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Borrowing Constraints,
and Saving Behavior:
Evidence from the Housing Market**

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Abstract

This paper examines the effects of intergenerational transfers on saving behavior by examining private wealth transfers targeted toward first-time home purchases. The study of transfer behavior in the housing market is advantageous for a number of reasons: the down payment requirement associated with home purchase can be thought of as an important, well-defined borrowing constraint that most U.S. households face; private wealth transfers targeted to home purchases are significant; and home equity is a highly important component of household wealth in the United States. The empirical analysis shows that transfer recipients have a saving rate that is lower than that of non-recipients by as much as 6 percentage points, representing a reduction of 39 to 49 percent in the household saving rate. In addition, households that receive transfers reduce the time required to save for the down payment by 22 percent. For each dollar of transfer received, households increase the dollar amount of the down payment by about 85 cents, allowing them to achieve a higher down payment threshold. Households also increase the value of the home purchased upon receiving a transfer, but by an amount that is much lower than would be possible if the transfer were fully leveraged. The amount of the transfer appears to be targeted to help households achieve certain down payment thresholds that give favorable terms on mortgages. Although the evidence suggests that the availability of a transfer reduces household savings, we cannot reject the alternative hypothesis that transfer recipients are inherently low savers.

1 Introduction

Each year, billions of dollars of wealth are transmitted from one generation to another in the form of intergenerational transfers. Gale and Scholz (1994) estimate that 20 percent of aggregate wealth accumulation in the United States can be accounted for by *inter vivos* transfers, with an additional 31 percent made up of bequests. The nature and role of intergenerational transfers is of fundamental importance for determining the economic effect of government debt, social insurance, and public transfer policies. Despite this, little empirical examination has been undertaken of the effect of transfer receipt on household saving behavior and, in particular, whether such transfers substitute for household savings.

This paper examines the effects of transfers on saving behavior by examining private wealth transfers targeted toward first-time home purchases. The study of transfer behavior in the housing market is advantageous for a number of reasons. First, the down payment requirement associated with home purchase can be thought of as a well-defined borrowing constraint. Households wishing to own a first home must accumulate a down payment ranging from 5 percent to 20 percent in order to qualify for a conventional mortgage in the United States.¹ For the average-price home, many households must do substantial saving in order to accumulate this amount. A transfer from a relative or friend may release this borrowing constraint and allow an otherwise constrained household to save less, purchase earlier, or purchase a larger home than otherwise. Moreover, since more than 80 percent of households in any given birth cohort in the United States will eventually own a home, the down payment requirement is a constraint that most households face at some point.

Second, private wealth transfers targeted to home purchases are significant. One in five first-time home buyers in the United States receives a financial transfer from a friend or relative to help fund the down payment. Conditional on receiving such a transfer, the

¹Lenders offering mortgages with less than a 20 percent down payment typically require the household to purchase private mortgage insurance (PMI) at additional cost.

amount is large: on average, more than half of the down payment (Engelhardt and Mayer 1994). Thus, transfers for down payments play an important role in financing home purchase, particularly for young households with little accumulated wealth.

Finally, apart from pension and Social Security wealth, home equity is the single largest component of household wealth in the United States (Poterba, Venti, and Wise 1994). Data from the 1990 Survey of Income and Program Participation (SIPP) show that median housing equity was more than 11 times as large as median liquid assets among all homeowners. Even for homeowners over 65, that ratio was still more than 3 to 1 (Mayer and Simons 1994). Thus, changes in the frequency and magnitude of transfers for home purchase may have important effects on the household saving rate.

The empirical analysis in this paper uses newly acquired household-level data from the 1988, 1990, and 1993 National Surveys of Recent Home Buyers conducted by the Chicago Title and Trust Company. These survey data are unique in that they include information on transfers received, accumulated savings, and time required to save the down payment; data that are not available from other household surveys. These data can be used to estimate the effect of transfers on saving behavior. The empirical results suggest that transfers significantly release the borrowing constraint caused by the down payment requirement: Households that receive such transfers have a saving rate that is lower by as much as 6 percentage points, or a 39 to 49 percent reduction in the household saving rate. In addition, households that receive transfers reduce the time required to save for the down payment by 22 percent. For each dollar of transfer received, households increase the dollar amount of the down payment by 85 cents. Households also increase the value of the home purchased upon receiving a transfer, but by an amount that is much lower than would be possible if the transfer were fully leveraged. The amount of the transfer appears to be targeted to help households achieve certain down payment thresholds that give favorable terms on mortgages. Although the evidence suggests that the availability of a transfer reduces household savings, it is not possible to reject the hypothesis that transfer recipients are inherently low savers.

The paper is organized as follows. The next section describes the findings from the previous literature; it is followed by a discussion of how transfers might affect saving and housing behavior. The effects of transfers on household saving and housing purchase behavior are then estimated. The conclusion discusses the implications of these results for the savings behavior of young households and poses an agenda for future research.

2 Previous Literature

A number of previous studies of intergenerational transfers provide evidence that transfers are targeted to liquidity-constrained households.² In some of these studies, the exact form of the liquidity constraint is not specified; rather, “constrained” households typically are identified as those with low current and high permanent income.³ Cox (1990) uses the President’s Commission on Pension Policy household survey to estimate probit specifications for the receipt of a transfer. He finds that households with low current income and high permanent income are significantly more likely to receive transfers, which he interprets as evidence that transfers are targeted to constrained households. Younger households, married households, and female-headed households are significantly more likely to receive transfers, as well.

The 1983 Survey of Consumer Finances (SCF) asked questions about whether the household had been either denied credit or discouraged from applying for credit because it thought it would be denied. Cox and Jappelli (1990) use responses from these questions as a measure of whether a household is liquidity constrained. They find that transfers are targeted to constrained households in the SCF and that even after controlling for transfers, many consumers remain constrained. In addition, controlling for this measure of liquidity constraint, young and female households, and those with low current and high permanent income are

²See Cox (1990), Cox and Jappelli (1990), Guiso and Jappelli (1991), and Mayer and Engelhardt (1994).

³Permanent income either is proxied by educational attainment or is estimated using age-earnings profiles as in King and Dicks-Mireaux (1982).

still significantly more likely to receive transfers, as found in Cox (1990).⁴ Guiso and Jappelli (1991) use Italian household data on transfers and find similar results. Finally, whereas the various measures of income, access to credit, and demographic characteristics explain the *receipt* of a transfer quite well, Cox and Jappelli (1990) find that these variables explain the *amount* of a transfer surprisingly poorly.

Mayer and Engelhardt (1994), looking specifically at the probability of receiving a transfer for home purchase using a sample of mortgage applicants, find similar results to those of Cox and Jappelli. Because they use data from the mortgage application, Mayer and Engelhardt have more accurate measures of credit history and net worth. Consistent with the previous literature, they find that households with a worse credit history, more education, and a lower net worth are more likely to receive a transfer.

