship information. Second, we estimate transitions into and out of combinations of hardship over time using the 2008 SIPP. Third, we present estimates of the average demographic and socioeconomic characteristics for households in each of the hardship categories in 2010-2011 using the 2008 SIPP. Any observable differences between those missing only housing payments or utility payments would suggest that these hardships are experienced by different types of households.

Fourth, we use a multinomial regression model to estimate the associations between trigger events and the hardship categories for 2010-2011 *among households with no hardship in 2009-2010*. The model predicts each type of falling behind relative to keeping up with both utility and housing payments. We also describe results from binary logistic regression models predicting catching up from each type of hardship in 2009-10 to no hardship in 2010-11, though these models are constrained by limited sample sizes. Finally, the results from a lagged dependent variable model, predicting hardship in 2010-2011 while controlling for prior hardship, provide a robustness check for the primary results presented below.

Models predicting *transitions* into hardship with changes in household events are similar to fixed-effects or 'change' models. These models limit endogeneity by differencing out stable, unobserved characteristics of households. Lagged dependent variable models similarly limit endogeneity by controlling for households' prior experiences. Challenges to causal inference remain, however. First, time-variant household factors likely affect both transitions into hardship and the household trigger events. Second, the year-long reference period for missed payments makes the timing of hardship and household events somewhat unclear. We argue that our longitudinal analysis is more empirically rigorous than typical cross-sectional analyses, but we acknowledge that we cannot provide clear causal inference.

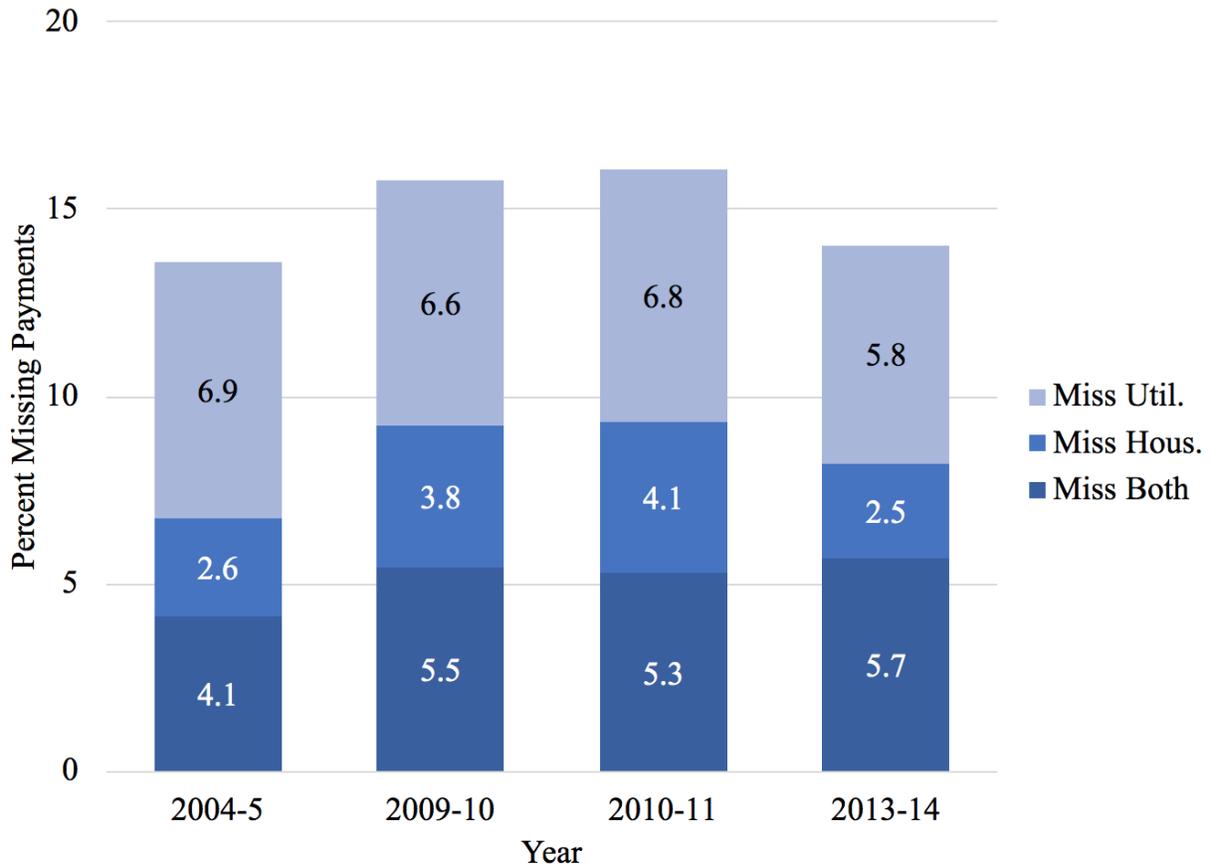


Figure 1. Prevalence of missed housing and utility payments by year.

Notes: Estimates include all observations with information on missed housing and utility payments and apply sampling weights to represent the population. Sample sizes are N=95,856 in 2005; N=88,164 in 2010; N=88,164 in 2011; and N=72,919 in 2013.

Results

Prevalence of Combinations of Housing and Utility Hardship

Figure 1 displays the estimated prevalence of the hardship categories in 2004-5, 2009-10, 2010-11, and 2013-14. About 16 percent of the population experienced utility and/or housing hardship in the past year in two waves of the 2008 SIPP, which were closest to the Great Recession of 2007-9. Although missed payments were more common in these years than the SIPP panels further from the recession, the prevalence of missed housing and/or utility payments in 2004-5 and 2013-14 was still around 14 percent.

Utility hardship only is the modal category in all years. Housing hardship only is the least common category, but it varies between years. Roughly 2.5 percent of the population missed housing payments only in 2005 and 2013, but about four percent missed housing payments only

in 2010 and 2011. Although the percentage missing housing payments only decreased between 2011 and 2013, the percentage missing both housing and utility payments increased.

