



Published in final edited form as:

Demography. 2014 December ; 51(6): 2155–2178. doi:10.1007/s13524-014-0347-0.

The Effect of Unemployment on Household Composition and Doubling Up

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Abstract

“Doubling up” (sharing living arrangements) with family and friends is one way in which individuals and families can cope with job loss, but relatively little research has examined the extent to which people use coresidence to weather a spell of unemployment. This project uses data from the Survey of Income and Program Participation (SIPP) to provide evidence on the relationship between household composition and unemployment across working ages, focusing on differences in behavior by educational attainment. Using the SIPP panels, I find that individuals who become unemployed are three times more likely to move in with other people. Moving into shared living arrangements in response to unemployment is not evenly spread across the distribution of educational attainment: it is most prevalent among individuals with the less than a high school diploma and those with at least some college.

Keywords

Living arrangements; Unemployment

Introduction

A Pew Research Center survey found that 13 % of U.S. parents with grown children have one adult son or daughter who has moved back home in the past year, and about one-half of those living with their parents report doing so because of the Great Recession (Wang and Morin 2009). Trends in the Current Population Survey (CPS) bear out this phenomenon: between 2008 and 2010, the number of U.S. multifamily households increased by 1.6 million, and the number of young adults living with their parents increased by 8.4 % (U.S. Census Bureau 2010). During the same period, the unemployment rate nearly doubled from 5 % to 9 %. Although evidence suggests that young men with low educational attainment are more likely to live with parents during spells of unemployment (Kaplan 2012) and that young adults in areas with high rates of unemployment are more likely to live with parents (Card and Lemieux 1997; Kaplan 2012; Matsudaira 2010), few studies have taken a broader perspective on the relationship between doubling up and unemployment by including adults of all ages and doubling up in a variety of forms. Doubling up is not limited to young adults

living with their parents: single parents may move in with parents or grandparents, and families or individuals may move in with siblings or roommates.

Changes in employment status are likely to be positively related to changes in living arrangements through several mechanisms. Becoming unemployed lowers income, and families may use shared living arrangements to access in-kind transfers. Shared living arrangements also allow for greater returns to scale in household production. In addition to lowering income, unemployment lowers barriers to moving, making it easier for children to return to their parental home or for siblings to move in together.

This article examines the relationship between doubling up and unemployment for working-age adults using the Survey of Income and Program Participation (SIPP). I use the large sample sizes and panel structure in the SIPP to examine two relatively rare events: unemployment and doubling up. I show that becoming unemployed is associated with nearly a tripling of the probability of moving in with another household. The results further suggest that although doubling up is much more prevalent among those with less education, the relationship between unemployment and moving in with others is the strongest for young adults without a high school diploma and for those who have completed at least some college.

My results show that many “boomerang” children are young, well-educated adults who move back in with their parents when they experience unemployment, but that those without a high school diploma also use coresidence as a way to cope with a spell of unemployment. Although unemployment affects living arrangements for adults at both the bottom and the top of the distribution of educational attainment, the experience of doubling up is quite different for those at the bottom than it is for those at the top. I show that people with lower educational attainment move into a wide variety of types of living arrangements, whereas those with a college degree mostly move in with parents or with roommates. I further show that one-half of people with less than a high school diploma who move in with others end up in households with total household income below the median, whereas nearly one-half of those with a college degree move into households with total household income in the top quartile.

Background

When facing a period of unemployment, families rely on a variety of mechanisms to help maintain well-being. Although some sources of additional support, including public benefit programs and family transfers, have been studied extensively (Altonji et al. 1992, 1996, 1997; Blank and Card 1991; Browning and Crossley 2001; Cullen and Gruber 2000; Dynarski and Gruber 1997; Gruber 1997; Haider and McGarry 2006; Rosenzweig and Wolpin 1993, 1994), changes in household composition have been less extensively studied (Kaplan 2012; Rosenzweig and Wolpin 1993, 1994). The option to move in with others may be particularly important for younger and poorer adults and who lack savings to cover expenses through a spell of unemployment.

Substantial evidence suggests that for young adults, higher income and lower local unemployment are associated with decreases in coresidence with parents (Assave et al.

2002; Card and Lemieux 1997; Ermisch 1999; Iacovou 2010; Kaplan 2012; Manacorda and Moretti 2006; Matsudaira 2010; Wiemers 2014). Although increases in income among young adults increase the probability of leaving the parental home, increases in parental income are not clearly related to children living independently (Ermisch 1999; Iacovou 2010; Manacorda and Moretti 2006). Unemployment increases the likelihood that young men who are less well-educated move back home (Kaplan 2012), and periods of low earnings increase the probability of both parental transfers and coresidence (Rosenzweig and Wolpin 1993). Aggregate data from the United States and Canada echo the conclusions from studies using individual-level data. Card and Lemieux (1997), Matsudaira (2010), and Kaplan (2012) have shown that fewer young adults live with parents in states with more favorable labor market and housing conditions. However, because these studies examined the stock of children living at home, they could not identify whether young adults are more likely to return home or less likely to leave home when labor market conditions are poor. Although the literature in the United States emphasizes economic factors, the literature on home leaving in Europe emphasizes the importance of difference in preferences across countries and in the welfare state when explaining the differences in new household formation (Assave et al. 2002; Iacovou 2010). Most of the research on young adults focuses solely on living with parents; however, living with roommates and boarders may also be a way in which young adults cope with spells of unemployment.

Research on the living arrangements of the elderly shows that, like for young adults, higher incomes allow for independent living (Costa 1999; McGarry and Schoeni 2000; Schwartz et al. 1984). Fewer studies have looked at living arrangements across the life cycle. London and Fairlie (2006) examined the relationship between the living arrangements of young children and their parents and state unemployment rates. Using SIPP data, they found that the probability of children living in shared living arrangements increases with the unemployment rate, consistent with doubling up, although the effects are not large. Haider and McGarry (2006) found coresidence to be an important mechanism of resource sharing among the poor. However, they did not find a systematic relationship between living arrangements and state unemployment rates. Finally, Mykyta and Macartney (2010) examined doubling up during the Great Recession. Although the focus of their study was to describe trends in living arrangements during the Great Recession, they did find some evidence that during the current downturn, being unemployed is associated with a higher probability of living in a doubled-up household. However, they were unable to disentangle whether people who live in a doubled-up household are more likely to become unemployed or whether unemployed people are more likely to double up.

