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Child Support Receipt, Mobility, and Housing Quality

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Abstract

This study uses administrative records for the state of Wisconsin as well as Zillow Real Estate data on median house values to examine the associations between the regularity of child support receipt on moves and changes in housing values following moves. Our sample consists of 13 329 custodial mothers with new orders from 2002 to 2006. Across several measures of child support and specifications of moves, regular receipt is negatively associated with any moves and with more than one move a year, holding constant the value of the child support received. In models examining associations between regularity and changes in housing quality after a move, an additional month of child support within 25 per cent of the order amount is associated with an \$890 increase in housing value. These results imply that policy-makers concerned with housing stability consider both the regularity and absolute value of child support when considering family well-being.

Keywords

Housing stability; housing quality; moves; child support policy

Introduction

Residential mobility is a common experience nationally, with nearly half of the US population moving in a five-year period (Berkner & Faber, 2003; Ihrke, 2014; Phinney, 2013). Research investigating the effects of high residential mobility on child well-being suggests that children in the most mobile households may fare worse than their more stable counterparts, even when demographic, economic, and child-level covariates associated with mobility and child well-being are considered (Adam & Chase-Lansdale, 2002; Coley *et al.*, 2013; Ziol-Guest & McKenna, 2014). Anderson *et al.* (2014) propose that multiple contexts that may be altered by a move, including those of the family, school, and neighborhood, are likely to influence any association between residential mobility and child outcomes, and that such associations may vary by developmental stage. The residential mobility literature has found positive and relatively consistent associations between frequent moving and behavior problems for children as well as reduced academic performance using a variety of analytic

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techniques and data-sets. It is noteworthy, however, that very little work directly examines how changes in income support programs might be associated with residential moves. Prior work does account for economic conditions through controls for household income and receipt of income-conditioned benefits though isolating those associations has not been the focus of this work.

Families' economic circumstances are particularly important in understanding both the frequency and nature of mobility patterns. Renter households are more likely to have lower income than owner households (Schachter, 2004), and mobility is more frequent among renters relative to homeowners (Clark *et al.*, 2003). Examination of the housing trajectories of US households indicates that income is a key factor for determining both the frequency and types of moves that households make (Clark *et al.*, 1994; Clark *et al.*, 2003). Adequate household income as well as income growth are associated with moves to homes of higher cost and quality, while income losses, often the result of job loss or divorce, typically result in moves to lower cost and quality homes or changes in tenure status that may signal downward mobility (Clark *et al.*, 2003). Housing trajectories among households who are not low income and do not experience large income changes often experience long periods of housing stability (Clark *et al.*, 2003). Thus, income support such as child support payments may assist a family in maintaining their current home or a move to higher quality housing if the income from these payments is both substantial and received regularly.

Prior work on housing quality generally falls into two distinct literatures. The first set of studies focus on the measurement, incidence, and characteristics of families who experience poor quality housing, while the second rather large body of literature on "neighborhood effects" uses local contextual factors to detect a relationship between neighborhood conditions and family outcomes (Sampson *et al.*, 2002). Studies concerned with poor quality housing units generally measure this construct using an index developed for use in the American Housing Survey and used by the Department of Housing and Urban Development (HUD) to determine whether housing units are inadequate (Friedman & Rosenbaum, 2004; Ross *et al.*, 2012). This index is intended to capture problems in the housing stock and includes items such as lack of working plumbing or electricity, exposed wiring, the presence of mice or rats, and peeling paint (Newman & Garboden, 2013). Several studies have found a significant, positive relationship between low-quality housing (defined as the presence of mold or allergens) and worse child health outcomes (Fisk & Mendell, 2007; Wu & Takaro, 2007). Though severely inadequate housing is uncommon nationally, low-income households are disproportionately more likely to experience these housing problems (Holupka & Newman, 2011; Newman & Garboden, 2013; Steffen, *et al.*, 2015).

Studies focusing on neighborhoods typically proxy quality using data capturing local income or poverty level, an operationalization most notably used in the Moving to Opportunity (MTO) experiment, which provided Section 8 housing vouchers to current public housing residents assigned to the treatment group to move to lower-poverty neighborhoods. The assumption in these analyses is that a neighborhood is a bundle of goods and moving to an area with lower poverty rates will increase access to higher quality schools, reduced neighborhood crime, and stronger labor markets (Katz *et al.*, 2001). MTO results find that the treatment group living in lower poverty neighborhoods did not see improvements in

earnings, employment, public assistance use, or physical health relative to the control group, though they did experience reductions in psychological distress (Kling *et al.*, 2004). The discussion surrounding MTO's mixed results largely focus not on whether moving to lower poverty neighborhoods should improve the lives of low-income families but rather on the mechanisms through which one might expect these processes to occur (Sampson, 2008). Thus, while there is uncertainty regarding how moving to significantly less poor neighborhoods may benefit families, there remains support for the hypothesis that moves to higher quality neighborhoods is a positive outcome for families. Local housing values may similarly serve as a proxy for neighborhood quality given that evidence suggests higher housing costs are associated with increased neighborhood and school quality (Aaronson, 2000; Barker & Miller, 2009). An important take-away from the housing quality and neighborhood effects literatures are that regardless of how prior work has operationalized housing or neighborhood quality, in the US context, low-income households, particularly single-parent families, are more likely to experience poor housing quality compared to any other household type (Steffen *et al.*, 2015).

Child Support Enforcement and Housing Outcomes

Regular receipt of child support payments may increase the ability of custodial parents to make financial plans and help to smooth out irregular income or earnings (Cancian *et al.*, 2003). The most recent national estimates of child support receipt indicate that nearly half of all custodial parents had child support agreements. The vast majority of custodial parents, nearly 90 per cent, had formal agreements. In terms of payments, 74 per cent of parents who were due child support (which is only recorded for those with formal agreements) received full or partial payments (Grall, 2013). It is worth noting that about 11 per cent of custodial parents do receive informal support from non-resident parents though such arrangements are beyond the reach of the child support enforcement system (Nepomnyaschy & Garfinkel, 2010). Child support enforcement, a state level system in the US, is an increasingly important policy lever to consider given that payments constitute a significant portion of the income of custodial parent families. In 2011, full payments represented nearly 20 per cent of custodial parents' annual income and 66 per cent of the annual income of parents below the federal poverty level (Grall, 2013). The average amount owed among all custodial parents was approximately \$500 per month (Grall, 2013), which may constitute a substantial portion of a family's housing budget.

