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## The White Picket Fence Dream: Effects of Assets on the Choice of Family Union

by

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## Abstract

A recent strand of literature in demography argues that young unmarried Americans value marriage so highly that it is perceived as a family status to be chosen after certain economic preconditions are fulfilled – after they have achieved the so-called “white picket fence dream” (a house, surplus income etc.). Motivated by these claims, in this paper we use data from the National Longitudinal Survey of Youth 1979 to examine whether there is any direct relationship between the individual’s housing and financial assets and his/her transition into marriage or cohabitation. For both men and women, analysis using a proportional hazard model indicates a positive association of asset ownership with transition into marriage, but not with transition into cohabitation. Considering the potential endogeneity of asset accumulation with respect to the choice of family status, we implement instrumental variables probit estimation. These estimates either remove the statistical significance of the association between asset ownership and family union transitions, or identify effects that are in the opposite direction to those derived from the time-to-event analysis.

JEL Classification: D1, J12

Keywords: asset, home-ownership, family, marriage, cohabitation

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# **The White Picket Fence Dream: Effects of Assets on the Choice of Family Union**

## **I. Introduction**

There have been dramatic changes in the family formation behavior of young American men and women over the last four decades. During this period, the prevalence of cohabitation has been increasing sharply while age at first marriage has also been rising, and the percentage of marriages preceded by cohabitation has been growing substantially (Fields and Casper, 2001; Casper and Cohen, 2000; Bumpass and Sweet 1989). These demographic changes have prompted serious concerns from researchers as well as policy makers about a retreat from the traditional pattern of family formation. However, both quantitative and qualitative research (e.g., Edin, 2000; Tucker, 2000; Thornton and Young-DeMarco, 2001; Gibson, Edin and McLanahan, 2003, Cherlin, 2004) indicate that among the unmarried population there is not a large-scale lack of respect for marriage and the traditional ways of family. Young Americans do place a high value on marriage and consider it as part of their future. In fact, Gibson, Edin and McLanahan (2003) argue that at least for some young unwed parents, high marital expectations may be precluding them from marrying. In a qualitative analysis of 75 unmarried young couples in the Fragile Families study, they find that marriage signals the “arrival” of the couple, both financially and emotionally. Because marriage is valued so highly, it is perceived as a family status to be chosen after certain economic and relational preconditions are fulfilled – after they have achieved the so-called “white picket fence dream”.<sup>1</sup> Similar observations are also reported in Edin (2000), drawing on qualitative interviews with 292 low-income single mothers in three U.S. cities. While these are interesting observations, there has not been any attempt to substantiate the qualitative

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<sup>1</sup> For recent cohorts of men and women in the U.S. (such as the NLSY79 cohort), such postponement of marriage apparently conforms with the “Easterlin hypothesis”, which relates men’s marriage and fertility decisions with his earnings relative to his ‘desired style of life’, the latter being determined by his adolescent experience (Easterlin, 1973). This hypothesis is not pursued further in the present study.

evidence using quantitative methods in a large scale dataset. If people postpone their marriage until they can achieve the different level of living standard that they associate with marriage – a house, surplus income etc. – one may expect to detect a direct relationship between the individual's housing and financial assets, and his/her transition into marriage. In this paper, we examine this intriguing issue using data from the National Longitudinal Survey of Youth 1979. In addition to considering transition into marriage, we also analyze the effect of asset ownership on transition into cohabitation.

Since we are interested in identifying whether asset ownership status explains the time until the formation of a family union, we utilize the proportional hazard model – a natural estimation technique for analyzing time-to-event data. The time-to-event analysis would ensure that asset ownership status prior to a family union transition is sequentially exogenous to such a transition decision. However, the individual's intention to form a family next period or period after may influence his/her asset accumulation behavior in the current period. As a result, unobserved individual heterogeneity as well as the shocks that affect the choice of family status could be correlated with asset ownership status, and the proportional hazard model estimates would be potentially inconsistent. To address the potential endogeneity of assets we implement instrumental variables estimation, where the set of excluded instruments contains the interaction of monthly averages of the 30-year fixed-rate mortgages, the 1-year adjustable-rate mortgages, the federal funds rate, and NASDAQ stock price index, with individual's age, ethnicity and region of residence.

In our attempt to understand the role of assets in family union choice, we consider cohabitation and marriage comparably. Thus, in addition to bridging the void in the literature on identifying the effects of assets on family union, this paper would enable us to better understand the differences and similarities between marriage and cohabitation. Furthermore, apart from providing insights into the mechanism underlying the individual's decision to form families, the qualitative evidence on assets as determinants of family union transitions are also suggestive of the potential influence that asset building policies might have on family union behavior.<sup>2</sup> Particularly, public policy interventions for increasing home ownership, and enhancing savings among the low-income group through individual

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<sup>2</sup> Stern (2001), Sherraden (2001), and Seidman (2001) discuss asset-building policies in the US.

development accounts, would be expected to affect the family union choices of the participants. The results available from the current study will enable us to make more knowledgeable estimates about whether asset-building policies could potentially influence family union behavior.

The following section provides a conceptual discussion of the determinants of family union decisions, and a brief review of the relevant empirical literature. Section III describes the estimation procedures, and section IV delineates the NLSY data and summary statistics. Empirical results are presented in Section V. Summary and conclusions follow in section VI.

## **II. Economic Resources and Family Union Formation: Theoretical Perspectives and Empirical Research**

### **II. 1. Economic resources and marriage**

Economic analysis of household formation, built on the foundation of Becker's (1973, 1974, 1991) seminal work, emphasizes the effects of economic resources on the likelihood of marriage. From a microeconomic perspective, the effect of a change in the individual's economic prospects, such as a rise in the wage rate, on the timing of marriage can be analyzed as the effect of a change in the wage rate on the allocation of time among family, schooling, and market work. From this point of view, a rise in the wage rate tends to increase market work, and in turn has a negative substitution effect on the demand for family or schooling (Becker, 1973). However, rising wages also has an income effect which makes marriage and family more affordable and possibly increases the rate of return to schooling. Hence, the marriage effect of young men's or women's improved labor market conditions is an empirical question.

However, if gains from marriage are considered to ensue only from intra-household specialization (as in Becker, 1973), improved labor market conditions for men would unambiguously increase the likelihood of marriage, while similar improvement for women would lower the likelihood of marriage. Particularly for women, if gains from marriage are considered to come not only from specialization but also from joint consumption economies

within the household, a priori, the effect of improved women's labor market conditions on the likelihood of marriage will, once again, be ambiguous (Lam, 1988).

One of the most widely noticed discussions of a causal link between economic resources and the postponement of marriage among the young Americans, particularly among the low-income black population, has been provided by Wilson (1987, 1996). Working his way through the complexity of jointly determined variables, he focused on decreased employment opportunities for men as the exogenous "prime mover" in reducing the marriage rates, and also affecting other related outcomes. One way in which the Wilson hypothesis can be put in the context of the economic theory of marriage is to consider marriage as the matching outcome from a search process in the marriage market where women only consider marriage with men who have demonstrated a minimum ability to perform in the labor market (Wood, 1995).

The nature of the effects of changing economic factors on the timing of marriage is not always clear a priori. But the theoretical discussions do point to three economic factors as being potentially important: employment and earnings of men, employment and earnings of women, and welfare benefits (Ellwood and Crane, 1990). In addition to these three factors, other measures of economic resources that feature prominently in the empirical literature include men's and women's educational attainment, work experience, and parental resources. Before we discuss the empirical studies analyzing the family union transitions, it would be appropriate to note that a persistent limitation of many of these studies is that they are unable to address the issue of individual heterogeneity which can directly influence the likelihood of a transition into marriage or cohabitation, while at the same time being correlated with the individual's economic potential. As a result, most of the findings are indicative of an associative relationship between economic resources and family union transitions, rather than a causal one. Only a handful of more careful studies have tried to overcome this challenge either using innovative estimation methods or utilizing long-term shocks to the local economy.

Empirical results indicate that men's labor market opportunities are associated with significantly higher rates of marriage, although their quantitative effects may be small (see, for example, Xie et. al., 2003; Oppenheimer, Kalmijn and Lim, 1997; Willis and Michael,

1994; Schultz, 1994; Mare and Winship, 1991; Ellwood and Crane, 1990; MacDonald and Rindfuss, 1981). A small number of studies have been attentive in addressing the issue of endogeneity of men's labor market opportunities with respect their choice of family status. Olsen and Farkas (1990) utilize a waiting-time regression model with individual fixed effects to evaluate the effect of a government program that guaranteed employment opportunities to disadvantaged youth, on family union and fertility. Using data from the Youth Incentive Entitlement Pilot Project, they find that employment opportunity encourages the formation of consensual unions.

Black, McKinnish and Sanders (2003) study the shocks to the coal and steel industries to measure the effect of long-term changes in demand for low-skilled workers on welfare expenditures and family structures. Using county level panel data for the period 1969-93, they find that expenditures on AFDC responded substantially to the long-term cyclical movements in the steel and coal industries. More pertinent to our current focus is the finding that the expansion of high-wage jobs for low-skilled men increased marriage rates, and reduced the incidence of female-headed households, thereby reducing the number of families at risk for receiving welfare benefits.

