

What happens to household formation in a recession?

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Abstract

The factors that influence housing demand have been well studied. Most studies focus on a household's socioeconomic status, and lifecycle considerations. Other studies focus on the external environment determined by housing market and economic conditions. However, very few studies have focused on how economic conditions affect the lifecycle of potential households directly. In particular, because the decision to form a household is influenced by economic conditions, potential households may choose to delay entry into the housing market, and remain living with one's parents during times of economic hardship. Other households may choose to share housing costs by combining households. We find that increases in the unemployment rate and the presence of recessions reduce the rate of household formation. Simulations suggest that these declines are substantively important. For example, in a recession, the likelihood that a young adult will form an independent household falls by 1 to 3 percentage points depending on the age of the person. By way of comparison, if an individual is unemployed, the likelihood of leaving the parental home is up to 11 percentage points lower.

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Introduction

The present economic downturn has been, by many measures, the most severe since the Great Depression. The housing market has been buffeted by large declines in real house prices, caused in part by the collapse of the housing finance system and by continued job losses. The recent period has been marked by increases in defaults and foreclosures, and falling homeownership rates. As shown in Figure 1, national homeownership rates peaked at around 69%, and have fallen back a bit to 66.4%. Not surprisingly, given the incidence of foreclosures, there has been a corresponding increase in the homeownership vacancy rate from a long term average of about 1.7 percent to about 2.7 percent over the past 3 years.

With homeownership rates falling and homeownership vacancies rising, it begs the question concerning where these households are going. One possibility is these households have entered the rental market. However, Figure 2 demonstrates that there has been very little change in rental vacancy rates over the 2006- 2008 period. Further, rental prices have not changed in a way that suggests much higher rental demand. This could be due to the fact that there is more supply on the market, but that is an unlikely explanation because of a decline in building permits (Figure 3). On the other hand, it could be the case that households who have lost their homes have moved in with other households, or that households that may have formed during normal economic times, have decided to delay their entry into the housing market.

Understanding the process by which independent households form is critical in understanding housing outcomes. Much of housing policy has focused on

homeownership rates because of the belief that owning one's home generates positive effects on the well being of residents, their children, and generates positive spillovers for the neighborhood (e.g., Rohe and Stewart, 1996; Green and White, 1997; Haurin, Parcel, and Haurin, 2002). Further, most of the literature on the determinants of owning one's home focuses on the transitions of independent renter households to become owners. What is not commonly discussed is how the homeownership rate depends not only on transitions from renting to owning or owning to renting, but also on the number of people who form independent households (Haurin and Rosenthal, 2008). Thus, homeownership rates can increase simply by the depression of renter households from the market (Myers and Yu, 2009).²

In order to understand how economic conditions influence both the housing demand of both renters and owners, we first identify the influences on household formation. Figure 4 depicts how independent households can form and the various ways that households can make tenure transitions. New households can be formed either when children move out of their parents' home, when couples separate, or when unrelated individuals choose to live singly after previously sharing a residence. The number of households can decline if two households combine, either through marriage, or by sharing a residence to reduce housing costs. Unfortunately, there is very little research on the relationship between household formation and housing demand as measured either by homeownership or changes in demand for living in multifamily housing. The most recent literature related to household formation has focused on how changing household formation rates could influence homeownership rates over time. Both Haurin and

² This is implicitly true because the homeownership rate is equal to the number of owner households divided by the number of renter plus owner households. Therefore the homeownership rate can increase if there are fewer renter households.

Rosenthal (2008) and Myers and Yu (2009) note that the increase in homeownership rates in the 1990s and the early part of the present decade could be due to reduced household formation rates among households. Both of these papers are forced to rely on cross sectional data, and are therefore not able to explicitly account for the economic and housing conditions that are likely to influence the decision to form an independent household.

While the literature linking household formation and housing demand is limited, there does exist a broader literature on household formation summarized well in Billari and Liefbroer (2007).³ In this study, we will control for individual demographic transitions, parental income and parental wealth, but the main contribution of the analysis is the focus on the role of economic and housing conditions, and on modeling of the joint household formation and housing tenure choice decisions. Based on the literature, we would expect that housing demand will be lower in recessions, and therefore households will be less likely to form an independent household during times of economic decline. If an individual is unemployed, we would expect them to be much less likely to form an independent household. We would also expect the risk of being unemployed, as captured by the regional unemployment rates, to lower housing demand. However, the literature

³ Billari and Liefbroer state, “The first class of determinants deals with young adults’ involvement in parallel events, such as getting a job, going to college, and marriage, that trigger the decision to leave home (Goldscheider and Goldscheider 1993). Often, leaving home and these triggering events even occur simultaneously, like when one leaves home to start living with a partner (Billari, Philipov, and Baizán 2001; De Jong Gierveld, Liefbroer, and Beekink 1991; Mulder and Wagner 1993). The second class of determinants relates to the opportunities and constraints that either facilitate or impede the decision to leave the parental home, like housing market conditions (Jones 1995; Mulder and Clark 2000; Whittington and Peters 1996), economic conditions (Aassve et al. 2002; Avery, Goldscheider, and Speare 1992; Ermisch and Di Salvo 1997; Johnson and DaVanzo 1998), and the circumstances within the parental home (De Jong, Gierveld et al. 1991; Goldscheider and DaVanzo 1989; Goldscheider and Goldscheider 1998; Murphy and Wang 1998; Whittington and Peters 1996). The final class of determinants deals with the propensity to leave home and focuses on the impact of cultural factors, like attitudes (Goldscheider and Goldscheider 1989, 1993) and value orientations (Surkyn and Lesthaeghe 2004).”

does not give guidance as to whether adverse economic conditions are more likely to harm the demand for rental housing or owner-occupied housing. Because younger households are more likely to rent before owning, we might expect a larger depressive effect on the demand for rental housing in an economic downturn. Finally, we would expect higher single family house prices to reduce the demand for owner occupied housing, and would expect higher rents to reduce the number of individuals that would become a renter.

In order to conduct this study, we utilize individual level geocoded data from the Panel Study of Income Dynamics (PSID) from 1968-2007, covering various economic cycles. The data also allow us to control for household and individual resources and demographic characteristics, as the previous literature has shown these to be important. We are also able to append local Census data in order to estimate the role of local neighborhood conditions. Further, we distinguish between households that become renter households, and households that become owner households to test if economic variables influence these decisions differently. Finally, we test for differences in household formation across racial groups, and use duration models to examine the factors that lead individuals to establish her first independent household.

Background

Most of the literature focuses on the reasons that a young adult will form an independent household. The literature suggests that the reasons are varied, ranging from individual trigger events and parental characteristics to housing market circumstances and macro socioeconomic conditions.⁴ First, most studies tend to agree that when children go

⁴ Billari and Liefbroer (2007) provide a succinct review of the literature.

to college, start working, get married, or have their own kids, they may move out of their parents house and form independent households. Thus, relevant studies focus on timing, sequencing, and synchronization between these events and leaving-home decisions with the notion of the life course. Goldscheider and Goldscheider (1993) argue that leaving home decisions are strongly connected to marriage behavior while Billari, Philipov, and Baizán (2001) focus on the relationship of residential independence with educational career. Mulder and Wagner (1993) find a synchronous relationship between marriage and migration. De Jong Gierveld, Liefbroer, and Beekink (1991) divide the process of leaving home into three sub-processes: enrolling in college, living with a marriage partner, and gaining more autonomy and independence.

Second, demographic characteristics of individual children and their parents are likely to determine their desire and ability to be residentially and financially independent. Many studies, including Murphy and Wang (1998), consistently find that women are likely to leave home earlier than men. Goldscheider and DaVanzo (1989) suggest ethnic differences in timing and tendency of leaving home and report the higher probability that Asians maintain intergenerational co-residence compared to other ethnic groups. The level of education is important not only as a proxy of expected income but also as a determinant of timing of marriage and desire of independence (Hooimeijer and Mulde, 1998). In addition, several studies (e.g. Johnson and DaVanzo, 1998) find evidence that age, birth order, and number of siblings is predictive in their analyses.

One would also expect that the family environment would affect the timing of when a child will leave home. Goldscheider and Goldscheider (1998) and Murphy and Wang (1998) find that children who grew up in a nontraditional family structure or whose

parents experienced marital disruption are likely to leave home earlier because of reasons other than college attendance and are less likely to return the parental home. Murphy and Wang (1998) find that children in larger families are more likely to leave early, but this could also be due to resources constraints. Goldscheider and DaVanzo (1989) argue that children who have parents with higher levels of education are more likely to leave home for the purpose of education and establish an independent household (but not marry earlier).

Next, many studies focus on the financial resources of a young adult or their parents in influencing the timing of leaving home. For example, Ermisch and Di Salvo (1997) note how such economic conditions of children could ease or constrain their ability to borrow money to establish their own home. Mulder and Clark (2000) also indicate that sufficient income of children is necessary for leaving their parental home. Aassve et al (2002) further study the relative importance of individual's income and employment on leaving-home decisions in different welfare regimes of European countries, and find evidence that the level of individual income matters. In the Malaysian context, Johnson and DaVanzo (1998) find that men tend to be more responsive to economic incentives such as local housing prices and employment opportunities.

Regarding parental resources, it is theoretically ambiguous (and the current evidence is mixed) whether higher parental income and wealth would impact the household formation rates of their children. On the one hand, children whose parents have more resources may enable students to go to college or may pay the transaction costs of establishing one's own residence (De Jong Gierveld, Liefbroer, and Beekink, 1991). On the other hand, children may remain residentially and financially dependent

on their parents if their parents have more resources (Whittington and Peters, 1996). In addition, children may need to find work to help support a family with limited income. Finally, Avery, Goldscheider, and Speare (1992) argue that the magnitude of the effect of parental resources is likely to depend on children's age.

The literature also highlights that housing market circumstances should predict the timing of household formation. Mulder and Clark (2000) offers evidence that higher median house values at the county level decreases the probability that children leave home within the state. Ermisch and Di Salvo (1997) also find that higher housing prices in local housing markets may delay women's formation of independent households. In the rental market, Haurin, Hendershott, and Kim (1993) find that higher rents at the MSA level have a significant negative impact on the likelihood that children move out of their parents' home, while Whittington and Peters (1996) find no significant impact of rental costs on the likelihood of leaving home.

In addition to housing market conditions, we would also expect labor market conditions to influence household formation rates. Using data from a sample of Britons born in 1958, Ermisch and Di Salvo (1997) tests whether regional unemployment rates affect leaving home and find significant, negative effects on the probability of leaving home. On the contrary, Whittington and Peters (1996), using a sample of household over the period 1968-1988, report no significant relationship between state unemployment rates and the likelihood that children move out of their parental home.

Finally, although not directly studied in the present research, several studies report the existence of cross-sectional and inter-temporal variations in patterns of leaving home. For example, Goldscheider and Goldscheider (1994) report that cohorts born in the

period 1955-1961 are found to leave home at the lowest age compared all other cohorts in the United States. As van de Kaa (1987) indicates, therefore, such cohort effects could explain dramatic changes in the median age at departing home across different time periods. Murphy and Wang (1998) similarly argue that inter-temporal variations in age patterns of leaving home in Britain is partly caused by different attitudes toward marriage or education among different cohorts. Other studies (Goldscheider and Goldscheider 1989; 1993) suggest that cultural norms or value orientations could play an important role in differentiating patterns of leaving home in different institutional settings.

