Doubling Up as a Private Safety Net for Families with Children

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Abstract

Low-income families rely on various sources of support, both public and private, to make ends meet. Although doubling up (moving in with relatives or nonkin) is a common source of support, previous research has not examined the economic value of doubling up as part of a family's income packaging strategy. Using longitudinal data from the Fragile Families and Child Wellbeing study, we examine doubling up as a source of private support—a private safety net—among families with young children. We find that doubling up is a very important private safety net in the first few years of a child's life, especially for single and cohabiting mothers. Although high rates of unemployment (and other macro-economic indicators) are associated with increased odds of doubling up, the effect is small, indicating that this particular private safety net is not an effective coping mechanism for families during severe economic downturns.

Keywords: Doubling Up; Private Support; Private Safety Nets; Fragile Families; Great Recession; Household Extension

Low-income families rely on a variety of income sources, both public and private, to make ends meet. Research on income packaging shows that many families combine earnings and public support to survive. Another literature demonstrates the importance of private and kin support in helping families cope with economic insecurity. Although both literatures document the importance of multiple sources of income and in-kind assistance, they largely overlook co-residence with kin and non-kin, or "doubling up," as an important source of economic support. Doubling up is likely to be of great economic value as it may lower housing costs, allow for sharing of other household expenses (food or utilities), while providing for other support, such as childcare. Doubling up has also increased over the last decade. In 2009, approximately 1 in 5 children lived in a doubled up household (Kreider and Ellis 2011). Yet no study has estimated the economic value of doubling up as part of a family's income packaging strategy. Nor have any studies compared the value of this particular type of private transfer to that of public programs designed to reduce income insecurity. Finally, doubling up may have increased in the Great Recession, as a response to economic insecurity. Although a couple of studies have investigated the association between individual unemployment and doubling up in the Great Recession, none have used macroeconomic indicators of unemployment, which are more exogenous indicators of household financial insecurity.

To address these gaps in the literature, we investigate three questions: 1) how common is doubling up among families with young children; 2) what is the estimated rental savings associated with doubling up, and how does this savings compare to the value of public transfers; and 3) did doubling up serve as a safety net (a successful counter-cyclical tool) during the Great Recession? We use data from the Fragile Families and Child Wellbeing Study (FFCWB), which follows a cohort of children born between 1998 and 2000. The FFCWB study is particularly well suited to these questions as the longitudinal data allow us to study doubling up over time among families

with young children. The data also include a large oversample of non-marital births, which allows us to investigate heterogeneity in doubling up by mother's relationship status: single, cohabiting and married. And finally, the latest round of data collection in FFCWB occurred during the Great Recession, which allows us to study the effects of unemployment during the Great Recession on doubling up, using exogenous macroeconomic indicators of the recession and exploiting the variation in these indicators over time to control for household fixed characteristics.

Background

Theory

Two theoretical models provide explanations about why families might double up: altruism (Becker 1974; Bengtson 2001) and exchange/reciprocity (Bernheim et al. 1985; Blau 1964; Homans 1961). Altruism theory suggests that concern for one's own progeny or kin, or norms of obligation, lead to increased assistance in times of need, where better off family members provide assistance to their less well off kin (or friends). Reciprocal or exchange theory posits that coresidence occurs when all members of the household stand to benefit from coresidence. Actors are self-interested and may benefit directly from coresidence. Altruism and exchange theory both predict that doubling up will be more prevalent when need (economic or other) is highest. Economic need as well as the need for assistance with parenting and childcare may be particularly high shortly after the birth of a child or during infancy, suggesting that doubling up will be most common when children are very young.

Doubling up is also expected to differ by mother's relationship status insofar as economic, social and community resources vary by relationship status (McLanahan and Sandefur 1994). Economic wellbeing in particular is strongly linked to both relationship status and doubling up (Glick and Van Hook 2011; Mykyta and Macartney 2012). Married mothers have higher incomes,

more wealth, and are more likely to be homeowners than cohabiting or single mothers (Grinstein-Weiss et al 2011; Waite and Gallagher 2000). Although cohabiting households have two potential earners, cohabiting couples are, on average, much less well-off economically than married couples (Bumpass and Lu 2000). Single mother households also have greater non-economic needs – such as childcare or housekeeping – than married or cohabiting-couple households, as they have only one parent to rely upon. Single mothers may also find doubling up more feasible than partnered mothers as they only include one adult (Kamo 2000). Thus, we expect married mothers to be the least likely, and single mothers to be the most likely to double up, with cohabiting mothers somewhere in between.

During a recession, economic need is likely to increase, and as such, the demand for doubling up will increase. Therefore, we might expect an increase in doubling up during a recession. In a recession, however, the effect on the supply of households available for doubling up is unclear. Supply is promoted by altruism, family obligations, and reciprocity, as well as the greater need among potential suppliers. But the supply of doubling up opportunities is also affected by the ability of the family network to provide housing, in which case, supply may not be able to meet demand. Consider a parent who has three adult children. In a recession, the parent and the children may all experience an increase in the need to double up. Next, suppose the children want to move into the parent's home which cannot accommodate three additional adults. In this scenario, although the demand has increased across the board, the parents may not be able to meet the demand of all the children. As a result, we might observe less doubling up than we would otherwise expect. Thus, although on aggregate we would expect doubling up to increase in a recession, the effect may be constrained by the supply of households available for doubling up.

In terms of how families will respond to a recession, we expect married mothers to be the least likely to double up and single mothers the most. Married mothers are more highly educated than single mothers and therefore less likely to experience unemployment. In addition, members of the same social network, especially family members, have similar traits, or are homophilous (McPherson et al 2001; Wimmer and Lewis 2010). Thus, not only the married mothers themselves, but also their networks, are less likely to be adversely impacted by unemployment than single mothers. Therefore, on average we expect single mothers to double up with greater frequency in a recession.

In sum, we expect doubling up to be most common in the first year or two of a child's life, to be most common when the child lives with a single mother, next most common for cohabiting mothers, and least common for married mothers. We also expect that single mothers will be most strongly affected by the recession.

Prior Empirical Literature

Sociologists have long recognized the importance of doubling up as a source of support (e.g. Edin and Lein 1997; Stack 1977; Tienda and Angel 1984; Hofferth 1984; Hogan et al 1990). None of these studies, however, has estimated the economic value of this type of support. Similarly, a substantial literature on housing has emphasized doubling up as a precursor to homelessness, while overlooking its potential value as a source of private support (e.g. Koebel and Murray 1999; Miron 1989; Mutchler and Krivo 1989; Wright et al. 1998). As doubling up reduces rental and other household expenses, it is likely to be a significant source of financial support. The current study builds upon, and extends, the prior literature on private support and housing by estimating the value of doubling up as part of the private safety net.

Although none of these studies examines the economic value of doubling up, they do provide information about the prevalence of doubling up and differences by mothers' marital status (e.g. Glick and Van Hook 2007; Kamo 2000; Ruggles 2007). According to cross-sectional estimates using Census data, about 20% of children were living in a doubled up household in 2009 (Kreider and Ellis 2011). Estimates based on families with children show that over a 4 year period, 7% of children lived with a grandparent at some point; 6% lived with another relative and 4% lived with a non-relative (Monte and Fields 2012). Co-residence is most common among single mothers (Beck and Beck 1989; Sigle-Ruston and McLanahan 2002), although many young married couples live with kin early in their marriage (Cherlin 1979; Monte and Fields 2012; Pilkauskas 2012).

