The Effect of Unemployment on Household Composition and Doubling Up

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Abstract

Doubling up with family and friends is one way in which individuals and families can cope with job loss but there is little work on how prevalent this form of resource sharing is and to what extent families use co-residence to weather a spell of unemployment. This project uses data from the Survey of Income and Program Participation to provide some of the first evidence on the relationship between household composition and unemployment across working ages. Using the transitions in living arrangements and employment status in the SIPP panels, I find that individuals who become unemployed are twice as likely to move in with others. I further show that young adults are the most likely to move in with others when they become unemployed but that middle aged adults also seem to use co-residence as a way to weather spells of unemployment. Moving into shared living arrangements in response to unemployment is not evenly spread across SES; it is most prevalent among the lowest and highest SES individuals. The issue of how families change household composition to weather bad economic times is especially relevant as unemployment and poverty remain at historically high levels.

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Numerous stories about job losses during the current recession and the increasing prevalence of "boomerang children", who return home after a period of independence, suggest that families live in multi-family homes to weather bad labor market shocks.[1] Trends in the Current Population Survey bear out this phenomenon: between the 2008 and the 2010 the number of multi-family households increased by 1.6 million and the number of young adults living with their parents increased by 8.4 percent (U.S. Census Bureau, 2010). During the same period the unemployment rate nearly doubled from 5 percent to 9 percent. While there is evidence that young men with low educational attainment are more likely to live with parents during spells of unemployment (Kaplan, 2009) and that young adults in areas with high rates of unemployment are more likely to live with parents (Matsudaira, 2010) there are few studies that take a broader perspective on relationship between doubling up and unemployment including adults of all ages and doubling up in a variety of forms. Doubling up is not just 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 facilitate transfers of items such as food, shelter, and household goods but 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 siblings to move in together.

This paper examines the contemporaneous 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 in the SIPP to examine two relatively rare events: unemployment and doubling up. I use the SIPP panel structure to estimate transition rates to doubled up living arrangements. Using a linear probability model with individual fixed effects, I show that becoming unemployed doubles the probability that you move in with another household. The results further

[1] "Facing a Financial Pinch, and Moving In With Mom and Dad," New York Times, March 2010; "Cramped quarters: As children postpone their departure, households get larger," The Economist, September 2010; "Doubling Up in Recession Strained Quarters," New York Times, December 2010

suggest that although doubling up is much more prevalent among those from lower SES groups, 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 college. The results suggest many "boomerang children" are young, well-educated adults who move back in with their parents when they experience unemployment but that the very poor also use co-residence as a way to cope with a spell of unemployment.

1 Background on Resource Sharing and Living Arrangements

When facing a period of unemployment, families rely on a variety of mechanisms to help maintain well-being. Some sources of additional support, including public benefit programs and family transfers, have been studied extensively (see Blank and Card, 1991; Altonji, Hayashi and Kotlikoff, 1992, 1996, 1997; Dynarski and Gruber, 1997; Gruber, 1997; Cullen and Gruber, 2000; Browning and Crossley, 2001; Haider and McGarry, 2006 among many others) however changes in household composition have been less extensively studied. 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.

There is substantial evidence that for young adults, higher income and lower local unemployment are associated with decreases in co-residence with parents (Ermisch, 1999; Manacorda and Moretti, 2006; Kaplan, 2009; Card and Lemieux, 1997; Matsudaira, 2010). Though increases in income among young adults increase the probability of leaving the parental home, increases in parental income are not clearly related to independent living (Ermisch, 1999; Manacorda and Moretti, 2006). Manacorda and Moretti (2006) use a change in the mandated retirement age for older Italian men to show that increases in parental income increase co-residence with their sons. Consistent with privacy being a normal good for young adults, unemployment increases the likelihood that young less well-educated men move back home (Kaplan, 2009). Aggregate data from the US and Canada echoes the conclusions from studies using individual level data. Matsudaira (2010) and Card and Lemieux (1997) both show that in areas with more favorable local demand conditions fewer young adults live with parents. However, neither of these studies are able to dis-

tinguish between young adults remaining in the parental home until later ages and young adults returning home after a period of independence. Most of the work 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.