Overall, Figure 1 shows a substantial fraction of households cannot meet utility and/or housing payments in recent years. Households more frequently miss utility payments than housing payments. Although hardship rates are slightly higher in the 2008 SIPP, administered during and after the Great Recession, those years are not clear outliers in the longer trend. We also compare these hardship estimates by homeownership in Appendix I to assess the relevance of the housing crisis of the late 2000s. Missed housing payments among homeowners increased between 2004-5 and 2009-10 and remained elevated through 2013-14. Housing and utility hardship decreased among renters between 2010-11 and 2013-14, potentially due to an increase in the proportion of higher-income renters. A substantial fraction of households still reports either or both hardships at all time points.

Given regional variation in seasonal heating and cooling needs, the overall pattern may reflect a concentration of missed utility payments in less temperate parts of the country. Similarly, geographic differences in housing costs may concentrate missed housing payments in more expensive regions. Appendix II compares the prevalence of the hardship categories and average utility and housing costs by region (Northeast, Midwest, South, and West). Though utility and housing costs vary across regions, average household incomes similarly vary. Housing and/or utility hardship is most common in the West and least common in the Northeast, but the overall pattern of hardships is similar.

Persistence of Combinations of Housing and Utility Hardship

We next examine transitions into and out of utility and/or housing hardship in the 2008 SIPP. Figure 2 presents the percentages of households in each hardship category in 2010-11 among those coming from each category in the previous year. This allows us not only to observe the persistence of each hardship combination across the two waves, but it also reveals important differences in transitions between the three hardship combinations (utility only, housing only, and both). Nine percent of people with no hardship in 2009-10 fall behind on housing and/or utility payments by the following year (total height of the first column). Persistence of hardship is considerably higher. Half of those with utility hardship only in 2009-10 experience any hardship one year later, and almost one-third continue to experience utility hardship only.

Around 13 percent of households with utility hardship only in 2009-10 report both hardships in the following year.

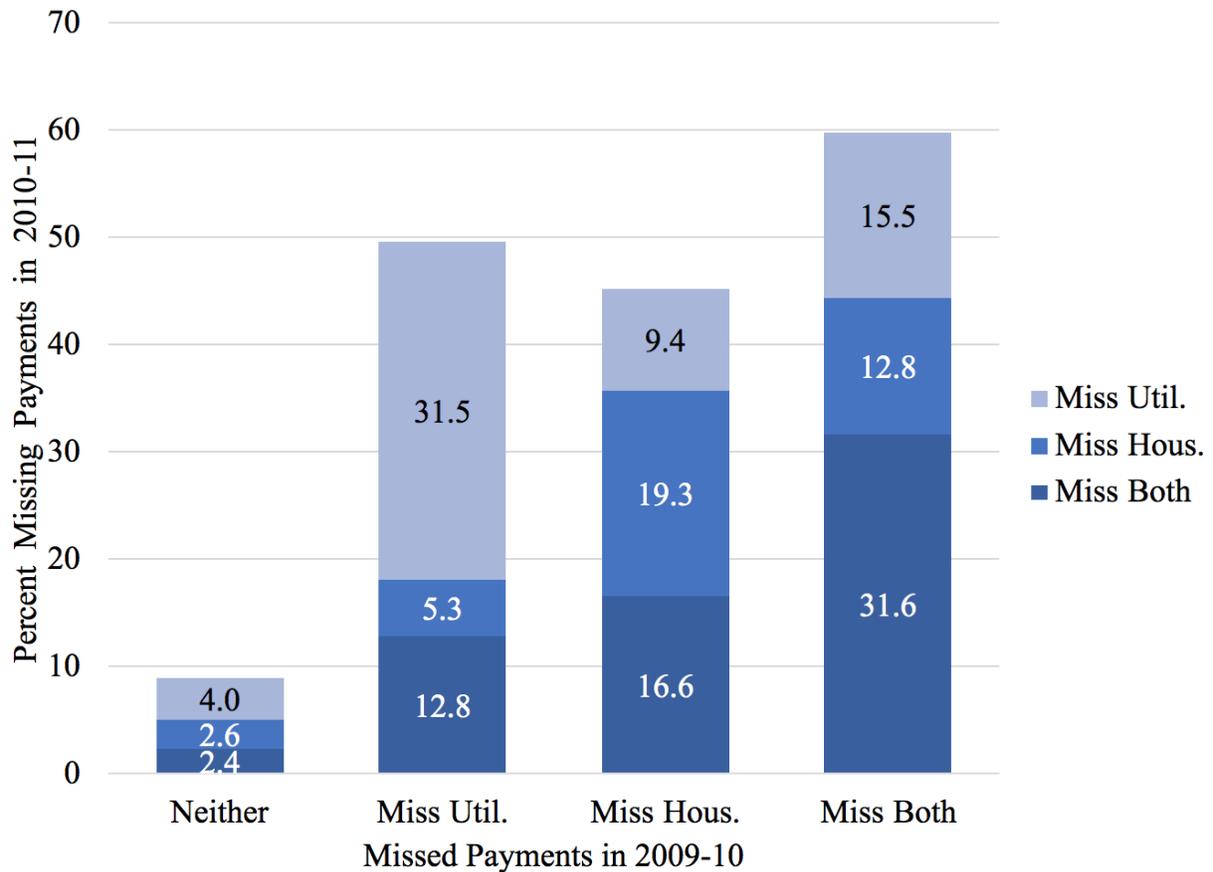


Figure 2. Prevalence of missed payments in 2010-2011, by missed payments in 2009-2010.
Notes: Data are from the 2008 SIPP Transition estimates include all observations with information on missed payments in both waves 6 and 9 (N = 72,353) and apply sampling weights to represent the population.

