**Housing hardship & youth problem behaviors**

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## Abstract

Housing-related hardships – being unable to pay full housing or utility costs, doubling up for financial reasons, having utilities shut off, and being evicted – are common experiences for many households, both poor and non-poor, in the United States. This paper uses longitudinal data from all six waves of the Fragile Families and Child Well-being Study to explore the connection between these hardships experienced throughout childhood and delinquent, internalizing, and externalizing behaviors in adolescence. At any given wave of the study, between 33% and 42% of the sample experiences a housing hardship. Being unable to pay full rent or utility bills is particularly detrimental for adolescent behaviors. The impact of housing hardship appears to be cumulative: the more waves of housing hardship experienced, the larger and stronger the association with problematic behaviors. This research suggests that preventing common housing-related hardships can be impactful for youth behavioral outcomes.

**Keywords:** housing, material hardship, adolescence, delinquency, poverty

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Millions of families in the United States are economically vulnerable. In 2017, the poverty rate was 12.3 percent and was even higher among children (18.0%). Even more striking is the proportion of households with unaffordable housing costs: nearly half of all renter households pay more than a third of their income towards housing (Joint Center for Housing Studies, 2018). Economic precarity, however, extends beyond these income-based measures. Hardship measures provide a window into whether families can utilize their resources to meet basic housing, food, and health needs.

Material hardship measures may provide a fuller picture of economic deprivation than income-based measures alone (Brady, 2003; Sen, 1999). While material hardship is more commonly experienced among poor families than non-poor families (Iceland & Bauman, 2007), not all poor families experience these hardships and not all families that experience material hardship are poor; indeed, the income poverty and material hardship are only moderately correlated (e.g., Beverly, 2001; Boushey, Brocht, Gunderson, & Bernstein, 2001; Iceland & Bauman, 2007; Mayer & Jencks, 1989).

Much of the existing research has examined indices of material hardship, encompassing domains such as food, health, housing, and utilities. However, components of such indices may represent different characteristics of hardship (such as the salience of duration or depth of deprivation). Further, combining hardships across domains clouds the usefulness of results for informing policies that can address specific aspects of material hardship.

The current paper examines the relationship between housing-related hardships across childhood and adolescent behaviors. By concentrating on a specific domain of material hardship (housing) and examining the association between each indicator of hardship and adolescent behaviors, I am better able to distill the particular components of housing hardship that inform

these outcomes. For example, recent research has shown that eviction is associated with maternal depression and compromised child health (Desmond & Kimbro, 2015) but this relationship would be obscured by using the composite measure of material hardship. In the current paper, I examine several measures of housing hardship, including eviction and more commonly experienced hardships such as being unable to pay a full utility bill, to ascertain whether these hardships predict adolescent behavioral outcomes.

**Housing Hardship and Youth Behaviors**

While income poverty rates provide valuable information about families' financial wellbeing, they do not capture whether families are able to meet basic needs with their available funds. Examining indicators of material hardship provides a clearer picture of families' abilities to make ends meet. The current paper includes as indicators of housing-related hardships doubling up, not paying full rent, eviction, not paying full utilities, and having utilities shut off, all for economic reasons.[1]

Research suggests that some types of housing hardship are more persistent or indicative of greater disadvantage than others. There is conflicted evidence as to whether missed utility compared to rent payments are reflective of longer-term or shorter-term disadvantage (Finnigan & Meagher, 2018; Heflin, Sandberg, & Rafail, 2009). Much recent attention has been drawn to eviction, another indicator of housing hardship, and arguably the most extreme because of its highly destabilizing effects, and one that is more common than previously thought (Desmond, 2016). This hardship is associated with increased material hardship, maternal depression, and worse child health (Desmond & Kimbro, 2015). Foreclosures – another type of housing hardship

[1] This qualification is particularly important for doubling up as living with extended families or other households may occur for non-financial reasons.

that ultimately precipitates a forced move – are associated with anxiety and violent behavior in adults (review by Downing, 2016).

Research using earlier waves of the Fragile Families and Child Wellbeing Study (Fragile Families) finds that children who experience material hardship have higher internalizing and externalizing behaviors (Fernandez, Yomogida, Aratani, & Hernandez, 2018; Zilanawala & Pilkauskas, 2012). The earlier study (Zilanawala & Pilkauskas, 2012) measures material hardship and behaviors at two waves (ages 3 and 5) which allows for examination of both the timing and duration of material hardship. Material hardship, particularly difficulty paying bills, having utilities shut off, and housing instability, are predictive of externalizing and internalizing behaviors and have greater salience for behaviors at age 5. Another study which uses Fragile Families cross-sectionally finds that combined food and utility hardship predicts increased internalizing and externalizing behaviors at age 9 (Fernandez et al., 2018).

Housing hardship may influence youth behavioral outcomes through several theoretical pathways. Because housing hardships are experienced by the household, not only the youth, and because some of these hardships may not be directly experienced by youth themselves, these pathways may be both indirect and direct.

Particular components of housing hardship may act primarily through parental stress to impact youth behaviors. As highlighted by Gershoff, Aber, Raver, and Lennon (2007), the pathways between material hardship and children's cognitive and socioemotional skills are indirect as children are unlikely to directly experience the effects of an inability to pay utilities, rent, or a mortgage (unless these result in utility shutoffs, evictions, or foreclosures). They may not even realize that these events have occurred. Thus, it is anticipated that these hardships would operate through parental stress; this stress can lead to harsh parenting which negatively

impacts children (Conger, Ge, Elder, Lorenz, & Simons, 1994; Neppl, Senia, & Donnellan, 2016).