The findings in these more careful studies are supportive of the Wilson hypothesis that men's labor market opportunities are fundamental in determining the marriage rates, particularly in the low-income group. Wood (1995), on the other hand, uses SMSA level aggregated data from US Censuses in 1970 and 1980. His fixed-effects estimates suggest that up to a tenth of the decline in black marriage rates during the 1970s can be explained by declines in the current economic status of young black men. However, when he instruments for the endogeneity of marriage and 'marriageability', with changes in the number of jobs in the SMSA in ten major industry categories as the set of excluded instruments, the estimated effects are substantially reduced. Wood (1995) concludes that shrinking pool of high earning young black men explains little of the decline in black marriage, thereby contradicts the Wilson hypothesis.

Studies focusing on women's labor market prospects have found mixed empirical evidence. Some of these studies have found that better economic prospects for women are associated with declines in marriage (e.g., Aassve, 2003; Blau, Kahn and Waldfogel, 2000;

McLanahan and Casper, 1995; Willis and Michael, 1994; Schultz, 1994; Mare and Winship, 1991), while others find that the estimated relationship between indicators of women's economic status and incidence of marriage is either positive or insignificant (e.g., Xie et. al. 2003; Oppenheimer and Lew, 1995; Mare and Winship, 1991).

One aspect of family union transitions that has been ignored until recently is the transition from cohabitation into marriage. Recent empirical endeavors in this regard find mixed evidence. Some studies have shown positive association of men's earnings and the transition from cohabitation to marriage (Carlson, McLanahan and England, 2004; Brown, 2000; Sanchez, Manning and Smock, 1998; Smock and Manning, 1997), while others have reported a significant negative association between higher men's earnings and cohabiters' decision to marry (Sassler and McNally, 2003, Wu and Pollard, 2000). Previous research mostly tended to indicate that there is no significant effect of women's economic opportunities on transition from cohabitation to marriage (Sassler and McNally, 2003; Sassler and Schoen, 1999; Clarkberg, 1999), although a recent study showed that women's education encourage transition to marriage among young unwed mothers (Carlson, McLanahan and England, 2004).

## **II.2. Economic resources and cohabitation**

With a handful of recent exceptions, the existing quantitative literature on the role of economic resources in family formation has focused exclusively on marriage, ignoring cohabitation. The studies that consider cohabitation include Xie et. al. (2003), Clarkberg (1999), Smock and Manning (1997), Raley (1996), and Thornton, Axinn and Teachman (1995). Two studies have indicated that improvement in men's economic opportunities encourage the formation of cohabiting unions (Clarkberg, 1999; Smock and Manning, 1997), another study found that men's school enrollment deters entrance into cohabitation (Thornton, Axinn and Teachman, 1995), while still others have reported no significant effect of several measures of men's economic potential (Xie et. al., 2003) on the rate of transition into cohabitation. With regard to women's economic potential, previous studies indicate that enhancing women's economic potential discourages the formation of cohabiting unions

(Thornton, Axinn and Teachman, 1995), while others found that women's economic status has no significant effect on transition into cohabitation (Xie et. al., 2003). Kravdal (1999) relates the growth in cohabitation in Norway with the issues of 'affordability' of marriage. He finds that women's cumulated income has a positive association with the likelihood of cohabitation among women with children, but not for women without children. The author interpreted these results as weak evidence on marriage requiring a stronger economic underpinning than cohabitation. However, since sufficient attention has not been paid to the issue of selection, one has to be very cautious in interpreting such findings any more than reflections of positive correlations.

### **II.3. Asset ownership and family union formation**

While income is certainly critical, wealth and assets are also important complementary measures of an individual's command over economic resources. The individual's assets give us an estimate of their economic readiness to marry in relation to their ideational value of marriage. Individuals with higher exogenous endowments are more likely to marry because they have more to share and can provide greater access to credit and insurance (Lam, 1988). On the other hand, higher exogenous endowments can potentially reduce the marital surplus by way of requiring less specialization in the household, and thereby dissuade the individual from marriage. Therefore, a priori, the effect of assets on the choice of family union is ambiguous.

More realistically, assets are not exogenous and they reflect accumulated past income, and savings behavior. The economic model of the determinants of marriage considers the concept of *potential* wage rates, instead of *actual* or *realized* wage rates. *Realized* wages is as much the result of the marriage decision as its cause. Since assets (net of inheritance) are accumulated savings from *realized* earnings, they are likely to be directly affected by the marriage decisions. And even inheritance can be influenced by the individual's choice regarding family union. There is substantial empirical research showing how family composition affects household wealth and savings (e.g., Aizcorbe, Kennickell and Moore 2003; Lupton and Smith 2003; Wolff, 2001; Mulder and Wagner, 2001; Browning

and Lusardi 1996; Lusardi, Gossa and Krupka 2001; Avery and Kennickell 1991). Most of these empirical studies on savings are descriptive, and they generally identify that married couples have the highest levels of wealth and lone parents the lowest with singles in between (but with quite low levels of wealth). Taken together, these studies suggest that addressing the endogeneity of assets is the primary challenge in analyzing their effects on the choice of family form.

### **III. Empirical Methodology**

The primary challenge in analyzing the effect of assets on the choice of family form is to address the issue of endogeneity of assets with respect to family status. We undertake a two-pronged approach to address this issue. First, we utilize a time-to-event analysis approach by using proportional hazard model. Second, we implement instrumental variables estimation.

#### **III.1. Time-to-event analysis**

The central question we are examining is whether the individual's asset ownership status explains his/her family union transition. The question could be put forward alternatively as whether asset ownership can explain the time elapsed until a family union transition occurs. A natural way to empirically estimate such effects is to apply a time-to-event analysis approach. The benefit of using a time-to-event analysis in our context is that it ensures 'sequential exogeneity'<sup>3</sup> of assets with regard to family status. We are looking at the effect of asset ownership prior to the event of a family union on the probability of a union in the next period. Hence, asset ownership is not sequentially dependent on family transition decision.

We consider five sets of family union transitions: a) non-partnered to first partnered union (marriage or cohabitation); b) non-partnered to first cohabitation; c) non-partnered to first marriage; d) cohabitation to first marriage; and e) unmarried (non-partnered or

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<sup>3</sup> For a discussion on sequential exogeneity, see Wooldridge, 2002, chapter 11.

cohabiting) to first marriage. We consider only transitions into the first marriage and first cohabitation in order to keep our analysis simple, since subsequent family unionization is confounded by the choices on dissolving the previous family union. Since the individual's asset ownership status varies over time, for our purposes we utilized a Cox proportional hazard model with time-varying covariates (see Lancaster, 1990 for details) to analyze these transitions. In this model, the instantaneous hazard rate of transitions to family union is specified for individual  $i$ ,  $t$  years until the family transition occurs, as:

$$h[t, x_i(t)] = h_0(t) \exp[\beta_x x_i(t)]$$

The baseline hazard,  $h_0(t)$ , is a nonparametric, time-varying function;  $x_i(t)$  is a vector of regressors that includes time-varying asset ownership indicators; and  $\beta_x$  is the vector of coefficients to be estimated. We used the maximum-likelihood estimation procedure available in *Stata* to implement the model (Cleves, Gould and Gutierrez, 2004).

### **III.2. Instrumental variables estimation**

Although the time-to-event analysis ensures sequential exogeneity of asset ownership with respect to family status, the individual's intension to form a family in the future may influence his/her asset accumulation behavior in the current period. Therefore, unobserved individual heterogeneity as well the shocks that affect family status could be correlated with asset ownership status. In this sense, asset ownership status may not be strictly exogenous to the family transition decision, and hence, the proportional hazard estimates are potentially inconsistent. In other words, the time-to-event analysis may not provide us with the true effects of asset ownership on family union transitions. Note that the true effect of asset ownership is the effect which would result were it possible to randomly assign asset ownership to a sample of non-partnered men and women. This true effect may be smaller than the effect we estimate by comparing the hazard rates of family union transition for men and women with assets to the rates of transition for men and women without assets, precisely because of the type of endogeneity that is suggested above. Since there is no established instrumental variables framework for hazard models, we implement instrumental

variables (IV) probit estimation in a discrete-time analogue of the (continuous time) proportional hazard model to deal with the potential endogeneity of assets.<sup>4</sup>

For the IV estimation, instead of having a standard pooled cross-sectional limited dependent variable, we define the dependent variable as a dichotomous indicator of whether a family union transition occurs in the next period.<sup>5</sup> The advantage of constructing the dependent variable in this fashion is that we are able to retain the sequential exogeneity of the asset ownership status in the time-to-event analysis while we address the concern about strict exogeneity of asset ownership.

#### IV. NLSY79 Data and Summary Statistics

The National Longitudinal Survey of Youth 1979 (NLSY79) is a nationally representative US sample of young men and women who were 14-22 years old when they were first interviewed (CHRR, 2001). The respondents were interviewed annually until 1994, and biennially since then. Data from the first through the 19<sup>th</sup> (2000) round are used for this paper. We have used data from the earliest round to determine the respondent's family life history. Detailed information on wealth and assets are, however, available only since the 7<sup>th</sup> round (i.e., 1985).<sup>6</sup>

We stratify the data by gender, and all our analyses are conducted separately for men and women. We observe the family life transitions of men and women in our sample during the period 1985 to 2000. Table 1 presents some summary statistics on the unmarried spells considered here. As the table shows, the median duration in non-partnered spell for both men and women in our sample is more than 11 years. This is not surprising given that the beginning of this spell is either the date of their first interview in NLSY or their 14 birthday, whichever is later. The median duration in cohabitation is about 2.7 years. Table 2 provides

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<sup>4</sup> The other way to do it may be to estimate a 'waiting-time regression model' (Olsen and Wolpin, 1983) by linearizing the probability density function of time to failure, and estimating using linear methods. However, Olsen and Wolpin (1983) requires imposition of an exogenously chosen upper limit for remaining in the non-partnered status, which is deemed to be very restrictive for our analysis.