People with housing hardship only in 2009-10 are the most likely to catch up by the next year; fewer than half continue to report any hardship. Almost one in five continue to report missed housing payments. Finally, people with both hardships in 2009-10 are the least likely to catch up on both in the next year. About six in ten continue to report any hardship, and nearly one in three continue to miss both.

Cumulatively, 23 percent experience any utility or housing hardship in at least one year. Eight percent experience at least one form of hardship in both years. Compared to utility hardship only, housing hardship only is less prevalent and less persistent over time. Households are also more likely to transition from missed housing payments only to missed utility payments than the reverse. These patterns are consistent with research demonstrating that missed utility

payments may be less deleterious for households' well-being than the risk of eviction or foreclosure associated with missed housing payments. However, the prevalence and persistence of missed housing payments only is certainly not negligible.

Average Household Characteristics by Combinations of Housing and Utility Hardship

Next, we assess heterogeneity between households in the different hardship categories in the 2008 SIPP. Table 1 presents mean values for selected characteristics by hardship category in 2010-11. As expected, households with no hardship experience the household trigger events less commonly than those with hardship. There is no average income change between years for households with no hardship. However, the average income change is negative for those missing housing/utility payments, particularly for those missing both. The magnitude of income losses is greater for those who missed housing or utility payments than for those who did not, but the same is true for the magnitude of income gains. Income gains are greatest for those with low incomes in the previous year, however.

Changes in marital status or the presence of young children are generally more common for those missing housing or utility payments than for those without missing payments. However, relatively few households experience these changes in the one-year period between hardship measurements. Gains or losses of someone with poor health in the household are much more common and they occur more often in households with housing and/or utility hardship. Appendix III provides additional descriptive information on changes in income and expenses for households experiencing changes in household composition and health.

Beyond the trigger events, households without missed housing or utility payments have substantially higher incomes and lower income-based poverty rates than households reporting hardship. Compared to those without hardship, average income is 32 percent lower for those missing housing payments only, 45 percent lower for those missing utility payments only, and 48 percent lower for those missing both.

Comparing the two hardship categories, households with utility hardship only appear notably more disadvantaged than those with housing hardship only. They have a higher poverty rate, lower average income, fewer employed household members, lower homeownership, and are more likely to have a household member in poor health. The utility hardship only group also has

Table 1. Means of household characteristics by hardship categories in 2010-2011.

	Total	No Hardship	Utility Only	Housing Only	Both Hardships
<i>Percent of Total Sample</i>	100.00	86.46	5.92	3.41	4.20
<i>Income Change</i>					
Mean Income Change	-0.01	0.00	-0.01	-0.03	-0.09
Lose Income	0.45	0.41	0.53	0.60	0.76
Gain Income	0.40	0.37	0.55	0.55	0.63
<i>Household Composition Change</i>					
Become Married	0.01	0.01	0.02	0.02	0.03
Become Unmarried	0.02	0.02	0.03	0.03	0.03
Enter Child under 5	0.02	0.02	0.03	0.02	0.03
Exit Child under 5	0.03	0.02	0.03	0.05	0.05
<i>Health Change</i>					
Enter Poor Health	0.10	0.09	0.14	0.15	0.15
Exit Poor Health	0.11	0.10	0.15	0.13	0.15
<i>Controls</i>					
Poverty Rate	14.43	11.86	30.54	23.96	36.94
Monthly HH Income	5,118.95	5,433.60	2,977.23	3,684.42	2,827.50
Married Both Years	0.50	0.51	0.36	0.43	0.39
Unmarried Both Years	0.47	0.45	0.60	0.52	0.55
HH Size	2.53	2.46	2.85	2.92	3.07
Children under 5 (Yes = 1)	0.13	0.12	0.18	0.20	0.23
Poor Health in HH (yes = 1)	0.22	0.21	0.34	0.29	0.33
Homeowner	0.68	0.71	0.46	0.51	0.45
Moved between Years	0.09	0.08	0.12	0.14	0.17
Monthly Rent/Mortgage	695.35	696.70	553.94	889.21	709.47
Monthly Utilities	283.27	281.64	293.08	288.22	298.86
Annual Medical Costs	984.73	998.98	829.98	1,007.20	891.53
Age of Head	52.02	53.05	46.65	45.67	43.72
Female	0.53	0.52	0.62	0.54	0.60
White	0.71	0.74	0.56	0.57	0.53
Black	0.12	0.10	0.24	0.19	0.22
Latino/a	0.12	0.11	0.14	0.18	0.18
Asian	0.03	0.03	0.01	0.03	0.02
Other Race	0.02	0.02	0.05	0.03	0.04
Native Born	0.86	0.87	0.88	0.83	0.82
Foreign-Born Citizen	0.08	0.08	0.05	0.09	0.08
Foreign-Born Non-Citizen	0.06	0.05	0.07	0.08	0.1
Less than HS	0.07	0.07	0.1	0.09	0.1
HS/GED	0.19	0.18	0.25	0.22	0.24
Some College	0.36	0.35	0.49	0.47	0.5

College	0.22	0.23	0.13	0.16	0.13
Postgraduate	0.16	0.17	0.03	0.06	0.04
N	26,908	23,344	1,590	872	1,102

Note: Means are calculated with sample weights to represent the national population.

fewer married household heads and a higher percentage of black household heads.⁷ Those experiencing both hardships have the lowest average income and highest poverty rate. However, their average incomes, number of employed household members, and the percentage with a household member in poor health are not statistically significantly different from those missing only utility payments.

Perhaps tellingly, average monthly housing costs are greatest for those with housing hardship only. Their average monthly costs are \$143/month greater than those with no hardship, and \$335/month greater than those with utility hardship only. The differences between the housing hardship only category and all other groups are statistically significant. This particular form of hardship may be driven more by higher expenses than lower resources, compared to utility hardship.