This article extends the literature on the living arrangements in three important ways. First, I examine the relationship between living arrangements and unemployment across working ages and across levels of educational attainment rather than focusing on only young adults or the elderly. Second, I take a broader approach to living arrangements, considering not only living with parents but also living with roommates or in other extended-family living arrangements. Although living with parents is the most common form of doubling up, more complicated living arrangements are also common, particularly for less educated and nonwhite families. Third, because I use data on transitions, I am able to focus on people who have lived independently and are moving into a shared living arrangement rather than those

who have never left the parental home. This distinction is particularly important for young adults if “failing to launch” and “boomeranging” back to the parental home have a different relationship to employment status. Young adults who have never left home may have weaker labor force attachment because they do not need to pay for housing, whereas young adults who have left the parental home may be forced to return when they become unemployed because they can no longer afford to live independently. More broadly, using transitions in employment and living arrangements allows me to examine whether becoming unemployed is correlated with moving in with others, thus disentangling this effect from whether individuals who already live with others are more likely to become unemployed.

Data and Descriptive Statistics

I use the 1996, 2001, 2004, and 2008 SIPP panels.¹ Each SIPP panel is a nationally representative sample of the civilian noninstitutionalized population of the United States and lasts between 2.5 and 4 years. People selected into the sample are interviewed every four months. The SIPP is a series of longitudinal surveys; within each panel, an original sample member who moves to a new address will be interviewed at the new address. In addition, the individuals with whom they reside at the new address are interviewed as long as they continue living with an original sample member. The SIPP is useful for studying living arrangements, particularly arrangements that may not be long-lasting, because of its high frequency of data collection.

Doubling Up in SIPP

In this analysis, I classify household structure to determine whether the household is doubled up. A household can be doubled up in three ways: (1) by containing both a parent and a child age 25 or older; (2) by containing three-generations even if the middle generation is younger than 25 years old; (3) by containing a nonchild relative or a nonrelative age 18 or older. I do not count people who live with an unmarried partner or with foster children as doubled up unless they also fit into one of these three categories. I count households that contain a parent and an adult child as doubled up only if the child is at least 25 years old.² Counting only those children aged 25 or older allows me to avoid concerns about endogenous school attendance decisions. Because I restrict the sample to individuals aged 25 and older, the age cutoff for children living at home does not affect the results.

Figure 1 shows the percentage of households living in a shared living arrangement over time. The breaks are due to gaps between SIPP panels. Over the entire period, about 14 % of households—about 16,000,000 households—are doubled up in one of the aforementioned three ways. The household figures correspond to approximately 20 % of all individuals in the United States living in a doubled-up household. The fraction of doubled-up households grows over time, increasing by more than 1.5 million households, with most of the increase

¹I use Waves 10–12 of the 1996 panel covering the period after 1998, when welfare reform had been fully implemented. There is mixed evidence that welfare reform affected living arrangements (Bitler et al. 2006).

²The classification in this article differs from that of Mykyta and Macartney (2010), who used an age cutoff of 18 years for children. Even with the differences in methodology, the levels and distribution of doubling up in this article are broadly consistent with their results.

occurring in the 2008 panel. These increases are consistent with the increases noted using the American Community Survey (Pew Research Center 2010). Figure 1 also describes particular subgroups of doubled-up households. It shows the percentage of households that are doubled up because of the presence of adult children as well as the percentage of three-generation households. The percentage of households containing an adult child increases from about 7 % to more than 8.5 % of all households, with most of the increase occurring after 2004. The percentage of three-generation households is relatively constant over time—a little over 3 %—although slightly higher in the 2008 panel.

Table 1 shows the percentage of individuals over age 25 who live in a doubled-up living arrangement by the age, educational attainment, race/ethnicity, and marital status of the individual.³ Doubling up is prevalent across adult ages, but young adults and the elderly (those aged 85 and older) are the most likely to live in a doubled-up household, and those aged 35–44 are the least likely to double up. However, even in the 35–44 age group, 17 % of individuals live in a doubled-up household. The form of doubling up also varies by age. Young adults, those aged 55–64, and the elderly are most likely to live in a household containing an adult child. For older adults, this is likely a care-giving arrangement, but those aged 55–64 are in the so-called sandwich generation, some of whom live with elderly parents and others of whom live with young adult children.

Characteristics associated with lower socioeconomic status (SES)—such as having less education and being nonwhite—are associated with higher probabilities of doubling up. One-third of individuals with less than a high school diploma live in a doubled-up household, compared with 15 % of college graduates. One in five whites lives in a doubled-up household, compared with nearly one in three nonwhites. Although doubling up is not rare even among those with a college education, the form that doubling up takes does differ by SES. For example, living in a three-generation household is very rare for whites and for college graduates. For those with less than a high school diploma and for nonwhites, the diversity of living arrangements is greater.

Doubling up is much more common for people who are unmarried than for people who are married. Living in a household containing an adult child is most common for widowed people (likely older widows and widowers who are receiving care from their adult children) and the never married (likely young adults living with parents). Living in a three-generation household is the most common for those who are separated, likely because recently separated adults move in with their parents for a period after their separation.

To look at the correlation between unemployment and doubling up, I generate a household-level variable for unemployment and examine the relationship between living in a doubled-up living arrangement and having at least one unemployed individual in the household. Only 5 % of non-doubled-up households contain an unemployed person compared with 13 % of doubled-up households. Of all households containing an unemployed person, nearly 28 % are doubled up compared with only 13 % of households in which no one is unemployed (not shown in the tables).

³The measure of Hispanic overlaps with race and includes all individuals who describe their origin as Hispanic.

Transitions in the SIPP

Living Arrangements—Doubling up is more common among households in which someone is unemployed, but this need not imply that people move in with others when they become unemployed. Because the SIPP is a longitudinal data set, it allows me to examine transitions in both employment status and living arrangements. However, transitions in employment status and living arrangements are observed systematically only for original sample individuals. I cannot simply regress the change in the unemployment status of all household members between t and $t + 1$ on whether the household becomes doubled up between t and $t + 1$ because of the unobserved transitions in employment status for people not in the SIPP sample. Those individuals who move in because they are unemployed will be observed, but those who become unemployed and do not move into a SIPP household will not be observed. If unemployed people are more likely to move in with others, these unobserved spells of unemployment that do not result in doubling up will bias the estimates of the effect of unemployment on doubling up away from zero.

To estimate the relationship between transitions in living arrangements and transitions in employment status, I examine only the employment status and living arrangement transitions of original SIPP sample members who will be followed regardless of their employment status and living arrangements. I examine two sets of transitions in living arrangements. First, I examine how becoming unemployed affects the probability that original SIPP sample members move into households with others. Second, I estimate the relationship between unemployment and the probability that original SIPP sample members receive a new person in the household. All original SIPP members who are not doubled up at time t are at risk of moving in with another household and at risk of having someone move in with them. In the first case, I examine the relationship between the characteristics of the original SIPP sample members and the probability that they move in with other individuals and become doubled up. In the second case, I examine the relationship between the characteristics of the original SIPP sample members and the probability that someone moves in with them and they become doubled up.