Several studies examine the relationship between doubling up and macro-level indicators of the economy, but none have investigated the association between the Great Recession and doubling up in a multivariate analysis. One study of earlier recessions finds mixed results for the association between the unemployment rate and doubling up. Using two data sets, London and Fairlie (2006) find a positive association in one sample and no association in another. A few descriptive studies find that rates of doubling up increased during the Great Recession (Kennedy and Wimer 2012; Mykyta and Macartney 2011; Taylor et al. 2011), but the overall increase was modest (Rogers and Winkler 2013; Mykyta and Macartney 2012) and most pronounced among families with married parents (Morgan et al. 2011). Mykyta and Macartney (2012), for example, find that the percent of shared households increased by less than 2% from 2007 to 2010.[1]

Finally, several studies examine the association between doubling up and unemployment at the individual level during the Great Recession. Mykyta and Macartney (2011) find that individual unemployment is not associated with doubling up, whereas Wiemers (2011) finds that it is

[1] A few related studies on household formation (new renters and new owners) have found that unemployment is associated with a decrease in new household formation (Dunne 2012; Lee and Painter 2013; Painter 2010).

associated with an increase in the likelihood of moving into another person's household but a decrease in the likelihood of bringing another person into one's own household. Similarly, Elliot, Young and Dye (2011) find that individual unemployment is associated with moving in with kin. Studies of individual unemployment may be biased insofar as they are affected by personal choice and measure individual level changes rather than household level shocks. To investigate whether doubling up serves as a counter-cyclical safety net, we use three indicators of exogenous shocks to the household: the unemployment rate (measured at the city level), the foreclosure rate and mortgage delinquency rate (measured at the state level). Macroeconomic indicators also allow us to study the effect of an economic shock on the entire household, not just an individual.

Method

Data

This study uses data from the Fragile Families and Child Wellbeing (FFCWB) study, which follows a population-based sample of approximately 5,000 children born between 1998 and 2000, with an oversample of non-marital births. The data are representative of births in large US cities (populations over 200,000). Mothers and fathers were interviewed at the time of the child's birth, and follow-up interviews were conducted when the child was 1 (1999–2000), 3 (2001–3), 5 (2003–6), and 9 years old (2007–10). The 9-year follow-up survey began data collection just before the large stock market crash in December 2007, continued beyond the official end of the Great Recession (June 2009; National Bureau of Economic Research 2010) and included the peak unemployment rate in October 2009. The panel structure of the data and the timing of the most recent survey make these data ideal for studying the effects of the Great Recession on families with young children.

To study the economic value of doubling up and the associations between macroeconomic indicators and doubling up, we pool data across survey waves. To assess the economic value of doubling up, we use data from waves 2-5 since information on rental payments is not available at baseline. The baseline data provide information on most covariates in our model (and thus predate our measures of interest), and are also used for some additional descriptive trends (n=4898). The sample at each wave is as follows: 4364 for the 1-year follow up; 4231 for the 3-year follow up; 4139 for the 5-year follow up and 3515 for the 9-year follow up. The final analytic sample consists of 14,104 person-waves.

Analyses of the individuals who are missing from a survey wave, or who attrite completely show that, in general, those who attrite are more disadvantaged economically than those who do not attrite. They are also more likely to be immigrants and of Hispanic race/ethnicity. In the discussion section we consider ways in which attrition might affect the findings here.

Measures

Doubling Up

Doubling up is coded as one if a respondent reports living with a relative or adult non-relative at each survey wave. We also measure whether a mother was ever doubled up. A doubled up household may include living with grandparents, in-laws, siblings, aunts or uncles, non-related adults, and nieces or nephews over the age of 18. We do not consider a mother to be doubled up if she lives with a partner (either married or cohabiting), a biological or adoptive child, or other children or relatives under the age of 18. Although living with a married or cohabiting partner is a form of doubling up, we do not include those cases in our estimates, as the underlying motivations that prompt moving in with a partner (or moving out) are likely to be very different from those that prompt moving in with extended kin or non-relatives. The data do not allow us to distinguish

between mothers who bring others into their own home and mothers who move into another person's home, a limitation of this study.

Relationship Status

To understand differences by relationship status, mothers are coded as married, cohabiting or single at each survey wave. Mothers who are in a romantic relationship but not living with their partner are coded as single. We also measure relationship status longitudinally. This variable is coded as stably married, stably cohabiting, stably single and unstable relationship status, which indicates that a mother was living with a partner in at least one survey wave.

Economic Value

To assess the economic value of doubling up, we estimate the value of the rent a mother saves by doubling up. Although there are other possible economic benefits to doubling up, such as shared household expenses or childcare, this information is not available in the data, and thus we focus exclusively on rent. Using data on the rent paid by mothers who are not doubled up, we generate a predicted rent variable (our prediction equation includes basic demographic information, such as age, race, lagged measures of income, as well as city of residence) for the full sample of mothers. We then compare the actual rent that doubled up mothers report paying to their predicted rent to generate an estimate of the rental savings from doubling up. This estimate is equal to the difference between what mothers actually pay and what they would have paid in the absence of doubling up. About 80% of mothers who are doubled up have predicted rental savings greater than zero, meaning they would pay more than they currently pay if they were not doubled up. About 20% of mothers have predicted savings less than zero, meaning they would pay less in rent if they were not doubled up. We include mothers with both positive and negative values, as we believe this approach provides a more conservative estimate of the value of doubling up. The value of doubling

up is reported in annual dollars. Although some mothers who are homeowners are also doubled up, our measure of rental savings does not include them because we have no information on their rent. Thus, we ignore any savings (or possible expenses) that mothers who are homeowners may obtain by doubling up. About 15% of the doubled up population (32% of doubled up married mothers, 7% and 5% of cohabiting and single mothers respectively) are homeowners.

We also estimated the rental savings to doubling up by looking at the same mother when she was doubled up and not doubled up and comparing her rental expenses in the two situations. Because rental price is sensitive to the size of the household, we only compare mothers who are in the same relationship status with the same number of children at the two points in time. For example, if a mother was doubled up at year 1 but not doubled up at year 3, we compare her rent payments at 1 and 3 provided that she has not had another child and has not changed relationship status. This individual change method yields two types of estimates, average rental savings from moving in with others and average additional rent paid when moving out of a doubled up household, to create an overall rental savings estimate.

To study the relative value of doubling up as compared with other sources of income, we divide the dollar value of doubling up by mother's other income sources (earnings, private financial transfers, and government transfers). Mother's earnings are her annual earnings in dollars. Private financial transfers (from relatives or nonrelatives) are reported by the mother about the prior year in dollar amounts. We look at three sources of government support; public cash transfers (including the annual amounts of Temporary Assistance for Needy Families, Supplemental Security Income and other income assistance such as Unemployment Insurance or workers compensation), annual food stamp/Supplemental Nutrition Assistance Program amounts, and estimated public

housing/section 8 voucher values, using imputed value data from Garfinkel, Zilanawala and Schwartz-Soicher (2013).

Unemployment

We append the unemployment rate data to the FFCWB data using the Bureau of Labor Statistics Local Area Unemployment Statistics (LAUS). Unemployment rates are matched to the month and year of the mother's interview and to her Core Based Statistical Area (CBSA – similar to a Metropolitan Statistical Area). We append two different unemployment rates: one using respondent's CBSA at the time of the interview and one using respondent's CBSA at baseline (sample city). Additional analyses show that mothers who were living in a city with a higher unemployment rate at baseline were more likely to have moved to a new city. This finding suggests that the unemployment rate faced by mothers is partially a result of individual choice. If mothers move to a new city because the unemployment rate in her original city is high, she may face less macroeconomic hardship, and thus have less need to double up. If this is the case, the association between the unemployment rate in the new city and doubling up will be attenuated. By using the unemployment rate at the time of the baseline interview we partially deal with the problem that mothers may move. Analyses using the baseline city unemployment rate allow an assessment of the association between the unemployment rate that individuals would have faced in the baseline city and their likelihood of doubling up. We find similar associations when we use the baseline city or current city, and so we present results for the baseline city since we believe that unemployment rates are more exogenous in that specification.

For both the current and baseline city unemployment rates we construct an average unemployment rate over the 12 months prior to the interview. We investigated other lags, and found little evidence to suggest that a different specification was more appropriate. Shorter lags were

generally not associated with doubling up. Unlike other outcomes that might change quickly in response to a change in the unemployment rate (e.g. depression or smoking), residential mobility is likely to be restricted by leases and other constraints. The 12-month average allows respondents who experience a change in the unemployment rate to have time to react to that change.

