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Saving and Capital Market Imperfections: The Italian experience*

Luigi Guiso Bank of Italy, Rome, Italy *Tullio Jappelli*

Instituto Universitario Navale, Naples, Italy

Daniele Terlizzese

Bank of Italy, Rome, Italy

Abstract

Italy's saving rate is high by international standards, even when differences in growth are taken into account. We argue that credit and insurance market imperfections provide a plausible explanation for the high Italian saving rate. We also reject the potential roles of the public sector, informal financial arrangements, bequests and the slope of the earnings profile as alternative explanations of the evidence.

I. Introduction

Two features characterize the Italian saving rate. First, by international standards, Italy is a "high-saving" country and second, the Italian saving rate has declined markedly in the last three decades. We provide a consistent framework for interpreting these facts. According to the life-cycle hypothesis, they should be explained mainly by differences in demographics and productivity growth between countries and over time; cf. Modigliani (1990). However, as we argue in Section II, the differences in growth rates between Italy and the other major OECD countries are rather small when compared with the large differences in their saving rates: growth appears to generate more saving in Italy than elsewhere. Thus, growth alone cannot account for the high Italian saving rate and for its sharp decline.

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We argue that capital market imperfections provide a plausible explanation of the evidence. An economy in which households are liquidity constrained exhibits a higher saving rate than an economy with perfect markets, if the two economies grow at the same rate, and an identical reduction in growth leads to a greater reduction in saving in the economy with imperfect markets; see Jappelli and Pagano (1991). Thus, the interaction between growth and capital market imperfections may explain not only why Italy's saving rate is high; it may also explain why it declined so sharply in the 80s.

In Section III we present evidence to show that the level of development of the Italian consumer credit, mortgage and insurance markets is by far the lowest of the major industrial countries. Regulations, high down payments, wide interest rate spreads and limited competition make it more difficult to obtain consumer credit, mortgages and insurance in Italy than in most of the other industrialized countries. In Section IV we evaluate alternative explanations for the high Italian saving rate, and reject the role of bequests and the slope of earnings profiles as possible causes. In Sections V and VI we survey some recent empirical evidence on the effect of capital market imperfections on saving in Italy. It is suggested in Section VII that the approach taken in this study is also useful for analyzing inter-country differences in saving rates and the response of saving to a liberalization of financial markets.

II. The Italian Saving Rate in an International Perspective

Table 1 reports the private saving rates of the seven major OECD countries (hereafter the G7) and the three Nordic countries (Norway, Sweden and Finland). For each country we also report the average rates of growth of gross national product over ten-year periods. In terms of gross savings rates, Italy ranks first in all three periods. However, this measure of saving includes the erosion in purchasing power of the stock of nominally denominated debt due to inflation and depreciation of the capital stock.¹ Inflation adjustment is extremely important in Italy, on account of its high rate of inflation and its high level of public debt, especially in the past 15 years. Table 1 shows that in terms of net private sving rates adjusted for

¹ Any theory of consumer choice refers to net, rather than gross saving rates. However, income, consumption and depreciation are not strictly comparable across countries; cf. Hayashi (1986). Thus, some of the differences emerging from Table 1 may merely reflect differences in accounting practices. For brevity, net saving rates not adjusted for inflation are not reported. Italy's rank is unchanged, however; on average, depreciation, as measured by the national accounts, has not been higher in Italy than in the G7.

	Avera 1960-	ge 70		Averag 1971-8	se 80		Averag 1981-	se 87		Difference (1980s-6	ces 60s)	Ratio of growth 1	NSA of th rate of GN	ъ с
	E GS	NSA (2)	<i>o</i> (3)	GS (4)	NSA (5)	(9)	GS (7)	NSA (8)	م (6)	ΔNSA (10)	Δ _Φ (11)	1960s (12)	1970s (13)	1980s (14)
Canada	18.1	8.0	4.7	20.7	11.5	3.8	22.5	12.1	3.1	4.1	- 1.6	1.7	3.0	3.9
U.S.	17.7	8.3	3.5	19.2	8.2	2.9	18.7	6.8	3.1	- 1.5	- 0.4	2.4	2.8	2.2
Japan	28.7	18.1	9.5	29.9	20.0	4.9	26.8	15.4	3.7	- 2.7	- 5.8	1.9	4.1	4.2
France	22.5	14.5	5.0	22.0	11.5	3.4	18.8	5.4	1.8	- 9.1	- 3.2	2.9	3.4	3.0
Germany	21.1	13.8	4.1	20.2	11.0	2.8	20.0	8.8	1.6	- 5.0	- 2.5	3.4	3.9	5.5
Italy	25.8	17.6	5.2	29.4	14.5	3.7	28.1	11.0	1.9	- 6.6	- 3.3	3.4	3.9	5.8
U.K.	13.1	6.1	2.6	16.4	0.8	1.8	17.7	4.7	3.2	- 1.4	0.6	2.3	0.4	1.5
G7 average	21.0	12.3	4.9	22.5	11.1	3.3	21.8	9.1	2.6	- 3.2	- 2.3	2.5	3.4	3.5
Finland	18.2	7.4	4.8	19.3	7.8	3.8	20.0	LL	3.2	0.3	- 1.6	1.5	2.0	2.4
Norway	19.4	8.5	3.8	18.8	5.5	4.8	19.2	2.4	3.9	-6.1	0.1	2.2	1.1	0.6
Sweden	I	7.6	4.2	14.2	8.0	2.1	15.5	5.5	2.4	-2.1	- 1.8	1.8	3.8	2.3
OECD average		11.4	4.9	21.0	11.9	3.4	20.4	0.0	2.4	- 2.4	- 2.5	2.3	3.5	3.8
^a Gross private si are expressed as deflator and the product. The sou	wing rates a percents stock of o rce for gro	s (GS) are age of ne utstandin oss saving	e expre- t natior. g govei	ssed as a a la produ riment de s Dean ei	percenta ct. The ii ebt at the <i>t al.</i> (1990	uge of gr nflation beginn 0); for n	ross nationad adjustm adjustm ting of each ting of each ting of each ting the saving ting ting ting ting ting ting ting t	onal proc ent is the ach year.	duct. Ne produc Growth d growtl	t private solutions of the ration (ρ) is the the h, Modiglia	aving rates te of chang average ra	adjusted ge in the p te of grow	for inflatic rivate cons th of gross	on (NSA) sumption national

