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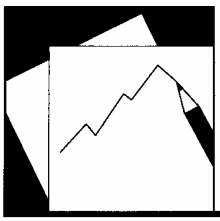

IMF Working Paper

Who Saves in Ireland? The Micro Evidence

Marialuz Moreno-Badía

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Who Saves in Ireland? The Micro Evidence

Prepared by Marialuz Moreno-Badía[1]

Authorized for distribution by James Morsink

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Abstract

This paper provides detailed empirical evidence on the saving behavior of Irish households using micro data from the 1994/95 and 1999/2000 Household Budget Surveys. I employ synthetic cohort techniques to characterize the life cycle profile of saving rates and to examine the response of household saving to house price appreciation. The analysis suggests that households at the peak of their working lives have relatively low savings though there is no evidence of a generational savings gap. Also, despite housing being a major component of Irish households, wealth, there is no strong relationship between savings and housing capital gains.

JEL Classification Numbers: D1, D91, E21

Keywords: Saving, housing prices

Author(s) E-Mail Address: mmorenobadia@imf.org

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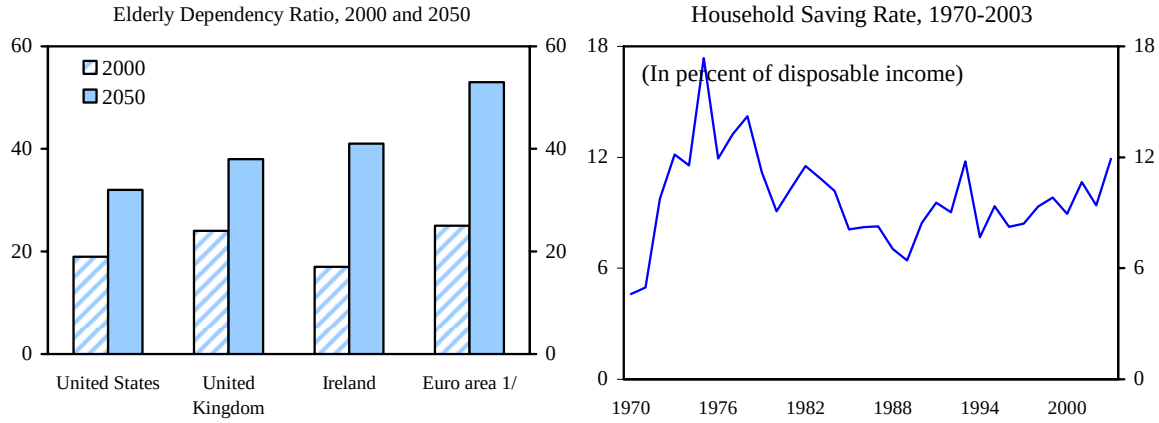
Contents Page

I. INTRODUCTION

Over the next half century, Ireland is set to experience a significant aging of its population, raising the question of whether households are saving enough for retirement. Past falls in fertility rates and increasing life expectancy will raise considerably the elderly dependency ratio and the share of age-related expenditure in GDP, in particular for public pensions and health care. In order to adjust to these developments, the government is already partly prefunding future pension liabilities by setting aside 1 percent of GNP in the National Pensions Reserve Fund every year. Although Ireland's effective retirement age is among the highest in industrial countries, higher labor force participation, particularly among the elderly, could also be further encouraged to help reduce the burden of population aging.[2] In this context, it is also important to ensure that households are forward looking and able to save to maintain current living standards in old age.



1/ Average of France, Germany , and Italy.

Ireland's household saving rate has remained roughly stable since the mid-1980s. Household saving rates fell sharply during the 1970s and 1980s from about 17 percent of disposable income in 1975 to 6 percent in the late 1980s. Since then, household saving rates have stabilized at around 9 percent.[3] Since the mid–1990s, strong growth in personal credit has led to high levels of household debt—above 130 percent of disposable income. Several factors may explain these trends:

- The s*trong economic performance* during the 1990s improved consumer confidence and reduced the risk of unemployment and, therefore, may have led to lower precautionary savings.

[2] The government is currently considering the introduction of an old-pension bonus for those who work beyond age 65.

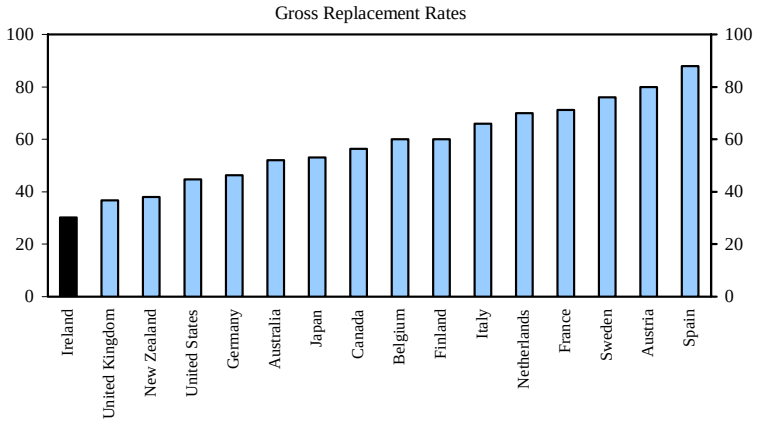
[3] The CSO data on savings are calculated as residuals. As a result, the national accounts statistical discrepancy is implicitly included in the personal saving figure.

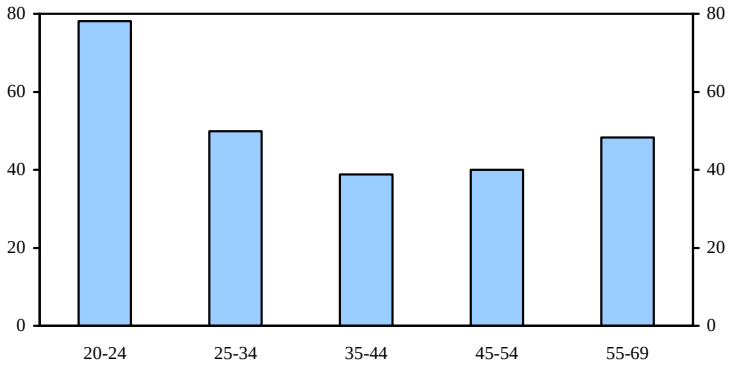
- *Fiscal consolidation* has eased fears of a future increase in the level of taxation, decreasing "Ricardian" consumers' need to save.

- The *decline in real interest rates*, in the run-up to membership in the European Economic Monetary Union (EMU), may have also created a disincentive to save by decreasing the cost of current consumption relative to future consumption. [4]

- *Financial liberalization* and the development of mortgage markets may have also driven down the need for large down payments and, hence, lowered savings. In addition, more developed credit markets have most likely helped in reducing liquidity constraints and allowed constrained consumers to implement their saving decisions with a consequent reduction in "accidental savings."

Moreover, Ireland's household saving rate is not low by international standards (Figure 1). In contrast to several industrial countries, Ireland's household saving rate did not fall sharply during the 1990s.[5] Furthermore, the Irish household saving rate has started an upward trend in recent years and is now above the euro area average. Nonetheless, there are some reasons for concern about the prospects for the living standards of future retirees. First, Ireland's state pension replacement rates are among the lowest in industrial countries, and, therefore, Irish households may need higher levels of savings than those in