Certain indicators of hardship may directly influence adolescent behaviors. Doubling up for economic necessity, eviction, and having utilities shut off may be particularly salient for youth. While doubling up provides valuable financial relief for families (Pilkauskas, Garfinkel, & McLanahan, 2014), it can also result in conditions, such as crowding, that are unfavorable for youth. Children in crowded homes are more aggressive, have higher psychological distress, poor behavioral adjustment at school, do worse in school, and may have inferior health (Evans, 2006; Evans, Lepore, Shejwal, & Palsane, 1998; Leventhal & Newman, 2010; Solari & Mare, 2012). Evictions are extremely destabilizing events and can lead to further instability and worse child health (Desmond, Gershenson, & Kiviat, 2015; Desmond & Kimbro, 2015). Experiencing utility shut-offs may impact adolescents' abilities to function at home (e.g., from lack of heat, water, or electricity), increasing their stress and problematic behaviors. Furthermore, broader poverty-related stressors (e.g., discrimination, victimization, and economic strain) are associated with increased internalizing and externalizing behaviors. Stress, more generally, experienced by children can lead to impulsivity, withdrawal, and aggression, all of which predict delinquent behaviors (Loeber & Farrington, 2000).

Lastly, the types of housing-related hardships experienced may be informed by the duration of financial precarity. Proposed time horizon models suggest that families' missed utility payments may be reflective of short-term tradeoffs associated with financial shocks while not making full rent or mortgage payments could be indicative of longer-term economic struggles (Heflin et al., 2009). However, other research suggests that an inability to make utility payments may reflect longer term disadvantage (Finnigan & Meagher, 2018). Evidence from

qualitative interviews shows that low-income families make strategic decisions about paying utilities; for example, families who know that their heat cannot legally be shut off during the winter may trade-off that bill for another (Edin & Lein, 1997).

Because hardships operate through similar pathways as poverty, we can draw on that literature to hypothesize about the relevance of the duration of hardship. Persistent poverty is particularly pernicious for outcomes in childhood and adolescence including socioemotional and cognitive functioning and school achievement (Brooks-Gunn & Duncan, 1997; Duncan, Yeung, Brooks-Gunn, & Smith, 1998; McLoyd, 1998). The effects of early childhood poverty are even reflected in adulthood by hours worked and earnings (Duncan, Ziol-Guest, & Kalil, 2010). Based on this research, it is anticipated that greater accumulation of housing-related hardships will result in worse adolescent behaviors.

**Current Study**

Prior research has indicated that there is a strong association between material hardship (particularly housing-related hardships) and children's behaviors (e.g., Fernandez et al., 2018; Zilanawala & Pilkauskas, 2012). This paper extends that research by testing whether this association continues into adolescence. Furthermore, this study capitalizes on 15 years of longitudinal data to examine the impact of the accumulation of housing hardships across childhood. The modeling strategy also allows us to see the import of each hardship, net of the others, on youth outcomes, possibly increasing the policy-relevance of this research. Lastly, by drawing on both parent- and youth-reported behavioral outcomes, this research addresses the concern that maternal factors that might lead to housing hardships may also affect mothers' reports of their children's behaviors.

## Methods

### *Data*

Data for these analyses come from the Fragile Families and Child Wellbeing Study, a longitudinal birth cohort survey of nearly 5,000 children born in large U.S. cities from 1998 to 2000. The study oversampled children born to unmarried parents by a 3 to 1 ratio. Families were interviewed at the child's birth and when the child was approximately ages 1, 3, 5, 9, and 15. Response rates from the mothers' and primary caregiver survey (at age 15) were 89% at age 1, 86% at age 3, 85% at age 5, 77% at age 9, and 73% at age 15. The youth was also interviewed at ages 9 and 15.

Fragile Families data are particularly well-suited for the current study for several reasons: (1) housing-related hardship items were asked at each wave after baseline; (2) the longitudinal nature of the study means that these questions are asked throughout childhood (approximately ages 1, 3, 5, 9, and 15); (3) the FF study coincides with the Great Recession, allowing examination of housing hardship before, during, and after this period; (4) the study includes a large percentage of lower-income families because of the oversampling of births to unmarried parents; and (5) same-reporter bias can be addressed because both youth and parents reports of youth behaviors are included in the study.

### *Sample*

The Fragile Families study includes 4,898 focal children. The analytic sample is limited to youth who lived with their mother at each wave, whose mothers were interviewed at each wave, and who were, themselves, interviewed at year 15 (n=2,324). The sample is further limited

to include only youth who were not missing on covariates (n=2,221). The sample excludes children who did not live with their mothers because the unmeasured factors that led to the child living with someone else may also be associated with their behaviors at age 15 and because mothers were asked about the housing hardship they experienced which would only be the same as what the youth experienced if the youth lived with the mother. With these restrictions, the sample generally reflects the original FF sample though the analytic sample is somewhat more educated (and had a baseline household income about $2,200 higher than the full sample) and mothers are slightly less likely to be Hispanic (or born outside of the United States).

*Measures*

*Dependent Variables –*

*Delinquent behaviors*

The delinquent behaviors measure is a scale created using 13 items asked of the youth during the age 15 interview. Youth were asked items such as whether they had hurt someone badly enough to need bandages or medical care, sold drugs, or deliberately damaged others' property. Answer choices in the survey included four categories ranging from never to at least five times. Youths' responses were summed and standardized to the analytic sample.

*Internalizing behaviors*

The internalizing behavior scale is constructed using all variables from the mother's report of the youth's behaviors in the anxious/depressed (6 items) and withdrawn (2 items) subscales of the Child Behavior Checklist (CBCL) in the age 15 interview (Achenbach & Rescorla, 2001). All items were averaged and standardized to the analytic sample. Items in these

subscales include whether the youth is too fearful or anxious, cries a lot, and is unhappy, sad, or depressed.

*Externalizing behaviors*

The externalizing behavior scale comprises the mother's report of the youth's behaviors on the aggressive (11 items) and rule-breaking (9 items) subscales of the CBCL at age 15 (Achenbach & Rescorla, 2001). Items include whether that the youth is disobedient at school, threatens people, lies or cheats, talks too much, sets fires, and vandalizes. Possible answers range from 1 (not true) to 3 (often true). Items were averaged and standardized to the analytic sample.