inflation, Italy ranked second in the 1960s (after Japan), second in the 1970s (again, after Japan) and third in the 1980s (after Japan and Canada). This brings us to the first fact: the Italian private saving rate is comparatively high.² In contrast to the unadjusted figures, inflation-adjusted private saving rates declined by 6.6 per cent from the 1960s to the 1980s (column 10). This reduction was more pronounced than in all countries shown in Table 1 (except France). Thus, the second feature of the Italian private saving rate is that it declined substantially in the last 30 years.

The life-cycle model points mainly to differences in population in productivity growth rates to explain why saving differs among countries and why it changes over time. However, the differences in the growth rates of Italy and the G7 are rather small when compared with the large differences in respective saving rates. The Italian net private saving rate (adjusted for inflation) in the 1960s was almost 5 percentage points higher than the G7 average, but its growth rate was only 0.3 per cent above average. In the 1970s the differences were 3.4 and 0.4 per cent respectively, while in the 1980s private saving in Italy was 2 per cent above average, but growth was actually below average (-0.7 per cent). Not even the stripped-down version of the Modigliani-Brumberg life-cycle model, which emphasizes the effect of growth on saving by assuming a flat earnings profile throughout the life of the individual, can explain these large differences in saving by relying only on differences in growth. According to this model, in fact, the predicted differences between the Italian and the G7 saving rates is only 0.6 per cent in the 1960s, 1.1 per cent in the 1970s and negative in the 1980s. 3

$$s = 1 - \frac{M}{L} \frac{(1+\gamma)^{L-1}}{(1+\gamma)^{L-M}[(1+\gamma)^{M}-1]}.$$

The calculation in the text assumes a value of 53 for L and 40 for M. The values of γ are given in Table 1. For Italy, the simulated rates are 19.0, 15.9 and 9.9 for the three decades. The corresponding values for the G7 are 18.4, 14.8 and 12.6.

² One possibility is that Italy has a higher than average private saving rate because it has a higher than average government deficit. This would be the prediction of the much debated Ricardian Equivalence Proposition which asserts that national saving should be taken as reference, since people incorporate the budget constraint of the government in their own budget constraint; see Barro (1974). Contrary to the Ricardian Equivalence Proposition, however, private saving has not risen to offset the increase in government deficit in the postwar period; cf. Modigliani and Jappelli (1987).

³In this version of the model individuals live L years, work in the first M years and earn a constant income throughout their working life. The labor income of each generation grows at a rate γ . If the rate of interest and the rate of time preferences are equal to zero, the aggregate saving rate s can be written as

One way of checking that growth alone cannot explain the difference in saving between Italy and the G7 is to compare the ratios between saving and growth among countries (Table 1, columns 12, 13 and 14). By this measure, Italy ranks first in the 1960s and 1980s and second in the 1970s. This ranking already shows that the Italian saving rate was high not only in absolute terms, but also relative to its growth rate.⁴

A more formal way of checking that growth cannot explain Italy's high saving rate is to predict its saving rate by running a pooled regression over countries and (ten-year) periods that excludes Italy. In all cases, and even when we add other OECD countries or other regressors — such as government saving and the dependency ratio — the coefficients tend to underpredict substantially the Italian private saving rate in all three decades. Two typical regressions for the period 1960–87, both excluding Italy from the sample, are as follows:

Sample: 18 observations of 6 G7 countries

$S_{\rm p} = 0.092 + 2.361 \rho$	$-0.178 S_{g} - 0.191 \text{ Dep}$	SE = 0.038
(0.048) (0.591)	(0.319) (0.139)	d.v. mean = 0.102