Moving is a highly disruptive event, so uncertainty about whether child support payments will be received in any month may compel families to choose lower quality housing in neighborhoods with less amenities (because it is, on average, also lower cost housing) that they can maintain stably in the absence of payments. Using Australian qualitative data, Natalier (2012) finds that the reliability of child support payments was a key consideration for whether mothers used this money for housing costs. Using nationally representative data from the Household, Income and Labor Dynamics in Australia survey, Walter *et al.* (2010) examined whether child support payments were associated with a composite housing measure and found a positive, significant relationship between child support receipt above \$75 per week and their housing measure.¹

Child support payments are likely to be most useful for addressing large expenses such as housing costs if payments are regularly made. That is, holding the total annual support amount constant, regular monthly receipt may assist a custodial parent in maintaining a higher quality home or moving less frequently relative to parents receiving more irregular payments. Understanding how both total child support payment amounts and regularity may be important for housing outcomes is relevant for three reasons. First, there is evidence that single-parent families, who are disproportionately represented among all low-income families, are more likely to experience housing instability and lower housing quality and that these housing hardships are associated with worse child well-being as a result of the multiple environmental changes that can result from instability (Anderson *et al.*, 2014). Such evidence warrants further investigation of how a major income source for custodial parents is associated with core housing goods. Second, we found no studies addressing this question with US data though policy-makers have noted concern about child support payment regularity and its implications for family well-being (U.S. House of Representatives, 2008). Since a robust regime of child support enforcement is already in place in the US, examining regularity provides policy-makers with evidence to amend or adjust state best practices that may directly influence family housing outcomes. Third, the majority of studies focusing on the effects of child support in the US context consider child well-being outcomes such as behavioral health or academic performance and focus on absolute payment amounts without considering regularity, which we argue is particularly important for housing expenditures (Argys *et al.*, 1998; King & Sobolewski, 2006). This study seeks to address several of these gaps. By using longitudinal administrative data on all custodial mothers in one US state and appending granular housing costs data, we are able to maximize both data sources to explore the relationship between the annual amount and regularity of child support payments and housing outcomes. Specifically, we examine whether the receipt of regular child support, holding the value of the amount received constant, increases the likelihood that children live in higher quality housing or move less frequently.

Data

Administrative Records

This study uses an original data-set assembled for this analysis using Wisconsin administrative records, combined with information from the Zillow Real Estate Research database and the Department of Housing and Urban Development. Data were extracted from the Multi-Sample Person File (MSPF) that merges a number of administrative data sources. Information on child support payments come from the Kids Information Data System, which contains monthly records of child support payments received by custodial parents. The Client Assistance for Re-employment and Economic Support database contains detailed information on participation in public programs like the Supplemental Nutrition Program (SNAP), and Temporary Assistance to Needy Families (TANF). Individual wage data come from administrative records for the Unemployment Insurance (UI) program, which collects and maintains wage records from Wisconsin employers as part of the state's unemployment

¹The measure included four items: tenure in unit, dwelling type, size, and condition as observed by the interviewer. Child support payments were measured by the reported weekly payment amount received by the custodial parent.

benefits system. The state wage records, which are reported quarterly by employers and have been split into monthly observations, cover the wage earnings of approximately 95 per cent of all Wisconsin workers who are legally employed (Brown *et al.*, 2011).

An important benefit of these data is the ability to measure the regularity of child support payments monthly and annually, while also having information on earnings and public program participation. These detailed data contain information on all custodial-mother families state-wide. As a result, our data eliminate concerns regarding the representativeness of the sample that may be an issue for survey data sources. These data include demographic information on custodial parents' age, race, number, and age of children. Administrative data also come with limitations for our ability to model all the factors prior work have found important determinants of mobility, most importantly, mother's repartnering. The administrative records do not capture additional adults or their earnings in non-SNAP households. If a custodial mother moves to be with a new partner, we can observe the move but not the additional partner, thus making the interpretation of the child support measures less clear. We outline how we mediate these concerns, to the extent possible, in the Sample section below. Additionally, these data represent one state with its unique child support policy environment, demographics and housing market so results are not generalizable to custodial-mother families in other states. Despite these limitations, this data-set allows us to examine the relationship between child support regularity and housing outcomes that may be particularly informative for other states considering how state levers might operate on a core indicator of family well-being.

Measuring Housing Quality

Housing costs are measured using an external data source, the Zillow Home Value Index (ZHVI). The ZHVI is a repeated home sales measure that incorporates aspects of the housing market (home, land, prior sales, location, and tax assessments) to produce median home values at a particular tier of the market (top, middle, or bottom) for homes of a particular size (number of bedrooms) and type (single family or condominium). The ZHVI data are collected at the zip code level on a monthly basis. We know of no other housing cost measures that provide this granular level of data for Wisconsin. For example, the Federal Housing Finance Agency House Price Index (HPI) includes only metropolitan area level costs and the S&P/Case Schiller HPI has limited geographic coverage and does not include Wisconsin (Schintler & Istrate, 2011). The ZHVI allows us to capture within state changes in housing costs over time. Zillow uses publically available data on house attributes and sale prices though its valuation model is proprietary and, therefore, not available for academic scrutiny.²

Using the ZHVI median home values as a proxy for housing quality makes several assumptions. First, that median area home values reflect public goods such as schools, local services, parks, and libraries that capture neighborhood or housing quality, and, second, that this index is relevant for both renters and owners. Though renters and owners may relocate

²For the purposes of this analysis, however, this is likely not problematic. Schintler and Istrate find that the ZHVI appreciation rates during the housing bubble were highly correlated with the rates of change in the S&P/Case-Schiller HPI. This suggest the ZHVI tracks costs comparatively well with fully evaluated HPI's and, most importantly, has costs data for within state analysis.

to different quality housing stock within a zip code, we find that tenure status does not affect the direction or magnitude of the ZHVI among movers (results available upon request). This suggests that any changes in the ZHVI are consistent across tenure. We also compare changes in Fair Market Rents (FMRs) after a renter move and find that the direction and magnitude of cost changes are similar to the ZHVI (results available upon request).³ In order to distinguish between “upward” and “downward” changes in housing quality associated with a move, we measure standard deviation changes in the ZHVI. Analyses use the bottom-tier ZHVI for a two-bedroom home, and adjust the index using the Consumer Price Index for All Urban Consumers, to reflect real changes in value over time.⁴