In sum, we would expect that after controlling for other demographic factors that expensive housing markets would depress household formation, and that weak job markets would also depress household formation. These effects would be largest if the individual, herself, was unemployed.

Data

In order to conduct a credible study of household formation, one needs data on the young adults, their parents, the economic environment and the housing market. The best US-based data come from the Panel Study of Income Dynamics (PSID) as collected by the Survey Research Center at the University of Michigan. The PSID is a longitudinal data set beginning in 1968 with approximately 4,800 families and provides detailed family histories that include housing tenure choice. In addition to families in the original sample in the 1968 PSID data, the panel contains sample families that split off from the original 1968 families in later years and Latino sample families that are more recently added. While the PSID is a representative sample of U.S. individuals (men, women, and children) and the family units in which they reside, it over-samples low-income and non-

white families. To account for the over-sampling, the models are estimated using sample weights.

In this study, we use the individual as the unit of analysis. Because the PSID data exist at both the individual and family levels, a unique ID is assigned for each family unit and the family is observed over the years. The Family Identification Mapping System (FIMS) is used to merge data of parents with their young adult children. The FIMS provides identification codes for each of the family members by the type of relationship (e.g. biological parent, non-biological parent, biological grandparent, full sibling, half sibling). This FIMS ensures that our linking of families to their children is straightforward and accurate.

Because children are able to be linked to their parents, both demographic characteristics for the parents and the young adult are used in the analysis. The variables that the literature suggests are important include the parent's marital status, parent's education (father's), parental income, and housing tenure status. Because of the longitudinal nature of the data, we use a permanent income measure as the variable indicating the income of the parental household, using a 5-year moving average. Although not tested in the literature to date, we also include a measure of whether a parent is disabled, as one might expect a child may stay at home to help a disabled parent.

For a portion of the time series, the PSID also provides detailed wealth information, which is important in understanding the timing of housing tenure choices. The PSID wealth data have been found to be of high quality and to correspond well with other established wealth data such as the Survey of Consumer Finance and Form Health Retirement Study (Juster, Stafford, and Smith, 1999). Housing wealth is equal to the

home equity reported in this wealth data and financial wealth is measured as the sum of shares of stock in publicly held corporations, mutual funds or investment trusts, including stocks in IRAs, checking and savings accounts, and etc. While housing wealth is available for the entire sample period using the self reported housing value and the principal remaining, financial wealth can only be calculated after 1984. In addition, the PSID wealth supplements are in 5 year intervals for the period 1984-1999, and then every other year after 1999. Thus, the financial wealth data is excluded from the analysis before 1984, and after 1984, we impute financial wealth by using a linear trend for those years that the data does not exist.

Next, we include the individual demographic variables of the young adult, which have been found to be important in the literature. Among these variables are age, education, gender, race, whether the young adult is a student, and a measure of the young adult's physical limitations. Mulder and Clark (2000) noted that age can have very different impacts for female and male young adults so we included interactions terms. In addition, we include whether the individual was unemployed or not.⁵

Finally, this study uses the enhanced version of the PSID that includes the geographic identifiers (also referred to as geocodes). By linking to the geocodes, this analysis includes various measures of the economic cycle and neighborhood characteristics that would be relevant to household formation and housing tenure decisions. With respect to the economic cycle, we first include a categorical variable that indicates whether a particular year is a recession year as indicated by the National Bureau

⁵ In some of the years (1968-1993), we are also able to include a variable that indicates the income level of the individual young adult. These results are not shown, but as expected the income level of the young adult is an important predictor of household formation. Instead of income, we include unemployment status because that is available in all years.

of Economic Research. Unemployment rates, average wages, and GDP growth rates by state are obtained from diverse sources including the National Bureau of Economic Research (BER) and U.S. Bureau of Labor Statistics (BLS). While there are a number of census tract variables that are available to describe the neighborhood housing market that a household currently lives in, we include two measures, median rent and Housing Price Index (HPI), that have been important in various studies. The complete list of variables and their summary statistics are presented in Table 1. While many of the variables are similar across the various study periods, the economic environment was clearly stronger in the post 1984 period. In addition, Table 2 shows the relative rates of leaving home during recession years and non-recession years. Other than the recession of 1980-1982, there is not a strong pattern of household formation rates in the raw data. However, the regression analysis will determine if recession years predict lower household formation.

Results

To analyze the impact of both economic conditions and demographic characteristics, this study uses a variety of modeling approaches. We first use a multinomial logit (MNL) modeling framework (see Myers and Yu, 2009, for a similar modeling strategy) to assess the impact of socioeconomic characteristics and economic conditions on housing demand. This model allows us to consider three choices for an individual who is presently not living independently: they may continue to live with someone else (usually with their parents), they may form an independent household as a renter, or they may form an independent household as a homeowner.⁶ We conducted the

⁶ It is important to note that there are other transitions that this analysis does not capture that were illustrated in Figure 4. Specifically, this analysis does not measure the transitions from renter to owner status or owner to rental status among currently independent households. It also does not measure the factors that cause households to move between types of shared living or to move back in with someone else.

analysis in two different sample periods because the wealth data and house price data are both available after 1984. Overall, the results across sample periods are similar, but the post-1984 estimates are measured less precisely.

Table 3 presents the results of the main MNL models. The first model uses time trends to capture changes in the economic environment, and the second set focuses on the specific variables of the economic environment. The overall results (presented in Appendix 1) are consistent with the literature.⁷ Beginning with individual characteristics, females and non-minorities are more likely to form a new household. However, the propensity to become a renter household vs. an owner household is much different for minorities. Minorities are much less likely to form an owner household than a renter household. Females are also less likely to form an owner household, but the differences are much less stark. More highly educated young adults are more likely to leave home, as would be expected. The results also show that conditional on education, young adults that are older are less likely to leave home.

With respect to parental variables, Appendix 1 demonstrates that the impact of parental resources on household formation is mixed. As mentioned previously, it is theoretically ambiguous whether higher parental income and wealth would impact the household formation rates of their children. The results suggest that children whose parents have higher income are more likely to remain home, conditional on other factors, with this effect largest for youths forming rental households. We find the opposite results for parents with higher levels of financial wealth (Appendix 2). Children with wealthier

There were not enough households in this latter category to obtain statistically precise results on the economic factors that might lead individuals to transition into some sort of shared living arrangement.

⁷ In these specifications, we did our best to use the same controls that Mulder and Clark (2000) used in their study of household formation. Our estimates replicate their results nicely.

parents are more likely to form a rental household. At the same time, children whose parents have more housing wealth are more likely to become a new homeowner. This suggests that parental wealth is more important in helping children with the upfront costs of establishing a household, but it is not clear why parental income does not have a similar effect. It is worth noting that both of the wealth effects are economically small.

Finally, this study is primarily concerned with how the economic cycle impacts household formation. Table 3 first demonstrates that being unemployed depresses household formation of both types of households fairly equally. Next, we find that increases in state unemployment rates depress both rental and owner household formation rates. Higher state unemployment rates have the largest impact among the economic variables on an individual's decision to form an owner household. However, conditional on the state's unemployment rate, being in a recession only lowers the rates of forming rental households. The results suggest that there may be an additional psychological impact of being in a recession that goes beyond the risk of job loss, and that the rental market appears to be the most sensitive to these impacts. In addition, while we find no statistical impact of higher house prices on household formation, we find that higher median rents in the census tract of residence lowers the rates of forming a rental household significantly.

Racial differences in household formation

We next demonstrate the differences in between African Americans and white individuals in the likelihood of becoming either a renter or owner household (Appendix 3). There are similarities between racial groups, but also some differences. Gender, status as a student, and parental resources, and personal employment have similar impacts.

The biggest differences are in the role of education, and in the impact of economic conditions. What is evident in Appendix 3 is that African Americans with higher levels of education are much more likely to become both owner and renter households, but is particularly important for becoming an owner household. With respect to recessions, both African Americans and whites are less likely to become a renter, but the effect size is twice as large for African Americans (Table 4). At the same time, the state unemployment rate has a larger impact for both white owner and renter choices than for African Americans. Of course, recessions and changes in the unemployment rate occur at the same time in many cases, but these differential impacts will continue to be interesting to study.

Additional Modeling Approaches

One of the primary concerns with using a MNL approach to jointly modeling household formation and housing tenure choice is that it relies on an independence of irrelevant alternatives assumption. It might well be the case that the decision to form a household is not independent of the decision to own or rent. One approach to address these concerns is to estimate a Heckman-style selection model (Heckman 1979). In this context, we jointly estimate the probability that someone chooses to form an independent household and decides whether to own or rent, where we only observe someone's housing tenure choice if they have decided to live independently from their parents.⁸

⁸ Formally, the log likelihood function that is estimated is the following,

$$L = \sum_{i \in S}^{HO_i=1} \ln[\Phi_2(X_i \beta, Z_i \gamma, \rho)] + \sum_{i \in S}^{HO_i=0} \ln[\Phi_2(-X_i \beta, Z_i \gamma, \rho)] + \sum_{i \notin S} \ln[1 - \Phi_1(Z_i \gamma)]$$

where S is the set of observations for which HO_i is observed. $HO_i = 1$ if someone chooses to be an owner, and $HO_i = 0$ if someone chooses to be a renter. Φ_1 is the standard cumulative normal and Φ_2 is the cumulative bivariate normal distribution function.

Painter (2000) estimated a similar model where one estimates the probability of a household choosing to own only if we observe a move in the previous 5 years.

One challenge in estimating a joint model of household formation and housing tenure choice is to derive an appropriate exclusion restriction. Haurin and Rosenthal (2008) identify their model solely on functional form assumptions. Here, we propose two variables that plausibly influence the decision to form an independent household, but do not directly influence a person's decision to own or rent. First, we use parental marital status as previous research has shown that this is a predictor of household formation. The assumption with this approach is that the only way parental marital status influences housing tenure choice is through parental income and wealth. Second, we use the availability of Section 8 vouchers and public housing units to predict household formation. We argue that the length of these waiting lists would be unrelated to housing tenure choice as eligible households are unlikely to be able to buy a home. The only drawback with this second approach is that the waiting list data are only available for select years.⁹

Table 5 presents the results of the bivariate probit model with sample selection. The housing tenure choice results are displayed in the top half of the panel, and the household formation results are presented in the bottom half of the panel. In first column where we use parental marital status to identify the model, we first note that having a widowed parent lowers the probability of forming one's own household, but that other family structures have a similar impact to residing in a two parent family. With respect to the economic variables, being unemployed, and facing an external environment with

⁹ The HUD (Housing and Urban Development) User website provides the information on the number of average months to wait to get Section 8 and public housing units at the metropolitan statistical area level. However, the data is available only for several years including 1996-8, 2000, 2004-8.

higher rents, higher unemployment rates, or a recession all lower the probability of household formation. These results are largely consistent with the MNL model results. What is interesting is that, conditional on forming a household the only economic variable to influence housing tenure choice is an individual's employment status, and the unemployment rate. This suggests that the economic variables have the largest influence on housing demand through their impact on household formation, rather than directly influencing housing tenure choice.