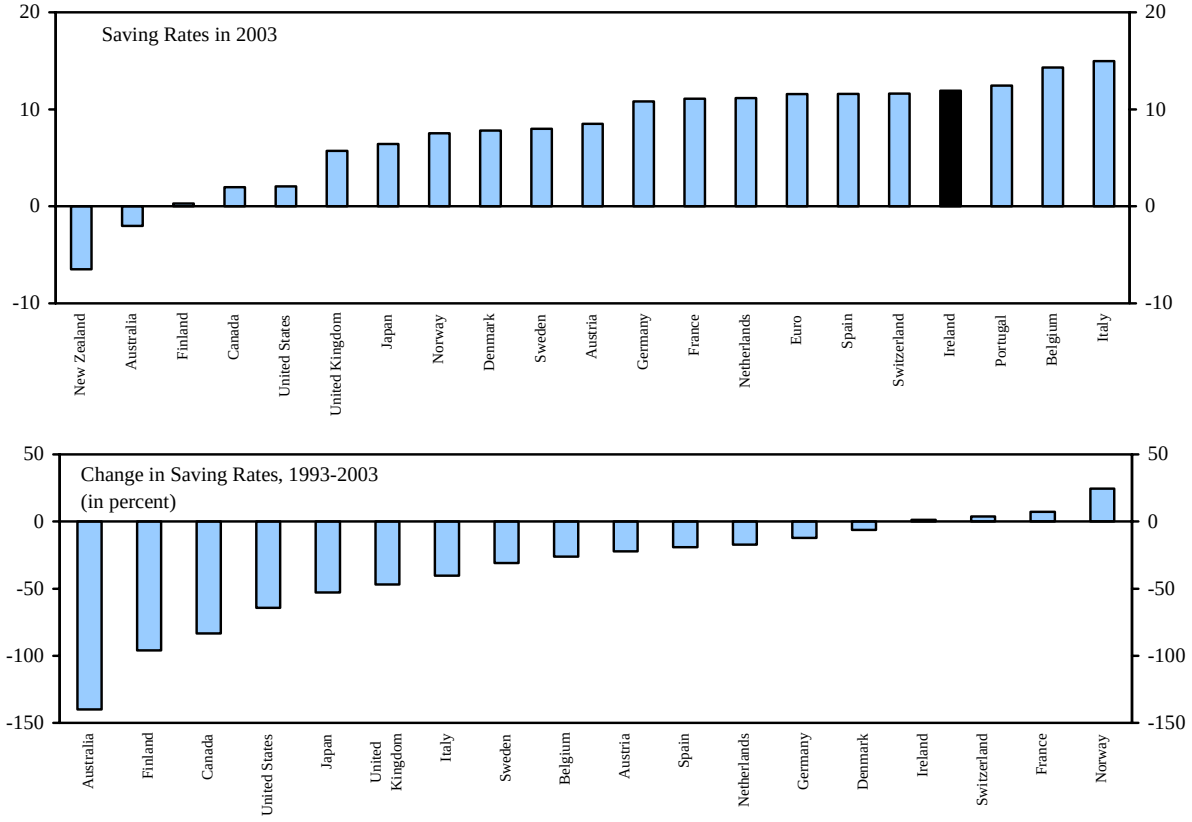


Sources: CSO; and OECD (2003).

[4] However, as pointed out by Lane (2001), the negative impact of lower real interest rates could be offset by substituting deposits with higher-yielding investment instruments, such as equities or real estate.

[5] Several industrial countries experienced a sharp decline in household saving rates during the 1990s including Australia, Finland, Canada, the United States, Japan, and the United Kingdom.

Figure 1. International Comparison: Household Saving Rates
(In percent)



Source: CSO, and OECD, *Economic Outlook.*

other countries in order to prepare for retirement.[6] Second, private pension coverage is low, particularly for those close to retirement.[7] Third, Irish assets in tax-favored private pension schemes are lower than in most countries where the pension income provided by the public system is low in proportion to earned income (OECD, 2005). In fact, measures of relative income show that the proportion of those retired at risk of relative poverty has increased from

[6] People are entitled to a basic flat rate pension through the social welfare system. The additional cover is provided through occupational pension schemes and personal pension arrangements.

[7] According to Hughes and Watson (2005), occupational and personal pensions provided an income only for one-third of pensioners in 2000, and the average amount paid was less than a quarter of the income received during retirement. At the request of the government, the Pensions Board started the National Pensions Awareness Campaign in 2003 to address pension undercoverage.

8.2 percent in 1994 to 31 percent in 2003 (The Pensions Board, 2006).[8] In order to understand whether low household savings may leave some population groups vulnerable to a loss of income in old age, we need to analyze the micro data evidence.

This paper attempts to inform the public debate on the adequacy of household savings in Ireland. It is organized as follows. Section II characterizes the life cycle profile of savings in Ireland and examines which groups of households have relatively low saving rates. Section III analyzes empirically the response of household saving to house prices to shed some light on whether households are relying excessively on property for retirement purposes. Section IV discusses whether the Special Savings Incentive Accounts have helped boost saving. Section V concludes.

II. WHO SAVES IN IRELAND?

A. Data and Statistical Methods

The data used in this paper are from the two latest Household Budget Surveys (HBSs), 1994/95 and 1999/2000.[9] The HBSs do not contain information on households' wealth, and, therefore, we can only construct a residual measure of saving. In particular, saving is determined by subtracting household total consumption, which includes expenditure on durable and nondurable goods and other services, from total disposable income, which is computed by subtracting the total amount of personal taxes and social security contributions from household total gross income.

The level of saving rates in the data is remarkably low, compared with aggregate savings (Table 1).[10] It is clear that such a low level is indicative of measurement and data problems. In particular, while both consumption and income are likely to be underreported in the HBSs, the problem seems to be more serious for income. However, we have no reason to believe that measurement

Table 1. Household Saving Rates, 1994/95 and 1999/2000
(In percent)

	National Accounts Data 1/	Median HBS
1994/95	8.5	1.3
1999/00	9.4	3.0

1/ Macro data are the average of the savings rate for the years 1994/95 and for 1999/2000.

[8] The Pensions Board is the statutory body set up to regulate occupational pension schemes and Personal Retirement Savings Accounts (PRSAs) and to advise the Minister for Social and Family Affairs on overall pension policy.

[9] For a more detailed description of the data, see Appendix I.

[10] Throughout this analysis, the measure used is the median rather than the mean, because the latter is very sensitive to outliers associated with temporarily low incomes or expenditure. Using the median also avoids the problem of dealing with top-coded observations. All the figures are in constant euros.

problems vary systematically with age and cohorts, and, therefore, the figures presented in this paper are still informative about the evolution of saving over the life cycle. In addition, the time pattern of the saving rate in the HBSs is similar to that of the national accounts. Both measures show an increase between 1994 and 1999. Nevertheless, the saving figures, and in particular their level, must be taken with caution.

To analyze a dynamic phenomenon such as saving, one would like to follow the same individuals over time. In order to deal with the lack of longitudinal dimension in the HBSs we construct a synthetic panel using the available time series of cross sections.[11] The idea behind a synthetic panel is to divide up households of each survey into as many homogenous household types ("cells") as possible and identify these cells across time. Such a panel consist of household types as survey units. To analyze the life-cycle profile of saving in Ireland, we define cohorts by five-year bands. All households whose head was born before 1919 or after 1974 were eliminated from the sample. The definition of the cohorts, together with the average cell size in HBSs 1994/95 and 1999/2000, are reported in Table 2. Unfortunately, one important limitation of the data is the lack of long time series.

Table 2. Cohort Definitions and Cell Size

Cohort	Year of Birth	Cell Size	
		1994/95	1999/2000
1	1919	421	248
2	1924	612	417
3	1929	571	495
4	1934	522	608
5	1939	560	577
6	1944	673	654
7	1949	816	768
8	1954	925	854
9	1959	966	904
10	1964	766	880
11	1969	409	624
12	1974	243	345

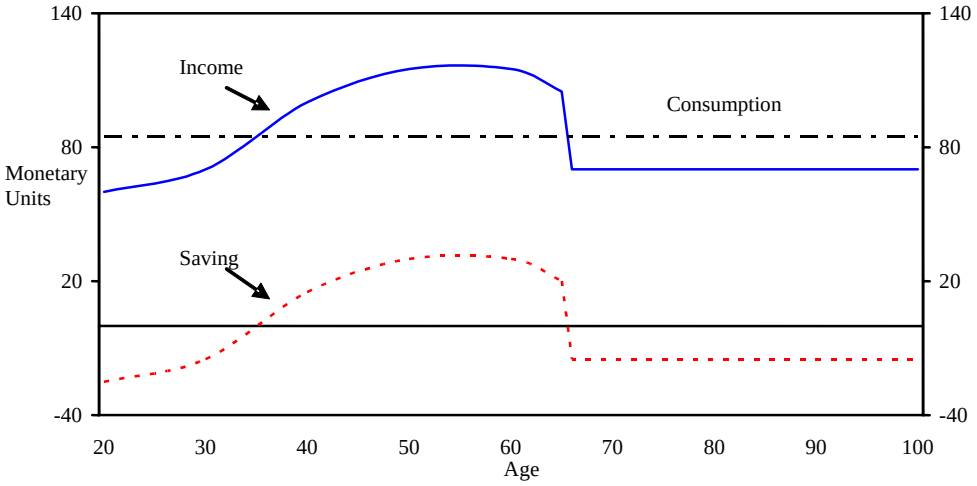
B. What does the Theory of Saving Behavior Predict?