Foreclosure/Delinquency

The foreclosure and mortgage delinquency rates are appended to the FFCWB data using the Mortgage Bankers Association National Delinquency Survey. Similar to the unemployment rate, the foreclosure and delinquency rates are appended to the data based on the state (rather than CBSA) in which the respondent lives and the month and year of the interview. Delinquency rates indicate the percent of loans that are behind on mortgage payments, but do not include loans that are in foreclosure. Foreclosures rates indicate the percent of all loans that are in foreclosure. As we do with the unemployment rate, we average the foreclosure and delinquency rates over the 12 month period prior to the mother's interview. Similar to the unemployment rate, we investigated mortgage delinquency and foreclosure rates using both the baseline state and current state rates and found very similar results between those sets of analyses. We report the baseline state analyses here, but the other analyses are available from the corresponding author upon request.

Covariates

We include a number of control variables in our models that may be associated with doubling up and the propensity to live in a city with high rates of unemployment. Control variables include race (coded as non-Hispanic White, non-Hispanic Black, Hispanic, and other non-Hispanic race), education (coded as less than high school, high school, some college and college or higher), immigrant status (foreign born), birth order of focal child (first, second, third or higher), whether mother lived with both parents at age 15, family's income-to-needs ratio (using the US Census

Bureau's official poverty thresholds, adjusted by family composition and year), whether the focal child is a boy, and whether the child was born low birth weight.

We also control for mother's mental health, using the Composite International Diagnostic Interview-Short Form (Kessler et al. 1998), which assesses whether respondents experience a major depressive episode (dysphoric mood or anhedonia; hereafter "depression"), mother's impulsive behavior, using Dickman's (1990) six-item impulsivity scale that assesses items such as whether the mother often does or says things without considering the consequences, and mother's substance abuse, measured as whether drugs or alcohol use interfere with her life. Depression is measured at the 1-year follow up interview and asks about depression in the preceding year; impulsivity is measured at wave 3 but is considered to be a personality characteristic that does not change over time. All other control variables are measured at baseline.

Dummy variables for city of residence and survey wave are also included in the model as are three time varying covariates: one for survey wave (or time), one for child's age, measured in months, and one for mother's age (less than 20, 20-24, 25-29, 30-34, 35+).

[Table 1 about here]

Table 1 provides weighted descriptive statistics on the sample characteristics by doubled up status and mother's relationship status. On average about 22% of the mothers in our pooled sample are doubled up, with single mothers being significantly more likely to be doubled up (38%) than married (13%) or cohabiting (25%) mothers. Overall mothers who are doubled up pay about $2,850 per year less in rent than mothers who are not doubled up. Across all groups, mothers who are not doubled up pay more than those who are doubled up, although the difference is much smaller for married mothers ($1200) than it is for single mothers ($3000). The smaller difference for married mothers, as compared to cohabiting or single mothers, may be driven by the fact that married

mothers are more likely than other mothers to pay rent when they are doubled up. Only 8% of married mothers pay no rent, compared to 18% of cohabiters and 32% of single mothers.

Differences in mother's characteristics by doubled up status are large. On average, children and mothers in doubled up households are younger than their counterparts in other households, and mothers are more likely to be Black or Hispanic, and to have lower levels of education, than other mothers (although the latter is not true among single mothers). Income is lower among doubled up households, but differences by relationship status reveal that the overall average is driven by differences between married mothers; mothers who are single or cohabiting have similar incomes regardless of whether they are doubled up or not. Mothers in doubled up households have significantly higher scores on impulsive behaviors, are less likely to have grown up with both parents, and are more likely to be having their first birth.

Analytic Approach

Much of this study is descriptive in nature, and we use bivariate (weighted) statistics to document the share of doubled up families and the value of doubling up. To assess the association between unemployment and doubling up we conduct both logistic and logistic individual-fixed-effects regressions. Equation 1 represents the general model to be used in the analyses[2]:

$$Y_{it} = \beta_0 + \beta_1 UR_{ct} + \beta_2 Z_{it-1} + \beta_3 X_{it} + \alpha_c + \alpha_t + \varepsilon_{i,c,t} \qquad (1)$$

where Y_{it} is the *i*'th respondent's doubled up status at time (wave) *t*, UR_{ct} is an indicator of the unemployment rate (or foreclosure or delinquency rate) in city *c* at time *t*, Z_{it-1} is vector of covariates that includes basic demographic characteristics and other important covariates that may

[2] Specifically the Logit model has the form: $\Pr(Yit) = \frac{e^{(\beta 0+\beta 1URt+\beta 2Xi+\varepsilon it)}}{1+e^{(\beta 0+\beta 1URt+\beta 2Xi+\varepsilon it)}}$

be correlated with both unemployment and doubling up measured at the baseline survey, and X_i includes time varying control variables (age and year). α_c and α_t are vectors of dummies for baseline city and survey wave respectively, and, ε is the disturbance term. All models are clustered at the baseline city level to account for the within-city correlation in the observations. The main parameter of interest is β_1.

In addition to the model above, we run individual fixed-effects models. Equation 2 represents the general model for the individual fixed-effects analyses:

$$Y_{it} = \beta_i + \beta_1 UR_{ct} + \beta_2 X_{it} + \alpha_t + \varepsilon_{i,c,t} \qquad (2)$$

where X_{it} represents time varying covariates (survey wave, mother's age, child's age) that are included in the individual fixed-effects regression. Individual fixed-effects analyses model the association between a change in the macroeconomic indicator and a change in doubling up status controlling for unobserved time invariant characteristics of the mother that might be associated with both place of residence (or the macroeconomic indicator) and doubling up. These models estimate the effect of a change in the unemployment rate on a change in the odds of doubling up.

Results

How Common is Doubling Up?

Doubling up is very common. Figure 1 displays the percentage of mothers who are doubled when their child is 1, 3, 5 or 9. Forty-three percent of mothers are doubled up in at least one of the 4 survey waves, and this number is likely an underestimate since household status is only recorded at the time of the interview and since mothers are only interviewed periodically. If baseline data are included in the analysis, 49% of mothers are doubled up in at least one wave. Figure 1 also demonstrates the large amount of variation in doubling up by relationship status (which is measured

across all 4 survey waves). As expected, mothers who are stably married are significantly less likely to ever double up (27%) than mothers who are stably single (62%), whereas mothers who are stably cohabiting (52%) as just as likely to double up as mothers in unstable relationships (54%). Stably single mothers are the most likely to double up.

[Figure 1 around here]

If we look at doubling up by the child's age, we see that doubling up declines substantially as children (and parents) age. Figure 2 plots the weighted percent of households doubled up by child's age and mother's relationship status (measured at the survey wave). As shown in the graph, families are most likely to be doubled up around the birth of a child, with the prevalence declining as the child ages. Differences by relationship status are large. Single mothers are by far the most likely to double up when their child is an infant, and they also experience the sharpest decline in doubling up as children grow older. In contrast, the percent of married and cohabiting mothers who are doubled up is much lower in infancy and declines only slightly. This figure supports our earlier expectations that doubling up would be the most common when the need is greatest, shortly after the birth, and that single mothers would be most likely to double up, followed by cohabiting, and then married mothers.

[Figure 2 around here]

What is the Economic Value of Doubling Up?

The economic value of doubling up is estimated through rental savings. As noted earlier in Table 1, mothers who are doubled up pay about $2,850 per year less in rent than mothers who are not doubled up. Although comparing mean differences in rent paid by doubling up status provides an estimate of the rental savings to doubling up, it cannot account for many other characteristics that are associated with rent. As described in the methods section, to estimate a predicted rental savings,

we predict the rent that mothers would have paid if they were not doubled up (using a number of key demographic prediction variables) and compare this value to the rent they report paying. The difference between these two values is the predicted savings in rent due to doubling up. Recall that these estimates apply only to mothers who are renters and exclude mothers who are homeowners[3]. Table 2 presents the results from our estimates of the savings to doubling up. Overall, the estimated rental value of doubling up is about $2,430 per year, which is about $400 less than what we find if we just compare mothers who are doubled up with mothers who are not doubled up. Differences by mother's relationship status show that single mothers benefit the most from doubling up (about $3450 a year) and married mothers the least (about $600 a year), with cohabiting mothers in the middle ($2550 a year).