In the second column of Table 5, we present the results using the waiting times for public housing to identify the model.¹⁰ As was noted previously, the waiting list data are only available for a few years after 1996. We do observe the expected effect that longer waiting times reduce household formation. Since there were no recession years when these data were available, we only were able to test for the influence of the other variables. Here we find a small depressive effect of higher real wages on household formation. Further, we find that higher median rents increase the likelihood of buying conditional on having formed a household. Overall, these results were less precisely estimated due to fewer observations.

The previous modeling approaches do not take full advantage of the dynamic nature of the data. Because the decision to establish one's household is inherently dynamic, it is important to test a variety of modeling approaches to understand how the decision to establish one's household is impacted by changes in family circumstances and changes in the economy. The duration modeling approach has often been used in the literature to study the decision to establish one's own household (e.g., Mulder and Clark,

¹⁰ We did not find Section 8 voucher waiting list data to predict household formation. This might be due to the poor quality of the data, as was suggested by Mark Schroder.

2000). It has the advantage of better capturing the underlying time dynamics of the decision to establish independence. At the same time, this modeling approach is unable to distinguish between the factors that might lead a young adult to own a home or to rent upon establishing their independence.

As is evident in Appendix 4, the role of many of the socioeconomic characteristics is more pronounced in the duration model results. As in Appendix 1, women and non-minorities are more likely to establish independence. It is also clear that as individuals' age and as individuals acquire higher levels of education, they are more likely to establish independence. On the other hand, students and unemployed individuals are much less likely to establish independence. The effects of parental education and resources are very similar to the results in Appendix 1.

Finally, the impact of economic conditions are a little less important than the results in Table 3. State level unemployment rates continue to play an important role, as lower unemployment rates increases the likelihood of establishing independence. However, rents, growth rates, and recessions do not have a significant effect.

In results not shown, we also attempted to model the factors that lead households to leave independence and move back into one's parents' households. The results are similar, and as expected. Individuals who are most at risk due to lower education, employment status, fewer resources from their parents are more likely to move back home. We also find that marital dissolution increases the likelihood of moving back in with one's parents. Finally, we find that higher state unemployment rates increase the likelihood of moving back home.

Simulations

In order to determine the practical implications of these estimates, the data are simulated to calculate the effect on household formation rates from changes in economic and demographic variables using the models presented in Table 3. In the first three rows of Table 6, changes in the economic and housing conditions of the country are simulated by age group. Compared to the base case outlined in the table, young adults are less likely to become a new renter during a recession year. The simulations suggest that the probability of leaving home during a recession is reduced by 1 to 3 percentage points depending on the age of the individual.

Increasing the unemployment rate by about 2 percentage points has a similarly negative impact on becoming a renter, reducing the probability of establishing one's own household by about 1 percentage point across age groups. There is a similar impact on the probability of becoming a new owner household when unemployment rates are higher. Consistently, the effects are largest for the age ranges 21-24 and 25-29. Finally, we find moderate effects of increasing the rents by \$200. When rents are higher, renter household formation is depressed by about 1 percentage point across age groups.

By way of comparison, the estimates are also used to simulate changes in individual characteristics of young adults. The effect of an individual being unemployed is much larger than the general effects of higher unemployment rates, as one would expect. If an individual is unemployed, the probability of establishing a new renter household falls from 5 to 11 percentage points, with the biggest impacts in the Age 21-24 category. The effects are smaller for forming owner households, but the rate still falls by about 50% if an individual is unemployed.

Females are more likely to form rental households (10-15 percentage points higher) across all age ranges. They are also more likely to be part of an owner household (1 percentage point) from ages 18-29, but are less likely to become an owner if still living at home at age 30. Finally, non-white households are less likely to become an owner or renter. The predicted reduction in the probability for non-white households becoming an owner household (up to 6 percentage points) is larger than the predicted reduction in becoming a renter (up to 3.5 percentage points).

The impacts of large changes in parental income and wealth are not large. As evidenced in Table 3, individuals whose parents have incomes \$30,000 more than the average are about 1 – 2 percentage points less likely to form a rental household. At the same time, individuals whose parents who have wealth \$200,000 above the mean are 2-3 percentage points more likely to form a new renter household. Similarly, individuals whose parents have housing wealth \$200,000 above the mean are 1.5 – 4 percentage points more likely to form an owner household.

In sum, personal characteristics are the most important determinant of household formation. However, economic conditions play a significant role. Given the fact that the present recession includes unemployment rate increases of almost 6 percentage points in most places and large declines in parental financial and housing wealth, the model predicts that household formation would fall substantially.

Discussion and Concluding Comments

The estimates and simulations suggest that economic conditions are a significant predictor of household formation rates. The behavioral model estimated in the PSID, using data covering 6 recessions, suggests that the formation of rental households should

fall by 2- 4 percentage points because of the current recession in the United States, and that the formation of owner households should fall by about 1 percentage point. The model also demonstrates that individual characteristics such as employment and demographic characteristics are strong predictors of household formation. Not having a job leads to a greater than 10 percentage point reduction in renter household formation and about a 2 percentage point reduction in owner household formation. We also find that women and non-minorities have significant higher probabilities of establishing an independent household. Finally, parental resources play a mixed role. Higher financial and housing wealth increase the probability of establishing a renter and owner household respectively, but higher income of parents reduces the likelihood that a new renter household will form.

Our analysis with alternative modeling approaches and different samples also revealed some interesting results. The models using the Heckman correction approach (Table 4) suggested that the economic conditions are more important for household formation than they are for the decision to own or rent. When we estimated the models for separate sample of white and African-American households, we found that recession reduce the household formation of African-American households by more than white household. However, white households had the largest estimated response to changes in the state unemployment rate. Since unemployment rates rise during recessions, it implies all individuals lower their rates of household formation, but the mechanism by which different groups are impact is an open question, and remains a subject of future study.

It is important to remember that this analysis did not capture all household transitions that were illustrated in Figure 4, and therefore future research continues to be

necessary to understand the factors that cause individuals to move both to and from shared living arrangements to independence. Specifically, this analysis does not measure the transitions from renter to owner status or owner to rental status among currently independent households. It also does not measure the factors that cause households to move between types of shared living. However, the results using the survivor models estimating how the economic environment affects the likelihood that individuals will either move out of their parents' home or move back to it, are largely confirmatory of the main results of this study.

Despite these caveats, these results have important implications for both public policy and housing industry professionals. First, the results suggest that the demand for multifamily housing gets hit the hardest in a recession. This is evidenced by the more robust impact of economic characteristics on renter household demand. The implication of this is that when renter household formation returns to normal levels, homeownership rates are likely to decline before improving in the future.

References

- Aassve, A., F.C. Billari, S. Mazzuco, and F. Ongaro. (2002). "Leaving Home: A Comparative Analysis of ECHP Data", *Journal of European Social Policy* 12: 259–75.
- Avery, R., F.K. Goldscheider, and A. Speare. (1992). "Feathered Nest/Gilded Cage: Parental Income and Leaving Home in the Transition to Adulthood", *Demography* 29: 375–88.
- Billari, F.C., D. Philipov, and P. Baizán. (2001). "Leaving Home in Europe. The Experience of Cohorts Born Around 1960", *International Journal of Population Geography* 7: 339–56.
- De Jong Gierveld, J., A.C. Liefbroer, and E. Beekink. (1991). "The Effect of Parental Resources on Patterns of Leaving Home Among Young Adults in the Netherlands", *European Sociological Review* 7: 55–71.
- Ermisch, J. and P. Di Salvo. (1997). "The Economic Determinants of Young People's Household Formation", *Economica* 64: 627–44.
- Goldscheider, F.K. and J. DaVanzo. (1989). "Pathways to Independent Living in Early Adulthood: Marriage, Semiautonomy, and Premarital Residential Independence", *Demography* 26: 597–614.
- Goldscheider, F.K. and C. Goldscheider. (1989). "Family Structure and Conflict: Nest-Leaving Expectations of Young Adults and Their Parents", *Journal of Marriage and the Family* 51: 87–97.
- Goldscheider, F.K. and C. Goldscheider. (1993). *Leaving Home Before Marriage. Ethnicity, Familism and Generational Relationships*. Madison, WI: University of Wisconsin Press.
- Goldscheider, F.K. and C. Goldscheider. (1994). "Leaving and Returning Home in 20th Century America". *Population Bulletin* 48: 1-39.
- Goldscheider, F.K. and C. Goldscheider. (1998). "The Effects of Childhood Family Structure on Leaving and Returning Home", *Journal of Marriage and the Family* 60: 745–56.
- Green, R. K. and M. J. White (1997). "Measuring the Benefits of Homeowning: Effects on Children," *Journal of Urban Economics*, 41(3): 441- 461.
- Haurin, D.R., P.H. Hendershott, and D. Kim. (1993). "The Impact of Real Rents and Wages on Household Formation", *Review of Economics and Statistics* 75: 284-93.

Haurin, D. R. and Rosenthal, S. (2008), The Influence of Household Formation on Homeownership Rates Across Time and Race. *Real Estate Economics*, 35(4), 411-450.

Haurin, D. R., T. L. Parcel and R. J. Haurin (2002). "Impact of Homeownership on Child Outcomes." *In Low-Income Homeownership : Examining the Unexamined Goal*. N. P. Retsinas and E. S. Belsky. Cambridge, Mass.; Washington, D.C., Joint Center for Housing Studies ; Brookings Institution Press, 427-446.

Johnson, R.W. and J. DaVanzo. (1998). "Economic and Cultural Influences on the Decision to Leave Home in Peninsular Malaysia", *Demography* 35: 97-114.

Klasen, S. and I. Woolard (2009). "Surviving Unemployment without State Support: Unemployment and Household Formation in South Africa." *Journal of African Economies* 18(1):1-51.

Mulder, C.H. and W.A.V. Clark. (2000). "Leaving Home and Leaving the State: Evidence from the United States", *International Journal of Population Geography* 6: 423-37.

Mulder, C.H. and M. Wagner. (1993). "Migration and Marriage in the Life Course: A Method for Studying Synchronized Events", *European Journal of Population* 9: 55-76.

Murphy, M. and D. Wang. (1998). "Family and Sociodemographic Influences on Patterns of Leaving Home in Postwar Britain", *Demography* 35: 293-305.

Myers, D. and Z. Yu, (2009). "Misleading Comparisons of Homeownership Rates between Groups and Over Time? The Effects of Variable Household Formation," *Urban Studies*, forthcoming.

Painter, G. and Z. Yu (2009). "Immigrants and Housing Markets in Mid-size Metropolitan Areas," *International Migration Review*, forthcoming.