The originating theory of saving behavior was the life-cycle model of Modigliani and Brumberg (1954) and Friedman (1957). In its simplest version, households save to smooth consumption due to a declining marginal utility of consumption and lower income after retirement. The resulting life-cycle profile of saving displays a typical hump shape (Figure 2). With relatively low earnings at the beginning of their careers, households smooth consumption by borrowing. As earnings increase, they are able to save, running down their accumulated wealth after retirement. The basic life-cycle model assumes constant utility function, no uncertainty, no changes in the interest rate, and perfect capital markets. Most recently, the literature (for example, Engen, Gale, and Uccello, 1999; and Scholz, Seshadri, and Khitatrakun, 2004) has focused on a stochastic life-cycle model that includes precautionary savings and buffer stock behavior and considers explicitly the role of housing wealth. These models do not generate a single, optimal wealth-earnings ratio, but a

[11] This technique has been used extensively in the literature analyzing household savings behavior (see, for example, Browning, Deaton, and Irish, 1985; Deaton, 1985; and Attanasio, 1998).

distribution of optimal wealth-earnings ratios for a given set of household's characteristics. In addition, they are consistent with a hump-shaped consumption profile. [12]

Figure 2. Ireland: Income, Consumption, and Life-Cycle Saving



C. The Life-Cycle Profile of Household Savings in Ireland

Income and consumption profiles in Ireland are similar in most respects (Figures 3 and 4). In particular, both profiles present the characteristic hump shape and peak at around the same age of 45 to 50. Income profiles seem to exhibit a cohort effect, as later cohorts have higher levels of lifetime incomes, presumably due to productivity growth and higher female participation. As with income, expenditure seems to display strong cohort effects.[13]

However, household saving profiles in Ireland display features inconsistent with the simple life-cycle model (Figures 5 and 6). Although income and consumption display the familiar

[12] Consumption is low for young households because they want to build their precautionary savings. As households age, income and wealth rise, some income uncertainty is resolved, and the precautionary motive for saving tapers off, leading to rising consumption. Finally, consumption declines in old age as an increasing mortality probability effectively makes households less willing to defer consumption to an uncertain future.

[13] However, because of data limitations and Ireland's strong economic performance during the mid-1990s, we cannot conclusively reject the hypothesis that these patterns are explained by time effects rather than demographics.

