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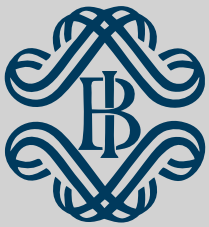

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Research Preject on Saving in Italy

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The purpose of the «Temi di discussione» series is to promote the circulation of working papers prepared within the Bank of Italy or presented in Bank seminars by outside economists with the aim of stimulating comments and suggestions.

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Bequests and Saving for Retirement. What Impels the Accumulation of Wealth?

by Fabrizio Barca, Luigi Cannari and Luigi Guiso (*)

Abstract

Using direct information on the origin of real estate holdings of Italian households, we compute the share of wealth inherited or received as an inter-vivos (donationis causa) transfer. On average, two out of five households in the sample acquired ownership through intergenerational transfers. The share of intergenerational transfers in the value of real estate ranges from 35 to 49 per cent, depending on whether the return on bequests is capitalized or not.

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1. Introduction[1]

This paper is an attempt to answer an age-old but important question: namely, what is the relative importance of bequests and saving for retirement in the process of wealth accumulation? To this purpose we will provide evidence on the extent of intergenerational transfers using cross section information on the origins of the real estate holdings of Italian households.

Before the life-cycle theory of Modigliani and Brumberg (1954) came to dominate the theoretical field of saving, there was probably little doubt that leaving a bequest was the main, or perhaps the only motivation for saving. Indeed, at the end of the previous century (and for many decades thereafter) the assessment of the relative importance of the origins of accumulated wealth was not a central question for economists. They were concerned, rather, with estimating the wealth of nations.

Infact, the belief that bequest was the motive for saving enabled the French statistician Alfred de Foville to put forward in 1887 a simple but ingenious method for estimating the wealth of a nation.[2] The idea was to use information on bequests received by the population in a given year to infer the value of the total stock of wealth. If bequests received are simply passed over to the next generation, and if the generational gap (i.e. the number of years between two subsequent transfers of wealth), and society's "demological laws" are not altered by rapid changes (Pantaleoni, 1890), then the wealth of a nation is simply equal to the generation gap times the flow of bequests observed in a

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1. We wish to thank Elsa Fornero and Nicola Rossi for helpful comments. We are also grateful to Liliana Pulcini for her help in revising this paper.

2. This was pointed out to us by Ignazio Visco.

given year.[3]

This method is now known as the method of flows (see Section 3) but given that it is now acknowledged that wealth is also decumulated before death[4], the method is consistently used only to estimate that part of the stock of wealth due to intergenerational transfers.

There are several reasons for inquiring into the importance of transfers between generations as a source of accumulation. Besides the obvious intellectual curiosity of understanding people's behaviour, the presence of significant bequests might have important consequences for policy, depending on the reasons people bequeath part or all of their wealth.

It is well known that the "Ricardian neutrality proposition" rests on the assumption that links exist between successive generations. These are made operative by a network of intergenerational transfers motivated by altruism.

Moreover, the impact on the stock of wealth of variables such as life expectancy, retirement age, the composition of the population by age, the structure of the social security system and average household size may depend on whether saving is

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3. The method, originally invented by Alfred de Foville (1887) was further discussed and implemented by two Italian economists, Maffeo Pantaleoni (1890) and Francesco Coletti (1907). They thought that "blowing-up" the flow of bequests for a given year (estimated from information on probate duties), using as the blow-up factor an estimate of the average age gap between testator and legatee, was a way to estimate the wealth of the nation. Of course, this procedure is correct only if no decumulation of wealth takes place over the life cycle. Notice also that the de Foville formula applies to a stationary economy or to one growing on the golden rule path.

4. Wealth decumulation by the elderly is controvertial. See, among others, Hayashi, Ando and Ferris (1988), Bernheim (1986), Mirer (1979) and Hurd (1989).

impelled by bequests (Modigliani, 1988).

Furthermore, if one views inheritance as a way to transmit to future generations not only the bien de famille but also the ownership of productive capital (and hence the control over it), then bequests, as well as a determinant of the distribution of wealth, become a crucial factor in the efficient allocation of capital.

