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### *The Dynamics of Household Wealth Accumulation in Italy*

**Tullio Jappelli and Luigi Pistaferri**

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**DIPARTIMENTO DI SCIENZE ECONOMICHE - UNIVERSITÀ DEGLI STUDI DI SALERNO**

Via Ponte Don Melillo - 84084 FISCIANO (SA)

Tel. 089-96 3167/3168 - Fax 089-96 3169 – e-mail: [csef@unisa.it](mailto:csef@unisa.it)



*The Dynamics of Household Wealth Accumulation in Italy*

**Tullio Jappelli\*** and **Luigi Pistaferri\*\***

**Abstract**

We examine the dynamics of wealth accumulation distribution in Italy using data drawn from the Survey of Household Income and Wealth, a representative survey of the Italian population conducted by the Bank of Italy. We compare survey data with national accounts data and discuss sample representativeness, attrition, and measurement issues. We then look at wealth inequality (the cross-sectional dispersion of wealth), wealth mobility (individual transitions across the wealth distribution), and examine the age profile of wealth using repeated cross-sectional data. Finally, we consider various explanations for the pattern of wealth accumulation in Italy, focusing on retirement, bequests, income risk, health shocks, and credit market imperfections.

**Keywords:** Wealth accumulation, Inequality, Mobility

**JEL classification:** E21

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\* CSEF, University of Salerno, and CEPR

\*\* Stanford University and CSEF, University of Salerno



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## ***1. Introduction***

In this paper we examine the cross-sectional and dynamic features of the wealth distribution in Italy, using data drawn from the Survey of Household Income and Wealth (SHIW, hereafter), a representative survey of the Italian population conducted every other year by the Bank of Italy. The purpose of our analysis is twofold. First, we offer a comprehensive description of the characteristics of the wealth distribution in Italy. Second, we consider the relevance of theoretical models of saving by surveying the empirical evidence for Italy and providing new insights on the potential impact of health shocks, liquidity constraints and income risk on wealth accumulation.

Aggregate data are inadequate to distinguish the various motivations for saving and the different environments and constraints in which consumers make their intertemporal choice. The analysis therefore requires cross-sectional and panel data. However, in many circumstances survey data may convey a wrong picture of the true dynamics of wealth, for instance in the presence of data contamination, sample selectivity, and under-reporting of wealth-related variables. We thus start the analysis with a detailed assessment of the quality of our data and compare the microeconomic data with the corresponding national account aggregates (Section 2).

We then characterize the static and dynamic features of the wealth distribution (Section 3). In order to characterize the cross-sectional dispersion of wealth, we compute measures of wealth inequality. The dynamic counterpart of wealth inequality is wealth mobility, i.e. the analysis of individual transitions across the wealth distribution at two or more points in time. In both the static and dynamic analysis we distinguish between net worth and financial wealth.

In the second part of the paper we check the consistency of various theoretical models with the pattern of wealth accumulation in Italy. The theoretical framework to which we refer most often is the celebrated life-cycle hypothesis of saving (Modigliani, 1986). This model predicts that people save for retirement, so that household wealth should increase during the working age of its members and then fall in old age. It is well known that examining this prediction on purely cross-sectional data can be highly misleading due to the contamination of the age-wealth profile by cohort effects. We thus estimate the age-profile of wealth using repeated cross-sectional data (Section 4). Under appropriate identification assumptions, the effect of time, cohort, and age can be disentangled. In this section we also extend Deaton and Paxson (1994) analysis of consumption inequality to check if wealth inequality increases with age at an increasing rate, as suggested by the certainty equivalence version of the life-cycle model (Hall, 1978).

We then consider additional explanations that have been proposed to account for the pattern of household wealth (Section 5). In particular, we focus on pension arrangements, bequest motives, income risk, health shocks and credit market imperfections. We draw partly on available empirical evidence and provide new evidence on the relation between health expenditures and wealth accumulation. The available evidence and the directions for future research are summarized in the conclusions (Section 6).

## ***2. The Survey of Household Income and Wealth***

The primary purpose of the Bank of Italy Survey of Household Income and Wealth (SHIW) is to collect detailed data on demographics, households' consumption, income and balance sheets. The data set used in this study includes four independent cross-sections of Italian households (1989, 1991, 1993 and 1995), a total of 32,648 household-year observations. While real wealth data are available also for 1984, 1986 and 1987, we choose to focus on the last four waves because financial wealth becomes publicly available only in 1989.

The SHIW surveys a representative sample of the Italian resident population. Sampling is in two stages, first municipalities and then households. Municipalities are divided into 51 strata defined by 17 regions and 3 classes of population size (more than 40,000, 20,000 to 40,000, less than 20,000). Households are randomly selected from registry office records. From 1987 onward the survey is conducted every other year and covers about 8,000 households, defined as groups of individuals related by blood, marriage or adoption and sharing the same dwelling.

Table 1, drawn from Brandolini (1999), reports response rates. Ineligible units include the families of persons unknown, dead or emigrated. The gross response rate is the ratio of responses to contacted families. The net response rate is the ratio of responses to contacted families net of ineligible units. Response rates increase in 1991 because in that year households included in the panel were chosen among those that had previously expressed their willingness to being re-interviewed. Furthermore, the number of households in the panel increased substantially in 1991 (see below). The net response rate (ratio of responses to contacted households net of ineligible units) is 38 percent in 1989, 33 percent in 1991, 58 percent in 1993, and 57 percent in 1995.<sup>1</sup>

Starting in 1989, each SHIW has re-interviewed some households from the previous surveys. The panel component has increased over time: 15 percent of the sample was re-interviewed in 1989, 27 percent in 1991, 43 percent in 1993, and 45 percent in 1995. In the panel component, the sampling procedure is also determined in two stages: (1) selection of municipalities (among those sampled in the previous survey); (2) selection of households re-interviewed. This implies that there is a fixed component in the panel (for instance, households interviewed 4 times between 1989 and 1995, or 3 times from 1991 to 1995) and a new component every survey (for instance, households re-interviewed only in 1991). Brandolini and Cannari (1994) include a detailed discussion of sample representativeness of the SHIW (including whether high wealth households are included), attrition, and other measurement issues.

Real wealth is elicited differently from financial wealth. For real assets households report a self-assessed value for each asset category, while for financial wealth respondents report

<sup>1</sup> Another explanation for the increase in response rates in 1993 is the change in the firm responsible for collecting the data.

values in one of fourteen brackets in 1991, 1993 and 1995.<sup>2</sup> In 1989 households report fractions of financial wealth in total wealth, and are then asked to report the amount of checking accounts. Financial wealth is inferred by difference. Financial asset categories become more detailed over the years (from 13 in 1989 to 27 in 1995).

Net worth is the sum of household's financial assets and net real assets. Financial wealth is given by the sum of transaction and saving accounts, certificates of deposit, government bonds, corporate bonds, stocks, mutual funds and management investment accounts, cash values of life insurance, cash values of defined contribution pension funds, and foreign assets.<sup>3</sup> Net real assets include real estate, business, valuables, and the stock of durable goods net of liabilities. Liabilities are the sum of mortgage and other real estate debt, consumer credit, personal loans and credit card debt.

To gauge the quality of the data, it is useful to compare the SHIW measures of the private saving rate with the aggregate national accounts. Table 2 indicates that the survey measure of saving is substantially higher than the national account measure in all years, because income in the SHIW is more accurately reported than consumption. In fact, Brandolini and Cannari (1994) report that disposable income is under-reported by 25 percent with respect to the national accounts data, while consumption is under-reported by 30 percent. Although the levels differ, the dynamics of the saving rate in the SHIW is similar to that of the national accounts. Both measures report a similar saving decline between 1989 and 1995. The decline in saving is not peculiar to our sample period, but follows a trend decline (from over 30 percent in the 1960s to 14 percent in the mid-nineties) as can be seen in Figure 1. The main explanations that have been proposed to explain these trends are a fall in the growth rate of productivity, the transition to an unfunded social security system, the change in the population structure, the development of credit markets and the reduced need of precautionary saving due to the increased availability of social insurance schemes. Some of these issues will be further taken up in Section 5. Columns (3) and (4) of Table 2 indicate that there are significant differences also between the survey and the aggregate measures of the wealth-income ratio. However, in this case the level of the survey and aggregate wealth-income ratios are more in line.<sup>4</sup>

<sup>2</sup> The problem of bracketing can be handled either by assuming that all households own the mid-point of the interval or by applying more sophisticated imputation procedures, such as that suggested by Stewart (1983). The advantage of the second procedure falls with the number of brackets. Since we have a relatively high number of brackets, we proceed with the first alternative.