Work on the living arrangements of the elderly shows that, like young adults, higher incomes allow for independent living. By examining the effect of the expansion of the Social Security System and economic growth in the 20th century on the living arrangements of the elderly, several studies show that increases in resources available to the elderly enabled more of them to live independently (Schwartz, Danziger and Smolensky, 1984; Costa, 1999; McGarry and Schoeni, 2000; among others). Fewer studies have looked at living arrangements across the life-cycle. London and Fairlie (2006) examine the relationship between the living arrangements of young children and state unemployment rates in both the Current Population Survey (CPS) and the SIPP. Although their focus is on children, any relationship between living arrangements of children and state unemployment rates would be driven by choices of middle aged parents. Using SIPP data, they find 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) find co-residence to be a important mechanism of resource sharing among the poor. However, they do not find a systematic relationship between living arrangements and state unemployment rates in the CPS. Finally, Mykyta and Macartney (2010) examine doubling up during the Great Recession. While the focus of the paper is to describe trends in living arrangements during the Great Recession they do find some evidence that during the current downturn, being unemployed is associated with a higher probability of living in a doubled up household. Because they are not using data on transitions in living arrangements and employment they are 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.

The paper extends much of the work on the living arrangements of young adults in three important ways. First, I examine the relationship between living arrangements and unemployment across working ages. 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. While living with parents is the most common form of doubling up, more complicated living arrangements are also common, particularly for poor 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 the parental home. This distinction is particularly important for young adults if "failing to launch" and "boomeranging" home have a different relationship to employment status. In particular the causal arrow between unemployment and living arrangements may point a different direction for young adults who never leave home than for young adults who return home after a period of independence. Young adults who have never left home may have weaker labor force attachment because they do not need to pay for housing while 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. I do not examine the decision to leave home instead focusing on the decision to move in with others after a period of living independently. More broadly, using transitions in employment and living arrangements allows me to disentangle whether individuals who live with others are more likely to become unemployed or whether individuals who become unemployed move in with friends and family.

2 Data and Descriptive Statistics

I use the 1996, 2001, 2004, and 2008 SIPP panels.[2] Each SIPP panel is nationally representative sample of the civilian noninstitutionalized population of the US 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 respondents from the first interview. The SIPP is useful for studying living arrangements, particularly arrangements that may not be

[2] I use Waves 10-12 of the 1996 panel covering the period after 1998 when welfare reform had been fully implemented. I do so to avoid interactions with changes in the rules for living arrangements associated with the switch from AFDC to TANF.

long lasting because of its high frequency of data collection.

2.1 Doubling Up in SIPP

In this analysis I classify households according to whether they are co-residing with other related or unrelated individuals. A family can be doubled up in three different ways: (1) a family is doubled up if they live with a child age 25 or over; (2) a family is doubled up if they live in a three generation household even if the middle generation is less than 25 years old; (3) a family is doubled up if they live with a non-child relative or non-relative age 18 or over. 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 the above three categories. I count households who live with an adult child as doubled up only if the child is age 25 or over, an age cutoff consistent with the classification used in the Pew Report on multi-generational households (Pew Research Center, 2010).[3]

Figure 1 shows the fraction of households living in a shared living arrangement over time. The breaks in the table are due to gaps between the 1996 and 2000 SIPP panels and the 2004 and 2008 SIPP panels. The black line shows the fraction of households that are doubled up. Over the entire period, about 14 percent of households–about 16,000,000 households–are doubled up in one of the three ways described above. The household figures correspond to approximately 20 percent of all individuals in the U.S. living in a doubled up household. The fraction of doubled up households grows slightly over time from under 14 percent of households to over 15 percent of households, increasing by over 1.5 million households, with most of the increase 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 fraction of households that are doubled up because of the presence of adult children and the fraction of three generation households. These are exclusive categories–three generation households contain adult children but are only included in the count

[3]The classification in this paper differs in two respects from that used in Mykyta and Macartney (2010). First, I count all three generation households as doubled up, even if the middle generation is under 18. Second, I only count households with children as doubled up if the child is 25 or older, rather than counting all children over 18. I do so to avoid endogenous school attendance decisions. Because I restrict the sample for regressions to individuals 25 and older, these differences are not large.

of three generation households. The fraction of households containing an adult child increases from about 7 percent to over 8.5 percent of all households, with most of the increase occurring after 2004. The dashed line shows the fraction of three generation households, which is relatively constant over time–a little over 3 percent–though slightly higher in the 2008 panel.