While finding evidence that transfers are targeted to constrained households, none of these papers estimates how transfers affect saving behavior. A notable exception is Weil (1994), who studies the effect of expected bequests and bequest receipt on the consumption behavior of young households. Weil uses questions from the 1984 wave of the Panel Survey of Income Dynamics (PSID) to measure both bequests received and expectations of future bequests. He estimates that consumption is about 5 percent higher for households that anticipate but have not yet received a bequest. Furthermore, consumption is an estimated 10 percent higher for households that have received a bequest. However, consumption is differentially lower by about 6 percent for households that have received a bequest, but anticipate another bequest. In addition, Engelhardt (1995) finds a dollar-for-dollar saving offset of bequests for the median household using the 1984 and 1989 asset and debt data in the PSID. These results suggest that both household consumption and saving decisions are quite responsive to bequests.

⁴Blacks were found to be significantly less likely to receive a transfer.

3 Transfers, Saving, and Housing Behavior

Most models of home ownership, including Rosen (1983) and Poterba (1992), for example, assume that the transition from renting to owning a home generates a net gain in household utility, usually motivated by the favorable tax status of owner-occupied housing in the U.S.⁵ In these models, the household makes its tenure decision by comparing its user cost of renting with its user cost of owning and frictionlessly choosing the cheaper mode of tenure. An equilibrium distribution of owners and renters is generated by a threshold marginal tax rate in which households with marginal tax rates above the threshold rate own, and those below rent.

Such a frictionless model has less relevance in the presence of mortgage contracts with down payment requirements. With down payments, households must first have a minimum level of wealth in order to purchase a home, regardless of user cost calculations. The need to save for the down payment implies a dynamic trade-off: The household must compare the present discounted value (p.d.v.) of utility gained from consuming owner-occupied housing (at a low user cost) with the p.d.v. of forgone utility associated with renting and saving for the down payment. Because the p.d.v. of the benefits of owning decrease with waiting time, the household would like to become a home owner as soon as possible. Under these assumptions, Artle and Variaya (1978) have shown that the down payment acts as a binding liquidity constraint. As a result, the household will hold consumption low as a renter in order to accumulate the down payment but purchase a smaller home than it would if not constrained.⁶ Furthermore, in a world with a menu of down payment requirements and mortgage terms from which to choose (e.g., 10 percent down plus private mortgage insurance

⁵Henderson and Ioannides (1983) use externalities in the rental market rather than tax considerations to generate a net utility gain from owner-occupied housing.

⁶Plaut (1987), Brueckner (1986), Engelhardt (1994a, 1994b), and Sheiner (1995) provide treatments and extensions of this model. Engelhardt (1994b) provides empirical support that down payment constraints affect the consumption of renter households. Other empirical evidence in support of this model is provided by Jones (1995).

or 20 percent down without private mortgage insurance), the down payment amount will be endogenous.⁷ Constrained households will respond by putting down as little as possible.

Assuming that an intergenerational transfer is expected, the transfer will relax the borrowing constraint and thus affect the behavior of the household in a number of possible ways.⁸ First, holding the period of purchase and the house value constant, the household may save less and consume more as a renter, as the transfer substitutes for savings the household would have otherwise accumulated subject to the liquidity constraint. Second, the household may choose to hold its own savings constant and make a larger down payment, and thus reduce its level of mortgage debt. The importance of this effect may increase if the household was also constrained by the obligation ratio or required to purchase private mortgage insurance (PMI). Even if consumption as a renter is held constant, the household may buy sooner than without the transfer, capturing the net gains to home ownership earlier in life. Finally, the household could purchase a larger home (higher-valued) than otherwise, both because the household is wealthier and because the down payment constraint has been relaxed.⁹ Holding the the down payment percent constant, a higher-valued home implies a larger dollar amount offered as a down payment. In the absence of corner solutions, households will adjust to some extent on all of these margins.

The above discussion assumes that households that receive a transfer would otherwise

⁷Models of credit markets with asymmetric information may result in lending institutions providing a menu of mortgage contracts to consumers. Menu choices may vary by interest rate, down payments, term (15-year, 20-year, 30-year, etc.), type (fixed rate or adjustable rate), and points. The traditional motivation for such a menu has been that it allowed households of different default probabilities to self-select based on the terms of the contract. These models are reviewed in Jaffee and Stiglitz (1990) and Stanton and Wallace (1995). However, there is empirical evidence that consumers do self-select in these contracts based on prepayment probabilities as well. See Brueckner (1994) and Chan (1995). Jones (1993) explores models of mortgage debt.

⁸This discussion assumes that the household knows the amount of the transfer when it begins saving to purchase the house. A subsequent section will explore empirically what happens if the household can predict the transfer amount only with some error.

⁹This increase in value of the home could come from purchasing a larger number of units of housing for the same price per unit, or could come from purchasing the same number of units of housing at a increased price per unit. An increased price per unit might represent a change of neighborhoods, for example. That is, a transfer might allow a household to purchase a home in an area that they otherwise would not choose.

have the same savings behavior as households that do not get any help from relatives. Previous research, however, suggests that transfer recipients appear to be more constrained than other first-time buyers. This evidence is consistent with heterogeneity in household discount rates, as well as possible differences in the age profile of lifetime earnings. If families give more money to children with a lower ratio of current to lifetime income or a higher discount rate, transfer recipients would appear to be lower savers, but the explanation would be unobserved heterogeneity across households rather than differences in savings behavior due to transfers per se.¹⁰

4 Empirical Analysis

The empirical analysis presented below examines the effect of the receipt of transfers on saving behavior, using evidence from the housing market where, as described above, liquidity constraints frequently bind and substantial transfers occur. The theoretical predictions outlined above indicate that households may respond to transfers for down payments in a number of ways: reduce saving, change the size of the mortgage, purchase earlier, or buy a larger home. In particular, the analysis seeks to estimate the savings offset from transfer receipt, as well as the extent of the adjustment on these other margins.

The analysis uses survey data collected in 1988, 1990, and 1993 from a random sample of recent home buyers in 18 major U.S. cities by the Chicago Title and Trust Company (CT&T).¹¹ The surveys are conducted in January among all households that purchased a home during the previous calendar year, whether first-time or repeat home buyers. The survey covers a total of 1,800 households in 18 major metropolitan areas: Boston, New York,

¹⁰However, this may be inconsistent with altruistically motivated transfers since inherently low saving households will be households with a low marginal utility of consumption, *ceteris paribus*, and hence would be less likely to receive transfers.

¹¹These random samples are not from Chicago Title and Trust's customer base but are based on public record home sales transactions for each metropolitan area in the survey. The field surveys are performed by Market Facts, Inc. for the Chicago Title and Trust Company.