<sup>5</sup> To use definitions from time-to-event analysis, we use the "failure indicator" in the hazard model as the dependent variable in our discrete time analysis.

<sup>6</sup> Due to budgetary restrictions, wealth questions were not administered in 1991 and 2002 rounds of NLSY79.

the number of events we observe in our data for each category of transition, along with the median duration prior to any transition. During the period under analysis, there are 1525 transitions into marriage among women; 659 of these transitions are from cohabitation. For men, there are 1807 transitions into marriage of which 683 are from cohabitation. We also have 1304 transitions for women from a non-partnered (i.e., never-married non-cohabiting) status to a family union – either in marriage or in cohabitation; of which 422 are into cohabitation. Among men, we observe 1877 transitions from a non-partnered status to a family union, and 722 of these transitions are into cohabitation.

In Table 3, we present snapshots on the different characteristics of the respondents in our sample. The table is intended to provide a glimpse into the nature of the sample we have for our analysis. The table shows that the proportions that are married increased over time for both men and women, although the fraction of men married converged to the fraction of women married only in the later years. Summary statistics are presented for men and women in three different family statuses: non-partnered (never-married and non-cohabiting), cohabiting and married in 1985.

As we examine the effect of asset ownership on family union transitions in this study, we take three types of assets into consideration<sup>7</sup>: home ownership; liquid monetary assets as indicated by the availability of funds in savings account, certificates of deposit, money market instruments and IRA-Keoghs; and financial investments in stocks, bonds, and mutual funds. In our empirical analysis we include dichotomous indicators of ownership of these three types of assets. While data on home ownership and liquid monetary assets are available since 1985, stocks-bonds-mutual funds data are available only from 1988.

Table 3 reveals that both married men and married women are significantly more likely to be a home owner. On average, married men and women are also more likely to own liquid monetary assets, as well as investments in stocks, bonds and mutual funds. This is all the more clear from Figures 1 through 6 showing the average asset ownership status of non-partnered, cohabiting and married men and women at different age. Although the fraction

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<sup>7</sup> These ownership data are available from the “Asset” section of the NLSY79, and the relevant questions ask about the ownership status of the respondent and their spouse/partner with respect to the particular categories of assets.

who are homeowners increases with age for men and women in any family status, at every age those who are married are more likely to be homeowners than those who are not married. Cohabiting men are marginally more likely to be homeowners than non-partnered men, and the same is true for young cohabiting women. A much larger fraction of cohabiting women in their mid-30s are homeowners compared to the non-partnered in that age group. In terms ownership of monetary assets, married men in their early 20's appear to be similar to cohabiting men. However, married men who are in their late 20's or older, are more likely to have some monetary assets compared to men in the other two family statuses. Married women, on the other hand, are more likely to have some monetary assets at about any age compared to the unmarried women. The proportion owning financial investments is quite low for both men and women in any of the three family statuses.<sup>8</sup> However, even at that low level, married men and women at any age are more likely to own some financial investments than their unmarried counterparts. Interestingly, cohabiting men and women are either less (in their 20's) or equally (in their 30's) likely to own monetary assets as well as financial investment compared to non-partnered men and women.

The other characteristics that are considered in our analysis and are summarized in Table 3 include age, race and ethnicity, own education, income (wage and business income) in the past calendar year, welfare reciprocity in the past calendar year (includes receipt of cash assistance from AFDC or TANF, supplemental security income, food stamps, housing support, or any other benefit), religion, father's and mother's education, region of residence, whether or not the state of residence recognizes common law marriage, and local unemployment rate. Men and women in our sample are between 20 to 28 years old in 1985, the year since which we follow their family union transitions. On average, married men and women are older than their counterparts in the other two family statuses. Married men and women are also likely to be at least high school graduates than others. Table 3 also indicates that while women in general are more likely to be welfare recipients than men, larger fraction of unmarried women received public assistance than their married counterparts.

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<sup>8</sup> In figures 5 and 6, the outlier percentages in the highest age group reflect small sample in that age group.

## V. Results

### V. 1. Results from time-to-event analysis

Estimates from the Cox proportional hazard model with the asset ownership variables as time-varying covariates are presented in Table 4. As already noted, in analyzing the relationship between family union transitions and asset ownership, we are considering the ownership status of housing assets, of liquid financial assets, and of stocks, bonds and mutual funds. Since data on stocks and bonds ownership is available from a later period (from 1988, instead of 1985), in our analysis we estimate two sets of specifications – one that excludes stocks-bonds-mutual funds ownership indicator (Model 1), and another that includes it (Model 2). Table 4 presents the estimated hazard ratios only for the covariates of interest, and estimates for the complete specification are available upon request. We discuss the estimated results for men and women separately.

Results in section (a) in Table 4 show that home ownership has no statistically significant effect on women's transition from never-married status into a partnered relationship (either in marriage or in cohabitation). Money in the savings account, on the other hand, is positively associated with women's transition into a family union. However, as the ownership of stocks and bonds is included in the specification, thereby reducing the period of analysis and the sample size, the estimated hazard rates on monetary assets no longer remain statistically significant. In the final specification, reported as Model 3 in Table 4, measures of wage and business income in the previous calendar year, and an indicator of the individual's public assistance (AFDC/TANF, food stamps, unemployment insurance benefits, supplemental security income etc.) reciprocity in the previous calendar year is added to the specification in Model 1.<sup>9</sup> While income and welfare reciprocity are added to remove any reservation regarding the estimated effects of asset ownership, their potential endogeneity with respect to family union transitions convinced us for not including them in our initial specifications. As it appears, inclusion of these two variables does not change the estimated effects of asset ownership on transition to a family union in any substantive way.

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<sup>9</sup> A specification that added income and welfare reciprocity variables to Model 2 is also estimated, and the results (not reported here, but available upon request) show that the estimated coefficients of interest are not significantly different from the initial specification.

In addition, welfare reciprocity tends to be negatively correlated with transition into a family union, a result that resonates with a large existing literature (see Moffitt, 1998 for a recent review).

Next, we perform a competing-risks analysis that allows for two ways to exit the non-partnered status: form a family in cohabitation, or in marriage. Estimated hazard ratios for transitions from non-partnered to cohabitation are reported in section (b) in Table 4. For women, while model 1 shows no significant effect, model 2 indicates that having liquid assets is negatively associated with forming a cohabiting relationship. Results from section (c) shows that ownership of liquid assets as well as stocks and bonds is positively associated with the rate of marriage for non-partnered women. As it appears, the positive association of liquid asset ownership and women's rate of forming any family union (in section a) is primarily driven by the positive association between ownership of these assets and transition into marriage. This result is further strengthened by the estimates in section (d) which indicate that women who have access to liquid assets are more likely to marry their cohabiting partners. Result in section (d) further show that home ownership has no significant relationship with the rate of marriage among cohabiting women. While the results in this section for liquid assets conform to the qualitative evidence that women would chose to marry their cohabiting partners when there is surplus income (e.g., Gibson, Edin and McLanahan, 2003; Cherlin, 2004), the insignificant relationship between home ownership and marital transition for cohabiting women does not correspond to a so-called 'white picket fence' explanation. As we consider women's transition into marriage from either a never-married or a cohabiting status (section e, Table 4), surprisingly we find that along with liquid assets, home ownership has a statistically significant positive correlation with such transitions.

Overall, results from Cox proportional hazard model estimates suggest that liquid assets are positively associated with women's rate of transition into marriage. For home ownership, there is weak evidence of such positive relationship. In the case of transition into cohabitation, asset ownership is negatively associated, if not uncorrelated, with women's choice of cohabitation.

For men, the overall evidence indicates that asset ownership is positively associated with rate of transition to marriage, but not to cohabitation. Specifically, the rate of marital transition by non-partnered men has a significant positive relationship with both home and liquid asset ownership, but no significant relationship exist for men's transition from non-partnered status to cohabitation (see sections a, b, c, and e for men in Table 4). More interestingly, cohabiting men's rate of transition to marriage has no significant relationship with home ownership, but there is positive significant association with ownership liquid assets and financial investments. These results give the impression that while ownership of all types of assets is positively correlated with the never-married men's decision to marry; only liquid assets are significantly correlated with cohabiting men's choice to marry. Moreover, men's rate of transition to cohabitation is not at all related to his asset ownership status.

It would be appropriate to note that individual's race and ethnicity indicators have been included in all the specifications reported, along with the other control variables. Overall, for all the transitions analyzed here, compared to non-black non-Hispanic women, black women are less likely to be in any type family union – in marriage or in cohabitation. Black men, on the other hand, are significantly more likely to transit to a cohabiting relationship, and less likely to transit into marriage in comparison with their non-black non-Hispanic counterparts. Our estimates for Hispanic women are similar to those for Black women, but somewhat weaker. For Hispanic men, we have some evidence that unlike black men, they are less likely either to marry or to cohabit than non-black non-Hispanic men.

