No. 2050

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INTERNATIONAL MACROECONOMICS

Centre for Economic Policy Research

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ABSTRACT

Private Transfers, Borrowing Constraints
and the Timing of Home Ownership*

The 1991 Italian Survey of Household Income and Wealth contains detailed information on how respondents acquired their main residence and any other real estate. This information is used to estimate the impact of *inter vivos* transfers on the saving period required to purchase a house and on the value of the house purchased when households have limited access to mortgage markets. It is found that transfers shorten the saving time by about two years and allow households to purchase considerably larger homes. The results have implications for the debate about the source of the relation between aggregate saving and growth.

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NON-TECHNICAL SUMMARY

Private transfers are the chief mode of economic interaction between family members, and as such they can help maintain or reduce disparities in wealth and consumption. Depending on their nature, private transfer decisions can significantly affect the ultimate impact of changes in social security legislation, government debt and transfer policies. Well-timed transfers can make up for insurance and credit market failures and overcome the distortions in the allocation of consumption over time and states of nature induced by financial market imperfections. Accordingly, intergenerational transfers are receiving increasing attention in the policy debate. Despite their importance to an understanding of households' interactions, the empirical evidence on the effect of transfers on recipients' behaviour is scant. In this paper we rely on Italian data drawn from the 1991 Bank of Italy Survey of Household Income and Wealth (SHIW) to determine the effect of gifts and other transfers earmarked for real estate on households' behaviour.

We begin by discussing how intergenerational transfers affect the decision to purchase a house. If they come early in life, bequests (whether intended or involuntary) and gifts directly reduce the time required to save enough to purchase a house. Monetary transfers provide additional resources for home purchase: they increase own funds, make it possible to meet the down payment or cut saving time. Transfers in kind may have similar effects if the house is acquired from parents or relatives below the market price.

We then turn to the 1991 SHIW which contains a special section in which respondents provide information on how they acquired their main residence and any other real estate. This is used to construct an indicator of the share of transfers in total real estate wealth in order to assess the relevance of earmarked intergenerational transfers. We find that bequests and *inter vivos* transfers are of considerable importance in home purchases: more than one-third of Italian homeowners report having got the house itself as a gift or bequest or having received financial support in making the purchase. The share of total real estate wealth accounted for by earmarked transfers ranges from 25% to 35%, depending on the assumption about capitalization of transfers.

The survey also allows us to construct a proxy for the number of years during which a household saves before purchasing a home. Italian households become homeowners relatively late in life, in sharp contrast with other countries. The average age of first-time buyers is 28 and 29 in the US and UK, respectively, against 41 in Italy. Potentially, there is ample role for transfers to affect housing purchase decisions. But to be effective, transfers have to be well timed. Only by chance can bequests serve this purpose. Deliberately overcoming borrowing constraints requires *inter vivos* transfers during the

renting period in which the household is saving to buy the house. After receiving a transfer, a household that plans to purchase a house has various options. Since the transfer substitutes for own savings, it can choose to save less each period, keeping 'saving time' and the value of the house constant; it can make a larger down payment, thus reducing mortgage debt; it can purchase a larger house; and finally, it can keep own saving, down payment and the house value constant, reducing saving time. If there are indivisibilities in housing purchases, a large transfer may also allow access to a larger or better house with additional saving effort. In this case saving time may even rise in response to a transfer, depending on the utility effect of the larger house as well as on the size of the transfer. Even if these options are not mutually exclusive, the effect of transfers on saving time is a useful index of the effectiveness of informal markets in reducing the intertemporal distortions induced by mortgage market imperfections.

These issues are particularly important in Italy: the mortgage market is characterized by short maturities (10–15 years is the standard), high interest rate spreads, and down payments often well above 50%. Several factors can account for these imperfections: regulations requiring minimum down payments of 50% of the value of the house, limited competition between financial intermediaries, asymmetric information between borrowers and lenders and transaction costs. Legal costs further inhibit the functioning of mortgage markets. The process of repossessing collateral is extremely cumbersome, due to the length of the judicial process and various protections accorded to debtors. On average, it takes 5.5 years for a bank to repossess the collateral (4 years in the North and 6.6 years in the South, due to geographical differences in the inefficiency of the courts). Net of legal costs, the average share of the mortgage repossessed in case of default is below 60% of the value of the loan granted. In 1991 only 10.2% of the households interviewed reported having mortgage debt; on average, outstanding housing liabilities represent only 2.4% of the gross value of the house. These features of the mortgage market do not discourage Italians from becoming homeowners. The overall home ownership rate rose from 46% in 1961 to 59% in 1981 and over 62% in 1991.

Using duration models, in the second part of the paper we relate saving time for home ownership to demographic variables, permanent income, an index of regional real estate prices and the value of transfers received. Regression estimates indicate that gifts and other *inter vivos* transfers earmarked for home buying shorten the saving period before home ownership and increase the value of the house purchased. For instance, a transfer of 100 million lire cuts saving time by about two years and increases the value of the house purchased by 60 to 70 million lire. This result is robust under various assumptions, in particular with regard to the potential endogeneity of transfers and the effect of time-varying regressors. These results are consistent with

parents behaving in a paternalistic way, deliberately deferring the transfer to the end of the saving period in order to avoid negative incentive effects on the children's propensity to save.

The magnitude of the estimated effects carry important implications concerning the relation between aggregate saving and growth. In the presence of a down payment constraint, saving for house purchases is analogous to saving for retirement. Since in both cases saving occurs before dissaving, in a growing economy the average age of each dollar saved will be less than the average age of each dollar dissaved. Aggregation over households with different propensities to save then leads to the well documented positive correlation between aggregate saving and growth. Potentially, transfers allow households to purchase homes earlier in life, thus lowering the average age of each dollar saved and weakening the saving-growth correlation. In practice, we find that relatively few households receive help for home purchase; most rely entirely on own saving. And even among those who do receive help, transfers have a small effect on saving time. Overall, this paper indicates that gifts are a poor substitute for efficient credit markets. On the basis of this finding, mortgage market imperfections remain a potentially powerful explanation of the high Italian aggregate saving rate and of its positive correlation with the rate of economic growth.

1. Introduction

Private transfers are the chief mode of economic interaction between family members, and as such they can help maintain or reduce disparities in wealth and consumption. Depending on their nature, private transfer decisions can significantly affect the ultimate impact of changes in social security legislation, government debt and transfer policies. Well-timed transfers can make up for insurance and credit market failures and overcome the distortions in the allocation of consumption over time and states of nature induced by financial market imperfections. Accordingly, intergenerational transfers are receiving increasing attention in the policy debate.

Despite their importance to an understanding of households' interactions, the empirical evidence on the effect of transfers on recipients' behavior is scant. In this paper we rely on Italian data drawn from the 1991 Bank of Italy Survey of Household Income and Wealth (SHIW) to determine the effect of intergenerational transfers on the pattern of home acquisition. The magnitude of this effect carries important implications concerning the relation between aggregate saving and growth. As stressed by Deaton (1999), in the presence of a downpayment constraint, saving for house purchases is analogous to saving for retirement. Since in both cases saving occurs before dissaving, in a growing economy the average age of each Euro saved will be less than the average age of each Euro dissaved. Aggregation over households with different propensities to save then leads to the well-documented positive correlation between aggregate saving and growth (Carroll and Weil, 1994). If transfers allow households to purchase homes earlier in life, the average age of each Euro saved falls, thus attenuating the positive effect of growth on saving. In order to understand if mortgage market imperfections can potentially account for the saving-growth link it becomes crucial to establish whether intergenerational affect the timing of home purchases.