Figure 3. Ireland: Median Weekly Household Income by Cohort and Age

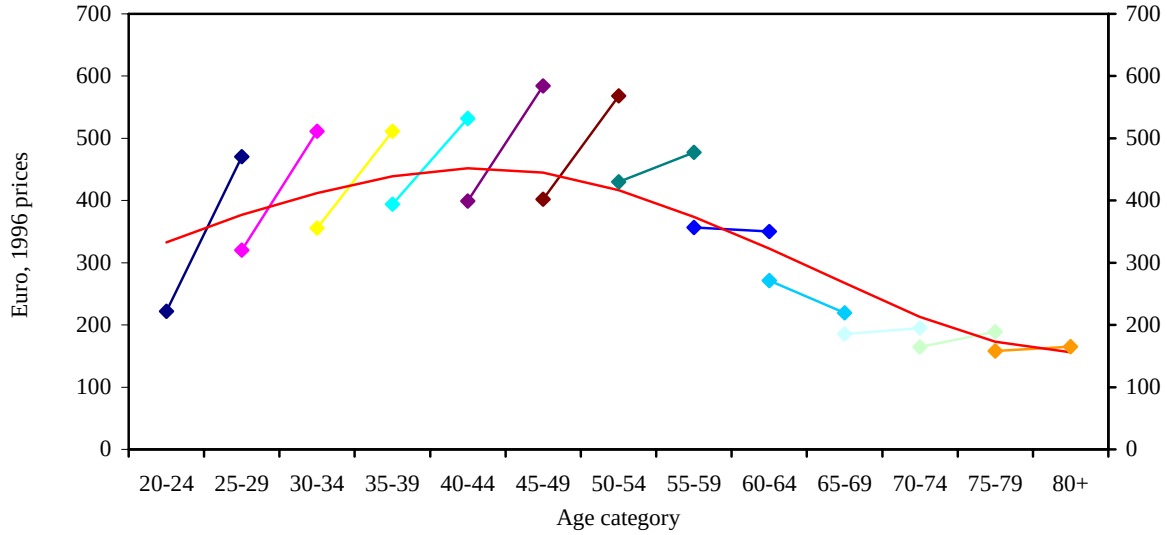


Figure 4. Ireland: Median Weekly Household Expenditure by Cohort and Age

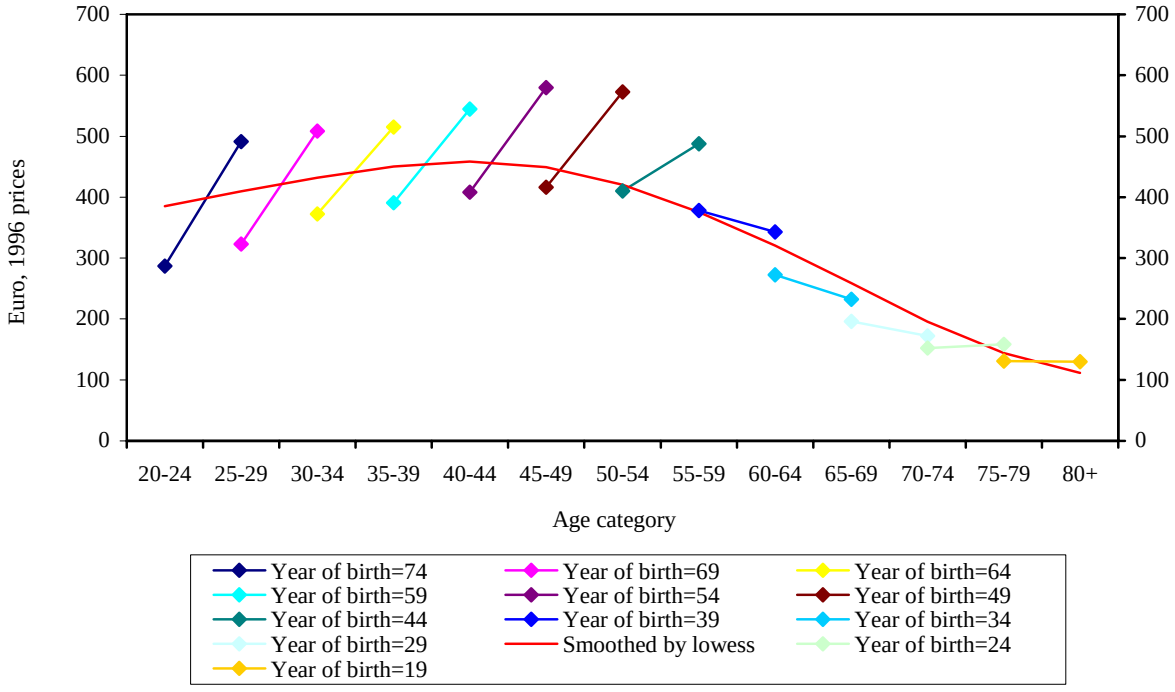


Figure 5. Ireland: Median Weekly Household Savings by Cohort and Age

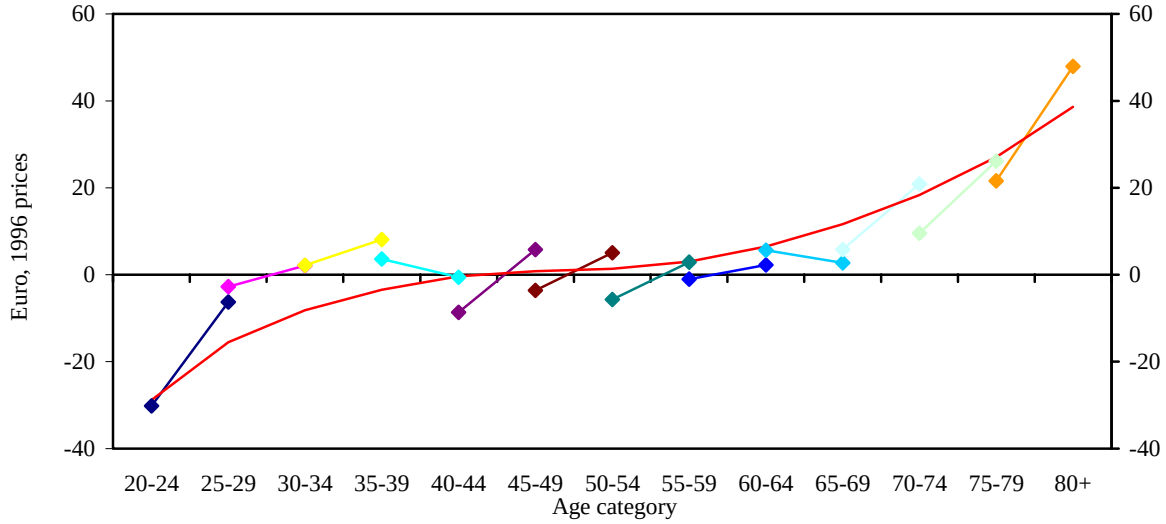
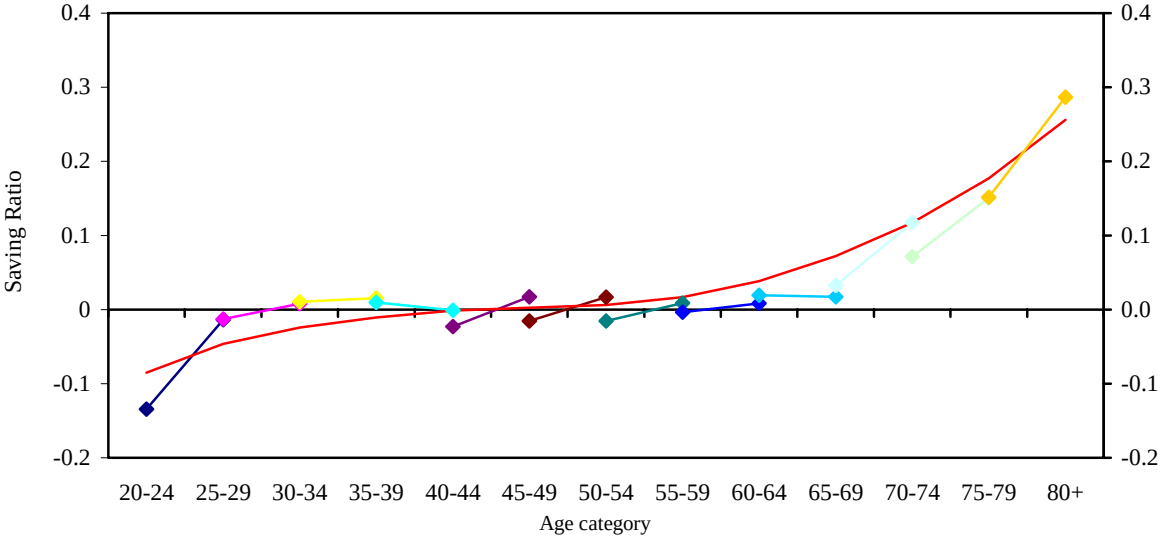
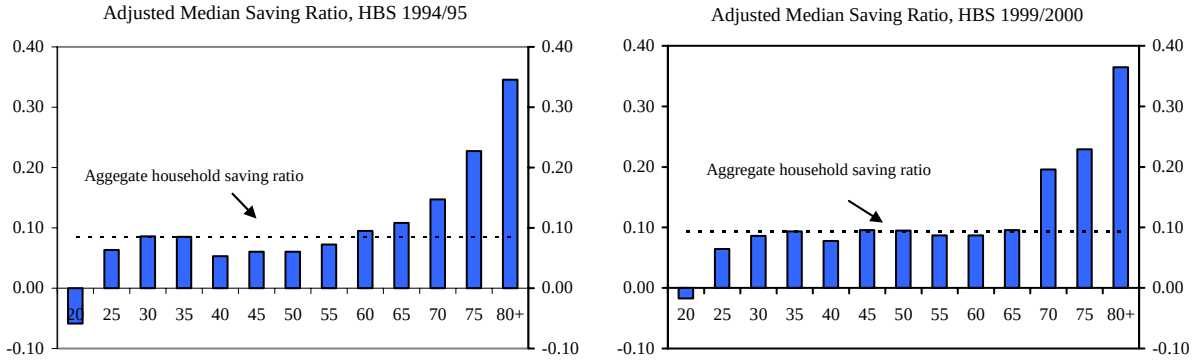


Figure 6. Ireland: Median Household Saving Ratio by Cohort and Age



hump-shape, their profiles are not exactly similar. In particular, expenditure increases at a slower pace than income earlier in life, and decline faster at the end of the life-cycle. As a result the cohort profiles of savings are not hump-shaped:

- After adjusting median saving rates to match aggregate rates at the corresponding year, saving rates of households aged 45 to 60 are relatively flat, when savings should be at their peak according to the life-cycle model. There is no evidence that the relatively flat pattern of savings during the prime years of households' working life is driven by data problems since this would require that households in those age groups systematically underreported income. One possible explanation might be that households are myopic and, therefore, underestimate the need to finance consumption in old age or overestimate available income after retirement.



Source: Staff estimates.

- Savings do not turn negative beyond retirement age. Quite the opposite, savings for older (retired) groups continuously increase throughout. This is obviously linked to the fact that consumption profiles fall much faster than income after retirement. The figures on median saving rates show a similar picture. There may be a variety of reasons explaining this "retirement savings puzzle." First, bequest motives could become more important in old age. Second, if pension wealth expectations are not met or the marginal utility of consumption falls in an unexpected way (because of aging), savings could further increase after retirement.

Moreover, Ireland's saving profile is remarkably different from other industrial countries. Notwithstanding the difficulties involved in comparing life-cycle profiles of savings across countries, the literature broadly confirms that, similar to Ireland, many industrial countries have positive discretionary savings after retirement.[14] However, unlike in Ireland, we observe a pronounced hump-shaped profile in the Netherlands, and less pronounced ones in Germany

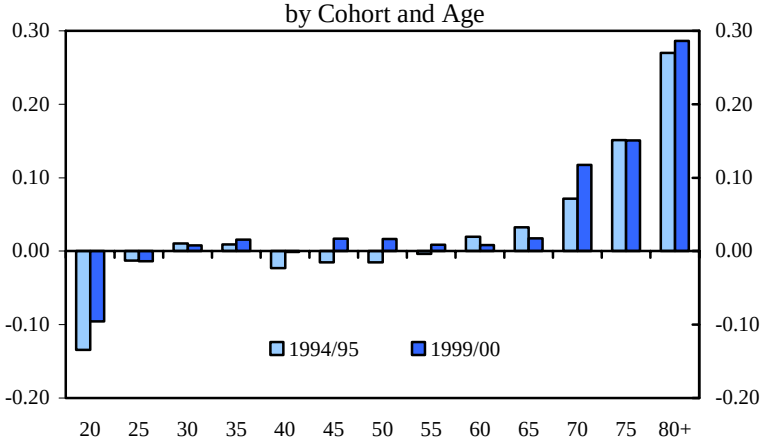
[14] See, for example, Poterba (1994) for studies on Canada, Germany, Italy, Japan, the United Kingdom, and the United States.

and in the United States (Börsch-Supan and Lusardi, 2002).[15] Furthermore, saving rates increase throughout the entire life course in those countries that display increasing saving rates during old age (Japan and the United Kingdom).[16] This is in contrast to Ireland, where households' saving rates are flat during most of their working lives. Finally, although Italy has essentially a flat saving profile, its saving rates are much higher throughout the entire life cycle than in Ireland. These differences do not seem to be explained by Ireland's pension system, since its relatively low replacement rates should be reflected in increasing saving rates among the young households (to accumulate retirement savings) and decreasing rates among the elderly (as they run down their retirement savings), like in the Dutch case.