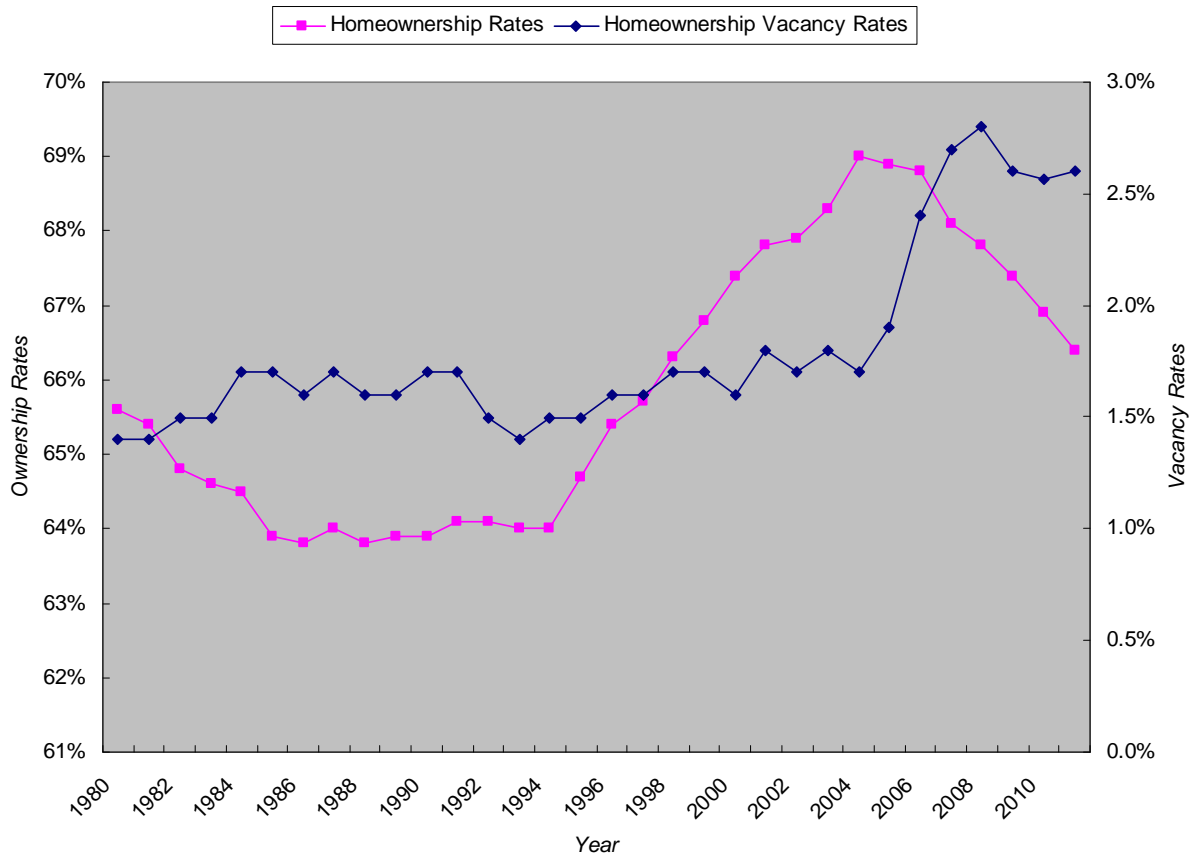
Painter, G. and Z. Yu (2008). "Leaving Gateway Metropolitan Areas: Immigrants and the Housing Market," *Urban Studies*, 45 (5-6), 1163 - 1191.

Rohe, W. M. and L. Stewart (1996). "Homeownership and Neighborhood Stability," *Housing Policy Debate*, 7(1): 37-46.

Van de Kaa, D.J. (1987). "Europe's Second Demographic Transition", *Population Bulletin* 42: 1-57.

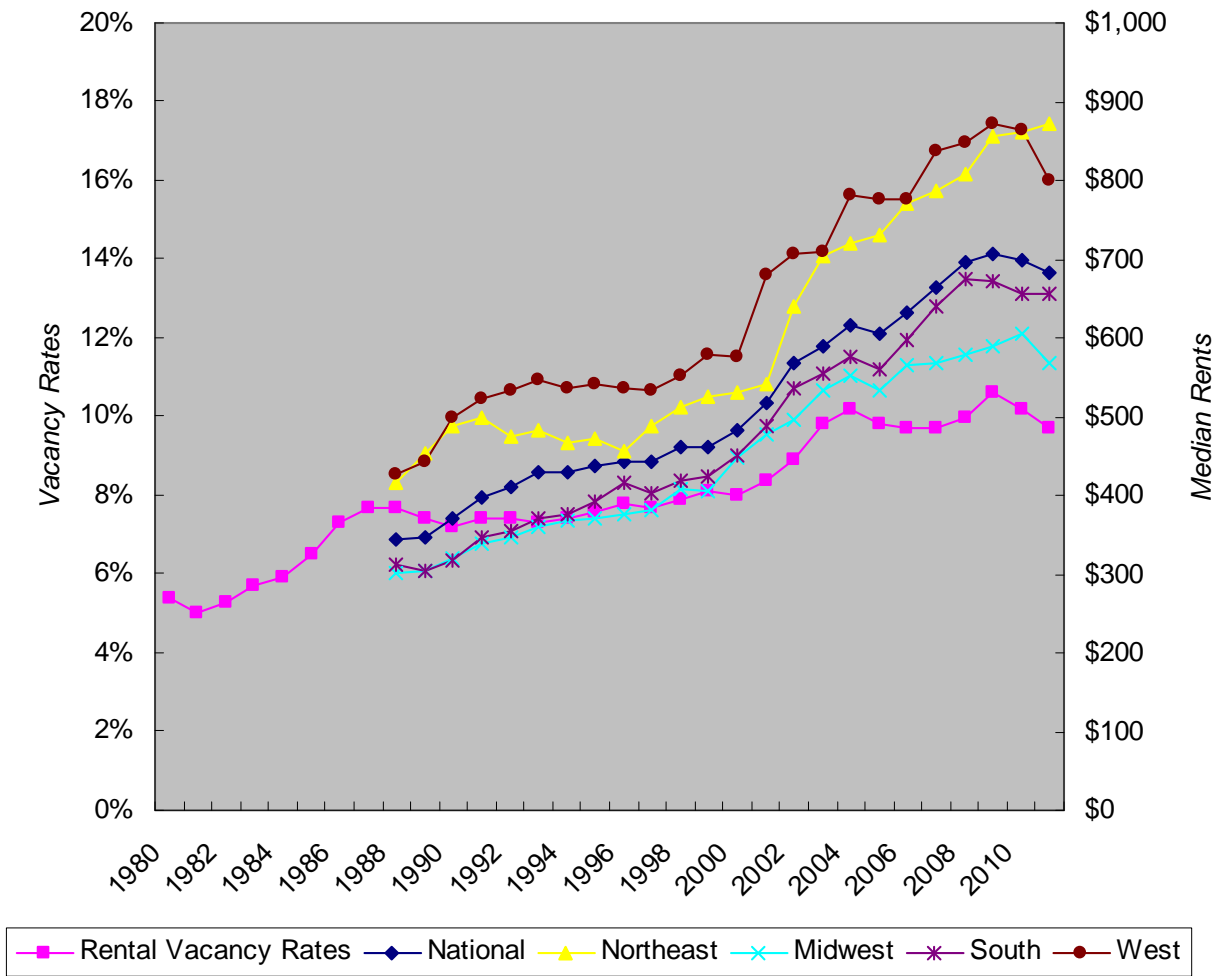
Whittington, L.A. and H.E. Peters. (1996). "Economic Incentives for Financial and Residential Independence", *Demography* 33:82-97.

Figure 1. Homeownership and Homeownership Vacancy Rates, 1980-2011(1st quarter)



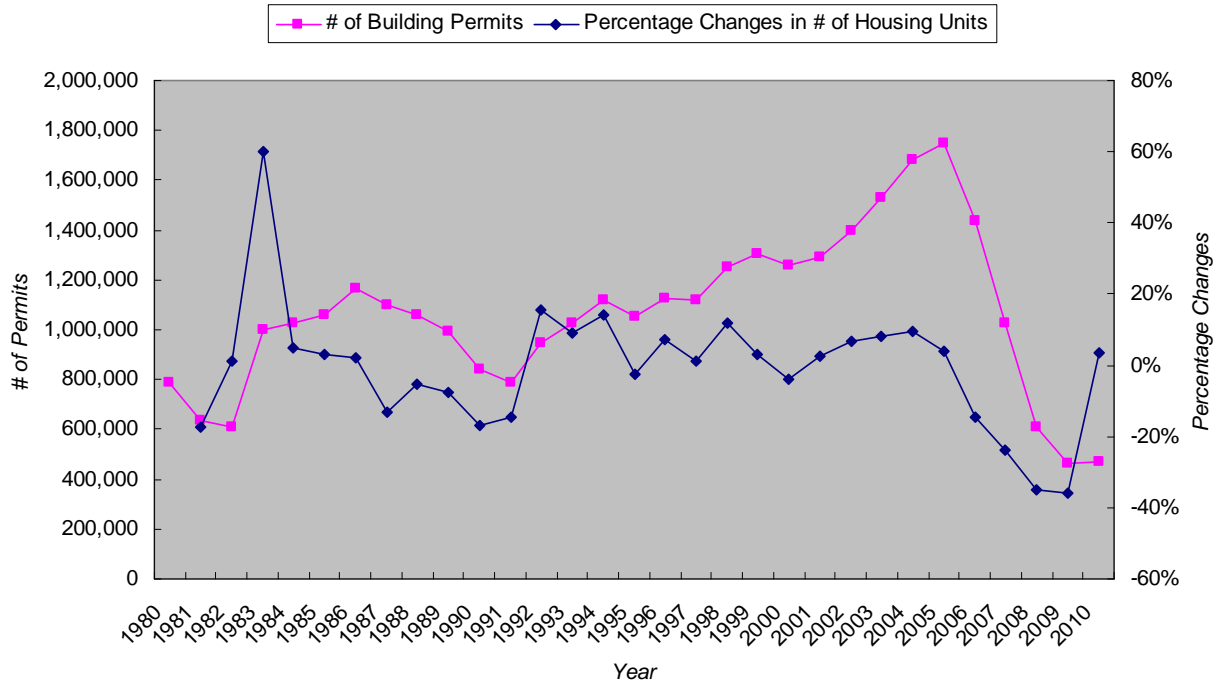
* Source: Current Population Survey/Housing Vacancies and Homeownership

Figure 2. Rental Vacancy Rates and Median Rents by Region, 1980-2011(1st quarter)



* Source: Current Population Survey/Housing Vacancies and Homeownership

Figure 3. Building Permits and Changes in Housing Units, 1980-2010



Source: US Census Bureau, Manufacturing, Mining, and Construction Statistics

Figure 4:
Illustration of the Process of Household formation and Housing Tenure Choice