The analytic sample includes all original sample individuals who are age 25 or older in the SIPP and who are not doubled up in time t . I restrict my analysis to individuals who are age 25 or older because it allows me to abstract from potentially endogenous decisions about attending college.⁴ I keep all observations for the same individual as long as s/he meets the aforementioned characteristics. The final sample contains 190,221 individuals, averaging 6.88 observations per person. Table 2 shows the characteristics of the sample. On average, the sample is 50 years old, 85 % are white, and 70 % are married. About 40 % of individuals in the sample have a high school education or less, and about 60 % have at least some college. Slightly more than one-half are female.

In the SIPP, individuals are interviewed every fourth month and report about the current month and the prior three months. There are more transitions reported in the month in which the interview takes place than in the three months in which interviews do not take place

⁴Kaplan (2012) analyzes the relationship between unemployment and living with parents for younger men who never attended college and discusses the implications of selecting a sample by educational attainment.

(Moore 2008). Some of this so-called seam bias is likely the result of the Census Bureau imputing missing data, but it may also arise because respondents forget the timing of events and tend to report constant responses within a wave. To avoid spurious transitions resulting from seam bias in household composition and unemployment reporting, I include only the fourth reference month (for another example of this strategy, see Grogger 2004).⁵ Using only the fourth reference month means that I am examining transitions in employment status and household composition over a four-month period. This choice limits the number of transitions that I observe, but it also allows for some time after an individual becomes unemployed to change living arrangements.

Transitions in Employment—I measure employment in the fourth reference month of each wave. Individuals are counted as employed if they had at least one paid job in the month, unemployed if they have not have a paid job all month because they are unable to find work or are on layoff, and are out of the labor force if they do not have a paid job for other reasons. Individuals become unemployed if they are employed in time t and unemployed in time $t + 1$.⁶ Because transitions happen over the four-month period, some people who become unemployed have been unemployed for as many as four months—that is, if they lost their job in the fourth month of wave t and remain unemployed in wave $t + 1$. An average of 1 % of the sample become unemployed, and people who become unemployed have been unemployed for an average of three months. People who become unemployed experience an average decline in monthly household income of over \$2,000 (not shown in the table).

Transitions to Doubling Up—Most individuals who are doubled up are observed from the beginning of the panel in a doubled-up living arrangement. However, there are about 14,000 observations in which individuals move into a doubled-up household. I split this sample of people who become doubled up into individuals who move in and individuals with whom someone else moves in. The number of people who transition to doubling up because they move in to a new household is 2,376, compared with 11,871 who double up because someone moves in with them. The sample of those who move in is smaller for two reasons. First, there is more attrition among movers than among people who do not move: more-stable households are overrepresented in the data. Second, if individuals who move in with others tend to move in with larger households, then there will be fewer people who move in with others than people who live in households in which someone moves in. For example, if a young adult is living alone and moves in with her parents, one person (the daughter) would move in with others, but two people (the parents) have someone move in with them. In the tables in this section, I weight individual characteristics using the individual weights in the period after doubling up ($t + 1$). Because weights are attrition-adjusted, this should help with the attrition problem. However, if attrition is more common among unemployed people who move than among unemployed people who do not move, as

⁵To avoid spurious transitions, I also exclude all people with imputed employment status.

⁶The other possible transition to unemployment is to be out of the labor force in t and unemployed in $t + 1$. I check whether results are robust to counting these transitions as becoming unemployed and whether results are robust to including only people employed in t in the sample. Coefficients and standard errors are reported in the notes of Tables 4 and 5.

one would expect, attrition would bias the main results toward zero—that is, I would underestimate the effect of unemployment on moving in with others.

In Table 3, I compare the characteristics of individuals in these two groups and individuals who do not become doubled up at all. Table 3 shows that SIPP sample members who move into another household are younger than those who accept a new person into their household and younger than those who do not double up. They are also less well-educated. Sixteen percent of individuals who move in with others have a college education, compared with 21 % of individuals with whom someone moves in and 30 % of individuals who do not double up. Those who move to a doubled-up living arrangement are also more likely to be nonwhite than those who remain in a traditional family structure.

The differences in marital status between groups show that those who move in with others are about one-half as likely to be married and twice as likely to be never married, divorced, or separated than those people with whom others move in and those individuals who remain not doubled up. Those who have someone move in with them actually look quite similar to those who do not become doubled up in terms of living arrangements prior to someone moving in. Table 3 also shows the fraction of individuals who become unemployed, among those who do not double up, who have someone move in with them, and who move in with others. Six percent of individuals who move in with others also become unemployed compared with only 1 % of those who are not doubled up.

Empirical Strategy

I use transitions in employment and living arrangements to estimate the relationship between individual unemployment and moving in with others. I do not estimate the effect of individual characteristics on receiving a new person in the household. If individuals who become unemployed are more likely to move in with others, then examining the effect of individual characteristics on the probability of accepting a new individual into the household is problematic because I do not observe the employment transitions of the person who moves into the household. For this reason, I focus only on the effect of individual characteristics on the probability that an individual moves in with others.⁷ I estimate equations of the following form:

$$\Pr(\text{Movein})_{it} = \beta_1 \text{Unemployed}_{it} + \beta_2 X_{it} + \varepsilon_{it}, \quad (1)$$

where I regress moving in with others between time t and time $t + 1$ on becoming unemployed between t and $t + 1$, controlling for individual characteristics measured at time t including educational attainment, gender, race, marital status, age group, housing tenure, number of children, as well as a linear time trend, with panel and quarter fixed effects.

⁷I estimated Eqs. (1) and (2) on the outcome of receiving a new household member. In Eq. (1), the coefficient on unemployment is positive and statistically significant, showing that becoming unemployed increases the probability of receiving a new household member by 50 %. In Eq. (2), and in all subsequent estimates using individual fixed effects, the coefficient on unemployment is much smaller and not statistically significant. The differences between the results with and without fixed effects for the receiving households suggest that the coefficient estimates without fixed effects are biased upward by the unobserved transitions of the people who enter the household. Hence, analysis on these transitions is excluded from the article.