In Section 2 of the paper we discuss how intergenerational transfers affect the decision to purchase a house. If they come early in life, bequests (whether intended or involuntary) and gifts directly reduce the time required to save enough to purchase a house. Monetary transfers provide additional resources for home purchase: they increase own funds, make it possible to meet the downpayment or cut saving time. Transfers in kind may have similar effects if the house is acquired from parents or relatives below the market price. The 1991 SHIW contains

a special section in which respondents provide retrospective information on the year in which they received intergenerational transfers, their amount and how they acquired their main residence and any other real estate.

The survey also allows us to construct a proxy for the number of years during which a household saves before purchasing a home. Retrospective information allows us to track individual purchases and transfers in the past 25 years. In Section 4 we thus estimate duration models with time-varying regressors and relate saving time to demographic variables, permanent income, a time-varying index of regional real estate prices and the value of transfers received. Particular attention is paid to the potential bias arising from censored observations. It is found that transfers shorten the hazard rate of becoming homeowner by about 10 percent. Section 5 shows that this result is robust under various assumptions, in particular with regard to the selected sample, the potential endogeneity of transfers and an alternative definition of transfers earmarked for home purchase available in the survey. In Section 6 we find that transfers increase substantially the value of the house purchased. Section 7 summarizes the results and concludes.

2. Intergenerational transfers and borrowing constraints

The size of intergenerational transfers is clearly important in analyzing the process of wealth accumulation. Given capital market imperfections, however, the timing of transfers also matters, not just their amount. In fact, the gain in utility from receiving a transfer earmarked for real estate late in life may be very limited compared with the benefit of receiving the same transfer in periods in which the consumer is credit constrained.

Artle and Varaya (1978) show that mortgage market imperfections can distort the household consumption profile and lead to serious welfare losses. Borrowing constraints in fact force even impatient consumers to reduce consumption early in life in order to accumulate enough assets for the downpayment and enjoy the benefits of ownership. Furthermore, the length of the time over which consumption is compressed is longer the higher the downpayment and the lower the initial amount of assets.[1] Cox(1990) argues that

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[1]Assume that the real interest rate r equals the rate of time preference, and that earnings are constant over the life-cycle, so that optimal consumption and saving are both constant. Let $a(t)$ denote accumulated assets up to

inter vivos transfers, such as financial support from parents or friends, can help individuals constrained in the consumption loan market to raise current consumption.[2]

For the same reason, timely intergenerational transfers can overcome imperfections in the mortgage market by reducing the saving time required to purchase the house, during which consumption is constrained; alternatively, given saving time, transfers allow an increase in current consumption. Since severe mortgage market constraints may discourage individuals from buying altogether, transfers can turn potential tenants into owners. For this to be the case, transfers must take place relatively early in life; only in this case do transfers offset the reduction in utility during the saving period, i.e. the reason why individuals may choose to remain tenants. Late, unexpected transfers might be of little help if they come when a large chunk of lifetime resources has already been consumed.

In short, if timed correctly, transfers could reduce the distortions in the intertemporal allocation of consumption induced by mortgage market imperfections. In the absence of such imperfections, individuals who wish to purchase a house could borrow early in life and repay the mortgage over a long period, which in principle could extend over the entire life. In the presence of borrowing restrictions, households are fully or partly prevented and discouraged from borrowing and must save for the downpayment or for outright purchase. Even if family transfers can help overcome the incentive and information problems that are at the root of credit market imperfections, they cannot entirely substitute for a fully efficient credit market (Altig and Davis, 1989). It is therefore important to establish empirically how far private transfers can go in offsetting capital market imperfections.

These issues are particularly important in Italy: the mortgage market is characterized by short maturities (10-15 years is the standard), high interest rate spreads, and downpayments often well above 50 percent. Several factors can account for these

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age t, s optimal savings (defined as the constant level of non-interest income net of rents minus optimal consumption) over the saving period necessary to meet the downpayment bP, where 1-b is the share of the house price P that can be financed by borrowing, and T the optimal saving time. Optimal saving time is then given by the condition $a(T)=bP$. Integrating the dynamic budget constraint and solving, $T = \frac{1}{r}\ln\frac{rbP + s}{ra(0) + s}$, where $a(0)<bP$ is the initial level of assets. For given s, T is increasing in bP and decreasing in $a(0)$. If the initial endowment $a(0)$ is interpreted as a transfer taking place at t=0, its effect is to reduce saving time for any given saving rate. Obviously, if part of the transfer is used to increase current consumption, the effect on saving time is attenuated.

[2]Guiso and Jappelli (1991) report that some transfers in Italy are targeted towards liquidity-constrained households, which is consistent with the hypothesis that informal markets can ease borrowing constraints. However, since such transfers are not common, most households remain liquidity-constrained even after private

imperfections: regulations requiring minimum downpayments of 50 percent of the value of the house, limited competition between financial intermediaries, asymmetric information between borrowers and lenders, and transaction costs.[3]

Legal costs further inhibit the functioning of mortgage markets. The process of repossessing collateral is extremely cumbersome in Italy, due to the length of the judicial process and various protections accorded to debtors. On average, it takes 5.5 years for a bank to repossess the collateral (4 years in the North and 6.6 years in the South, due to geographical differences in the inefficiency of the courts). Net of legal costs, the average share of the mortgage repossessed in case of default is below 60 percent of the value of the loan granted (Generale and Gobbi, 1996).

A crude but striking indicator of the mortgage markets' imperfections is simply the size of the market. In 1991 only 10.2 percent of the households interviewed reported having mortgage debt; on average, outstanding housing liabilities represent only 2.4 percent of the gross value of the house. The size of mortgages is also modest: only 1.6 percent of homeowners had outstanding loans greater than 60 percent of the value of the property.[4] Focusing on recent home buyers (305 households that purchased a house in 1991), only 11.2 percent have a mortgage in excess of 40 percent of the value of the house (2.3 percent in excess of 60 percent); and 65 percent report no mortgage liability. These features of the mortgage market do not discourage Italians from becoming homeowners. In fact, the overall home ownership rate rose from 46 percent in 1961 to 59 percent in 1981 and over 62 percent in 1991. However, borrowing constraints in the mortgage market dramatically affect the average age at which the house is purchased.

Figure 1 plots the cross-sectional homeownership rate by age.[5] The rate increases very slowly with age, peaking just before retirement, implying that for the majority of households the saving period before home ownership (i.e., the renting period) is substantial.[6] The pattern

transfers have been made. The results of this paper are broadly consistent with this study.

[3]The minimum downpayment was lowered to 25 percent in 1987, and the compulsory minimum was abolished in June 1995.

[4]This suggests that in many cases the purpose of housing loans is to finance repairs and additions, rather than a purchase; the SHIW does not distinguish between the two types of loans.

[5]The figure is obtained by plotting the fitted values of a logit regression against a fifth-order polynomial in age, see the Appendix for details. The data set merges 6 independent cross-sections (the 1984, 1986, 1987, 1989, 1991 and 1995 SHIW), a total of about 50,000 observations. We do not focus just on 1991 (where the age-ownership profile is actually very similar to the one shown in Figure 1) because in Section 4 we want to compare the cross-sectional profile with a cohort-adjusted profile.

[6]Japan exhibits a pattern of housing tenure by age that is similar to the Italian. Hayashi, Ito and Slemrod (1988)

contrasts sharply with other countries, where the home ownership rate peaks much earlier. This is borne out by the average age of first-time buyers: 28 and 29 in the US and UK, respectively, in 1985 as against 41 in Italy in 1991.