Sample: 60 observations of 20 OECD countries

$S_{\rm p} = 0.094 + 1.429$	$\rho = 0.486$	$S_{g} = 0.061 \text{ Dep}$	p $SE = 0.042$
(0.048) (0.59	(0.319)) (0.139)	d.v. mean = 0.106

where S_p and S_g are net private and public saving adjusted for inflation, respectively, ρ is the rate of growth of GDP, Dep is the ratio of the population under 15 to the total population, and standard errors are reported in parentheses.⁵

In the first regression the difference between the predicted and the actual Italian saving rates are -3.3 per cent in the 1960s, -3.3 in the 1970s and -2.5 in the 1980s. In the second regression the differences are -4.8 in the 1960s, -3.4 in the 1970s and -1.1 in the 1980s. Regressions with national saving as the dependent variable yield similar results. The data tell us that, by international comparison, the Italian saving rate is high even when differences in growth and other variables are taken into account.

Since differences in growth cannot explain the evidence, we turn to other factors that could account for the high Italian saving rate. The issue

⁴ The ratio is also high in Germany and Japan (in the 1970s and 1980s). On the other hand, the Nordic countries' private saving rate is low not only in absolute terms, but also with respect to their rate of growth, which was roughly in line with that of the other OECD countries.

⁵ The data source is Modigliani (1990). The OECD countries not included in the estimation are Italy, New Zealand, Yugoslavia and Turkey.

that we think deserves the closest scrutiny is the possibility that the main difference between Italy and the G7 is the low degree of development of Italian capital markets. When credit and insurance markets are imperfect, young households are forced to save (or consume less) in response to borrowing constraints and engage in precautionary saving in reaction to insurance market imperfections. In the absence of population or productivity growth, capital market imperfections do not, of course, generate positive aggregate saving. But once one allows for growth, an economy with capital market imperfections exhibits a higher saving rate than an economy with perfect markets. In addition, the effect of growth on saving is greater in an economy with liquidity constraints: an identical change in growth — for instance, from zero to positive growth — generates a greater change in saving in an economy with liquidity constraints; see Jappelli and Pagano (1991).⁶

This interaction between saving, growth and liquidity constraints may also explain why Italy's saving rate declined so sharply in the 1980s. In the G7 the decline in growth was of the same order of magnitude as in Italy, but the decline in private saving was only 3.2 per cent (against 6.6 per cent in Italy). Thus, in Italy, the reduction in growth has been associated with a greater reduction in saving than in other countries. This pattern is consistent with the idea that liquidity constraints are more severe in Italy than elsewhere.

Besides liquidity constraints, however, other factors may explain the two features of the Italian saving rate: the Italian earnings profile may be flatter than elsewhere, or the bequest motive in Italy may be stronger. In the presence of growth, a strong bequest motive, or a flat earnings profile may induce a high saving rate. These issues are addressed in Section IV.

III. Italian Capital Markets in an International Perspective

Table 2 reports figures for consumer credit and mortgages in the main OECD countries and in three Nordic countries (see columns 1 and 3). In Italy both markets are between one fifth and one tenth of the size of those in most other countries in the Table. The terms of consumer credit to

⁶ Jappelli and Pagano (1991) illustrate this point in the context of a three-period overlapping generations model where the young are liquidity constrained and productivity growth is exogenous. In a closed economy, the saving rate is the product of the growth rate and the capital-output ratio; they show that for any given level of the growth rate, liquidity constraints raise the capital-output ratio and therefore saving. In a small open economy, saving is no longer the product of growth and the capital-output ratio, but the proposition that the saving rate is higher in the economy with liquidity constraints still holds. Liquidity constraints also generate higher saving in a version of the model with endogenous growth \dot{a} la Romer.

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Table 2.

	Consumer credit ^a (1)	Durables as a % of total consumption ^h (2)	Mortgage loans ^c (3)	Average down payment as a percentage of the housing price ^d (4)	Ownership (per cent) ^c (5)	Insurance premiums as a % of GDP ^f (6)
Canada	22 73	14 10	60 61	20 20	62 65	5.41 9.07
Japan	18	s S	25	40	60	8.90
France	×	12	44	20	47	5.06
Germany	15		-	30	37	6.40
Italy	4	11	9	50	59	2.36
U.K.	10	6	45	15	59	8.35
G7 average ^g	14	1	44	I	56	6.47
Finland	39	Π	42	20	61	5.31
Norway	48	12	60	-	67	5.08
Sweden	39	10	61	20	57	4.49
^a As a percentage (of private consump	otion expenditures in 1	988 (for Japan a	nd France in 1987, for Sweden i	n 1986). Consumer c	redit sources:

DECD Financial Statistics Monthly. Section 2, Table D.4, December 1990. For Italy, Annual Report of the Bank of Italy, 1989, Table D23, p. 234. Data for Finland, Norway, Sweden and Japan have been provided by the Central Banks of Finland, Norway and Sweden and the Japan information Centre Corporation, respectively.