I use a linear probability model to estimate the effect of unemployment on doubling up.⁸ As a robustness check on my results, I estimate all models using a logit and conditional logit (for fixed effects models). For my main results, I report the coefficients from the linear probability model, which can be interpreted as marginal effects. I also report the odds ratios from the logit model, which are the ratio of the odds of moving in with others for those who become unemployed (P_1) relative to the odds of moving in with others for those who do not become unemployed (P_0):

$$\exp\left(\beta_{Unemployed}\right) = \frac{\frac{P_1}{1-P_1}}{\frac{P_0}{1-P_0}}.$$

However, because the odds of moving in with others is very small (that is, both P_1 and P_0 are close to zero), the odds ratio is close to the relative risk ratio. In this way, the marginal effects from the linear probability model can be compared with the odds ratio from the logit and conditional logit model.

Using only the characteristics of the original SIPP sample individuals is important in accounting for the missing data problem in which employment transitions for nonsample individuals are not observed uniformly. In particular, it is not possible to include in the regression the characteristics of the individuals with whom a SIPP sample person moves in. For those individuals who move in with others, I observe the characteristics of the people with whom they choose to move in. However, I do not observe characteristics of the people with whom they do not chose to live. For those individuals who do not move in with others, I do not know any of the characteristics of individuals in the network that they could potentially access; these characteristics are truly unobservable. Because of the unobservable characteristics of individuals with whom SIPP sample members could move in, I must be cautious in interpreting the coefficients. Any correlation between the characteristics of the SIPP individual moving in and the person with whom the SIPP individual moves in will be picked up in the estimated coefficients. For example, the coefficient on educational attainment is picking up the effect of education on doubling up if individuals who move in with others are more likely to have low educational attainment and/or if individuals who accept others into their household are more likely to have low educational attainment. The correlation between the characteristics of individuals who move in with others and those who receive them into their household is particularly problematic with the time-invariant characteristics, such as educational attainment and race. I include these coefficients to control for time-invariant characteristics that are correlated with employment status and doubling up, but I do not interpret the size of the coefficients. The employment transitions suffer from the same caveat. However, although the likelihood of experiencing a spell of unemployment is likely correlated among people who choose to live together, the realization of unemployment is likely far less correlated. For example, there are certainly situations in

⁸ Angrist and Pischke (2009) argue in favor of using linear models for discrete choice dependent variables, but because the probability of the outcome is low, the use of a linear model is less obvious. Nonlinear models with individual fixed effects are inconsistent for small T , large N because of the incidental parameters problem (Greene 2009; Lancaster 2000). The conditional logit can be used to estimate a nonlinear binary choice model with fixed effects captured in a sufficient statistic that conditions the likelihood function, similar to how fixed effects are differenced out in a linear model.

which a father and son get laid off from the same plant, but these cases are unlikely to be the norm.

Eq. (1) includes race, education, age, marital status, gender, housing tenure, and number of children, which are all observable characteristics that affect the probability that individuals will move in with someone and the probability that they become unemployed. However, there are many other observable and unobservable characteristics that I have not controlled for. In particular, individuals with closer family networks may have more unstable work trajectories because they know they can rely on family members. If this is true, the coefficient on becoming unemployed is biased upward in Eq. (1). To control for unobserved characteristics that may affect the probability that a person experiences a job loss and the probability that they move in with friends or family, I estimate the following model with individual fixed effects:

$$\Pr(\text{Movein})_{it} = \beta_1 \text{Unemployed}_{it} + \beta_2 X_{it} + \alpha_i + \varepsilon_{it}. \quad (2)$$

where α_i is a fixed effect for individuals. I regress changes in living arrangements between time t and time $t + 1$ on unemployment, controlling for age, a linear time trend, quarter of the year fixed effects, and individual fixed effects. Individual fixed effects control for any time-invariant characteristics that affect unemployment and moving in with others. Including individual fixed effects also reduces omitted variable bias from the unobservable characteristics of individuals with whom a SIPP sample member could coreside. The individual fixed effects in Eq. (2) control for any characteristics of individuals with whom a SIPP sample member could coreside that are fixed over time. Because of the short panels in the SIPP, these characteristics need to be fixed over an average of only a few years.

This article is focused on the relationship between employment transitions and doubling up. However, changes in marital status are also likely to be correlated with doubling up. Changes in marital status may also be correlated with changes in employment status; that is, a person could get divorced, relocate in order to move in with parents, and become unemployed as a result of this move. I conduct a series of robustness checks to control for changes in marital status, as discussed in detail later in the article. The results suggest that marital status is not driving the main results.

Results

Table 4 shows the results of estimating Eq. (1). The first column shows the results using a linear probability model, and the second column shows the odds ratios from a logit model. The results in columns 1 and 2 show that becoming unemployed increases the probability of moving in with another household by 1.2 percentage points on a base of 0.2 %. The odds ratio from the logit model suggests that the odds of doubling up are about four times larger when an individual experiences a spell of unemployment relative to when s/he does not. The odds ratios suggest slightly smaller effects than the linear probability models, but the change in odds is still statistically significant and large.

Consistent with the distribution of doubling up by educational attainment; moving in with others is associated with having less education. Individuals who are not married are more

likely to move in with others, as are renters and men, although gender is not statistically significant in the logit model. People with children in the house are less likely to move in with others. Young adults aged 25–34 and those without a high school diploma are the most likely to move in with others.

Table 5 shows the results from estimating Eq. (2) with individual fixed effects. Columns 1 and 2 show the effect of unemployment on moving in with others using a linear probability model and a conditional fixed effects logit model, respectively. In each case, the results show that including individual fixed effects decreases the magnitude of the coefficient on being unemployed by about one-half, but it remains statistically significant. Using the linear probability model, the coefficient implies that becoming unemployed nearly triples the probability of moving in with others even after unobserved characteristics using individual fixed effects are controlled for. The odds ratio from the conditional logit suggests an increase in the odds of doubling up by about two. As with the results without individual fixed effects, the odds ratios suggest slightly smaller though still statistically significant effects of unemployment on moving in with others.

The results from Eq. (2) show that the coefficient on unemployment estimated in Eq. (1) was biased upward. Families who are closer emotionally or geographically may be more likely to experience unemployment and experience doubling up, and this is captured in the fixed effect. The probability of becoming unemployed is also likely correlated across extended families. If individuals in the same family or in the same group of friends are more likely to be in the same industry—or, even more broadly, have similar educational attainment—probabilities of becoming unemployed are likely correlated across family and friend networks. The fixed effects control for that part of the correlation that is time-invariant. The fixed effects also control for characteristics such as housing tenure at time t and education that are correlated with higher probabilities of doubling up.