In Section 2 we summarize the available methods for evaluating the importance of bequests and contrast our approach with others. We outline the essential formal structure used in computation in Section 3 and present the results of the calculations made with our method in Section 4. In Section 5, to verify the robustness of the results, we provide an alternative estimation based on a variant of the method of flows (see next Section). As a by-product we obtain a time series of the flows of bequests of land and buildings from 1954 to 1982. In Section 6 we offer additional empirical evidence on the role of bequests as a determinant of saving, based on examining self-reported motives for saving.

2. Evaluating the importance of intergenerational transfers

In spite of numerous shortcomings the share of a country's wealth that derives from bequests or gifts, is widely accepted as a measure of the importance of intergenerational transfers in the process of accumulation.[5] Kotlikoff and Summers (1981), extending and improving on the methodology devised by White (1978) and Darby (1979), offer the startling finding that around 80 per cent of the wealth held by households in the United States derives from bequests, only 20 per cent being then explained by life cycle saving. They conclude, accordingly, that models of saving

5. See Modigliani (1988) for a discussion.

based on the life cycle as the primary source of accumulation should give way to approaches that shed light on the determinants of intergenerational transfers.

To estimate the share of inherited wealth, Kotlikoff and Summers adopt two alternative methods. The first, which we shall call the method of flows, uses the mortality rates and the distribution of wealth by age in a given year to estimate the flow of bequests. This is then converted into a stock by assuming that both the age difference between testator and legatee and the ratio of the value of bequests to that of capitalized earned income remain constant through time.

The second method is more complex and involves attributing total national earnings and consumption to the individuals belonging to the various age groups by means of the profiles of consumption and earnings by age in a given year. The stock of wealth accumulated by each individual during his lifetime is obtained by cumulating and capitalizing his savings (defined as the difference between earnings and consumption) from working age onwards. This stock is defined as life cycle wealth. The individual data are summed up to obtain aggregate life cycle wealth. Inherited wealth is then obtained as the difference between total and life cycle wealth. We shall call this procedure the attribution method.

Both methods have undesirable aspects that affect the quality of the estimate they produce. The first method rests on the rather strong assumption of the economy being in steady state. The estimated share of inherited wealth, moreover, is sensitive to the hypothesis regarding the age gap between the testator and the legatee. The second resorts to numerous assumptions whose effect on the final result cannot be readily interpreted. The choice of method is not inconsequential; for example, Kotlikoff and Summers calculate the share of inherited wealth at 46 per cent using the method of flows and 81 per cent

with the attribution method.

In this paper we shall estimate the share of inherited wealth in Italy by means of an alternative method which avoids some of the problematic assumptions embedded in Kotlikoff and Summers' calculations and which does not require the economy to be in steady state. As will be discussed at length in Section 4 we use direct information on the source of households' wealth, drawn from the 1987 Survey of Italian Households Income and Wealth (SHIW).

3. The formal structure

Consider the equation of accumulation of wealth of a consumer or a household (if the latter is the economic unit of reference):

$$W_t = (1+r)W_{t-1} + Y_t - C_t + E_t$$

where t is working age, W_t is the end-of-period stock of wealth, Y_t is after-tax earned income, C_t is expenditure on consumption. In every period the consumer may receive a bequest, E_t. Given his/her wealth from the preceding period (which yields a rate of return equal to r) and given the value of earned income and of the bequests received, the equation defines the stock of wealth holdings at the end of the period. His/her saving for the period is $S_t = Y_t - C_t$.

Assuming that the individual's stock of wealth is zero at the time he reaches working age (t=1), the current value of wealth W_t can be expressed as:

$$W_t = \sum_{i=1}^{t} (1+r)^{t-i} S_i + \sum_{i=1}^{t} (1+r)^{t-i} E_i = W_t^L + W_t^E$$

The first term of the expression is the sum of the individual's capitalized life savings to time t. This is the portion of wealth attributable to the life cycle under Kotlikoff and Summers' definition, which we designate as W^L. The second component, W^E, represents inherited wealth. A measure of the importance of intergenerational transfers in the process of accumulation is given by the ratio:

$$\alpha_E = \frac{W_t^E}{W_t}$$

This measure of the importance of bequests warrants some discussion. In the first place, bequests will be observed even in the absence of an express desire to make them when length of life is uncertain; these unintentional bequests, which may not be negligible, are obviously compatible with the life cycle theory, whose basic implications are unaffected by the introduction of uncertainty regarding length of life.[6] However, a high value of α_E may signal the presence of significant intentional bequests.