Transitions into Utility and/or Housing Hardship

Table 2 presents results from the multinomial logistic regression model predicting hardship in 2010-11 among those experiencing no hardship in 2009-10. The coefficients in Table 2 are converted into average marginal effects (AMEs), the difference in the predicted probabilities of the outcome named at the top of each column for a difference in the predictor variable. For binary variables, the marginal effect is the difference in the predicted probability between those with and without the attribute. For continuous variables, the marginal effect is the difference in the probability for small increases in the predictor. The first column predicts the probability of staying caught up—reporting no housing/utility hardship in 2010-11 among those who also had no hardship in the previous year. The last three columns predict the probabilities of falling behind on each of the hardship categories in 2010-11 after having no hardship in the previous year.

⁷ These differences between the housing hardship only and utility hardship only categories are statistically significant with $p < 0.05$. OLS or logistic regression models predicted each outcome with dummies for the hardship categories relative to utility hardship only.

Table 2. Results from multinomial logit regression predicting transitions from no hardship in 2009-2010 to hardship categories in 2010-2011, presented as average marginal effects and (z-statistics).

	No Hardship	Utility Only	Housing Only	Both Hardships
<i>Income Change</i>				
Lose Income	-0.028*** (-7.69)	0.005* (2.02)	0.011*** (5.41)	0.012*** (7.27)
Gain Income	-0.004 (-0.86)	0.001 (0.30)	0.003 (1.00)	0.000 (0.13)
<i>Household Composition Change</i>				
Become Married (ref. = Unmarried)	-0.019 (-1.26)	0.003 (0.32)	-0.004 (-0.56)	0.020* (2.09)
Become Unmarried (ref. = Unmarried)	0.028*** (3.34)	-0.012* (-2.10)	-0.008 (-1.64)	-0.008* (-2.07)
Married Both Years (ref. = Unmarried)	0.015*** (3.70)	-0.007* (-2.42)	-0.004 (-1.78)	-0.004 (-1.85)
Enter Child under 5	-0.021 (-1.60)	0.008 (0.83)	0.005 (0.71)	0.008 (1.17)
Exit Child under 5	-0.016 (-1.39)	0.007 (0.80)	0.007 (0.99)	0.002 (0.48)
<i>Health Change</i>				
Enter Poor Health	-0.040*** (-5.70)	0.015** (3.15)	0.013** (3.06)	0.012** (2.99)
Exit Poor Health	0.018*** (3.31)	-0.008* (-2.37)	-0.002 (-0.58)	-0.007** (-3.18)
<i>Controls</i>				
ln(HH Income)	0.008*** (6.93)	-0.004*** (-4.80)	-0.002* (-2.17)	-0.003*** (-5.00)
HH Size	-0.011*** (-8.01)	0.005*** (5.72)	0.002** (2.67)	0.003*** (5.18)
Children under 5	0.013* (2.48)	-0.009* (-2.56)	-0.005 (-1.70)	0.001 (0.45)
Poor Health in HH	-0.049*** (-7.51)	0.022*** (4.91)	0.009* (2.39)	0.018*** (4.64)
Homeowner	0.036*** (7.95)	-0.017*** (-5.31)	-0.011*** (-4.00)	-0.009*** (-3.72)
Moved between Years	-0.001 (-0.24)	-0.000 (-0.08)	0.000 (0.08)	0.001 (0.51)
Monthly Rent/Mortgage (\$100s)	-0.001* (-2.46)	-0.000 (-1.81)	0.001*** (7.07)	0.000 (0.20)
Monthly Utilities (\$100s)	-0.005*** (-4.30)	0.003*** (4.29)	-0.001 (-0.88)	0.002*** (3.63)

Annual Medical Costs (\$100s)	-0.000 (-1.86)	0.000 (1.20)	0.000 (1.85)	-0.000 (-0.02)
Age of Head	0.001*** (10.62)	-0.001*** (-6.66)	-0.000*** (-5.02)	-0.000*** (-5.48)
Female (ref. = Male)	-0.004 (-1.03)	0.005* (2.17)	-0.003 (-1.32)	0.001 (0.50)
Black (ref. = White)	-0.045*** (-6.98)	0.026*** (5.45)	0.012*** (3.32)	0.007* (2.16)
Latino/a (ref. = White)	-0.012* (-2.02)	0.004 (0.93)	0.007* (2.09)	0.001 (0.32)
Asian (ref. = White)	0.005 (0.52)	-0.011 (-1.58)	0.005 (0.73)	0.001 (0.10)
Other Race (ref. = White)	-0.010 (-0.96)	0.006 (0.78)	0.001 (0.19)	0.003 (0.58)
For.-Born Citizen (ref. = Nat. Born)	0.009 (1.37)	-0.012** (-2.91)	-0.002 (-0.59)	0.005 (1.42)
For.-Born Non-Cit. (ref. = Nat. Born)	0.002 (0.32)	-0.003 (-0.69)	-0.007* (-2.32)	0.009* (2.03)
HS/GED (ref. = Less than HS)	0.007 (0.86)	-0.005 (-0.89)	0.004 (0.73)	-0.006 (-1.50)
Some College (ref. = Less than HS)	0.004 (0.45)	-0.002 (-0.45)	-0.000 (-0.08)	-0.001 (-0.19)
College (ref. = Less than HS)	0.048*** (5.84)	-0.023*** (-4.08)	-0.014** (-2.73)	-0.011** (-2.82)
Postgraduate (ref. = Less than HS)	0.066*** (7.88)	-0.031*** (-5.48)	-0.019*** (-3.91)	-0.015*** (-3.59)
Sample Size	23,395	23,395	23,395	23,395

Notes: Models include, but do not display, controls for state of residence.

* p<0.05, ** p<0.01, *** p<0.001

Income losses significantly predict falling behind on missed housing and/or utility payments, but not income gains. Income losses also predict housing hardship only more strongly than utility hardship only. The asymmetric relationship between income gains and losses is consistent with Heflin's (2016) findings. The absolute magnitudes of the associations are somewhat small. For example, the probability of missed housing payments only is greater by 0.5 percentage points for a 50 percent income loss (arc change = -0.5); the probability of missed utility payments only is greater by only 0.3 percentage points. However, these absolute changes

in the probabilities of missed payments are still relatively substantial compared to the total prevalence (see first column of Figure 2).