*Independent Variables – Housing Hardship*

The housing hardship variables are items from the material hardship scale asked of the mother (or primary caregiver at age 15) at waves 2 through 6 of the Fragile Families Study about the twelve months prior to the survey. The current analyses use the items asking whether the family had not paid the full amount of rent or mortgage payments; was evicted for not paying the rent or mortgage; had not paid the full amount of a gas, oil, or electricity bill; had gas or electric services turned off, or the heating oil company did not deliver oil, because there was not enough money to pay the bills; and whether the family had moved in with other people even for a little while because of financial problems. Because families may experience some of these items (particularly moving in with other people) due to reasons that are not financial, the material hardship section of the survey is introduced with the interviewer saying, "In the past twelve months, did you do any of the following because there wasn't enough money?"

These items are used to construct several measures of housing hardship. First, I code each individual item as a dichotomous variable (1=experienced the hardship, 0=did not experience).

Using these dichotomous variables, I create an indicator of persistence of housing hardship by summing the number of years at which any hardship was experienced with a range from 0 to 5 years. Lastly, I create dichotomous variables indicating whether the youth experienced each of these measures at any year (e.g., the youth's family was evicted at any year).

*Covariates –*

All analyses include covariates that may confound the relationship between housing-related hardships and adolescent behaviors. The majority of these variables are measured at baseline (when the youth was born) but I also include several variables measured in subsequent waves because these data were not or could not be collected at the time of the child's birth.

Baseline covariates include maternal, household, and child characteristics. Maternal characteristics included are: mother's relationship with the biological father (married, cohabiting, or other), educational attainment (less than high school, high school or GED, and at least some college), age (measured categorically: less than 21, 21-30, and at least 31), race (white non-Hispanic, black non-Hispanic, Hispanic, other), if the mother had been born in the United States, if the mother reported being in excellent health at the time of the child's birth, and if the mother had an alcohol or drug problem. Household-level characteristics include whether the mother was receiving assistance through either the Supplemental Nutrition Assistance Program (SNAP) or Temporary Assistance to Needy Families (TANF), housing income (measured continuously), and the number of adults and children in the household at the time of the child's birth (each measured continuously). Child-level characteristics include the child's sex, if the child had a low birthweight (including a missing category), and if the child was the mother's firstborn.

To account for other characteristics that might be associated with both housing hardship and youth behaviors, I control for several variables measured at subsequent years. These variables include whether the mother was depressed (1=mother meets liberal Composite International Diagnostic Interview depression criteria (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998)) and if the child had a shy temperament (measured using items from the Emotionality and Shyness sections of the EAS Temperament Survey for Children (Mathiesen & Tambs, 1999)) at year 1 and if the child had a high score (top quintile of the full FF sample) on the Child Behavior Checklist at year 3 (because this was only asked of children who were visited at home, I include a missing category). Lastly, I control for the youth's age in months at the time of the year 15 interview to account for developmental differences in engagement in problem behaviors.

*Analytic Strategy*

First, I run descriptive statistics of housing hardship and all covariates in the study. I display descriptive statistics of the independent variables used in the multivariate analyses (any wave of each type of hardship and the number of waves at which a youth experienced a housing hardship).[2] I also include a table with the prevalence of each type of housing hardship at each year data were collected. Next, I conduct multivariate OLS regression models where youth behaviors are regressed on housing hardship variables. The first set of multivariate models uses as predictors each type of housing hardship to determine the association between each type of housing hardship and youth behaviors net of the other types of housing hardship. The second set

[2] Analyses do not include weights. Since the data are subset by factors that were not adjusted for when creating the weights and because there are differences between the full FF sample and the current study's sample, the weights will likely no longer adjust the sample back to the population of interest.

of multivariate models examines the accumulation of housing hardship by exploring the association between the number of waves at which youth experienced housing hardship and their behaviors at age 15. In both sets of multivariate analyses, covariates are added in stages; the first stage includes only baseline covariates while the second stage includes covariates measured after baseline. This approach is taken to allow for the examination of these relationships with, first, only covariates that occur prior to any treatment and, second, covariates that may be important predictors of youth behaviors at age 15 but may also occur after treatment due to the time at which they were measured. Lastly, I conduct sensitivity analyses to examine whether housing hardship is merely a reflection of youth's experiences of poverty.

## Results

### *Descriptive Results*

Table 1 displays descriptive statistics for the analytic sample (n=2,221). Housing-related hardships are very common among the sample. From the year 1 to year 15 interviews, about a third of the sample experienced at least one wave doubled up with another family for financial reasons. Over forty percent lived in a household where they could not pay the full rent and 8.46 percent were evicted. Nearly sixty percent reported being unable to pay their full utility bill and about a quarter had had their utilities shut off. Only 27.10 percent of youth did not experience a wave of housing hardship across waves 2 through 6. About 20 percent experienced hardship at one wave, 18.46 percent at two waves, 15.44 percent at three waves, 11.57 percent at four waves, and 7.47 percent experienced housing hardship at all five waves.

<<< TABLE 1 APPROXIMATELY HERE >>>

Table 1 also presents descriptive statistics about the prevalence of youth problematic behaviors at age 15. To better illustrate these behaviors, the statistics presented are prior to standardization of these variables. Youth averaged internalizing behavior scores of 0.26 (on a scale of 0 to 2) and externalizing behavior scores of 0.23 (also on a scale of 0 to 2). On average, youth reported engaging in 1.04 delinquent behaviors with a standard deviation of 1.58.