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6. An indicator (probably biased downwards) of the importance of intentional bequests is the ratio of the annual average number of wills and deeds of gift to the annual average number of deaths of individuals aged 24 and more. Deaths of individuals younger than 24 are excluded from the denominator, which is a measure of the potential number of intergenerational transfers, since the probability of death of persons younger than 24 who are in a position to write wills is virtually nil. For the decade 1971-80 the average ratio is 30 per cent. The number of wills and deads of gift would be an improper measure of voluntary bequests, if those actions were taken only with the intention of determining the distribution among siblings of wealth involuntarily left at death. It is however reasonable that whenever there is concern for the division of an estate there is also concern for its extent.

In the second place, inherited wealth may be defined in different ways. In the equation above, W^E includes both bequests and the interest accrued thereon. This definition is consistent with the pure life cycle model, where, in the absence of bequests, wealth consists of the capitalized value of the sum of earned income less the capitalized value of the sum of spending on consumption. An alternative course is to attribute the interest on bequests to current income and to define saving as $\tilde{S}_t = rW_{t-1} + Y_t - C_t$. In this case the breakdown of wealth is:

$$W_t = \sum_{i=1}^{t} \tilde{S}_i + \sum_{i=1}^{t} E_i = W_t^{\sim L} + W_t^{\sim E}$$

Modigliani (1988), in his critique of Kotlikoff and Summers, gives two reasons for preferring the second definition. Because $\tilde{S}$ conforms with the usual practice of considering savings as the difference between disposable income (including all interest income regardless of the origin of the wealth on which it accrues) and consumption. And because "...one can measure directly what bequests have been received, but there is no way of telling whether some years later the wealth of the recipient will be larger by the capitalized value of the bequests, or whether instead the recipient will have consumed some or all of the return or even some of the principal" (p. 31).

Conformity with customary definitions is not in itself a good reason to prefer one procedure to another, except when it facilitates statistical comparison. Modigliani's other point is more substantial, as it brings to light the fact that the first procedure can result in a value of α_E that is greater than one. But this result is only apparently contradictory. It is obtained if the individual's lifetime consumption exceeds lifetime earnings and is thus financed by intergenerational transfers.

In general which method is more appropriate dipends on the effects on the level of consumption of interests earned on bequest.[7]

Thus, while the measure proposed by Kotlikoff and Summers provides a better representation of the share of inherited wealth if interests on bequest are fully saved, Modigliani's method is the correct one if interests on bequest are fully consumed. Lacking a way to solve this issue, we shall report the results obtained by applying both definitions of savings. The truth, as it is often the case, should lie in between the two.

4. Empirical findings

The Bank of Italy Survey provides data on the value of real estate holdings of households and the way they were acquired. Each individual property is identified as having been purchased, built to order by the household, inherited or received as a gift. In addition, respondents supply data on the year they assumed ownership, making it possible a precise calculation of the capitalization of the return on bequests.[8]

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7. Attributing interests on bequests to income involves the drawback of the resulting measure of life cycle wealth not being independent of the value of these bequests. As Modigliani notes, the measure proposed by Kotlikoff and Summers also is not independent of the value of bequests if the latter influence consumption choices. If all interests on bequests are spent, the measure of life cycle wealth proposed by Modigliani will be independent of bequests. By contrast, if all interests on bequests are saved, Kotlikoff and Summers' measure will be independent of the flows of bequests. The latter will always be true if in steady state the "golden rule" obtains so that r=n, where n is the growth rate of the economy.

8. Some survey respondents did not indicate the year they received the bequest. In this case (159 occurences out of 2,354 observations) the year was imputed on the basis of the average year in which individuals of the same age cohort received bequests.

Of a total sample comprising 8,027 households, 1,913 households (24 per cent) either inherited real estate (21 per cent) or received it as a gift (3 per cent).[9] These households represent 38 per cent of all real-estate-owning households. The fact that two out of five households acquired ownership of real estate through intergenerational transfers is by itself an evidence that bequests play an important role in the accumulation of wealth.