Changes in marital status have limited associations with utility and/or housing hardship, net of income changes. Changes in the presence of young children have no significant associations. Relative to the stably unmarried, those who become married between years are 2.0 percentage points more likely to miss both housing and utility payments. Conversely, those who become unmarried are significantly less likely to fall behind on utility payments only or both utility and housing. The stably married are also significantly less likely to fall behind on utility payments only.

These results are surprising because marital dissolution generally predicts entry into income-based poverty and marriage predicts exits from poverty (Cellini et al. 2008). Though some research finds greater housing hardship among single-mother households, Heflin (2016) finds no associations between changes in marital status and housing hardship. In further analysis, we find that monthly housing costs increase by \$101, on average, for those becoming married. Housing costs do not increase or slightly decrease, on average, for all others. Though monthly incomes also increase \$556 on average for those becoming married, income changes are held constant in the model. The second measure of housing costs for calculating the change occurs after the measures for hardship, though, so we do not include them in our model. Aside from potential growth in housing costs, wedding-related expenses and the general disruption of becoming married may also contribute to missed payments. Those experiencing marital dissolution may be less likely to miss payments because they economically benefited from being married for at least some portion of the hardship reference period. Previous research also finds that household incomes tend to “ramp up” in the year prior to divorce, then decline sharply immediately following divorce (Tach and Eads 2013). A one-year study period may not be long enough to detect the longer-term economic disadvantages.

The last of the trigger events, changes in the presence of someone in poor health in the household, has the largest and most consistent association with housing and/or utility hardship. The probability of housing and/or utility hardship increases by 4.0 percentage points when households gain a member with poor self-rated health. There is a 1.5 percentage point increase in the probability of utility hardship only, a 1.3 percentage point increase for housing hardship only, and a 1.2 percentage point increase for both hardships. Conversely, households are less likely to

fall behind with a decrease in members with poor health. The probability significantly declines for utility hardship only, and for both utility and housing hardships. There is no significant association with housing hardship only. Note that the model controls for out-of-pocket medical expenses and income, so these associations likely reflect the disruptive effects of poor health along with any increased caregiving burden.

Finally, several the control variables display robust relationships to hardship. The probability of staying caught up is lower for renters than homeowners, those with lower incomes, those with household members in poor health, those with higher housing or utility expenses, for younger household heads, for Black and Latino household heads (compared to Whites), and those with lower educational attainment. Other characteristics have some statistically significant relationships to some of the hardship categories, like the foreign-born being less likely than the native-born to report some hardships, but the patterns are less consistent.

To summarize the results most relevant to combinations of hardship, several variables are more strongly associated (i.e., have marginal effects with larger magnitudes) with utility hardship only versus housing hardship only, or the reverse. Utility hardship only is more strongly predicted than by two trigger events: marital status and a decline in the number of household members in poor health. Housing hardship only is more strongly predicted by income losses.

Utility hardship only is also more strongly predicted by several controls: household income, household size, presence of young children, presence of someone with poor health, homeownership, utility costs, and age and education of the household head. Differences by the sex of the household head, between white and black household heads, and foreign-born citizens versus the native born are also larger for utility hardship only than for housing hardship only. Housing hardship only is more strongly predicted by monthly housing costs, and the difference between foreign-born non-citizens and the native-born is larger than for utility hardship only.

Additional Analyses

Another set of regression models predict catching up from each hardship category in 2009-10 to no hardship in 2010-11. Three separate binary logistic regression models predict the probability of no hardship in 2010-11 among households in each of the three hardship categories in 2009-10. These models are constrained by limited sample sizes. Relatively few coefficients are statistically significant, but the direction and magnitude of the coefficients are consistent with those from Table 2. We summarize only the trigger events for brevity. Catching up is less likely

with income losses, but statistically significant only for those missing utility payments only. Catching up from housing hardship only is less likely for those getting married than the consistently unmarried, and less likely with the entrance of someone in poor health to the household. Catching up from both hardships is less likely with the entrance of young children to the household. Full results are available upon request.

Finally, we compare the results in Table 2 with those from a lagged dependent variable model, like Heflin (2016), as a robustness check. The model is a multinomial logistic regression with the same specification as in Table 2, but without restricting the sample to households with no hardship in 2009-10. Instead, the model controls for hardship in that previous year with dummy variables. The coefficients are similar in magnitude, direction, and statistical significance as those in Table 2. The most substantive differences among the trigger events are that marital dissolution is not significant for any outcome, and the coefficients for the exit of a household member with poor health are weaker and fewer are statistically significant. These results are also available upon request.

Discussion

Millions of households in the United States struggle to distribute their scarce resources across even greater needs. A rich qualitative literature documents the complexity of juggling different hardships as a survival strategy for poor (Desmond 2016; Edin and Lein 1997; Edin and Shaefer 2015), low-income (Halpern-Meeke et al. 2015; Heflin et al. 2011), and some ostensibly middle-class households (Morduch and Schneider 2017). Previous work by Heflin (2016, 2017) examines the dynamics of different material hardship domains using nationally representative data, but there has been little explicit examination of different combinations of material hardships. Moreover, their association with household shocks commonly precipitating poverty (Cellini et al. 2008; McKernan and Ratcliffe 2005; Stevens 1999) also remained unknown.

This article examines the distribution of different combinations of utility and housing hardship using nationally representative panel data and assesses their associations with commonly studied household shocks related to poverty. Examining the dynamics of utility and housing hardship in combination is important because both hardships put households at risk of inadequate housing, yet each hardship may arise through different social processes and involve

distinct consequences for health and wellbeing. A substantial fraction of the population, between 14 and 16 percent, could not pay their utility and/or housing payments in recent years. Though hardship was slightly elevated near the recession of the late 2000s, it was also common before and after it.