These findings prompt the natural question of whether there is a generational savings gap in Ireland. If this is the case, we would expect current young cohorts to maintain their relatively low saving rates in old age, which, in turn, would result in declining aggregate saving rates in the future. In fact, cohort effects would seem to be a natural candidate to explain the decline of saving rates in Ireland during the 1980s, as aging thrifty cohorts may have been replaced by less frugal ones.

In order to test this hypothesis, we compare median saving rates for each pair of adjacent cohorts, averaged over the same age. For example, we compare the cohort born in 1969 (age 25 in HBS 1994/95) with the cohort born in 1974 (age 25 in HBS 1999/2000). Figure 7 indicates that the median saving rates of most cohorts are higher than those of the next older cohort. However, we cannot reject the idea of a generational savings gap since this simple analysis neglects the fact that we are comparing data observed in two different years (1994/95 and 1999/2000). To further test whether there are cohort effects, we regress the saving rates on a fifth-degree polynomial in age and cohort dummies.

Figure 7. Ireland: Median Saving Ratio by Cohort and Age



[15] For a detailed analysis, look at Alessie and Kapteyn (2001) on the Netherlands; Börsch-Supan and others (2001) on Germany; and Attanasio and Paiella (2001) on the United States.

[16] The statistical evidence on Japan is somewhat mixed. While Börsch-Supan and Lusardi (2002) find increasing positive cohort-corrected median saving rates in old age in Japan, other studies (for example, Kitamura, Takayama, and Arita, 2001) find some evidence of wealth decumulation in Japan among the elderly. For evidence on the United Kingdom, see Banks and Rohwedder (2001).

A year dummy is also included to capture time effects. The results (reported in Appendix II) indicate that there are no systematic differences between younger and older cohorts. Surprisingly, there seems to be no time effect either. Nevertheless, one big drawback of this analysis is the lack of long time series and limited overlap across cohorts.

These results suggest that, although households at the peak of their working lives have relatively flat saving rates, those rates are not different from those of their parents. Therefore, we cannot conclusively establish whether saving rates may decline in the future. Moreover, the lack of a detailed survey on household wealth severely limits our assessment of the adequacy of savings in Ireland.

D. Which Households Save Less?

Despite the lack of data to assess the adequacy of savings in Ireland, several additional pieces of evidence can help us understand which households have relatively low savings. In particular, the cross-sectional age profiles of savings provide suggestive information about which groups of households are saving less than others. The results from the analysis of HBS 1999/2000 can be summarized as follows:[17]

- *Saving rates are particularly low for households in the bottom two quartiles of income* (Table 3). As one might expect, saving rates vary with income.[18] In particular, median saving rates are negative for the bottom two quartiles of income but rise to a rate of 14 percent for the top quartile. When broken down by age, the main feature of this cross-sectional data is the relatively flat saving

Table 3. Median Saving Ratio by Income Quartile, HBS 1999/2000

Age	I	II	III	IV	Total
20-24	-0.45	-0.09	-0.16	0.00	-0.10
25-29	-0.38	-0.12	0.01	0.16	-0.01
30-34	-0.17	-0.08	0.00	0.16	0.01
35-39	-0.23	-0.12	0.03	0.14	0.02
40-44	-0.33	-0.17	0.01	0.11	0.00
45-49	-0.21	-0.11	-0.01	0.12	0.02
50-54	-0.07	-0.14	0.01	0.09	0.02
55-59	-0.20	-0.19	0.03	0.18	0.01
60-64	-0.09	0.06	-0.03	0.13	0.01
65-69	-0.08	0.05	0.03	0.35	0.02
70-74	0.04	0.15	0.15	0.34	0.12
75-79	0.11	0.20	0.24	0.43	0.15
80+	0.27	0.30	0.33	0.26	0.29
Total	-0.02	-0.06	0.01	0.14	0.03

[17] We focus on the last available HBS (1999/2000), but the results are similar for the 1994/95 HBS.

[18] This result is consistent with the findings for the United States (see, for example, Browning and Lusardi, (1996)). According to Dynan, Skinner, and Zeldes (2000), the positive relationship between income and saving is consistent with a model that includes a precautionary saving motive, tempered by the presence of a safety net, coupled with a bequest motive.

rates up to age 60, confirming our finding from the previous section. A large segment of the population saves nothing. Many of these households have low lifetime earnings, but there are also a number of households with higher lifetime earnings that save small amounts as well.

- *As expected, the employment status of households' members matter.* Single earners save less than double-income households, while households whose head is not working save little, if any (Figure 8). Finally, self-employed's saving rates are low for most income levels. The reason behind this is that income flows of self-employed households are not guaranteed and, therefore, fluctuate a great deal. As a result, saving rates of self-employed vary from negative for the first quartile to significantly positive for the fourth quartile. In fact, the fourth quartile of self-employed households seems to be the highest savers, probably with the highest incomes in society.

- *Education does not seem to explain households' saving behavior.* Surprisingly, our results indicate that households with higher levels of education save less, even after we have controlled for income (Table 4). This finding is independent of the sex of the head of the household. Households headed by women with secondary or higher education save less than those headed by men (Figure 8).[19]

Table 4. Median Saving Ratio by Education and Income Quartiles, HBS 1999/2000

	I	II	III	IV	Total
Primary	0.07	0.05	0.05	0.17	0.08
Secondary	-0.20	-0.08	0.02	0.13	0.00
Third	-0.36	-0.14	-0.01	0.14	0.05

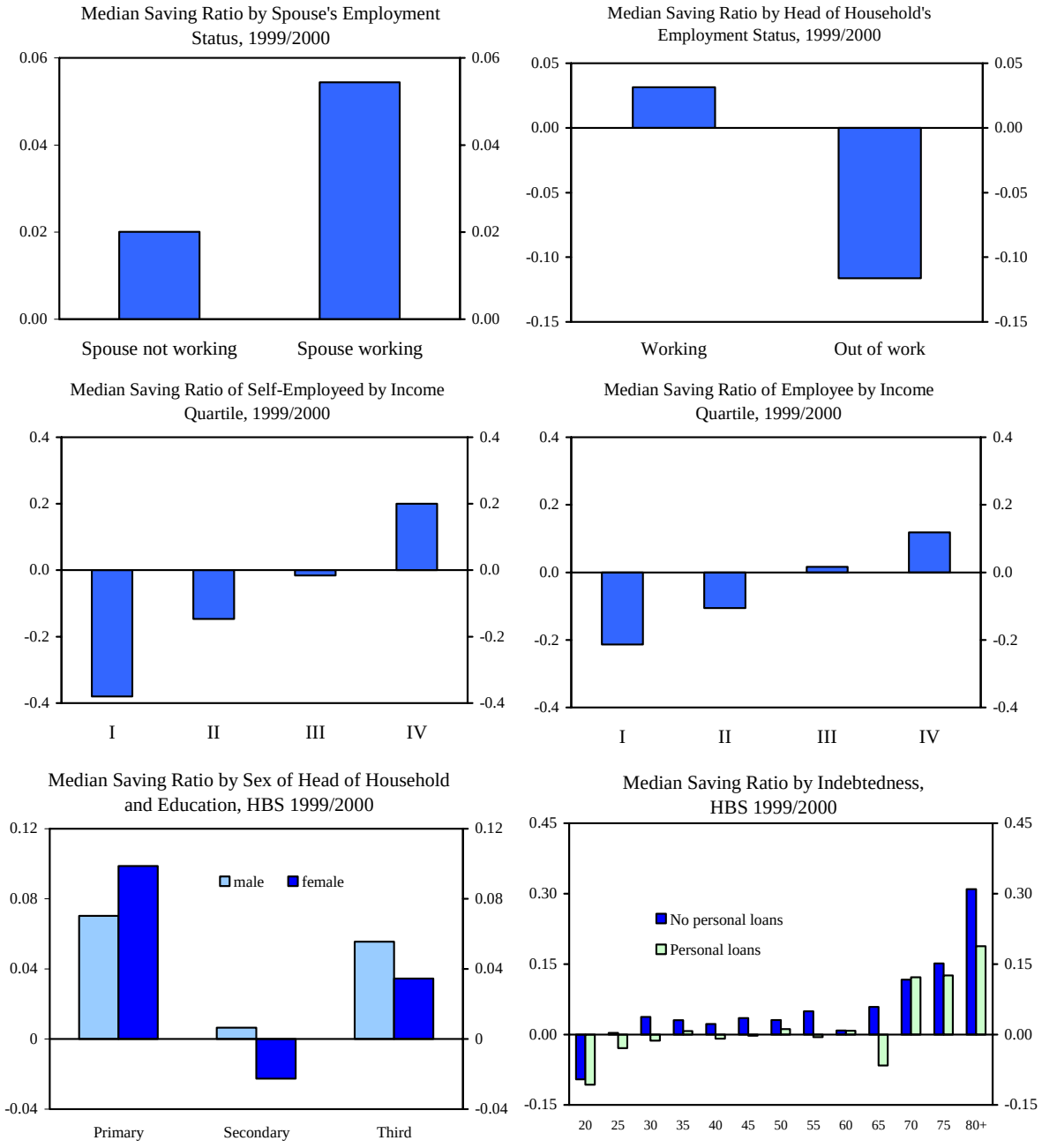
- *Households with low savings rates have little financial wealth and do not generally make contributions to private pension plans* (Table 5). [20] Therefore, these households cannot be expected to compensate for their lack of savings with increases in wealth stemming from capital gains.