Before presenting the results on the share of real estate wealth acquired through bequest, several points should be taken into account. First, the survey does not contain information on the origin of other forms of households' wealth, particularly durable goods and financial assets (including rights over fixed capital other than real estate), nor it offers any evidence on the amount of taxation that people inheriting had to bear due to bequest itself. As a result, we can only estimate the gross real estate component of inherited wealth and then calculate its share of overall wealth.

The second point concerns two possible sources of underestimation of intergenerational transfer of real estate wealth in the survey. Real estate can be bequeathed by transfering the ownership of a company to which the estate belongs: in this case, the inheritance is likely not to be declared in the interview. Furthermore, inheritance being concentrated in high income households, there might be significant undereporting.

A further source of underestimation can, instead, be taken care of. If an inherited property has been sold by the receiver

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9. In a survey conducted by Doxa-Centro Einaudi in 1989, a total sample of about 1000 households 25.4 per cent declared to have been the beneficiary of an inheritance.

before the time of the interview, it will be reported in the survey by the buyer as a property aquired through purchase. To correct for that, let q_k be the probability of the respondent indicating at time t that he inherited the property. Let Π be the probability of inheriting a property and p be the probability of an inherited property being sold in any given year. We have $q_k = \Pi(1-p)^{t-k}$, where k is the year the property was acquired. Therefore, q_k/Π will indicate the probability of the inherited property not having been sold between the time it was inherited and the time of the interview.

Taking account of the above and using the symbols already introduced, the value of wealth inherited in the form of real estate can be estimated as:

$$W^E_t = \sum_{k=1}^{t} [(1+r)/(1-p)]^{t-k} \cdot E_k$$

In the calculations it is assumed that the probability of an inherited property being sold is equal to the probability of a property being sold. Based on the data of the 1984, 1986 and 1987 surveys, this probability is estimated at 0.95 per cent on an annual basis.[10]

The rate of return used for capitalization draws on survey data on the gross return on real estate and is equal to an

10. This value should underestimate p, since the probability of an inherited property being sold is almost certainly higher than the probability of a property-in-general being sold. In fact, sales of inherited properties accounted for about 67 per cent of total property sales in 1987, the only year for which the survey allows us to draw this distinction.

average of 3.1 per cent for leased properties[11] and 3.9 per cent for owner used properties. To obtain the value of the net return, it was assumed that buildings have an average life of 50 years and depreciate at a constant rate of 2 per cent a year.

Table 1 shows the results of the calculations with and without the adjustment for the probability of sale of an inherited property and with and without the capitalization of the return on bequests. Bequests and gifts as a share of the total value of properties are shown respectively in columns 1 and 2. Assuming gifts to be similar in all respects to bequests, total intergenerational transfers is reported in column 3.

Without the capitalization of interest, the share of intergenerational transfers is 35 per cent, a considerable figure though not necessarily incompatible with the life cycle model. If the return on bequests is capitalized, the share rises to 49 per cent, nearly one and a half times that obtained without capitalization.[12]

The estimated value we obtain is high. It is nevertheless much lower than that estimated by Kotlikoff and Summers for the United States with reference to total wealth by means of the

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11. For the period before a fair-rent law was introduced, the rate of return on leased properties should be the same as that on owner-occupied properties. By adopting a rate of return of 3.1 per cent we are therefore underestimating the capitalized value of bequests.

12. Taking account of the fact that 60 per cent of properties are used by their owners, the average net rate of return on properties implicit in the capitalization is around 1.6 per cent. The average implicit capitalization period is thus about 20 years. Calculated as a weighted average on total inhereted wealth, using as weights the shares of bequests, the average period of capitalization is 18 years. Note that the average period of capitalization is different from the average intergenerational age gap that needs to be known if the method of flows is adopted. Using the survey sample, we estimate that gap at 30 years.

attribution method; it is more similar to their estimate based on the flow of bequests. These figures are consistent with the estimates of Rossi and Vendramin (1990), who apply for Italy the method of flows (once account is taken of the fact that they exclude gifts).

While we cannot supply an estimate of the share of total inherited wealth, we can provide a lower limit for it. Since wealth in the form of real estate represents roughly 65 per cent of total households wealth, the share of the latter attributable to intergenerational transfers is at least 32 per cent when interest is capitalized and 23 per cent when it is not.