Table 1 shows the fraction of individuals over 25 who live in a doubled up living arrangement by the age, race/ethnicity, educational attainment, and marital status of the individual.[4] For example, the first row says that 29.25 percent of young adults age 25-34 live in a doubled up household. This nearly 1/3 of young adults living in a doubled up household includes 5.48 percent of young adults age 25-34 living in a three generation household and 11.38 percent of young adults age 25-34 living in a household containing adult children. Young adults and the elderly are the mostly likely to live in a doubled up household. Young adults, those age 55-64, and the elderly are most likely to live with an adult child. For older adults this is likely a care-giving arrangement while those 55-64 are in the so-called "sandwich generation" some of whom live with elderly parents and others of whom live with children. Overall, whites are the least likely to live in a doubled up household–non-whites are over 10 percentage points more likely to be doubled up than whites. Three generation families are particularly unusual for whites–the fraction of whites living in three generation households is about half that of non-whites. Individuals with higher education levels are less likely to live in doubled up living arrangements. Individuals with less than a high school education are twice as likely as those with a college degree to be doubled up. The fraction of individuals living in three generation households decreases with educational attainment–living in a three generation households is extremely rare (only about 2 percent) for individuals with a college education. Doubling up is much more common for people who are unmarried than for people who are married. Living with adult children 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. While living with adult children is less common for married individuals than for unmarried individuals, this living arrangement accounts for about 40 percent of all doubling up among the married. Living in a three

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

generation household is the most common for those who are separated–likely because recently separated adults may move in with their parents for a period after their separation.

Characteristics associated with lower SES such as being unmarried and having less education are associated with higher probabilities of doubling up. However, doubling up is not rare even among those with a college education with almost 15 percent of these individuals being doubled up. The form that doubling up takes does differ by SES with adult children making up a larger proportion of total doubling up for those with at least a high school education than for those with less than a high school degree. Living with adult children is common across social classes–it is not a phenomenon of only the rich or the poor. Other arrangements, such as living in a three generation household are much more common among non-whites and among those who are less well-educated.

2.2 Household Doubling Up and Unemployment

Examining the relationship between doubling up and unemployment is complicated by the fact that employment is an individual characteristic while doubling up is a characteristic of the household. To look at the simple 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 percent of non-doubled up households contain an unemployed person while 13 percent of doubled up households have an unemployed family member. Of all households containing an unemployed person, nearly 28 percent are doubled up compared to only 13 percent of households in which no one is unemployed.

3 Transitions in Living Arrangements in SIPP

Doubling up is more common among households with unemployed members but this need not imply that people move in with others when they become unemployed. Because the SIPP is a longitudinal dataset, it allows me to examine transitions in both employment status and living

arrangements. Looking at the relationship between transitions to doubled up living arrangements and unemployment is complicated because transitions in employment status and living arrangements are only observed for original sample individuals. The employment transitions of all potential people with whom an individual could double up are not observed. I cannot simply regress the change in the unemployment status of all household members between t and t+1 on the whether or not 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 the employment status and living arrangement transitions of original SIPP panel members. These individuals 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 examine the receiving families. I estimate the relationship between unemployment 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 over 25 because it allows me to abstract from potentially endogenous decisions about attending college. I include only original sample members because other individuals will not be followed if they move. I

keep all observations for the same individual as long as they meet the above characteristics. To avoid spurious transitions resulting from seam bias in unemployment reporting, I include only the fourth reference month. The final sample contains 190,221 individuals averaging 6.88 observations per person. Table 2 shows the characteristics of the sample. The sample, on average, is 50 years old, 85 percent of the sample is white, and 70 percent is married. About 40 percent of the sample has a high school education or less and about 60 percent has at least some college. Slightly more than half of the sample is female.

3.1 Unemployment Measures

I use two measures of unemployment. I use a contemporaneous measure of unemployment (employment status in the last week) and an employment measure that covers the entire month. The weekly measures uses the employment status in the week in which the survey occurs. The monthly employment status measure counts people as employed if they had at least one paid job in the month, counts people as unemployed if they have not have a paid job all month because they are unable to find work or on layoff, and counts people as out of the labor force if they do not have a paid job for other reasons.[5] Table 2 shows the means of the two measures of unemployment that I consider.

Becoming unemployed leads to a large decline in monthly income. On average, people who become unemployed experience a $1000 - $1400 decline in monthly household income when they become unemployed, depending on the measure of unemployment used. For those who are unemployed for the whole wave, the declines in income associated with unemployment are smaller, likely because some of the spells started in the prior wave. The mean change in income for those who do not become unemployed is an increase of between $4 and $20. The monthly measure is smaller because this group includes any individual who had a job at any time during the month and so includes individuals who experienced short unemployment spells.

[5]For both measures I exclude all people with imputed employment status to avoid spurious transitions.

3.2 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 two groups: 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 2376 compared with 11871 who double up because someone moves in with them. The sample of those who move in should be smaller as these are likely to be smaller households moving in with a larger household (like young adults moving back home with parents) but there is also more attrition among the movers out than among people who do not move. I use weights to account for attrition. In the tables in this section, I weight individual characteristics using the individual weights in time t+1.