Youth in the sample were born primarily to unmarried parents (34.49% of youth were born to cohabiting parents and 38.77% to parents who were in a non-residential relationship or had no relationship), reflective of the Fragile Families sample design. About 30 percent of youth's mothers had not completed high school, a similar percentage had their high school diploma or GED, and 39.40 percent had completed at least some college. About half of mothers were between ages 21 and 30, a quarter were less than 21 years old, and about a fifth were at least 31 years old. Half the youth's mothers were non-Hispanic black and about a quarter were either non-Hispanic white or Hispanic. The sample was fairly disadvantaged with about a third of mothers reporting TANF or SNAP receipt at baseline and average household incomes of $34,177.88. On average, there were 2.26 adults and 1.23 children in the household at baseline. Just over a third (38.32%) of youth were their mother's firstborn child. About 15 percent of mothers met depression criteria at year 1. On average, youth were 15.4 years (184.99 months) old at the year 15 survey.

<<< TABLE 2 APPROXIMATELY HERE >>>

Table 2 delves more deeply into specific housing hardships at each interview year. At any given year, at least a third of youth experienced a housing hardship. While this remains fairly

consistent at years 1, 3, and 5, at year 9 (which coincides with the Great Recession), this number ticks up to about 40 percent and remains at that proportion at year 15, after the end of the Recession. Between years 9 and 15, the proportion of families doubling up for economic reasons nearly doubled. At each year, being unable to afford to pay the full utility bill was the most commonly reported housing hardship with at least a fifth of all youth experiencing this at each wave. The next most common hardship was not paying the full amount of rent, experienced by between 11 and about 18 percent of youth across waves. Evictions were the least common hardships, never experienced by more than 3 percent of the sample at a given year.

*Multivariate Results*

Table 3 presents results from multivariate models in which all housing hardship variables are included. Across all outcome variables, the results are similar in the models including only baseline covariates (odd-numbered columns) and including both baseline and later covariates (even-numbered columns). As such, results from the fully controlled models will be discussed in this section. Column 2 shows the association between the housing hardship variables and internalizing behaviors. Both being unable to pay rent or utilities in full are associated with 0.13 standard deviation (SD) higher internalizing behavior scores. Having the utilities shut off is marginally associated with a 0.10 SD higher internalizing behavior score. Several covariates are associated with higher internalizing behaviors: having cohabiting parents at baseline (compared to married), being female, having a mother who met depression criteria at year 1, being shyer (child at year 1), and having higher CBCL scores at age 3. Having a mother of any race or ethnicity compared to being white and having a mother who was in excellent health at the child's birth are both associated with lower internalizing behavior scores.

<<< TABLE 3 APPROXIMATELY HERE >>>

Column 4 shows that not paying rent in full is associated with 0.15 SD higher externalizing behavior scores and not paying utilities in full with a 0.10 SD higher score. Doubling up is marginally associated with a 0.08 SD increase in these behaviors. Being female and having older, more educated, Hispanic (compared to white, non-Hispanic) mothers are associated with lower externalizing behavior scores. Having a higher CBCL score is associated with higher externalizing behavior scores.

Column 6 shows that doubling up is associated with a 0.12 SD increase in delinquent behaviors and not paying full rent with a 0.10 SD increase. Being female and having a mother who is more educated and older are associated with lower delinquent behavior scores while having parents who were in some other type of relationship (compared to married) at baseline is associated with higher delinquent behaviors.

<<< TABLE 4 APPROXIMATELY HERE >>>

Table 4 presents results from OLS models examining the association between waves of housing hardship and problematic youth behaviors at year 15. As with the results in Table 3, results from models with only baseline and all covariates are similar so this section will discuss results from the fully controlled models. Across all three types of behavior types, experiencing any wave of housing hardship is associated with higher problem behaviors and the strength of these associations tends to increase with the number of waves at which hardship was

experienced. Compared to not experiencing housing hardship at any year, experiencing one wave of housing hardship is associated with 0.16 SD higher internalizing behavior scores while experiencing 5 waves is associated with 0.64 SD higher score (shown in Column 2). Similarly, compared to zero waves of housing hardship, experiencing hardship at one wave is associated with 0.14 SD higher externalizing behavior scores while experiencing five waves is associated with a 0.52 SD increase (see Column 4). The accumulation of hardship experiences seems to be least severe for delinquent behaviors: experiencing between one and four waves of housing hardship is associated with a 0.15 or 0.16 SD higher delinquent behavior score, respectively, than experiencing none but experiencing housing hardship at all five years is associated with a 0.34 SD higher score suggesting that the persistence of these experiences matters. The covariates associated with each outcome in the models in Table 3 are associated with the dependent variables in the models in Table 4.

*Sensitivity Analyses*

Housing-related hardships may simply be proxies for poverty. If this is the case, there should be no association between housing hardship and adolescent behaviors among youth who were never poor. To test this, I limit the sample to youth who were not poor at any wave of data collection (n=761). In these models, there are still associations between certain indicators of housing hardship and adolescent behaviors suggesting that housing hardships are not simply proxies for poverty. In analyses examining the persistence of housing hardship (which I top-code at 3 because the number of never poor youth who experience four or five waves of hardship is small), the coefficient is largest and most significant when hardship is experienced at three waves for internalizing and externalizing behaviors. Oddly, experiencing two waves of hardship

is associated with increased delinquent behaviors but not experiencing one or three or more waves. Being unable to pay a full utility bill is associated with increased internalizing and externalizing behaviors. Doubling up is also marginally associated with increased externalizing behaviors. Being evicted (experienced by only 27 nonpoor children) is marginally associated with delinquent behaviors. These discrepancies with the main models suggest that housing hardship may impact youth differently depending on their poverty status.

## Discussion

Housing hardships are common in this sample; more than a third of youth's families experience such a hardship at any given survey year. Experiencing a given hardship at even one wave is associated with higher engagement in problematic behaviors. Adolescents whose families are unable to pay their full rent or utility bill at any point during childhood have higher internalizing and externalizing behaviors. Youth whose families are unable to pay their full rent or have to move in with another family due to financial constraints have higher delinquent behaviors. These hardships are common occurrences for the families in the sample: at some point during childhood, about a third have doubled up, over forty percent have been unable to pay their full rent, and nearly sixty percent have been unable to pay their full utility bill.