[Table 2 around here]

As noted earlier, we also estimate the value of rental savings from doubling up by comparing the same mother in both states (doubled up and not). This approach yields a rental savings estimate from moving into a doubled up household as well as an estimate of additional rent paid from moving out of a doubled up household to give an estimate of average rental savings. Although these figures are estimated on a relatively small sample of mothers who changed doubling up statuses and form whom we obtain rental information (n=733), they serve as another source of information and a robustness check on our predicted estimates. These estimates are reported in Table 2. We find that on average, mothers who double up save about $2046/year. Differences by relationship status are less pronounced when we use the individual change method; married and cohabiting mothers both save over $2000/year. In comparison, single mothers save about $2430 a year. The individual change approach yields slightly lower average savings but is similar in

[3] The rental savings for mothers who bring others into their home may be underestimated as it is not clear whether mothers include subsidies from others when asked about their rent.

magnitude to the predicted savings for the full sample. By relationship status, however, the individual change approach yields findings that are different than the predicted approach. This likely arises for two main reasons. First, the individual change approach is estimated on a more select sample, one that is about ¼ the size of the prediction sample. Second, the individual change approach yields findings only on married mothers who have moved households, and cannot estimate savings for those who remain in the same household, unlike the prediction method. As a result, these estimates select married mothers who are more unstable than the full sample of doubled up mothers. For this reason, we believe that the prediction method yields more precise estimates (and differences by relationship status are much more similar to the mean differences when we use the predicted method). Nevertheless, the similarity in the overall average findings between the predicted and individual change approaches, give us more confidence in the prediction estimates.

How does the Value of Doubling Up Compare to Other Sources of Income?

To get a sense of the relative value of the rental savings, we compare the value of doubling up (using the predicted method) with the value of several other sources of income (Table 2). With respect to earnings, the value of doubling up is equal to about 20% of mothers' own earnings. Differences by relationship status show that for married mothers the rental savings is worth only about 4% of her earnings, whereas for cohabiting and single mothers it is worth about 28% of mothers' earnings. As compared with public cash transfers, including Temporary Assistance for Needy Families, Supplemental Security Income and unemployment insurance, the rental savings from doubling up is worth about 65% of the public cash benefit (among those who receive a cash transfer). Food stamps are another key source of public support, and we find that doubling up is worth about 84% of the annual value of food stamps (for those who receive the benefit). As doubling up may be thought of as a private form of housing support, we also compare the value of

doubling up to the estimated value of public housing. Here we find that the value of public housing (among those who receive it) is far greater than the value of doubling up; doubling up is worth about 32% of the value of public housing. Differences in the relative value of different types of transfers by mother's relationship status show that the relative value of doubling up is smallest for married mothers and largest for single mothers. This finding is largely driven by the much smaller value of doubling up for married mothers. Differences in the dollar value of public benefits received (except for housing value) by relationship status are mostly small (and are available in Appendix 1).

Last, we study the value of doubling up relative to private cash transfers among mothers who received a transfer in the last year. We find that the rental value of doubling up is worth about 92% of the value of private cash transfers, suggesting that the value of doubling up is nearly identical to the value of private cash transfers. Here we find large differences by relationship status; doubling up is worth only 15% of the value of private cash transfers for married mothers, whereas it is nearly twice as valuable as private cash transfers for single and cohabiting mothers. These differences arise not only because the value of doubling up for married mothers is much lower than it is for cohabiting and single mothers, but also because the value of private cash transfers varies largely by relationship status. For married mothers, private cash transfers are on average about $4000/year, twice as large as that of single mothers ($1900) and three times as large as that of cohabiting mothers ($1300). Thus, for married mothers, cash transfers are a much more significant source of support than doubling up, whereas for cohabiting and single mothers, doubling up is much more important. In sum, the rental savings to doubling up are large, especially for single and cohabiting mothers and similar in magnitude to that of food stamps.

Did Doubling Up Serve as a Safety Net in the Great Recession?

Our overarching research goal was to investigate the importance of doubling up as a private safety net. The first two research questions show that doubling up is very common and that the value of doubling up is relatively high for cohabiting and single mothers. Our last research question focuses on the importance of doubling up as a counter-cyclical safety net in times of macroeconomic crisis. The Great Recession was the worst recession since the Great Depression (National Bureau of Economic Research, 2010), as housing prices and stock markets plummeted and the unemployment rate increased. Many families experienced economic insecurity, and consequently we would expect doubling up to have increased; however, we also anticipate that supply, may be somewhat constrained. As noted earlier, the 5^{th} wave of data collection occurred during the Great Recession when unemployment, foreclosure and delinquency rates increased dramatically.

To study the importance of doubling up as a private safety net during macroeconomic crisis, we regress doubling up on the unemployment rate using logistic regressions with and without individual fixed-effects. The results, presented as odds ratios, are reported in Table 3. Starting with the full sample, we find that a one percentage point increase in the unemployment rate is associated with 2% higher odds of doubling up, but the coefficient is not significant. When individual fixed-effects are included in the model, the coefficient for the unemployment rate increases in size but remains insignificant; a one percentage point increase in the unemployment rate is associated with 4% higher odds of doubling up. The doubling of the odds ratio in the individual fixed-effects model suggests that there may be uncontrolled fixed characteristics of mothers that are associated with both the unemployment rate and doubling up and not controlled in the logistic model. For example,

mothers who are motivated to remain in their current city, even when unemployment rates are high, may also be more likely to double up.

[Table 3 around here]

Similarly, when we look at the models stratified by mother's relationship status, we find small and insignificant associations between the unemployment rate and the odds of doubling up in the logistic models but larger and more statistically significant associations when individual fixed-effects are included. [4] Specifically, a one percentage point increase in the unemployment rate is associated with 12% higher odds of doubling up among cohabiting and single mothers. Chow tests reveal that the coefficient for the unemployment rate for single mothers is significantly different than that of cohabiting or married mothers.[5]

The covariates in the logistic model without individual fixed-effects are generally in the expected direction and in keeping with prior literature on the predictors of doubling up. An increase in the child's age is associated with lower odds of doubling up. Mother's age is also related to the odds of doubling up; younger mothers have much higher odds of doubling up, whereas for older mothers the odds of doubling up are generally significantly lower. Mothers with lower levels of education and income are significantly more likely to double up, as are immigrant mothers. Mothers who have more than one child are significantly less likely to double up.

[Table 4 around here]

[4] The findings for the full sample fixed-effects results are weaker than the stratified regression results. This is due to different samples in the full models versus the stratified models. Fixed-effects regressions require a change in both the macroeconomic indicator and doubling up generate an estimate. Relationship status is coded at each survey wave so some mothers could be both married and single through the life of the survey but not experience a change in doubling up status when coded as one of the other, although they did experience a change when not stratified. Thus, the sample composition (and available changes on which to estimate the coefficients) changes over time so the overall results cannot be considered an average of the three stratified regressions.

[5] Although the odds ratio for cohabiting and single mothers looks the same, the odds are within groups (and on a different base) and thus, coefficients of the same magnitude may be statistically different from each other.

As doubling up is a housing phenomenon, we are also interested in studying whether measures of the housing market, which was also heavily impacted by the Great Recession, were associated with the odds of doubling up. Table 4 reports the main effects coefficients as odds ratios from the regressions for the unemployment, foreclosure and mortgage delinquency rates. We find that the associations between the mortgage foreclosure rate and the delinquency rate and doubling up are similar to the associations for the unemployment rate. In addition, as was the case with the unemployment rate, the findings for the mortgage delinquency and foreclosure rates are stronger when individual fixed-effects are included in the model. A one percentage point increase in the foreclosure rate is associated with 6% higher odds of doubling up and a one percentage point increase in the delinquency rate is associated with 5% greater odds of doubling up. For the mortgage delinquency rate, similar to the unemployment rate, Chow tests show that the effects for single mothers are significantly different than the effects for cohabiting or married mothers; a one percentage point increase in the mortgage delinquency rate is associated with 11% higher odds of doubling up for single mothers. These findings support the hypothesis that single mothers are more likely to double up in a recession, but we find little evidence to suggest that the association for cohabiters is different from that of married mothers.