Potentially, there is ample role for transfers to affect housing purchase decisions. But to be effective, transfers have to be well timed. Only by chance can bequests serve this purpose. Deliberately overcoming borrowing constraints requires *inter vivos* transfers during the renting period in which the household is saving to buy the house. After receiving a transfer, a household that plans to purchase a house has various options. Since the transfer substitutes for own savings, it can choose to save less each period, keeping 'saving time' and the value of the house constant; it can make a larger downpayment, thus reducing mortgage debt; it can purchase a larger house; finally, it can keep own saving, downpayment and the house value constant, reducing saving time. If there are indivisibilities in housing purchases, a large transfer may also allow access to a larger or better house with additional saving effort. In this case saving time may even rise in response to a transfer, depending on the utility effect of the larger house as well as on the size of the transfer. Even if these options are not mutually exclusive, the effect of transfers on saving time is a useful index of the effectiveness of informal markets in reducing the intertemporal distortions induced by mortgage market imperfections.

Econometric estimates by Engelhardt and Mayer (1995) based on 1,213 first-time buyers from the Chicago Title and Trust Survey indicate that in the US transfers primarily increase the amount of the downpayment, and have little impact on own savings or the amount borrowed. Transfers are also found to have a negative but small impact on saving time and a strong positive effect on the value of the house purchased. Their study is based on a selected sample of households who borrow for home purchase and on a narrow definition of transfers. As will be seen, our data set allows us to take into account censoring (the fact that not all households choose to become homeowners), the exact timing of transfers, and does not limit the definition of transfers to transfers received to meet a downpayment.

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suggest that the main explanation for the difference between the much steeper US profile and the Japanese profile is the downpayment required by creditors. They show, by means of simulations, that a reduction of 20 percentage points in the downpayment ratio could lower private saving by 2 percentage points of national income in Japan.

3. Definition of transfers

The primary purpose of the Bank of Italy Survey of Household Income and Wealth is to collect detailed data on demographics and households' income and wealth.[7] The 1991 survey, covering 8,188 households and 24,930 individuals, is representative of the Italian population. There are two transfer indicators in the SHIW, which we denote as *general transfers* and *transfers earmarked for home purchase*. We discuss them in turn; the questions posed to individuals interviewed in the SHIW are reported in the Appendix.

A special section of the 1991 SHIW asks each member of the household to report the year and amount of bequests and gifts received in the past from parents or other relatives, irrespective of whether the transfer was earmarked for home purchase. This variable allows one to compute the aggregate share of transfers in total wealth, the fraction of households that received transfers and to divide transfers (both in kind and monetary) into bequests and *inter vivos* transfers. Since our purpose is to measure intergenerational transfers, transfers between spouses, which account for a substantial portion of bequests, are excluded. For lack of data no account is taken of intergenerational flows between individuals living in the same household.[8] In case of gifts or bequests inheritance taxes are reported and excluded from the measure of transfers. Panel A of Table 1 shows that 25.9 percent of the households have received transfers over their lifetime (20.3 percent a bequest and 5.6 percent an inter vivos transfer). The average transfer value is Euros 25,900 (equivalent to $31,500 in 1995) and accounts for 24.3 percent of total net worth (20.2 percent bequests and 4.1 percent gifts).

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[7] See Brandolini and Cannari (1994) for discussion of the sample design of the SHIW. The unit of observation is the household, defined as all persons residing in the same dwelling who are related by blood, marriage or adoption. The head is defined to be the person who contributes most to household income (usually the male in nuclear households). The interviews for the 1991 SHIW were conducted in the Spring of 1992. Flow variables refer to 1991 and stock variables are end-of-period values. Given the survey design, different households have different probabilities of being included in the sample. To obtain unbiased estimates of population means, summary statistics are computed using sample weights.

[8] A total of 96 respondents report receiving the house as a bequest or as a gift from the spouse. We treat these assets as purchased by the household. This introduces a small bias in the computation of the share of transfers in real estate wealth because some of the real estates transmitted to the spouse may have been received by the donor as a bequest. Treating all inter-spousal transfers as bequests has a minor impact on the overall share of transfers; for instance, in the last panel of Table 1 the share rises to 26.7 percent (38.1 percent with capitalization of interest).

This estimate of the share of transfer wealth counts all interest on transfers as part of life-cycle saving, not intergenerational transfers. Thus, 24.3 percent is a lower-bound estimate of the share of transfers in total wealth. Kotlikoff and Summers (1981) argue that intergenerational transfers should also include the interest accrued on the transfer. Capitalizing bequests and gifts at a net annual real interest rate of 2 percent, yields an upper estimate of the share of transfer wealth of 35.8 percent (29.5 percent bequests plus 6.3 percent gifts).

Besides general transfers, the SHIW collects also information on transfers earmarked for home purchase. In a separate section respondents provide information about the way they acquired their residence and other real estate.[9] For each property, owned in whole or in part, households report when they acquired and if it was purchased, inherited or received as a gift. In case of purchase, they report whether they received any financial help from parents, relatives or friends in making the downpayment or outright purchase. If the property was purchased from parents, relatives or friends, respondents report whether the full market price or a reduced price was paid. The main drawbacks of the earmarked transfer indicator are that we miss the year in which the transfer was received and that information on transfers is only available for those who actually decided to buy not for renters. These shortcomings induce us to rely mainly on general transfers in the econometric estimates.

However, earmarked transfers can help us in assessing the importance of transfers for home purchase and evaluating the indicator of general transfers. Panel B of Table 1, based on earmarked transfers, reports that about one third of real estate has been obtained with some form financial support (11 percent bequests, 20 percent inter vivos transfers). This suggests that help for home purchase is important, perhaps because consumers have limited access to the mortgage market. The average value of the real estate property is Euros 72,200; on average, Euros 54,400 (75.4 percent) derive from own saving, 10,000 (13.9 percent) from bequests, and Euros 7,800 (10.7 percent) from inter vivos transfers (gifts, financial support or discount price). This shows that Italian households have to rely mainly on their own savings for house purchase. The estimate of the incidence and share of earmarked transfers on real estate wealth reported in Panel B of Table 1 is remarkably close to that of general transfers on total wealth (real estate plus financial assets and durable goods) reported in Panel A. This is

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[9]The information refers only to real estate currently owned and thus excludes transfers received in connection with real estate sold in the past.

reassuring, given that the two sources of information are based on completely different questions and are therefore not necessarily consistent.

In addition to information on the amount and the time transfers were received, SHIW respondents report the age at first employment and the age of the year of home purchase. This allows us to construct a proxy for saving time as age at purchase minus age at first employment and to estimate the effect of intergenerational transfers on that variable and on the value of the house selected. One problem that estimation must handle is that saving time for renters is right censored, because they have not yet purchased a house (and some of them may never purchase one). Since ignoring renters can bias the estimate of the effect of transfers on saving time, for renters we define saving time as the difference between current age and age at first employment.[10]

Recall that for earmarked transfers we do not know the year in which the transfer was made as well as transfers made to households that have not yet purchased the house, two crucial indicators to estimate the impact of transfers on saving time. On the other hand, for general transfers we know not only transfer amounts ever received in the past, but also the year in which of the transfer was received by renters and owners. In the empirical analysis we will therefore rely on the indicator for general transfers, and check the sensitivity of the results for earmarked transfers making suitable assumptions about transfers received by renters and the timing of transfers.

4. Empirical results

We estimate the impact of transfers on saving time restricting the sample in several ways. Young working individuals still living as dependents with their families do not appear as independent households in the survey.[11] Since young, independent consumers tend to be wealthier than average, possibly thanks to financial support from the family, householder

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[10]The direction of such bias is ambiguous because it depends on the way that transfers affect renters' behavior. If it is the case that older renters have not received any transfer, the effect of transfers on saving time will be smaller in a sample of buyers. But suppose that parents offer support to their children for housing in general (rent or purchase) and that the children then decide whether to buy or not. In this case, excluding the right-censored observations could increase the effect of transfers on saving time.