Philadelphia, Washington, Chicago, Cleveland, Detroit, Minneapolis, Atlanta, Dallas/Fort Worth, Memphis, Orlando, Los Angeles, Orange County, San Francisco, Denver, Phoenix, and Seattle/Tacoma. Data from these surveys have been used by other authors, including Poterba (1992), Skinner (1992), Sheiner (1995), and Engelhardt (1994a).

The CT&T survey asks recent home buyers, both first-time and repeat buyers, about their demographic characteristics (gender, age and marital status of the head of the household, and family size), household income, city of residence, the type of house purchased and its price, the type and amount of mortgage obtained, the amount and source(s) of the down payment, and the amount of time spent saving the down payment. Sources of the down payment include funds from relatives or friends, household savings, and funds borrowed from a lending institution. The information on the amount of household savings, the time required to save for the down payment, and transfers makes this data set very useful for examining the effect of transfers on saving. The survey's main drawback is the lack of information about education, total net worth, credit and job histories, and family wealth, all factors that affect the likelihood of a receipt of a transfer.¹²

The sample used in this analysis includes the first-time home buyer households in the 1988, 1990, and 1993 surveys with complete data, but it excludes 64 households that reported using funds from sources other than household savings, transfers, or funds borrowed from a lending institution, because it was difficult to determine where these funds originated. This exclusion did not affect the results of the analysis.¹³ The sample contains a total of 1144 households, 378 from the 1988 survey, 392 from the 1990 survey, and 374 from the 1993 survey.

Table 1 presents means (and standard deviations in parentheses) for selected variables for

¹²Cox (1990), Cox and Jappelli (1990), and Guiso and Jappelli (1991) have shown that education is an important determinant of transfer receipt. Mayer and Engelhardt (1994) have shown that net worth, credit history and job history also affect the likelihood of receipt of a transfer for a down payment.

¹³Estimation results with these additional households included in the sample are available from the authors upon request.

the entire sample in column 1, as well as for the subsamples of households that did and did not receive a transfer for the down payment in columns 2 and 3, respectively.¹⁴ Two hundred and fifty households, or 22 percent of the sample, received transfers targeted towards home purchase. The average transfer comprised more than half of the down payment. Column 4 gives the absolute value of the test statistic for the test of the equality of the means between transfer recipients and non-recipients.¹⁵ Recipients and non-recipients do not differ significantly in terms of demographic characteristics and income.¹⁶ However, recipients are very different from non-recipients in terms of financial characteristics. They use much less of their own savings to fund the down payment, 42.8 percent versus 96.9 for non-recipients.

The CT&T surveys report the time required to save the down payment in categories. The actual survey question is "From the time you actively started saving for your home, about how long did it take you to save enough money for your down payment?" The interviewer then placed the respondent's answer into one of the following categories: (1) less than one year, (2) one to two years, (3) three to four years, (4) five to six years, (5) seven to 10 years, (6) 11 to 15 years, (7) 16 to 20 years, (8) more than 20 years.¹⁷ The mean time-to-save tabulations presented in Table 1 are calculated by assigning each household a time-to-save equal to the midpoint of its reported category, where the midpoint was determined in proportion to the number of households in the two neighboring cells. By this measure, transfer recipients require about nine months (eight-tenths of a year) less time-to-save for the down payment. Based on the mean time-to-save for non-recipients of 3.5 years, this represents a 22.8 percent reduction in time-to-save and is statistically significantly different from zero. Recipients also have a higher down payment as a percentage of the purchase price of the home. They appear to be more income-constrained than other buyers, however, with a higher monthly payment-to-income, or obligation, ratio.

¹⁴All dollar amounts are given in real 1992 dollars.

¹⁵Based on a test of the means assuming unequal variances.

¹⁶The one exception is household size, where transfer recipients appear to have larger households.

¹⁷The interviewer did not read these categories to the respondent prior to the answer.

Thus, a simple comparison of means indicates that transfer recipients appear to be more financially constrained than non-recipients, which is consistent with the findings of Cox (1990), Cox and Jappelli (1991), and Guiso and Jappelli (1991), and that transfers significantly reduce both the amount of accumulated savings required and the time-to-save for home purchase. The next two subsections further explore the empirical relationship between transfers and the timing of home purchase and household saving behavior, conditioning on other factors that might affect the robustness of these findings.

4.1 The Transfer-Saving Offset

The CT&T surveys do not ask for household total net worth or annual total saving. The sample has measures of household saving and wealth only as related to housing. That is, only the dollar amount of wealth put into the down payment and, therefore, into home equity, is reported in the survey. This omission complicates the measurement of household saving, although the typical household has very little left over after making the down payment. For example, data from the 1990 SIPP show that median liquid wealth for recent home buyers is only one-fifteenth as large as median housing equity.¹⁸

To understand the biases associated with measuring the amount of saving placed into housing instead of total household saving, consider the difference between a borrowing-constrained household and an unconstrained household, both saving for a first home. For the constrained household (and in the absence of any precautionary motives to save), the saving done for the down payment will be all of the household's saving, by definition. Thus, knowing the amount of accumulated wealth placed into the down payment, as well as the length of time needed to accumulate that wealth, is sufficient to know the constrained household's total annual saving. However, for the unconstrained household, knowing the down payment amount and the length of time needed to accumulate that down payment is not enough to

¹⁸Authors' calculations.

know the household's total annual saving. In fact, using accumulated wealth in the down payment as a basis for household saving is likely to underestimate household saving for unconstrained households.

To formalize, let S_{it} be the total amount of wealth for household i in period t placed into the down payment. In addition, let τ_{it} be the time required to save S for the down payment.

Then,

$$\frac{S_{it}}{\tau_{it}} \quad (1)$$

is a measure of the average annual saving in dollar terms done by the household and

$$s_{it} = \frac{\frac{S_{it}}{\tau_{it}}}{Y_{it}} \quad (2)$$

is a measure of the household saving rate as a percentage of pre-tax household income. If s_{it}^* is the true household saving rate, then

$$s_{it}^* = s_{it} \quad (3)$$

for constrained households and

$$s_{it}^* > s_{it} \quad (4)$$

for unconstrained households; or,

$$s_{it}^* = s_{it} + \eta_{it} \quad (5)$$

where η_{it} is the measurement error in the household saving rate, when the rate is constructed from accumulated saving in the down payment.

The previous literature on transfers has documented that transfers are targeted toward liquidity-constrained households. Consequently, the measurement error in the saving rate, η_{it} , will be negatively correlated with any measure of transfer receipt. Therefore, estimation

of a model of the form

$$s_{it} = \beta' X_{it} + \gamma T_{it} + u_{it}, \quad (6)$$

where T_{it} is a measure of transfer receipt and u_{it} includes the measurement error η_{it} , will yield an estimate of γ that is biased upward toward zero. (The predicted value of γ is negative.) That is, using a measure of household saving that is constructed from the accumulated down payment will yield an underestimate (in absolute value) of the transfer-saving offset.¹⁹ In addition, the transfer may be measured with error, or the actual transfer amount may be different than expected. These cases will be discussed shortly.