The fixed effect results are evidence that becoming unemployed nearly triples the probability of moving in with others. However, fixed effects do not control for all potential forms of unobserved correlation and unobserved heterogeneity. There may still be some unobserved correlation between the unemployment of SIPP sample members and individuals in their family or friend network that is not controlled for by using fixed effects. In addition, unemployment may not be exogenous. Individuals may become unemployed because they choose to move in with others. I would expect these remaining sources of unobserved heterogeneity to bias the coefficients away from zero.

Marital Status

Individual fixed effects also do not control for individual characteristics that vary over time. Marital status may change over time and is likely related to changes in living arrangements. It may also be related to changes in employment status. If unemployment is the result of a change in marital status that is accompanied by changes in living arrangements, then the coefficients on unemployment in Eq. (2) will be biased away from zero. In order to examine the robustness of my results to changes in marital status, I follow two complementary strategies. First, I include transitions in marital status as regressors in Eq. (2) to see whether including changes in marital status changes the coefficient on unemployment. I include

dummy variables for getting divorced, becoming widowed, and getting separated. By including changes in marital status in my regressions with individual fixed effects, I can examine whether the relationship between unemployment and moving in with others from Eq. (2) is merely picking up the correlation between changes in marital status, employment status, and living arrangements. Results from this specification are shown in Table 6, columns 1 and 2 for the linear probability model and the conditional fixed effects logit model, respectively. As I would expect, the effect of transitions in marital status on moving in with others is large. For example, getting separated increases the probability of moving in with others by over 5 percentage points. However, even after these changes in marital status are controlled for, the coefficient on unemployment is stable and remains statistically significant.

As a second check on the robustness of my results to changes in marital status, I estimate the effect of unemployment on a set of individuals for whom marital status is constant between two waves. I break this group into (1) a single sample, in which individuals remain single between time t and time $t + 1$; and (2) a married sample, in which both members of the couple are SIPP sample members and remain married to each other between time t and time $t + 1$. The married sample is separated into men and women, and I examine the effect of own unemployment and spousal unemployment on changes in living arrangements. The results are shown in Table 6, columns 3, 4, and 5. Column 3 shows the single sample, column 4 shows married women, and column 5 shows married men. The coefficient on unemployment for the single sample suggests that for this group, becoming unemployed nearly triples the probability of moving in with others. The coefficients of unemployment for the married sample are lower, but the probability of moving in with others is also lower. The coefficient on own unemployment for men and spouse unemployment for women suggests that when the husband in a married couple becomes unemployed, the probability of moving in with others increases threefold. There are no statistically significant effects of female unemployment in stable married couples. Both of these specifications suggest that unemployment has an effect on doubling up above and beyond changes in marital status. Because these changes in marital status increase the odds of moving in with others substantially, in what follows, I include the categorical variables for changes in marital status in the regression results.

Age Groups and Educational Attainment

Table 4 shows that the probability of moving in with others varies substantially by age, with young adults being the most likely to move in with others. Table 4 also shows that those with the lowest level of educational attainment are the most likely to move in with others and that renters are more likely to move in with others. Because unemployment is most likely to have an immediate effect on living arrangements for individuals without substantial savings, I would expect that the effect of unemployment on doubling up to be largest for young people, particularly those with low educational attainment and those who are just finishing college. Effects are also likely to be larger for renters than for homeowners. In order to examine the differences in the effect of unemployment on doubling up by age, educational attainment, and housing tenure, I estimate the following regression in which I interact unemployment with these characteristics. For example, for age groups, I estimate

$$\Pr(\text{Movein})_{it} = \beta_1 \text{Unemployed}_{it} + \beta_2 \text{Unemployed}_{it} \times \text{AgeGroup}_i + \beta_3 X_{it} + \alpha_i + \varepsilon_{it}, \quad (3)$$

using three broad age groups: 25–34, 35–64, and 65+. I control for age, changes in marital status, a linear time trend, quarter of the year fixed effects, and individual fixed effects.⁹ I include people over age 65 because they are still at risk of moving in with others, but in this age group, I would not expect unemployment to have explanatory power. I estimate similar models with educational attainment using four measures of educational attainment at the beginning of the SIPP panel (less than high school, high school graduate, some college, college or more). Because housing tenure may change as a consequence of moving in with others, I include interactions in housing tenure measured in the first wave of each SIPP panel. Table 7 shows the effect of unemployment on moving in with others by age group in panel A, educational attainment in panel B, and housing tenure in panel C.

Panel A of Table 7 shows that the effect of unemployment on moving in with others is highest for young adults but that for those aged 35–64, becoming unemployed also increases the probability of moving in with others. Unemployment has no effect on moving in with others for individuals over the age of 65. The effects by age are statistically different from one another. Panel B shows the effect on unemployment on moving in with others interacted with educational attainment. The results show that the effect of unemployment on moving in with others is largest for those with less than a high school diploma and for those with at least some college. The effect of unemployment on moving in with others for high school graduates is smaller than for the other three groups, statistically different from the other three groups, and not statistically different from zero. The effect of unemployment on moving in with others is not statistically different between individuals with less than high school, those with some college, and those who are college graduates. Panel C in Table 7 explores the interaction between unemployment and housing tenure measured at the first wave of a SIPP panel. Although the effect is larger for renters, differences between the groups are not statistically significant.

Taken together, the results are consistent with the idea that doubling up in response to unemployment measured over a four-month period is most common for individuals who are the least likely to have substantial savings to fall back on: namely, young adults and the least well-educated. Doubling up in response to unemployment is also common for those who have attended college. Young adults who have attended college may have little savings to fall back on when they become unemployed and may additionally be in the process of repaying student loans. These results suggest two patterns of doubling up in response to unemployment. First, lower SES young adults who become unemployed double up with others. This is likely a form of resource sharing to the extent that when they double up with other low-SES individuals, it may benefit both parties. Second, the results point to the “boomerang kid” phenomenon in which college-educated young adults move in with their parents. These results suggest that unemployment may be one reason why these young

⁹In Eq. (3), age group is defined by age at the beginning of the SIPP panel and does not vary through time. Thus, the direct effect of age group cannot be explicitly estimated because it is perfectly correlated with the individual fixed effect. How the effect of unemployment varies by age group relative to a base group can be estimated by including an interaction between unemployment and age group dummy variables, omitting the age group dummy variables themselves.

adults choose to move home. These results do not speak to the delayed transition to adulthood because young adults must separate from their parents first to be included in the preceding results.

The results in Table 7 show similar effect sizes of unemployment on doubling up for individuals with lower and higher levels of educational attainment. However, they say little about the whether the experience of doubling up differs for these two groups. One would expect the least well-educated are less likely to find themselves in a comfortable living arrangement free of material hardship than those with a college degree. To explore more fully the type of transitions in living arrangements that are being captured in the regression results, I examine characteristics of the households with whom individuals double up.