<sup>3</sup> Financial wealth in 1995 is measured in 27 categories: checking accounts, three types of saving accounts, two types of certificates of deposit, postal accounts, postal bonds, short-term government bonds, Treasury bonds indexed to short-term bonds, long-term government bonds, zero-coupon government bonds, other government bonds, corporate bonds, mutual funds, five types of equities, two types of management investment accounts, trust funds, foreign bonds, foreign equities, other foreign assets, loan to cooperative firms. Wealth brackets are: 0, up to 2 millions lire, 2-4, 4-8, 8-12, 12-16, 16-24, 24-36, 36-70, 70-140, 140-300, 300-600, 600-1 billion lire, 1-2 billions, over 2 billions.

<sup>4</sup> Note that the increase in the response rate highlighted in Table 1 might be at least in part responsible for the increase in the wealth-income ratio and for the saving rate after 1993.

### 3. *Wealth inequality and wealth mobility*

Wealth inequality and wealth mobility play a very important role in the current policy debate. For instance, some explanations proposed to account for the changes in wealth inequality point out to the effects of market forces (such as stock market participation and changes in household composition) *vis-à-vis* institutional factors (such as labour market regulation and pension reforms). Similarly, the rules governing the public provision of education and public insurance schemes to protect workers from income shocks affect wealth mobility and its evolution over time.

The primary goal of this section is to examine the main features of the distributions of net worth and financial wealth. We analyse the degree of wealth inequality and wealth mobility and compare it with consumption and income inequality. We focus on 1995, the most recent survey year. The general pattern for other years is similar. All figures are preliminarily converted in Euro.

Table 3 reports the deciles of the distribution of net worth and financial wealth. The median of net worth is 92,909 Euro (the mean is 154,385), while the median of financial wealth is 7,349 Euro (the mean is 20,377). The wealth distributions are clearly right-skewed and dispersed. Net worth and financial wealth display Gini coefficients of 0.59 and 0.70, respectively, as opposed to 0.30 and 0.36 for consumption and disposable income.<sup>5</sup> Other indexes of inequality confirm this general pattern for both 1995 and other sample years. A further piece of evidence about the skewness of the wealth distribution is provided in Figure 2, where we plot the Lorenz curves for net worth.<sup>6</sup> Inequality in the wealth distribution is apparent from the large distance between the curve and the 45-degrees line.

Examining the wealth distributions by income deciles allows one to assess if households in the top quantiles of the income distribution also fall in the top quantiles of the wealth distribution. We therefore compute means and medians of net worth and financial wealth within the deciles of the income distribution, and report them in Table 4. Both the mean and the median wealth increase with the household rank in the income distribution, implying a strong correlation in the relative positions in the two distributions.

Any index of wealth inequality describes the wealth distribution at one point in time. It is useful to consider explicitly the dynamics of the wealth distribution. Such dynamics can be appropriately described by the transition matrix of net worth and financial wealth. The transition matrix is useful to understand if those who are wealthy today tend to be wealthy also in the future in relative terms, or if well being is just a temporary status. Table 5 shows that there is substantial persistence in the net worth distribution. For instance, the upper left cell indicates that 80 percent of the households in the first quartile of the net worth distribution in 1993 remain in the bottom quartile also in 1995. Similarly, the bottom right cell indicates that 76 percent of the households in the top quartile in 1993 remain in the top quartile also in 1995. There is slightly less persistence in the distribution of financial wealth,

<sup>5</sup> Net worth and financial wealth inequality increase slightly from 1989 to 1995.

<sup>6</sup> The pattern of financial wealth inequality is similar.

as indicated in the lower panel. For instance, 65 percent of households in the top (bottom) quartile of the financial wealth distribution in 1993 remain in the same quartile also in 1995. Note finally that both transition matrices are symmetric: the transition probabilities in the upper triangular part of the matrix roughly match those in the lower part.

Social mobility is often regarded as a desirable society's feature, but it is not clear how social mobility should be measured, and whether intergenerational or intragenerational mobility is the desirable object.<sup>7</sup> Table 5 shows that wealth mobility is greatest for financial wealth than for net worth (each of cells in the main diagonal for net worth have higher values than for financial wealth). The year-by-year analysis indicates a reduction in mobility in both distributions.

There are several possibilities to account for the difference in mobility between net worth and financial wealth. If there is any amount of reshuffling between financial and real assets (as would happen if people save towards a downpayment and then purchase a home) financial mobility will be high, even if net worth mobility is low. A second possibility is that financial wealth reflects more capital gains or losses on financial assets than net worth. Finally, reporting errors could potentially bias the transition matrix. If respondents report data with errors, one will find units moving up and down even if their true rank in the distribution is unchanged. Hence, in the presence of measurement error the transition matrix will tend to report higher mobility. If net worth is measured better than financial wealth, this may explain why the net worth distribution displays lower mobility. Measurement error could also explain the fall in mobility if the measures of net worth and financial wealth improve over time.<sup>8</sup>

#### ***4. The age-wealth profile***

In this section we turn to a more structural analysis of the evolution of household wealth over the life cycle using as main reference Modigliani's life-cycle model. This model posits that the main motivation for saving is to accumulate resources do be drained down for later expenditure and in particular during retirement. Saving should be positive for young households and negative for the retired, so that the individual age-wealth profile should be hump-shaped.

<sup>7</sup> Checchi, Ichino and Rustichini (1999) report data on intergenerational mobility for Italy.

<sup>8</sup> Systematic changes in life cycle wealth accumulation may affect our results. To counter this criticism, we have analysed wealth mobility conditioning on the year of birth of the head of the household. In particular, we allocate the panel households in our sample to six different cohorts. Cohort 1 includes those born between 1905 and 1914, cohort 2 those born between 1915 and 1924, and so forth; the youngest cohort include those born between 1955 and 1964. We exclude those born before 1904 or after 1964 because of small cell sizes. We find that wealth mobility is much higher for the young than for the elderly, a fact that tallies with the evidence presented in Deaton and Paxson (1993) and discussed further in Section 4. The reason is that the retired no longer face income shocks, which are most responsible for movements up and down in the transition matrix.

Since age-wealth profiles cannot be estimated from single cross-sectional data, we use repeated cross-section data from the 1989-1995 SHIW. Households headed by persons older than 80 and younger than 22 are excluded. These exclusions are motivated by concern over two sources of potential sample bias. The first arises because survival probabilities may be positively correlated with wealth, implying that rich households are over-represented in the oldest cohorts. This correlation implies that one may find a low rate of decumulation after retirement simply because the poor tend to disappear from the sample earlier than the rich.<sup>9</sup> The second source of potential bias is a correlation between wealth and young household heads peculiar to our sample. In Italy young working adults with independent living arrangements tend to be wealthier than average, because most young working adults live with their parents.

Before proceeding two important caveats are in order. First, we use the age of the household head to describe the behaviour of the household. In nuclear households this may not be a bad hypothesis, but when young adults co-reside with their parents the age of the household is not a well-defined concept. Second, we carry out the analysis without distinguishing between different household types, a potentially important source of wealth-heterogeneity.

Figure 3 offers fundamental insights into the process of household wealth accumulation. The upper left graph plots the average net worth by age of 13 cohorts: cohort 1 includes all households whose head was born between 1905 and 1909, cohort 2 those born between 1910 and 1914, and so on up to cohort 13, those born between 1965 and 1969. Each cohort is observed at four different times, one for each cross-section. The figure shows that the young and the middle-aged do most wealth accumulation. The wealth profile increases up to age 50 and then declines for all cohorts, with the exception of cohort 2.

The peaks in wealth for cohorts 7 and 8 between age 50 and 55 deserve some explanation. A unique feature of the Italian job market is the presence of a large severance pay component. Most workers contribute to a severance pay fund at a rate of 6.9 percent per year of their gross salary. Severance pay is then cashed when the worker retires in the form of a lump-sum payment. For workers with, say, 30 years of seniority, severance pay is a lump sum payment of over 2 times pre-retirement gross income. Due to the generous early retirement rules built in the Italian social security system, there are early spikes in the hazard rate out of the labor force at ages 53-55 for women and at age 55 for men (Brugiavini, 1997). Since not all people retire at the same age, this lump-sum payment will be distributed over retirement ages, providing one explanation to the peaks in wealth that we observe in Figure 3 especially for cohorts 7 and 8.