[11]In 1991 the share of income recipients under 30 years old was 19.8 percent, while the share of household heads that young was a tiny 7.6 percent.

younger than 25 at the date of the purchase are excluded from the estimation. This restriction leads to an underestimate of the impact of transfers on saving time. On the other hand, we do not want the results to be driven by a relatively small number of households receiving large transfers early in life.

In principle, we would like to select only first-time buyers and households with plans to purchase a house. Repeat buyers, in fact, face rather different constraints in moving than renters; and households who do not plan to purchase a house may have different preferences and/or opportunities than the rest of the population. The information in the SHIW, however, does not distinguish between these groups. Householders over age 55 are excluded as more likely to have moved in the past and hence to qualify as repeat buyers. Since this limit is arbitrary, we test for the robustness of the results using age thresholds of 50 and 40.

Also excluded are households with missing observations for the year of the transfer, occupation, sector of activity or education. Since a complete series on regional house prices is available only starting in 1967, we drop all households whose purchase was before that year, regardless of age. After these exclusions, the sample reduces to 4,263 households, currently aged 26 to 55. Complete saving time spells are observed for 2,390 households who purchased the house between 1967 and 1991 and older than 25 at the time of purchase. The sample also includes 1,873 renters, for which saving time is right censored.

In our basic specification we define saving time as "age at acquisition less age at first employment": according to the life-cycle model individuals start saving when they start to earn income. For renters saving time spells are censored; for them saving time is therefore "age in 1991 less age at first employment". We experiment also with two other measures of saving time for owners: "age at acquisition less *max*(years of education +6, 18)", on the assumption that people start saving for home purchase immediately after school, and "age at acquisition less 25", on the assumption that household formation coincides with the decision to buy a house and with the beginning of the saving plan (25 is the median age at marriage). The econometric results are not affected by the different definitions. We thus report full results for the basic specification and a brief summary of the results using different definitions.

Saving time exhibits considerable sample variability, ranging from 1 for those who purchased after only one year of work, to 34 for someone who started working at age 20 and purchased at age 55. For most households saving time is substantial, in sharp contrast to the

experience of other countries. For instance, in the United States it averages between 2 and 3 years, depending on the particular sample and definition used (Engelhardt, 1994). In contrast, among Italian homeowners, fewer than 15 percent have saving time shorter than 3 years. As noted, this long saving time is likely due to limited access to credit during the 1967-91 period. Most households were prevented or discouraged from borrowing and had to rely on accumulated savings. Even when they could borrow, the downpayment was generally higher than 50 percent.

Given the nature of our retrospective data constructed on the basis of a single cross-section (we observe in 1991 the saving spells of renters and buyers from 1966 to 1991), we cannot rule out the possibility that saving time is contaminated by time and cohort effects. For instance, it is possible that, given age, earlier cohorts have a shorter saving time, due to a lower price-income ratio for housing, preferences or other effects. Cohort effects in tenure decisions are not identified in our dataset. To assess the potential bias from cohort effects, we compare the cross-sectional age-tenure profile with an estimate of the cohort-adjusted home ownership profile.

The cohort-adjusted profile is obtained from the fitted values of a logit regression against a fifth-order polynomial in age and 10 cohort dummies in 5-year bands (see the Appendix for details). The adjusted age profile, plotted in Figure 1, is similar to the cross-sectional profile, except possibly for older households, suggesting that the age profile is only slightly contaminated by cohort effects in tenure decisions. In fact, the joint hypothesis that the 10 cohort dummies are equal to zero cannot be rejected at the 5 percent significance level.

Table 2 reports means for selected variables for the total sample, owners and renters; each of these groups is further divided into transfer recipients and non-recipients. The construction of permanent income, i.e. the average present discounted value of households' earnings at the time of the purchase, is described in the Appendix. We construct an index of the real price of housing by deflating the nominal price of housing per square meter by the consumer price index; the housing price is available starting in 1967 for 95 provinces[12] and three types of location (center, semi-center and outskirts). There is substantial cross-sectional and time variation in the relative price of housing, with a strong tendency to rise in the largest metropolitan areas (Rome, Milan, Naples), and in the second half of the 1980s. Notice that the

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[12] At the time of the survey Italy had 20 regions and 95 provinces. A province corresponds roughly to a US county.

relative price of housing varies over time and thus represents a truly varying covariate in our econometric analysis.

Within the group of homeowners there are no great differences between transfer and non-transfer recipients in terms of saving time and value of the house purchased. But since the characteristics of the two groups are different, a proper test must control for other factors affecting the timing of purchase, as well as for censored saving time spells. We accordingly relate saving time to a set of personal characteristics, house prices, permanent income and transfer amounts. House prices, area dummies and city size indicators proxy for differences in the conditions of the local housing markets.

Ideally, each of these conditioning variables should refer to the time of purchase. Except for transfers and house prices, however, the variables that potentially affect saving spells are observed only in 1991. Thus we must assume that education and broad categories of sector and occupation of the household head have remained constant since the date of purchase. We also assume that 1991 family size proxies for the expected family size at the time of the purchase.

For our survival analysis, buying a house is considered a "failure" and remaining a tenant is "survival". The Kaplan-Meier estimates of the hazard function, defined as the number of buyers in any saving time interval divided by the population of renters in that period, increases slowly up to saving time 25. Afterwards, it exhibits some noise, with an apparent decline between saving time 25 and saving time 30, and a further increase for the longest saving spells. The shape of the hazard points to the importance of allowing for duration dependence; the declining hazard between saving time 25 and saving time 30 also shows that such dependence may be non-monotonic. Thus, in the empirical estimates we will allow for the most flexible specification of the hazard rate.

In the case at hand, an increasing hazard agrees with intuition. The housing market is characterized by borrowing constraints and indivisibilities in purchases. If a house can only be purchased by accumulating own savings, then only a very good but unlikely realization of income or a significant drop in house prices allow early purchase. Chances of meeting the minimum price, and thus buying, increase with time because savings accumulate. The temporary fall in the hazard rate after saving time 25 reflects either noise, or the fact that older

households are increasingly discouraged from buying.[13]

We relate the hazard rate $h(t)$, where t is saving time, to a set of observable characteristics by estimating a Cox proportional hazard model of the form:

$$h(t) = h_o(t) \exp(X'\beta)$$

where $h_o(t)$ is the baseline hazard rate at time t for the covariate vector o, β a vector of coefficients and X a matrix of observable variables. The advantage of this semiparametric estimator is that the model assumes only that the ratio $h(t)/h_o(t)$ is constant, and requires no assumption with respect to the baseline hazard.

The results are reported in Table 3. Since the behavior of households that receive the house as a bequest - particularly if bequests are unintended - may be different from that of the rest of the population we report results for the whole sample and for the sample that excludes these households. The estimated coefficients measure how the logarithm of the relative hazard $h(t)/h_o(t)$ is affected by a unit change in the explanatory variable.[14] Thus, a positive coefficient indicates that the effect of the variable is to increase the hazard, and therefore to reduce saving time. Saving time is lower for men and falls with education. Larger households have longer saving time spells, presumably because, other things being equal, a larger family requires a more expensive home. The sector, occupation, regional and area dummies are not significantly different from zero. Households living in the Center and in the South have shorter saving time than those living in the North. For residents of large metropolitan areas saving time is significantly longer than for small towns and rural areas.

The effect of permanent income on saving time should depend on the nature of borrowing constraints. Greater resources increase the size of the house that the consumer wants to buy and stimulate higher borrowing: saving time will thus increase if there is an absolute limit on borrowing, or decrease if mortgage availability is proportional to income. The estimated coefficient of permanent income is positive and significantly different from

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[13]The coefficient estimates and the baseline hazard obtained with the Cox model are similar to those estimated by the ordered logit semi-parametric estimator for duration data proposed by Han and Hausman (1990). For brevity the ordered logit estimates are not reported.