- *Indebted households save less* (Figure 8). Despite low interest rates, Irish households' debt-service payments have risen since the end of the 1990s because of the increasing levels of indebtedness. This seems to have a negative impact on the ability of households to save.

[19] Households headed by women with secondary or higher education save less than those headed by men in HBS 1999/2000. This result is reversed in the 1994/95 HBS. The latest quarterly national household survey finds that pension coverage for females is 12.4 percent lower than the male coverage rate, which is consistent with the results of HBS 1999/2000.

[20] The HBS contains information on whether a household member holds any stocks, government bonds, deposit and saving accounts, or other form of investment.

Figure 8. Ireland: Saving Ratio by Household Characteristics



Sources: CSO and IMF staff calculations.

Table 5. Median Saving Rate by Assets Ownership, HBS 1999/2000

Age	Doesn't Own Investment Assets	Owns Investment Assets	No Pension Contributions	Pension Contributions
20-24	-0.15	-0.04	-0.09	-0.19
25-29	-0.02	-0.01	-0.04	0.03
30-34	-0.01	0.06	-0.03	0.10
35-39	0.01	0.02	-0.03	0.07
40-44	-0.03	0.03	-0.04	0.05
45-49	0.03	-0.01	-0.02	0.05
50-54	-0.01	0.05	-0.04	0.07
55-59	0.01	0.03	-0.06	0.12
60-64	0.01	0.00	-0.02	0.16
65-69	0.03	-0.01	0.02	0.08
70-74	0.10	0.15	0.12	0.17
75-79	0.13	0.17	0.14	0.26
80+	0.30	0.26	0.29	0.28
Total	0.02	0.05	0.01	0.08

- *Saving rates of tenant households are, in general, lower than those of homeowning households* (Table 6). There are several reasons behind this finding. First, a substantial part of the savings among the young cohorts can be counted as repayments of housing loans. Second, savings for home reconstruction every 15 to 20 years might also be nonnegligible. Finally, homeowning households earn relatively high incomes.

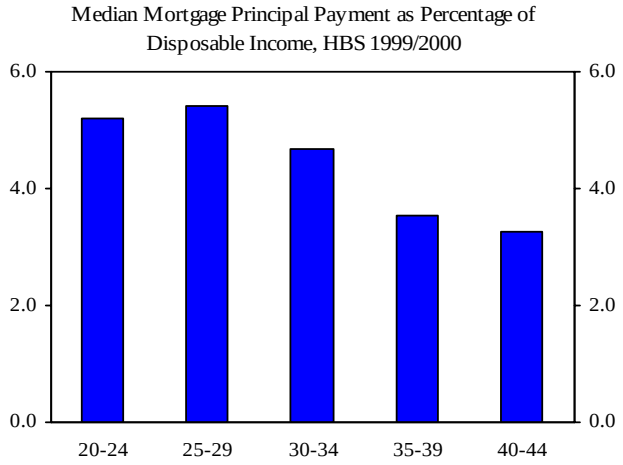
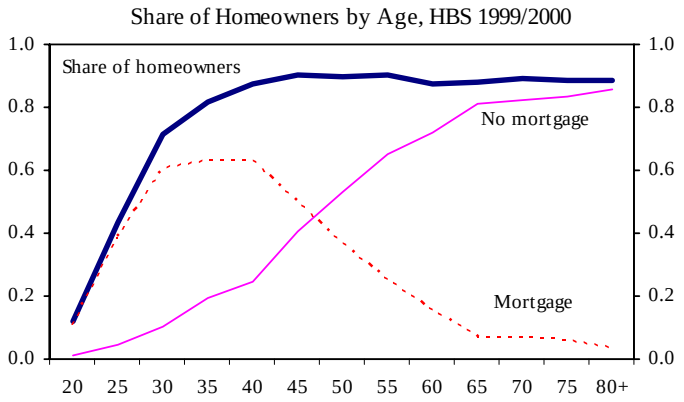


Table 6. Median Savings Ratio by Tenure and Income Quartiles, HBS 1999/2000

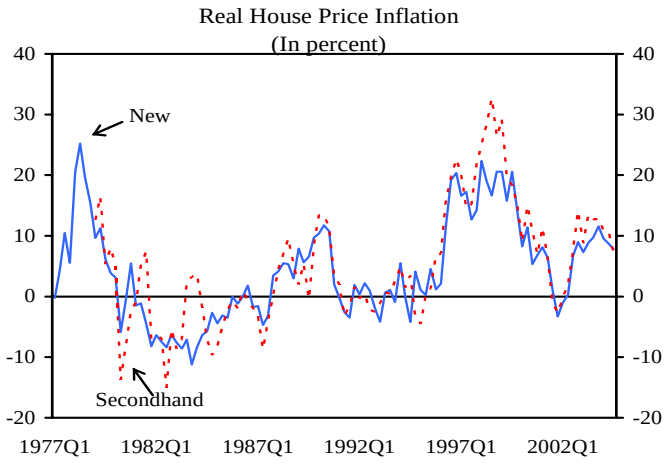
	I	II	III	IV
Homeowners	-0.01	-0.05	0.01	0.14
Renters	-0.03	-0.06	0.00	0.13

III. Are Household Savings Affected by Capital Gains in Housing?

Housing is a major component of wealth in Ireland. Roughly, 80 percent of Irish households own homes, and housing is the single largest asset homeowners hold.[21] In fact, while 82 percent of households in the 1999/2000 HBS are homeowners, only 36 percent of them hold some form of wealth other than housing. Moreover, 70 percent of households are homeowners by age 30!



The dramatic increase in Ireland's housing prices since the mid-1990s raises the question of whether savings may have declined as a result. From 1993 to 2004, the price of new houses posted a cumulative increase of about 170 percent in real terms, while the corresponding price increase of second houses was 225 percent. In a simple life-cycle model, real housing capital gains would lower nonhousing savings and cause a substitution of nonhousing for housing wealth in the financing of retirement.



Sources: The Department of Environment, Heritage and Local Government, and IMF staff calculations.

To get a sense of the importance of wealth effects in Ireland, we estimate a simple econometric model of savings using household-level data. To exploit the variation in housing prices across regions, we use HBS 1994/95 and HBS 1999/2000 to construct a synthetic panel based on the year of birth and sex of the head of household and the region where the household lives.[22] We consider the eight regions as defined in the HBS: Border, Dublin, Mid-

[21] According to Goodbody Stockbrokers, Irish households hold 556 percent of disposable income in nonfinancial assets.

[22] By doing so, we are implicitly assuming that households did not migrate to other regions between HBS 1994/95 and HBS 1999/2000. This assumption seems reasonable, given that less than 2 percent of the population migrates across regions according to Census 1996 and Census 2002.