In Table 3, I compare the characteristics of individuals in these two groups and individuals who do not become doubled up at all. The first row in Table 3 shows that the mean age of SIPP sample members who move into another household is 41 years old compared to 57 years old for SIPP sample members who accept a new person into their household and 50 years old for SIPP sample members who do not double up. Similarly, 50 percent of those who move in with others are women compared to 54 percent of those who accept a new person in their household and 53 percent of those who do not double up. Those who move to a doubled up living arrangement are generally younger, less well-educated and more likely to be non-white than those who remain in a traditional family structure. The differences in marital status between groups shows that those who move in with others are about 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. The differences in the living arrangements of individuals prior to becoming doubled up echo the differences in marital status. Those who move in with others are about 40 percent more likely to come from being single or single with kids than the other two groups. Those who have someone move in with them look quite similar to those who do not become doubled up in terms of living arrangements prior to someone moving in. In particular,

they are equally likely to be single or married with kids. Table 4 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. Overall transitions to unemployment are small but they are five times higher among those who move in with others than among those who do not double up. Unemployment is about twice as common among individuals who have someone move into their household.

4 Empirical Strategy and Main Results

I use transitions in employment and living arrangements to estimate the relationship between individual unemployment and moving in with others. relationships. 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.[6] I estimate equations in the form of:

$$\text{Pr(Double Up)}_{it} = \beta_1 \text{Unemployed}_{it} + \beta_2 X_{it} + month_t + year_t + panel_t + \epsilon_{it} \quad (1)$$

where I regress changes in living arrangements between time t-1 and time t on unemployment between t-1 and t, controlling for individual characteristics such as educational attainment, gender, race, and age group as well as month, year, and panel fixed effects.

Using only the characteristics of the original SIPP sample individuals is important in accounting for the missing data problem outlined above. However, because I do not include the characteristics of the individuals with whom a SIPP sample person moves in, I must be cautious in interpreting the coefficients. Any correlation between the characteristics of the SIPP individual

[6] I have estimated (1) and (2) on the outcome of receiving a new household member. When estimating (1) the coefficient on unemployment is positive and significant showing that becoming unemployed increases the probability of receiving a new household member by 50 percent. However, when I estimate equation (2), and in all subsequent estimates using individual fixed effects, the coefficient on unemployment is much smaller and statistically insignificant.

moving in and the person with whom the SIPP individual moves in will be picked up in the estimated coefficients. This correlation 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. The employment transitions suffer from the same caveat. However, while 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. There are certainly situations in which a father and son get laid off from the same plant but these cases are unlikely to be the norm.

4.1 Main Results–OLS

Table 5 shows the results of estimating (1). The first column in each shows the results using the weekly measure of unemployment and the second column shows the results using the monthly measure of unemployment. The results in columns 1 and 2 show that becoming unemployed increases the probability that you move in with another household from 0.2 percent to about 1 percent. The coefficient is slightly larger when I use the monthly measure of unemployment. If individuals who have been without a job for a month they are more likely to have depleted savings I would expect the relationship between unemployment and moving in with others to be larger using the monthly measure of unemployment. The coefficient when using monthly measure of unemployment may also be larger if it takes time to move.

The demographic controls point in the expected direction; moving in with others is associated with having less education and being non-white. These coefficients come with the caveat outlined above that they include any correlation in demographic characteristics among movers in and those with whom they move in. Young adults age 25-34 and those without a high school diploma are the most likely to move in with others. These results show that even after controlling for demographic characteristics, becoming unemployed is correlated with moving into doubled up living arrangements. In particular, individuals who become unemployed are much more likely to move in with others than individuals who do not experience unemployment.

4.2 Main Results–Fixed Effects

The models shown in Table 5 include race, education, age, marital status, and gender; observable characteristics that affect the probability that individuals will move in with someone and the probability that they become unemployed. However, there are likely 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 upwards in (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:

$$\text{Pr(Double Up)}_{it} = \beta_1 \text{Unemployed}_{it} + \beta_2 age_{it} + month_t + year_t + panel_t + \alpha_i + \epsilon_{it} \quad (2)$$

where α_i is a fixed effect for individuals. I regress changes in living arrangements between time t-1 and time t on unemployment, controlling for month, year, panel, and individual fixed effects. Individual fixed effects control for any time invariant characteristics that affect unemployment and doubling up. I focus on individuals who move in with another household to become doubled up as the dependent variable. Table 6 shows the results from estimating (2). Columns 1 and 2 show the effect of unemployment on moving in with others using the weekly and monthly measure of unemployment. The results show that including individual fixed effects decreases the magnitude of the coefficient on being unemployed by about half but it remains statistically and economically significant. Using both unemployment in the current week and unemployment in the current month, being unemployed approximately doubles the probability of moving in with others. Including individual fixed effects in the regressions for having someone move in with you changes the results substantially. The results from (2) show that the coefficients estimated in (1) were biased upwards but remain statistically significant even after controlling for individual fixed effects.