[14] It may be easier to interpret the coefficients in terms of hazard ratios, rather than in terms of the log of the hazard rate, i.e. $\exp(\beta)$ rather than β. For instance, for education, the hazard estimate in Table 4 is 1.023, i.e. each year of education increases the relative hazard by 2.3 percent.

zero, suggesting that higher permanent income is associated with shorter saving time, other things equal. The relative price of housing is an important determinant of saving time. Increasing the real price of housing by 1 thousand Euros - about two standard deviations away from the mean - reduces the hazard ratio by exp(-0.31)=49 percent. The coefficient of transfers is positive and very precisely estimated, suggesting that transfers reduce saving time. However, the quantitative effect of transfers is not large. Among recipients the average transfer is Euros 75.92 (see Table 2). Receiving a sizable 75-thousand-Euros transfer increases the hazard rate by 15 percent, exp(75×0.0019)=1.15. As will be seen in the next section, this pattern of results holds for different sample definitions and alternative measures of saving time, and when one takes into account the potential endogeneity of transfers.

The baseline hazard of the Cox model can be estimated non-parametrically as a weighted Kaplan-Meier estimator (Kalbfleisch and Prentice, 1980, p. 84-87). The conditional hazard rate tracks the unconditional hazard estimated with the raw data quite well: controlling for the covariates does not greatly affect the unconditional hazard, and confirms that saving time is characterized by (possibly non-monotonic) duration dependence. As mentioned, one interpretation of duration dependence is that borrowing constraints force households to save prior to purchase. Yet other interpretations cannot be ruled out, because duration dependence may also signal unrecognized heterogeneity (such as attitudes toward savings or preference for home ownership rather than renting) in our sample of individuals.

5. Sensitivity of the estimates

The assumption that our selected sample includes only first-time buyers is a rather strong one. Unfortunately, we lack the information needed to distinguish repeat-buyers; but under our assumption if, say, a 55 year-old who started working at age 25 has just moved to a new house, selling the old one, saving time is automatically set equal to 30. Thus, saving time may overestimate the renting period, especially for the oldest portion of the sample; of course the problem is less serious for young households, whose probability of being repeat buyers is low. The second panel in Table 4 explores the sensitivity of the results when households headed by individuals older than 40 are excluded (for brevity, in this and the following cases only the transfer coefficient is reported). The main results are qualitatively unaffected: a 75-

thousand-Euros transfer cuts the relative hazard rate only by 7.8 percent.[15]

The estimates may suffer from a different selection bias. The relatively elderly householders that acquired homes early on (say, in 1967) report relatively short saving times (to be included in the sample such a household must have purchased a house when the head was relatively young). Thus, restricting the sample to the relatively young tends, by construction, to bias downward the estimated saving time because the age distribution of home acquisition around 1967 is truncated to the right. This selection of older householders into the shorter saving time brackets may interact with the regressors.

This problem is compounded by our implicit assumption that access to credit does not vary over time. As mentioned, increased borrowing capacity generally reduces saving time. Even if few households had access to credit over the period 1967-91, as witnessed by the low level of mortgage loans, the unobserved variability of credit ceilings over time and across households may affect saving behavior and the reliability of the estimates.[16]

We perform several experiments to explore how the sample construction and unobserved credit market conditions might affect the estimates. We restrict the sample to the most recent buyers (1985-1991). The effect of transfers on the hazard rate is again not greatly affected, as is shown in Table 4. Nor are the basic results changed by excluding households with outstanding mortgage debt greater than 20 percent of the value of the house.

For several reasons, extended families, i.e. households sharing living arrangements with parents or other relatives, may behave differently from nuclear families. Intergenerational transfers from the elderly to the young may take place within the extended family but they are not recorded in the survey since only transfers received by the household from outside are reported.[17] The transfers recorded in the survey may have been received by a parent living in the extended family, and may have affected their home purchase decision while being totally unrelated to the decision of the younger household head. The

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[15] Similar results are obtained excluding households with heads older than 45 years.

[16] Saving time spells for households with outstanding mortgage loans does not differ significantly from that for households without mortgages. However, this comparison is not entirely appropriate, because current outstanding mortgage loans may convey little information on the mortgage that was granted at the time of the purchase and also because many mortgages finance home improvements or repairs and may be granted long after the purchase.

[17] Ando, Guiso and Terlizzese (1994) use the panel component of the 1987 and 1989 SHIW and show that movements of elderly persons into and out of younger households have strong effects on the households' net worth.

intergenerational links may be different in extended families.[18] Finally, in these households it is not at all obvious who is the decision maker. We check the sensitivity of the estimates when extended families are dropped from the sample. As is shown in Table 4, the effect of transfers for nuclear families are similar to those obtained in the full sample estimates.[19]

All estimates presented so far may also be affected by bias arising from the endogeneity of transfers. In fact, donor's decisions may partly depend on recipients' behavior. The direction of this bias is ambiguous a priori. For instance, suppose that households with strong desire to purchase a house (and therefore short saving time) deliberately ask for more transfers from their parents and take successful actions to trigger the transfer decision. This behavior would imply a negative correlation between saving time and transfers. Alternatively, consider a household with relatively long saving time; if long saving time signals poor resources, then parents may give more to their less fortunate children. This will produce a positive correlation between saving time and transfers.

Controlling for the endogeneity bias requires a model of transfers, i.e. information on donors' resources and characteristics. Since the 1991 SHIW does not contain such information, we rely on the 1991 sub-sample that was also interviewed in 1993. The 1993 SHIW lacks data on transfers earmarked for real estate but has data on the educational attainment, sector and occupation of the parents, sisters and brothers of the household head and spouse, and information on the income of the household interviewed relative to that of the parents.

The coefficients in Table 5 are based on two-stage estimation. Using a Tobit regression, in the first stage we relate transfer amounts to the same variables included in the second stage and to proxies for the recipients' characteristics, donors' resources and dummies for the presence of brothers and sisters outside the household.[20] Our identification assumption is that transfers are the only channel between parents' characteristics (or income) and saving time. This assumption rules out, for instance, that a family with a taste for thrift and a high income induces children to reduce saving time independently from transfers. The results of the Cox model are again similar. The effect on the hazard rate of a 75-thousand Euros transfer

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[18]Furthermore, the composition of extended families is more likely to have changed since the time of the purchase.

[19]If saving time is defined as "age at acquisition less 20" or as "age at acquisition less *max*(years of education+6, 18)" the effect of receiving an 80-million-lira transfer is also about 2 years.

[20] The complete list of variables included in the first stage is reported at the bottom of Table 5. First-stage results

is 12.7 percent (13.6 percent excluding those that received the house as a bequest). Conditional on the validity of our instruments, this shows that taking the potential endogeneity of transfers into account does not lead to a revision of the effect of transfers on the hazard rate.[21]

6. The effect of transfers on home value

As noted in Section 2, there are several possible uses of transfers: to reduce own savings (and possibly purchase sooner), to increase the size of the house and to reduce borrowing. We test the relative importance of these possibilities by regressing the value of the house against a set of demographic variables, permanent income and the amount of transfers received. Since renters have not yet purchased a house, the coefficients are estimated by Tobit, and renters are treated as censored observations.

The results are reported in Table 6. Each additional Euro of permanent income increases the value of the house purchased by about 4.8 Euro. Each Euro of transfers increases the value of the house by 0.46 Euros (with a *t*-ratio close to 12), thus reducing own savings by 0.54 Euros. The results excluding households that received the house as a bequest show an even larger impact of transfers on the house value (0.58). Qualitatively similar results are obtained restricting the sample to householders older than 40 or the sample to post-1985 buyers.[22]

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are not reported for brevity.