The empirical estimates discussed so far provide some interesting new evidence. Taken together they show that home ownership as well as access to liquid assets is positively associated with rates of marital transition from a non-partnered status, particularly for men. However, home ownership is not associated with rates of marital transition among cohabiters in the sample, although access to liquid monetary assets is. In addition, both for men and women, asset ownership is not associated with the rate of transition into cohabitation. These results only partially agree with the previously discussed qualitative evidence suggesting a stronger relationship, particularly between home ownership and rates of transition from cohabitation to marriage. Moreover, the results for the transition from

cohabitation to marriage might be considered as suggestive evidence that both men and women would accumulate monetary assets while cohabiting, and buy a house when their commitment to a relationship is sealed by the decision to marry. This only reinforces the apprehension about the endogeneity of asset accumulation that has been noted earlier.

## **V. 2. Results from instrumental variables estimation**

To address the potential endogeneity of assets we implement instrumental variables (IV) estimation. To operationalize the procedure, we convert the structure of analysis from a continuous time to a discrete time hazard model with the dependent variable being a dichotomous indicator of a family union transition in the next period. As we treat the asset ownership status as endogenous to family union transitions, the set of excluded instruments is constructed as follows. We use the interaction of monthly averages of the 30-year fixed-rate mortgages, the 1-year adjustable-rate mortgages,<sup>10</sup> the federal funds rate, and NASDAQ stock price index, with individual's age, ethnicity and region of residence as the set of excluded instruments.<sup>11</sup> The individual's homeownership decision is expected to be influenced by the mortgage rates as they play a dual role in the housing market: on the one hand, mortgage rates show the time-value-of money; and on the other hand, they have key roles in determining housing prices. The stock price index and the federal funds rate are proxies for the return to savings and investment during the sample period, and are therefore expected to influence the individual's stock of assets at any point in time. Interacting the mortgage rates, stock price index and the federal funds rate with the individual characteristics provides us with the individual level variation required for identification of the estimating equation.

Test statistics on the joint-significance of the excluded instruments in the first-stage regressions are provided in Table 5. Although the F-statistics for ownership of stocks and bonds is quite small, the values of the F-statistic on the other two asset ownership indicators

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<sup>10</sup> The monthly average mortgage rates are collected from the Freddie Mac Survey of Commitment Points and Rates.

<sup>11</sup> Housing price could not be used as an instrument since it directly affects the decision to form independent households (e.g., see, Borsch-Supan, 1986, Haurin et. al, 1993).

are sufficiently high to remove the greater portion, if not all, of the potential bias in an analysis conducted without regard to the endogeneity of assets (Bound et. al. 1995, Table A-1; Hahn and Hausman, 2002). The validity of these instruments, particularly for the specifications that includes only home and liquid asset ownership, is also underlined by the Hansen-Sargan J statistic for over-identification tests reported in Table 6 along with the IV-probit estimates.

Table 6 reports both probit and IV-probit estimates for specifications described earlier as Model 1 and Model 2. The sign and significance of the estimated coefficients on asset indicator variables in the probit model are highly comparable to those in the Cox proportional hazard model for every type of family union transitions considered, and for both men and women.

IV-probit estimates for women show that addressing the potential endogeneity of asset ownership removes the positive association between asset ownership and family union transitions. On the contrary, access to liquid assets has a negative influence on the rates of transition to marriage for non-partnered women (sections a, c and e in Table 6). Inclusion of income and welfare reciprocity in the specification (not reported in the table) does not change these results in any important way. Section (b) in Table 6 indicates that asset ownership has no statistically significant influence on women's rate of transition to cohabitation as we account for the endogeneity of assets. IV probit estimates in section (d) of Table 6 show that home ownership reduces women's likelihood of marrying their cohabiting partner, although such negative effect does not remain statistically significant when we include ownership of stocks and bonds in our specification.

For men, IV probit estimates show that liquid asset ownership reduces the rate of transition to cohabitation, although inclusion of stocks and bonds in the specification (and thereby, reducing the sample size as well) indicates such effects are not significantly different from zero. For men's transitions into marriage, from non-partnered, or cohabiting, or any unmarried status, the IV-probit coefficients on the asset ownership indicators are not statistically significant, thus indicating that neither homeownership nor liquid assets has any significant effect on men's marriage decisions. However, ownership of stocks and bonds has

significant negative influence on the probability of a transition from cohabitation to marriage.

All together, the IV probit estimates either remove the statistical significance of the association between asset ownership and family union transitions, or indicate effects that are in the opposite direction to those derived from the time-to-event analysis. However, it has been suggested in the literature that the influence of economic factors in family life transitions might be different for different education groups (e.g., Moffitt, 2000). To examine whether our results also reflect a similar pattern, we conduct the instrumental variables analysis by stratifying our sample into two groups: those who have never attended college (i.e., at most high-school graduate), and those who have some college or more education (i.e., more than high school education). The F statistics for the joint significance of the instruments in the first stage estimation indicate that as we stratify the sample, the instruments perform satisfactorily only in the case of transitions from unmarried to married status. In Table 7 we report the IV-probit results for this particular transition, for men and women disaggregated by education groups. A comparison of these estimates with those reported in section (e) in Table 6 suggests that the estimated effects of asset ownership on marital transitions do not vary significantly between the two education-groups, for both men and women. While these auxiliary results are available only for the transitions from unmarried to married status, they provide enhanced confidence in our IV estimates for all the other transitions identified across all education levels.

## **VI. Conclusion**

Motivated by a recent set of findings by demographers, the paper presents two broad sets of evidence on the relationship between asset ownership and the family union transition decisions by men and women. The first set of findings, from Cox proportional hazard model with time varying covariates, reveal that home ownership as well as access to liquid assets is positively associated with rates of marital transition from a non-partnered status, particularly so for men. However, home ownership is not associated with rates of marital transition

among cohabiting men and women in the sample, although access to liquid monetary assets is positively associated with rates of cohabiting men and women marrying their partners.

The second set of findings stem from instrumental variables probit estimation, implemented to remove the potential bias in the hazard model estimates. The bias is anticipated due to the endogeneity of assets with respect to the family union decisions. The IV probit estimates either remove the statistical significance of the association between asset ownership and family union transitions, or indicate effects that are in the opposite direction to those derived from the estimated hazard model. As with any instrumental variables estimation, the strength of the set of identifying variables in playing the role of instruments is crucial. While we would not claim that these results are definitive, we do believe that they are suggestive. In relating asset ownership to family union behavior, researchers need to be aware that it is likely that common preferences or opportunities underlie both the decisions to accumulate asset and the decision to form a family by marriage or by cohabitation.

Results from the time-to-event analysis indicate that at least as a behavioral regularity we observe a positive relationship between asset ownership and marital transitions. The IV estimates, however, suggest that such behavioral regularity does not indicate a causal relationship. In other words, those who are inherently more likely to marry are the ones who would accumulate assets, and hence asset ownership does not cause their transition into marriage. Indeed, homeownership and monetary assets may reduce the marital surplus by reducing the level of specialization in the household, and thereby influence people to delay marriage, as suggested by the IV results. More importantly, these results have notable policy implications. If the IV estimates are reflective of the true effects of asset ownership, provision of housing subsidy or incentive to accumulate assets may not lead to any significant improvement in the rates of marriage.

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**Table 1.**  
**Summary Statistics on Spells in Different Family Status Prior to Union Transitions**  
 NLSY79 Women and Men; 1985-2000

| Spells               | No. of Persons | No. of Observations | Median Duration (in months) |
|----------------------|----------------|---------------------|-----------------------------|
| <b>Women</b>         |                |                     |                             |
| Non-partnered spells | 2056           | 11073               | 136.8                       |
| Cohabiting spells    | 1458           | 3668                | 32.4                        |
| Unmarried spells     | 3045           | 14652               | 116.5                       |
| <b>Men</b>           |                |                     |                             |
| Non-partnered spells | 2875           | 14717               | 136.6                       |
| Cohabiting spells    | 1592           | 4076                | 34.0                        |
| Unmarried spells     | 3675           | 18665               | 130.3                       |

**Table 2.**  
**Number of Different Family Union Transitions**  
 NLSY79 Women and Men; 1985-2000

| Transitions                   | No. of Transitions | Conditional Median Duration (months) <sup>a</sup> |
|-------------------------------|--------------------|---|
| <b>Women</b>                  |                    |   |
| Non-partnered to partnered    | 1304               | 25.6  |
| Non-partnered to cohabitation | 422                | 24.5  |
| Non-partnered to marriage     | 882                | 26.1  |
| Cohabiting to marriage        | 659                | 17.7  |
| Unmarried to marriage         | 1525               | 22.1  |
| <b>Men</b>                    |                    |   |
| Non-partnered to partnered    | 1877               | 25.4  |
| Non-partnered to cohabitation | 722                | 24.4  |
| Non-partnered to marriage     | 1155               | 25.8  |
| Cohabiting to marriage        | 683                | 18.2  |
| Unmarried to marriage         | 1807               | 22.9  |

Note: a. Duration conditional on the fact that the individual made the transition.