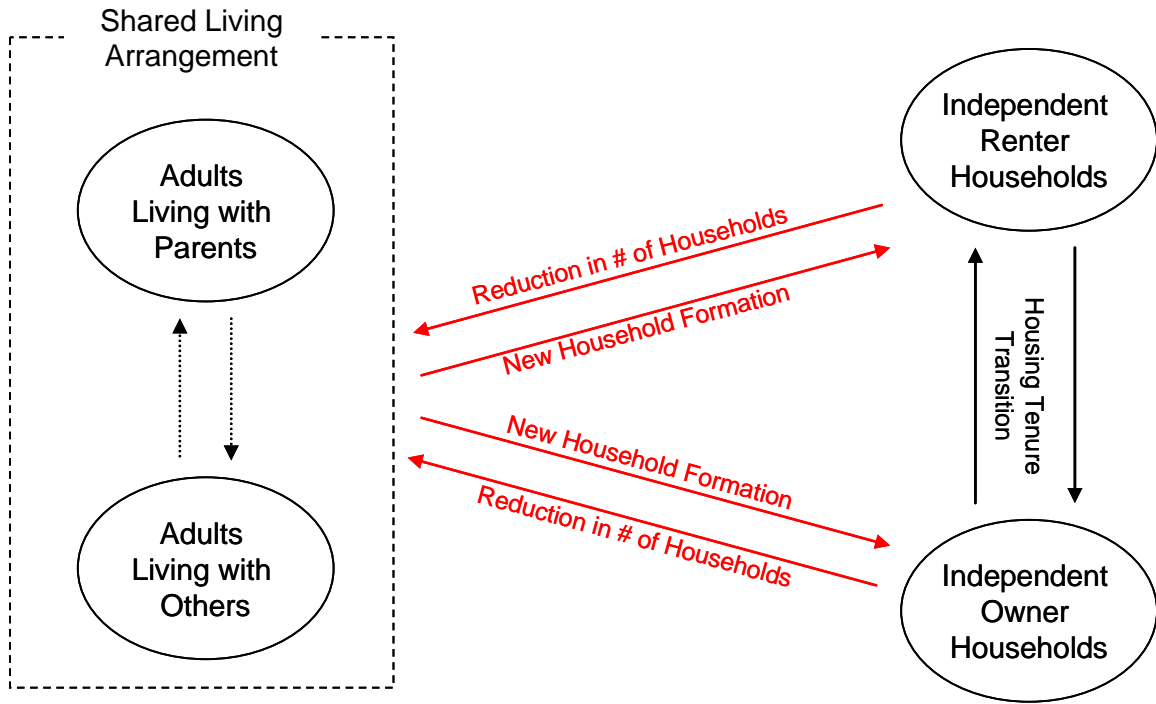


Table 1: Summary Statistics

	Whole Sample (Individuals who are ≥ 18 years and have lived with their parents)		Sub-sample (Year ≥ 1984)	
	Mean	S.D.	Mean	S.D.
<i>Individual Demographic Characteristics</i>				
Female	0.403	0.491	0.433	0.495
Non-white	0.527	0.499	0.524	0.499
Education Dummies (less than high school = 0)				
College degree	0.197	0.398	0.210	0.408
Some College	0.295	0.456	0.319	0.466
High School	0.367	0.482	0.370	0.483
Age Dummies (18-20 = 0)				
21-24	0.320	0.466	0.340	0.474
25-29	0.099	0.298	0.130	0.336
30-35	0.033	0.179	0.050	0.219
Female*Age Dummies (18-20 = 0)				
Female & 21-24	0.124	0.330	0.143	0.350
Female & 25-29	0.035	0.185	0.048	0.215
Female & 30-35	0.012	0.107	0.018	0.131
Student	0.227	0.419	0.285	0.452
Missing School Information	0.068	0.252	0.016	0.127
Health (Poor or Disabled)	0.014	0.116	0.012	0.111
Missing Health Information	0.331	0.470	0.316	0.465
<i>Individual Economic Characteristics</i>				
Unemployed	0.290	0.454	0.263	0.440
<i>Family Demographic Characteristics</i>				
Father's Education Dummies (less than high school = 0)				
College degree	0.140	0.347	0.165	0.371
Some College	0.164	0.371	0.198	0.398
High School	0.328	0.470	0.355	0.479
Family Size	4.568	2.212	4.114	1.808
Family structure (two-parent family = 0)				
One Parent, Widowed	0.094	0.292	0.089	0.285
One Parent, Others	0.254	0.435	0.279	0.449
Parental Health (Poor or Disabled)	0.281	0.449	0.292	0.455
<i>Family Economic Characteristics</i>				
Parent's Family Income/10,000	6.637	6.256	7.024	7.075
Family Tenure/House Value Dummies (Rent = 0)				
Own, House Value Lower 33%	0.183	0.387	0.207	0.405
Own, House Value Middle 33%	0.187	0.390	0.222	0.415
Own, House Value Upper 33%	0.214	0.410	0.249	0.432
Parent's Housing Wealth/10,000			9.974	38.275
Parent's Financial Wealth/10,000			3.997	41.687
Parent's Income*Age Dummies (18-20 = 0)				
21-24*Parent's Income/10,000	2.243	4.875	2.490	5.410
25-29*Parent's Income/10,000	0.653	2.607	0.851	3.038
30-35*Parent's Income/10,000	0.175	1.176	0.253	1.413
Member of Low-Income Sample	0.512	0.500	0.526	0.499

Table 1, Continued

	Whole Sample (Individuals who are \geq 18 years and have lived with their parents)		Sub-sample (Year \geq 1984)	
	Mean	S.D.	Mean	S.D.
<i>Family Locational Characteristics</i>				
City size (\geq 500,000 = 0)				
100,000-499,999	0.238	0.426	0.238	0.426
50,000-99,999	0.112	0.315	0.115	0.318
25,000-49,999	0.075	0.263	0.087	0.282
10,000-24,999	0.096	0.294	0.116	0.320
Under 10,000	0.139	0.346	0.153	0.360
Region (Midwest = 0)				
Northeast	0.169	0.375	0.167	0.373
South	0.461	0.498	0.465	0.499
West	0.141	0.348	0.135	0.341
<i>Economic Conditions</i>				
If Recession Year	0.162	0.368	0.138	0.345
State Real GDP Growth Rate	0.024	0.036	0.023	0.034
State Unemployment Rate	6.340	1.922	6.433	2.069
State Average Real Wage/1,000	38.616	5.995	38.674	6.231
<i>Housing Market Conditions</i>				
Ln(Tract Median Rent)	6.291	0.417	6.269	0.454
MSA HPI			104.267	41.148

Table 2: Yearly Rates of Leaving Parental Home

Year*	Whole Sample (Individuals who are >= 18 years and have lived with their parents)	# of Individuals who Leave Home	Rates of Leaving Parental Home
1968	845	67	7.93%
1969	1,032	125	12.12%
1970	1,165	142	12.16%
1971	1,273	173	13.62%
1972	1,406	208	14.80%
1973	1,494	241	16.14%
1974	1,527	213	13.96%
1975	1,566	200	12.76%
1976	1,632	186	11.42%
1977	1,660	188	11.33%
1978	1,703	240	14.10%
1979	1,700	228	13.39%
1980	1,713	184	10.74%
1981	1,716	165	9.61%
1982	1,764	187	10.59%
1983	1,775	167	9.40%
1984	1,765	218	12.38%
1985	1,723	164	9.55%
1986	1,608	174	10.81%
1987	1,510	177	11.71%
1988	1,480	146	9.85%
1989	1,441	154	10.71%
1990	1,912	145	7.60%
1991	1,911	160	8.36%
1992	2,026	147	7.26%
1993	2,158	159	7.39%
1994	2,180	141	6.49%
1995	2,055	164	7.96%
1996	1,593	130	8.16%
1997	1,318	160	12.15%
1999	1,565	207	13.23%
2001	1,786	247	13.83%
2003	1,965	301	15.32%
2005	1,999	319	15.96%
2007	1,917	285	14.87%

Note1: * Shaded if the year is in recession (according to NBER definition).

Note2: Between 1992 and 1995, Latino sample was added to the main sample.

So, there was a large increase in the number of the sample.

Note3: Since 1997, PSID has changed into biennial survey.

Table 3: Selected Results of Multinomial Logit (MNL) Models

	All Individual and Family Variables + Year Dummies				All Individual and Family Variables + Economic Conditions + Median Rent			
	Leaving Home & Own		Leaving Home & Rent		Leaving Home & Own		Leaving Home & Rent	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
<i>Individual Economic Characteristics</i>								
Unemployed	-0.820	0.124 ***	-0.851	0.053 ***	-0.749	0.126 ***	-0.805	0.054 ***
<i>Economic Conditions</i>								
Year Dummies (68-74 = 0)								
75-79	-0.136	0.152	-0.100	0.067				
80-84	-0.365	0.175 **	-0.143	0.079 *				
85-89	0.010	0.162	0.070	0.078				
90-94	0.263	0.185	0.063	0.090				
95-99	0.760	0.238 ***	0.023	0.132				
00-07	0.703	0.176 ***	0.121	0.088				
If Recession Year					0.052	0.138	-0.129	0.066 **
State Real GDP Growth Rate					0.218	1.432	-0.300	0.685
State Unemployment Rate					-0.076	0.029 ***	-0.033	0.012 ***
State Average Real Wage/1,000					0.011	0.011	-0.002	0.005
<i>Housing Market Conditions</i>								
Ln(Tract Median Rent)					-0.195	0.131	-0.132	0.069 *
Pseudo R2	12.40				12.28			

Note 1: Educational dummies represent the final degree of individuals.

Note 2: * P < 0.10; ** P < 0.05; *** P < 0.01.

Table 4: Selected Results of Racially-Stratified MNL Models

	All Individual and Family Variables + Economic Conditions + Median Rent									
	Whites					African Americans				
	Leaving Home & Own		Leaving Home & Rent		Leaving Home & Own		Leaving Home & Rent			
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.		
<i>Individual Economic Characteristics</i>										
Unemployed	-0.795	0.140 ***	-0.164	0.285	-0.859	0.065 ***	-0.796	0.104 ***		
<i>Economic Conditions</i>										
If Recession Year	0.061	0.152	-0.099	0.250	-0.156	0.076 **	-0.256	0.142 *		
State Real GDP Growth Rate	0.533	1.588	-2.664	2.580	-0.269	0.778	-1.458	1.420		
State Unemployment Rate	-0.075	0.031 **	-0.046	0.063	-0.039	0.014 ***	-0.028	0.023		
State Average Real Wage/1,000	0.009	0.012	-0.003	0.030	-0.007	0.007	0.000	0.010		
<i>Housing Market Conditions</i>										
Ln(Tract Median Rent)	-0.297	0.144 **	-0.060	0.240	-0.067	0.083	-0.289	0.132 **		
Pseudo R2	0.1271				0.1215					

Note 1: Educational dummies represent the final degree of individuals.

Note 2: * P < 0.10; ** P < 0.05; *** P < 0.01.

Table 5: Selected Results of Heckman Selection Models

Selection Variable	Parents' Marital Status		Wait Time for Public Housing Units		Wait Time for Section 8 Units		
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	
Results of Housing Tenure Choice (Own =1)							
<i>Individual Economic Characteristics</i>							
Unemployed	-0.078	0.043 *	-0.076	0.182	-0.057	0.218	
<i>Economic Characteristics</i>							
If Recession Year	0.004	0.016					
State Real GDP Growth Rate	-0.150	0.160	-2.214	1.605	-2.222	1.619	
State Unemployment Rate	-0.011	0.004 ***	-0.029	0.032	-0.027	0.034	
State Average Real Wage/1,000	-0.001	0.001	-0.007	0.007	-0.007	0.008	
<i>Housing Market Characteristics</i>							
Ln(Median Rent)	-0.033	0.022	0.086	0.041 **	0.087	0.042 **	
Results of Household Formation (Leaving Home = 1)							
<i>Individual Economic Characteristics</i>							
Unemployed	-0.444	0.020 ***	-0.626	0.107 ***	-0.628	0.107 ***	
<i>Economic Conditions</i>							
If Recession Year	-0.058	0.026 **					
State Real GDP Growth Rate	-0.272	0.268	0.503	2.901	1.233	2.858	
State Unemployment Rate	-0.022	0.005 ***	-0.050	0.048	-0.030	0.047	
State Average Real Wage/1,000	-0.002	0.002	-0.015	0.009 **	-0.018	0.009 **	
<i>Housing Market Conditions</i>							
Ln(Median Rent)	-0.107	0.015 ***	0.067	0.076	0.075	0.077	
<i>Selection Variables</i>							
Family structure (two-parent family = 0)							
One Parent, Widowed	-0.089	0.031 ***					
One Parent, Others	0.008	0.025					
One Parent, Single	-0.074	0.064					
Wait time for public housing			-0.009	0.006 *			
Wait time for section 8					-0.006	0.005	
Mills							
lambda (rho*sigma)	0.238	0.116 **	0.390	0.348	0.000	0.428	
rho (correlation of the residuals of the two equations)	0.582		0.118		0.001		
sigma (SE of the residuals of housing tenure equation)	0.408		0.329		0.327		
		Wald chi2(82) = 10,536.84 Prob > chi2 = 0.00000		Wald chi2(78) = 283.07 Prob > chi2 = 0.00000		Wald chi2(82) = 252.29 Prob > chi2 = 0.00000	

Note 1: Educational dummies represent the final degree of individuals.