Table 2 presents the estimation results for the specification given in equation (6) for the sample of 1144 households described above. The dependent variable is the household saving rate as measured in equation (2), where S is the dollar amount of accumulated savings placed into the down payment at the time of home purchase and τ is the time required to save for the down payment in years. As noted above, τ is reported in categorical form rather than as a continuous variable in the survey. For the specifications in columns 1 and 2, the midpoint of each category was assigned to each household as that household's time-to-save for the down payment as described above. The primary drawback of using the midpoints of the time-to-save categories to estimate household saving rates is that the saving rates constructed are not consistent estimates of the true saving rates.²⁰ Thus, in columns 3 and 4 of Table 2, the specifications in columns 1 and 2 are reestimated using consistent estimates of the household saving rates, where consistent estimates of τ are the predicted time-to-save for each household from the estimated specifications in Table 3, discussed below. Y_{it} is the pre-tax household income.²¹

¹⁹The direction of this bias is supported by the results in Mayer and Engelhardt (1994). Using a sample of mortgage applicants, the authors find that controlling for the down payment, the probability of a transfer is negatively related to total net worth.

²⁰See Stewart (1983).

²¹Technically, since the predicted time-to-save for each household is a function of the same set of explanatory variables as found in the saving rate equation, the parameter estimates in columns 3 and 4 are identified by cross-household variation in S_{it} , the amount of accumulated saving, and by the non-linear functional form

The specifications in columns 1 and 3 model the household saving rate as a function of the ratio of real median metropolitan house prices to real income, household size, dummy variables for marital status, gender, age category, and spousal employment status, year dummies, and city dummies. The explanatory variable of interest again is the transfer dummy variable.²² The estimates in Column 1 imply that the receipt of a transfer is significantly correlated with a reduction in household saving: recipients have saving rates that are 6.9 percentage points lower than those of non-recipients. The estimate in column 3 using predicted time-to-save in the construction of the household saving rate implies a reduction of 5.6 percentage points. The mean saving rate for non-transfer recipients in the sample is 14.5 percent.²³ Therefore, the receipt of a transfer is associated with a reduction in the saving rate of between 39 and 48 percent.

In columns 2 and 4, the transfer measure is the transfer-to-income ratio. Based on the estimates in column 2, an increase in transfer-to-income ratio of 1 decreases the household saving rate by 4.3 percentage points. The mean transfer-to-income ratio for transfer recipients in the sample was 0.27. Therefore, evaluated at the mean transfer-to-income ratio, the estimate in column 2 implies that the household saving rate is 1.2 percentage points lower for transfer recipients than non-recipients. The estimation results in column 4 imply a three-quarters of a percentage point reduction in the saving rate for transfer recipients. These results from columns 2 and 4 imply that transfer receipt is associated with a reduction in saving of 8 and 5 percent, respectively.

The results from Table 2 indicate a robust inverse relationship between transfer receipt and the household saving rate. One interesting finding is that the measure of the transfer used in the empirical specifications matters. In particular, the magnitude of the responses

of the likelihood function given in equation (10) below.

²²All the specifications in Table 3 were estimated using mean regression. Median regression yielded similar estimates. They are available from the authors upon request.

²³Recall that this is not a random sample of American households—the aggregate household saving rate was around 6 percent in this period (Bosworth, Burtless, and Sabelhaus 1991). These are high-saving households that are up against a potentially binding borrowing constraint.

to transfer receipt differs substantially depending on whether the explanatory variable is specified as a dummy variable or as the transfer amount. A number of possible explanations for this divergence can be offered.

First, the reported transfer amount could be a noisy measure of the true transfer received. That is, the dummy variable may accurately pick up those households that received transfers, but the transfer amount may actually be very noisy. Measurement error in the transfer amount would bias the estimated saving offset upward, toward zero. Thus, the saving offset would be smaller when the transfer amount was used rather than the transfer dummy. Second, to the extent that some uncertainty existed about the magnitude of the transfer the household would receive, the dummy variable may measure whether or not the household expected to receive a transfer, and the transfer amount may measure that expected transfer plus any unexpected component, or forecast error, of the transfer. If household estimates suffer from forecast error, then the estimated offset would be biased upwards towards zero.

An alternative interpretation is that the divergence in findings from using the two transfer measures is evidence of a fixed effect in saving. Since the dummy variable provides such large results, but the actual amount does not, the dummy might really be picking up a fixed effect: The saving of transfer recipients is systematically different from that of non-recipients in ways that just happen to be correlated with transfer receipt. The most basic form of a fixed effect would be if low-saving households received transfers and those households' saving was low for reasons unrelated to the transfer. If high-discount-rate households (i.e., low-saving households) receive transfers, then one would expect to find a negative relationship between saving and transfer receipt in a saving regression.

4.2 Transfers and the Timing of Home Ownership

To explore further the effect of transfer receipt on the timing of home purchase, we model the time-to-save for the down payment as

$$\tau_{it} = \xi' X_{it} + \epsilon_{it} \quad (7)$$

where τ_{it} is the true time-to-save for the down payment, measured continuously, X is a vector of explanatory variables which determines the time-to-save for the down payment, and $\epsilon_{it} \sim N(0, \sigma^2)$.

However, as noted above, τ_{it} is not observed for each household in the survey but may fall into eight possible categories: (1) less than one year, (2) one to two years, (3) three to four years, (4) five to six years, (5) seven to 10 years, (6) 11 to 15 years, (7) 16 to 20 years, (8) more than 20 years. τ_{it} falls into the j th category if

$$\alpha_{j-1} < \tau_{it} < \alpha_j. \quad (8)$$

For those categories with time-to-save of seven years or more, the sample contained too few observations to achieve convergence for the likelihood function given below. Therefore, we use five feasible categories: $j = 0, 1, 2, \dots, 5$, which implies $\alpha_0 = 0$, $\alpha_1 = 1$, $\alpha_2 = 3$, $\alpha_3 = 5$, $\alpha_4 = 7$, $\alpha_5 = \infty$.

Because the time-to-save data are reported categorically, ordinary least squares estimation of equation (7) will not yield consistent parameter estimates. Instead, the statistical model in (7) and (8) is estimated by maximum likelihood, as follows. Define Z such that Z_{itj} equals 1 if τ_{it} falls into the j th category and zero otherwise. For example, if household i in period t required less than one year to save for the down payment, then $\alpha_0 \leq \tau_{it} < \alpha_1$, which implies that $Z_{it1} = 1$. Thus, write the probability of observing household i in period

t having a time to save for down payment in category j as

$$Pr(Z_{itj} = 1) = \Phi(\alpha_j - \xi' x_{it}) - \Phi(\alpha_{j-1} - \xi' x_{it}) \quad (9)$$

where Φ is the normal cumulative distribution function. This implies a likelihood function of the form

$$L = \prod_{i=1}^N \prod_{j=1}^5 [\Phi(\alpha_j - \xi' x_{it}) - \Phi(\alpha_{j-1} - \xi' x_{it})]^{Z_{itj}} \quad (10)$$

for the α_j described above.