**Table 3: Summary of Key Variables by Family Status in 1985**  
Women and Men NLSY79

| 1985 Status<br>Variables          | Women (N=4535)                  |         |         | Men (N=4350)    |         |         |       |
|-----------------------------------|---------------------------------|---------|---------|-----------------|---------|---------|-------|
|                                   | Never Partnered                 | Cohabit | Married | Never Partnered | Cohabit | Married |       |
| Proportion in status <sup>a</sup> | Proportion in 1985              | 0.40    | 0.09    | 0.43            | 0.57    | 0.07    | 0.30  |
|                                   | Proportion in 1990              | 0.20    | 0.08    | 0.57            | 0.28    | 0.10    | 0.50  |
|                                   | Proportion in 2000              | 0.12    | 0.05    | 0.61            | 0.14    | 0.07    | 0.60  |
| Assets                            | Own house                       | 0.02    | 0.07    | 0.38            | 0.03    | 0.10    | 0.33  |
|                                   | Have money asset                | 0.57    | 0.49    | 0.68            | 0.54    | 0.46    | 0.66  |
|                                   | Own stocks & bonds <sup>b</sup> | 0.09    | 0.04    | 0.14            | 0.11    | 0.05    | 0.16  |
| Age                               | Age (years)                     | 22.93   | 23.40   | 24.17           | 22.86   | 23.81   | 24.52 |
| Ethnicity                         | Hispanic                        | 0.15    | 0.14    | 0.18            | 0.15    | 0.23    | 0.18  |
|                                   | Black                           | 0.38    | 0.22    | 0.15            | 0.31    | 0.30    | 0.15  |
| Education                         | HS grad                         | 0.37    | 0.47    | 0.50            | 0.41    | 0.46    | 0.48  |
|                                   | Some College                    | 0.35    | 0.18    | 0.20            | 0.28    | 0.14    | 0.15  |
|                                   | College grad                    | 0.16    | 0.07    | 0.10            | 0.12    | 0.05    | 0.12  |
| Income                            | Annual income (\$)              | 6347    | 6326    | 6256            | 8477    | 11202   | 14604 |
| Welfare                           | Welfare reciprocity             | 0.20    | 0.29    | 0.18            | 0.05    | 0.09    | 0.13  |
| Religion                          | Protestant                      | 0.07    | 0.08    | 0.08            | 0.08    | 0.04    | 0.08  |
|                                   | Baptist                         | 0.28    | 0.23    | 0.19            | 0.22    | 0.23    | 0.17  |
|                                   | Catholic                        | 0.25    | 0.25    | 0.26            | 0.24    | 0.28    | 0.26  |
|                                   | Other Christian                 | 0.11    | 0.08    | 0.11            | 0.11    | 0.07    | 0.10  |
|                                   | Jew                             | 0.01    | 0.00    | 0.00            | 0.01    | 0.00    | 0.00  |
| Father education                  | HS grad                         | 0.29    | 0.30    | 0.29            | 0.29    | 0.28    | 0.30  |
|                                   | Some College                    | 0.08    | 0.07    | 0.07            | 0.09    | 0.07    | 0.07  |
|                                   | College grad                    | 0.14    | 0.09    | 0.10            | 0.14    | 0.09    | 0.11  |
|                                   | Missing                         | 0.13    | 0.18    | 0.10            | 0.13    | 0.14    | 0.11  |
| Mother's education                | HS grad                         | 0.35    | 0.35    | 0.38            | 0.38    | 0.36    | 0.38  |
|                                   | Some College                    | 0.10    | 0.09    | 0.07            | 0.09    | 0.07    | 0.08  |
|                                   | College grad                    | 0.09    | 0.04    | 0.05            | 0.08    | 0.05    | 0.06  |
|                                   | Missing                         | 0.05    | 0.05    | 0.05            | 0.07    | 0.10    | 0.06  |
| Region of Residence               | North Central                   | 0.24    | 0.27    | 0.24            | 0.24    | 0.22    | 0.25  |
|                                   | South                           | 0.40    | 0.33    | 0.41            | 0.35    | 0.29    | 0.39  |
|                                   | West                            | 0.15    | 0.22    | 0.20            | 0.19    | 0.28    | 0.22  |
| State                             | Common Law Marriage             | 0.34    | 0.28    | 0.35            | 0.33    | 0.32    | 0.37  |
| Local                             | Unemployment rate               | 8.03    | 8.06    | 8.36            | 8.06    | 7.81    | 8.36  |

Note: a. The remaining sample include divorced or widowed, and those who are single after cohabiting.  
b. For 1988, as data on stocks, bonds and mutual funds is available only since the 1988 round of NLSY79.

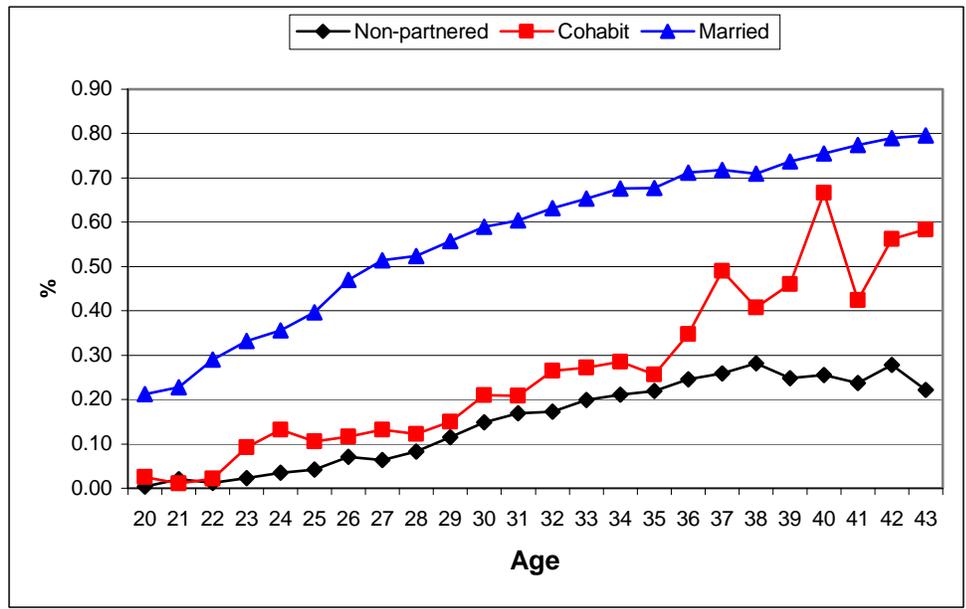


Figure 1. Percent of Women with Home Ownership by Family Status 1985-2000 (NLSY79)

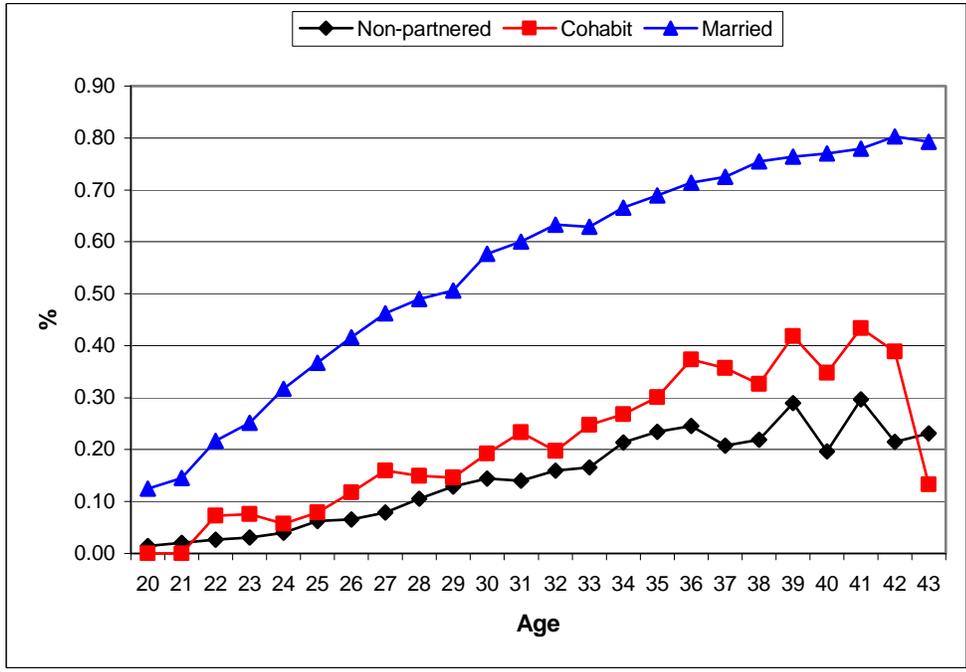


Figure 2. Percent of Men with Home Ownership by Family Status: 1985-2000 (NLSY79)