Sample

The analytic sample consists of 13,329 custodial mothers who established a new child support order in 2002 that was in force for at least 24 months to a maximum of 60 months (2002–2006). Excluded cases are those in which an order was in place for less than 24 months ($N=1112$); this is the case when either the mother’s youngest child turned 18, or the mother is no longer the payee. The focus on custodial mothers (those with sole or shared physical placement and an order for child support) is sensible because: (1) they remain the majority of custodial parents in Wisconsin and nationally; (2) prior work on payment regularity is based on this population (Ha *et al.*, 2011); and (3) the housing trajectories of custodial fathers may differ in important ways (Walter *et al.*, 2010). The data do not allow for direct observation of whether mothers are cohabiting with a new partner or remarry over time. If mothers move to form households with a new partner, then our estimates of child support regularity may be picking up this unobserved variable (cohabitation/marriage). We choose no more than five years as our observation window because prior work on the timing to repartnering suggests that nearly half of women remarry within five years of divorce (Kreider, 2006); and that about a third of mothers who are unmarried at the time of a child’s birth enter new partnerships (Bzostek *et al.*, 2012).⁵ Selecting data from 2002 to 2006, before the beginning of the housing downturn accompanying the Great Recession, also simplifies the interpretation of the relationship between child support regularity and housing instability.

Regularity of Child Support Receipt

Most prior work on child support payments focuses on whether any support is received or the proportion of the amount owed that is received. There have been few attempts to measure the regularity of child support (Ha *et al.*, 2011), in part because national surveys do not contain monthly data on payments. Large nationally representative surveys that contain questions about child support, such as the National Longitudinal Survey of Youth 1979 (NLSY) or Panel Study of Income Dynamics (PSID), only ask respondents about annual child support receipt and so cannot capture the stability and consistency of payments. Annual amounts are not likely to account for irregular payments that may contribute to substantial fluctuations in a custodial parent’s monthly income.

³The FMR and ZHVI move in the same direction in almost all cases.

⁴Results obtained using the middle-tier ZHVI produce similar results.

⁵Robustness tests restricting the sample window to three and four years do not change any of our results substantively.

To more accurately capture income fluctuations associated with child support payments, we use two measures of child support regularity (*any support* and *support within 25 per cent of the order amount*). We measure the number of months that a custodial mother receives *any support* and the number of months the custodial mother received *support within 25 per cent of the order amount*.⁶ We use receipt within 25 per cent of the order amount based on the only prior study on regularity (Ha *et al.*, 2011), though using receipt within 20 and 30 per cent do not change the practical or statistical significance of our findings. Some models use the total number of months that a custodial mother received payment within 25 per cent of the order amount divided by the total number of observed months.⁷

Measuring Housing Stability

Frequent residential mobility may be defined in several ways, including moving more than once per year, the number of lifetime moves, or the total number of moves within a specified window of time (Anderson *et al.*, 2014). Mobility has been most commonly investigated in previous work using survey data collected in longitudinal studies (Freeman, 2005; Gasper *et al.*, 2012; Kan, 2007). Most frequently, residential histories are collected from respondents to identify the timing, number, and distance of moves. Survey data may underestimate highly mobile households since they are the most likely to attrite from studies. Capturing moves with administrative data eliminates attrition due to mobility as respondents remain observable as long as they continue to receive child support payments. This study measures the number of moves recorded in the administrative data. The state maintains custodial parent's addresses and updates this information when a parent moves or when a child support order changes. Custodial parents are likely motivated to report an address change to the state to ensure uninterrupted child support payments. We cannot observe the full address but can observe changes in zip codes. We use these data to construct the total number of moves over the study period and an indicator of having moved more than once a year. We are aware of only one previous study that uses zip code data to capture residential mobility (Geronimus *et al.*, 2014).

The major drawback of this strategy is that we do not capture within-zip codes moves. In the only previous study examining moves by zip code, short-distance moves were quite prevalent, though moves within the same city were more common than movers within the same zip code (Geronimus *et al.*, 2014). Further, among reasons for moving reported by the respondents in the 2013 Current Population Survey, nearly 60 per cent reported within-county moves, and these shorter moves were more likely among households who may be lower income and moving for housing-related rather than job-related reasons (Ihrke, 2014). This is an important limitation. The implication of missing within zip code moves is that our results are likely an underestimate of the association between child support regularity and housing outcomes, particularly for the mothers who receive SNAP.

⁶To account for obligors who may make biweekly support payments, if the custodial mother did not receive a payment on an order owed, we calculate the average of that month and the previous month, and the average of that month and the following month. If either of these averages is within 25 per cent of the order amount, the month is counted as a month of regular receipt (Ha *et al.*, 2011).

⁷Months of child support receipt are not necessarily sequential.

Child Support, Demographic Characteristics, and the Housing Environment

Decisions about moving are complicated and bound up with a host of decisions around family formation, labor market opportunities, childcare options, and affordability. All analyses control for demographic characteristics that prior research show are associated with moving, including mother's race, age, number of children, and the age of her youngest child (Anderson *et al.*, 2014; Coley *et al.*, 2013). Strengths of these data are the detailed information available on the amount of child support received, earnings, and participation in means-tested programs including housing assistance. We include a variable for monthly income that captures wages and cash assistance from participation in TANF because they are correlated with child support regularity (Cancian & Meyer, 2006; Ha *et al.*, 2011) and housing outcomes (Walter *et al.*, 2010).

Child support regularity, amounts of child support received, and W-2 cash benefits all come from monthly data; analyses use quarterly measures of mother's earnings, from which monthly averages are computed. All models include a control for rental housing costs using FMRs from the Department of Housing and Urban Development (HUD). FMRs are gross rental estimates compiled annually by HUD to set the payment standard for their Housing Choice Voucher program. FMRs for a two-bedroom unit based on custodial mothers' county of residence are appended to the microdata to reflect housing costs.⁸ HUD assigns the same FMR to different counties in the same metropolitan area, so variation in costs across counties within a metropolitan area will not be captured.⁹ In results not included, but available from the authors, substantive findings do not change when FMRs are excluded from the analyses.