The parameter estimates for this maximum likelihood problem are given in Table 3. Column 1 models the time-to-save as a function of the real median metropolitan house prices, real income, household size, and dummy variables for marital status, gender, age category, and spousal employment status, as well as year dummies and city dummies. The explanatory variable of interest is a dummy variable that takes on a value of one if the household received a transfer targeted toward the down payment and zero otherwise. The estimated parameter on this dummy is -0.758 and is significantly different from zero (standard errors are given in parentheses). This estimate indicates that, controlling for other factors, transfer recipients purchase homes three-quarters of a year, or nine months, earlier than non-recipients. Since the average time-to-save in the sample is 3.5 years for non-recipients, this represents a 21.7 percent reduction in time needed to save to overcome the borrowing constraint imposed by the down payment requirement.

The estimated coefficients on the other explanatory variables are interesting as well. Controlling for all other factors, including income *and* city effects, successful home-buying households require an additional half-year to accumulate the down payment for an additional \$100,000 in median real house prices. An additional \$10,000 of household income reduces the time-to-save by one month, and younger households that purchase a home take substantially less time to save than older households.

Column 2 employs the same covariates as column 1 but measures transfer receipt in dollar terms. These estimates also indicate that transfer receipt is inversely related to time-to-save, and that this relationship is significantly different from zero. The point estimate implies that for each \$10,000 of transfer, time-to-save falls by 1.2 months. The mean transfer amount conditional on receiving a transfer is \$12,700; therefore, at the mean, this represents a 4 percent reduction in time needed to save to overcome the down payment constraint.

The specifications in columns 1 and 2 indicate a robust inverse relationship between transfer receipt and time-to-save. Once again, however, the estimated effect of transfers on time-to-save varies substantially with the definition of the transfer variable. In particular, whether or not the household receives the transfer matters much more than the actual magnitude of the transfer.

4.3 Adjustments on Other Margins

These results show that households that receive a transfer have significantly lower times-to-save and household saving rates. However, the theoretical discussion in Section 3 suggests that households also adjust their housing behavior to the receipt of transfers on other margins. In this section, we estimate the effect of the transfer receipt on the size of the mortgage chosen and on the size of the home purchased.

First, note that the down payment and the amount of mortgage debt must sum to the purchase price of the home and that households have three possible sources of down payment funds: accumulated household savings (S), funds borrowed from a lending institution (B), and funds from a transfer from a friend or relative (T). Let D denote the dollar amount of the down payment offered by the household; then the following relationship holds:

$$D = S + B + T. \tag{11}$$

The effect of a transfer on the dollar amount of the down payment, on dollars of own

accumulation, and on dollars borrowed is modeled as a function of real median metropolitan house prices, real income, household size, dummy variables for marital status, gender, age category, and spousal employment status, year dummies, city dummies, and a variable for transfer receipt.

The results of this estimation are presented in Table 4. Columns 1 through 3 show the parameter estimates for each of the equations. Year and city dummy variables are included in all of the specifications. The results from column 1 indicate that an increase of one dollar in transfer increases the dollar amount of the down payment by 85 cents. Also, a one-dollar increase in the real median house price raises the amount of the down payment by 12.8 cents, which seems reasonable, and a one-dollar increase in real household income increases the down payment by 24 cents. The results in column 2 indicate that a one-dollar increase in transfer decreases the amount of own accumulation by 14 cents.²⁴ Finally, as shown in column 3, an additional dollar of transfer results in no significant offset of funds borrowed for the down payment.²⁵

The results from Table 4 show that each additional dollar of transfer received leads to an 85 cent increase in the dollar amount of the down payment. This increase in the down payment could come in part from an increase in the value of the home purchased. The responsiveness of housing value to transfer receipt is examined in Table 5. The results indicate that an additional dollar of transfer is associated with a \$1.74 increase in the price of the home purchased. At a 15 percent down payment (the sample mean for transfer recipients), one additional dollar of resources could increase the value of the home purchased

²⁴The mean transfer amount for recipients was \$12,684 and the mean own accumulation for non-recipients was \$18,323, which implies that transfer recipients reduced their accumulation by about 10 percent, consistent with the results from column 3 of Table 3.

²⁵Under the identifying assumption that transfers affect the decisions to save, borrow, and receive funds from other sources, equation (11) implies that the effect of the receipt of a transfer on the dollar amount of the down payment is

$$\frac{dD}{dT} = \frac{dS}{dT} + \frac{dB}{dT} + 1 \quad (12)$$

The p-value reported in Table 4 is for the test of this implied restriction. It cannot be rejected for the specification.

by a maximum of \$6.67 (i.e., $1.00/0.15$), *ceteris paribus*. The coefficient estimate implies that the actual increase is just 26 percent of this maximum amount.

Households may also be concerned with the financing that they receive, not just whether or not they purchase a house. Because private mortgage insurance, commonly required for mortgages with a down payment of less than 20 percent, can be costly, households with access to a transfer may choose to avoid it by making a larger down payment.²⁶ In addition, households can get mortgages with even less than 10 percent down by participating in special programs, some of which have very restrictive requirements (maximum income and house price levels) and charge higher interest rates.²⁷

Table 6 provides estimates of a probit model in order to examine the effect of transfers on the down payment decision, taking into account specific down payment thresholds. In column 1, the dependent variable is a dummy variable that takes on a value of one if the household made a down payment of 10 percent or more and a value of zero otherwise. Controlling for other factors which affect the down payment decision, the estimates suggest that a transfer recipient is significantly more likely to put down ten percent or more for a down payment. The marginal effect of being a transfer recipient on the likelihood of putting down 10 percent or more is given in brackets below the parameter estimate.²⁸ A transfer recipient has a 7.6 percentage point higher probability of putting down 10 percent or more relative to a non-recipient. In column 2, the transfer amount is used in place of the transfer dummy. Unlike previous results, however, the size of the transfer has a much larger effect on the down payments threshold than a dummy variable representing the receipt of the transfer.

²⁶Private mortgage insurance adds up to 0.75 of a percentage point to the interest rate on the mortgage. For a buyer who would normally put down 15 percent as a down payment, an extra 5 percent down would earn a shadow return equal to the mortgage rate plus up to 12 percentage points.

²⁷FHA mortgages, for example, allow as little as 5 percent down, but have low maximum house values and charge an effective interest rate that is above market rates.