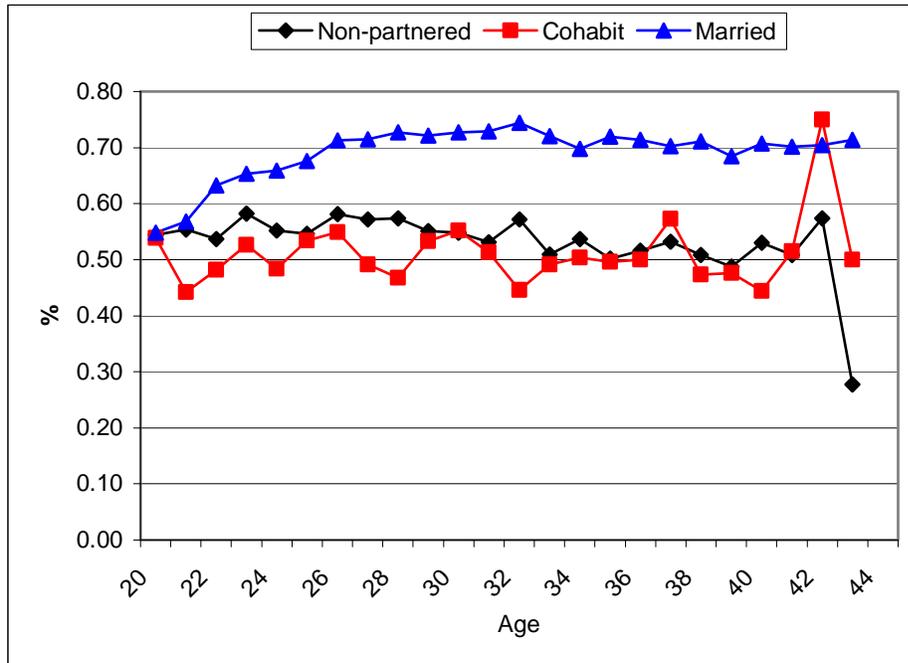


Figure 3. Percent of Women with Money-assets by Family Status: 1985-2000 (NLSY79)

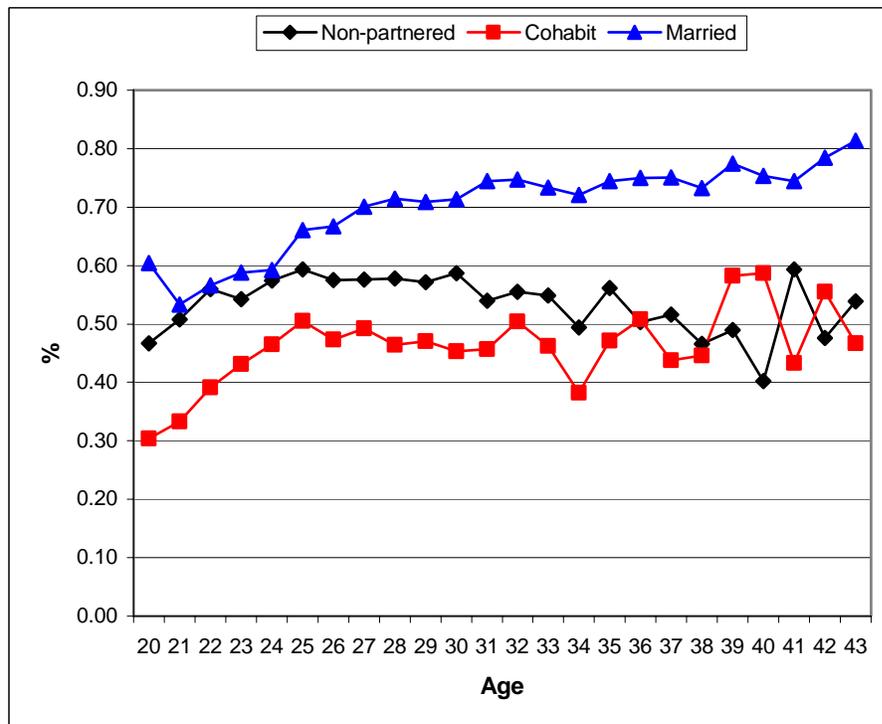


Figure 4. Percent of Men with Money-asset by Family Status: 1985-2000 (NLSY79)

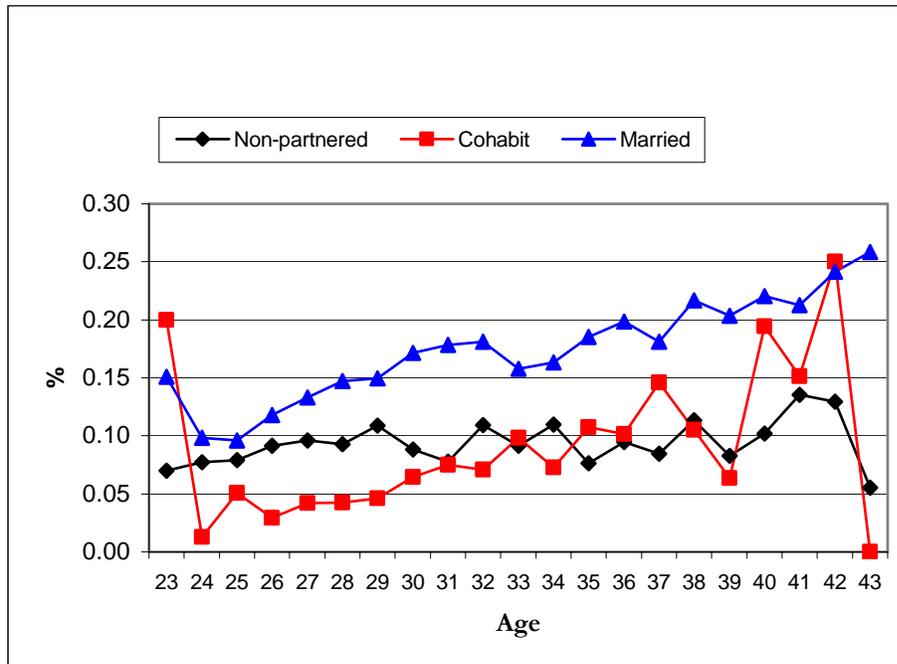


Figure 5. Percent of Women with Financial Investment by Family Status: 1988-2000 (NLSY79)

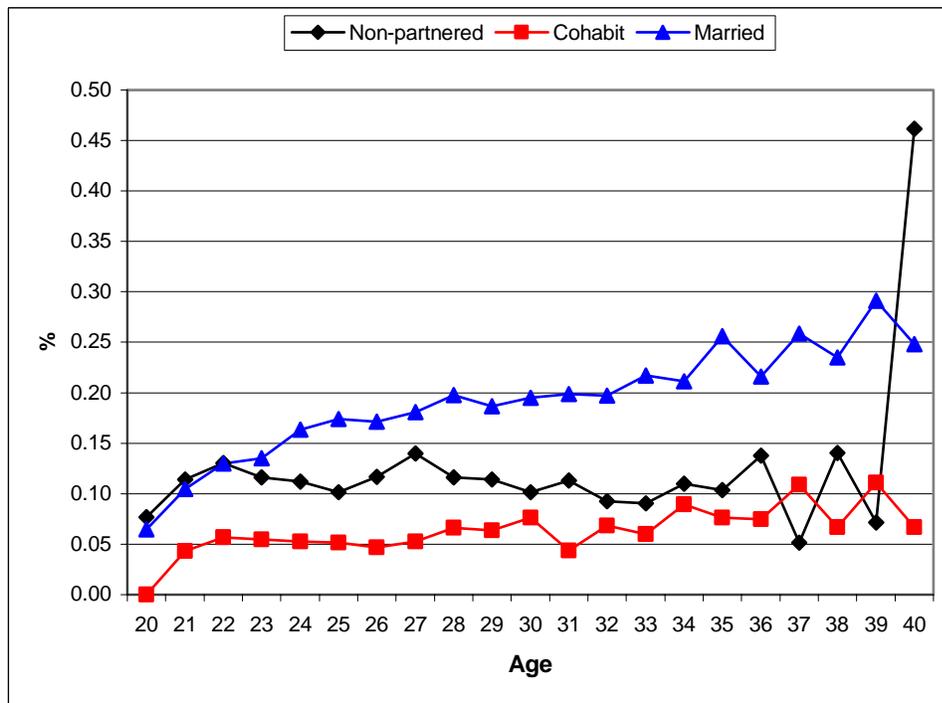


Figure 6. Percent of Men with Financial Investment by Family Status: 1988-2000 (NLSY79)