Common shocks also clearly affect the data in Figure 3. For instance, for several cohorts wealth increases in 1993. Either cohort or age does not account for these features of the data

<sup>9</sup> Clearly the empirical relevance of this source of bias depends on the correlation between wealth and the probability of death. Ando, Guiso and Terlizzese (1994) use Italian Census data and find that while there is a clear correlation between affluence and the probability of death at younger ages, there is little or no correlation at ages above retirement (p. 193).

(reflecting measurement error, macroeconomic shocks or preference shifts). Time effects are therefore potentially important.<sup>10</sup>

The fitted line in each graph is obtained by regressing net worth on a fourth-order age polynomial, a full set of cohort dummies and a set of restricted time dummies. By construction, the fitted line is the same for each cohort and can be interpreted as the age profile of a representative individual. The lines show that the age profile of net worth is concave not only at the mean, but also at the median, at the 25<sup>th</sup> and 75<sup>th</sup> percentiles (but note that the scale of the graphs is different), in agreement with the standard life cycle model.<sup>11</sup> Figure 4 repeats the analysis for financial wealth. The hump in household financial wealth is still present, although the concavity of the age profile is less evident than for net worth.

We conclude the analysis by looking at the pattern of wealth inequality by age. Figure 5 complements the analysis in section 3 by reporting age profiles of the standard deviation of the log of net worth and financial wealth. It is apparent that inequality in the two wealth distributions increases with age at an increasing pace. The pattern is more evident for total net worth, but visible also for financial wealth. Deaton and Paxson (1993) show that according to the permanent income model with certainty equivalence, the cross-sectional dispersion of wealth should be a convex function of age. The intuition is that income shocks cumulate over time, producing an increasing dispersion in consumption and saving. Since wealth is the integral of saving, the cross-sectional wealth dispersion should increase with age at an increasing rate.

To summarize, we find that household wealth is strongly correlated with age. The wealth profile estimated with repeated cross-sectional data is concave in age, while the profile of the standard deviation of the logarithm of wealth is convex in age. Both patterns are consistent with standard versions of the life-cycle model, which suggests that the primary motivation for saving is to accumulate resources to be drained down during retirement and at times of low income realizations. In the next section we consider additional explanations for wealth accumulation that might be important to account for the behaviour of Italian households.

<sup>10</sup> The graph could also be used to detect breaks in cohort effects similar to the ones observed in the US for pre-war generations vis-à-vis post-war generations (i.e., the baby boomers). Starting in the early 1970s, in Italy there has been a dramatic demographic transition, with the birth rate dropping from approximately 2 percent to just over 1 percent in the past few years. This has been accompanied by a decline in the marriage rate and an increase in the mean age at marriage and at childbearing. Since our youngest cohort was born in 1965-69, these changes are too recent to produce detectable effects in our graphs.

<sup>11</sup> The age-cohort profile for mean wealth can be interpreted as the total wealth of a cohort divided by the number of individuals in that cohort. For the percentiles of the wealth distribution, however, the interpretation is not straightforward. For instance, the age profile for median wealth is not the median per capita total wealth in that cohort, because the “median” individual changes across the wealth distribution.

## ***5. Explaining the pattern of wealth accumulation***

In this section we consider various explanations that have been proposed to account for the pattern of wealth accumulation in Italy. We focus on pension arrangements, bequest motives, income risk, health shocks and credit market imperfections. We complement available empirical studies with new evidence on the relation between health expenditures, income risk and wealth accumulation.

### **5.1. Retirement wealth**

Retirement wealth in the form of life insurance and private pension funds is already included in the net worth definition. Table 6 reports information on both. By international standards, the fraction of Italian households that contributes to private pension funds and life insurance is tiny, although both have considerably increased in the last decade. The share of these funds was 6.96 percent of financial wealth in 1989 and 14.3 percent in 1995. In this section we thus focus mainly on social security wealth, which is by far the most important source of retirement wealth.

Italy's social security system features high contributions, generous benefits and broad eligibility criteria. The expansion of social security takes off in 1969, with three major innovations. First, the pension award formula was based on earnings prior to retirement. Second, the system became entirely unfunded, and anyone above 65 was entitled to a social pension, irrespective of the contributions during his or her working life. Third, the maximum pension rose to 80 percent of the last salary and benefits were indexed to the cost of living. The sixties and seventies also witnessed a series of reforms relaxing the eligibility criteria, particularly for farmers and self-employed. In 1975 the indexation system was changed: minimum pensions were indexed to the earnings of employed workers, leading to automatic increases in the real value of benefits. As the increase in contributions did not keep pace, the result was a growing social security deficit. This led to a rapid growth in social security benefits, from 7.5 percent of GDP in 1970 to 14 percent in 1992.

The system has been reformed twice in the 1990s (in 1992 and 1996). The reforms are gradually reducing pension benefits and the length of retirement and extending the reference period for pension benefits. However, eligibility requirements and pension award formulas are currently more generous in Italy than in other OECD countries (for instance, minimum retirement age and accrual rates are higher). Peracchi and Rossi (1996) carefully examine the history of the Italian social security system and the effect of pension reforms. Brugiavini (1998) focuses on the labour supply effect of the social security rules.

Jappelli and Modigliani (1998) illustrate the importance of social security wealth for retirement saving using the same cohort data as in the previous section. Their calculations assume a replacement rate of 70 percent and that all individuals retire at age 60 and indicate that the peak of pension wealth at retirement is slightly less than 100 thousand Euro, not very different than that for private net worth. Thus in Italy about half of total wealth is annuitized.

Given long life expectancies (about 10 years for the older age group) social security wealth is still about 40 thousand Euro even at age 80.<sup>12</sup>

Despite the impressive growth of the Italian social security system from 1969 to 1992, few empirical studies have explored its effect on wealth accumulation and the extent to which private net worth substitutes for pension wealth. From the theoretical point of view, the impact of an unfunded social security system on private accumulation is ambiguous. Feldstein (1974) pointed out that an unfunded system obviates the need for old-age private accumulation, which he termed “wealth replacement effect.” With lifetime uncertainty an increase in social security wealth will also reduce precautionary saving, which reinforces the wealth replacement effect. On the other hand, the pension entitlement may encourage an earlier and longer retirement: according to the life cycle hypothesis, this “induced retirement effect” should stimulate private accumulation.

Brugiavini (1987) and Jappelli (1995) compute measures of social security wealth using various years of the Survey of Household Income and Wealth, and find that pension wealth is only an imperfect substitute for private net worth: an increase of social security wealth displaces only 20 percent of private wealth, a result that is broadly consistent with the time series evidence. Attanasio and Brugiavini (1996) also provide evidence in favour of the hypothesis that private and pension wealth are substitutes.

One possible explanation for the relatively low displacement effect is that the very increase in benefits and the rapid ageing of the Italian population may foster the perception that the current system cannot be sustained indefinitely. If so, perceived social security wealth is lower than the present discounted value of the net benefits implied by the rules of the current regime. The sequel of reforms aimed at re-balancing the accounts of the social security system may have validated this perception. On the other hand, individuals who believe that the system is unsustainable will not consider the present discounted value of social security benefits as net wealth, reducing the replacement effect.

## **5.2. Intergenerational transfers**

It is apparent that total wealth in Figure 3 is relatively high for both the very young and the very old. As explained in Section 2, in our sample there is a correlation between wealth and young household headship. One further factor is that, given mortgage market imperfections, the young accumulate to purchase a home (see Section 5.5 below). Instead, the relatively high level of net worth at old ages is usually explained by life uncertainty or bequest motives.

Even though in the presence of bequest motives households may choose not to consume all of their wealth before they die, the age-profile of net worth in Figure 3 is not particularly useful to analyze the importance of intergenerational transfers. Altruistic households may

<sup>12</sup> The assumptions used to compute pension wealth capture fairly well the characteristics of the social security system before the 1992 reform, but tend to overstate pension wealth after the pension reforms, since the latter increased retirement age and reduced the replacement rate. Using a replacement rate of 60 or 50 percent would of course affect the dynamics of pension wealth during retirement.

transfer their estate *inter vivos* (and actually should, for tax reasons and to relieve borrowing constraints of their descendants). Furthermore, wealth transferred when people die might be quite different than that observed in Figure 3. As a preliminary step to understand the importance of bequest motives, here we report direct evidence on the importance of intergenerational transfers for wealth accumulation in Italy.