While experiencing even one of several housing hardships at a single wave is associated with increased problematic behaviors, the cumulative impact of housing hardship over childhood is even more striking. Compared to never experiencing a housing hardship, experiencing housing hardship at a single wave is associated with increased internalizing, externalizing, and delinquent behaviors. The effect size increases with the number of waves at which hardship is experienced.

Youth who experience housing hardship at all waves have 0.64 SD higher internalizing behaviors, 0.52 SD higher externalizing behaviors, and 0.34 SD higher delinquent behaviors.

Prior research using earlier FF data has found similarly-sized coefficients for the association between housing hardship and negative child behaviors (Zilanawala & Pilkauskas, 2012). In that research, as in the current study, trouble paying utility bills was a particularly strong predictor of internalizing and externalizing behaviors. Additional research on housing-related hardship suggests that missed utility payments may be particularly salient because they are indicative of persistent hardship (Finnigan & Meagher, 2018) however, other research suggests that missed utility payments reflect the short-term impact of financial shocks (Heflin et al., 2009); if this is the case, the short-term impact of a shock may not only influence a family's ability to pay utilities but also adolescent behaviors .

The analyses in this paper also support the importance of studying hardship indicators in addition to income-based measures of disadvantage. As discussed in sensitivity analyses, the association between housing-related hardships and problematic behaviors persists even among youth who never experienced a wave of poverty. That the impact of housing hardship is felt even among families that are never poor should be considered for policy directions: interventions should not target only those under the poverty threshold.

This research, along with other, prior, research, indicates that housing hardships are associated with problematic behaviors. Utility hardship, which is identified as both particularly common and salient, is an area that may be ripe for policy intervention. The Low Income Home Energy Assistance Program (LIHEAP), which is a federal program administered at the state level through block grants, helped an estimated 5.4 million renter households with heating costs in Fiscal Year 2017 (Administration for Children & Families, 2018). The need for energy

assistance, however, far outstrips the availability of funds: it is estimated that only about 20% of eligible households receive funds (Administration for Children & Families, 2016b). Further, eligibility is capped at 150 percent of the federal poverty threshold, except if 60 percent of the state median income is greater (Administration for Children & Families, 2016a). There is, however, some flexibility at the state level; states can make eligible households with at least one family member receiving several other types of public assistance including through SNAP, TANF, Supplemental Security Income, and some needs-tested Veterans Benefits (Administration for Children & Families, 2016a). Allocating additional funding to this program to meet the needs of *all* eligible households could not only address utility burdens but also free up household funds to address other hardships, both housing- and non-housing related (e.g., medical and food). Other housing hardships should also be addressed but increasing support for LIHEAP utilizes existing infrastructure and would address the most commonly experienced housing-related hardship, making this intervention a relatively low-hanging fruit.

While the evidence provided in this research strongly indicates that housing hardships are associated with more negative behaviors in adolescence, the research likely underestimates the prevalence and persistence of hardship. Because the housing hardship measures are asked about the 12 months reference period prior to each survey, they do not capture hardship in years not covered during this period. Thus, the measures utilized in this survey, reflect hardships in five childhood years, not each year of childhood. Undercounts may also occur due to restrictions to the analytic sample. Because the sample is slightly more advantaged (with higher maternal educational attainment and household income at baseline) than the full FF sample, the prevalence of housing hardships in the analytic sample may be understated. Lastly, recent research has indicated that many evictions measures underestimate the occurrence of eviction (e.g., Desmond,

2016) and this may well be the case in the current study. The underestimation of housing hardship means that the true relationship between hardship and adolescent problematic behaviors may actually be larger than the results in this paper and that housing hardships are more common than captured in these analyses.

This research contributes to a growing body of literature on, generally, material hardship and, more specifically, housing hardship. While this paper contributes to the literature, it also raises questions for future research. First, it is apparent that the accumulation of housing hardship is more strongly associated with problematic behaviors but we do not yet know whether the timing, in addition to the duration, of housing hardship impacts adolescent behaviors. Future research on the timing of hardship can explore whether (1) housing hardships are particularly salient at certain ages or in certain temporal proximity to behavioral outcomes and (2) whether particular housing hardships are more informative of behaviors at given ages. Additionally, while the current research and prior research indicates that housing hardship is associated with internalizing and externalizing behaviors, it may also be related to other outcomes, at multiple levels (e.g., child, adolescent, parent, and household). Future research can also examine these potential connections.

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**Table 1:** Descriptive statistics (n=2,221)

| | | % or mean | SD |
|---|---|---|---|
| **Independent variables** | | | |
| Any waves doubled up | | 33.14 | |
| Any waves not paying full rent | | 43.18 | |
| Any waves evicted | | 8.46 | |
| Any waves not paying full utilities | | 59.52 | |
| Any waves having the utilities shut off | | 25.12 | |
| | | | |
| Number of waves of housing hardship | | | |
| | 0 | 27.10 | |
| | 1 | 19.95 | |
| | 2 | 18.46 | |
| | 3 | 15.44 | |
| | 4 | 11.57 | |
| | 5 | 7.47 | |
| **Dependent variables** | | | |
| Internalizing behaviors (pre-standardization) | | 0.26 | 0.30 |
| Externalizing behaviors (pre-standardization) | | 0.23 | 0.25 |
| Delinquent behaviors (pre-standardization) | | 1.04 | 1.58 |
| **Covariates** | | | |
| Parents' relationship at baseline | | | |
| Married | | 26.74 | |
| Cohabiting | | 34.49 | |
| All else | | 38.77 | |
| Mother's education at baseline | | | |
| Less than high school | | 29.18 | |
| High school or GED | | 31.43 | |
| At least some college | | 39.40 | |
| Mother's age at baseline | | | |
| Less than 21 | | 26.43 | |
| 21-30 | | 53.04 | |
| 31 or older | | 20.53 | |
| Mother's race | | | |
| White, non-Hispanic | | 22.78 | |
| Black, non-Hispanic | | 50.02 | |
| Hispanic | | 23.64 | |
| Other | | 3.56 | |
| Mother born outside of the US | | 13.10 | |
| Mother in excellent health at baseline | | 32.51 | |
| Mother had alcohol or drug problem at baseline | | 2.34 | |
| Mother received TANF or SNAP at baseline | | 34.94 | |
| Household income at baseline | | 34177.88 | 32782.70 |
| Adults in the household at baseline | | 2.26 | 0.95 |
| Children in the household at baseline | | 1.23 | 1.26 |