**Table 4. Determinants of the Rate of Transitions**  
Hazard ratios from Cox Proportional Hazard Model

| Variables  | Women              |                    |                    | Men                |                    |                    |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|  | Model 1            | Model 2            | Model 3            | Model 1            | Model 2            | Model 3            |
| <b>a. Transitions from Non-partnered to Partnered</b>  |                    |                    |                    |                    |                    |                    |
| Own house  | 0.841<br>(1.67)    | 0.901<br>(0.85)    | 0.827<br>(1.83)    | 1.248<br>(2.91)*** | 1.233<br>(2.11)**  | 1.231<br>(2.72)*** |
| Have money asset                                       | 1.187<br>(2.53)**  | 0.883<br>(1.13)    | 1.118<br>(1.65)    | 1.267<br>(4.10)*** | 1.053<br>(0.62)    | 1.245<br>(3.79)*** |
| Own stocks & bonds                                     |                    | 1.228<br>(1.63)    |                    |                    | 1.158<br>(1.46)    |                    |
| Hispanic   | 0.883<br>(1.19)    | 0.828<br>(1.19)    | 0.879<br>(1.24)    | 0.838<br>(1.95)    | 0.911<br>(0.80)    | 0.836<br>(1.97)**  |
| Black  | 0.518<br>(7.15)*** | 0.440<br>(5.91)*** | 0.544<br>(6.60)*** | 0.826<br>(2.67)*** | 0.770<br>(2.42)**  | 0.830<br>(2.60)*** |
| Annual income  |                    |                    | 1.000<br>(0.03)    |                    |                    | 1.000<br>(1.15)    |
| Welfare reciprocity                                    |                    |                    | 0.725<br>(3.31)*** |                    |                    | 0.736<br>(2.23)**  |
| N  | 11073              | 6342               | 11067              | 14717              | 8280               | 14691              |
| <b>b. Transitions from Non-partnered to Cohabiting</b> |                    |                    |                    |                    |                    |                    |
| Own house  | 0.887<br>(0.62)    | 0.922<br>(0.37)    | 0.877<br>(0.67)    | 1.119<br>(0.82)    | 1.257<br>(1.40)    | 1.115<br>(0.79)    |
| Have money asset                                       | 0.830<br>(1.53)    | 0.610<br>(2.58)*** | 0.803<br>(1.74)    | 0.980<br>(0.23)    | 0.884<br>(1.00)    | 0.968<br>(0.36)    |
| Own stocks & bonds                                     |                    | 0.977<br>(0.10)    |                    |                    | 1.019<br>(0.10)    |                    |
| Hispanic   | 0.835<br>(0.99)    | 0.752<br>(1.02)    | 0.832<br>(1.01)    | 0.635<br>(3.09)*** | 0.601<br>(2.68)*** | 0.636<br>(3.08)*** |
| Black  | 0.532<br>(4.15)*** | 0.500<br>(3.25)*** | 0.550<br>(3.87)*** | 1.254<br>(2.14)**  | 1.151<br>(0.91)    | 1.263<br>(2.20)**  |
| Annual income  |                    |                    | 1.000<br>(0.23)    |                    |                    | 1.000<br>(1.08)    |
| Welfare reciprocity                                    |                    |                    | 0.840<br>(1.09)    |                    |                    | 0.784<br>(1.34)    |
| N  | 11073              | 6342               | 11067              | 14717              | 8280               | 14691              |
| <b>c. Transitions from Non-partnered to Married</b>    |                    |                    |                    |                    |                    |                    |
| Own house  | 0.827<br>(1.53)    | 0.896<br>(0.74)    | 0.810<br>(1.69)    | 1.317<br>(2.89)*** | 1.206<br>(1.47)    | 1.292<br>(2.68)*** |
| Have money asset                                       | 1.422<br>(4.13)*** | 1.081<br>(0.56)    | 1.314<br>(3.26)*** | 1.526<br>(5.56)*** | 1.241<br>(1.88)    | 1.491<br>(5.23)*** |
| Own stocks & bonds                                     |                    | 1.357<br>(2.02)**  |                    |                    | 1.226<br>(1.62)    |                    |
| Hispanic   | 0.899<br>(0.87)    | 0.840<br>(0.92)    | 0.893<br>(0.92)    | 0.963<br>(0.37)    | 1.136<br>(0.88)    | 0.957<br>(0.42)    |
| Black  | 0.514<br>(6.25)*** | 0.417<br>(5.29)*** | 0.545<br>(5.70)*** | 0.602<br>(5.38)*** | 0.551<br>(4.08)*** | 0.605<br>(5.32)*** |
| Annual income  |                    |                    | 1.000<br>(0.15)    |                    |                    | 1.000<br>(1.66)    |
| Welfare reciprocity                                    |                    |                    | 0.647<br>(3.51)*** |                    |                    | 0.643<br>(2.06)**  |
| N  | 11073              | 6342               | 11067              | 14717              | 8280               | 14691              |

Table 4 (Cont'd).

| Variables  | Women      |           |            | Men       |           |           |
|--|------------|-----------|------------|-----------|-----------|-----------|
|  | Model 1    | Model 2   | Model 3    | Model 1   | Model 2   | Model 3   |
| <b>d. Transitions from Cohabiting to Married</b>                           |            |           |            |           |           |           |
| Own house  | 1.047      | 1.093     | 0.995      | 0.945     | 0.964     | 0.921     |
|  | (0.46)     | (0.77)    | (0.05)     | (0.59)    | (0.35)    | (0.85)    |
| Have money asset   | 1.448      | 1.394     | 1.331      | 1.842     | 1.686     | 1.766     |
|  | (4.21)***  | (3.02)*** | (3.00)***  | (7.04)*** | (4.98)*** | (6.53)*** |
| Own stocks & bonds   |            | 1.315     |            |           | 1.446     |           |
|  |            | (1.64)    |            |           | (2.90)*** |           |
| Hispanic   | 0.714      | 0.767     | 0.710      | 0.511     | 0.477     | 0.520     |
|  | (2.59)***  | (1.69)    | (2.63)***  | (4.94)*** | (4.53)*** | (4.84)*** |
| Black  | 0.577      | 0.563     | 0.578      | 0.432     | 0.472     | 0.433     |
|  | (4.27)***  | (3.71)*** | (4.24)***  | (7.19)*** | (5.48)*** | (7.11)*** |
| Annual income  |            |           | 1.000      |           |           | 1.000     |
|  |            |           | (2.45)**   |           |           | (9.60)*** |
| Welfare reciprocity  |            |           | 0.913      |           |           | 0.619     |
|  |            |           | (0.81)     |           |           | (2.67)*** |
| N  | 3668       | 2496      | 3665       | 4076      | 3053      | 4070      |
| <b>e. Transitions from Unmarried (Non-partnered/Cohabiting) to Married</b> |            |           |            |           |           |           |
| Own house  | 1.237      | 1.127     | 1.223      | 1.402     | 1.348     | 1.380     |
|  | (2.56)**   | (1.29)    | (2.42)**   | (4.90)*** | (3.57)*** | (4.65)*** |
| Have money asset   | 1.344      | 1.229     | 1.280      | 1.586     | 1.435     | 1.547     |
|  | (4.62)***  | (2.32)**  | (3.81)***  | (7.86)*** | (4.40)*** | (7.39)*** |
| Own stocks & bonds   |            | 1.167     |            |           | 1.114     |           |
|  |            | (1.36)    |            |           | (1.12)    |           |
| Hispanic   | 0.733      | 0.726     | 0.735      | 0.816     | 0.844     | 0.813     |
|  | (3.55)***  | (2.71)*** | (3.53)***  | (2.52)**  | (1.53)    | (2.56)**  |
| Black  | 0.395      | 0.428     | 0.409      | 0.539     | 0.542     | 0.541     |
|  | (11.51)*** | (7.51)*** | (10.96)*** | (8.50)*** | (5.97)*** | (8.45)*** |
| Annual income  |            |           | 1.000      |           |           | 1.000     |
|  |            |           | (0.15)     |           |           | (2.55)**  |
| Welfare reciprocity  |            |           | 0.792      |           |           | 0.701     |
|  |            |           | (2.69)***  |           |           | (2.49)**  |
| N  | 14652      | 8750      | 14643      | 18665     | 11206     | 18633     |

Note:

a. Robust z statistics in parentheses

b. \*\* significant at 5%; \*\*\* significant at 1%

c. In each specification, control variables include Age, age-squared, ethnicity, education, religion, father's and mother's education, region of residence, whether or not state recognizes common law marriage, and local unemployment rate. Estimated hazard ratios for these variables are available upon request.

**Table 5.**  
**F-Statistic for the Joint Significance of Instrumental Variables in the First Stage**

| Variables  | Women   |         | Men     |         |
|--|---------|---------|---------|---------|
|  | Model 1 | Model 2 | Model 1 | Model 2 |
| <i>No. of excluded instruments</i>                           | 18      | 21      | 18      | 21      |
|  |         |         |         |         |
| <b>Transition from never-married</b>                         |         |         |         |         |
| Own home   | 4.35    | 2.91    | 3.18    | 2.10    |
| Have money assets  | 4.63    | 3.91    | 4.56    | 3.48    |
| Own stocks, bonds  |         | 1.80    |         | 1.35    |
|  |         |         |         |         |
| <b>Transition from Cohabiting</b>                            |         |         |         |         |
| Own home   | 2.43    | 2.48    | 2.17    | 2.63    |
| Have money assets  | 1.90    | 2.06    | 1.96    | 1.88    |
| Own stocks, bonds  |         | 1.40    |         | 1.03    |
|  |         |         |         |         |
| <b>Transitions from unmarried (Non-partnered/cohabiting)</b> |         |         |         |         |
| Own home   | 5.88    | 4.22    | 4.96    | 3.41    |
| Have money assets  | 4.99    | 4.81    | 6.11    | 4.80    |
| Own stocks, bonds  |         | 2.08    |         | 1.58    |
|  |         |         |         |         |

Note:

- a. F-statistic is for a hypothesis that the instrumental variables jointly have no effect.
- b. Robust standard errors are calculated to account for clustering on each individual.