The 1991 SHIW pays particular attention to intergenerational transfers. A special section of the questionnaire asks each member of the household to report the number and amount of transfers (bequests and gifts) received in the past from parents or other relatives (information is recorded for up to ten transfers). Also reported is the year of each transfer, the donor (parent or other relative), whether it was a gift or a bequest, whether inheritance taxes were paid and the share of the transfer in the donor's total bequeathable wealth. The survey contains information on 2,595 transfers received by 1,898 households out of a total sample of 8,188.

Table 7 displays estimates of the share of bequests and gifts in net worth. The fraction of households that received at least one transfer is 25.9 percent. On average, each such household received 26 thousand Euro, 24.3 percent of total net worth (20.2 percent in bequests plus 4.1 percent in gifts). 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 transfer wealth. Kotlikoff and Summers (1981) argue that intergenerational transfers should also include the interest accrued on the transfer. The capitalized estimate of transfer wealth comes to 35.8 percent (29.5 percent bequests plus 6.3 percent gifts).<sup>13</sup>

It is not clear from the survey whether the value of transfer is reported before or after-tax. Furthermore, the rules for computing estate, gift and inheritance taxes have varied considerably over the last few decades. Since these rules require knowledge not only of the amount transferred but also information on the relationship between the donor and the recipient (direct descendant, brother, etc.), Guiso and Jappelli (1999) do not attempt to measure how much of the transfer stock is appropriated by the government.<sup>14</sup> Jappelli and Pagano (1993) report that inheritance, estate and gift taxes have always been a minor source of government revenues (about 0.2 percent of total tax revenues in the post-war period). The revenue from gift taxes in particular is extremely low (0.01 percent of total revenues), reflecting infrequency (only 5.6 percent of households report having ever received a gift), the difficulty of aggregating gift taxes and estate taxes, and widespread evasion. Failing to

<sup>13</sup> Neither method is obviously superior to the other. Kessler and Masson (1989) argue that what matters is the propensity to save out of transfers, which is generally greater than zero (as in Modigliani, 1988) but less than one (as in Kotlikoff and Summers). Thus, the 'true' share of inherited wealth in Italy lies between 25 and 36 percent, a sufficiently small range, at least relative to the figures reported for the U.S. by Kotlikoff and Summers.

<sup>14</sup> In contrast to other OECD countries, where there is either an estate tax - where the tax base and rate depend on the amount transferred by the deceased - or an inheritance tax - where base and rate depend on the amount received by the beneficiary - Italy features both, inheritance taxes being levied only on legacies outside the immediate family. These taxes were first introduced in 1972, replacing earlier legislation. Tax brackets and tax rates for both types of taxes have been changed frequently in the past 20 years. The general principle is that of progressive taxation. The spouse and the direct descendants are subject only to the estate tax. More distant relatives and other recipients are also subject to the inheritance tax, at rates that vary according to class of beneficiary. Life insurance policies and social security benefits are not subject to inheritance taxes. Gifts are taxed in a way similar to bequests.

subtract inheritance and gift taxes from intergenerational transfers should therefore produce only a small overestimation of the share of transfer wealth.

These estimates are consistent with other direct evidence on transfers in Italy and with indirect econometric evidence on wealth decumulation by the elderly. Bequeathed housing assets accounted for 26 to 32 percent of the total housing stock in the 1987 SHIW (Barca, Cannari and Guiso, 1994). This share of transfer wealth also fits with the evidence that in Italy intergenerational gifts and loans are not large by international standards. In a typical survey, not more than 2 or 3 percent of households receive either gifts or loans from relatives and friends.

Overall, the evidence shows that intergenerational transfers explain about one third of wealth accumulation and that the incidence of transfers is highest in the upper part of the wealth distribution. At the moment we lack evidence on the reasons why part of the wealth is transferred to future generations, i.e. studies that are capable of sorting out unintended bequests due to life uncertainty from bequests motivated by altruism or by strategic reasons.

### 5.3. Income risk

By several international standards, insurance markets in Italy are much less developed and efficient than in other countries. Such imperfections may induce prudent households to accumulate precautionary wealth against uninsurable risks. Italian welfare programs provide good protection for long-term employees of large firms and public sector employees and virtually no protection for the unemployed, the self-employed, and employees of small firms.<sup>15</sup> While available studies have paid attention to the effect of uninsurable income risk, no evidence exists for the Italian economy with regard to health, demographic and longevity risks.

One interesting feature of the SHIW is that in 1989, 1991 and 1995 it collects subjective expectations of future income. In 1995, for instance, individuals are asked to report the minimum and maximum income expected if employed, and an estimate of the subjective probability of unemployment for the 12 months following the date of the interview. A similar set of questions is asked in the Netherlands and in the US. The US data were analyzed by Dominitz and Manski (1997a) using the Survey of Economic Expectations (SEE). Das and Donkers (1997) use the VSB Dutch panel and compute the coefficient of variation of income in the Netherlands.

<sup>15</sup> Only the currently employed receive an explicit compensation in case of temporary lay-off. The compensation depends on gross earnings at the time of lay-off and on firm size. Its duration also varies by firm size. The current legislation implies the following rules: for those working in firms with over 50 employees and earning a gross monthly salary above 1.25 thousand Euro, unemployment benefits are set at 0.75 thousand Euro a month, and are received for twelve months following the lay-off; for those working in firms with over 50 employees and earning a gross monthly salary below 1.25 thousand Euro, benefits are set either at 0.625 thousand Euro monthly or 80 percent of gross salary, whichever is the less (duration is again 12 months); for those working in small firms (under 50 employees), benefits are set at 30 percent of gross monthly income, and are received for 6 months.

Guiso, Jappelli and Pistaferri (1999) compare the sample distribution of the coefficient of variation in Italy, the Netherlands and the United States.<sup>16</sup> They show that Italian and Dutch workers perceive considerably less risk than the US ones. In the Netherlands 80 percent of individuals report a coefficient of variation below 6.5 percent. In Italy the fraction of those reporting a coefficient of variation below 6.5 percent is 70 percent. This contrasts with the US distribution, where just 24 percent report a coefficient of variation below 6.5 percent. The most natural explanation for the difference between perceived risk in Europe and the United States is that it reflects tighter labour market regulations and more generous welfare programs in Europe.

The implications of differences in perceived risk across countries for household behaviour are an interesting topic of research. Several theoretical and empirical papers argue that income risk prompts wealth accumulation (Caballero, 1990; Carroll and Samwick, 1997). Subjective expectation data can be used to test the importance of precautionary savings. There are various studies that have attempted to do so: Guiso, Jappelli and Terlizzese (1992), Jappelli and Pistaferri (2000) and Lusardi (1996). All these studies find that income uncertainty is a significant determinant of household saving, but that the overall importance of the precautionary motive for saving is modest.

Using a specification close to Caballero (1990), Guiso, Jappelli e Terlizzese (1992) regress consumption and wealth on a set of demographics, an estimate of permanent income and the subjective variance of income. Their results indicate that the amount of wealth that is accumulated for precautionary reasons is only 1.8 percent of the overall net worth. Lusardi (1996) replicates their paper using an IV procedure to account for measurement error in subjective expectations and finds values that are only slightly higher. Jappelli e Pistaferri (2000) use subjective expectations to proxy for the unobserved conditional variance of consumption growth in the Euler equation. Their results show that the variance term is positive and significantly different from zero, a result in agreement with the hypothesis of precautionary saving.<sup>17</sup>

The fact that income risk explains only a limited amount of wealth accumulation should not be taken as conclusive evidence that the precautionary motive for saving is unimportant. On the one hand, Italian households may have accumulated a large buffer stock for different reasons (say, to meet a downpayment requirement). Since saving is fungible, households need not accumulate further (e.g., in case of negative income shocks they can delay home

<sup>16</sup> The data used in this comparative study are the 1993 Survey of Economic Expectations (SEE) for the US, the 1995 VBS-Panel for the Netherlands, and the 1995 SHIW for Italy. The measure of income uncertainty considered is the coefficient of variation and is based on questions about income prospects that are similar across surveys, but with two important differences. First, Dutch and American households are asked to report the probabilities of income falling below four thresholds (a given sequence in the SEE, equally spaced in the VSB), while in the SHIW there is only one threshold (the mid-point of the support). The SEE and the VSB both refer to household income, while the SHIW refers to individual earnings. The coefficient of variation is then obtained assuming that the distribution of future income follows a multi-step uniform distribution; this provides an upper bound to the true measure of uncertainty and is of course subject to the criticism that the distribution of future income may differ across countries.