Controls for whether the mother reports a housing subsidy, the FMR in her county of residence, and whether she resides in an urban county when the new order is established are included in all models. A continuous measure of the length of the order is included to control for the number of months in which we observe mothers' housing situation. An indicator for participation in SNAP is meant to serve as a proxy for economic vulnerability since lower income families are more likely to move (Astone & McLanahan, 1994), and less likely to be owners (Aaronson, 2000). The decision to move is likely influenced by different considerations for renters and owners. All else equal, renters typically sign a yearly lease, so location decisions may be dependent on the terms of the new lease and the size of any rent increase for the next contracted year. Owners, however, are less mobile due to the fixed costs associated with moving and selling. The data do not contain tenure status on the full sample of custodial mothers though an indicator for residence in an owned home is included for the SNAP sample. In results not included but available upon request, when controlling for homeownership among custodial mothers in the SNAP sample, estimates for the effect of child support receipt is slightly smaller in magnitude but remains statistically significant.

⁸FMRs have been used in prior work and produce results very similar to more refined measures of rental housing costs (Curtis, 2011; Curtis *et al.*, 2013).

⁹For example, Milwaukee County is part of a metropolitan area that includes both Milwaukee and Waukesha counties. As a result, these two counties share the same FMR, despite the fact that housing costs in these two counties may differ from each other.

Findings

Descriptive Results

In this section, we describe our sample, and examine patterns of child support regularity and moves over the study period. Since we define housing instability as moving more than once a year, we examine group differences between those who moved more than once a year, and those who moved once per year or less. To contextualize regressions examining the relationship between child support regularity and changes in quality following a move, we examine the average annual percentage change in home values by the number of moves per year, and by the proportion of months in which mothers received child support.

Table 1 examines the child support, demographic characteristics, and housing environment of the 13 329 custodial mothers in our sample. All dollar amounts are adjusted to reflect 2012 dollars. At baseline, the mean child support order amount is \$368 though it varies markedly with a standard deviation of \$282 while the mean amount of monthly child support received is nearly \$100 dollars lower at \$269 and a standard deviation of \$250. About a quarter of our sample is between 15 and 24 years old, 10 per cent of whom are younger than 20, while nearly 40 per cent are between 25 and 24 years old, and 35 per cent are 35 or older. Our sample of mothers is 62 per cent white, 15 per cent black, and 22 per cent other race, of whom 37 per cent self-identified as Hmong, Asian, or American Indian; in addition, 63 per cent of those in the other category identified themselves as of Hispanic ethnicity. Nearly two-thirds of mothers have children five years old or younger, with a mean number of children of 1.5. About half of these mothers were receiving SNAP at baseline, while 4.8 per cent report having a housing subsidy. As expected, monthly income varies substantially across custodial mothers with a mean of \$1251 and a standard deviation of \$1253, reflecting the diverse economic conditions of all mothers in Wisconsin who established new child support orders in 2002. There is significant variation in the housing value index across the sample with a mean value for an owner occupied single family home in the bottom-tier of the market of \$104 233, a standard deviation of \$28 367, a minimum value of \$41 900 (in Milwaukee), and a maximum of value of \$179 200 (in Verona).¹⁰ The mean FMR, our proxy for housing costs, is \$717 with a standard deviation of \$114. Housing costs across counties in Wisconsin varies substantially from \$544 in Marinette County to \$1092 in St. Croix County for a 2 bedroom apartment. A majority, 64 per cent of mothers, live in an urban county.

Turning our attention to the number of months mothers report receiving any child support and support within 25 per cent of the order amount, Table 2 presents the proportions receiving support across the number of months of receipt for 2002 through 2006. In general, as expected, the proportions of mothers receiving any support are higher than those who receive within 25 per cent of the order amount. Across all years, 13 per cent of mothers did not receive any support while between 14 and 20 per cent did not receive support within 25 per cent of the order amount. Across both measures and all years, between 9 and 15 per cent of mothers received support in only 1–3 months while between 21 and 31 per cent received

¹⁰The housing value index is determined at the zip code level. There are 21 zip codes in Milwaukee; the minimum value in our data is for zip code 53206. There are 20 zip codes in Verona; the maximum value in our data is for zip code 53593.

support between 4 and 9 months. Finally, when examining the proportion of mothers who receive support between 10 and 12 months, between 44 and 57 per cent report receiving any support and between 37 and 43 per cent report receiving support within 25 per cent of the order amount.

In Table 3, we explore the number of moves per year in the SNAP and non-SNAP sample; we do this because prior research suggests that economic disadvantage is positively associated with more moving and with moving more than once per year. Across both samples, we see that both groups become more stable over time, though the SNAP sample is significantly more likely than the non-SNAP sample to move in every year, and to move multiple times per year. Between 14 and 22 per cent of the SNAP sample reported moving once in any year, compared to between 0.3 and 2.5 per cent for the non-SNAP sample. Frequent moving, from twice to five times in a year is equally rare for the non-SNAP sample (0.1–0.3 per cent) compared to 2.9–5.4 per cent for the SNAP sample.

In Table 4, we compare mothers who moved more than once per year (frequent movers) to those who moved once or not at all (stable movers). We examine group differences across order amounts, amount of child support received, regularity of receipt, program participation, housing quality, housing costs, and demographic characteristics. Compared to stable movers, frequent movers had lower mean order amounts (\$241 compared to \$382), amounts received (\$139 compared to \$301), and months of receipt within 25 per cent of their order amount (24 months compared to 31 months). Mothers who moved more than once a year were also younger, had fewer though younger children, and were more likely to receive housing subsidies and SNAP. A larger proportion of black mothers are represented among frequent movers (29 per cent) than among stable movers (14 per cent), while 63 per cent of stable movers are white compared to 58 per cent of frequent movers. Mothers identified as a race other than white or black constitute 23 per cent of the stable movers, compared to 13 per cent of the frequent movers. As expected, mothers who moved more than once a year also had significantly lower monthly earnings (\$631 compared to \$1281), were more likely to live in an urban county, lived in an area where the housing values were lower (\$101 951 compared to \$106 705), and faced higher housing costs (\$737 compared to \$715). There were no significant differences across groups by the length of the child support order.