Families who are closer emotionally or geographically may be more likely to experience un-

employment and experience doubling up. This correlation may explain why the coefficients on unemployment in the regression of moving in with others and the regression of others moving in with you were reduced in the fixed effects estimation. The correlation in unemployment across families is also likely important. The probability of becoming unemployed is likely correlated across extended families. The fixed effect controls for that part of the correlation that is time invariant.[7]

4.3 Marital Status and Unemployment

The results outlined above include all original sample individuals in the SIPP and look at the relationship between individual unemployment and transitions in living arrangements. A nice design feature of the SIPP sample is that for many married couples, both the husband and wife are original SIPP sample members. This design feature allows me to look at single people and married people separately and to estimate the effect of own unemployment and spousal unemployment on doubling up for married couples. If couples make decisions together I would expect that an unemployment spell for one person will affect the other partner. I split my sample of all non-doubled up, SIPP individuals into three groups. The first group is single in two consecutive waves. For this group, I estimate (2) as before. The second group is married to another original SIPP sample member in two consecutive waves. For this group, I estimate (2) but include own employment transitions and the employment transitions of the spouse. I show these results for men and women separately. Members of the final group either experience a marital status transition or are married to a non-original SIPP sample individuals. Because the relevant t and t+1 characteristics are not available for the couple, I exclude this group from this part of the analysis.

Table 7 shows the results for those who move in with others using the weekly measure of unemployment.[8] For the single sample and for the married sample, the magnitude of the coefficient on becoming unemployed is positive as it was in the sample overall. When I split the married sample into men and women I see that it is becoming unemployed for husbands that is important

[7] In the results from estimating (1) on the probability that others move in with you, the coefficient on unemployment may have been biased upwards by the unobserved correlation in employment status within the extended family–it may have been capturing the unemployment of the person who moved in.

[8] Results using the monthly measure are similar.

in predicting moving in with someone else. The size of the coefficient on own unemployment for women and spouse unemployment for men is small and not statistically significant but the coefficient on own unemployment for men and spouse unemployment for women is statistically significant. These results suggest that the contemporaneous effect of unemployment on living arrangements is larger when husbands become unemployed than when wives become unemployed.

4.4 Age Groups and Educational Attainment

Table 5 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 5 also shows that those with the lowest level of educational attainment are the most 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 who have low educational attainment and for those who are just finishing college. In order to examine the differences in the effect of unemployment on doubling up by age and educational attainment, I estimate the following regression where I fully interact age, education, and unemployment.

$$\begin{aligned} \text{Pr(Double Up)}_{it} &= \beta_1 \text{Unemployed}_{it} * \text{Age Group}_{it} * \text{Educational Attainment}_{it} + \\ &+ \beta_2 age_{it} + month_t + year_t + panel_t + \alpha_i + \epsilon_{it} \end{aligned} \tag{3}$$

I estimate (3) using three broad age groups 25-34, 35-64, and 65+. I include people over 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 use four measures of educational attainment (less than high school, high school graduate, some college, college+). I use the weekly version of the unemployment variable though the results with the monthly measure are similar. Table 8 shows the effect of unemployment on moving in with others by age group and educational attainment. Panel A shows the results when the main effect is interacted only with age, Panel B shows the results when the main effect is interacted only with education, and Panel C shows the results of

the fully interacted model.

Panel A and B in Table 8 are consistent with the idea that immediately doubling up in response to unemployment is most common for individuals who are the least likely to have substantial savings to fall back on–young adults and the least well-educated. Doubling up in response to unemployment is also common for those with a college degree. For individuals in the middle of the distribution of educational attainment, becoming unemployed does not increase the probability of moving in with others. Panel C explores the interaction between unemployment, age, and educational attainment. Younger adults who either have a college education or who do not have a high school diploma are the most likely to move in with others when they become unemployed. There is not a statistically significant effect of unemployment on moving in with others for young adults from the middle of the education distribution. These results suggest two patterns of doubling up in response to unemployment. Lower SES young adults who become unemployed double up with others. This is likely a form of resource sharing–to the extent to which they double up with other low SES individuals, it may benefit both parties. The results also point to the "boomerang kid" phenomenon that has been prevalent in the popular press of late in which college educated young adults move in with their parents. These results suggest that unemployment may be one reason why these young 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 above results.

The interactions with age in panel A, and to a lesser extent the fully interacted models in panel C, show a small positive effect of unemployment on moving in with others for 35-64 year olds. In the fully interacted models, there is only a statistically significant effect of unemployment on moving in with others for the college educated but the coefficients of unemployment are positive, of similar magnitude, and statistically significant at a 20 percent level for middle aged adults with less than a high school degree and for those with some college. As in the main results, unemployment does not affect the probability of someone joining a household.