<sup>17</sup> Since the subjective conditional variance of income growth is a proxy for the conditional variance of consumption growth, the coefficient they estimate has no structural interpretation. Yet, with CRRA preferences the coefficient of prudence equals  $1+\gamma$ , where  $\gamma$  is the coefficient of relative risk aversion; since credible values of the latter range from 1 to 10, the estimated coefficient (5.67) is consistent with the theoretical restrictions.

purchase). Furthermore, there may be other important risks that affect households' choices. We thus turn to examine the potential impact of health shocks.

#### 5.4. Health shocks

Recent literature has pointed out that uninsured and uncertain medical expenses may prompt precautionary saving (Palumbo, 1999). Italy lacks surveys designed to measure health hazards and empirical studies of the effect of health shock on wealth accumulation and there is no empirical study on this issue. In principle, the Italian National Health Service provides universal coverage of all health risks for any amount. However, in some regions the quality of the health service is perceived to be rather low.<sup>18</sup>

Direct surveys for saving motives indicate that medical assistance is not one of the main reasons for saving. For instance, in the Banca Nazionale del Lavoro-Centro Einaudi surveys, less than 10 percent of the respondents reported that medical assistance was their primary reason for saving. Data from the SHIW indicate that health expenditures account for 3.1 percent of total consumption of Italian households. Table 8 reports out-of-pocket health expenditure by category and service provider (public or private). This includes out-of-pocket expenses in public and private hospitalisations, laboratory tests, doctor visits, drugs, and contributions to private health plans. The share of out-of-pocket expenditure in private health services is 2.4 percent (the largest items being drugs and private doctor visits), while that in public hospitals amounts to 0.7 percent.

One possibility to gather indirect evidence on the impact of health hazards is to look at the distribution of health expenditures by age. In the absence of any form of insurance, and given the association between age and morbidity and the fact that children tend to be more exposed to health shocks, the age-profile of health-related expenditures should be U-shaped. On the other hand, if health shocks are fully insured, the profile of health expenditures should not depend on age. Italy lacks a well-developed health insurance market (the fraction of those with health insurance policies is only 12 percent), but features universal coverage by the National Health Service. In particular, the service is free for categories more exposed to health risks: children under 12 years of age, elderly over 65, poor households and the disabled.

In the top two panels of Figure 6 we plot per capita health expenditures separately for the South and for the North. The most interesting feature is that the age-profile of health expenditure is essentially flat, providing indirect evidence that the National Health Service has an important role in smoothing health expenditure over the life cycle. Furthermore, the expenditure is lower in the South than in the North even though the perception of the quality of the services provided by the public health system is more favourable in the latter than in the

<sup>18</sup> In some cases, however, quality is not a relevant issue (e.g., in the case of subsidies for drug purchases).

former.<sup>19</sup> The figures in the bottom panels of Figure 6 confirm that health shocks do not impact the age profile of total consumption: regardless of age, the share of health-related expenditures in total consumption is about 3 percent in both regions of the country.<sup>20</sup>

The descriptive evidence in this section suggests that health risks are not a major factor distorting the intertemporal consumption profile. However, in the absence of specifically designed surveys and detailed studies on the impact of health hazard on wealth accumulation, it is hard to assess the relative contribution of health risk on wealth accumulation in Italy. In particular, the average health expenditure plotted in Figure 6 does not convey the full picture because precautionary saving depends on the variance, not the level, of health hazards. Given the lack of more direct information on health risk indicators, our evidence should then be read as only suggestive of the importance of health hazards on wealth accumulation.

## 5.5. Mortgage market imperfections

Several studies point out that credit market imperfections (and in particular, the high downpayment ratios for home purchase) are crucial determinants of wealth accumulation in Italy. A crude indicator of these imperfections is the size of the credit market. In the post-war period the ratio of total debt to household disposable income has never exceeded 15 percent, a figure well below the Euro-15 average: in France, Germany and the UK the debt-income ratio is in fact three times higher. Many reasons have been listed to explain why Italians borrow so little.

The average downpayment ratio in Italy in the last two decades was usually 40 and 50 percent, as opposed to 20 percent in the US and Canada, 15 percent in the UK, 20 percent in Finland and Sweden, and 35 percent in Japan.<sup>21</sup> The typical duration of the loan in Italy rarely exceeds 20 years, as opposed to 30-40 years in countries with a similar level of development. Repossession procedures in case of bankruptcy are long and complex because of inefficiencies of the judicial system. Financial intermediaries rationally respond by raising the interest rate and reducing the amount of the loan. Finally, financial innovation has been slow or prevented by a series of legal requirements. While in other countries the existence of credit bureaus (private agencies that gather information on borrowers and pass them on the financial intermediaries) reduce considerably both time and transaction costs related to the evaluation

<sup>19</sup> The 1993 SHIW contains a self-reported indicator of the quality of the services of the national health system. The index ranges from 1 (lowest) to 10 (highest), and equals 4.1 in the South and 5.8 in the North.

<sup>20</sup> An increasing body of recent literature has characterized the joint distribution of health status, income, and wealth, and the connection between health and income inequality. Smith (1999) calculates median net worth by self-reported health status and age in the Survey of Consumer Finances and finds that net worth is strongly correlated with health status: poor health is associated with low wealth at all ages. The 1995 SHIW shows that also in Italy health status correlates with wealth. Note that the direction of causality between health and wealth can go both ways. On the one hand, poor health affects labor market performance; on the other, the wealthy can afford better health care.

<sup>21</sup> Starting from 1994 Italian banks offer mortgages with a lower downpayment requirement (about 20 percent). Such contracts are the results of a higher exposure to both domestic and international competition.

of the borrower's willingness to repay debt obligations, in Italy credit bureaus have been introduced only in the early 1990s.

Imperfections in the mortgage market have not prevented Italian households from investing heavily in the housing market. The homeownership ratio has dramatically increased in the last three decades (from 46 percent in 1961 to over 60 percent in the early 1990s) and it is currently above the European average. The fact that the mortgage market is underdeveloped and inefficient and that homeownership rates are high suggest that households finance house purchase mainly with their own means. In Italy, homeownership increases very slowly at young ages, with the result that Italian household become owner much later than in the UK (between 40 and 45, as opposed to 25-35 for the UK). This is indirect evidence that before purchasing a dwelling Italian households have to save out of their income a great deal.

Downpayment constraints distort the intertemporal consumption profile and affect the aggregate saving rate. Jappelli and Pagano (1994) show that in an economy with both population and productivity growth, the aggregate saving is higher than in the absence of constraints. They find that in low saving countries (Sweden, Finland, Ireland, US, UK) banks require relatively lower downpayment ratio.<sup>22</sup>

So far Italy lacks detailed microeconomic studies on the relationship between mortgage market imperfections and wealth accumulation. Also in this case it might be interesting to consider the potential effect of severance pay on wealth accumulation. Even though severance pay is essentially illiquid, workers can draw on part of the accumulated severance pay for the purchase of a first dwelling.<sup>23</sup> Thus, in principle the timing of the purchase is also influenced by the ability to gain access in advance to severance pay. However, given that workers can only liquidate part of the accumulated severance pay (not borrow against the future fund), and that severance pay accumulates only slowly with seniority, severance pay should not relieve borrowing constraints by a large extent. In practice, since Italian households tend to purchase a home quite late in the life cycle (on average, ten years later than in the UK), such provision does not seem to relieve borrowing constraints to an appreciable extent.

## **6. Conclusions**

In this paper we analyse the dynamics of wealth accumulation in Italy using household level data drawn from four waves of the Survey of Household Income and Wealth of the Bank of Italy. Data quality is assessed comparing survey aggregates with the corresponding national

<sup>22</sup> Controlling for the growth rate of GDP, public sector savings and demographics does not change the positive association between downpayments and saving (the regression coefficient indicates that a 10 percent increase in the downpayment ratio raises saving by 2 percentage points).