These minimum levels are a good approximation of inherited wealth as a proportion of total wealth if we assume that individuals totally decumulate their financial wealth before dying, i.e. that no intergenerational transfers of financial assets are made. A glance at the cross sectional age profiles of wealth shows that average rates of decumulation of real wealth and financial wealth are roughly similar. Between age group 51-60, where maximum accumulation is reached, and age group 76-80, total decumulation is approximatly 60 per cent for both categories of wealth (Table 2).

If we assume that the two sources of underestimation of our share of real estate - bequeathing by transfering ownership of companies which own real estate and undereporting of wealthy households - compensate for the fact we have not taken into account inheritance taxation, we could conclude that inherited wealth might not unreasonably account for some 50 per cent of total wealth if interest on bequests is capitalized or 35 per

cent if Modigliani methodology is followed.[13]

5. An alternative estimate

As an alternative to the method adopted above, the survey data can be used to estimate the annual flow of bequests of real estate for the population of households. Assuming that the economy is in steady-state, the annual flow can be capitalized and transformed into a stock which can be compared with total observed wealth in the form of real estate. The method is similar to Kotlikoff and Summers' method of flows.

As noted in the introduction, a problem with this procedure is that the economy must be assumed to be in a steady state. It is nonetheless useful to carry out the calculation as a control on the previous results, while an historical series of the flows of bequests of real estate can be obtained as a by-product. Unlike the previous case, the stock obtained will be compared to a stock of households' wealth in the form of real estate that is derived from a different source. The comparison might lead to an underestimation of the share of inherited wealth. Infact, previous work has shown that the Bank of Italy survey tend to underestimate households residential building[14]:

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13. Without the contentious capitalization of interest, the share estimated for Italy is higher than that computed for the United States by Modigliani (1988), who places the share at between 17 and 20 per cent. Our estimate of 35 per cent is still higher but somewhat closer to that for the U.S. obtained by Hurd and Mundaca (1989) who, taking gifts into account, estimate a share in the range of 20-30 per cent. The share of inherited wealth in Italy is instead equal to that for France and Canada reported by Kessler and Masson (1989).

14. According to Cannari, D'Alessio (1990), the number of residential building is underestimated by the survey by about 35 per cent. The underestimation does not effect the first method, where the survey is the only source for the data.

flows of bequests of total real estate are then likely to be underestimated too.

Two key data are used to estimate the value of the flows of bequests (at 1987 prices): the year k when the bequest was received, and the age t of the head of household at the time of the interview. If the entire population living in year k were also alive at the end of 1987 (the survey year), the flow of bequests for year k could be estimated by scaling up the survey figure to the population. Infact, part of the population in year k did not survive to the end of 1987, so that individuals who received a bequest in year k and died before the end of 1987 were not included in the survey sample. As a result, the flow of bequests for year k obtained from the survey underestimates the real flow. This underestimation can be corrected, however, by dividing the flow of bequests in year k resulting from the survey by the probability of an individual aged t-(1987-k) in year k having survived to the end of 1987. The correction was made by using the mortality tables for each year k starting in 1950. Earlier years were not considered because the variance of the estimate tends to increase as k diminishes.

Table 3 shows a 9-terms centred moving average of the annual flow of bequests. A moving average was adopted because responses on the year of bequest tend to be concentrated at the end of decades, the latter having probably acted as a focal point.[15]

The data show that the flow of bequests grew rapidly from the fifties until 1972, then declined slightly and subsequently stabilized at around 34 trillion lire. An interpretation of the

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15. This problem should not create any serious distortion in the previous calculation of the capitalization of the return on bequests if, as it may be reasonably assumed, the years in which bequests were actually received are symmmetrically distributed around the years reported.

behaviour of the series is beyond the scope of this paper.

In estimating a historical series of inherited wealth in the form of real estate, we use as a reference variable only the flow of bequests in each year, assuming the economy to be in steady state. For a growth rate of per capita output equal to n, the stock of inherited wealth, under the hypothesis of capitalization of interest, will be:[16]

$$W_E = \frac{e^{(r-n)g} - 1}{r-n} E$$

where g is the average age gap between the testator and the legatee. We estimated the intergenerational age gap for 1987 at around 30 years. The lengthening of the average life span over the past 60 years has probably somewhat widened the gap. For the exercise we have to conduct, which capitalizes flows of bequests to recipients belonging to around 65 cohorts (from age 20 to age 85), it is more reasonable to assume a narrower gap of, say, 25 years.