Finally, Table 5 shows housing value changes by move status and the regularity of child support receipt. Housing value changes are the result of housing market factors that cause appreciation or depreciation based on a host of factors that determine market prices.¹¹ Changes in the home value index following a move provide some descriptive information about the quality of the housing market into which mothers choose to relocate given income constraints. We examine average annual changes in the index for non-movers, those who had one move, and those who moved more than once per year. On average, those who did not move in a given year experienced a 13 per cent increase in the value of owner-occupied housing in their zip code, those who had one move experienced a 6 per cent increase in value, and those who moved more than once per year experienced an 8 per cent decrease in

¹¹Estimating changes in housing values is beyond the scope of this analysis.

value. Next, we consider the proportion of months in which the custodial mother received child support within 25 per cent of the amount owed and changes in the housing value index. Across all groups, we see a consistent pattern of housing value increases; the higher the proportion of months a parent receives child support, the larger the per cent increase in the value of housing in her area.

Multivariate Models

First, we present a series of pooled ordinary least squares (OLS) regression models to examine the associations between child support regularity and number of moves controlling for the amount of support received, mother's age, race, number of biological children and age of youngest child, earnings, housing subsidy receipt, SNAP receipt, FMRs, residence in an urban county, and length of the child support order. All pooled models use robust standard errors. Preliminary analysis did not reveal significant time trends in either the regularity of support or the number of moves. Table 6 presents the coefficients for the number of moves for any *amount of support* (column 1) and for *support within 25 per cent of the order amount* (column 2). Results for both measures and all covariates are very similar, so we will focus on column 2. All else equal, an additional month of child support within 25 per cent of the order amount would be expected to decrease the number of moves by 0.10, while an additional \$50 a month in child support would be expected to decrease the number of moves by 0.004. Mothers who are older, or who are caring for children older than age one, are expected to move less than younger mothers or mothers caring for infants, respectively. Black mothers, those who have received SNAP, and those who live in an urban county are all expected to move more than their counterpart white mothers, non-SNAP recipients, or those who live in a rural county. For example, SNAP receipt is predicted to increase the number of moves by 0.770, or three-quarters of a move. Finally, controls for the length of order, housing subsidy, and mother's earnings have the expected signs, while the year indicators account for housing market changes over time. For example, a \$100 increase in the FMR is expected to increase the number of moves by 0.02, while having a housing subsidy is expected to decrease the number of moves by 0.13.

Our next analysis focuses on the associations between the regularity of support and moving more than once in a given year. In Table 7, we present results from a logistic regression (ORs) estimating whether the mother moved more than once a year in 2004; we also include the parameter estimates and standard errors. We focus on results from 2004, but results from other years are substantively similar. These models measure child support regularity with monthly categories (1–3, 4–9, and 10–12), to capture how the number of months of receiving support within 25 per cent of the order amount is associated with moving more than once a year, all else equal.¹² To measure the annual amount of support received, we categorize support as \$900–1999, \$2000–4999, and \$5000–14 999. It is worth noting that though the final category, \$5000–\$14 999, has the widest range of amounts; the cell sizes for each category are roughly comparable and sensitivity tests using a number of different support categories produce similar results.¹³ We restrict this analysis to mothers who

¹²We tested the model with quarterly receipt as well as 1–3; 3–6; 6–8 and 8–12 months of receipt. Results are substantively unchanged.

received at least \$900 annually because child support regularity is only substantively important when this minimum threshold is met.¹⁴ We include all covariates noted in Table 6, along with a control for whether the mother moved in the previous year. Results indicate that receiving child support within 25 per cent of the order amount for 4–12 months is associated with a 12–10 per cent reduction in the odds that a mother will move more than once, compared to receiving support in 1–3 months, all else equal. In terms of the amount of receipt, mothers who received between \$5000 and \$14 999 in annual support have a 30 per cent reduction in the odds that they will move more than once, compared to those receiving between \$900 and \$1999. This suggests that payments equivalent to \$104 or more weekly are associated with housing stability; a similar result for housing quality was found by Walter *et al.* (2010). As expected, controlling for prior moves is important. If a mother reports moving in the prior year, the odds of moving more than once in the current year are increased by 68 per cent. The pattern of the relationship between housing subsidies and instability is similar to our findings in the pooled model examining the number of moves; housing subsidies reduced the odds of multiple yearly moves by 60 per cent. Mothers who received SNAP have dramatically increased odds, four times the likelihood than mothers who did not receive SNAP, of moving more than once a year. Participation in SNAP, as we expected, is a proxy for disadvantage, which is strongly associated with residential instability for custodial mothers. Mothers living in an urban county have 30 per cent increased odds of moving more than once in a year.

Our final analysis examines movers, and estimates the relationship between the monthly receipt of child support within 25 per cent of the order amount, and the change in the quality of housing following a move.¹⁵ Housing quality is measured in units of standard deviation, approximately equal to \$10 000. We use the pooled data in an OLS regression including the full set of covariates, and year fixed effects. Using standard deviation changes in the ZHVI allow us to capture both positive and negative changes in quality depending on the sign and magnitude of the coefficient. In Table 8, we present coefficients from this model. All else equal, an additional month of child support within 25 per cent of the order amount would be expected to increase housing quality by 0.089 of a standard deviation. This is equivalent to an expected increase in \$890 of housing value for movers in ($0.089 \times \$10\,000$). The coefficients for mothers who are black and other races are rather large and negative; suggesting that being non-white is associated with a decrease in housing quality following a move of between 0.77 and 0.19 standard deviations, or between \$7700 and \$1900 in home values. Consistent with prior analyses, all else equal, receiving SNAP is associated with a decrease in housing quality following a move of 0.12 standard deviations (\$1200), while moving more than once per year is associated with a decrease in housing quality of 0.04 standard deviations, or \$400 in home value.

¹³We tested the model with the following four different support categories: (1) \$900–\$4 999, \$5 000–\$9 999, and \$10 000–\$14 999; (2) \$900–\$3 999, \$4000–\$8 999, 9000–\$12 999, and \$13 000 or more; and (3) 15 categories in \$1 000 increments (\$900–\$999, \$1 000–\$1 099, \$1 100–\$1 199, etc.).

¹⁴We ran all models with the subset of mothers who received less than \$900 in annual support for whom child support regularity is insignificant. Results are available upon request.