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^b All figures refer to 1980. The "durable" aggregate excludes semi-durables. Source: OECD National Accounts.

As a percentage of private consumption expenditures in 1982. Sources: Boleat (1987, Table 21.8, p. 218). For Italy, Annual Report of the ⁴The average down payment is the amount of personal funds required to buy a home even when individuals are allowed to borrow from different institutions. For Canada, Finland, France, Germany, and the U.S. the figure refers to 1982-3 from Boleat (1987). For Japan the source is Havashi. Ito and Slemrod (1988). For Italy, the numbers are our own estimates based on conversations with market specialists. The figure for For Canada, Japan, France and Germany the figures refer to 1978; for the U.S., Italy, the U.K. and Sweden to 1981; for Finland and Norway Bank of Italy, Appendix, 1984, Table aD29. Data for Finland, Norway and Sweden were kindly provided by the Central Banks in each country. he U.K. is the average ratio of mortgage advances to housing prices for first-time home buyers in 1988 from Lomax (1991) to 1980. Source: Boleat (1987), Table 29.1, p. 460.

Sources: Sigma, Zurich, March 1990, and Annuario Italiano di Statistica, Rome, 1989, Table 16.18.

Average figures are unweighted averages of all countries.

households are a likely explanation for the small size of this market. Guiso, Jappelli and Terlizzese (1991) report that in Italy, the spread between borrowing and lending rates for personal loans and the down payment for purchases of durables is comparatively high. An alternative explanation for the low level of consumer credit is that Italian households have a low propensity to borrow, either because their demographic characteristics and earnings differ from those of other OECD households or simply because they are thrifty. However, simulations by Jappelli and Pagano (1989) suggest that the earnings profiles and age structure of the population fail to explain what is it that induces Italian households to borrow less than their OECD counterparts.

In countries with deep consumer credit markets, many households finance the purchase of durable goods by borrowing. An indirect indicator of the potential impact of borrowing constraints on consumption expenditures is provided in Table 2 (column 2), where we report the ratio of outlays on durables to total consumption expenditure. This ratio is no lower in Italy than in most OECD countries. Thus, if borrowing constraints exist in Italy, they do not prevent households from acquiring durable goods. But clearly, if credit finances only a very small share of consumption, most durables will be purchased by drawing on accumulated saving rather than borrowing.

Regulation plays an important role in mortgage markets. By law, the minimum down payment for first-time buyers is 25 per cent of the value of the house. In practice, however, the required down payment is 50 per cent, as opposed to 20 per cent in the U.S. and Canada, 15 per cent in the U.K., and 20 per cent in Finland and Sweden (Table 2, column 4). Short maturities place an additional burden on Italian households. The typical mortgage maturity in Italy ranges from 10 to 15 years, as opposed to 25 years in Canada, 28 years in the U.S., 25 to 30 years in Japan, and 15 years in France; cf. Lomax (1991).⁷ In the U.S., Sweden, Canada and the U.K., loan applications are processed rapidly because specialized credit reference agencies provide information on the credit histories of borrowers; cf. Pagano and Jappelli (1991). Such agencies did not begin operating in Italy until 1990, so the problems associated with asymmetric information between lenders and borrowers are likely to be more severe and the cost of processing loans higher than in other countries.⁸

⁷ In almost all European countries there is direct government involvement in the provision of mortgage loans, either directly or through the tax system; cf. Boleat (1987). In Italy, by contrast, government intervention in housing finance is very limited and government incentives have been reduced over the years; cf. Guiso, Jappelli and Terlizzese (1991).

⁸ In January 1991 the spread between the variable mortgage interest rate and the 3-month inter-bank rate was 0.5 per cent in Germany, 1 in the U.S., 1.5 in the U.K., 2 in Japan and France; see Lomax (1991). In Italy it was 2.5 per cent.

Because of high down payments, high interest rate spreads and low maturities, it is not surprising that the Italian mortgage market is one of the smallest in the OECD. However, mortgage market imperfections have not prevented Italian households from becoming homeowners. The small size of the mortgage market cannot be attributed to a low percentage of owner-occupation, which is actually higher in Italy than in several OECD countries (Table 2, column 5). But since the mortgage market is small and the percentage of owner occupation high, many households borrow either very little or not at all in order to acquire their homes.