²⁸The marginal effect is calculated at the mean of the explanatory variables. For the transfer dummy variable, the marginal effect is the impact of a switch from 0 to 1 on the probability of putting at least 10 percent down. For the continuous gift variable, the marginal effect is calculated as the difference between a zero transfer and the mean transfer of \$12,700. Marginal effects for the other explanatory variables are available from the authors upon request.

The marginal effect of receiving the mean transfer (\$12,700) is a 27.5 percentage point higher probability of putting down 10 percent or more.

In column 3, the dependent variable is a dummy variable that takes on a value of one if the household made a down payment of 20 percent or more and a value of zero otherwise. As mentioned above, a down payment of 20 percent or more allows the household to avoid purchasing private mortgage insurance. The estimates suggest that a transfer recipient is only marginally significantly more likely to put down 20 percent or more for a down payment. The marginal effect of being a transfer recipient is a 5.6 percentage point higher probability of putting down 20 percent or more. The transfer amount is highly significant and has a much larger marginal effect on the probability of putting 20 percent or more down (a 22.8 percent increase) than the transfer dummy variable.

The specifications in columns 3 and 4 compare the down payment decisions of households making large down payments of 20 percent or more with households that make both small (less than 10 percent down) and moderate (10 to 19 percent down) down payments. A more appropriate comparison group might be just households making moderate down payments. Therefore, columns 5 and 6 repeat the specifications in columns 3 and 4, but estimate the model on the subsample of 756 households that put at least 10 percent down. For this subsample, the estimates in column 5 suggest that a transfer recipient is not more likely to put down 20 percent or more for a down payment. However, in column 6, the transfer amount is used in place of the transfer dummy, and the transfer amount does significantly explain the likelihood of placing a down payment of 20 percent or more, with a large marginal effect.

The results in Table 6 indicate that transfers allow households to reach higher down payment thresholds, lowering the effective cost of borrowing by avoiding the purchase of private mortgage insurance or participating in costly and restrictive special borrowing programs. The results also show that transfer behavior as measured by the transfer amount rather than the transfer dummy has the most power in explaining which down payment category

households end up in. This is consistent with the view that parents and other relatives choose specific transfer amounts to help households attain 10 and 20 percent down payment thresholds that may give buyers more favorable terms on their mortgage.

5 Conclusion

The estimates in this paper show that transfer receipt is associated with a significant reduction in household saving: Households that receive such transfers save at a rate that is up to seven percentage points lower, or a 39 to 49 percent lower household saving rate. Despite saving at a much lower rate, transfer recipients still purchase their home 21 percent earlier than non-recipients. Households also increase the value of the home purchased upon receiving a transfer, but by an amount that is much lower than would be possible if the transfer were fully leveraged. In addition, for each dollar of transfer received, households increase the dollar amount of the down payment by 85 cents. Of the 85 cent increase in the down payment, 26 cents go towards the increase in the down payment due to the \$1.74 increase in housing consumption. Finally, much of the transfer-related increase in the down payment appears to be associated with households reaching 10 and 20 percent down payment thresholds consistent with various mortgage market products.

Our findings are broadly consistent with those of Guiso and Jappelli (1995), who use data from the 1991 Italian Survey of Household Income and Wealth. For Italy, they find that transfers represent between 25 and 36 percent of household wealth accumulation and that transfers reduce the time required to save for the down payment by between one and two years. There is evidence that transfers allow households to purchase larger homes as well.²⁹

²⁹Guiso and Jappelli (1995) do not have a self-reported measure of time required to save the down payment in the Italian Survey data. Instead, they calculate the time-to-save for each household in the survey as the year of home purchase minus the year of birth minus twenty-five. Since much of the variation in this measure is due to age, it may overestimate the time it takes household to save the down payment, once they actively start saving; this could be especially true for older households.

The fact that a dummy variable representing transfer receipt has a much larger effect on household saving and purchase behavior than the actual transfer amount is consistent with the hypothesis that the transfer amount is reported with error or, more likely, that the actual amount of the transfer is unknown until it arrives. In fact, the evidence is consistent with relatives choosing the exact amount of the transfer to allow the household to achieve a specific down payment threshold. Even though households may not know the exact amount of the transfer, however, they still appear to anticipate its receipt. For example, transfer recipients adjust their time-to-save and saving rate several years prior to purchasing the house.³⁰

The interpretation of the results in this paper depends crucially on the relationship between the probability of transfer receipt and the household savings rate. If relatives exclusively target low-savings-rate households for transfers, then the coefficient on transfer receipt in the savings rate equation will suggest a large savings offset because transfer recipients are naturally low savers. That is, the transfer would be positively correlated with low savings rates not because the availability of a transfer causes a change in individual savings behavior, but that recipients would be low savers regardless of whether or not they had access to a transfer. The existence of such a fixed effect, while plausible to some extent, probably does not explain why transfer recipients use much of the transfer to make a higher down payment as opposed to saving less. If transfer recipients were low savers because they have high discount rates or a more steeply-sloped future income profile, then they may be less likely than non-recipients to use the transfer to increase the down payment, because doing so would involve giving up more current consumption in order to get a lower interest rate.³¹

³⁰Weil (1994) finds similar evidence in the PSID, showing that consumption is higher for households who anticipate receiving a bequest.

³¹On the other hand, if households with high discount rates or steeply-sloped future income profiles are more likely than other households to be constrained by the obligation ratio requirement, then it may be rational for low savers to use transfers to make a larger down payment and lower their mortgage debt and mortgage payments. However, there is substantial evidence from the mortgage literature that indicates that the obligation ratio requirement is not binding in practice. See Munnell et al. (1992), Zorn (1989), and Linneman and Wachter (1989), for example.

In addition, to the extent that low-saving households have a low marginal utility of consumption, such an effect is inconsistent with altruistically motivated transfers that, *ceteris paribus*, would be targeted toward households with a high marginal utility of consumption. The evidence in this paper cannot conclusively resolve this issue, however, and it is worthy of future research.

The fact that a significant number of young households rely on their families to help finance their first house may become increasingly important because, on average, older generations are increasingly getting wealthier and may have more resources available to help their children purchase homes. As Bosworth, Burtless, and Sabelhaus (1991) show, savings rates for young renters dropped the least of all groups from the 1970s to the 1980s as real house prices rose, presumably because such households faced a higher down payment hurdle. During the past 10 years, however, relatives have contributed an increasing amount to the down payment of first-time buyers. These factors suggest that saving rate of young households may have fallen recently, as family wealth substitutes for own savings in the down payment. Additional research might also explore how the increasing spread in the income (and thus family wealth) distribution has affected housing affordability for low-saving households without wealthy families.