<sup>23</sup> The other exception is that of large medical expenses. This might act as a buffer for unforeseen expenses and thus reduce precautionary saving to face health hazards. However, withdrawal is allowed only once during the employment contract and only for a small fraction of each company's work force at any point in time.

account aggregates. We find a skewed wealth distribution, substantial and slightly increasing wealth inequality, and relatively low and declining wealth mobility. In principle, there is no necessary connection between wealth inequality and wealth mobility (the two could move in the same direction or be offsetting). In practice, we find that the rise in wealth inequality has been accompanied by a reduction in wealth mobility. It would be interesting to single out the factors that are responsible for the shifts in the wealth distribution, and to understand to what extent such shifts are a short-term phenomenon or instead will persist in the long run.

We find that household wealth is strongly correlated with age. The wealth profile estimated with repeated cross-sectional data is concave in age, while the profile of the standard deviation of the logarithm of wealth is convex in age. Both patterns are consistent with standard versions of the life-cycle model, which suggests that the primary motivation for saving is to accumulate resources to be drained down during retirement and at times of low-income realizations.

There are, however, many other factors that affect the process of wealth accumulation at the individual level. We single out the features of the social security system, the extent to which individual income shocks are insured by the welfare state, the public provision for health care, and the availability of housing finance. We report evidence on the role of income risk on wealth accumulation. Figures on the incidence of private health expenditure and private health insurance are used to evaluate the importance of uninsured health risk as a motive for saving. Data on the timing and financing of home acquisition illustrate the role of housing purchases in asset accumulation.

The available evidence suggests that uninsured income shocks and health risks are not major determinants of wealth accumulation in Italy. Bequest motives do not appear to be more important in Italy than in other industrial countries. On the other hand, there is considerable consensus that Italy's generous social security system crowds out private accumulation and that borrowing constraints in the mortgage market postpone the age of first home purchase and forces young households to save more than in other industrial countries.

More microeconomic research is warranted to study the relation between mortgage imperfections and household intertemporal choices, and the effect of tax incentives and health hazards on wealth accumulation. Moreover, there is no evidence on the validity of non-conventional saving models, such as mental accounting, targeting, and hyperbolic discounting.

## **References**

- Ando, Albert, Luigi Guiso, and Daniele Terlizzese (1994), "Dissaving by the elderly, transfer motives and liquidity constraints", in *Saving and the accumulation of wealth: essays on Italian households and government behavior*, Albert Ando, Luigi Guiso e Ignazio Visco (eds.). Cambridge: Cambridge University Press.
- Attanasio, Orazio, and Agar Brugiavini (1996), "L'effetto della riforma Amato sul risparmio delle famiglie Italiane", University of Venice, Note di Lavoro 96-05.

- Brandolini, Andrea (1999), "The personal distribution of income in post-war Italy: source description, data quality, and the time pattern of income inequality", Bank of Italy: Temi di Discussione 350, Rome: Italy.
- Brandolini, Andrea and Luigi Cannari (1994), "Methodological appendix: the Bank of Italy's Survey of Household Income and Wealth", in *Saving and the accumulation of wealth: essays on Italian households and government behavior*, Albert Ando, Luigi Guiso e Ignazio Visco (eds.). Cambridge: Cambridge University Press.
- Brugiavini, Agar (1997), "Social security and retirement in Italy," in *Frontiers in the Economics of Aging*, David Wise ed. Chicago: University of Chicago Press.
- Caballero, Ricardo J. (1990), "Consumption puzzles and precautionary savings," *Journal of Monetary Economics* 25, 113-36.
- Carroll, Cristopher D. and Andrew Samwick (1997), "The nature of precautionary saving", *Journal of Monetary Economics* 40, 41-71.
- Cecchi, Daniele, Andrea Ichino, and Aldo Rustichini (1999), "More equal but less mobile?", *Journal of Public Economics*, forthcoming.
- Das, Marcel and Bas Donkers (1997), "How certain are Dutch households about future income? An empirical analysis". Tilburg: CentER Discussion Paper 9738.
- Deaton, Angus, and Christina H. Paxson (1993), "Intertemporal choice and inequality", *Journal of Political Economy* 102, 384-94.
- Dominitz, Jeff and Charles Mansky (1997), "Using expectations data to study subjective income expectations", *Journal of the American Statistical Association* 92, 855-67.
- Guiso, Luigi and Tullio Jappelli (1991), "Do intergenerational transfers offset capital market imperfections? Evidence from a cross-section of Italian households", *European Economic Review* 35, 103-20.
- Guiso, Luigi, Tullio Jappelli and Luigi Pistaferri (1999), "What determines earnings and employment uncertainty?", London: CEPR Discussion Paper n. 2043.
- Guiso, Luigi, Tullio Jappelli and Daniele Terlizzese (1992), "Earnings uncertainty and precautionary saving", *Journal of Monetary Economics* 30, 307-37.
- Jappelli, Tullio and Franco Modigliani (1998), "The age-saving profile and the life-cycle hypothesis". University of Salerno: CSEF Working Paper n. 9.
- Jappelli, Tullio and Marco Pagano (1994), "Saving, growth and liquidity constraints", *Quarterly Journal of Economics* 106, 83-109.
- Jappelli, Tullio and Luigi Pistaferri (2000), "Using subjective income expectations to test the excess sensitivity of consumption to predicted income changes", *European Economic Review* 44, 337-358.
- Kessler, Denis and André Masson (1989), "Bequest and wealth accumulation: are some pieces of the puzzle missing?", *Journal of Economic Perspectives* 3, 141-52.
- Kotlikoff, Laurence J. and Lawrence Summers (1981), "The role of intergenerational transfers in aggregate capital accumulation", *Journal of Political Economy* 89, 706-32

- Lusardi, Annamaria (1997), "Precautionary saving and subjective earnings variance", *Economic Letters*, 353-60.
- Modigliani, Franco (1986), "Life cycle, individual thrift, and the wealth of nations," *American Economic Review* 76, 297-312.
- Modigliani, Franco (1988), "The role of intergenerational transfers and life cycle saving in the accumulation of wealth", *Journal of Economic Perspectives* 2, 15-40.
- Palumbo, Michael G: (1999), "Uncertain medical expenses and precautionary saving near the end of the life cycle", *Review of Economic Studies* 66, 395-421.
- Peracchi, Franco, and Nicola Rossi (1996), "Nonostante tutto è una riforma", in *Le nuove frontiere della politica economica*, Galimberti *et al.* (eds.), Milano: Sole 24 Ore
- Stewart, Mark B. (1983), "On least squares estimation when the dependent variable is grouped", *Review of Economic Studies* 50, 737-53

**TABLE 1**  
**RESPONSE RATES IN THE SURVEY OF HOUSEHOLD INCOME AND WEALTH**

The table, drawn from Brandolini (1999) reports response rates in the 1984-1995 SHIW. Ineligible units include the families of persons unknown, dead or emigrated. The gross response rate is the ratio of responses to contacted families. The net response rate is the ratio of responses to contacted families net of ineligible units.

<i>Year</i>	<i>Contacted families</i>	<i>Responses</i>	<i>Refusals</i>	<i>Absent units</i>	<i>Ineligible units</i>	<i>Gross Response rate</i>	<i>Net response rate</i>
1989	22,344	8,274	9,427	3,855	788	37.0	38.4
1991	25,210	8,188	6,962	9,481	579	32.5	33.2
1993	15,759	8,089	3,152	2,761	1,756	51.3	57.8
1995	15,606	8,135	3,653	2,51	1,308	52.1	56.9
<i>Panel section</i>							
1989	5,185	1,208	2,593	1,026	358	23.3	25.0
1991	4,134	2,187	1,071	790	86	52.9	54.0
1993	5,397	3,470	804	620	503	64.3	70.9
1995	4,833	3,645	779	259	150	75.4	77.8

**TABLE 2**  
**A COMPARISON BETWEEN MEASURES OF AGGREGATE SAVING**  
**AND WEALTH DERIVED FROM NATIONAL ACCOUNTS AND SURVEY DATA**

The aggregate saving rate and the wealth-income ratio are the household saving rate and household wealth-income ratio computed on the basis of the 1996 Annual Report of the Bank of Italy and the 1998 OECD Economic Outlook. The survey saving rate and wealth-income ratio are computed using the SHIW and dividing the total household saving and the total household wealth by total household disposable income. The survey estimates use sample weights and the entire data set for each survey year.

Year	Saving rate		Wealth-income ratio	
	National accounts data	Survey data	National accounts data	Survey data
1989	16.3	26.4	4.41	4.34
1991	16.5	24.0	4.55	4.94
1993	14.5	25.0	5.09	5.93
1995	14.0	23.4	5.00	6.03

**TABLE 3****DECILES OF THE DISTRIBUTIONS OF NET WORTH AND FINANCIAL WEALTH**

The table reports the deciles of the distributions of net worth and financial wealth. Values are expressed in thousand Euro.