Although the overall findings suggest a relatively small change in the odds of doubling up for a one percentage point change in the unemployment rate, this estimate does not capture the full impact of the Great Recession when the unemployment rate went from about 5% in 2007 to 10% in 2009. To estimate the effect of the Great Recession we conduct several additional analyses. First, we run predicted probabilities (converted to odds ratios) to assess the effect of a 5 percentage point increase in the unemployment rate. The Great Recession, as measured by the unemployment rate, is

associated with 21% higher odds of doubling up among families with children[6]. Second, in Table 5, we further estimate the effect of the Great Recession by considering the change in the value of doubling up during the recession relative to the change in value of other sources of public support. To estimate the change, we model the effect of a 5 percentage point increase in the unemployment rate on the change in the value of support. Using the coefficient from a linear specification of the individual fixed-effects regression of the unemployment rate on the various outcomes (doubling up, public cash transfers, food stamps and housing value), we then multiply the coefficient times five and estimate the effect on the value of that support.

[Table 5 around here]

Even when considering unemployment rates at levels experienced during the Great Recession, we find that the effect of high unemployment on doubling up, is relatively small. The percent of households with families that are doubled up is predicted to go from 21% to about 23% and the estimated change in the value is an increase of about $51/year. In comparison, when we investigate public cash transfers, we find that the effect of unemployment is larger (and significant), with an estimated increase of about 9 percentage points in the proportion of households with young children receiving a public cash transfer, from 21% to 30%. Not surprisingly, the increase in the value of public cash transfers as a result of the recession is larger than that of doubling up, about $337/year. For food stamps, a near-cash transfer, we find a significant predicted increase of 11 percentage points in usage (from 28-39%) and an increase in value of $318/year. Next, we find that the use of public housing is not very sensitive to the recession[7], although the association is marginally significant. Use of public housing or receipt of a housing voucher is predicted to be

[6] The foreclosure rate moved from about 1% to 4% during the Great Recession, an increase of about 300%, or 24% higher predicted odds of doubling up. The mortgage delinquency rate went from about 2% to 7% during the Great Recession, an increase of about 250%, 30% higher predicted odds of doubling up.
[7] This is in keeping with work by Pilkauskas et al. (2012).

about 3 percentage points higher, from 14 to 17%, during the great recession. Unlike doubling up, the value of public housing is high, and thus a small percentage change in the number of households in public housing translates to a relatively large increase in the annual value of public housing benefits, $230/year. Lastly, private cash transfers is predicted to increase by 4 percentage points (from 28-32%), but the annual increase in value is only $106. In sum, doubling up does not appear to be a very sensitive counter-cyclical tool, in particular when compared to other sources of government support.

Extensions/Robustness Checks

As noted in the measures section, we tested the sensitivity of the findings to the inclusion of different lags in the macroeconomic indicators and found that the average over the 12 month period fit best. We also ran a number of additional sensitivity analyses. First, we added the quadratic of the unemployment rate to our main model and found no evidence of nonlinearity in unemployment. Second, we tested the inclusion of a quadratic term for child's age and the findings remained unchanged. Third, using employment to population ratios (for individual aged 18-64) from two data sources, the LAUS and the Current Employment Statistics survey, we tested whether the results changed when employment rates were considered (as the unemployment rate may exclude discouraged workers who have left the labor force). We found few substantive differences between the employment and unemployment analyses, and the LAUS and CES results were also very similar.

Fourth, although the individual fixed-effects models control for unobserved time invariant characteristics of the mothers, they cannot account for unobserved time varying characteristics that might be associated with changes in the unemployment rate and the odds of doubling up. For example, a change in mother's health of the mother (or child's health) or the birth of a new child

might influence the decision to double up. Since changes in health (Ruhm 2005) and fertility (Morgan et al. 2011), have both been shown to be affected by recessions, we did not include these variables in our main model specification. Including them, however, does not change the substantive findings reported above.

Lastly, we were interested in investigating whether the association between the unemployment rate and doubling up might change if we focused specifically on the recession years. To address this question we conducted two analyses; one in which we restricted the analysis to the year 9 survey, and another in which we interacted survey wave with the unemployment rate. In the year 9 analyses the results for the mortgage delinquency and foreclosure rates were unchanged; however, the association between the unemployment rate and doubling up increased from 2% higher odds to 21% higher odds (and became highly statistically significant). Restricting the analysis to the recession survey wave results in a much smaller sample, limits the sample to households with children who are age 9, and reduces the overall variation in the unemployment rate (and cannot control for individual fixed-effects). Nonetheless, the large change in the association suggests that the effect of the unemployment rate in year 9 may differ from the effect in earlier waves. To further test this possibility, we used the pooled sample and interacted survey wave with the unemployment rate. Again, we found a larger, more statistically significant association of the unemployment rate and doubling up in year 9 – an odds ratio of 1.09 for the logistic regression with individual fixed-effects. Based on these analyses, we suspect that our earlier findings may underestimate the responsiveness of doubling up to unemployment in a recession. The true association likely lies somewhere between the 4% higher odds found in the individual fixed-effects full models, and the 9% higher odds found in the interaction models. Even at 9% higher odds,

doubling up would have increased by only 5 percentage points during the Great Recession, a modest counter-cyclical response as compared with food stamps or public cash transfers.

Discussion

The goal of this study was to assess the economic value of doubling up as a private safety net for families with young children. To do this, we first studied the frequency with which families with young children double up and how this changes as children age. Next we estimated the value of the savings in rent that families accrue from doubling up, and lastly we studied the value of doubling relative to public sources of support up as a safety net for coping with a major recession. This study is the first to estimate the financial benefit to doubling up. It is also the first to compare the rental savings from doubling up to the cash value of other public and private sources of support. We build on earlier research on macroeconomic indicators and doubling up by focusing on families with children, by studying variations by mother's relationship status, and by using longitudinal data and household fixed-effects to control for time invariant characteristics of families.

We find that doubling up is most common during infancy, and that the percentage of families who are doubled up decreases as children (and parents) age. Our descriptive findings also suggest that, on average, 21% of mothers are doubled up at any one survey wave, whereas twice that number are doubled up at some point during the first 9 years of their child's life. If we include doubling up at birth, the figure is close to half of all urban families with children. Given that nearly 1 out of 2 children born in large US cities has doubled up by the age of 9, research on social support, family processes, and in particular public policy, needs to consider the implications that these living arrangements have for policy and the wellbeing of families with children.

We hypothesized that single mothers would be more likely to double up than married or cohabiting mothers and found this to be the case. Similarly, we found that the estimated rental

savings value of doubling up was highest for single mothers ($3500), followed by cohabiting ($2500) and married ($600) mothers. This latter finding is not surprising given that nearly 1/3 of single mothers who are doubled up pay no rent as compared with only 8% of married mothers who are doubled up. Overall we estimate the rental value of doubling up to be about $2430, suggesting that doubling up is an important and valuable safety net. When we compare the value of doubling up to the value of private cash transfers, we find that although private cash transfers are worth six times as much as the value of doubling up for married mothers, for cohabiting and single mothers, the value of doubling up is nearly twice the value of the average private cash transfer and comparable to the average value of food stamps

It is important to note that we only estimate the rental saving associated with doubling up. There are many other potential economic benefits to doubling up, such as shared utilities or housework and access to informal childcare, as well as non-economic benefits such as emotional or parenting support. The economic value of these other components is not included in our estimate, and so we are likely underestimating the total economic value of doubling up. Of course, there may be economic costs associated with doubling up as well that we are not capturing in our estimates. If mothers who double up have to purchase additional food for the household, or if they need to share their public benefits (e.g. food stamps), these are financial costs to doubling up that we have not captured.

There also may be non-economic costs to doubling up. The literature on household extension is quite mixed and has found both positive and negative outcomes for children and mothers (Dunifon 2012). For example, the loss of privacy and independent living may provide emotional stress. Another negative consequence is household crowding which is linked with

increased noise and disruption and is associated with poorer cognitive and behavioral outcomes for children (Johnson et al. 2008).