| | | |
|---|---|---|
| Child is female | 49.71 | |
| Child had low birthweight | | |
| No | 88.56 | |
| Yes | 8.73 | |
| Missing | 2.70 | |
| Child was mother's firstborn | 38.32 | |
| Child had a high CBCL, age 3 | | |
| No | 67.27 | |
| Yes | 18.55 | |
| Missing | 14.18 | |
| Mother was depressed (liberal depression criteria), age 1 | 15.22 | |
| Child shyness scale, age 1 | 2.55 | 0.75 |
| Youth's age at age 15 interview (in months) | 184.99 | 7.35 |

Abbreviations: SD = standard deviation; GED = General Education Development; TANF = Temporary Assistance to Needy Families; SNAP = Supplemental Nutrition Assistance Program; CBCL = Child Behavior Checklist

**Table 2:** Detailed housing hardship at each wave

| | **Year 1 (1999-2001)** | **Year 3 (2001-2003)** | **Year 5 (2003-2006)** | **Year 9 (2007-2010)** | **Year 15 (2014-2017)** |
|---|---|---|---|---|---|
| Doubling up (%) | 10.72 | 8.60 | 6.80 | 7.25 | 14.18 |
| Didn't pay full amount of rent (%) | 13.15 | 11.30 | 13.60 | 18.19 | 17.24 |
| Evicted (%) | 2.61 | 1.76 | 1.67 | 2.21 | 1.98 |
| Didn't pay full utility bill (%) | 23.10 | 23.50 | 25.26 | 31.61 | 28.77 |
| Utility shut off (%) | 5.31 | 4.10 | 7.47 | 10.31 | 8.28 |
| **Any housing hardship** | 35.30 | 33.81 | 34.22 | 41.74 | 41.78 |

**Table 3:** Results from OLS models of the association between types of housing hardship and youth behaviors at age 15 (n=2,221)