**Table 6. Determinants of the Rate of Transitions**  
 Probit and IV Probit Coefficients

| Variables  | Women: Model 1 |           | Women: Model 2 |           | Men: Model 1 |           | Men: Model 2 |           |
|--|----------------|-----------|----------------|-----------|--------------|-----------|--------------|-----------|
|  | Probit         | IV Probit | Probit         | IV Probit | Probit       | IV Probit | Probit       | IV Probit |
| <b>a. Transitions from Non-partnered to Partnered</b>  |                |           |                |           |              |           |              |           |
| Own home   | -0.052         | -0.156    | -0.017         | -0.085    | 0.112        | -0.002    | 0.132        | 1.188     |
|  | (0.89)         | (0.32)    | (0.26)         | (0.10)    | (2.38)**     | (0.00)    | (2.32)**     | (1.27)    |
| Have money assets                                      | 0.085          | -0.910    | 0.019          | -1.023    | 0.129        | -1.250    | 0.066        | -0.626    |
|  | (2.14)**       | (2.02)**  | (0.33)         | (1.49)    | (4.00)***    | (2.54)**  | (1.45)       | (0.74)    |
| Own stocks, bonds                                      |                |           | 0.101          | -2.248    |              |           | 0.096        | -3.765    |
|  |                |           | (1.34)         | (1.77)    |              |           | (1.55)       | (1.81)    |
| N  | 11073          | 11073     | 6342           | 6342      | 14717        | 14717     | 8280         | 8280      |
| J Statistic (Overidentification test) <sup>d</sup>     |                | 9.08      |                | 18.60     |              | 18.32     |              | 27.03     |
| P-value for the J statistic                            |                | (.910)    |                | (.417)    |              | (.306)    |              | (.078)    |
| <b>b. Transitions from Non-partnered to Cohabiting</b> |                |           |                |           |              |           |              |           |
| Own home   | -0.015         | 0.121     | -0.005         | 0.829     | 0.043        | 0.646     | 0.121        | 1.407     |
|  | (0.18)         | (0.18)    | (0.05)         | (0.73)    | (0.65)       | (0.86)    | (1.58)       | (1.32)    |
| Have money assets                                      | -0.101         | 0.238     | -0.132         | 0.541     | -0.014       | -1.705    | -0.026       | 0.373     |
|  | (1.77)         | (0.39)    | (1.63)         | (0.62)    | (0.35)       | (2.54)**  | (0.45)       | (0.38)    |
| Own stocks, bonds                                      |                |           | -0.005         | -2.197    |              |           | 0.006        | -2.549    |
|  |                |           | (0.04)         | (1.25)    |              |           | (0.07)       | (1.08)    |
| N  | 11073          | 11073     | 6342           | 6342      | 14717        | 14717     | 8280         | 8280      |
| J Statistic (Overidentification test) <sup>d</sup>     |                | 8.33      |                | 13.56     |              | 20.95     |              | 19.57     |
| P-value for the J statistic                            |                | (.938)    |                | (.757)    |              | (.180)    |              | (.357)    |

Table 6 (Cont'd).

| Variables   | Women: Model 1 |           | Women: Model 2 |           | Men: Model 1 |           | Men: Model 2 |           |
|---|----------------|-----------|----------------|-----------|--------------|-----------|--------------|-----------|
|   | Probit         | IV Probit | Probit         | IV Probit | Probit       | IV Probit | Probit       | IV Probit |
| <b>c. Transitions from Non-partnered to Married</b> |                |           |                |           |              |           |              |           |
| Own home  | -0.057         | -0.309    | -0.019         | -0.617    | 0.129        | -0.408    | 0.108        | 0.294     |
|   | (0.87)         | (0.56)    | (0.26)         | (0.64)    | (2.41)**     | (0.65)    | (1.63)       | (0.26)    |
| Have money assets                                   | 0.175          | -1.332    | 0.112          | -1.760    | 0.205        | -0.649    | 0.129        | -1.090    |
|   | (3.92)***      | (2.55)**  | (1.73)         | (2.14)**  | (5.34)***    | (1.19)    | (2.35)**     | (1.11)    |
| Own stocks, bonds                                   |                |           | 0.130          | -1.930    |              |           | 0.121        | -3.880    |
|   |                |           | (1.57)         | (1.33)    |              |           | (1.76)       | (1.55)    |
| N   | 11073          | 11073     | 6342           | 6342      | 14717        | 14717     | 8280         | 8280      |
| J Statistic (Overidentification test) <sup>d</sup>  |                | 12.21     |                | 15.22     |              | 24.23     |              | 30.78     |
| P-value for the J statistic                         |                | (.729)    |                | (.647)    |              | (.085)    |              | (.031)    |
| <b>d. Transitions from Cohabiting to Married</b>    |                |           |                |           |              |           |              |           |
| Own home  | 0.111          | -1.809    | 0.086          | -1.146    | 0.003        | -0.095    | 0.009        | -1.005    |
|   | (1.58)         | (2.51)**  | (1.05)         | (1.37)    | (0.04)       | (0.14)    | (0.12)       | (1.33)    |
| Have money assets                                   | 0.226          | 0.858     | 0.224          | -0.737    | 0.388        | -1.096    | 0.319        | -0.227    |
|   | (3.93)***      | (1.28)    | (3.11)***      | (0.97)    | (7.09)***    | (1.68)    | (4.84)***    | (0.25)    |
| Own stocks, bonds                                   |                |           | 0.170          | 0.218     |              |           | 0.311        | -2.865    |
|   |                |           | (1.25)         | (0.14)    |              |           | (2.96)***    | (1.24)    |
| N   | 3668           | 3668      | 2496           | 2496      | 4076         | 4076      | 3053         | 3053      |
| J Statistic (Overidentification test) <sup>d</sup>  |                | 15.91     |                | 18.03     |              | 21.68     |              | 19.60     |
| P-value for the J statistic                         |                | (.459)    |                | (.454)    |              | (.154)    |              | (.356)    |

Table 6 (Cont'd).

| Variables  | Women: Model 1 |           | Women: Model 2 |           | Men: Model 1 |           | Men: Model 2 |           |
|--|----------------|-----------|----------------|-----------|--------------|-----------|--------------|-----------|
|  | Probit         | IV Probit | Probit         | IV Probit | Probit       | IV Probit | Probit       | IV Probit |
| <b>e. Transitions from Unmarried (Non-partnered/Cohabiting) to Married</b> |                |           |                |           |              |           |              |           |
| Own home   | 0.099          | 0.108     | 0.100          | -0.127    | 0.167        | -0.148    | 0.162        | 0.783     |
|  | (2.12)**       | (0.25)    | (1.84)         | (0.17)    | (4.00)***    | (0.32)    | (3.31)***    | (0.81)    |
| Have money assets  | 0.179          | -0.917    | 0.151          | -1.081    | 0.251        | -0.704    | 0.197        | 0.184     |
|  | (5.12)***      | (2.11)**  | (3.15)***      | (1.74)    | (7.90)***    | (1.66)    | (4.61)***    | (0.18)    |
| Own stocks, bonds  |                |           | 0.095          | -2.093    |              |           | 0.119        | -7.716    |
|  |                |           | (1.39)         | (1.57)    |              |           | (2.10)**     | (2.44)**  |
| N  | 14652          | 14652     | 8750           | 8750      | 18665        | 18665     | 11206        | 11206     |
| J Statistic (Overidentification test) <sup>d</sup>                         |                | 16.84     |                | 21.42     |              | 13.40     |              | 22.25     |
| P-value for the J statistic  |                | (.396)    |                | (.259)    |              | (.643)    |              | (.221)    |

Note:

a. z statistics in parentheses. Robust standard errors are calculated to account for clustering on each individual.

b. \*\* significant at 5%; \*\*\* significant at 1%

c. In each specification, control variables include Age, age-squared, ethnicity, education, religion, father's and mother's education, region of residence, whether or not state recognizes common law marriage, and local unemployment rate.

d. The Hansen-Sargan J Statistic is derived from a linear estimate of the binary dependent variable model.

**Table 7.**  
**Determinants of the Rate of Transition from Unmarried to Married:**  
**Women and Men by Education**  
 Probit and IV Probit Coefficients in Model 1

| Variables                      | HS or less educated |           | More than HS educated |           |
|--------------------------------|---------------------|-----------|-----------------------|-----------|
|                                | Probit              | IV Probit | Probit                | IV Probit |
| <b>a. Women</b>                |                     |           |                       |           |
| Own house                      | 0.104               | -0.072    | 0.085                 | 0.193     |
|                                | (1.49)              | (0.11)    | (1.35)                | (0.38)    |
| Have money asset               | 0.228               | -1.079    | 0.131                 | -0.947    |
|                                | (5.08)***           | (1.50)    | (2.52)**              | (2.08)**  |
| <i>First-stage F statistic</i> |                     |           |                       |           |
| Own house                      |                     | 3.06      |                       | 4.65      |
| Have money asset               |                     | 1.81      |                       | 4.52      |
| N                              | 7777                | 7777      | 6875                  | 6875      |
| <b>b. Men</b>                  |                     |           |                       |           |
| Own house                      | 0.166               | 0.087     | 0.164                 | -0.819    |
|                                | (2.89)***           | (0.13)    | (2.70)***             | (1.44)    |
| Have money asset               | 0.276               | 0.101     | 0.241                 | -0.477    |
|                                | (7.25)***           | (0.18)    | (4.50)***             | (1.04)    |
| <i>First-stage F statistic</i> |                     |           |                       |           |
| Own house                      |                     | 3.03      |                       | 2.79      |
| Have money asset               |                     | 3.43      |                       | 5.89      |
| N                              | 11505               | 11505     | 7160                  | 7160      |

Note:

- a. The results reported in this table are estimated from specifications similar to model 1 in Table 6 (includes dummy indicators for homeownership and money assets).
- b. z statistics in parentheses. Robust standard errors are calculated to account for clustering on each individual.
- c. \*\* significant at 5%; \*\*\* significant at 1%