Our final goal was to study whether doubling up was a responsive safety net by investigating whether it increased during the Great Recession. We found evidence that increases in the unemployment, foreclosure and mortgage delinquency rates were each associated with increased odds of doubling up, and that single mothers were more likely to double up during the Great Recession than married or cohabiting mothers. Interestingly, we found even stronger associations when we used individual fixed-effects models, which suggests that unmeasured characteristics of mothers may lead to underestimates of the link between unemployment and doubling up. To the best of our knowledge, ours is the first study to employ individual fixed-effects to study of this question. Although prior literature has argued that the unemployment rate is exogenous to the individual, the differences found here suggest that there may be other time invariant factors that are associated with both the propensity to live in a particular city and doubling up.

We estimate that during the Great Recession the predicted odds of doubling up was 21-20% higher, which translates into a very small increase in the total percentage of families that were doubled up – from 21% to 23%. This increase is similar the observed increase of about 2 percentage points between 2007 and 2010 for the whole U.S (Mykyta and Macartney 2012). Because the increase in doubling up was so small, the predicted change in the economic value of doubling up during recessions is also quite small, only about $60/year.

Our analyses of the year 9 data suggest that our estimates of the effect of high rates of unemployment may be too small, as the association is much larger when we focus exclusively on the Great Recession. Even so, when we consider just the Great Recession, the increase in doubling up continues to be small, especially in comparison to the increases in public transfers. We found

that the predicted increase in the value of public cash transfers, food stamps and public housing during the recession was about 4-5 times as much as the increase in the value of doubling up. In comparison, private cash transfers, were twice as responsive as doubling up and increased in value about twice as much, although still only a modest amount. In sum, although doubling up may be an important private safety net, public safety net programs are more responsive to macroeconomic shocks.

Why might doubling up be less responsive to macroeconomic shocks than some public safety nets? There are a number of possible explanations. First, we find that on average, 1 out of 5 mothers is doubled up even in good economic times, half of mothers are doubling up at some point during the 9 year period. Even if we exclude the recession years, doubling up is occurring at an extraordinary rate among families with young children. It may be the case that when the recession occurred, doubling up was no longer a viable option for many families, as they may have already exhausted their pool of available people with whom to double up. Or as noted earlier, the demand for doubling up may simply outstrip the supply of households available for doubling up. Second, doubling up is dependent upon having a network and not everyone has people with whom they can double up, in particular family. Recent immigrants, mothers with poor relations, or mothers with incarcerated family members, may have more limited access to family with whom to double up, which may also limit the responsiveness of her network to recessions. Third, while very important, economic recessions are only are one determinant of economic need, and economic need is but one determinant of doubling up. Other factors, such as age (of the mother and child), marital status, household size and health (of the parent, child or grandparent), are all strong predictors of coresidence.

The limited ability of private safety nets to expand in a recession, are part of the justification for public safety net programs, like unemployment insurance or food stamps, which are entitlement programs that can increase automatically, without the need for new legislation, as economic conditions deteriorate. On the other hand, our estimates that suggest neither doubling up nor private cash transfers were particularly responsive are made in the context of the existence of these public transfer programs. In the absence of public transfers, studies have shown that private transfers are larger (Lampman and Smeeding 1983; McGarry and Schoeni 2000). Thus, the existence of counter-cyclical public transfers may also explain the relatively weak responsiveness of doubling up and private cash transfers.

This study has some limitations. First, because the study follows a birth cohort, much of the variation in the unemployment rate – during the Great Recession – occurs when the children are aged 9. The results might differ if the sample included children of different ages when the recession occurred. Second, the periodicity of the panel means we are likely missing many doubled up households (doubling up that occurs between waves), and so our estimates are likely to understate the frequency of doubling up. Third, as noted above, we only estimate the rental savings associated with doubling up. Future studies that capture information on rent paid by boarders (for doubled up homeowners), but also other household expenses and in-kind services (like childcare), would make it possible to obtain a more comprehensive measure of the value of doubling up.

We find that, in general, mothers who attrite from the FFCWB survey are more economically disadvantaged and more likely to be Hispanic. In terms of the descriptive analyses, we expect that mothers who leave the sample are more likely to have doubled up, suggesting that our figures may further underestimate the prevalence of doubling up. In terms of our macroeconomic analyses, we might expect that during the Great Recession, the individuals who left

the survey may in fact be more vulnerable and have a greater need to double up than those who remained in the survey. If this is the case, attrition is likely to have dampened our findings.

Despite these limitations, our research suggests that overall, doubling up is an important source of support; it is used frequently, it is economically valuable, and it is somewhat (although minimally) responsive to macroeconomic shocks. These findings suggest that doubling up is a very important safety net, although in times of economic crisis the net may be stretched too thin. Doubling up in many ways is similar to non-entitlement programs, like public housing, where the supply is limited. Policies that consider other ways to address the housing needs of families with children during recessions are important.

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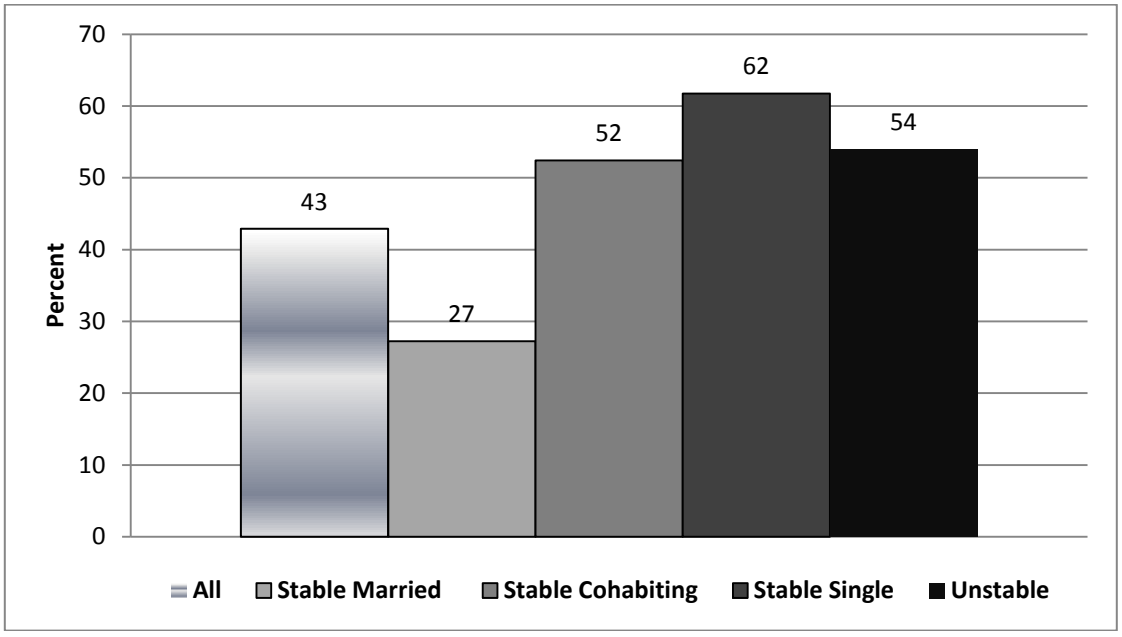
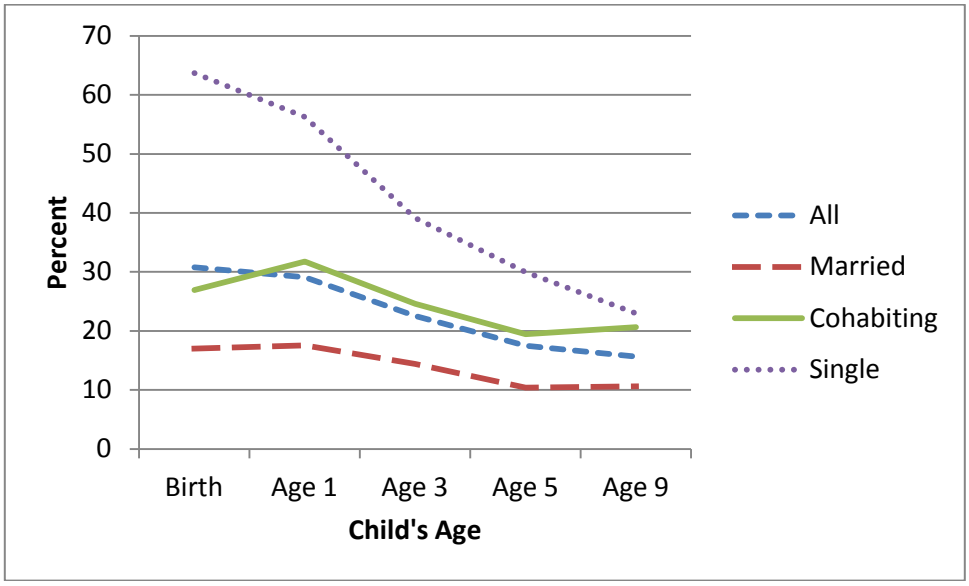
Figure 1: Percent *Ever* Doubled Up by Relationship Status (Over Time)



Note: Statistics are weighted using city weights. Differences between married mothers and the other groups are all statistically significant at $p<0.05$.