¹⁵The timing of our move variable is measured with error. These results should be interpreted cautiously because we cannot ensure that the actual move occurred in the month we assign, and, therefore, the ZHVI we assign is also measured with timing error. It would be most precise to say we are capturing the SD change in housing quality around an observed move.

Sensitivity Analyses

While our results are robust to different categorizations of support amounts, it is possible that the presence of a custodial parent's new partner or spouse may be endogenous to housing mobility and the quality of that housing following a move. Limiting the study timeframe to five years reduces the likelihood that housing outcomes are driven by relationship changes, but it does not eliminate this possibility. In Appendices 1 and 2, we estimate robustness models for Tables 7 and 8 respectively, adding a proxy for the presence of additional adults in the home to the full models. Child support receipt may be impacted if there is a new romantic partner in the home, as evidence suggests that non-custodial parent contact and payments to non-resident children is likely to decrease (Juby *et al.*, 2007; Nepomnyaschy, 2007; Tach *et al.*, 2010). New relationships may also motivate a family to move, thus we may be concerned that the presence of additional adults in the household is associated with both regularity and our housing outcomes. Our proxy for additional adults is based on the number of people covered under the custodial parent's SNAP benefit. For Appendix 1, the results for the covariates are substantively unchanged so we show estimates for child support regularity and annual amounts with and without the inclusion of additional adults in the household. In Appendix 1, the inclusion of other adults in the household does not change the substantive findings, receiving child support in 10–12 months compared to 1–3 months, controlling for the annual amount received is associated with reduced odds of moving more than once a year while receiving support between \$5000–\$14999 annually is also associated with reduced odds of moving more than once per year. Mothers who did not receive any SNAP benefits (we cannot observe whether there are additional adults) have reduced odds of moving more than once per year relative to mothers who had two or more additional adults on her family's benefit. Mothers receiving SNAP who had no other adults in the household as well as those with only one additional adult also had reduced odds of moving relative to mothers with two or more additional adults.

For Appendix 2, the results for most of the covariates are substantively unchanged so we show estimates for receiving an additional month of child support, the amount of child support received as well as the age of the youngest child and mother's income on housing quality following a move. We include these two demographic covariates because they differ between models and suggest that even including a very rough proxy for recoupling helps to attend to some of the selection influencing the quality of a home after a move. When we include controls for other adults in the household, the estimate for an additional \$50 a month of child support, mothers earnings as well the age of the youngest child are no longer significant. An additional month of child support within 25 per cent of the order amount, however, remains significant and increases slightly in magnitude. Mothers with the most advantage, those not receiving SNAP whose additional household members are unobserved, have 0.124 of a standard deviation increase in housing quality (\$1240) following a move relative to mothers receiving SNAP who have 2 or more additional household members (a group that would include more than one economically vulnerable adult). Likewise, mothers without any other adult on their SNAP benefit or only one other adult have increases in quality following a move compared to mothers living with more than one other poor adult. These results indicate the importance of a covariate indicating the presence of a partner or other adult household members, but they also suggest that our main findings are not

particularly sensitive to this additional control. Because we are not able to identify the relationship of the additional adult(s) to the custodial parent, we are unable to further examine this association; but the addition of this proxy for current marital or cohabitation status suggests our results are robust to controlling for the presence of a partner in the custodial parent's home.

Summary and Conclusions

Given the potentially destabilizing effect of housing instability for children, the relationship between the regularity of child support income and housing outcomes is an important concern. Despite the lack of US research on this topic, Australian studies suggest that substantial, regularly received child support may help to improve custodial mothers' housing outcomes. If custodial mothers are able to rely on the regular receipt of child support payments, and if the support received is enough to make a substantial contribution to the family's budget, this income source may help mothers to obtain higher quality housing. Further, such regular support may help mothers to remain in that home over time, and thus avoid the disruptive experience of moving. Our results provide evidence supporting this hypothesis, as we find that even controlling for the total amount of child support received, increased regularity in child support payment is associated with decreased housing instability. In addition, we find that increased child support regularity is associated with living in an area with higher cost homes following a move, holding constant several other factors that influence both moving and the segment of the housing market that custodial mothers may have access to. Our finding that an additional month of child support within 25 per cent of the order amount is associated with an \$890 increase in housing value may be substantively meaningful. Increasing child support regularity within 25 per cent of the order amount by several months has the potential to open higher cost housing markets to custodial mothers.

Using the ZHVI as a proxy for housing quality is a unique approach to this analysis, even given the likelihood that renters and owners may experience different housing units within zip code. Using a value index rather than an indicator of unit quality allows us to estimate the associations between child support regularity and moves among the entire population of custodial mothers. The difference between a measure of unit quality (severely inadequate housing) and value is both conceptually and practically important. The child support enforcement system is constructed for all custodial parents across the income distribution so an indicator of housing values is meaningful for the full population. Results suggest, as one would expect, that the role of regularity is most meaningful for lower income mothers; however, there is a negative association between regularity and moves and a positive association with housing quality following a move for the full sample. As we note earlier on, we cannot observe the household composition and household earnings of the most advantaged mothers, so full sample results are most likely underestimates of the relationship for the more advantaged. Future research that can capture all adults in a housing unit and their earnings may be particularly important for understanding housing outcomes among mothers living above the poverty level.

These findings should be interpreted cautiously for two reasons. First, our moving measure may not adequately capture temporal ordering because we cannot observe the precise timing of a move, since a change could have occurred in any month between the observations of different zip codes. Second, we cannot observe the shortest moves so are underestimating both the occurrence of moves and the relationship between regularity and housing outcomes. Missing within zip code moves is most problematic for lower income mothers who are more likely to move their families' short distances and for whom regular child support is most important. Future research in this area would benefit from geocoded addresses that allow all moves to be observed. Despite these limitations, our results hold up to various sensitivity tests, and consistently suggest a positive association between child support regularity and housing stability and quality for all custodial mothers with a new child support order in Wisconsin from 2002 through 2006, predating the housing crisis. Results suggest that housing outcomes are deserving of further research attention in the study of child support while housing policy scholars may benefit from considering the state regulatory environment around an increasingly important income stream for families.