In accordance with the hypotheses underlying the previous calculations, we assume a net rate of return of 1.6 per cent. For productivity, it is reasonable to assume an average annual growth rate of between 2.5 and 3 per cent:[17] in the computation we set n = 0.028. With these values for the parameters g, r and n, the

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16. This is the correct formula if all the bequests take place at death. It should be modified if intergenerational transfers occur before the date of death. On this point, see Modigliani (1988) and Kotlikoff (1988).

17. Per capita GDP grew at an average annual rate of 0.8 per cent between 1931 and 1951, 4.9 per cent in 1952-70 and 2 per cent in 1971-85. The average annual growth rate for the entire period is 2.4 per cent.

factor of capitalization is equal to 21.6. The series of the stock of bequests for the years from 1976 to 1982 is given in Table 4. The data are expressed in current prices to make them comparable with the series of the total stock of wealth in the form of real estate. The share of inherited wealth is shown in column 4. The estimate so obtained is lower than that previously obtained by direct calculation: the difference could be partly explained by the mentioned underestimation of real estate wealth in the survey.

The additional information concerns the stability of the share at around 32 per cent from 1978 onwards. Column 5 shows the value of the share of inherited wealth in the form of real estate in the case of a golden-rule economy, where r=n; the factor of capitalization in this case is equal to g, so that the value of the stock is W^E=g.E. The last column gives the estimate of the share in the absence of capitalization, again assuming average annual growth of productivity of 2.8 per cent. The "blow-up" factor is in this case $(1-e^{-ng})/n$. The estimate of the share is similar to the one previously obtained. In the light of these figures, the results previously arrived at with the direct method appear to be relatinely robust.

6. Individuals' reported reasons for saving

This section supplements the results with available empirical evidence on the reasons individuals themselves give for saving. The way in which households classify and justify their own actions does not constitute a test of the significance of those actions (or their purposes) in individuals' objective function; nonetheless, if leaving bequests is an important reason for accumulating resources, this should be confirmed by the information supplied by individuals on the specific motives of their behaviour. The practice of assessing alternative theories in the light of interviews on the subjective reasons for saving

actually dates back to the early sixties, when the question of the importance of the bequest motive vis-à-vis the life cycle in determining the accumulation of wealth was already being raised (see Modigliani, 1988).

The evidence available to us comes from the CENSIS survey of households' savings and investments (1986), conducted on a nation-wide sample of 3,000 households, and the BNL report on saving (1988), based on a sample of 1,013 households.

The results of these surveys are set out in Table 5. The CENSIS survey contains a detailed breakdown of the reasons for saving and cannot be compared directly with the BNL survey. The bequest motive (identified with the response "to provide for one's children") is designated as the primary reason by 23 per cent of the respondents, "saving for old age" by 23 per cent and "contingencies" (including illness) by 22 per cent. These figures would appear to lend equal weight to the three main theories of saving, which can be labeled as "precautionary saving", "consumption smoothing" and "bequest-motivated saving". However, it is not easy to attribute the remaining share of responses, which is considerable.

The BNL survey distinguishes among four prevalent "motivations" for saving: for future use, to supplement one's pension, for health care and for bequests. Twenty-five per cent of the respondents say they save in order to supplement their pension. This is the reason that most closely resembles life cycle saving. A small share overall (6 per cent) saves in order to be assured of health care, i.e. as a provision against contingencies, the proportion increasing along with age. Around 12 per cent of the respondents indicate they save mainly in order to leave bequests to their children, half as many as those who save mainly in order to supplement their pension.

These last figures appear to suggest that the bequest

motive is less important than the others, which are closer to the life cycle model. Nevertheless, such a conclusion might be mistaken, for more than half (57 per cent) of the respondents indicate they save for future use, a choice that can be interpreted in various ways. In all likelihood the frequency of this response stems from its being a mere re-statement of the definition of saving, which consists in forgoing current consumption of resources in favour of future use. Use does not necessarily mean consumption but could also signify "leaving an estate to one's children".