Figure 2: % Doubled Up by Child's Age and Mother's Relationship Status



Note: Statistics are weighted using city weights. Sample is restricted to mothers who responded in all waves. All differences by relationship status are significant at $p<0.05$ except: married vs. cohabiting at the birth and age 3, and single vs. cohabiting at age 9.

Table 1: Sample Descriptive Statistics by Doubled Up Status and Mother's Relationship Status (N=14104)

	Total		Married		Cohabiting		Single	
Mean or %	Doubled	Not	Doubled	Not	Doubled	Not	Doubled	Not
Doubled Up Status	21.5	78.5	13.2	86.8	24.5	75.5	38.3	61.7
Average Rent Paid [1]	*$4,764*	*$7,632*	$8,268	$9,444	*$4,584*	*$6,276*	*$2,988*	*$6,012*
Pay no rent [2]	22.1	NA	8.0	NA	18.1	NA	31.9	NA
Relationship Status								
Married	*31.0*	*57.7*						
Cohabiting	*27.4*	*21.7*						
Single	*41.6*	*20.6*						
Child's age (months)	*44.81*	*53.81*	*45.42*	*52.58*	*40.63*	*48.35*	*45.43*	*62.45*
SD	(34.03)	(35.52)	(35.64)	(35.54)	(32.13)	(33.72)	(33.41)	(35.49)
Mother's age								
<20	*6.0*	*0.8*	*5.0*	*0.2*	*4.7*	*2.6*	*7.5*	*0.8*
20-24	*29.2*	*14.1*	*14.3*	*7.1*	*36.9*	*28.2*	*36.1*	*21.9*
25-30	*26.7*	*23.2*	*26.1*	*19.5*	*25.0*	*33.1*	*26.7*	*23.6*
30-34	*18.4*	*26.6*	23.8	29.1	*17.2*	*20.9*	*15.6*	*25.1*
35+	*19.7*	*35.3*	*30.9*	*44.2*	16.2	15.3	*14.1*	*28.6*
Race/ethnicity								
Black	*40.8*	*33.0*	19.5	15.8	*41.6*	*54.4*	*55.7*	*62.5*
White	*17.5*	*34.6*	*26.1*	*47.5*	*9.3*	*12.2*	13.8	13.0
Hispanic	*36.3*	*25.9*	*43.0*	*26.4*	*46.1*	*31.0*	*28.4*	*22.7*
Other	*5.4*	*6.6*	11.3	10.2	3.0	2.4	2.1	1.8
Education								
Less than High School	*37.2*	*24.4*	*27.2*	*16.7*	*50.2*	*38.0*	39.1	37.9
High School	*37.1*	*32.1*	*37.1*	*24.8*	*33.3*	*43.2*	39.3	40.8
Some college	*17.6*	*19.9*	*15.1*	*22.3*	16.0	17.3	*19.8*	*15.8*
College +	*8.0*	*23.6*	*20.6*	*36.2*	*0.5*	*1.5*	*1.8*	*5.6*
Immigrant	*29.6*	*22.3*	*50.5*	*31.0*	*28.8*	*15.0*	*19.2*	*13.2*
Poverty-to-needs ratio								
<100%	*34.0*	*25.7*	*17.6*	*12.8*	44.0	46.5	*40.9*	*48.6*
1-200%	*34.9*	*24.8*	*42.5*	*22.4*	29.1	30.0	*33.6*	*25.5*
2-300%	*16.8*	*11.3*	*15.5*	*10.6*	*17.3*	*10.8*	*17.6*	*12.4*
300+%	2.1	2.0	*24.4*	*54.1*	9.6	12.7	*7.9*	*13.5*
Impulsive behavior (M)	*2.11*	*1.97*	*2.04*	*1.89*	2.08	2.05	*2.16*	*2.09*
SD	(0.58)	(0.59)	(0.55)	(0.57)	(0.59)	(0.59)	(0.60)	(0.63)
Depression	11.8	9.3	*6.0*	*8.0*	*14.0*	*11.0*	*14.4*	*11.4*
Substance abuse	1.2	1.2	*0.2*	*0.8*	1.4	1.6	2.0	2.1
Lived w both parents 15	*42.1*	*56.1*	*49.6*	*67.9*	*46.3*	*37.0*	*34.3*	*38.9*
Birth order of child								
First birth	*48.6*	*36.4*	36.0	38.2	*45.9*	*34.7*	*58.0*	*32.0*
Second child	*31.0*	*33.8*	*37.9*	*34.9*	31.6	32.9	*26.0*	*32.1*
Third child	*20.4*	*29.8*	26.1	26.9	*22.5*	*32.4*	*16.0*	*35.8*
Boy	57.0	55.9	59.3	59.3	55.2	52.6	*56.1*	*50.0*
Born low birth weight	*9.8*	*7.5*	3.2	3.2	*8.8*	*14.0*	14.3	12.8
N	3574	10530	688	4230	933	3061	1938	3206

Note: The sample is pooled waves 2-5. Statistics are weighted using city weights. N's are unweighted. Statistically significant differences at p<0.05 are noted in italics.

[1] Sample is only among renters (N=11954). [2] Sample is among doubled up renters (N=3181)

Table 2: What are the Rental Savings to Doubling Up? Predicted Rental Savings and Relative Values by Relationship Status

	Total	Married	Cohabiting	Single
Rental Savings - Predicted Estimates				
Annual rental $ savings from doubling up	$ 2,436	$ 600	$ 2,544	$ 3,456
Rental Savings – Individual Change Estimates				
Annual rental $ savings from doubling up	$ 2,046	$ 2,020	$ 2,070	$ 2,430
Value of doubling up relative to:				
Mother's earnings	20%	4%	27%	28%
Public cash transfers (TANF, SSI & UI/Workers compensation)	65%	19%	64%	90%
Food Stamps/Supplemental Nutrition Assistance Program	84%	21%	86%	120%
Public housing value	32%	10%	30%	44%
Private cash transfers	92%	15%	194%	179%

Note:
The sample is pooled waves 2-5. Statistics are weighted using city weights. Rental savings excludes homeowners.
[1] TANF = Temporary Assistance for Needy Families; SSI = Supplemental Security Income; UI= Unemployment Insurance.
[2] The relative value is based on data from Garfinkel, Zilanawala & Schwartz-Soicher (2013), they do not include year 9 data in the estimated housing value.

Table 3: Odds Ratios from Logistic and Individual Fixed-Effects Logistic Regressions of Doubling Up on the Unemployment Rate.