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Appendix 1. The odds of child support regularity on moving more than once a year – controlling for other adults in the household

	Moved more than once per year Table 7		Moved more than once per year other adults	
	OR (SE)	β (SE)	OR (SE)	β (SE)
<i>Child support regularity</i>				
Received child support 1–3 months	Omitted		Omitted	
Received child support 4–9 months	0.884 * (0.355)	–0.123 * (0.213)	0.978 (0.332)	–0.022 (0.257)
Received child support 10–12 months	0.902 * (0.260)	–0.103 * (0.237)	0.882 * (0.261)	–0.126 * (0.258)
<i>Annual amount of child support received</i>				
\$900–\$1999 in child Support	Omitted		Omitted	
\$2000–\$4999	0.925 (.181)	–0.077 (0.177)	1.000 (0.184)	0.000 (0.174)
\$5000–\$14 999	0.709 ** (0.221)	–0.343 ** (0.272)	0.790 ** (0.230)	–0.236 ** (0.216)
<i>Other adults based on SNAP household information</i>				
2 or more adults in household on SNAP benefit	Omitted			
Additional adults in household are unobserved			0.177 *** (0.036)	–1.731 *** (0.244)

	Moved more than once per year Table 7		Moved more than once per year other adults	
	OR (SE)	β (SE)	OR (SE)	β (SE)
No other adults in household on SNAP benefit			0.712 ** (0.127)	−0.339 ** (0.179)
1 other adult in household on SNAP benefit			0.812 * (0.159)	−0.208 * (0.216)
<i>N</i> = 13,329				

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$.

For Mother's race, of those in the Other category, 37 per cent self-identified as Hmong, Asian, or American Indian, and 63 per cent identified themselves as of Hispanic ethnicity.

Appendix 2. Estimated associations between child support regularity and housing quality following a move—controlling for other adults in the household

	Housing quality change following a move	Housing quality change following a move + other adults
	β (SE)	β (SE)
Received child support within 25 per cent of order amount	0.089 * (0.037)	0.093 ** (0.039)
Amount of child support received (\$50)	0.005 ** (0.000)	−0.000 (0.000)
Age of youngest child	−0.020 * (0.010)	0.044 (0.027)
Mother's income (earnings + W2)	0.005 ** (0.024)	0.001 (0.001)
<i>Other adults based on SNAP household information</i>		
2 other adults or more in household on SNAP benefit		Omitted
Additional adults in household are unobserved		0.124 *** (0.036)
No other adults in household on SNAP benefit		0.083 *** (0.045)
1 other adult in household on SNAP benefit		0.100 *** (0.046)
<i>N</i> = 390,180 person-month observations		

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$.

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Table 1

Sample: child support, demographic characteristics, and the housing environment.

Sample characteristic	Mean or percentage	Standard deviation
<i>Child support</i>		
Monthly order amount (\$)	368	282
Monthly amount received (\$)	269	250
Length of child support order (months)	50.2	8.6
<i>Demographic characteristics</i>		
Mother's age		
15–24	25.8%	
25–34	39.6	
35–44	27.1	
45+	7.5	
Mother's race		
White	62.5%	
Black	15.3	
Other	22.2	
Number of biological children	1.5	0.7
Age of youngest child		
0–1	21.0%	
2–5	43.7	
6–10	18.8	
11+	16.5	
SNAP receipt	51.2%	
Mother's monthly income (earnings and W-2 assistance)	\$1251	\$1253
<i>Housing environment</i>		
Receives housing subsidy	4.8%	
Fair market rent (\$)	717	114
Urban county	63.8%	
Home value index (\$)	104 233	28 367
N = 13 329		

Note: All dollar amounts are in 2012 dollars. For Mother's race, of those in the Other category, 37 per cent self-identified as Hmong, Asian, or American Indian, and 63 per cent identified themselves as of Hispanic ethnicity.

Table 2

Months receiving child support by two definitions of regularity.

	2002	2003	2004	2005	2006
Months receiving any support					
No months (%)	13	13	13	13	13
1–3 months	12	11	10	10	9
4–9 months	31	23	23	21	21
10–12 months	44	53	54	56	57
Months receiving support within 25 per cent of order amount					
No months (%)	14	19	20	20	19
1–3 months	12	15	14	12	13
4–9 months	31	29	29	27	26
10–12 months	43	37	37	41	42
<i>N</i>	13 329	13 329	12 363	12 094	11 755

Table 3

Number of moves, by year and SNAP participation *

	2002		2003		2004		2005		2006	
	Non-SNAP (N = 6531)	SNAP (N = 6798)	Non-SNAP (N = 6531)	SNAP (N = 6798)	Non-SNAP (N = 7641)	SNAP (N = 4722)	Non-SNAP (N = 7569)	SNAP (N = 4525)	Non-SNAP (N = 7405)	SNAP (N = 4,350)
No moves (%)	97.2	71.7	97.4	78.7	98.3	79.4	98.8	79.2	99.6	82.9
1 move	2.5	21.9	2.3	15.9	1.5	16.1	1.1	16.4	0.3	14.2
2–5 moves	0.3	6.4	0.3	5.4	0.2	4.5	0.1	4.4	0.1	2.9
Total N	13 329		13 329		12 363		12 094		11 755	

* SNAP and non-SNAP groups are statistically different from each other within years for each move category at $p < 0.05$.

Table 4

Demographic characteristics at baseline, by mobility status.

	Mean (standard deviation) or percentage		Group differences
	Frequent movers (moved > 1 per year)	Stable movers (moved 1 or < per year)	
Monthly child support order amount	\$241 (\$135)	\$382 (\$297)	***
Monthly amount received	\$139 (183)	\$301 (290)	***
Number of months received within 25% of order amount	24.1 (17.0)	31.7 (16.8)	***
Length of child support order (months)	50.3 (7.9)	50.2 (8.64)	
Mother's age	25.1 (6.2)	31.2 (8.6)	***
Mother's race			
White	57.9%	63.0%	***
Black	29.0	13.8	***
Hispanic/other	13.1	23.2	*
Number of biological kids	1.3 (0.7)	1.5 (0.7)	***
Age of youngest child			
0–1	36.9%	19.2%	***
2–5	50.7	43.0	***
6–10	7.8	20.0	***
11+	4.6	17.8	***
Receives housing subsidy	6.9%	4.6 %	**
Receives SNAP	95.7%	46.4%	***
Mother's monthly income (\$) (earnings and W-2 assistance)	\$631 (\$672)	\$1,281 (\$866)	***
Fair market rent (\$)	\$715 (\$115)	\$737 (\$107)	***
Urban county	65.9%	44.5%	***
Home value index (\$)	\$101 951 (23 716)	\$106 705 (25 567)	**
	<i>N</i> = 1302	<i>N</i> = 12 027	

Note: For Mother's race, of those in the Other category, 37 per cent self-identified as Hmong, Asian, or American Indian, and 63 per cent identified themselves as of Hispanic ethnicity.