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Table 1. Summary Statistics

Sample:	All Households	Transfer Recipients	Non- Recipients	t-Statistic for Test of Means
Down Payment Percent	13.6 (12.2)	15.0 (13.8)	13.3 (11.7)	1.81
Transfer as a Percent of Down Payment	11.5 (25.3)	52.8 (27.3)	0.0 (0.0)	—
Savings as a Percent of Down Payment	85.1 (28.7)	42.8 (26.9)	96.9 (14.7)	30.47
Time-to-Save Down Payment (Years)	3.5 (4.3)	2.9 (3.7)	3.7 (4.5)	2.66
Obligation Ratio (Monthly Pmt/Inc)	0.25 (0.12)	0.27 (0.12)	0.25 (0.12)	2.66
Real House Purchase Price (Thousands)	131.6 (93.0)	140.0 (93.0)	129.2 (93.0)	1.63
Real Income (Thousands)	55.9 (29.8)	53.9 (27.0)	56.4 (30.5)	1.28
Average Age (Years)	31.0 (5.9)	30.5 (5.5)	31.1 (6.0)	1.30
Dummy if Household Lives in Coastal City	0.52 (0.50)	0.57 (0.50)	0.51 (0.50)	1.77

Note: Standard deviations in parentheses. t-Statistics are in absolute value.

Table 1. (Continued)

Sample:	All Households	Transfer Recipients	Non- Recipients	t-Statistic for Test of Means
Household Size	2.6 (1.2)	2.7 (1.3)	2.5 (1.2)	2.43
Dummy if Married	0.69 (0.46)	0.71 (0.46)	0.68 (0.47)	0.85
Dummy if Male	0.60 (0.49)	0.56 (0.50)	0.62 (0.49)	1.67
Dummy if Male* Dummy if Married	0.42 (0.49)	0.40 (0.49)	0.43 (0.49)	0.71
Dummy if Two- Earner Household	0.44 (0.50)	0.43 (0.50)	0.44 (0.50)	0.18
Number of Observations	1144	250	894	1144

Note: Standard errors in parentheses. *t*-Statistics are in absolute value.

Table 2. Estimation Results of the Effect of Transfers on the Savings Rate

Dependent Variable: Household Savings Rate				
	(1)	(2)	(3)	(4)
Median House Price to Income Ratio	0.0085 (0.0035)	0.0088 (0.0036)	0.0168 (0.0020)	0.0169 (0.0021)
Transfer Dummy	-0.069 (0.013)	—	-0.056 (0.008)	—
Transfer Amount to Income Ratio	—	-0.0435 (0.0213)	—	-0.0275 (0.0123)
Dummy if Married	0.0062 (0.023)	0.0057 (0.023)	0.0050 (0.013)	0.0050 (0.013)
Dummy if Male	0.0010 (0.020)	0.0009 (0.020)	0.0005 (0.011)	0.0028 (0.012)
Household Size	-0.0034 (0.0054)	-0.0049 (0.0055)	-0.0004 (0.0031)	-0.0017 (0.0032)
Dummy if Male* Dummy if Married	-0.0070 (0.024)	-0.0080 (0.025)	-0.0054 (0.014)	-0.0061 (0.014)
Dummy if Less than 25 Years Old	0.080 (0.041)	0.074 (0.026)	0.015 (0.015)	0.010 (0.024)

Note: Standard errors in parentheses.

Table 2. (Continued)

	(1)	(2)	(3)	(4)
Dummy if 25-29 Years Old	0.077 (0.038)	0.068 (0.038)	0.022 (0.022)	0.015 (0.022)
Dummy if 30-34 Years Old	0.054 (0.038)	0.049 (0.038)	0.002 (0.022)	0.003 (0.022)
Dummy if 35-39 Years Old	0.045 (0.040)	0.039 (0.040)	-0.0006 (0.023)	-0.005 (0.023)
Dummy if 40-49 Years Old	0.046 (0.041)	0.043 (0.042)	0.0007 (0.024)	-0.002 (0.024)
Dummy if Two- Earner Household	-0.014 (0.015)	-0.014 (0.015)	0.0009 (0.008)	0.0010 (0.009)
Dummy if Year is 1988	0.014 (0.014)	0.020 (0.014)	0.018 (0.008)	0.022 (0.008)
Dummy if Year is 1990	0.0004 (0.0135)	0.0048 (0.0137)	0.0068 (0.0078)	0.0103 (0.0079)
Constant	0.066 (0.048)	0.058 (0.048)	0.032 (0.028)	0.025 (0.028)
City Dummies Included?	Yes	Yes	Yes	Yes
R-square	0.08	0.06	0.15	0.12
Number of Observations	1144	1144	1144	1144

Note: Standard errors in parentheses.

Table 3. Maximum Likelihood Estimates of Effect of Transfers on Time-To-Save

Dependent Variable: Time-to-Save (Years)		
	(1)	(2)
Real Median House Price (Thousands)	0.0056 (0.0028)	0.0051 (0.0028)
Transfer Dummy	-0.7580 (0.0819)	—
Transfer Amount (Thousands)	—	-0.0103 (0.0029)
Real Income (Thousands)	-0.0086 (0.0011)	-0.0083 (0.0012)
Dummy if Married	0.2378 (0.1364)	0.2368 (0.1362)
Dummy if Male	0.1880 (0.1192)	0.2181 (0.1194)
Dummy if Male*	-0.0788 (0.1451)	-0.0867 (0.1450)
Dummy if Married		
Household Size	-0.0137 (0.0320)	-0.0313 (0.0320)
Dummy if Less than 25 Years Old	-1.578 (0.244)	-1.655 (0.243)
Dummy if 25-29 Years Old	-1.512 (0.219)	-1.609 (0.219)
Dummy if 30-34 Years Old	-0.684 (0.221)	-0.754 (0.220)

Note: Standard errors in parentheses.

Table 3. (Continued)

Dependent Variable: Time-to-Save (Years)		
	(1)	(2)
Dummy if 35-39 Years Old	-0.236 (0.231)	-0.300 (0.231)
Dummy if 40-49 Years Old	0.503 (0.239)	0.450 (0.238)
Two-Earner Household	-0.513 (0.088)	-0.511 (0.088)
Dummy if Year is 1988	-0.423 (0.089)	-0.359 (0.089)
Dummy if Year is 1990	-0.144 (0.087)	-0.085 (0.087)
Constant	4.877 (0.597)	4.908 (0.596)
City Dummies Included?	Yes	Yes
Log Likelihood	-3266.2	-3303.3
Number of Observations	1144	1144

Note: Standard errors in parentheses.