Note 2: * P < 0.10; ** P < 0.05; *** P < 0.01.

Table 6: Selected Results of Simulation of MNL Models

	Age 18-20		Age 21-24		Age 25-29		Age 30-35	
	Leaving Home & Own	Leaving Home & Rent	Leaving Home & Own	Leaving Home & Rent	Leaving Home & Own	Leaving Home & Rent	Leaving Home & Own	Leaving Home & Rent
Base Case*	0.022	0.177	0.046	0.235	0.050	0.174	0.025	0.117
If Recession Year = 1	0.023	0.159	0.050	0.213	0.053	0.156	0.026	0.105
State Unemployment Rate = 8.837%	0.019	0.167	0.040	0.224	0.043	0.165	0.021	0.111
Tract Median Rent = \$819	0.020	0.170	0.043	0.227	0.046	0.167	0.023	0.112
Unemployed = 1	0.012	0.089	0.026	0.125	0.027	0.089	0.013	0.057
Female = 1	0.032	0.299	0.050	0.306	0.056	0.231	0.009	0.231
Non-White = 1	0.008	0.144	0.017	0.198	0.019	0.144	0.009	0.094
Parental Income = \$97,647	0.020	0.156	0.044	0.210	0.047	0.154	0.023	0.103
Parental Housing Wealth = \$291,114	0.036	0.178	0.070	0.229	0.079	0.164	0.040	0.116
Parental Financial Wealth = \$248,403	0.025	0.206	0.048	0.266	0.055	0.193	0.028	0.135

Note 1: Base Case: Female = 0, Non-White = 0, Education = College, Unemployed = 0; Parental Income = \$66,368, Parental Tenure/House Value = Rent, Parental Housing Wealth = \$99,739, Parental Financial Wealth = \$248,403
 Note 2: Results are presented in bold if they are statistically significant in the multinomial logit model.
 Note 3: All simulation results are based on the whole sample, except those for parental housing and financial wealth that are only available for the post-1984 sample.

Appendix 1: Full Results of Multinomial Logit (MNL) Models

	All Individual and Family Variables + Year Dummies				All Individual and Family Variables + Macro Economic Variables + Median Rent			
	Leaving Home & Own		Leaving Home & Rent		Leaving Home & Own		Leaving Home & Rent	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
<i>Individual Demographic Characteristics</i>								
Female	0.572	0.142 ***	0.706	0.063 ***	0.586	0.144 ***	0.718	0.065 ***
Non-white	-1.100	0.142 ***	-0.265	0.064 ***	-1.062	0.145 ***	-0.266	0.065 ***
Education Dummies (less than high school = 0)								
College degree	0.444	0.263 *	0.099	0.125	0.253	0.259	0.099	0.124
Some College	0.538	0.248 **	0.162	0.121	0.383	0.248	0.135	0.121
High School	0.548	0.240 **	0.010	0.117	0.432	0.242 *	-0.002	0.119
Age Dummies (18-20 = 0)								
21-24	0.713	0.195 ***	0.261	0.099 ***	0.787	0.197 ***	0.262	0.099 ***
25-29	0.689	0.239 ***	-0.045	0.145	0.815	0.239 ***	-0.031	0.144
30-35	-0.148	0.398	-0.510	0.358	0.031	0.384	-0.485	0.352
Female*Age Dummies (18-20 = 0)								
Female & 21-24	-0.241	0.191	-0.405	0.091 ***	-0.213	0.193	-0.403	0.092 ***
Female & 25-29	-0.346	0.274	-0.331	0.149 **	-0.392	0.277	-0.349	0.150 **
Female & 30-35	-1.398	0.586 **	0.108	0.334	-1.448	0.608 **	0.070	0.334
Student	-3.296	0.324 ***	-3.771	0.172 ***	-3.187	0.322 ***	-3.758	0.172 ***
Missing School Information	0.613	0.328 **	0.192	0.147	0.341	0.319	0.137	0.147
Health (Poor or Disabled)	-0.310	0.592	-0.032	0.231	-0.340	0.595	-0.090	0.240
Missing Health Information	0.181	0.122	0.080	0.057	-0.133	0.102	0.051	0.049
<i>Individual Economic Characteristics</i>								
Unemployed	-0.820	0.124 ***	-0.851	0.053 ***	-0.749	0.126 ***	-0.805	0.054 ***
<i>Family Demographic Characteristics</i>								
Father's Education Dummies (less than high school = 0)								
College degree	-0.415	0.163 **	0.147	0.078 *	-0.295	0.163 *	0.159	0.077 **
Some College	-0.277	0.149 *	0.081	0.073	-0.121	0.145	0.094	0.073
High School	-0.234	0.115 **	-0.050	0.058	-0.184	0.114	-0.056	0.059
Family Size	0.059	0.025 ***	0.007	0.012	0.047	0.025 *	0.000	0.012
Family structure (two-parent family = 0)								
One Parent, Widowed	-0.113	0.179	-0.182	0.087 **	-0.206	0.185	-0.183	0.087 **
One Parent, Others	0.066	0.150	0.083	0.067	0.128	0.152	0.067	0.068
Parental Health (Poor or Disabled)	0.090	0.103	-0.022	0.052	0.104	0.103	-0.010	0.052
<i>Family Economic Characteristics</i>								
Parent's Family Income/10,000	-0.034	0.020 *	-0.053	0.010 ***	-0.028	0.020	-0.051	0.010 ***
Family Tenure/House Value Dummies								
Own, House Value Lower 33%	0.332	0.150 **	-0.057	0.070	0.332	0.153 **	-0.089	0.072
Own, House Value Middle 33%	0.475	0.153 ***	-0.078	0.068	0.448	0.154 ***	-0.095	0.069
Own, House Value Upper 33%	0.326	0.165 **	-0.030	0.072	0.277	0.168 *	-0.031	0.073

Appendix 1, Continued

	Leaving Home & Own		Leaving Home & Rent		Leaving Home & Own		Leaving Home & Rent	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
<i>Family Economic Characteristics</i>								
Parent's Income*Age Dummies (18-20 = 0)								
21-24*Parent's Income/10,000	0.034	0.020 *	0.055	0.010 ***	0.031	0.020	0.055	0.010 ***
25-29*Parent's Income/10,000	0.060	0.022 ***	0.049	0.014 ***	0.057	0.022 ***	0.050	0.014 ***
30-35*Parent's Income/10,000	0.135	0.041 ***	-0.010	0.049	0.134	0.040 ***	-0.006	0.049
Member of Low-Income Sample	-0.174	0.118	-0.080	0.059	-0.252	0.118 **	-0.072	0.059
<i>Family Locational Characteristics</i>								
City size (>= 500,000 = 0)								
100,000-499,999	0.427	0.153 ***	0.151	0.062 **	0.444	0.153 ***	0.137	0.064 **
50,000-99,999	0.564	0.172 ***	0.080	0.075	0.586	0.177 ***	0.060	0.079
25,000-49,999	0.369	0.180 **	0.040	0.081	0.396	0.181 **	0.035	0.083
10,000-24,999	0.449	0.177 **	-0.039	0.080	0.483	0.184 ***	-0.054	0.084
Under 10,000	0.853	0.158 ***	0.030	0.078	0.843	0.168 ***	-0.008	0.084
Region (Midwest = 0)								
Northeast	-0.395	0.136 ***	-0.325	0.060 ***	-0.468	0.138 ***	-0.296	0.062 ***
South	0.194	0.109 *	-0.107	0.058 *	0.188	0.114 *	-0.099	0.063
West	-0.179	0.142	0.033	0.066	-0.099	0.148	0.083	0.069
<i>Economic Conditions</i>								
Year Dummies (68-74 = 0)								
75-79	-0.136	0.152	-0.100	0.067				
80-84	-0.365	0.175 **	-0.143	0.079 *				
85-89	0.010	0.162	0.070	0.078				
90-94	0.263	0.185	0.063	0.090				
95-99	0.760	0.238 ***	0.023	0.132				
00-07	0.703	0.176 ***	0.121	0.088				
If Recession Year					0.052	0.138	-0.129	0.066 **
State Real GDP Growth Rate					0.218	1.432	-0.300	0.685
State Unemployment Rate					-0.076	0.029 ***	-0.033	0.012 ***
State Average Real Wage/1,000					0.011	0.011	-0.002	0.005
<i>Housing Market Conditions</i>								
Ln(Tract Median Rent)					-0.195	0.131	-0.132	0.069 *
Pseudo R2	12.40				12.28			

Note 1: Educational dummies represent the final degree of individuals.

Note 2: * P < 0.10; ** P < 0.05; *** P < 0.01.

Appendix 2: Full Results of Multinomial Logit (MNL) Models after 1984

	All Individual and Family Variables + Macro Economic Variables + Median Rent + Parental Wealth			
	Leaving Home & Own		Leaving Home & Rent	
	Coef.	S.E.	Coef.	S.E.
<i>Individual Demographic Characteristics</i>				
Female	0.460	0.194 **	0.690	0.090 ***
Non-white	-1.184	0.177 ***	-0.308	0.081 ***
Education Dummies (less than high school = 0)				
College degree	0.396	0.271	0.226	0.133 *
Some College	0.467	0.253 *	0.167	0.128
High School	0.285	0.247	-0.090	0.124
Age Dummies (18-20 = 0)				
21-24	0.727	0.231 ***	0.250	0.121 **
25-29	0.767	0.273 ***	-0.082	0.167
30-35	-0.016	0.404	-0.512	0.361
Female*Age Dummies (18-20 = 0)				
Female & 21-24	0.034	0.246	-0.405	0.121 ***
Female & 25-29	-0.298	0.320	-0.212	0.175
Female & 30-35	-1.381	0.645 **	0.002	0.348
Student	-3.518	0.383 ***	-4.207	0.212 ***
Missing School Information	0.333	0.485	0.349	0.218
Health (Poor or Disabled)	-0.688	0.829	-0.285	0.313
Missing Health Information	-0.278	0.153 *	-0.102	0.074
<i>Individual Economic Characteristics</i>				
Unemployed	-0.477	0.147 ***	-0.486	0.066 ***
<i>Family Demographic Characteristics</i>				
Father's Education Dummies (less than high school = 0)				
College degree	-0.174	0.198	0.227	0.100 **
Some College	-0.103	0.179	0.092	0.094
High School	-0.162	0.148	-0.066	0.080
Family Size	0.083	0.035 **	0.014	0.018
Family structure (two-parent family = 0)				
One Parent, Widowed	-0.121	0.233	-0.084	0.119
One Parent, Others	0.090	0.174	0.062	0.082
Parental Health (Poor or Disabled)	0.140	0.120	-0.008	0.064
<i>Family Economic Characteristics</i>				
Parent's Family Income/10,000	-0.033	0.022	-0.039	0.012 ***
Family Tenure/House Value Dummies (Rent = 0)				
Own, House Value Lower 33%	0.363	0.182 **	-0.091	0.091
Own, House Value Middle 33%	0.341	0.183 *	-0.123	0.084
Own, House Value Upper 33%	0.190	0.200	-0.082	0.092
Parent's Housing Wealth/10,000	0.002	0.001 **	-0.001	0.001 **
Parent's Financial Wealth/10,000	0.001	0.001	0.001	0.000 **
Parent's Income*Age Dummies (18-20 = 0)				
21-24*Parent's Income/10,000	0.021	0.021	0.045	0.012 ***
25-29*Parent's Income/10,000	0.055	0.023 **	0.037	0.016 ***
30-35*Parent's Income/10,000	0.124	0.040 ***	-0.009	0.048
Member of Low-Income Sample	-0.173	0.146	-0.060	0.076