Table 8 shows the living arrangement transitions for young adults aged 25–34 who move in with others for those without a high school diploma and for college graduates. It shows, for example, that 10 % of individuals who move in with others and have less than a high school diploma go from being single before becoming doubled up to living with parents. It also shows that the most common transitions for young adults with less than a high school diploma are (1) to move from being married with children to a three-generation household, (2) to move from being single with children to living with related individuals other than parents, and (3) to move from being single to living with a parent. Moving from living with an unmarried partner to living with parents and from being single with children to living in a three-generation household are also common transitions. Table 8 also shows the living arrangement transitions for individuals with a college degree. It shows that 27 % of college-educated individuals who move in with others make the transition from living alone to living with parents. For young adults with a college education, the two most common transitions are moving from being single to living with parents, and moving from being single to living with unrelated individuals (most likely, roommates). These transitions are more than twice as likely as any other transition. These simple cross-tabulations show that moving in with parents is common across SES. In addition, nearly all high-SES young adults who move in with others move from living alone to either living with parents or living with unrelated individuals. Lower-SES young adults are less likely to be single before they become doubled up and are more likely to live with family members, even beyond their parents, when they do double up. Table 8 also suggests that changes in marital status are likely important for this group, which is why they are included in the regressions in Table 7.

Table 9 examines the household income that individuals who move in with others experience after doubling up for those with less than a high school education and those with a college degree. It shows the quartile of household income of the household into which the individual moves. Panel A shows that of the least well-educated, 60 % of those who move in with others end up living in a household with income below the median. Panel B shows that over 40 % of the college-educated individuals who move in with others end up in a household in the highest income quartile, and 75 % of them end up in a household with income above the median.

The differences between high-SES and low-SES individuals in both income and in the types of living arrangements that those who move in with others experience suggest that although

the effect of unemployment on doubling up may be similar across these groups, the experience of doubling up differs widely. In particular, the least well-educated may be better off than they would be on their own, but they are not well-off. They also have greater heterogeneity in the types of living arrangements that they are likely to experience. For the college-educated, moving in with others after experiencing unemployment most often means moving into a comfortable living situation either with parents or with roommates.

Conclusion

Numerous stories about job losses during the Great Recession and the increasing prevalence of “boomerang kids,” who return home after a period of independence, suggest that families live in multifamily homes to weather bad labor market shocks (Ip 2010; Luo 2010; Roberts 2010). This article explores the relationship between doubling up and unemployment empirically using the SIPP. Consistent with Mykyta and Macartney (2010), I show that doubling up has increased since the beginning of the Great Recession. In particular, the percentage of households containing a child over the age of 25 has increased by about 1.5 percentage points since 2004. I show a strong relationship in the cross section between having an unemployed person in the household and living in a doubled-up living arrangement. There are twice as many doubled-up households among the unemployed than households without any unemployed household members.

The main contribution of the article is to examine transitions in living arrangements in the SIPP panel. I use the high-frequency employment and living arrangement data in the SIPP to examine the effect of unemployment on moving in with others. In the preferred specification, using a linear probability models with individual-level fixed effects and controls for changes in marital status, I show that becoming unemployed is associated with nearly tripling of the probability that an individual moves in with others.

This article provides evidence that coresidence with family members and with other unrelated individuals may be an important mechanism that workers use to weather a spell of unemployment. I show substantial heterogeneity in the effects. Much of the effect of unemployment on moving in with others is driven by the young, but there is also evidence that even middle-aged adults move in with others when they experience unemployment. One reason why unemployment may affect living arrangements more for young people is that they are unlikely to have substantial savings, less likely to have a spouse who could increase their labor supply, and less likely to have been employed long enough to qualify for full unemployment benefits. This article examines only the effect of unemployment on moving in with others over a four-month period. An important extension is to look at the effect of lagged employment transitions on living arrangements, particularly for middle-aged adults, to see whether transitions to doubled-up living arrangements become more common after savings and unemployment benefits are exhausted. To further highlight the idea that the short-term effect of unemployment on moving in with others is associated with having few resources to fall back on, the results explore differences in the relationship between doubling up and unemployment by educational attainment. I show that the effect of unemployment on moving into shared living arrangements is isolated to those with less than a high school diploma and those with at least some college. These individuals, particularly young adults in

these categories, are unlikely to have substantial savings. For the least well-educated, their wages likely make precautionary saving difficult. For those who have attended college, student loan debt along with only a short period in the labor market may contribute to a lack of savings to fall back on.

Finally, the article shows descriptive evidence that although the effects of unemployment on doubling up are similar for individuals with lower and higher levels of educational attainment, the experience of doubling up differs substantially for these groups. In particular, those with less than a high school education are much more likely to live in three-generation households and with related individuals other than parents than those with a college degree. Almost everyone with a college degree who moves in with others makes a transition from being single to either living with parents or living with roommates. Further, after moving in with others, more than 40 % of individuals with a college degree live in high-income households, whereas 30 % of those with less than a high school diploma live in households in the lowest income quartile. Although moving in with others may make individuals with a high school diploma better off, many of them remain in the bottom of the income distribution even after they double up.

Acknowledgments

This project was supported by the National Poverty Center at the University of Michigan, using funds received from the U.S. Census Bureau, Housing and Household Economics Statistics Division through contract number 50YABC266059/TO002. The opinions and conclusions expressed herein are solely mine and should not be construed as representing the opinions or policy of the National Poverty Center or of any agency of the Federal government. The research presented in this article benefitted from the resources provided by the Population Studies Center at the University of Michigan and I am grateful for funding from the National Institute on Aging through Grant AG000221-17. For many helpful comments and suggestions, I thank the anonymous reviewers as well as Charles Brown, Sheldon Danzinger, V. Joseph Hotz, David Johnson, Kathleen McGarry, and Robert Schoeni; and Martha Stinson and Luke Shaefer for their assistance with SIPP data. All errors are my own.