This and the other ambiguities of the surveys suggest that they cannot be a substitute for studies of the behaviour of individuals based on theory and real data.

Conclusions

Two out of five Italian households acquired ownership of their real estate through transfers from previous generations. The share of intergenerational transfers in the value of real estate, ranges from 35 to nearly 50 per cent depending on whether interest on bequests is excluded from or imputed to the stock of inherited wealth.

These figures can be interpreted as showing that bequests play a significant role in the accumulation of wealth. A deeper understanding of the inheritance process and of the policy implications of such widespread intergenerational transfers, however, requires closer study of the motives for leaving bequests. This is left for future research, and the magnitude of these figures surely indicates that research on the bequest motive is well worthwhile.

Table 1

Wealth in the form of real estate inherited or received as a gift in relation to total wealth in the form of real estate and total wealth
(percentages)

	Bequests	Gifts	Total intergenerational transfers in the form of real estate	
	(a)	(a)	(a)	(b)
Not correcting for the probability of sale	26.2	3.5	29.7	19.3
Correcting for the probability of sale	31.4	3.9	35.3	22.9
Correcting for the probability of sale and capitalizing	44.0	4.9	48.9	31.8

Source: authors' calculations from the 1987 Survey of Italian Households Income and Wealth.

(a) as a share of real estate wealth
(b) as a share of total net worth

Table 2

Average real and financial wealth of households by age of head of household
(millions of 1987 lire)

Age of head of household	Real net wealth	Financial wealth
To age 40	66.4	47.3
41-50	119.4	63.4
51-60	135.0	64.8
61-65	101.6	45.7
66-70	82.3	43.4
71-75	83.5	35.8
76-80	53.8	21.1
Older than 80	42.7	13.9
Total	**96.5**	**50.9**

Source: 1987 Survey of Italian Households Income and Wealth.

Table 3

Annual flow of bequests

(billions of 1987 lire)

Year	Flow	Year	Flow	Year	Flow
1954	18.325	1964	31.497	1974	34.300
1955	16.336	1965	29.043	1975	29.968
1956	23.634	1966	34.908	1976	35.700
1957	21.308	1967	36.027	1977	34.728
1958	23.001	1968	38.484	1978	33.731
1959	23.731	1969	39.457	1979	34.570
1960	24.271	1970	36.444	1980	31.560
1961	28.421	1971	40.884	1981	32.019
1962	28.414	1972	41.201	1982	34.034
1963	26.352	1973	35.358		

Source: authors' calculations based on the 1987 Survey of Italian Households Income and Wealth. Data are nine terms centred moving averages.

Table 4

Inherited and total wealth in the form of real estate

(trillions of current lire)

Year	Flow of inherited wealth	Stock of inherited wealth (a)	Stock of real estate wealth	Intergenerational transfers as a share of real estate wealth		
				α_E (b)	$\hat{\alpha}_E$ (c)	$\tilde{\alpha}_E$ (d)
1976	7.8	168	394	0.43	0.50	0.35
1977	8.6	186	444	0.42	0.49	0.35
1978	9.6	207	531	0.39	0.45	0.32
1979	12.0	260	677	0.39	0.45	0.32
1980	14.5	314	892	0.36	0.42	0.30
1981	17.5	379	1029	0.37	0.43	0.31
1982	23.4	506	1304	0.39	0.45	0.33

Source: The stock of real estate wealth is obtained as the sum of the stock of residential buindings estimated in Banca d'Italia, (1986) (p. 53, Table 5) and an authors' estimate of the stock of land and non-residential buildings (based on survey data). The flow and the stock of inherited wealth are authors' calculations based on the 1987 Survey of Italian Households Income and Wealth.