	All		Married		Cohabit		Single	
	Logistic	+FE	Logistic	+FE	Logistic	+FE	Logistic	+FE
Unemployment rate	1.02	1.04	0.96	1.04	1.02	1.12+	1.06	1.12*
	(0.59)	(1.29)	(-1.29)	(0.53)	(0.30)	(1.66)	(1.60)	(2.08)
Interview wave 2	1.09	0.41	0.01**	0.00**	1.57	0.05	1.54	0.74
	(0.16)	(-0.97)	(-4.11)	(-2.94)	(0.36)	(-1.30)	(0.42)	(-0.18)
Interview wave 3	0.88	0.38	0.03**	0.00**	1.14	0.06	1.01	0.48
	(-0.29)	(-1.34)	(-3.88)	(-3.04)	(0.13)	(-1.57)	(0.01)	(-0.53)
Interview wave 4	0.81	0.44+	0.08**	0.02**	1.11	0.14	0.84	0.47
	(-0.71)	(-1.67)	(-4.40)	(-3.29)	(0.16)	(-1.60)	(-0.33)	(-0.82)
Child's age	1.00	0.98*	0.96**	0.93**	1.00	0.96+	1.00	0.98
	(-0.80)	(-2.19)	(-4.10)	(-3.07)	(-0.11)	(-1.90)	(-0.43)	(-1.16)
Mother's age								
<20	1.95**	1.86**	2.87**	2.39	1.92**	1.40	1.99**	1.70
	(4.16)	(3.52)	(2.77)	(1.52)	(3.62)	(0.96)	(3.11)	(1.50)
25-30	0.82**	0.95	0.78*	1.42	0.84	1.04	0.80**	0.84
	(-3.71)	(-0.48)	(-2.33)	(1.36)	(-1.21)	(0.15)	(-2.85)	(-0.90)
30-34	0.65**	0.99	0.55**	1.01	0.86	1.08	0.55**	0.95
	(-5.55)	(-0.07)	(-4.09)	(0.03)	(-0.66)	(0.17)	(-4.70)	(-0.15)
35+	0.61**	1.65+	0.52**	1.39	0.69	1.72	0.51**	2.38+
	(-5.03)	(1.88)	(-4.06)	(0.60)	(-1.60)	(0.84)	(-6.39)	(1.77)
Relationship Status								
Cohabiting	1.57**							
	(4.58)							
Single	2.46**							
	(8.39)							
Race/ethnicity								
Black	1.01		1.28		1.05		0.67*	
	(0.15)		(1.38)		(0.25)		(-2.27)	
Hispanic	1.16		1.39		1.31		0.77	
	(1.27)		(1.43)		(1.44)		(-1.20)	
Other	1.45		2.13*		1.50		0.98	
	(1.47)		(2.25)		(1.15)		(-0.06)	
Education								
Less than HS	1.20**		1.13		1.54**		1.03	
	(2.80)		(0.76)		(4.79)		(0.34)	
Some college	0.98		1.01		0.85		0.95	
	(-0.31)		(0.08)		(-1.31)		(-0.45)	
College +	0.67**		0.88		0.60		0.67+	
	(-3.48)		(-0.72)		(-1.58)		(-1.69)	
Immigrant	1.50**		1.45*		1.53**		1.75**	
	(3.07)		(2.41)		(2.99)		(3.25)	

Table 3: Odds Ratios from Logistic and Individual Fixed-Effects Logistic Regressions of Doubling Up on the Unemployment Rate Continued

	All		Married		Cohabit		Single	
	Logistic	+FE	Logistic	+FE	Logistic	+FE	Logistic	+FE
Poverty-to-needs ratio								
<100%	1.27*		2.17**		1.16		0.96	
	(2.51)		(4.52)		(1.06)		(-0.26)	
1-200%	1.29**		1.69**		1.09		1.10	
	(4.15)		(2.99)		(0.59)		(0.83)	
2-300%	1.42**		2.30**		1.21		0.99	
	(4.42)		(4.61)		(1.33)		(-0.04)	
Impulsive	1.06+		1.09		1.04		1.04	
	(1.87)		(1.61)		(0.68)		(0.82)	
Depression	1.16		1.02		1.16		1.14	
	(1.53)		(0.11)		(0.94)		(1.13)	
Substance abuse	0.94		0.40+		0.97		1.16	
	(-0.35)		(-1.81)		(-0.16)		(0.55)	
Lived with both parents age 15	1.09		0.87		1.24+		1.18+	
	(1.56)		(-1.28)		(1.92)		(1.94)	
Birth order of child								
Second child	0.67**		0.88		0.67**		0.58**	
	(-8.61)		(-0.97)		(-4.55)		(-5.20)	
Third child	0.52**		0.70*		0.52**		0.43**	
	(-10.91)		(-2.48)		(-3.77)		(-5.02)	
Boy	0.97		0.95		0.93		1.05	
	(-0.60)		(-0.59)		(-0.81)		(0.74)	
Low birth weight	1.05		1.11		1.25		0.93	
	(0.67)		(0.73)		(1.50)		(-0.71)	
Constant	0.23*		33.66*		0.16		1.10	
	(-2.09)		(2.53)		(-1.23)		(0.07)	
Observations	14104	6306	4,918	1,100	3,994	1,137	5,144	1,881

Note: T-statistics in parenthesis. Sample is pooled waves 2-5. The logisitic regressions without individual fixed-effects also include city fixed-effects not shown here.

Results from Chow tests find that single mothers are statistically different ($p<0.05$) from married mothers in the logistic regressions, and different from both married and cohabiting mothers in the regressions with individual fixed-effects.

** $p<0.01$, * $p<0.05$, + $p<0.10$

Table 4: Main Effects Odds Ratios from Regressions of Doubled Up on Unemployment, Foreclosure and Delinquency Rates by Relationship Status

	Total	Married	Cohabiting	Single
Unemployment Rate				
Logistic [c]	1.02	0.96	1.02	1.06
	(0.59)	(-1.29)	(0.30)	(1.60)
+ FE [b,c]	1.04	1.04	1.12+	1.12*
	(1.29)	(0.53)	(1.66)	(2.08)
Foreclosure Rate				
Logistic [c]	1.03+	1.05	1.02	1.04
	(1.77)	(1.30)	(0.37)	(1.20)
+ FE	1.06+	1.14+	1.13	1.14+
	(1.67)	(1.71)	(1.34)	(1.81)
Mortgage Delinquency Rate				
Logistic [b, c]	1.03*	1.02	1.04	1.06*
	(2.19)	(0.91)	(0.88)	(2.43)
+ FE [b, c]	1.05*	1.06	1.10	1.11*
	(2.10)	(1.14)	(1.64)	(2.31)

Note: T-statistics in parenthesis. Sample is pooled waves 2-5. Regressions include the full set of control variables not shown here.
Statistically significant differences from Chow test ($p<.05$) are noted as follows: [a] married vs cohabiting, [b] cohabiting vs single, [c] married vs single.

** $p<0.01$, * $p<0.05$, + $p<0.10$

Table 5: Estimated Effect of the Great Recession - a 5 Percentage Point Increase in the Unemployment Rate

	Mean usage (%)	Mean value ($)	Estimated percentage point increase during the recession [1]	Estimated annual $ increase during the recession
Doubling up	0.22	2440	0.02	$51
Public Cash Transfers	0.21	3740	0.09**	$337
Food Stamps	0.28	2890	0.11**	$318
Public Housing	0.14	7670	0.03+	$230
Private Cash Transfer	0.28	730	0.04*	$29

[1] Estimated increases during the recession are based on individual fixed-effects regressions of the unemployment rate on public cash transfers, food stamps and public housing. The coefficient is then multiplied times 5, modeling a five percentage point change in the unemployment rate.

** $p<0.01$, * $p<0.05$, + $p<0.10$

Appendix 1: Additional Descriptive Statistics on Mother's Income Sources by Relationship Status

	Total	Married	Cohabiting	Single
Among the Doubled Up				
Mother's earnings	$ 12,435	$ 14,900	$ 9,560	$ 12,140
Among Benefit Receivers				
Public cash transfers (TANF, SSI, UI/workers compensation) [a,c]	$ 3,740	$ 3,230	$ 3,960	$ 3,835
Food Stamps/Supplemental Nutrition Assistance Program	$ 2,890	$ 2,816	$ 2,950	$ 2,880
Public housing value [a,b,c]	$ 7,670	$ 6,238	$ 8,475	$ 7,851
Private cash transfers from friends and family [a,b,c]	$ 2,640	$ 3,980	$ 1,314	$ 1,935

Note: The sample is pooled waves 2-5. Statistics are weighted using city weights.
Statistically significant differences at $p<0.05$ between: [a] married vs cohabiting, [b] cohabiting vs single, [c] married vs. single.
[1] Value is based on data from Garfinkel, Zilanawala & Schwartz-Soicher (2013), they do not include year 9 data in the estimated housing value.