To explore more fully the type of transitions in living arrangements that are being captured in the regression results, Table 9 shows the living arrangement transitions for young adults who

move in with others for those without a high school degree and for college graduates–the two groups for whom the effect of unemployment on moving in with others is the largest. It shows that the most common transitions for young adults with less than a high school education are (1) to move from being married with kids to a three generation household, (2) to move from being single with kids 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 kids to living in a three generation household are also common transitions. For young adults with a college education, the two most common transitions are moving from being single to living with parents, or moving from being single to living with unrelated individuals–most likely roommates. These transitions are over twice as likely as any other transition. These simple cross-tabulations show that moving in with parents is common across SES. They also show that 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. For lower SES young adults, the range of transitions in living arrangements is more broad. They are less likely to be single before they become doubled up and they are more likely to live with family members, even beyond their parents when they do double up.

5 Conclusions

Stories in 60 Minutes, the New York Times, and Business Week have profiled families moving in together, children returning home to their parents, and individuals taking on unrelated tenants to cope with the weak labor market. A recent Pew Research Center survey found that 13 percent of parents with grown children say that one of their adult sons or daughters has moved back home in the past year and about half of those living with their parents report doing so because of the recession (Pew Research Center, 2009). This paper explores the relationship between doubling up and unemployment in the SIPP. As Mykyta and Macartney (2010) show using the CPS, I show that doubling up has increased in the SIPP since the beginning of the Great Recession. In particular, the fraction 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 double 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 paper is to examine transitions in living arrangements in the SIPP panel. I split the sample of individuals who transition into doubled up living arrangements into two groups–those who move in with others and those who have someone else move into their households. Using linear probability models with individual level fixed effects, I show that becoming unemployed doubles the probability that an individual moves in with others. However, I show that after controlling for individual fixed effects, becoming unemployed does not affect the probability that someone moves in with you. I argue that the positive relationship between unemployment and having someone move in with you in models without individual fixed effects is likely driven by the correlation in unemployment across kin and friendship groups.

This paper provides evidence that co-residence 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. I show that the effect of unemployment on moving in with others is not limited to single people. For married couples, a period of unemployment for the husband also increases the probability of moving into shared living arrangements. I also show substantial heterogeneity by age and educational attainment. Much of the effect of unemployment on moving in with others is driven by the young, but there is also evidence that even middle age adults move in with others when they experience unemployment. One reason that the unemployment may affect living arrangements more for young people is that they are unlikely to have substantial savings, they are less likely to have a spouse who could increase their labor supply, and they are less likely to have been employed long enough to qualify for full unemployment benefits. This paper examines only the contemporaneous effect of unemployment on moving in with others. One extension is to look at the effect of lagged employment transitions on living arrangements, particularly for middle aged adults, to see if transitions to doubled up living arrangements become more common once savings and unemployment benefits have been exhausted. Finally, the results explore differences in the relationship between doubling up and

unemployment by SES. They show that moving into shared living arrangements during unemployment is most common for the lowest and the highest SES individuals–both groups seem to use shared living arrangements to weather unemployment spells.

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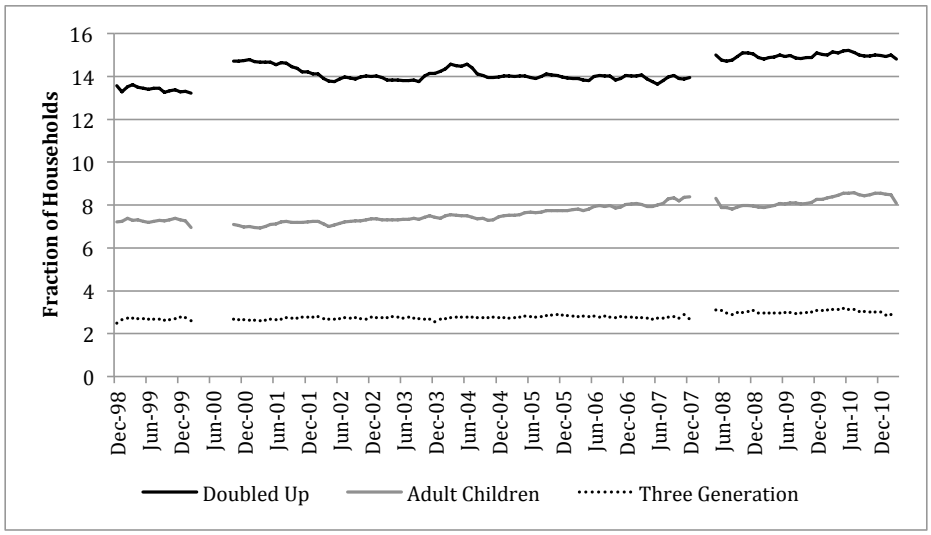
Figure 1: Fraction of Doubled Up Households