Column 6 of Table 2 indicates that the average Italian buys less private insurance than the average citizen of any other OECD country reported in the Table. In Italy insurance premiums as a percentage of GDP are 2.4 per cent, a figure between one half and one third that of any other major OECD country. This is largely attributable to regulation, which places strict barriers to entry on firms and strong restrictions on the types of contracts that individuals may buy. Premiums are set by a regulatory agency and strictly enforced. Although some progress towards liberalization has been made in recent years, regulation is considerably tighter than in any other major European country.⁹

Informal financial arrangements may serve as a form of insurance against risk. A similar argument applies in the case of credit markets, i.e., affluent parents may relieve the borrowing constraints of their children. The fact that Italians buy so little insurance and borrow so little may merely indicate that informal markets cover all types of risks and needs efficiently and at a low social cost; a network of informal markets may therefore overcome credit and insurance market imperfections. To be effective, transfers have to be timed correctly. They have to occur when they are most needed, i.e., in emergencies or when credit constraints are binding. Bequests are very unlikely to serve these purposes. Gifts or loans have to occur inter vivos.

However, all surveys of Italian households indicate that private transfers are not widespread. In a typical cross section, not more than 2 or 3 per cent of households report that they have received either gifts or loans from relatives and friends during the previous years. This contrasts with the U.S. (the only country where private transfers have received wide attention),

⁹ Efficient social insurance programs may substitute for private health and life insurance. In principle, the government may provide the most efficient form of insurance because it has the largest pool of applicants. Guiso, Jappelli and Terlizzese (1991) report evidence showing that: (i) if anything, public coverage of most risks in Italy is lower than in the G7; (ii) the increase in public insurance has not been greater in Italy than in other countries; (iii) private insurance markets were small even before the public provision of insurance started to expand. They conclude that the role of the government cannot explain why Italian private insurance markets are so thin.

where more than 10 per cent of households report receiving transfers during a one-year period; see Cox (1990). Guiso and Jappelli (1991) report that in Italy some of these transfers are directed towards liquidityconstrained households. This finding is consistent with the hypothesis that informal markets help remove borrowing constraints. But such transfers are not widespread, and most households remain liquidity-constrained even after private transfers have been made.¹⁰

To sum up, Italian capital markets are significantly at variance with the paradigm of perfect capital markets that is required by rational consumers to smooth income fluctuation and acquire durable goods and homes without distorting the consumption profile. The markets for household credit and insurance are much less developed than those of other OECD countries at a comparable stage of economic development. Regulation, transaction costs and informational asymmetries are the likely reasons for these market failures.¹¹

IV. Bequests and Earnings Profiles

One objection to our analysis is that the age-earnings profile may be flatter in Italy than in other countries. The life-cycle model suggests that in an economy with a flat earnings profile, the young save relatively more (or borrow less) than in economies where resources are more concentrated later in life. For any given growth rate, the resulting saving rate is higher than in an economy with a steep earnings profile. Data on earnings profiles in Italy, the U.S. and Japan - three countries with considerably different saving-growth experience - do not support this hypothesis (Table 3). The Italian cross-section profile is similar to the American, but flatter than the Japanese. Once we correct the cross-section profiles for the effect of productivity growth, it appears that the U.S. profile is the flattest, i.e., closest to that implied by the stylized version of the life-cycle model. In Italy, instead, households have been confronted with a relatively steep earnings profile, and even more so in Japan. Due to this, the saving rate should be highest in the U.S., followed by Italy and Japan, contrary to what has been observed.

A second possible objection is that Italians save because they have a strong bequest motive. If households pass on a fraction of their lifetime

¹⁰ Some transfers are large and are likely to be made on "special" occasions, such as marriage and the purchase of a home. We return to this issue in Section V.

¹¹A complementary explanation for the failure of credit markets is that the costs of enforcing contracts and disposing of collateral are substantial. In Italy it takes an average of 4 years to repossess a house in case of mortgage foreclosure, as opposed to one year or less in the U.K., the U.S. and the Nordic countries (Source: Italian Bankers Association).

	Cross-se	ction profiles	a	Profiles adjusted for productivity growth ^b		
Age	Italy (1)	U.S. (2)	Japan (3)	Italy (4)	U.S. (5)	Japan (6)
20-29	65	65	32	30	50	11
30-39	87	92	79	59	81	47
40-49	100	100	100	100	100	100
50-59	83	85	104	97	97	174
60-69	25	42	45	54	54	126

Table 3. Earning profiles in Italy, the U.S. and Japan (age group 40-49=100)

^a Sources: Italy: 1989 Survey of Household Income and Wealth. United States and Japan: Hayashi (1986, Table 3, p. 170). Data for Japan refer to 1980; data for the U.S. to 1972-73. ^b The adjustment for the cohort effect is the average annual rate of growth of GNP per employed worker between 1960 and 1988, i.e., 3.9 per cent in Italy, 1.3 per cent in the United States and 5.3 per cent in Japan.

resources to future generations, an increase in the growth leads to higher aggregate saving; in this sense saving is an increasing function of the strength of the bequest motive. There is little direct evidence concerning the role of bequests in Italy. The specific importance of intergenerational transfers in the form of housing was studied by Barca, Cannari and Guiso (1991), who found that bequeathed wealth in 1987 accounted for 20–30 per cent of aggregate wealth, a value that is not high if compared with the share of inherited wealth in the U.S.; see, for instance, Kotlikoff and Summers (1988).¹²

Indirect information on the potential role of intergenerational transfers can be inferred from age-wealth profiles in Italy, the U.S. and Japan. The pattern of wealth decumulation, shown in Table 4, does not indicate that Italians have a particularly strong bequest motive. If anything, the Italian profile points to the presence of more wealth decumulation by the elderly than in the other two countries and is much more hump-shaped than in Japan, where bequests are thought to be very important.¹³

¹² This estimate is based on direct information relating to the years in which real estate was inherited and does not include financial wealth.