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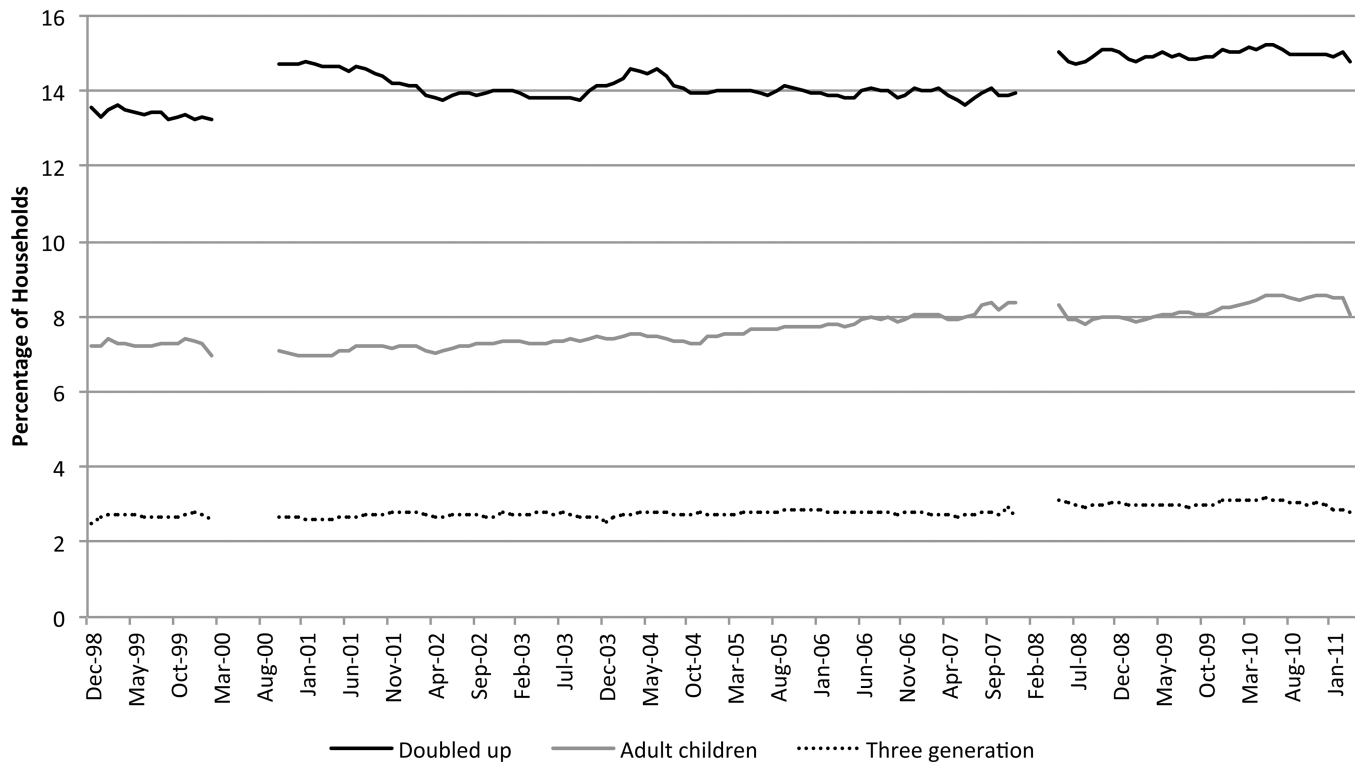


Fig. 1. Percentage of doubled-up households. Pools all households in all reference months and weights using household weights

Table 1

Characteristics of individuals in doubled-up households

	% Doubled-Up	% Three-Generation	% Adult Children	% Unrelated	% Related
Age					
25–34	29.25	5.48	11.38	6.46	5.21
35–44	16.85	4.68	4.86	3.43	3.58
45–54	20.79	5.00	9.04	3.11	3.45
55–64	22.71	4.65	12.46	2.19	3.31
65–74	19.70	4.39	10.36	1.41	3.43
75–84	20.39	3.86	11.70	1.32	3.41
85+	24.10	3.23	15.28	1.25	4.26
Education					
Less than high school	33.56	8.84	12.83	3.46	7.57
High school graduate	25.59	5.84	11.66	3.29	4.48
Some college	20.81	4.68	9.48	3.16	3.23
College or more	14.83	2.41	6.46	3.59	2.22
Race/Ethnicity					
White	19.79	3.96	8.84	3.36	3.34
Black	31.16	8.10	12.96	3.30	6.58
Asian	31.92	9.31	12.34	4.29	5.62
Other	34.12	11.04	12.77	4.21	5.67
Hispanic	36.10	10.77	11.08	4.34	8.70
Marital Status					
Married	13.28	4.11	5.78	0.77	2.48
Widowed	29.24	6.75	15.63	2.00	4.71
Divorced	26.72	5.36	9.70	7.03	4.31
Separated	34.27	9.61	11.57	5.67	6.95
Never married	46.44	5.49	20.88	11.28	7.88
Sex					
Male	22.74	4.06	10.30	4.06	3.95
Female	21.08	5.48	8.82	2.83	3.72

	% Doubled-Up	% Three-Generation	% Adult Children	% Unrelated	% Related
<i>N</i>	1,507,961	345,818	647,344	222,421	270,071

Notes: Table 1 includes all individuals age 25 and older in all reference months and is weighted using individual weights. Individuals who are living with an unmarried partner are listed under their legal marital status. Each subcategory is mutually exclusive. Individuals who live in households that combine two subcategories are excluded, which is why percentages and *Ns* of subcategories do not exactly sum to the total of all doubled up individuals.

Table 2

Summary statistics

Variable	Weighted Means
Age	49.82
Female	0.53
Education	
Less than high school	0.10
High school graduate	0.28
Some college	0.32
College or more	0.29
Race	
White	0.85
Black	0.10
Asian	0.03
Other	0.02
Marital Status	
Married	0.69
Widowed	0.07
Divorced	0.11
Separated	0.02
Never married	0.11
Unemployment	0.01
Doubling Up	
Move in with others	0.002
Others move in with you	0.009
<i>N</i>	1,017,744

Note: Means are weighted using the SIPP individual weights.

Table 3

Characteristics of individuals who become doubled up

Time t Characteristics	Not Doubled Up Time t		
	Move in $t + 1$	Someone Moves in $t + 1$	Not Doubled Up $t + 1$
Age	41*	47*	50
Female (%)	50*	54*	53
Education (%)			
Less than high school	15*	17*	11
High school graduate	32*	30*	27
Some college	37*	33	32
College or more	16*	21*	30
Race/Ethnicity (%)			
White	76*	80*	85
Black	16*	13*	10
Asian	3*	3	2
Other	5*	4*	3
Marital Status t (%)			
Married	38*	62*	69
Widowed	7	6	7
Divorced	19*	15*	11
Separated	6*	3*	2
Never married	30*	14*	11
Living Arrangements t (%)			
Single	41*	19	20
Married	14*	23*	32
Single with kids	13*	9*	6
Married with kids	20*	33	36
Unmarried partner	9*	9*	5
Nonchildren under 18	3*	7*	1
Become Unemployed $t + 1$ (%)	6*	2*	1

Notes: Percentages are weighted using time $t + 1$ individual weights. Unweighted means and those using time t weights are similar.