[21] As an additional check on the robustness of the results, we replace the indicator on general transfers with that of transfers earmarked for home purchase. Recall that information on such transfers is missing for renters but that earmarked transfers have the advantage that they are clearly meant to help recipients becoming homeowners. The survey contains also information on in-kind transfers received during the rental period in the form of free availability of parents' and relatives' properties. A significant fraction of renters live rent-free in houses owned by parents, relatives or friends, an important form of in-kind transfer unambiguously earmarked for housing. We construct a measure of the cumulative amount of such transfers by capitalizing at the annual real interest rate of 2 percent the 1991 flow of imputed rents over the entire period in which the household has lived in these apartments. Since for earmarked transfers we ignore the year in which the transfer was made, they cannot be treated as a time-varying covariate. Using the same sample and specification as in Table 3, we find that receiving a 75-thousand Euros transfer increases the hazard by 20 percent, not far from the specification with time-varying general transfers. The difference between the two sets of coefficients reflects not only the different measures of transfers but also between the two estimation procedures.

[22] The effect of transfers on saving time is consistent with the effect on house value Consider a typical renter planning to become homeowner. In 1991 average annual saving for renters is about 4,000 Euros (average disposable income and consumption for renters between age 25 and 55 are 17,820 Euros and 13,790 Euros, respectively, resulting in savings of 4,030 Euros and a propensity to save of 22.6 percent). Ruling out mortgage markets and assuming zero interest rate, for a household that is saving 4,000 Euros a year to purchase a house worth 40-thousand Euros in 10 years, a transfer of 40-thousand Euros makes it possible to buy a house worth 40-

Our results indicate that the main effect of transfers is to increase the value of the house, not to shorten saving time. One way to explain this pattern is that donors act in a paternalistic way. Hall (1986) conjectures that family members often have the means to alleviate the borrowing constraints faced by their less fortunate relatives, but speculates that they rarely do so because families remain paternalistic long after their offspring reach adulthood. Parents do not let their young adult children consume out of their future income until they have proven themselves. For instance, they may be willing to help their children only once the latter have demonstrated the ability to save. To guarantee that the parents' objective is fulfilled, transfers should take place at the end of the saving period, once the potential home buyer has established a reputation for saving. Such behavior would be consistent with a small effect of transfers on saving time and a rather strong effect on the size of the house. A full understanding of the connection between home ownership and transfer motives could be obtained only from specific panel surveys containing data on the timing of transfers and offering detailed information on donors as well as recipients.

7. Conclusions

Bequests and inter vivos transfers are of considerable importance in home purchases: about one third of Italian homeowners report having gotten the house itself as a gift or bequest or having received financial support in making the purchase. The shares of net worth accounted for by intergenerational transfers and that of real estate wealth accounted for by earmarked transfers range from 25 to 35 percent, depending on the assumption about capitalization of transfers.

Regression estimates indicate that bequests, gifts and other inter vivos transfers shorten the saving period before home ownership and increase the value of the house purchased. In particular, a transfer of 75-thousand Euros (the average transfer for transfer

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thousand Euros immediately, a house of 80-thousand Euros in 8 years or any feasible intermediate combination. Now suppose that the household purchases a house for 72-thousand Euros (32-thousand of own savings + 40-thousand in transfers) in 9 years. Regressing saving time on transfers would indicate a reduction in saving time of about 10 percent, and regressing the value of the house a coefficient (i.e., the change in the value of the house divided by the change in transfers) of 0.8, not far from the point estimates reported in Table 6. This shows that the two sets of estimates in Tables 4 and 8 are broadly consistent.

recipients) increases the hazard rate of becoming homeowner by about 15 percent and increases the value of the house purchased by 30 to 35-thousand Euros. Overall, these results are consistent with parents behaving in a paternalistic way, deliberately deferring the transfer to the end of the saving period in order to avoid negative incentive effects on the children's propensity to save.

Borrowing constraints reduce the consumption of the young, the average age at which people start saving and the aggregate saving rate. In principle, transfers earmarked for home purchase can shorten saving time, smooth recipients' consumption and weaken the saving-growth correlation. In practice, relatively few households receive help for home purchase; most rely entirely on own saving. And even among those who do receive help, transfers have a small effect on saving time. Overall, our results indicate that gifts are a poor substitute for efficient credit markets. On the basis of this finding, mortgage market imperfections remain a potentially powerful explanation of the high Italian aggregate saving rate and of its positive correlation with the rate of economic growth.

Appendix
Survey questions and definition of variables

A.   Questions used to compute intergenerational transfers

For each bequest or gift ever received over the lifetime, each household member is asked

1. Year in which the transfer was made.
2. Value of the transfer. This could be either in the year in which the transfer was made, in 1991 or in some intermediate year. In case the household reports the value of the transfer in year other than 1991 we estimate the value of the transfer in 1991 by using the CPI index.
3. Who was the donor? (parent, relative currently living with you, relative not currently living with you, other).
4. Was the transfer a gift or a bequest?

B.   Questions used to compute transfers earmarked for real estate

For each property, owned in full or in part, the following questions are asked

1. What is the share of the property owned by your household?
2. How did you acquire the property? (Purchased from parents or grandparents; purchased from other relatives; purchased from individuals, purchased from business; built by self; inherited from spouse; inherited from parents; inherited from others; received as a gift from spouse; received as a gift from parents; received as a gift from others).
3. In case the property was purchased from parents, grandparents or relatives, the property was purchased at market price? purchased below market price? If so, by what percentage of the price?
4. In case the house was purchased from individuals or business or built by self, how large was the financial contribution of parents and other relatives as a fraction of the purchase price (and, if any, of expenses relative to repairs and improvements)?
5. In case the house was inherited or received as a gift, did you pay inheritance taxes ? if yes, how much as a percentage of the value of the property?
6. When did you acquire this property?

C.   The real price index for housing

The nominal price index for housing is drawn from the series provided by *Il Consulente Immobiliare* and kindly made available to us by Francesco Nucci. The series measures the price of housing per square meter at the end of each half-year; it is available for 95 provinces and 3 categories of housing from 1967 to 1991. We use the end-of-period price for each year as the representative price for the year of purchase. The nominal price is deflated with the consumer price index (base 1991 = 100).

D. Permanent income

Permanent income is defined as the average present discounted value of the stream of future earnings. As in King and Dicks-Mireaux (1982), permanent income is estimated in two steps. Normal earnings are defined as the fitted value of a reduced form equation for the log of earnings, net of taxes and social security contributions. A first stage probit equation takes into account the probability of labor force participation and corrects for selection bias. Households with earnings above 5 million lire are assumed to participate in the labor force. The probit equation for participation includes two dummies for age (under 30 and over 50) and dummies for marital status, number of children, education and region. The reduced form for earnings includes a third-order polynomial in age, five dummies for schooling (none, elementary, junior high school, high school, university), marital status, occupation (operative and laborer; clerical; professional, manager and entrepreneur; self-employed), sector (agriculture; industry; services; public administration), 18 regional dummies, and the selectivity variable. The estimates are conducted on a sample that excludes households with heads older than 60 years.

Permanent income is then calculated by standardizing the fitted values of the reduced form regression for earnings at age 43 (the average age of household heads in the sample) and assuming that over the working life earnings grow at the constant productivity growth rate g; future earnings are then discounted at the constant rate r. It is assumed that the growth rate and the real interest rate are equal; this assumption is convenient because it implies that growth and discount rates "cancel each other out", and that permanent income is independent of the retirement age. The procedure implies that each cohort's income is $(1+g)$ times that of the previous cohort.