More households experience utility hardship only than housing hardship only. Utility hardship only also shows greater persistence between years than housing hardship only, suggesting it is a more durable form of deprivation. Households experiencing utility hardship, alone or in combination with housing hardship, have the most disadvantaged characteristics. These descriptive patterns suggest that utility hardship is more reflective of significant and persistent disadvantage than housing hardship alone. The substantial threat of eviction for very poor households (Desmond 2016) may help explain the tendency for poorer households to prioritize housing over utility payments. Though households reporting housing hardship appear more advantaged than those with utility hardship, the non-negligible portion of missed housing payments speaks to research showing that the trappings of middle-class life are often not easily sustained (Morduch and Schneider 2017).

Finally, the paper examines transitions into utility and/or housing hardship following commonly studied household shocks: income changes, household composition changes, and poor health. Entries into poor health are the strongest and most robust predictor of all three hardship categories. Notably, these associations are conditional on prior household income, income changes, and expenses for housing, utilities, and medical care. Income losses in general appear less strongly associated with hardship. An income loss of 50 percent increases the probability of housing-only hardship by only 0.5 percentage points, which we may have expected to be stronger given that income changes are a potential mechanism for other household shocks leading to hardship. For perspective, only 2.4 percent of households transitioned from no hardship to housing-only hardship. We also note the probability of any hardship increases by 1.4 percentage points with a 50 percent income drop and that the models control for the prior level of household income. We might expect much larger associations between income shocks and hardship among low-income households who have more limited savings or access to credit. Other shocks display stronger relationships to one form of hardship than the other. For example, large income losses are associated with a greater probability of housing hardship but not utility hardship. Conversely, a decrease in the number of household members in poor health is

associated with lower probabilities of utility hardship but not housing hardship. Overall, adverse trigger events (e.g., income losses) have stronger associations with transitions into hardship than more beneficial events (e.g., income gains). Like Heflin's (2016) study, these findings suggest that many households experience significant challenges recovering from adverse household shocks.

Some results are unexpected, however. Households transitioning from unmarried-headed to married-headed are more likely to fall behind on both hardships, compared to consistently unmarried-headed households. One possible explanation is that this event reflects some degree of household volatility. Despite ostensibly increasing resources for avoiding hardship, the substantial household changes accompanying marriage may still distract from covering basic needs. Another potential explanation is the increased costs due these transitions. Becoming a married-headed household may involve paying for a wedding, with some lag before these expenses are covered by new household earnings.

The number and spacing of the hardship measurements is a limitation for fully assessing these unexpected coefficients. The repeated observations of hardship in the SIPP data is a significant methodological advantage over past cross-sectional research. However, hardship is measured only twice and the ordering of household events and hardship transitions between observations is unclear. Given this limitation, we refrain from strong causal claims in our interpretation.

The SIPP's two observations are also only one year apart. Repeated observations with longer panels are necessary for examining longer-term trajectories of different hardship combinations and their consequences. Beyond utility shut-offs and evictions, the additional costs of catching up from missed payments can have long-lasting negative effects on financial security (Morduch and Schneider 2017). The growing prevalence of the trigger events we study, particularly increasing income instability among families with children (Western et al. 2016), may exacerbate both the prevalence and consequences of material hardship. Research consistently demonstrates the harm of childhood poverty on life chances (Wagmiller et al. 2006), but childhood material hardship might reflect household instability and deprivation more accurately.

Future research can consider how the negative effects of hardship may extend beyond those reporting it. Substantial numbers of low- and middle-income families give informal loans

to friends and relatives to cover unexpected expenses or income dips (Morduch and Schneider 2017), thus spreading the unexpected expense on to others. In additional survey questions in the SIPP, only about 30 percent of those with utility and/or housing hardship report receiving any help. Of those who report receiving help, about half receive it from friends and family. Not only is there very little safety net for most households experiencing hardship, the private safety net accounts for most assistance. The private safety net is not without cost, particularly when provided by low-income households to each other. The extent to which extended family help cover missed payments or require help with payments themselves would represent an important mechanism for multi-generational inequality (Mare 2011) and expand the impact of material hardship.

Another limitation is that the SIPP data are not ideal for examining more extreme forms of hardship or seasonal variations in household hardships. The sample contains very few households reporting either eviction (0.5%) or utility shutoffs (2.0%). Moreover, survey data like the SIPP significantly underreport eviction (Desmond 2012). Future investigations with more refined data on evictions and utility shut-offs could contribute to our understanding of how eviction, utility shut-offs, and even the threat of eviction or utility shut-offs influence household coping strategies for different domains of hardship. Data collected at multiple times throughout the year would also improve our understanding of the household dynamics around material hardship. Qualitative studies suggest that many households forgo utility payments in the winter months because they are often protected by winter moratoria on utility shut-offs; however, in the spring and summer months these households may fall behind on rent in an attempt to catch up on their utility bills and be disconnected when the next winter moratorium begins (Desmond 2016; Halpern-Meekin et al. 2015). The SIPP data in this study ask about the previous 12-month period and do not allow us to examine potential seasonal fluctuations in hardship. Exploring these seasonal variations would offer a more precise understanding of household coping strategies for housing and utility hardship, which is important for designing effective policy tools for their mitigation.

This article examines different combinations of utility and housing hardship, given their significant costs and importance for households' well-being. Future research can extend the analysis to other major hardships, like medical hardship or food insecurity (Bhattacharya et al. 2003). Surely many households missing neither housing nor utility payments experience food

insecurity or forego medical services. Examination of such combinations of hardship would also inform effective subsidy provision. For example, Shaefer and Gutierrez (2013) show that SNAP receipt significantly reduces non-food hardships in addition to food insecurity. SNAP recipients can redirect cash resources from food to other needs, and some recipients also exchange SNAP benefits for considerably lower cash amounts to cover non-food expenses (Edin and Shaefer 2015).