Table 4. Estimation Results of the
Effect of Transfers on Down Payments

	(1)	(2)	(3)
Dependent Variable: (Thousands)	Down Payment (<i>D</i>)	Total Savings (<i>S</i>)	Amount Borrowed (<i>B</i>)
Real Median House Price (Thousands)	0.128 (0.051)	0.139 (0.050)	-0.016 (0.014)
Transfer Amount (Thousands)	0.852 (0.052)	-0.140 (0.051)	-0.008 (0.014)
Real Income (Thousands)	0.239 (0.021)	0.243 (0.021)	-0.004 (0.006)
Dummy if Married	3.687 (2.414)	2.722 (2.372)	0.965 (0.660)
Dummy if Male	1.354 (2.122)	0.697 (2.085)	0.727 (0.580)
Dummy if Male* Dummy if Married	-2.067 (2.572)	-1.224 (2.528)	-0.909 (0.703)
Household Size	-0.762 (0.572)	-1.073 (0.562)	0.314 (0.156)
Dummy if Less than 25 Years Old	-7.197 (4.390)	-7.586 (4.314)	0.382 (1.200)
Dummy if 25-29 Years Old	-7.822 (3.987)	-7.492 (3.918)	-0.336 (1.090)
Dummy if 30-34 Years Old	-5.537 (4.010)	-5.462 (3.940)	-0.336 (1.096)

Note: Standard errors in parentheses.

Table 4. (Continued)

Dependent Variable:	Down Payment (<i>D</i>)	Total Savings (<i>S</i>)	Amount Borrowed (<i>B</i>)
Dummy if 35-39 Years Old	-5.090 (4.191)	-5.207 (4.118)	0.194 (1.146)
Dummy if 40-49 Years Old	0.520 (4.342)	0.918 (4.266)	-0.405 (1.187)
Dummy if Two-Earner Household	-5.778 (1.554)	-5.156 (1.527)	-0.632 (0.425)
Dummy if Year is 1988	0.225 (1.570)	0.734 (1.542)	-0.515 (0.429)
Dummy if Year is 1990	2.472 (1.536)	2.209 (1.510)	0.303 (0.420)
Constant	-6.503 (10.645)	-9.452 (10.460)	2.970 (2.909)
City Dummies Included?	Yes	Yes	Yes
Number of Observations	1144	1144	1144
p-Value for Test of Restriction: 0.88			

Note: Standard errors in parentheses.

Table 5. Estimation Results of the Effect of Transfers on House Value

Dependent Variable:	Real House Price (Thousands)
Real Median House Price (Thousands)	0.635 (0.188)
Transfer Amount (Thousands)	1.737 (0.192)
Real Income (Thousands)	1.267 (.079)
Dummy if Married	4.599 (8.991)
Dummy if Male	-2.841 (7.902)
Dummy if Male* Dummy if Married	-1.097 (9.578)
Household Size	0.198 (2.131)
Dummy if Less than 25 Years Old	16.750 (16.347)
Dummy if 25-29 Years Old	16.252 (14.844)
Dummy if 30-34 Years Old	17.888 (14.929)

Note: Standard errors in parentheses.

Table 5. (Continued)

Dependent Variable:	Real House Price (Thousands)
Dummy if 35-39 Years Old	30.296 (15.605)
Dummy if 40-49 Years Old	27.061 (16.165)
Two Earner Household	-6.469 (5.785)
Dummy if Year is 1988	-14.465 (5.845)
Dummy if Year is 1990	-8.173 (5.719)
Constant	-55.740 (39.631)
City Dummies Included?	Yes 0.41
Number of Observations	1144

Note: Standard errors in parentheses.

Table 6. Probit Estimation Results

Dependent Variable:	Dummy if 10% or More Down		Dummy if 20% or More Down			
	(1)	(2)	(3)	(4)	(5)	(6)
Transfer Dummy	0.223 (0.104) [0.076]	—	0.164 (0.101) [0.056]	—	0.107 (0.115) [0.043]	—
Transfer Amount (Thousands)	—	0.085 (0.018) [0.275]	—	0.049 (0.007) [0.228]	—	0.037 (0.007) [0.186]
Real Median House Price (Thousands)	0.005 (0.002)	0.005 (0.004)	0.0008 (0.003)	0.001 (0.003)	-0.0007 (0.004)	-0.0004 (0.004)
Real Income (Thousands)	0.005 (0.002)	0.005 (0.002)	0.0017 (0.0014)	0.0021 (0.0014)	0.0004 (0.0016)	0.0010 (0.0016)
Dummy if Married	0.189 (0.172)	0.192 (0.176)	0.271 (0.172)	0.290 (0.177)	0.213 (0.205)	0.234 (0.209)
Dummy if Male	0.312 (0.153)	0.333 (0.156)	0.046 (0.152)	0.074 (0.155)	-0.122 (0.177)	-0.094 (0.180)
Dummy if Male* Dummy if Married	-0.236 (0.185)	-0.238 (0.188)	-0.097 (0.185)	-0.108 (0.189)	-0.008 (0.213)	-0.019 (0.217)
Household Size	-0.055 (0.041)	-0.067 (0.041)	-0.044 (0.040)	-0.057 (0.041)	-0.025 (0.047)	-0.039 (0.048)
Dummy if Less than 25 Years Old	-0.822 (0.356)	-0.888 (0.360)	-0.623 (0.312)	-0.701 (0.321)	-0.417 (0.345)	-0.480 (0.353)
Dummy if 25-29 Years Old	-0.759 (0.332)	-0.821 (0.335)	-0.551 (0.278)	-0.585 (0.284)	-0.364 (0.304)	-0.382 (0.309)

Notes: Standard errors in parentheses. The marginal effect of receiving a transfer is in brackets. In columns 2, 4, and 6 the marginal effect is for the mean transfer of \$12,700. Columns 5 and 6 include only purchasers with a down payment of at least 10 percent.

Table 6. (Continued)

Dependent Variable:	Dummy if 10% or More Down		Dummy if 20% or More Down			
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy if 30-34 Years Old	-0.521 (0.333)	-0.585 (0.337)	-0.409 (0.279)	-0.455 (0.285)	-0.303 (0.306)	-0.333 (0.311)
Dummy if 35-39 Years Old	-0.289 (0.345)	-0.316 (0.350)	-0.211 (0.290)	-0.208 (0.295)	-0.187 (0.317)	-0.171 (0.322)
Dummy if 40-49 Years Old	-0.144 (0.358)	-0.220 (0.360)	0.041 (0.301)	0.009 (0.307)	0.053 (0.331)	0.057 (0.336)
Two-Earner Household	-0.159 (0.112)	-0.161 (0.114)	-0.401 (0.110)	-0.438 (0.112)	-0.410 (0.128)	-0.449 (0.129)
Dummy if Year is 1988	0.263 (0.110)	0.263 (0.112)	0.122 (0.115)	0.097 (0.117)	-0.0001 (0.136)	-0.023 (0.138)
Dummy if Year is 1990	0.169 (0.109)	0.158 (0.110)	0.192 (0.113)	0.179 (0.114)	0.165 (0.133)	0.165 (0.136)
City Dummies Included?	Yes	Yes	Yes	Yes	Yes	Yes
Log Likelihood	-608.2	-588.4	-603.5	-573.5	-475.0	-457.0
Number of Observations	1144	1144	1144	1144	756	756

Note: Standard errors in parentheses.