E. The cross-sectional and cohort-adjusted homeownership profiles

To estimate the cohort-adjusted home ownership profile we rely on a series of repeated cross-sections used by Jappelli (1999) in an analysis of wealth decumulation after retirement. The data set includes the 1984, 1986, 1987, 1989, 1991, 1993 and 1995 SHIW. Year-cohort dummies are defined in 5-year bands. Households with missing disposable income, disposable income or consumption less than 1 million lire or missing information for homeownership are excluded.

The cross-sectional profile in Figure 1 is estimated by the fitted values of a probit regression on a constant and a fifth-order polynomial in age, treating all observations as a large cross-section. To obtain the cohort-adjusted profile we supplement the basic specifications with cohort and time dummies. Since age, cohort and time are perfectly collinear variables, we estimate the regression excluding the dummy for the oldest cohort and requiring that the year dummies be orthogonal to a time trend and sum to zero (Deaton and Paxson, 1994). The representative age-wealth profile (common to all cohorts) is plotted with triangles in Figure 1. Introducing the sex of the household head, regional dummies, and dummies for self-employment, schooling and family size as additional regressors does not greatly affect either the cross-sectional or the cohort-adjusted profile.

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Table 1

Intergenerational transfers as a source of wealth accumulation

Panel A reports information on general transfers. Panel B reports information on intergenerational transfers earmarked for home purchase. Transfer amounts are expressed in 1991 Lire and then converted in thousands of Euros. The capitalized transfers are computed assuming a 2 percent annual net real rate of return on wealth (housing wealth in Panel B). All statistics are computed using sample weights and are based on the 1991 Survey of Household Income and Wealth. The sample includes 8,188 households. Transfers, wealth and property amounts are expressed in 1991 Lire and then converted in thousands of Euros. The total in the first column does not correspond to the sum of the numbers in the column because some households receive help from more than one source.

A. General transfers

	Incidence of general transfers	Amount (thousands of Euros)	Percentage of net worth
Transfers			
Bequests	20.3	21.6	20.2
Gifts	5.6	4.4	4.1
Total transfers	25.9	26.0	24.3
Capitalized transfers			
Bequests	20.3	31.6	29.5
Gifts	5.6	6.8	6.3
Total transfers	25.9	38.4	35.8

B. Transfers earmarked for real estate purchase

Source of acquisition of real estate	Incidence of earmarked transfers	Amount (thousands of Euros)	Percentage of real estate wealth
Purchased with own funds	-.-	54.5	75.4
Received as a bequest	12.6	10.0	13.9
Received as a gift	4.8	3.8	5.3
Financial support	11.0	3.7	5.2
Price discount	0.5	0.2	0.2
Total real estate wealth	-.-	72.2	100.0
Earmarked transfers	26.7	17.7	24.5
Capitalized transfers	26.7	25.3	34.9

Table 2
Sample characteristics by homeownership and transfers received

For owners, saving time is defined as age at acquisition less age at first employment. For renters, age at acquisition is replaced by current age. Observations excluded are: households not reporting the year of acquisition or the value of the house (if homeowners), those with heads currently younger than 25 or older than 55, those that purchased the house before 1967, and those with missing values for occupation or sector. The real price of housing is the average price during the saving spell. Transfers are the sum of transfers received during the saving spell. The real price of housing (per square meter, deflated by the CPI), permanent income and transfers are expressed in 1991 Lire and then converted in thousands of Euros.

	Total sample	Homeowners		Renters	
		No transfers	Positive transfers	No transfers	Positive transfers
Age at purchase	38.96	36.56	37.39	34.37	43.62
Age at first employment	21.31	21.26	21.47	21.33	21.21
Saving time	17.65	15.30	15.92	13.04	22.41
Home value (if homeowner)	-.-	99.71	98.16	-.-	-.-
Demographics					
Education	9.48	9.50	9.99	9.24	10.26
Male	0.91	0.94	0.91	0.88	0.90
Family size	3.52	3.63	3.51	3.42	3.44
Sector					
Agriculture	0.06	0.06	0.07	0.05	0.06
Industry	0.34	0.34	0.33	0.37	0.31
Service	0.28	0.29	0.26	0.27	0.28
Public Administration	0.32	0.31	0.34	0.31	0.35
Occupation					
Laborer	0.38	0.32	0.34	0.45	0.31
Clerical	0.27	0.28	0.28	0.26	0.28
Manager, professional, entrepreneur	0.12	0.15	0.12	0.10	0.08
Self-employed	0.23	0.25	0.26	0.19	0.33
Regional dummies and prices					
North	0.42	0.41	0.42	0.43	0.49
Center	0.19	0.21	0.16	0.17	0.22
South	0.39	0.38	0.42	0.40	0.27
Real price of housing	1.01	0.83	0.83	1.25	1.20
City size					
< 10,000	0.16	0.18	0.24	0.13	0.19
10,000-100,000	0.20	0.20	0.24	0.18	0.22
100,000-500,000	0.46	0.46	0.43	0.47	0.45
> 500,000	0.18	0.16	0.09	0.22	0.14
Resources					
Permanent income	16.13	16.95	16.40	15.01	17.44
Intergenerational transfers	16.22	0.00	75.92	0.00	58.52
Number of households	4,263	1908	482	1,714	159

Table 3
The determinants of saving time: Cox proportional hazard model

The coefficients in the table indicate the effect of the independent variables on the logarithm of the relative hazard, $\lambda(t)/\lambda_o(t)$. The base hazard is estimated non-parametrically. For owners, saving time is defined as age at acquisition less age at first employment. For renters, age at acquisition is replaced by age in 1991. Observations excluded from the estimation are: households not reporting the year of acquisition or the value of the house, households with heads currently younger than 25 or older than 55, those that purchased the house before 1967, and those with missing values for occupation or sector. The real price of housing, permanent income and transfers are expressed in 1991 Lire and then converted in thousands of Euros. Attributes excluded from the regressions are: employed in the industrial sector, operatives, resident in the North, living in cities over 500,000 inhabitants.

	Total sample		Excluding households that received the house as a bequest	
	Coefficient	t-statistic	Coefficient	t-statistic
Demographics				
Education	0.0231	10.77	0.0213	8.90
Male	0.0602	2.17	0.0891	2.81
Family size	-0.0041	-0.68	0.0031	0.45
Sector				
Agriculture	-0.0091	-0.30	0.0047	0.14
Service	-0.0298	-1.68	-0.0023	-0.11
Public Administration	-0.0689	-3.78	-0.0642	-3.20
Occupation				
Clerical	0.2429	11.79	0.2503	11.01
Manager, professional, entrepreneur	0.2156	7.81	0.2005	6.58
Self-employed	0.1940	9.68	0.1752	7.87
Regional dummies and prices				
Center	0.1141	6.16	0.1770	8.76
South	0.1665	9.48	0.1609	8.18
Real price of housing	-0.3099	-15.91	-0.3182	-14.92
City size				
< 10,000	0.4055	16.61	0.3721	13.96
10,000-100,000	0.2693	11.51	0.2397	9.37
100,000-500,000	0.1536	7.45	0.1341	6.06
Resources				
Permanent income	0.0230	12.61	0.0290	14.40
Transfers	0.0019	6.97	0.0023	2.87
χ^2 (17)		2021		1870
Number of households		4263		3765
Number of records		51155		45051
Median saving time		13		13

Table 4
The effect of transfers on saving time. Sensitivity analysis

The table reports the coefficient of intergenerational transfers in the Cox proportional hazard model for various samples and definitions of saving time. Transfers are measured in 1991 Lire and then converted in thousands of Euros.