Appendix 2, Continued

	Leaving Home & Own		Leaving Home & Rent	
	Coef.	S.E.	Coef.	S.E.
<i>Family Locational Characteristics</i>				
City size (>= 500,000 = 0)				
100,000-499,999	0.346	0.196 *	0.112	0.086
50,000-99,999	0.488	0.230 **	0.038	0.104
25,000-49,999	0.290	0.222	0.011	0.105
10,000-24,999	0.484	0.217 **	-0.037	0.106
Under 10,000	0.819	0.206 ***	-0.025	0.109
Region (Midwest = 0)				
Northeast	-0.565	0.176 ***	-0.203	0.083 **
South	0.077	0.136	-0.074	0.078
West	-0.149	0.177	0.148	0.089 *
<i>Economic Conditions</i>				
If Recession Year	0.212	0.171	-0.103	0.091
State Real GDP Growth Rate	1.251	1.957	0.707	0.978
State Unemployment Rate	-0.058	0.035 *	-0.008	0.015
State Average Real Wage/1,000	0.017	0.012	-0.008	0.007
<i>Housing Market Conditions</i>				
Ln(Tract Median Rent)	-0.137	0.150	-0.100	0.082
Pseudo R2	14.71			

Note 1: Educational dummies represent the final degree of individuals.

Note 2: * P < 0.10; ** P < 0.05; *** P < 0.01.

Appendix 3: Full Results of Racially-Stratified MNL Models

	All Individual and Family Variables + Macro Economic Variables + Median Rent							
	Whites				African Americans			
	Leaving Home & Own		Leaving Home & Rent		Leaving Home & Own		Leaving Home & Rent	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
<i>Individual Demographic Characteristics</i>								
Female	0.606	0.153 ***	0.791	0.364 **	0.719	0.074 ***	0.737	0.155 ***
Education Dummies (less than high school = 0)								
College degree	0.206	0.277	1.497	0.572 ***	0.138	0.153	0.218	0.256
Some College	0.353	0.266	1.210	0.575 **	0.166	0.151	0.356	0.230
High School	0.416	0.261	1.213	0.521 **	-0.006	0.148	0.303	0.224
Age Dummies (18-20 = 0)								
21-24	0.744	0.226 ***	0.778	0.390 **	0.207	0.117 *	0.522	0.210 **
25-29	0.770	0.271 ***	0.422	0.685	-0.121	0.179	-0.046	0.268
30-35	-0.002	0.448	0.277	0.726	-0.563	0.483	0.119	0.575
Female*Age Dummies (18-20 = 0)								
Female & 21-24	-0.270	0.208	-0.166	0.498	-0.457	0.105 ***	-0.247	0.209
Female & 25-29	-0.449	0.305	-0.387	0.667	-0.362	0.183 **	-0.617	0.291 **
Female & 30-35	-1.586	0.803 **	0.596	0.769	-0.079	0.443	0.174	0.556
Student	-3.148	0.337 ***	-3.546	0.640 ***	-3.997	0.223 ***	-3.072	0.303 ***
Missing School Information	0.351	0.356	1.315	0.660 **	0.170	0.195	0.201	0.254
Health (Poor or Disabled)	-0.258	0.610	-2.460	1.039 **	-0.216	0.302	0.362	0.391
Missing Health Information	-0.146	0.113	0.168	0.229	0.064	0.056	0.117	0.103
<i>Individual Economic Characteristics</i>								
Unemployed	-0.795	0.140 ***	-0.164	0.285	-0.859	0.065 ***	-0.796	0.104 ***
<i>Family Demographic Characteristics</i>								
Father's Education Dummies (less than high school = 0)								
College degree	-0.238	0.171	-0.595	0.477	0.171	0.087 **	0.035	0.240
Some College	-0.122	0.159	0.436	0.378	0.083	0.086	0.090	0.152
High School	-0.185	0.127	0.044	0.313	-0.028	0.071	-0.202	0.119 *
Family Size	0.042	0.031	0.003	0.050	-0.012	0.016	0.054	0.020 ***
Family structure (two-parent family = 0)								
One Parent, Widowed	-0.154	0.217	-0.784	0.347 **	-0.152	0.109	-0.252	0.154
One Parent, Others	0.168	0.169	-0.326	0.347	-0.019	0.086	0.123	0.123
Parental Health (Poor or Disabled)	0.149	0.112	-0.362	0.252	-0.064	0.063	0.016	0.099
<i>Family Economic Characteristics</i>								
Parent's Family Income/10,000	-0.032	0.024	0.011	0.040	-0.056	0.012 ***	-0.098	0.029 ***
Family Tenure/House Value Dummies (Rent = 0)								
Own, House Value Lower 33%	0.259	0.177	0.418	0.343	-0.055	0.092	-0.001	0.123
Own, House Value Middle 33%	0.361	0.171 **	0.532	0.373	-0.039	0.084	-0.040	0.138
Own, House Value Upper 33%	0.203	0.182	0.270	0.555	-0.009	0.085	0.297	0.222

Appendix 3, Continued

	Whites				African Americans			
	Leaving Home & Own		Leaving Home & Rent		Leaving Home & Own		Leaving Home & Rent	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Parent's Income*Age Dummies (18-20 = 0)								
21-24*Parent's Income/10,000	0.038	0.024	0.039	0.061	0.064	0.012 ***	0.015	0.035
25-29*Parent's Income/10,000	0.062	0.026 **	0.148	0.076 *	0.057	0.017 ***	0.142	0.047 ***
30-35*Parent's Income/10,000	0.116	0.043 ***	-0.026	0.096	0.005	0.062	-0.158	0.111
Member of Low-Income Sample	-0.327	0.148 **	0.227	0.311	0.041	0.070	-0.365	0.113 ***
<i>Family Locational Characteristics</i>								
City size (>= 500,000 = 0)								
100,000-499,999	0.543	0.174 ***	-0.195	0.379	0.213	0.076 ***	-0.024	0.137
50,000-99,999	0.568	0.195 ***	0.227	0.372	0.129	0.088	-0.081	0.186
25,000-49,999	0.463	0.202 **	0.325	0.511	0.115	0.093	-0.690	0.227 ***
10,000-24,999	0.540	0.198 ***	0.572	0.709	0.044	0.094	-0.559	0.216 **
Under 10,000	0.907	0.189 ***	0.513	0.404	0.109	0.097	-0.533	0.171 ***
Region (Midwest = 0)								
Northeast	-0.431	0.144 ***	-0.969	0.641	-0.307	0.069 ***	-0.128	0.177
South	0.175	0.121	0.081	0.423	-0.099	0.072	-0.066	0.137
West	-0.170	0.163	-0.697	0.547	0.150	0.077 *	0.066	0.208
<i>Economic Conditions</i>								
If Recession Year	0.061	0.152	-0.099	0.250	-0.156	0.076 **	-0.256	0.142 *
State Real GDP Growth Rate	0.533	1.588	-2.664	2.580	-0.269	0.778	-1.458	1.420
State Unemployment Rate	-0.075	0.031 **	-0.046	0.063	-0.039	0.014 ***	-0.028	0.023
State Average Real Wage/1,000	0.009	0.012	-0.003	0.030	-0.007	0.007	0.000	0.010
<i>Housing Market Conditions</i>								
Ln(Tract Median Rent)	-0.297	0.144 **	-0.060	0.240	-0.067	0.083	-0.289	0.132 **
Pseudo R2	0.1271				0.1215			

Note 1: Educational dummies represent the final degree of individuals.

Note 2: * P < 0.10; ** P < 0.05; *** P < 0.01.

Appendix 4: Full Results of Heckman Selection Models

Selection Variable	Parents' Marital Status		Wait Time for Public Housing Units		Wait Time for Section 8 Units	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Results of Housing Tenure Choice (Own = 1)						
<i>Individual Demographic Characteristics</i>						
Female	0.054	0.037	0.018	0.064	0.013	0.072
Nor-white	-0.105	0.025 ***	-0.075	0.117	-0.067	0.130
Education Dummies (less than high school = 0)						
College degree	0.018	0.029	0.339	0.100 ***	0.340	0.100 ***
Some College	0.063	0.029 **	0.134	0.080 *	0.131	0.082
High School	0.073	0.027 ***	0.049	0.081	0.053	0.082
Age Dummies (18-20 = 0)						
21-24	0.082	0.024 ***	0.055	0.083	0.053	0.085
25-29	0.078	0.029 ***	-0.001	0.104	0.000	0.105
30-35	0.041	0.065	-0.292	0.300	-0.282	0.314
Female*Age Dummies (18-20 = 0)						
Female & 21-24	-0.017	0.024				
Female & 25-29	-0.024	0.037				
Female & 30-35	-0.039	0.073				
Student	-0.284	0.161 *				
Missing School Information	0.061	0.033 *	-0.092	0.617	-0.029	0.763
Health (Poor or Disabled)	-0.063	0.049	-0.110	0.396	-0.122	0.413
Missing Health Information	-0.015	0.012	-0.166	0.292	-0.152	0.299
<i>Individual Economic Characteristics</i>						
Unemployed	-0.078	0.043 *	-0.076	0.182	-0.057	0.218
<i>Family Demographic Characteristics</i>						
Father's Education Dummies (less than high school = 0)						
College degree	-0.017	0.022	-0.224	0.088 **	-0.226	0.093 **
Some College	0.003	0.019	-0.163	0.092 *	-0.159	0.092 *
High School	-0.003	0.013	-0.106	0.093	-0.101	0.095
Family Size	0.003	0.003	0.005	0.014	0.005	0.014
Family structure (two-parent family = 0)						
One Parent, Widowed			-0.037	0.154	-0.040	0.155
One Parent, Others			0.048	0.064	0.044	0.071
Parental Health (Poor or Disabled)	0.001	0.012	0.052	0.058	0.050	0.058
<i>Family Economic Characteristics</i>						
Parent's Family Income/10,000	-0.004	0.003	0.006	0.010	0.006	0.010
Family Tenure/House Value Dummies						
Own, House Value Lower 33%	0.058	0.015 ***	-0.001	0.073	0.001	0.075
Own, House Value Middle 33%	0.078	0.015 ***	-0.087	0.081	-0.083	0.085
Own, House Value Upper 33%	0.045	0.017 ***	-0.036	0.077	-0.035	0.077
Parent's Income*Age Dummies (18-20 = 0)						
21-24*Parent's Income/10,000	0.004	0.003	-0.007	0.011	-0.008	0.012
25-29*Parent's Income/10,000	0.010	0.004 ***	0.002	0.012	0.001	0.013
30-35*Parent's Income/10,000	0.021	0.008 ***	0.048	0.039	0.047	0.041
Member of Low-Income Sample	-0.021	0.015	-0.040	0.089	-0.042	0.090