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Internalizing behaviors (std) | | Externalizing behaviors (std) | | Delinquent behaviors (std) | |
| Any waves doubled up | 0.08 | 0.06 | 0.10* | 0.08+ | 0.12* | 0.12* |
| | (1.62) | (1.37) | (2.02) | (1.74) | (2.41) | (2.47) |
| Any waves not paying full rent | 0.13** | 0.13** | 0.15** | 0.15** | 0.09+ | 0.10* |
| | (2.68) | (2.63) | (3.10) | (3.12) | (1.90) | (2.03) |
| Any waves evicted | 0.04 | 0.01 | 0.06 | 0.01 | -0.05 | -0.05 |
| | (0.52) | (0.11) | (0.70) | (0.19) | (-0.62) | (-0.59) |
| Any waves not paying full utilities | 0.13** | 0.12* | 0.10+ | 0.10* | 0.01 | 0.01 |
| | (2.62) | (2.46) | (1.94) | (1.97) | (0.12) | (0.17) |
| Any waves having the utilities shut off | 0.10+ | 0.09+ | 0.09+ | 0.09 | 0.04 | 0.04 |
| | (1.83) | (1.72) | (1.66) | (1.64) | (0.69) | (0.71) |
| Parents' relationship at baseline (ref=married) | | | | | | |
| Cohabiting | 0.13* | 0.12* | 0.06 | 0.03 | 0.10 | 0.10 |
| | (2.12) | (1.99) | (0.91) | (0.50) | (1.60) | (1.62) |
| All other relationship types | 0.11 | 0.09 | 0.14* | 0.11+ | 0.14* | 0.14* |
| | (1.61) | (1.42) | (2.06) | (1.71) | (2.13) | (2.14) |
| Mother's education at child's birth (ref=less than high school) | | | | | | |
| High school or GED | -0.04 | -0.01 | -0.10+ | -0.07 | -0.06 | -0.06 |
| | (-0.66) | (-0.15) | (-1.80) | (-1.28) | (-1.14) | (-1.04) |
| At least some college | -0.14* | -0.10 | -0.17** | -0.12* | -0.15* | -0.13* |
| | (-2.31) | (-1.59) | (-2.79) | (-2.03) | (-2.42) | (-2.15) |
| Mother's age at child's birth (ref=younger than 21) | | | | | | |
| 21 to 30 | 0.02 | 0.02 | 0.01 | 0.00 | -0.11+ | -0.11+ |
| | (0.43) | (0.34) | (0.26) | (0.04) | (-1.95) | (-1.93) |
| 31 or older | 0.09 | 0.09 | -0.19* | -0.20** | -0.22** | -0.21** |
| | (1.22) | (1.19) | (-2.43) | (-2.66) | (-2.83) | (-2.80) |
| Mother's race (ref=white, Non-Hispanic) | | | | | | |
| Black, non-Hispanic | -0.53*** | -0.55*** | -0.07 | -0.07 | 0.11+ | 0.10+ |
| | (-9.05) | (-9.38) | (-1.14) | (-1.21) | (1.86) | (1.71) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Hispanic | -0.39*** | -0.40*** | -0.16* | -0.17* | 0.03 | 0.03 |
| | (-5.59) | (-5.73) | (-2.35) | (-2.45) | (0.46) | (0.37) |
| Other | -0.36** | -0.40** | 0.09 | 0.03 | 0.20 | 0.19 |
| | (-2.91) | (-3.25) | (0.70) | (0.26) | (1.59) | (1.56) |
| Mother Born Outside of the U.S. | -0.01 | 0.01 | -0.08 | -0.05 | -0.03 | -0.03 |
| | (-0.08) | (0.11) | (-1.05) | (-0.73) | (-0.37) | (-0.47) |
| Mother reported excellent health at baseline | -0.22*** | -0.21*** | -0.15** | -0.13** | -0.04 | -0.04 |
| | (-4.96) | (-4.65) | (-3.27) | (-2.93) | (-0.89) | (-0.98) |
| Mother had alcohol or drug problem at baseline | 0.02 | -0.03 | 0.12 | 0.10 | 0.13 | 0.12 |
| | (0.18) | (-0.19) | (0.87) | (0.74) | (0.91) | (0.89) |
| Mother received TANF or SNAP at baseline | 0.01 | -0.01 | -0.00 | -0.03 | -0.04 | -0.04 |
| | (0.23) | (-0.23) | (-0.02) | (-0.61) | (-0.79) | (-0.86) |
| Household income at baseline | 0.00 | 0.00 | -0.00 | -0.00 | -0.00 | -0.00 |
| | (0.36) | (0.76) | (-0.70) | (-0.39) | (-0.87) | (-0.73) |
| Adults in household at baseline | -0.00 | -0.01 | -0.02 | -0.03 | -0.02 | -0.02 |
| | (-0.02) | (-0.26) | (-0.76) | (-1.13) | (-0.65) | (-0.70) |
| Children in household at baseline | -0.03 | -0.03+ | 0.01 | 0.01 | 0.04+ | 0.04+ |
| | (-1.62) | (-1.73) | (0.62) | (0.49) | (1.84) | (1.84) |
| Child is female | 0.09* | 0.10* | -0.12** | -0.10* | -0.24*** | -0.24*** |
| | (2.19) | (2.51) | (-2.81) | (-2.43) | (-5.81) | (-5.79) |
| Child had a low birthweight (ref=no) | | | | | | |
| Yes | 0.08 | 0.09 | 0.11 | 0.12+ | -0.06 | -0.07 |
| | (1.11) | (1.19) | (1.51) | (1.73) | (-0.82) | (-0.88) |
| Missing | 0.09 | 0.11 | 0.02 | 0.04 | 0.08 | 0.08 |
| | (0.74) | (0.87) | (0.18) | (0.34) | (0.62) | (0.60) |
| Focal child is mother's first-born biological child | 0.06 | 0.07 | -0.06 | -0.05 | 0.02 | 0.02 |
| | (1.06) | (1.42) | (-1.17) | (-1.01) | (0.37) | (0.40) |
| Mother was depressed (liberal depression criteria, age 1) | | 0.17** | | 0.08 | | -0.09 |
| | | (2.94) | | (1.34) | | (-1.61) |
| Child shyness scale (age 1) | | 0.06* | | 0.02 | | 0.01 |
| | | (2.17) | | (0.62) | | (0.42) |
| Child had high CBCL score, age 3 (ref=no) | | | | | | |
| Yes | | 0.32*** | | 0.49*** | | 0.06 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | (5.80) | | (8.94) | | (1.01) |
| Missing | | -0.02 | | 0.02 | | 0.02 |
| | | (-0.26) | | (0.35) | | (0.32) |
| Child's age in months, year 15 interview | | 0.00 | | -0.01+ | | 0.00 |
| | | (0.42) | | (-1.83) | | (1.43) |
| Constant | 0.15 | -0.30 | 0.11 | 0.93+ | 0.09 | -0.71 |
| | (1.33) | (-0.56) | (1.00) | (1.73) | (0.81) | (-1.28) |

Abbreviations: SD = standard deviation; GED = General Education Development; TANF = Temporary Assistance to Needy Families; SNAP = Supplemental Nutrition Assistance Program; CBCL = Child Behavior Checklist. t-statistics in parentheses. ***p<0.001, **p<0.01, *p<0.05, +p<0.10

**Table 4:** Results from OLS models of the association between waves of housing hardship and youth behaviors at age 15 (n=2,221)