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$.

Table 5

Average annual percentage change in home values by moves and child support regularity.

Percentage change in home value index mean (SD)	
Average number of moves per year	
No moves	+13% (11%)
One move	+6% (5%)
More than one move per year	−8% (9%)
Proportion of months received within 25% of child support owed	
0–25%	+6% (5%)
26–50%	+9% (8%)
51–75%	+11% (9%)
76–100%	+14% (13%)

Table 6

Estimated associations between child support regularity and total number of moves.

	Received any amount of child support β (SE)	Received child support within 25% of order amount β (SE)
Child support regularity	-0.092 ** (0.027)	-0.104 ** (0.018)
Amount of child support received (\$50)	-0.011 *** (0.000)	-0.004 *** (0.000)
Mother's age	-0.032 *** (0.003)	-0.031 *** (0.002)
Mothers race		
White	Omitted	Omitted
Black	0.331 *** (0.050)	0.330 *** (0.050)
Other	0.016 (0.058)	0.014 (0.058)
Number of biological kids	0.009 (0.022)	0.008 (0.022)
Age of youngest child		
0-1	Omitted	Omitted
2-5	-0.095 * (0.044)	-0.094 * (0.044)
6-10	-0.218 *** (0.060)	-0.216 *** (0.060)
11+	-0.149 ** (0.080)	-0.147 ** (0.079)
Receives housing subsidy	-0.138 ** (0.067)	-0.137 ** (0.067)
Receives SNAP	0.772 *** (0.025)	0.770 *** (0.025)
Mother's income (Earnings + W2)	-0.004 *** (0.004)	-0.005 *** (0.004)
Fair market rent (\$100)	0.020 * (0.020)	0.020 * (0.020)
Geographic location		
Rural County	Omitted	Omitted
Urban County	0.121 *** (0.047)	0.122 *** (0.047)
Length of order	-0.007 *** (0.022)	-0.007 *** (0.022)
Year dummies		
Year - 2002	-0.064 ** (0.019)	-0.067 ** (0.019)
Year - 2003	-0.103 *** (0.011)	-0.104 *** (0.011)
Year - 2004	-0.078 *** (0.008)	-0.080 *** (0.008)
Year - 2005	-0.047 *** (0.006)	-0.047 *** (0.006)
Year - 2006	Omitted	Omitted
<i>N</i> = 799 740 person-month observations		

Note: For Mother's race, of those in the Other category, 37 per cent self-identified as Hmong, Asian, or American Indian, and 63 per cent identified themselves as of Hispanic ethnicity.

*
 $p < 0.05$;

**
 $p < 0.01$;

 $p < 0.001$.

Table 7

The odds of child support regularity on moving more than once a year.

Child support regularity	Moved more than once a year	
	OR (SE)	β (SE)
Received child support 1–3 months	Omitted	
Received child support 4–9 months	0.884 * (0.355)	–0.123 * (0.213)
Received child support 10–12 months	0.902 * (0.260)	–0.103 * (0.237)
<i>Annual amount of child support received</i>		
\$900–\$1999 in child support	Omitted	
\$2000–\$4999	0.925 (0.181)	–0.077 (0.177)
\$5000–\$14 999	0.709 ** (0.221)	–0.343 ** (0.272)
Moved in previous year	1.68 *** (0.153)	0.518 *** (0.087)
Mother's age	0.951 ** (0.016)	–0.050 ** (0.015)
Mother's race		
White	Omitted	
Black	0.890 (0.216)	–0.116 (0.221)
Other	0.834 (0.227)	–0.181 (0.253)
Number of biological children	0.991 (0.105)	–0.009 (0.103)
Age of youngest child	0.962 (0.030)	–0.038 (0.029)
Receives housing subsidy	0.402 ** (0.170)	–0.911 ** (0.061)
Receives SNAP	4.041 *** (0.063)	1.396 *** (0.207)
Mother's income (earnings + W2)	0.991 * (0.011)	–0.009 * (0.012)
Fair market rent (\$100)	0.981 (0.091)	–0.019 (0.082)
<i>Geographic location</i>		
Rural county	Omitted	
Urban county	1.303 ** (0.310)	0.265 ** (0.119)
Length of order N = 13 329	0.989 (0.107)	–0.011 (0.009)

Note: For Mother's race, of those in the Other category, 37 per cent self-identified as Hmong, Asian, or American Indian, and 63 per cent identified themselves as of Hispanic ethnicity.

*
 $p < 0.05$;

**
 $p < 0.01$;

 $p < 0.001$.

Table 8

Estimated associations between child support regularity and housing quality following a move.

	Housing quality change following a move β (SE)
Received child support within 25% of order amount	0.089 * (0.037)
Amount of child support received (\$50)	0.005 ** (0.000)
Mother's age	-0.001 (0.004)
Mother's race	
White	Omitted
Black	-0.771 *** (0.070)
Other	-0.189 ** (0.084)
Number of biological kids	-0.032 (0.052)
Age of youngest child	-0.020 * (0.010)
Receives SNAP	-0.123 *** (0.034)
Mother's income (earnings + W2)	0.005 ** (0.024)
Geographic location	
Rural county	Omitted
Urban county	0.140 *** (0.037)
Moved more than once per year	-0.040 * (0.049)
Order length	0.002 (0.116)
Year dummies	
Year – 2002	-0.921 *** (0.116)
Year – 2003	-0.735 *** (0.108)
Year – 2004	-0.517 *** (0.107)
Year – 2005	-0.339 *** (0.113)
Year – 2006	Omitted
N=390,180 person-month observations	

Note: For Mother's race, of those in the other category, 37 per cent self-identified as Hmong, Asian, or American Indian, and 63 per cent identified themselves as of Hispanic ethnicity.

*
 $p < 0.05$;

**
 $p < 0.01$;

 $p < 0.001$.