East, Midland, Mid-West, South-East, South-West, and West. We measure capital gains as the change in the housing price in the region in which the household resides between 1994/95 and 1999/2000. Housing price data are from the Department of Environment, Heritage and Local Government. The model specification is

$$\Delta S_i = \alpha \Delta Y_i + \beta r + \gamma \Delta H_i + \lambda x_{i99} + ... + u_i$$

where ΔS_i is the change in saving of household *i* during 1994/95–1999/2000, ΔY_i is the change in disposable income during the same period, *r* are the real mortgage rates prevailing in 1999, ΔH are the real housing capital gains, and x_{i99} is a vector of demographic variables (household size, head of household's age, age squared, dummy for employment status of head of household and of the spouse, education, and cohort dummies). For this exercise, we focus on homeowning households.[23]

Real housing capital gains seem to have a barely significant negative effect on savings (Table 7). Although the coefficient of the house price variable is negative, it is statistically significant at 10 percent for only two of our model specifications (regressions 4 and 5). [24] The lack of robustness of these results suggests that there is no strong wealth effect in Ireland. This is consistent with the work of O'Sullivan and Hogan (2003) who find that the marginal propensity to consume out of housing wealth in Ireland is zero. As expected, real disposable income is positive and statistically significant for all specifications. The coefficients of the education dummies are also significant and confirm the puzzling finding of our cross-sectional analysis, namely, that households with higher levels of education save less.

What can explain the absence of strong wealth effects? One potential explanation is that housing capital gains are either anticipated or perceived as transitory by homeowners. Transitory gains do not have an impact on saving decisions, while expected capital gains have been smoothed into consumption and have no effect on savings at the time the gains occur. A second explanation is that housing wealth is not fungible in people's minds with other forms of wealth, for example, retirement wealth (see, for example, Thaler (1990)). A third reason may be the limited availability of equity withdrawal in Ireland, which makes it difficult to spend real housing capital gains without selling one's home. Finally, anecdotal evidence seems to suggest that bequest motives are very important in Ireland, and, therefore, households may prefer to pass housing capital gains to their offspring, who now face higher lifetime housing costs.

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[23] The inclusion of renters in the sample could greatly affect the estimated saving offset. For example, house price increases may lead renters who wish to own to increase their savings because of the increase in the required down payment. This response could offset any negative response by homeowners.

[24] As a robustness test, we also estimate a model of changes in consumption and find that the coefficient of house prices is not statistically significant either. Estimating a model with saving rates yields similar results.

Table 7. Median Regression Results

	(1)	(2)	(3)	(4)	(5)
Δreal disposable income	101.2	172.2	163.5	139.7	133.2
	(2.90)**	(3.89)**	(3.53)**	(2.79)**	(2.64)**
Real interest rate		-252.8	-133.7	-175.2	-191.7
		(0.53)	(0.29)	(0.36)	(0.38)
Δhouse prices	-33.5	-91.1	-231.3	-308.0	-332.9
	(0.21)	(0.55)	(1.49)	(1.82)+	(1.87)+
Household size		-446.4	-520.7	-715.1	-895.4
		(0.84)	(1.03)	(1.32)	(1.28)
Age		-235.8	-408.3	-404.7	-342.3
		(1.08)	(1.98)*	(1.78)+	(1.02)
Age squared		2.8	3.7	3.9	3.5
		(1.50)	(2.09)*	(1.91)+	(1.20)
Complete medium school			-2,795.9	-2,881.5	-3,075.1
			(2.28)*	(2.32)*	(2.19)*
Complete tertiary education			-31,704.3	-32,570.3	-32,479.0
			(6.70)**	(6.77)**	(6.95)**
Employment head of household				1,629.8	2,917.6
				(0.95)	(1.24)
Employment of spouse				441.4	409.5
				(0.40)	(0.34)
Birth year=1924					536.2
					(0.42)
Birth year=1929					954.1
					(0.49)
Birth year=1934					1,014.3
					(0.55)
Birth year=1939					930.3
					(0.44)
Birth year=1944					-1,256.2
					(0.65)
Birth year=1949					0.000
					(.)
Birth year=1954					1,116.4
					(0.52)
Birth year=1959					540.948
					(0.26)
Birth year=1964					914.0
					(0.45)
Birth year=1969					1,162.7
					(0.39)
Birth year=1974					0.000
					(.)
Constant	-50.3	5617.5	14547.5	13883.7	11310.3
	(0.04)	(0.80)	(2.12)*	(1.98)*	(1.18)
Observations	187	187	187	171	171
R^2	0.05	0.09	0.18	0.17	0.18

Notes: Dependent variable is changes in saving levels.
Robust t-statistics in parentheses.
+ significant at 10 percent; * significant at 5 percent; ** significant at 1 percent.

Notwithstanding the absence of strong wealth effects, households need to be aware of the risks associated with unbalanced portfolios. According to the Gunne Research Group (2004), over 75 percent of residential property investors specified pension saving (for themselves or their partners) as their main investment objective. Excessive reliance on real estate for saving purposes could leave households close to retirement particularly vulnerable to a downturn in the housing market. Moreover, by failing to diversify their portfolios, households may amplify the fluctuations in housing prices. Therefore, the government may have an important role to play in educating households about optimal financial planning.

IV. THE SPECIAL SAVINGS INCENTIVE ACCOUNTS

Prompted by what was perceived to be relatively low saving rates, the government introduced the Special Savings Incentive Accounts (SSIAs) in 2001.[25] These accounts were launched at a time of high inflation in an attempt to reduce demand pressures while promoting savings.[26] In order to achieve these objectives the accounts offer a very generous incentive: participants in this scheme are allowed to invest up to a monthly limit of €254, with the government providing a tax credit of 25 percent at the end of each month.[27] The scheme offers both deposit and equity market products and has a one-year entry window

[25] There are significant lags (of up to two years) in the release of official data of savings. As a result, the estimates of saving rates at the time were much lower than what the actual saving rates turned out to be. See, for example, Lane (2001).

[26] The importance of these two factors was highlighted by Finance Minister McCreevy in his speech introducing the SSIAs in 2001:

> There has been a lot of focus in recent press coverage on my proposal for a savings incentive as a means of taking demand out of the economy. This is, of course, an important aspect. I have, however, another goal, which is to encourage individuals to provide for the future by a regular pattern of savings. This is consistent with my approach in earlier Finance Bills of encouraging pension provision by tax reform. I consider it essential that the savings scheme be as broadly focused as possible. It is for this reason that I propose a straightforward scheme, involving a tax credit mechanism. The proposed scheme has attracted a lot of interest and positive comments. I made it clear in the Budget that I would be taking an initiative in the savings area and the scheme has been carefully developed. It is consistent with the approach I set out in the Budget of countering inflation through a series of measures including the promotion of savings (McCreevy, 2001).

[27] The minimum monthly contribution is set at €12.70.

between May 1, 2001 and April 30, 2002.[28] In order to benefit from the tax credit and avoid a 23 percent exit tax, accounts must be held for five years.

The SSIAs have well exceeded expectations in terms of participation. Not surprisingly, the accounts have proved to be very popular, with a total of 1.17 million accounts opened as of the date of entry closure (representing about 30 percent of the total population); monthly subscriptions averaged €196 in December 2005, and aggregate inflows and tax credits were increasing (Table 8).[29] Ownership of SSIAs is very broadly based with holders low- and medium-income earners making up the largest proportion of account holders (28 percent of SSIAs' participants in 2004 had incomes below €20,000, and 77 percent below €50,000).

Table 8: SSIA Aggregate Subscriptions and Tax Credits (€ million)

Period	Subscriptions	Tax credits
May – Dec. 2001	356.6	71.0
Jan. – Dec. 2002	1,859.3	433.0
Jan. – Dec. 2003	2,187.3	532.0
Jan. – Dec. 2004	2,264.8	548.0
Jan. – Dec. 2005	2,460.9	602.2

Source: Ireland's Department of Finance.