* Denotes significant differences at the 5 % level between move in (someone moves in) and those who remain not doubled up.

Table 4

Regression of becoming unemployed on living arrangement transitions: Coefficients from a linear probability model (LPM) and odds ratios from a logit model

	Move In	
	LPM (coefficients)	Logit (odds ratios)
Mean Dependent Variable		0.002 (0.000)
Become Unemployed	0.0120** (0.00138)	4.160** (0.392)
Less Than High School (ref.)		
High School Graduate	-0.000346 (0.000221)	0.846* (0.0586)
Some College	-0.000400 [†] (0.000222)	0.815** (0.0563)
College or More	-0.00147** (0.000214)	0.423** (0.0364)
Married (ref.)		
Widowed	0.00134** (0.000208)	2.466** (0.269)
Divorced	0.00199** (0.000208)	2.405** (0.166)
Separated	0.00460** (0.000669)	2.995** (0.298)
Never Married	0.00258** (0.000278)	1.969** (0.135)
Age 25–34 (ref.)		
Age 35–44	-0.00268** (0.000226)	0.481** (0.0290)
Age 45–54	-0.00365** (0.000225)	0.296** (0.0220)
Age 55–65	-0.00402** (0.000241)	0.231** (0.0222)
Age 65–74	-0.00434** (0.000244)	0.164** (0.0205)
Age 75–84	-0.00410** (0.000272)	0.223** (0.0276)
Age 85+	-0.00250** (0.000604)	0.408** (0.0712)
Female	-0.000228** (0.00008)	0.938 (0.0369)
Do Not Own Home	0.00378** (0.000187)	3.574** (0.214)
Number of Children in Household	-0.000482** (0.00007)	0.822** (0.0229)
<i>N</i>	976,535	976,535

Notes: Standard errors, clustered at family level to account for correlation between siblings, are shown in parentheses. Race, a linear time trend, quarter, and panel fixed effects are also included. Point estimates from a LPM using all transitions to unemployment and from using only an employed sample are 0.00908 (0.00101) and 0.0127 (0.00138), respectively.

†
 $p < .10;$

*
 $p < .05;$

**
 $p < .01$

Table 5

Fixed-effects (FE) regression of becoming unemployed on living arrangement transitions: Coefficients from a linear probability model (LPM) and odds ratios from a conditional FE logit model

	Move In	
	LPM (coefficients)	Logit FE (odds ratios)
Mean Dependent Variable		0.002 (0.00005)
Become Unemployed	0.00517** (0.00126)	1.961** (0.290)
<i>N</i>	976,535	8,203

Notes: Robust standard errors, clustered at family level, are shown in parentheses. Age, a linear time trend, and quarter fixed effects are also included. Point estimates from a LPM with fixed effects using all transitions to unemployment and from using only an employed sample are 0.00378 (0.000942) and 0.00881 (0.00142).

† **
 $p < .01$

Table 6

Robustness to changes in marital status for fixed-effects (FE) results: Coefficients from a linear probability model (LPM) and odds ratios from a conditional FE logit model

Mean Dependent Variable	LPM (coefficients)				
	LPM (coefficients), Whole Sample (1)	Logit FE (odds ratios), Whole Sample (2)	Single (3)	Married Women (4)	Married Men (5)
	0.002 (0.00005)		0.003 (0.0007)	0.001 (0.00002)	
Become Unemployed	0.00511** (0.00126)	1.973** (0.297)	0.00869** (0.00293)	0.00103 (0.00113)	0.00280 [†] (0.00165)
Spouse Becomes Unemployed				0.00314* (0.00140)	6.26e-05 (0.000773)
Widowed	0.00754** (0.00282)	3.244** (1.351)			
Divorced	0.0215** (0.00361)	5.497** (1.258)			
Separated	0.0515** (0.00632)	9.132** (2.005)			
<i>N</i>	976,535	8,203	238,890	263,395	265,166

Notes: Robust standard errors, clustered at the family level, are shown in parentheses. Age, a linear time trend, and quarter fixed effects are also included.

[†] $p < .10$;

* $p < .05$;

** $p < .01$

Table 7

Heterogeneity in fixed-effects (FE) results: Coefficients from a linear probability model (LPM)

	Move In LPM (Coefficients)
Mean Dependent Variable	0.002 (0.00005)
Panel A. Interaction of Age and Unemployment	
Age 25–34	0.011** (0.003)
Age 35–64	0.003** (0.001)
Age 65+	–0.0006 (0.007)
Panel B. Interaction of Education and Unemployment	
Less than high school	0.005 [†] (0.003)
High school graduate	0.003 (0.002)
Some college	0.006** (0.002)
College or more	0.005* (0.002)
Panel C. Interaction of Housing Tenure on Unemployment	
Homeowner	0.003** (0.001)
Renter	0.006** (0.002)

Notes: Robust standard errors, clustered at the family level, are shown in parentheses. Age, changes in marital status, a linear time trend, and quarter fixed effects are also included. Differences in age are statistically significant. Differences between less than high school, some college, and college or more are not statistically different from one another but are statistically different from high school graduates. Differences by housing tenure are not statistically different from one another. Differences by gender (not shown) are not statistically different from one another.

[†] $p < .10$;

* $p < .05$;

** $p < .01$

Table 8

Living arrangements for those who move in: Young adults aged 25–34

Living Arrangement <i>t</i>	Living Arrangement <i>t</i> – 1						Total (%)
	Single (%)	Single Children (%)	Married (%)	Married Children (%)	Nonchild Under 18 (%)	Unmarried Partner (%)	
Panel A. Less Than High School							
Adult children	10	2	4	4	1	8	28
Three generation	0	8	0	14	1	4	27
Other related individuals	5	10	3	7	1	5	31
Unrelated individuals	6	4	0	3	0	2	14
Total	22	23	6	28	3	18	100
Panel B. College or More							
Adult children	27	1	5	2	0	4	39
Three generation	2	1	2	9	1	1	15
Other related individuals	7	1	5	7	1	1	21
Unrelated individuals	20	2	1	2	0	2	26
Total	54	5	13	20	1	8	100

Table 9

New household income quartiles for those who move in

Household Income Quartile	Percentage
Panel A. Less than High School	
Quartile 1	30
Quartile 2	30
Quartile 3	22
Quartile 4	18
Panel B. College or More	
Quartile 1	6
Quartile 2	19
Quartile 3	29
Quartile 4	46