Policymakers interested in mitigating material hardship among poor Americans often overlook utility subsidies and focus instead on programs for food, job training, or housing. For example, Desmond (2016) emphasizes greater provision of housing assistance as crucial for reducing material hardship, since evictions and foreclosures can precipitate hardships in other domains like employment and health. Given the more disadvantaged characteristics of households experiencing utility hardship, greater provision of energy subsidies like the Low-Income Home Energy Assistance Program (LIHEAP) could also help reduce multiple forms of hardship. Only 19 percent of eligible households receive LIHEAP benefits, totaling only six percent of all households (APPRISE 2014). Many low-income households also receive discounts from their local energy providers, but such benefits vary widely between geographic regions and still reach only a small fraction of households. As extreme poverty continues to rise in the United States (Edin and Shaefer 2015), policy solutions targeting utility hardship may increase the effectiveness of other programs assisting families in greatest need.

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APPENDIX

I. Comparison of Hardship Combinations between SIPP Panels

Housing hardship in the 2009–2011 period may be particularly affected by the Great Recession and foreclosure crisis beginning in 2008. The prevalence of only housing hardship declined between 2010–11 and 2013–14. To provide additional empirical context, Figure A1 displays the rates of missed housing and/or utility payments by homeownership over time. The decline in hardship between 2010–11 and 2013–14 was primarily due to lower housing-only and utility-only hardships among renters.

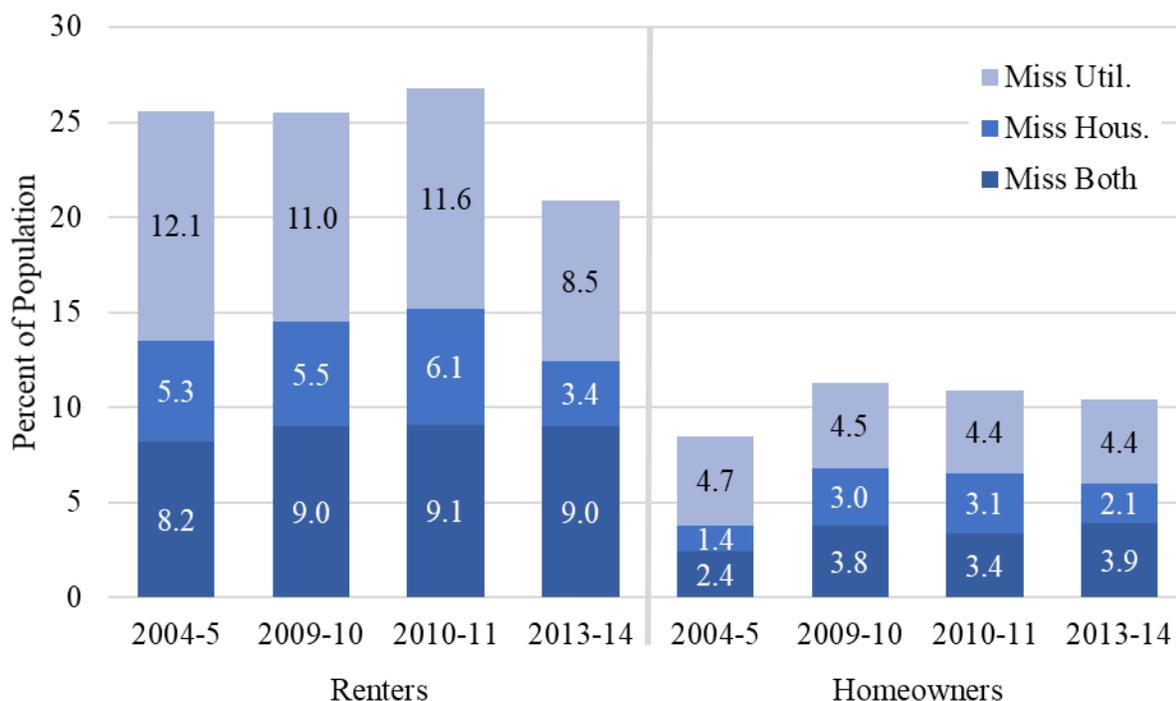


Figure A1. Prevalence of missed housing and utility payments by year and homeownership.

Notes: Estimates include all observations with information on missed housing and utility payments and apply sampling weights to represent the population. Sample sizes are $N=95,856$ in 2004-05 (2004 SIPP); $N=88,164$ in 2009-10 and $N=88,164$ in 2010-11 (both 2008 SIPP); and $N=72,919$ in 2013-14 (2014 SIPP).

Subprime mortgages may have caused much of the increase in missed housing payments in the recession period, clearly visible between 2004–05 and 2009–10 among homeowners. Homeownership rates also declined substantially after the housing crisis due to both foreclosures

and many would-be homeowners delaying or foregoing home buying. Homeownership in the SIPP data declined from 68 percent in 2011 to 62 percent in 2014. Owners leaving subprime mortgages and becoming renters may have successfully reduced their housing costs after the recession. Meanwhile, homeowners have much higher incomes than renters, on average. These new renters would have lower rates of housing hardship as a result, visible in the large declines among renters between 2009–10 and 2013–14.

II. Comparison of Hardship Combinations between Regions

Figure A2 presents the percentages of households in each of the utility/housing hardship categories by region. Combined utility/housing hardship is least common in the Northeast and most common in the West. Regional similarities in the hardship categories are greater than the differences, however.

Table A1 summarizes average incomes, rent/mortgage costs, and utility costs by region. Relatively low hardship rates in the Northeast are partly attributable to high average monthly incomes. High housing hardship rates in the West are associated with high rent/mortgage costs. Though utility hardship often connotes expensive winter heating bills, electricity bills for summer cooling are also very costly. Monthly utility costs are greatest in the South and lowest in the West. Despite

low average utility costs in the West, utility hardship is relatively common in that region.