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<i>Decile</i>	<i>Net worth</i>	<i>Financial wealth</i>
First	6,366	414
Second	17,857	1,035
Third	39,254	2,847
Fourth	64,443	4,814
Fifth	92,909	7,349
Sixth	123,550	10,870
Seventh	164,656	16,377
Eighth	223,434	27,458
Ninth	340,062	48,444
Mean	154,385	20,377

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**TABLE 4**  
**MEAN AND MEDIAN NET WORTH**  
**AND FINANCIAL WEALTH BY DECILE OF THE INCOME DISTRIBUTION**

The table report means and medians of the distributions of net worth and financial wealth for each decile of the disposable income distribution. Values are expressed in thousand Euro.

<i>Decile of the income distribution</i>	<i>Net worth</i>		<i>Financial wealth</i>	
	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>
First	38,226	8,411	2,730	518
Second	43,468	18,789	4,168	1,656
Third	68,107	43,841	6,876	3,364
Fourth	85,342	64,053	8,094	3,778
Fifth	106,342	88,380	11,805	6,783
Sixth	125,837	102,846	14,274	8,799
Seventh	152,308	123,835	18,448	10,870
Eighth	179,215	150,621	22,868	15,838
Ninth	241,413	202,406	31,361	19,707
Tenth	503,914	352,692	83,198	46,980

**TABLE 5****TRANSITION MATRIX FOR NET WORTH AND FINANCIAL WEALTH IN 1993-95**

The table reports wealth transitions from 1993 to 1995. The generic element of this table is  $p_{ij}$ , the probability of moving from quartile  $i$  in 1993 to quartile  $j$  in 1995. Define  $n_{ij}$  as the number of households that move from quartile  $i$  in 1993 to quartile  $j$  in 1995 and  $n_i = \sum_j n_{ij}$  as the total number of observations in each row  $i$  of the transition matrix. The maximum likelihood estimator of the first-order Markov transition probabilities is  $\hat{p}_{ij} = n_{ij} / n_i$ .

Quartile in 1993		Quartile in 1995			
Net worth	First	Second	Third	Fourth	
First	80	16	3	1	
Second	19	58	19	4	
Third	2	22	57	18	
Fourth	1	4	20	76	
<b>Financial wealth</b>					
First	65	23	8	4	
Second	25	43	25	7	
Third	9	26	43	22	
Fourth	3	10	22	65	

**TABLE 6**  
**INCIDENCE OF LIFE INSURANCE AND PENSION FUNDS**

The table reports the fraction of households holding life insurance and defined benefits pension funds. The latter include employer-sponsored plans and personal retirement accounts. The cash value of defined-contribution pensions and the cash value of life insurance are expressed as a percentage of financial wealth. The SHIW does not report directly wealth in life-insurance and pension funds. They are imputed on the basis of annual contributions and information on the number of years that households have contributed to these funds. The interest rate used to cumulate contributions is 3 percent.

	1989	1991	1993	1995
Fraction of households with:				
Defined-contribution pensions	5.43	6.07	7.31	7.77
Life insurance	13.68	17.09	18.53	21.54
Cash value of:				
Defined-contribution pensions	2.27	3.52	3.44	4.05
Life insurance	4.69	8.31	8.16	10.25

**TABLE 7****INTERGENERATIONAL TRANSFERS AS A SOURCE OF WEALTH ACCUMULATION**

The table, drawn from Guiso and Jappelli (1999), reports information on intergenerational transfers. Transfer amounts are expressed in 1991 Lire and then converted in thousands of Euro. The capitalized transfers are computed assuming a 2 percent annual net real rate of return on wealth. 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.

	<i>Incidence of general transfers</i>	<i>Amount (thousand Euro)</i>	<i>Percentage of net worth</i>
<b>Transfers</b>			
Bequests	20.3	21.6	20.2
Gifts	5.6	4.4	4.1
Total transfers	25.9	26.0	24.3
<b>Capitalized transfers</b>			
Bequests	20.3	31.6	29.5
Gifts	5.6	6.8	6.3
Total transfers	25.9	38.4	35.8

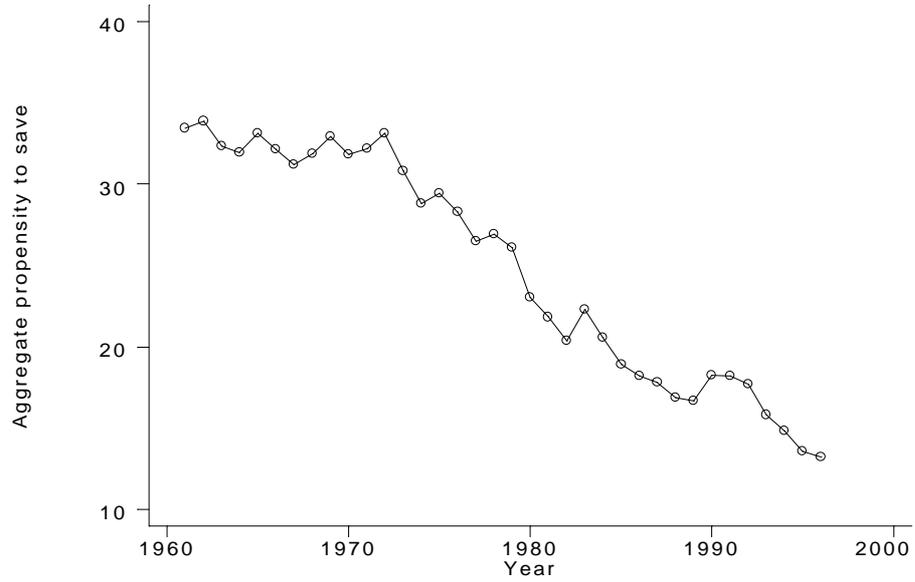
**TABLE 8**  
**OUT-OF-POCKET HEALTH EXPENDITURES**

Health expenditures are expressed in Euro. All statistics are computed using sample weights and are based on the 1993 SHIW.

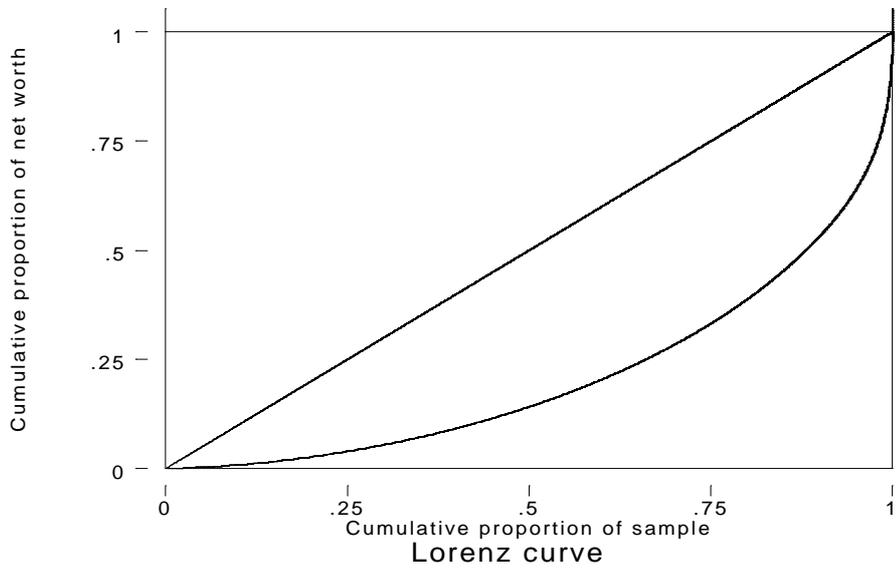
Out-of-pocket expenses in:	Public health service	Private health service
Contributions to health plans	.-	41
Hospitalisation	22	29
Laboratory tests	48	23
Doctor visits	34	136
Drugs	.-	147
Total	104	376
Percentage of total consumption	0.7	2.4

**FIGURE 1**  
**THE AGGREGATE PROPENSITY TO SAVE, 1960-1996**

The aggregate propensity to save refers to the household sector. The data are drawn from OECD, Economic Outlook, July 1998.