Appendix 4, Continued

Selection Variable	Parents' Marital Status		Wait Time for Public Housing Units		Wait Time for Section 8 Units	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Results of Housing Tenure Choice (Own = 1)						
<i>Family Locational Characteristics</i>						
City size (>= 500,000 = 0)						
100,000-499,999	0.033	0.015	**	0.061	0.083	0.057 0.083
50,000-99,999	0.058	0.018	***	0.006	0.104	0.000 0.107
25,000-49,999	0.057	0.021	***	0.234	0.094	** 0.236 0.096 **
10,000-24,999	0.049	0.020	**	0.117	0.104	0.122 0.108
Under 10,000	0.139	0.018	***	0.264	0.089	0.263 0.088 ***
Region (Midwest = 0)						
Northeast	-0.044	0.023	*	-0.002	0.088	0.000 0.088
South	0.023	0.016		0.099	0.088	0.101 0.090
West	0.016	0.018		0.047	0.103	0.051 0.118
<i>Economic Characteristics</i>						
If Recession Year	0.004	0.016				
State Real GDP Growth Rate	-0.150	0.160		-2.214	1.605	-2.222 1.619
State Unemployment Rate	-0.011	0.004	***	-0.029	0.032	-0.027 0.034
State Average Real Wage/1,000	-0.001	0.001		-0.007	0.007	-0.007 0.008
<i>Housing Market Characteristics</i>						
Ln(Median Rent)	-0.033	0.022		0.086	0.041	** 0.087 0.042 **
Results of Household Formation (Leaving Home = 1)						
<i>Individual Demographic Characteristics</i>						
Female	0.364	0.026	***	0.175	0.090	* 0.175 0.090 *
Nor-white	-0.200	0.025	***	-0.242	0.156	-0.230 0.155
Education Dummies (less than high school = 0)						
College degree	0.140	0.044	***	-0.051	0.202	-0.041 0.201
Some College	0.174	0.041	***	0.101	0.146	0.101 0.146
High School	0.141	0.039	***	-0.102	0.136	-0.100 0.136
Age Dummies (18-20 = 0)						
21-24	0.161	0.034	***	0.095	0.145	0.090 0.145
25-29	0.031	0.049		-0.033	0.188	-0.033 0.188
30-35	-0.211	0.092	**	-0.416	0.506	-0.421 0.507
Female*Age Dummies (18-20 = 0)						
Female & 21-24	-0.118	0.037	***			
Female & 25-29	-0.173	0.056	***			
Female & 30-35	-0.189	0.107	*			
Student	-1.589	0.042	***	-1.955	0.259	*** -1.947 0.257 ***
Missing School Information	0.159	0.050	***	0.388	0.715	0.428 0.719
Health (Poor or Disabled)	0.033	0.079		-0.378	0.413	-0.360 0.413
Missing Health Information	0.025	0.020				
<i>Individual Economic Characteristics</i>						
Unemployed	-0.444	0.020	***	-0.626	0.107	*** -0.628 0.107 ***

Appendix 4, Continued

Selection Variable	Parents' Marital Status		Wait Time for Public Housing Units		Wait Time for Section 8 Units	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Results of Household Formation (Leaving Home = 1)						
<i>Family Demographic Characteristics</i>						
Father's Education Dummies (less than high school = 0)						
College degree	0.120	0.033	***	0.165	0.167	0.158 0.167
Some College	0.108	0.028	***	-0.078	0.157	-0.089 0.156
High School	0.010	0.022		-0.091	0.146	-0.099 0.146
Family Size	0.006	0.004		0.015	0.028	0.010 0.027
Family structure (two-parent family = 0)						
One Parent, Widowed				0.079	0.281	0.087 0.282
One Parent, Others				0.182	0.114	0.174 0.113
Parental Health (Poor or Disabled)	0.015	0.020		0.079	0.112	0.084 0.112
<i>Family Economic Characteristics</i>						
Parent's Family Income/10,000	-0.029	0.003	***	-0.016	0.014	-0.016 0.014
Family Tenure/House Value Dummies (Rent = 0)						
Own, House Value Lower 33%	-0.026	0.025		-0.029	0.135	-0.032 0.135
Own, House Value Middle 33%	-0.012	0.026		-0.119	0.138	-0.125 0.138
Own, House Value Upper 33%	0.007	0.030		-0.053	0.153	-0.050 0.153
Parent's Income*Age Dummies (18-20 = 0)						
21-24*Parent's Income/10,000	0.028	0.003	***	0.026	0.014 *	0.026 0.014 *
25-29*Parent's Income/10,000	0.030	0.005	***	0.030	0.017 *	0.029 0.017 *
30-35*Parent's Income/10,000	0.017	0.012		0.060	0.068	0.062 0.068
Member of Low-Income Sample	-0.041	0.024	*	0.046	0.162	0.036 0.162
<i>Family Locational Characteristics</i>						
City size (>= 500,000 = 0)						
100,000-499,999	0.076	0.024	***	0.103	0.141	0.127 0.140
50,000-99,999	0.038	0.031		0.211	0.164	0.222 0.164
25,000-49,999	0.044	0.035		-0.065	0.176	-0.044 0.175
10,000-24,999	-0.006	0.033		-0.096	0.173	-0.095 0.174
Under 10,000	0.039	0.030		0.124	0.172	0.098 0.172
Region (Midwest = 0)						
Northeast	-0.189	0.028	***	-0.060	0.174	-0.056 0.174
South	-0.071	0.024	***	-0.068	0.172	-0.112 0.168
West	0.019	0.030		-0.157	0.192	-0.212 0.188
<i>Economic Conditions</i>						
If Recession Year	-0.058	0.026	**			
State Real GDP Growth Rate	-0.272	0.268		0.503	2.901	1.233 2.858
State Unemployment Rate	-0.022	0.005	***	-0.050	0.048	-0.030 0.047
State Average Real Wage/1,000	-0.002	0.002		-0.015	0.009 **	-0.018 0.009 **
<i>Housing Market Conditions</i>						
Ln(Median Rent)	-0.107	0.015	***	0.067	0.076	0.075 0.077

Appendix 4, Continued

Selection Variable	Parents' Marital Status		Wait Time for Public Housing Units		Wait Time for Section 8 Units	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
<i>Selection Variables</i>						
Family structure (two-parent family = 0)						
One Parent, Widowed	-0.089	0.031	***			
One Parent, Others	0.008	0.025				
One Parent, Single	-0.074	0.064				
Wait time for public housing			-0.009	0.006	*	
Wait time for section 8					-0.006	0.005
<i>Mills</i>						
lambda (rho*sigma)	0.238	0.116	**	0.390	0.348	0.000 0.428
rho (correlation of the residuals of the two equations)	0.582			0.118		0.001
sigma (SE of the residuals of housing tenure equation)	0.408			0.329		0.327
	Wald chi2(82) = 10,536.84;		Wald chi2(78) = 283.07;		Wald chi2(82) = 252.29;	
	Prob > chi2 = 0.00000		Prob > chi2 = 0.00000		Prob > chi2 = 0.00000	

Note 1: Educational dummies represent the final degree of individuals.

Note 2: * P < 0.10; ** P < 0.05; *** P < 0.01.

Appendix 5: Results of Duration Models

	All Individual and Family Variables + Macro Economic Variables + Median Rent			
	Hazard Ratio	Coef.	S.E.	
<i>Individual Demographic Characteristics</i>				
Female	1.626	0.486	0.051	***
Nonwhite	0.768	-0.263	0.043	***
Education Dummies (less than high school = 0)				
College degree	1.554	0.441	0.085	***
Some College	1.557	0.443	0.082	***
High School	1.441	0.366	0.080	***
Age Dummies (18-20 = 0)				
21-24	1.228	0.205	0.074	***
25-29	1.225	0.203	0.119	*
30-35	1.514	0.415	0.244	*
Female*Age Dummies (18-20 = 0)				
Female & 21-24	0.814	-0.206	0.064	***
Female & 25-29	0.752	-0.285	0.092	***
Female & 30-35	0.709	-0.344	0.189	*
Student	0.049	-3.022	0.120	***
Missing School Information	1.407	0.341	0.097	***
Health (Poor or Disabled)	1.029	0.029	0.140	
Missing Health Information	1.025	0.024	0.033	
<i>Individual Economic Characteristics</i>				
Unemployed	0.543	-0.610	0.036	***
<i>Family Demographic Characteristics</i>				
Father's Education Dummies (less than high school = 0)				
College degree	1.135	0.127	0.054	**
Some College	1.101	0.096	0.047	**
High School	1.018	0.017	0.037	
Family Size	1.017	0.017	0.007	**
Family structure (two-parent family = 0)				
One Parent, Widowed	0.923	-0.080	0.051	
One Parent, Others	1.039	0.039	0.041	
Parental Health (Poor or Disabled)	1.026	0.026	0.032	
<i>Family Economic Characteristics</i>				
Parent's Family Income/10,000	0.966	-0.035	0.006	***
Family Tenure/House Value Dummies (Rent = 0)				
Own, House Value Lower 33%	0.953	-0.048	0.043	
Own, House Value Middle 33%	0.987	-0.013	0.044	
Own, House Value Upper 33%	0.989	-0.011	0.049	
Parent's Income*Age Dummies (18-20 = 0)				
21-24*Parent's Income/10,000	1.033	0.033	0.007	***
25-29*Parent's Income/10,000	1.035	0.034	0.008	***
30-35*Parent's Income/10,000	1.005	0.005	0.023	
Member of Low-Income Sample	0.948	-0.053	0.040	

Appendix 5, Continued

	Hazard Ratio	Coef.	S.E.	
<i>Family Locational Characteristics</i>				
City size (>= 500,000 = 0)				
100,000-499,999	1.119	0.112	0.042	***
50,000-99,999	1.082	0.079	0.052	
25,000-49,999	1.074	0.072	0.059	
10,000-24,999	1.051	0.050	0.057	
Under 10,000	1.105	0.100	0.054	*
Region (Midwest = 0)				
Northeast	0.769	-0.263	0.047	***
South	0.941	-0.061	0.040	
West	1.003	0.003	0.049	
<i>Economic Conditions</i>				
If Recession Year	0.981	-0.019	0.044	
State Real GDP Growth Rate	0.954	-0.047	0.443	
State Unemployment Rate	0.975	-0.026	0.008	***
State Average Real Wage/1,000	0.999	-0.001	0.003	
<i>Housing Market Conditions</i>				
Ln(Tract Median Rent)	0.947	-0.055	0.044	
Log pseudo-likelihood		-40,469.68		
Wald χ^2		2,470.91		
Model d.f.		44		

Note 1: Educational dummies represent the final degree of individuals.

Note 2: * P < 0.10; ** P < 0.05; *** P < 0.01.