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Internalizing behaviors (std) | | Externalizing behaviors (std) | | Delinquent behaviors (std) | |
| Number of waves housing hardship was experienced (ref=0 waves) | | | | | | |
| 1 wave of housing hardship | 0.17** | 0.16** | 0.15* | 0.14* | 0.15* | 0.16* |
| | (2.69) | (2.58) | (2.31) | (2.23) | (2.44) | (2.51) |
| 2 waves of housing hardship | 0.21** | 0.21** | 0.17* | 0.17** | 0.14* | 0.15* |
| | (3.23) | (3.22) | (2.56) | (2.60) | (2.12) | (2.23) |
| 3 waves of housing hardship | 0.30*** | 0.27*** | 0.31*** | 0.28*** | 0.14* | 0.15* |
| | (4.40) | (3.98) | (4.46) | (4.09) | (2.03) | (2.17) |
| 4 waves of housing hardship | 0.32*** | 0.27*** | 0.24** | 0.22** | 0.15+ | 0.16* |
| | (4.12) | (3.52) | (3.19) | (2.89) | (1.91) | (2.04) |
| 5 waves of housing hardship | 0.67*** | 0.64*** | 0.54*** | 0.52*** | 0.33*** | 0.34*** |
| | (7.59) | (7.22) | (6.11) | (5.84) | (3.63) | (3.81) |
| Parents' relationship at baseline (ref=married) | | | | | | |
| Cohabiting | 0.12+ | 0.11+ | 0.06 | 0.03 | 0.10 | 0.10 |
| | (1.96) | (1.83) | (0.90) | (0.49) | (1.53) | (1.55) |
| All other relationship types | 0.10 | 0.09 | 0.14* | 0.11+ | 0.14* | 0.14* |
| | (1.52) | (1.33) | (2.05) | (1.70) | (2.07) | (2.08) |
| Mother's education at child's birth (ref=less than high school) | | | | | | |
| High school or GED | -0.05 | -0.02 | -0.11* | -0.08 | -0.08 | -0.07 |
| | (-0.85) | (-0.34) | (-2.03) | (-1.49) | (-1.40) | (-1.30) |
| At least some college | -0.15* | -0.11+ | -0.18** | -0.13* | -0.16* | -0.14* |
| | (-2.51) | (-1.77) | (-2.98) | (-2.19) | (-2.58) | (-2.30) |
| Mother's age at child's birth (ref=younger than 21) | | | | | | |
| 21 to 30 | 0.00 | 0.00 | -0.00 | -0.01 | -0.12* | -0.12* |
| | (0.08) | (0.02) | (-0.03) | (-0.22) | (-2.17) | (-2.16) |
| 31 or older | 0.08 | 0.07 | -0.20** | -0.22** | -0.23** | -0.23** |
| | (1.01) | (0.99) | (-2.67) | (-2.89) | (-3.03) | (-3.01) |
| Mother's race (ref=white, Non-Hispanic) | | | | | | |
| Black, non-Hispanic | -0.53*** | -0.55*** | -0.07 | -0.07 | 0.10+ | 0.09 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (-9.07) | (-9.40) | (-1.15) | (-1.21) | (1.74) | (1.58) |
| Hispanic | -0.38*** | -0.39*** | -0.17* | -0.17* | 0.03 | 0.03 |
| | (-5.48) | (-5.64) | (-2.36) | (-2.47) | (0.47) | (0.38) |
| Other | -0.37** | -0.41*** | 0.08 | 0.02 | 0.19 | 0.19 |
| | (-3.00) | (-3.33) | (0.61) | (0.19) | (1.57) | (1.54) |
| Mother Born Outside of the U.S. | 0.00 | 0.02 | -0.07 | -0.04 | -0.03 | -0.04 |
| | (0.05) | (0.21) | (-0.93) | (-0.62) | (-0.39) | (-0.48) |
| Mother reported excellent health at baseline | -0.21*** | -0.20*** | -0.14** | -0.13** | -0.04 | -0.04 |
| | (-4.73) | (-4.45) | (-3.18) | (-2.86) | (-0.85) | (-0.93) |
| Mother had alcohol or drug problem at baseline | 0.03 | -0.03 | 0.14 | 0.11 | 0.13 | 0.13 |
| | (0.21) | (-0.21) | (1.01) | (0.81) | (0.95) | (0.92) |
| Mother received TANF or SNAP at baseline | 0.01 | -0.01 | 0.01 | -0.03 | -0.04 | -0.04 |
| | (0.25) | (-0.26) | (0.11) | (-0.53) | (-0.72) | (-0.79) |
| Household income at baseline | 0.00 | 0.00 | -0.00 | -0.00 | -0.00 | -0.00 |
| | (0.50) | (0.90) | (-0.68) | (-0.37) | (-0.71) | (-0.56) |
| Adults in household at baseline | -0.00 | -0.01 | -0.02 | -0.03 | -0.02 | -0.02 |
| | (-0.07) | (-0.33) | (-0.75) | (-1.14) | (-0.62) | (-0.68) |
| Children in household at baseline | -0.03 | -0.03+ | 0.01 | 0.01 | 0.04+ | 0.04+ |
| | (-1.63) | (-1.72) | (0.69) | (0.57) | (1.89) | (1.89) |
| Child is female | 0.10* | 0.11** | -0.11** | -0.09* | -0.24*** | -0.24*** |
| | (2.33) | (2.64) | (-2.64) | (-2.27) | (-5.78) | (-5.75) |
| Child had a low birthweight (ref=no) | | | | | | |
| Yes | 0.09 | 0.09 | 0.12 | 0.13+ | -0.06 | -0.06 |
| | (1.20) | (1.26) | (1.61) | (1.81) | (-0.82) | (-0.87) |
| Missing | 0.10 | 0.11 | 0.03 | 0.05 | 0.09 | 0.09 |
| | (0.77) | (0.91) | (0.23) | (0.40) | (0.70) | (0.68) |
| Focal child is mother's first-born biological child | 0.06 | 0.08 | -0.06 | -0.05 | 0.02 | 0.02 |
| | (1.08) | (1.45) | (-1.15) | (-0.99) | (0.41) | (0.44) |
| Mother was depressed (liberal depression criteria, age 1) | | 0.17** | | 0.08 | | -0.09 |
| | | (2.88) | | (1.45) | | (-1.58) |
| Child shyness scale (age 1) | | 0.06* | | 0.01 | | 0.01 |
| | | (2.10) | | (0.49) | | (0.35) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Child had high CBCL score, age 3 (ref=no) | | | | | | |
| Yes | | 0.32*** | | 0.49*** | | 0.06 |
| | | (5.82) | | (8.94) | | (1.05) |
| Missing | | -0.02 | | 0.01 | | 0.02 |
| | | (-0.33) | | (0.22) | | (0.29) |
| Child's age in months, year 15 interview | | 0.00 | | -0.00 | | 0.00 |
| | | (0.66) | | (-1.63) | | (1.50) |
| Constant | 0.15 | -0.42 | 0.13 | 0.86 | 0.07 | -0.76 |
| | (1.31) | (-0.78) | (1.14) | (1.58) | (0.64) | (-1.37) |

Abbreviations: SD = standard deviation; GED = General Education Development; TANF = Temporary Assistance to Needy Families; SNAP = Supplemental Nutrition Assistance Program; CBCL = Child Behavior Checklist. t-statistics in parentheses. ***p<0.001, **p<0.01, *p<0.05, +p<0.10