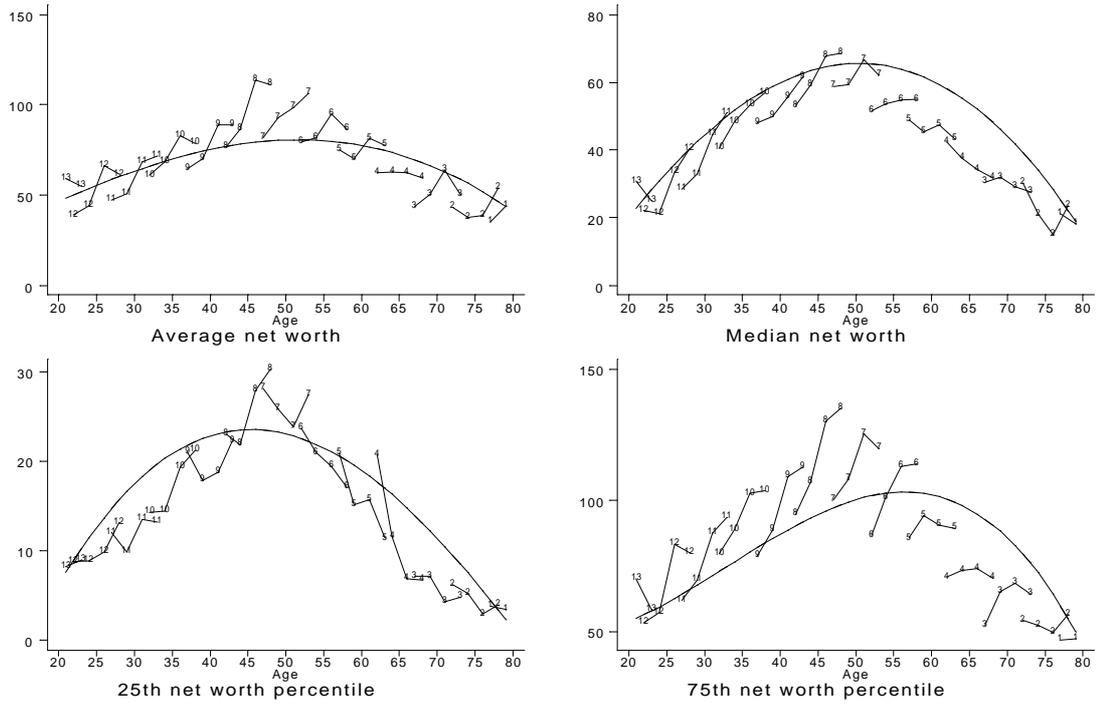
**FIGURE 2**  
**LORENZ CURVE FOR NET WORTH**



**FIGURE 3**

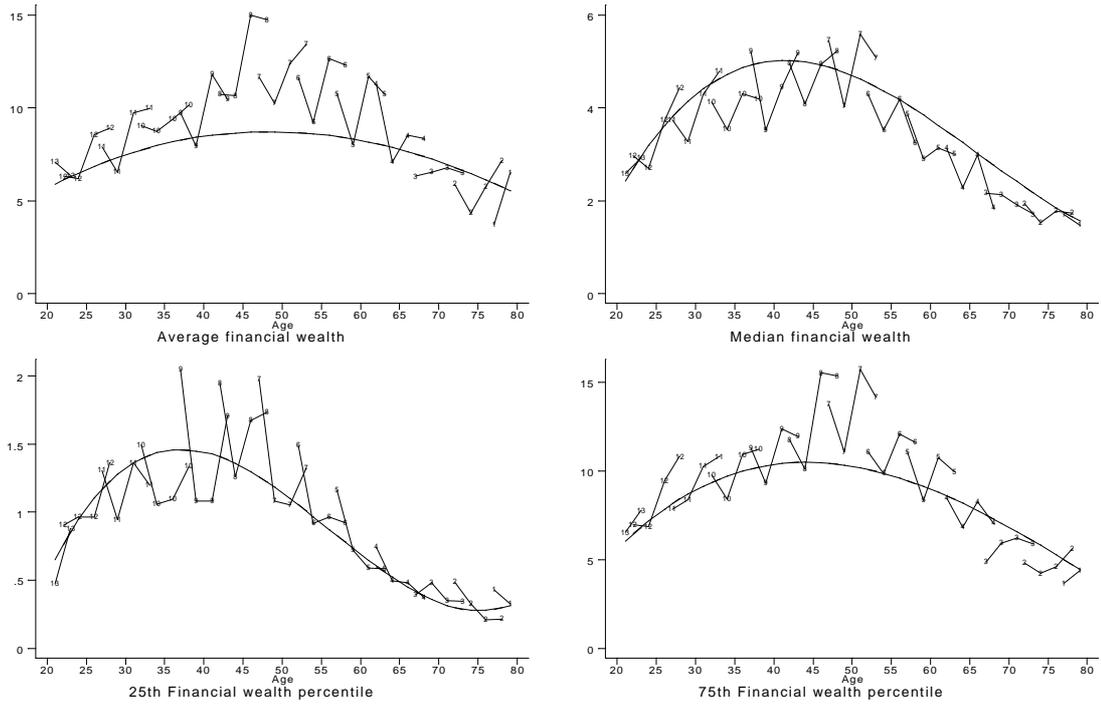
**COHORT ADJUSTED PROFILES OF NET WORTH**

The figures plots wealth by age of 13 cohorts: cohort 1 includes all households whose head was born between 1905 and 1909, cohort 2 those born between 1910 and 1914, and so on up to cohort 13, those born between 1965 and 1969. Each cohort is observed at four different times, one for each cross-section. The line in each graph is obtained by regressing wealth on a fourth-order age polynomial, a full set of cohort dummies and a set of restricted time dummies. The data are drawn from the 1989-1995 SHIW. Values are expressed in thousand Euro.



**FIGURE 4**  
**COHORT ADJUSTED PROFILES OF FINANCIAL WEALTH**

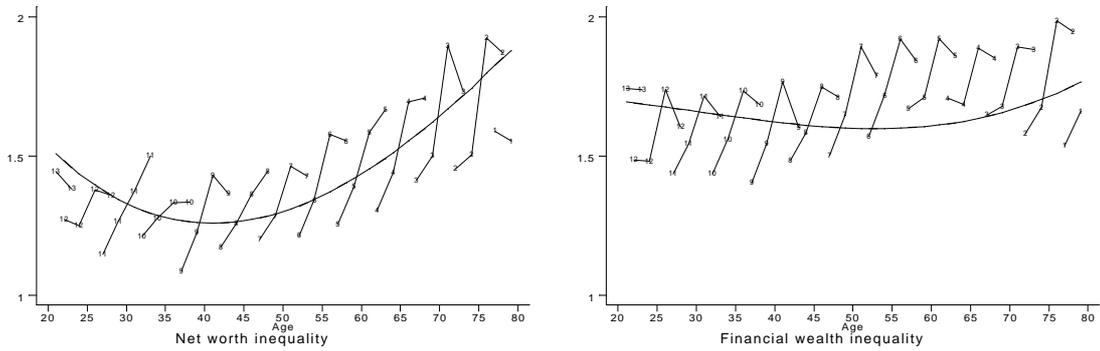
The figures plots wealth by age of 13 cohorts: cohort 1 includes all households whose head was born between 1905 and 1909, cohort 2 those born between 1910 and 1914, and so on up to cohort 13, those born between 1965 and 1969. Each cohort is observed at four different times, one for each cross-section. The line in each graph is obtained by regressing wealth on a fourth-order age polynomial, a full set of cohort dummies and a set of restricted time dummies. The data are drawn from the 1989-1995 SHIW. Values are expressed in thousand Euro.



**FIGURE 5**

**THE AGE PROFILE OF WEALTH INEQUALITY**

The figures plot the standard deviation of the logarithm of net worth and of financial wealth by age of 13 cohorts. Cohort 1 includes all households whose head was born between 1905 and 1909, cohort 2 those born between 1910 and 1914, and so on up to cohort 13, those born between 1965 and 1969. Each cohort is observed at four different times, one for each cross-section. The line in each graph is obtained by regressing the standard deviation of the logarithm of wealth on a fourth-order age polynomial, a full set of cohort dummies and a set of restricted time dummies. The data are drawn from the 1989-1995 SHIW.



**FIGURE 6**  
**HEALTH EXPENDITURES BY AGE AND REGION**

The data are drawn from the 1993 SHIW. Per capita health expenditure includes both public and private expenditure. Data on health expenditures are expressed in thousand Euro.