¹³The Japanese age-wealth profile is affected by the tendency of the elderly to merge with younger households. Wealth decumulation is more evident if one isolates nuclear families, which make up 50 per cent of Japanese households; see Hayashi (1986). The Italian and U.S. profiles would be more similar if extended families were more widespread in the U.S. But the proportion of individuals over 60 living with younger households is 5 per cent in Italy and only 3 per cent in the U.S.

	Cross-se	ection profiles	5 ^a	Profiles adjusted for productivity growth ^b		
Age	Italy (1)	U.S. (2)	Japan (3)	Italy (4)	U.S. (5)	Japan (6)
<25	26	20	11	6	12	2
26-35	41	52	41	13	35	9
36-45	75	87	81	35	67	29
46-55	99	89	94	68	78	56
56-65	100	100	100	100	100	100
66-69	63	74	99	82	81	122
70-74	62	73	98	102	86	136
75-79	45	86	65	86	107	104
>80	31	40	74	67	52	134
Amount ^c	154	86	17	599	136	106

Table 4. Wealth profiles in Italy, the U.S. and Japan (age group 56-65 = 100)

^a Sources: Italy: 1989 Survey of Household Income and Wealth. United States: 1979 Household Pension Survey, Ando and Kennickell (1987, Table 7.1, p. 163, line NW79). Japan: 1979 National Survey of Family Expenditure, Ando and Kennickell (1987, Table 7.9B, line ARM, p. 195).

^b The adjustment for the cohort effect is the average annual rate of growth of GNP per employed worker between 1960 and 1988, i.e., 3.9 per cent in Italy, 1.3 per cent in the United States and 5.3 per cent in Japan. In each case we assume that the average age for individuals in the first age-group is 20.

^c Wealth is the sum of real and financial wealth, net of liabilities. The last row of the table indicates the values of net worth in the age class 56-64. For Italy this number is in millions of 1987 lire, for the United States in thousands of 1979 dollars, for Japan in millions of 1979 yen.

More formal analyses exist of the pattern of wealth decumulation. King and Dicks-Mireaux (1982) found that in Canada, the rate of wealth decumulation between the ages 65 and 85 ranges from 0.7 to 1.5 per cent per year. In the U.S., Hurd (1987) found a rate of decumulation of 1.5 per cent, and Hubbard (1986) found even lower values. On the other hand, Brugiavini (1987) found that the rate of wealth decumulation in Italy ranges from 1.5 to 8 per cent, according to the model specification. Both the (limited) direct information on bequests, and the indirect evidence from patterns of wealth decumulation by the elderly suggest that a strong bequest motive is not a valid explanation of the high Italian saving rate.

V. The Effect of Liquidity Constraints of Consumption

We now summarize some recent empirical evidence concerning the effect of borrowing constraints on consumption. According to the permanent

income hypothesis with rational expectations, in the absence of liquidity constraints, consumption growth should not correlate with lagged disposable income or anticipated income growth.

Using aggregate annual data, Guiso, Jappelli and Terlizzese (1991) regress the growth rate of consumption on the expected growth rate of disposable income using a specification and estimation method similar to those adopted by Campbell and Mankiw (1991) for six OECD countries. The size of the excess sensitivity parameter is consistent with the hypothesis that borrowing constraints induce the failure of the Euler equation for consumption. In fact, when the results of four recent studies are combined, it appears that excess sensitivity is highest in Italy and France, reaches intermediate values in the U.K. and Japan, is low in Canada and the U.S., and lowest in Sweden and Denmark.¹⁴ The ranking, which is also confirmed by panel data estimates, correlates negatively with the size of the consumer credit market (Table 2, column 1), which can be regarded as an indicator of the availability of credit, and is consistent with the hypothesis that liquidity constraints are more severe in Italy than elsewhere.¹⁵

The discussion in Section III implies that mortgage market imperfections may force households to save when young in order to finance the purchase of homes. With perfect markets, by contrast, households would borrow early in life, and repay the loan over a long horizon which is, in principle, their entire life. Figure 1 plots the incidence of owner-occupied dwellings by age groups. The proportion of owner-occupation increases slowly with age, and reaches a peak before retirement. The majority of Italian households own their first house in their late thirties or forties. This pattern contrasts sharply with the experience of other countries: the average of U.S. and U.K. first-time buyers was 28 and 29, in 1985, while it was 41 in Italy in 1988.