Specification	Number of households	Median saving time	Coefficient of transfers	t-statistic
Basic specification	4263	13	0.0019	6.97
Excluding age> 40	2595	9	0.0010	2.85
Excluding purchases before 1985	2843	14	0.0025	6.30
Excluding loan-to-value ratio>0.2	4067	14	0.0021	7.41
Excluding extended families	3921	13	0.0021	7.07
Saving time = age at purchase - max [years of education+6; 18]	4263	16	0.0024	8.24

Table 5
The effect of transfers on saving time: 1991-93 panel

The coefficients measure the effect of the independent variables on the logarithm of the relative hazard, $h(t)/h_o$. The base hazard is estimated non-parametrically. The regressions use the predicted transfer amounts from a first stage Tobit regression. The first stage includes all variables of the second stage regressions, dummies for the educational achievement of the household head and of the spouse, dummies for the income of the head's and spouse's parents relative to that of the household; dummies for the occupation of the heads' parents, and dummies for the presence of brothers and sisters outside the household. Standard errors are not corrected for two-stage estimation. For owners, saving time is defined as age at acquisition less age at first employment. For renters, age at acquisition is replaced by age in 1991. Observations excluded from the estimation are: households not interviewed in 1993, households not reporting the year of acquisition or the value of the house, households with heads currently younger than 25 or older than 55, those that purchased the house before 1967, and those with missing values for occupation or sector. The real price of housing, permanent income and transfers are measured in 1991 Lire and then converted in thousands of Euros. Attributes excluded from the regressions are: employed in the industrial sector, operatives, resident in the North, living in cities over 500,000 inhabitants.

	Total sample		Excluding households that received the house as a bequest	
	Coefficient	t-statistic	Coefficient	t-statistic
Demographics				
Education	0.0134	3.32	0.0100	2.12
Male	-0.0756	-1.71	-0.0512	-1.03
Family size	-0.0077	-0.80	0.0090	0.83
Sector				
Agriculture	0.1039	2.21	0.1142	2.11
Service	0.0457	1.68	0.0788	2.61
Public Administration	-0.0454	-1.64	0.0117	0.38
Occupation				
Clerical	0.2343	7.83	0.2391	7.14
Manager, professional, entrepreneur	0.1590	3.83	0.1178	2.53
Self-employed	0.1794	5.98	0.1645	4.88
Regional dummies and prices				
Center	0.0778	2.79	0.1604	5.21
South	0.1387	5.49	0.1475	5.13
Real price of housing	-0.2531	-8.68	-0.2554	-7.93
City size				
< 10,000	0.3747	6.36	0.3051	4.67
10,000-100,000	0.2872	5.40	0.2320	3.98
100,000-500,000	0.2094	4.69	0.1619	3.37
Resources				
Permanent income	0.0207	7.67	0.0289	9.51
Transfers	0.0016	4.14	0.0017	3.82
χ^2 (17)		882		1871
Number of households		1,885		1625
Number of records		22942		19580
Median saving time		13		13

Table 6
Tobit estimates. Dependent variable: Value of the house

The value of the house, permanent income and transfers are expressed in 1991 Lire and then converted in thousands of Euros. Observations excluded from the estimation are: households not reporting the year of acquisition or the value of the house (if homeowners), households with heads younger than 25 or older than 55, those that purchased the house before 1967 and those with missing values for occupation or sector. Excluded attributes are: employed in the industrial sector, operatives, resident in the North, living in cities over 500,000 inhabitants. Each regression also includes a constant term.

	Total sample		Excluding those who received the house as a bequest	
	Coefficient	t-statistic	Coefficient	t-statistic
Demographics				
Education	1.329	6.79	0.754	3.44
Male	8.908	3.69	11.966	4.38
Family size	-0.751	-1.32	0.116	0.18
Sector				
Agriculture	2.211	0.76	6.046	1.87
Service	-0.941	-0.56	3.071	1.71
Public Administration	-11.305	-6.78	-9.745	-5.28
Occupation				
Clerical	27.520	14.66	26.312	12.63
Manager, professional, entrepreneurs	31.104	12.23	27.157	9.62
Self-employed	33.593	18.31	30.962	15.12
Region				
Center	20.087	11.76	29.074	15.35
South	7.569	4.66	7.363	4.04
Real price of housing	-64.456	-37.25	-66.095	-34.55
City size				
< 10,000	18.289	8.25	11.138	4.55
10,000-100,000	3.318	2.08	-2.175	-0.95
100,000-500,000	-6.231	-3.49	-8.709	-4.49
Resources				
Permanent income	4.810	27.78	5.794	29.98
Transfers	0.462	11.96	0.583	5.08
Number of households		4263		3765
Number of records		51412		45051

Figure 1
The cross-sectional and cohort-adjusted homeownership profile

The figure plots with diamonds the cross-sectional homeownership rate by age and with stars the cohort-adjusted profile. The cross-sectional profile is estimated by the fitted values of a logit regression against a fifth-order polynomial in age. The data set merges 6 independent cross-sections (the 1984, 1986, 1987, 1989, 1991, 1993 and 1995 SHIW), a total of about 50,000 observations. The cohort-adjusted profile is estimated on the same data set by the fitted values of a logit regression against a fifth-order polynomial in age and 10 cohort dummies in 5-year bands.
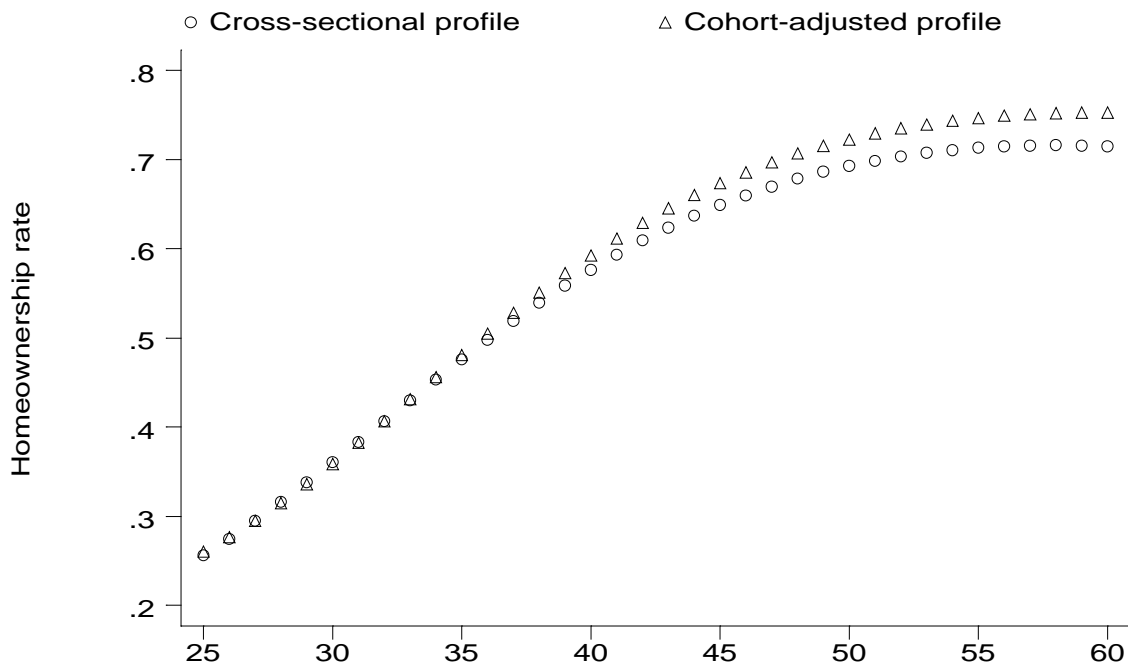

Figure 1: 1984-1995 SHIW