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
Age			
25-34	29.25	5.48	11.38
35-44	16.85	4.68	4.86
45-54	20.79	5.00	9.04
44-64	22.71	4.65	12.46
65-74	19.70	4.39	10.36
75-84	20.39	3.86	11.70
85+	24.10	3.23	15.28
Race/Ethnicity			
White	19.79	3.96	8.84
Black	31.16	8.10	12.96
Asian	31.92	9.31	12.34
Other	34.12	11.04	12.77
Hispanic	36.10	10.77	11.08
Educational Attainment			
$<$ High School	33.56	8.84	12.83
High School Grad	25.59	5.84	11.66
Some College	18.42	4.10	8.54
College +	14.83	2.41	6.46
Marital Status			
Married	13.28	4.11	5.78
Widowed	29.24	6.75	15.63
Divorced	26.72	5.36	9.70
Separated	34.27	9.61	11.57
Never Married	46.44	5.49	20.88

Includes all individuals 25+ in all reference months. Weighted using individual weights.

Table 2: Summary Statistics

Variable	Weighted Means
Age	49.82
Female	0.53
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
Education	
Less than HS	0.10
HS Diploma or GED	0.28
Some College	0.32
College or More	0.29
Unemployment Measures	
Unemployed in Current Week	0.03
Unemployed for Entire Month	0.02
Doubling Up	
Move in with Others	0.002
Others Move in with You	0.009
N	1,017,744

Weighted using the SIPP individual weights.

Table 3: Characteristics of Individuals who Become Doubled Up

		Not Doubled Up Time t	
Time t Characteristics	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 HS	15%*	16%*	11%
HS Diploma or GED	32%*	30%*	27%
Some College	37%*	33%	32%
College or More	16%*	21%*	30%
Race			
White	76%*	80%*	85%
Black	16%*	13%*	10%
Asian	3%*	3%	2%
American Indian	5%*	5%*	2%
Marital Status t			
Married	38%*	62%*	69%
Widowed	7%*	6%	7%
Divorced	20%*	15%*	11%
Separated	6%*	3%*	2%
Never Married	30%*	14%*	11%
Living Arrangements t			
Single	41%*	20%	20%
Married	13%*	25%*	32%
Single with Kids	13%*	9%*	6%
Married with Kids	20%*	38%	37%

Weighted using time t+1 individual weights. Unweighted means and those using time t weights are similar.

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

Table 4: Unemployment of Individuals who Become Doubled Up

Not Doubled Up Time t	Become Unemployed t+1
Panel A. Weekly Unemployment Measure	
Not Doubled Up t+1	0.85
Someone Moves in t+1	1.67
Move in t+1	6.00
Panel B. Monthly Unemployment Measure	
Not Doubled Up t+1	1.26
Someone Moves in t+1	2.34
Move in t+1	7.05

Includes only individuals who are employed at time t.

Weighted using time t+1 individual weights. Unweighted means and those using time t weights are similar.

Table 5: OLS Regression of Becoming Unemployed on Living Arrangement Transitions

	Move in t+1	
Unemployed	Current Week	Whole Month
Mean Dependent Variable		.002
(s.e)		(.00005)
Become Unemployed	0.00857***	0.0123***
	(0.000981)	(0.00138)
Less than HS		
HS Diploma or GED	-0.000709***	-0.000704***
	(0.000220)	(0.000220)
Some College	-0.000903***	-0.000899***
	(0.000221)	(0.000221)
College or More	-0.00219***	-0.00219***
	(0.000215)	(0.000215)
White		
Black	0.000232	0.000210
	(0.000220)	(0.000220)
American Indian	0.000675*	0.000660*
	(0.000371)	(0.000371))
Asian	0.00178***	0.00175***
	(0.000447)	(0.000447)
Married		
Widowed	0.00198***	0.00197***
	(0.000208)	(0.000208)
Divorced	0.00320***	0.00318***
	(0.000208)	(0.000208)
Separated	0.00623***	0.00622***
	(0.000668)	(0.000668)
Never Married	0.00429***	0.00427***
	(0.000270)	(0.000270)
Age 25-34		
Age 35-44	-0.00331***	-0.00330***
	(0.000228)	(0.000227)
Age 45-54	-0.00410***	-0.00409***
	(0.000222)	(0.000222)
Age 55-65	-0.00434***	-0.00432***
	(0.000225)	(0.000224)
Age 65-74	-0.00470***	-0.00466***
	(0.000227)	(0.000227)
Age 75-84	-0.00432***	-0.00430***
	(0.000256)	(0.000256)
Age 85+	-0.00245***	-0.00245***
	(0.000596)	(0.000596)
Female	-0.000255***	-0.000258***
	(0.000100)	(0.000100)
Constant	0.00622***	0.00621***
	(0.000433)	(0.000433)