Even if the pattern of Figure 1 is consistent with the hypothesis that mortgage market imperfections distort households' optimal consumption

¹⁴See Jappelli and Pagano (1989), Giavazzi and Pagano (1990), Campbell and Mankiw (1991) and Guiso, Jappelli and Terlizzese (1991). The sample periods of the estimates are 1954-88 for Italy, 1972-88 for France, 1957-88 for the U.K., 1972-88 for Canada, 1953-85 for the U.S., 1972-88 for Sweden and 1966-87 for Denmark.

¹⁵ If households wish to borrow but have no access to credit markets, an increase in disposable income increases current consumption with respect to future consumption, thus reducing consumption growth. In fact, in the two-year panel of the 1989 Survey of Household Income and Wealth, Guiso, Jappelli and Terlizzese (1991) found that the income coefficient is negative (-0.17) and significantly different from zero when regressed on consumption growth. The coefficient is larger (in absolute value) than that found in other countries. Zeldes (1989), using the PSID, estimated a coefficient that varied between -0.021 and -0.081, depending on the sample split; Hayashi (1986) found values ranging from -0.041 to -0.13 using Japanese (pseudo) panel data.



Fig. 1. Home ownership ratio by age-group in 1989 (age groups identified by average ages).

profile, one cannot rule out the possibility that intergenerational transfers in the form of housing eliminate the need for an organized mortgage market. If young households expect to receive a house as a bequest, they may choose to rent, rather than buy, while waiting to receive the bequest. This strategy avoids the need to save large amounts to meet high down payments.¹⁶

However, expected bequests are likely to affect the behavior of only a small section of the population, as shown in Figure 1, where we plot the proportion of owner-occupation excluding households that received their house as a gift or bequest. We note that: (i) only 13 per cent of the sample (22 per cent of homeowners) received their house as a bequest; (ii) the total sample profile and that of buyers are very similar, i.e., the timing of bequests does not affect the overall pattern of housing tenure.

To assess the impact of mortgage market imperfections on consumption, Guiso, Jappelli and Terlizzese (1991) used a strategy similar to that adopted by Hayashi (1985) and Zeldes (1989), and evaluated how much renters would consume if they were not subject to mortgage market constraints. They assumed that homeowners are not constrained in the mortgage market, estimated their desired consumption and used the estimated coefficients to predict the desired consumption of renters. With either formal or informal perfect markets, the gap between desired and actual consumption of renters should be zero. A positive gap can be

¹⁶ The pattern of owner-occupation by age shown in Figure 1 may in fact be consistent with the choices of a large group of households that expect to receive a bequest around the age of 40.

interpreted as a symptom of fast accumulation of resources by renters in order to meet high down payments. Using data from the 1989 Bank of Italy Survey of Household Income and Wealth, renters are found to save 15 per cent more of their permanent income than if they obeyed the same consumption rule as owners. In the sample, removing borrowing constraints would reduce saving by 2 or 3 per cent of permanent income, depending on the model specification.

VI. Precautionary Saving

Since insurance markets in Italy are far less developed than in the other OECD countries, Italian households can be expected to engage in substantial precautionary saving. Ideally, we would like to test for the effect of a particular risk that is less insured in Italy than in other countries, such as health risk. The main problems are that health risk is difficult to measure, and that there is almost no evidence on the empirical relevance of health risk in any country.

Most studies that have confronted the issue of precautionary saving have limited the focus on earnings uncertainty, which is only one risk that households face and perhaps not even the most important one. The 1989 Italian Survey of Household Income and Wealth included questions about the subjective probability distribution of earnings in 1990. On average, the standard deviation of earnings is only 2 per cent of permanent earnings. Guiso, Jappelli and Terlizzese (1992) estimate a consumption function using this self-reported measure of uncertainty and find that earnings uncertainty raises saving and wealth accumulation. At sample means, however, precautionary saving is a modest 0.14 per cent of permanent income and the share of precautionary wealth in total wealth is only 1.8 per cent. These results suggest that earnings uncertainty, alone, does not explain the high Italian saving rate. However, they do not rule out the possibility that other risks, such as health risk, are important determinants of saving. At the moment, one can only speculate that these risks generate higher saving in Italy than in other countries.

VII. Conclusions

We have argued that capital market imperfections are the likely explanation for the high Italian saving rate and for its recent sharper decline. Italian credit and insurance markets are considerably thinner than those of other comparably developed countries. Credit finances a trivial share of household consumption and investment, and Italians buy very little insurance. The family does have a role in overcoming credit market imperfections, but a limited one. The role of the government in providing

insurance against risks does not appear any more important in Italy than in other OECD countries. Wealth decumulation by the elderly is actually greater in Italy than in Japan or the United States, implying that Italians do not have a particularly strong bequest motive. The evidence suggests that Italians are not "different" in any major respect from other OECD citizens; rather, Italian capital markets are different.