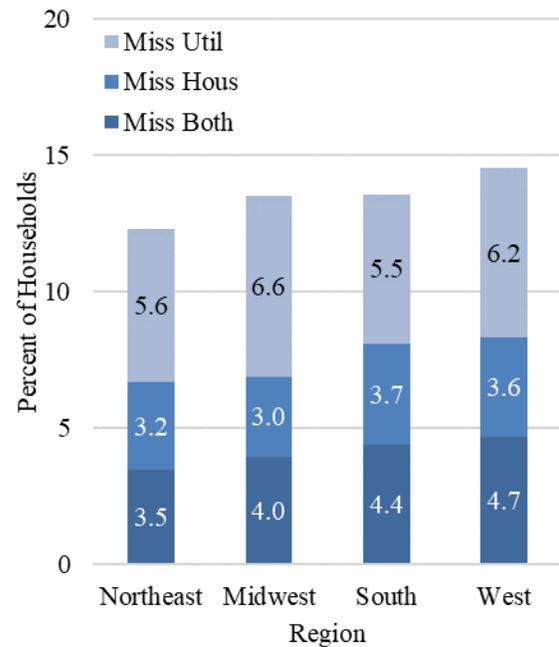


Figure A2. Prevalence of missed housing and utility payments in 2010-2011 by region.

Notes: Estimates are based on the 2008 SIPP and apply sampling weights to represent the population.

N = 26,908.

Table A1. Means and (standard deviations) of monthly household incomes, monthly rent/mortgage costs, and monthly utility costs in 2011 by region.

	Northeast	Midwest	South	West
Total HH Income	5,604.50 (5,880.70)	5,052.78 (4,808.94)	4,762.32 (4,938.63)	5,408.82 (5,182.23)
Monthly Housing Cost	743.36 (796.30)	579.06 (616.96)	618.23 (682.77)	913.07 (811.36)
Monthly Utilities Cost	287.38 (186.03)	269.67 (155.62)	306.89 (167.59)	252.73 (165.38)
N	4,700	6,618	10,224	5,366

III. Changes in Income and Expenses with Household Trigger Events

Table A2. Change in monthly income, utility costs, housing costs, and medical costs by household trigger events.

	Change in Monthly HH Income	Change in Monthly Housing	Change in Monthly Utilities	Change in Annual Medical Costs
<i>Household Composition Change</i>				
Married Both Years	11.37	-12.65	5.41	-92.87
Become Married	608.94	79.85	48.83	237.21
Become Unmarried	-2,086.26	-94.07	-23.40	-1,160.08
Unmarried Both Years	62.11	-53.35	13.14	-67.56
Enter Child under 5	62.95	-59.05	12.73	26.73
Exit Child under 5	-112.84	-46.49	17.32	36.15
<i>Health Change</i>				
Enter Poor Health	-143.06	-29.38	13.04	55.59
Exit Poor Health	-178.31	-34.35	-0.09	-352.68

Notes: Trigger events measured as described in the text. Change in monthly income measured between mid-2010 and mid-2011. Change in rent, utility, and medical costs measured between late 2009 and late 2011. Estimates use sample weights and all observations with data in both years.

IV. Alternative Measures of Changes in Household Income

The results in the paper are robust to using multiple alternative operationalizations of income changes. Each set of rows in Table A3 presents the results from a separate multinomial logistic regression including all variables described in the paper. The estimates are presented as average marginal effects. In all four specifications, income losses predict transitions into hardship but income gains do not appear to prevent it. Income losses are also more strongly associated with housing hardship than utility hardship.

First, Table A3 shows the results from the arc-change in income used in the primary analysis, also shown in Table 2.

Second, we used an alternative operationalization for positive and negative arc-changes. Rather than creating two continuous variables for income increases and decreases, we include the absolute value of the arc-change and its interaction with a dummy variable equal to one if the original arc-change was negative. Table A3 presents the marginal effects of the absolute arc-change with the dummy for negative changes equal to one (losses) and zero (gains).

The third model uses binary measures for income gains or losses greater than \$750 in magnitude following past research on trigger events and material hardship (Heflin 2016,). The reference category is income changes less than \$750 in absolute value.

Fourth, we repeated the previous model but adjust income for household size. We divided household income by the square-root of household size, standard in comparative research on income and poverty. We also divided the \$750 threshold for income gains/losses by the square-root of the average household size in the sample, 2.48.

Table A3. Results from alternative measures of income and income changes on missed housing and/or utility payments in 2010-11, presented as average marginal effects and (standard errors).

	No Hardship	Utility Only	Housing Only	Both
<i>Arc-Change in HH Income</i>				
Negative Arc Change	-0.028*** (0.00)	0.005* (0.00)	0.011*** (0.00)	0.012*** (0.00)
Positive Arc Change	-0.004 (0.00)	0.001 (0.00)	0.003 (0.00)	0.000 (0.00)
<i>Alternative Arc-Change in HH Income</i>				
Negative Arc Change	-0.022*** (0.00)	0.001 (0.00)	0.008** (0.00)	0.013*** (0.00)
Positive Arc Change	-0.009 (0.00)	0.003 (0.00)	0.005 (0.00)	0.001 (0.00)
<i>Binary Income Change</i>				
Lose Income	-0.035*** (0.01)	0.008* (0.00)	0.014*** (0.00)	0.012*** (0.00)
Gain Income	-0.009* (0.00)	0.004 (0.00)	0.004 (0.00)	0.001 (0.00)
<i>Binary Equivalized Income Change</i>				
Lose Eq. Income	-0.037*** (0.01)	0.008* (0.00)	0.014*** (0.00)	0.014*** (0.00)
Gain Eq. Income	-0.005 (0.00)	0.000 (0.00)	0.003 (0.00)	0.001 (0.00)

Notes: The sample is restricted to observations reporting no missed housing or utility payments 2009-10. The marginal effects are based on multinomial logistic regression models that include all variables described in the methods section.