Robust standard errors clustered at family level in parentheses.
Year, month, and panel fixed effects are also included.
* significant at 10% ** significant at 5%; *** significant at 1%

Table 6: Fixed Effects Regression of Becoming Unemployed on Living Arrangement Transitions

	Move in t+1	
Unemployed	Current Week	Whole Month
Mean Dependent Variable	.002	
(s.e)	(.00005)	
Unemployed	0.00304***	0.00312***
	(0.000666)	(0.000802)
Observations	976,535	976,535

Robust standard errors clustered at family level in parentheses.
Age, as well as year, month, and panel fixed effects are also included.
* significant at 10% ** significant at 5%; *** significant at 1%

Table 7: Fixed Effects Regression Becoming Unemployed on Doubling Up by Marital Status

	Unemployed Current Week Move in t+1		
	Single	Married Women	Married Men
Mean Dependent Variable	0.004	0.0007	
(s.e)	(0.0001)	(0.00004)	
Become Unemployed	0.00519***	0.0003	0.00234***
	(0.00164)	(0.000614)	(0.000831)
Spouse Becomes Unemployed		0.000914*	-0.000613
		(0.000495)	(0.000451)
Observations	238,890	325,371	327,034

Robust standard errors clustered at family level in parentheses.
Age, as well as year, month, and panel fixed effects are also included.
* significant at 10% ** significant at 5%; *** significant at 1%

Table 8: Fixed Effects Regression Becoming Unemployed on Doubling Up

	Unemployed Current Week Move in t+1
Mean Dependent Variable	.002
(s.e)	(.00005)
Panel A. Interaction of Unemployment and Age	
Age 25-34	0.0075***
	(0.0019)
Age 35-64	0.0016***
	(0.0006)
Age 65+	-0.00019
	(0.0007)
Panel B. Interaction of Unemployment and Educational Attainment	
Less than HS	0.0054***
	(0.0018)
HS Grad	0.0018
	(0.0012)
Some College	0.00158
	(0.0011)
College +	0.0057***
	(0.0012)
Panel C. Interaction of Unemployment, Age, and Educational Attainment	
Age 25-34 and Less than HS	0.0133***
	(0.00487)
Age 35-64 and Less than HS	0.00234 4
	(0.00175)
Age 65+ and Less than HS	0.00001
	(0.000104)
Age 25-34 and HS Grad	0.00501
	(0.00363)
Age 35-64 and HS Grad	0.000666
	(0.00119)
Age 65+ and HS Grad	0.00101
	(0.00227)
Age 25-34 and Some College	0.00179
	(0.00314)
Age 35-64 and Some College	0.00168
	(0.00115)
Age 65+ and Some College	-0.000642
	(0.000605)
Age 25-34 and College +	0.0185***
	(0.00461)
Age 35-64 and College +	0.00256**
	(0.00110)
Age 65+ and College +	-0.000965
	(0.000872)
Constant	-0.00707
	(0.00893)
Observations	976,535

Robust standard errors clustered by family in parentheses.
Age, as well as year, month, and panel fixed effects are also included.
* significant at 10% ** significant at 5%; *** significant at 1%

Table 9: Living Arrangements for those who Move In

	Living Arrangement t						
Panel A. Less than High School							
Living Arrangement t+1	Unmarried Partner	Single	Single Kids	Married	Married Kids	Non-Child Under 18	Total
Adult Children	8%	10%	2%	4%	4%	1%	28%
Three Generation	4%	0%	8%	0%	14%	1%	27%
Other Related Individuals	5%	5%	10%	3%	7%	1%	31%
Unrelated Individuals	2%	6%	4%	0%	3%	0%	14%
Total	18%	22%	23%	6%	28%	3%	100%
Panel B. College or More							
Living Arrangement t+1	Unmarried Partner	Single	Single Kids	Married	Married Kids	Non-Child Under 18	Total
Adult Children	4%	27%	1%	5%	2%	0%	39%
Three Generation	1%	2%	1%	2%	9%	1%	15%
Other Related Individuals	1%	7%	1%	5%	7%	1%	21%
Unrelated Individuals	2%	20%	2%	1%	2%	0%	26%
Total	8%	54%	5%	13%	20%	1%	100%