The approach taken in this study may prove useful in the analysis of inter-country differences in saving rates. Previous literature, e.g., Modigliani (1990), has focused mainly on the role of productivity growth, demographic variables and fiscal policy to explain cross-country differences in saving rates but rarely explored the role of capital market imperfections. The international evidence in Table 2 suggests that the high degree of development of credit and mortgage markets in Finland, Norway and Sweden may be responsible for their relatively low saving rates. Similarly, as also shown by Hayashi, Ito and Slemrod (1988), mortgage market imperfections may partly explain the high Japanese saving rate. This country-study evidence is validated by Jappelli and Pagano (1991), who find that indicators of capital market imperfections, such as minimum down-payment ratios and the volume of consumer credit, are important determinants of the inter-country differences in OECD saving rates.

This study also has implications for the effect of European financial integration on the evolution of the Italian saving rate. In 1992 minimum down payments will be lowered to 25 per cent for all mortgages, restrictions on maturities will be abolished, legal costs reduced, and second mortgages introduced. These changes will sharpen competition among lenders, and cedit terms for consumers will improve accordingly. Financial deregulation will thus stimulate the convergence of the Italian saving rate towards those of the other major industrial countries.

References

Ando, A. & Kennickell, S.: How much (or little) life cycle is there in micro data? In R. Dornbusch, S. Fischer & S. Bosson (eds.), *Macroeconomics and Finance. Essays in Honor* of Franco Modigliani, MIT Press, Cambridge, 1987.

Barca, F., Cannari, L. & Guiso, L.: Bequests and saving for retirement. What impels the accumulation of wealth? Mimeo, Bank of Italy, Rome, 1991.

Barro, R.: Are government bonds net wealth? *Journal of Political Economy 81*, 1095-117, 1974.

Boleat, M.: National Housing Systems: A Comparative Study. Croom Helm, London, 1987.

Brugiavini, A.: Empirical evidence on wealth accumulation and the effects of pension wealth: An application to Italian cross-section data. Financial Markets Group, DP No. 20, London School of Economics, 1987.

Campbell, J. Y. & Mankiw, G. N.: The response of consumption to income: A cross-country investigation. *European Economic Review 35*, 723-56, 1991.

- Dean, A., Durand, M., Fallon, J. & Hoeller, P.: Saving trends and behavior in OECD countries. OECD Economic Studies, 7-58, Spring 1990.
- Giavazzi, F. & Pagano, M.: Can severe contractions by expansionary? Tales of two small European countries. *NBER Macroeconomics Annual*, MIT Press, Cambridge, 1990.
- Guiso, L. & Jappelli, T.: Intergenerational transfers and capital market imperfections. Evidence from an Italian cross-section. European Economic Review 35, 103-20, 1991.
- Guiso, L., Jappelli, T. & Terlizzese, D.: Why is Italy's saving rate so high? CEPR DP No. 572, 1991.
- Guiso, L., Jappelli, T. & Terlizzese, D.: Earnings uncertainty and precautionary saving. CEPR DP, forthcoming, 1992.
- Hayashi, F.: The effect of liquidity constraints on consumption: A cross-sectional analysis. *Quarterly Journal of Economics 100*, 183-206, 1985.
- Hayashi, F.: Why is Japan's saving rate so apparently high? *NBER Macroeconomics Annual*, MIT Press, Cambridge, 1986.
- Hayashi, F., Ito, T. & Slemrod, J.: Housing finance imperfections, taxation and private saving. A comparative simulation analysis of the United States and Japan. *Journal of the Japanese and International Economies* 2, 215-38, 1988.
- Hurd, M. D.: Savings of the elderly and desired bequests. American Economic Review 77, 298-312, 1987.
- Jappelli, T. & Pagano, M.: Consumption and capital market imperfections: An international comparison. American Economic Review 79, 1088-105, 1989.
- Jappelli, T. & Pagano, M.: Saving, growth and liquidity constraints. CEPR DP, Dec. 1991.
- King, M. & Dicks Mireaux, L.: Asset holdings and the life-cycle. *Economic Journal 92*, 247-67, 1982.
- Kotlikoff, L. J. & Summers, L.: The contribution of intergenerational transfers to total wealth. In D. Kessler & A. Masson (eds.), *Modelling the Accumulation and Distribution of Wealth*, Oxford Unversity Press, New York, 1988.
- Lomax, J.: Housing finance an international perspective. Bank of England Quarterly Bulletin, 56-64, Feb. 1991.
- Modigliani, F.: Recent developments in saving rates: A life-cycle perspective. Frisch Lecture, 6th World Congress of the Econometric Society, Barcelona, 1990.
- Modigliani, F. & Jappelli, T.: Fiscal policy and saving in Italy since 1860. In M. Boskin, J. Flemming & S. Gorini (eds.), *Private Saving and Public Debt*, Basil Blackwell, London, 1987.
- Pagano, M. & Jappelli, T.: Information sharing in credit markets. CEPR DP No. 579, 1991.
- Zeldes, S.: Consumption and liquidity constraints: An empirical investigation. *Journal of Political Economy* 97, 305-46, 1989.