(a) obtained capitalizing the flow of bequests in column 1 using the following parameter values: g=25; r=0.016; n=0.028
(b) computed capitalizing the interest on the flow of bequests, i.e. dividing the stock of inherited wealth reported in column 2 to the stock of real estate wealth of column 3
(c) computed under the assumption that r=n and g=25
(d) computed assuming no capitalization of the interest on bequests and assuming n=0.028 and g=25

Table 5

Primary reasons for saving according to the CENSIS and BNL-DOXA surveys

	CENSIS Survey REASON						
	For old age	For contingencies	To provide for one's children	To buy a home or durable goods	To increase future income	Other	Total
Share of responses(%)	23.2	22.3	23.4	19.0	2.5	9.6	100

Source: CENSIS (1986)

	BNL Survey REASON				
	Future use	Pension supplement	Helth care	Bequests to children	Total
Share of responses(%)	56.6	25.4	5.7	12.3	100

Source: CENSIS (1986) and Banca Nazionale del Lavoro (1988).

References

BANCA D'ITALIA (1986), Bollettino Economico, n. 6, feb.

BANCA NAZIONALE DEL LAVORO (1988), Rapporto Centro Einaudi sul risparmio e sui risparmiatori in Italia - Indagine Doxa 1988, "Quaderni di Ricerca".

BERNHEIM, B.D. (1986), Dissaving After Retirement: Testing the Pure Life Cycle Hypothesis, in "Issues in Pension Economics", edited by Z. Bodie - J.B. Shoven - D. Wise, Chicago, University of Chicago Press.

CANNARI, L. - D'ALESSIO, G. (1990), Housing Assets in the Bank of Italy's Survey of Household Income and Wealth, in "Studies in Contemporary Economics", edited by C. Dagum - M. Zenga, Berlin, Springer.

CENSIS (1986) Risparmi e investimenti della famiglia Spa, Milano, Franco Angeli.

COLETTI, F. (1907), La Determinazione della durata della generazione e il calcolo della ricchezza privata di un paese, "La Riforma Sociale", vol. XVII, pp. 181-202, 266-286.

DARBY, M. (1979), Effects of Social Security on Income and the Capital Stock, American Enterprise Institute, Washington.

DE FOVILLE, A. (1887), La France économique, statistique raisonnée et comparative, Paris, Armand Colin.

HAYASHI, F. - ANDO, A. - FERRIS, R. (1988), Life Cycle and Bequest Savings, "Journal of the Japanese and International Economies", 2, pp. 450-491.

HURD, M.D. (1989), Mortality Risk and Bequests, "Econometrica", n. 4, July, 779-813.

_____ - MUNDACA, B.G. (1989), The Importance of Gifts and Inheritances Among the Affluent, in "The Measurement of Saving Investment and Wealth", edited by R.G. Lipsey - H.S. Tice, Chicago, The University of Chicago Press.

KESSLER, D. - MASSON, A. (1989), Bequest and Wealth Accumulation: Are Some Pieces of the Puzzle Missing?, "Journal of Economic Perspectives", 2, Summer, 141-152.

KOTLIKOFF, L.J. - SUMMERS, L.H. (1981), The Role of Intergenerational Transfers in Aggregate Capital Accumulation, "Journal of Political Economy", 4, 707-732.

_____ (1988), Intergenerational Transfers and Savings, "Journal of Economic Perspectives", 2, Spring, 41-58.

MIRER, T.W. (1979), The Age Wealth Relation Among the Aged, "American Economic Review", June, 69, 435-443.

MODIGLIANI, F. (1988), The Role of Intergenerational Transfers and Life Cycle Saving in the Accumulation of Wealth, "Journal of Economic Perspectives", 2, Spring, 15-40.

———————— - BRUMBERG, R. (1954), Utility Analysis and the Consumption Function: an Interpretation of Cross-Section Data, in "Post Keynesian Economics", edited by Kenneth K. Kurihara, New Brunswick, New Jersey, Rutgers University Press.

PANTALEONI, M. (1890), Dell'ammontare probabile della ricchezza privata in Italia. Dal 1872 al 1889, "Giornale degli Economisti", n. 2, Agosto, 139-171.

ROSSI, N. - VENDRAMIN, A. (1990), Il Tasso di Risparmio Aggregato in Italia e il Ruolo dei Lasciti Ereditari, in "Formazione e impiego della ricchezza delle famiglie" a cura di E. Fornero - O. Castellino, Collana Giorgio Rota, Ricerca n. 4, Torino.

WHITE, B.B. (1978), Empirical Tests of the Life-Cycle Hypothesis, "American Economic Review", 68, September, 547-560.

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