However, it is not clear whether the SSIAs have been effective in raising saving rates. Economic theory is ambiguous on the effect of tax subsidies on the volume of private savings because the substitution effect (higher after-tax returns make savings more attractive than consumption) offsets the income effect (the subsidy increases total income, which increases consumption in all periods). However, we do know that subsidies strongly increase savings in the specific form that is being subsidized, possibly to the detriment of other saving forms, for example PRSAs.[30] From this perspective, the evidence is somewhat mixed:

- According to the latest ESRI estimates, saving rates may have increased from 9.4 percent in 2002 to 13.1 percent in 2005. In any event, it is hard to establish a causal link between the SSIAs and savings, in light of the uncertain economic prospects faced by households in 2002–03.

[28] It is estimated that 75 percent of all SSIA accounts are deposit-based and 25 percent are equities

[29] The increase in monthly subscriptions is expected to accelerate as the maturity deadlines approach (the first one being May 2006).

[30] PRSAs are personal pension contracts introduced with the Pensions Amendment Act, 2002. The purpose is to promote pension coverage, particularly among employees without access to a company pension plan.

- A recent survey conducted by Bank of Ireland reveals, however, that its SSIA customer base comprises 76 percent of "novice savers" who didn't contribute regularly to any other savings scheme (other than pensions).[31]

- Nonetheless, many of these households may decide to spend the funds accumulated in these accounts once they mature. A survey conducted by the Irish Mortgage Corporation indicates that only 23 percent of SSIA holders will reinvest the funds once they have matured.[32] Of those who have clear plans about their funds, only 10 percent will invest in pensions. However, a more recent survey conducted by IIB and the ESRI reveals that of those SSIAs holders that have decided what to do with their accounts once they mature, 40 percent will continue to save.

Furthermore, the SSIAs do not appear to have changed the behavior of those households with lower saving rates. If households save little because of their failure to perceive the need to save, this scheme has probably not changed their habits. In fact, Table 9 shows that the percentage of households aged 40 to 69 holding SSIAs is roughly the same or lower than the percentage of households of the same age with positive savings in HBS 1999/2000. So, even if the scheme has successful in increasing aggregate savings, it is uncertain whether it has encouraged vulnerable households to save more. Unfortunately, because of the limited information available about the participants in this scheme, it is difficult to draw any definite conclusions.

Table 9. Distribution of Savings Across Age Groups

Age	2004	HBS 1999/2000		
	Percent of SSIAs	Percent Owning Financial Assets	Percent with Pension Coverage	Percent with Positive Savings
20-29	17.9	6.5	6.7	6.5
30-39	24.9	20.2	27.0	18.4
40-49	22.9	24.2	33.8	22.0
50-59	18.1	20.2	23.4	19.0
60-69	10.7	15.3	7.1	15.4
70-79	4.4	10.6	1.6	13.9

Sources: Department of Finance; Household Budget Survey 1999/2000; and Fund staff estimates.

[31] It would be interesting to know the distribution across households, since many low-income earners may be members of households financing contributions through joint accounts or intra family transfers.

[32] An additional 30 percent intend to spend and reinvest.

V. CONCLUDING REMARKS

The bulk of the evidence presented in this paper suggests that, despite respectable aggregate saving rates in Ireland, there is a significant group of households with little saving. Households at the peak of their working lives have relatively low savings, but we do not find evidence of a generational savings gap. In addition, there remains a core of households, specifically the young and the poor, that, according to both household surveys, save very little. However, in order to establish whether there are in fact problems with the distribution of savings across households, we need data on households' balance sheets.[33] It would be useful if future HBSs included questions about balance sheets.

The appropriate policy approach depends crucially on why saving is low. If households save little because of high time preference rates, then there is little role for government policy. If, however, households save little because of failure to perceive the need to save, inability to plan, financial illiteracy, or lack of discipline, there might be an argument for government intervention. From this perspective, any scheme to promote savings should consider targeting those who are preparing poorly for retirement.[34] In particular:

- If there were to be tax incentives to encourage pension take-up, they could target those who do not have pensions or have inadequate pension coverage.

- *Automatic enrollment in PRSAs* may also increase savings among households without access to company pension plans, given the voluntary nature of the enrollment in these accounts. Recent research has shown that "opt-out" choices for enrollment in pension plans (i.e., enrolling employees unless they actively opt out) lead to much higher participation rates than "opt-in" choices (Madrian and Shea, 2001; and Thales and Benartzi, 2004).

- Finally, *communication and financial education* could largely raise awareness of the need for long-term planning of retirement savings and equip households with tools to

[33] Some evidence regarding saving adequacy has been provided, however, by the consulting company Life Strategies. In particular, they have estimated that the annual retirement savings shortfall in Ireland is about 5 percent of GNP (or 11 percent of disposable income), assuming a required replacement rate of 65 percent and retirement age of 65. The saving shortfall is more pronounced in the middle three quintiles of the income distribution.

[34] In line with this, the Finance Bill 2006 has introduced a savings incentive targeted to those who are taxable at 20 percent or are exempt from tax and have income no higher than €50,000. The Exchequer will pay €1 for every €3 transferred from an eligible SSIA account into a PRSA, an Additional Voluntary Contribution, or a retirement annuity contract, subject to a maximum bonus of €2,500. On top of that, the exit tax to be paid on the SSIA monies so transferred into individuals' pension accounts will be waived.

understand their financial decisions, including the risks of unbalanced portfolios. Surveys of households frequently show that large numbers of individuals do not take a comprehensive approach to financial planning and underestimate the level of savings necessary to achieved their desired living standards after retirement. Even though financial information may be plentiful and accessible, households often make limited use of such information, perhaps because of its complexity.[35] In fact, the results of this paper suggest that households with higher levels of education save less. Therefore, the strategy should be to reach different population groups with different levels of sophistication.[36] The government should coordinate with the private sector in promoting such financial education.[37] Although the National Pension Awareness Campaign is a step in the right direction, the ongoing National Pensions Review could also be used to intensify the debate on retirement and pensions in Ireland.[38]

[35] According to a recent survey conducted by TNS mrbi, 59 percent of individuals in Ireland find consumer understanding of pensions to be a significant barrier to increasing pension coverage.

[36] For instance, the latest *Global Financial Stability Report* (International Monetary Fund, 2005) suggests the following: "Basic financial information may be provided in schools to children and young adults to create financial awareness from an early age. The need for long-term planning of retirement savings and related strategies may be particularly important for those at the beginning of their careers and for persons approaching middle age. As individuals reach the latter half of their working lives, the focus may need to change, with a greater consideration of payout strategies (including health care and intergenerational issues)".

[37] For example, employers could provide information and advice in the workplace and include details of employer pension contributions in pay slips.

[38] The Pensions (Amendment) Act, 2002 required the completion of a report on pensions by September 2006. The Pensions Board published its report on January 2006. For a summary of the main findings and recommendations proposed by the National Pensions Review, see Appendix III.

APPENDIX I: DATA SOURCES AND DEFINITIONS

This appendix describes data sources and definitions used in this paper.

Household Budget Survey (HBS). The HBS is a survey of a representative random sample of all private households in Ireland. The main purpose of the HBS is "to determine in detail the current pattern of household expenditure in order to update the weighting basis of the Consumer Price Index."[39] To achieve this, the questionnaire contains a detailed diary of household expenditure over a two-week period. Detailed information is also collected of all sources of household income and on a range of household characteristics and contributions, such as pension contributions. For the purpose of this paper, we use HBS 1994/95 and HBS 1999/2000. A total of 7,877 and 7,644 households participated in the 1994/95 and 1999/2000 HBSs respectively.

Monetary units. All variables in levels are reported in euros. The variables in HBS 1994/95 were converted into euros using the fixed conversion rate between the euro and the Irish pound of 0.727564.

Deflating. All income and expenditure variables were deflated using the harmonized consumer price index, base year 1996.

Weights. All calculations were weighted with the weights reported in HBS 1994/95 and HBS 1999/2000, unless otherwise indicated. The weights are used to correct any biases in the final sample of cooperating households due to sample design and differential response. For more details of the weighting of results, see the HBS documentation.

Definitions.

- Disposable income is computed by subtracting the total amount of personal taxes and social security contributions from household total gross income. Source: HBS.

- Consumption includes expenditure on durable, nondurable, and other services. In order to make the data comparable to the national accounts data as much as possible, we exclude mortgage principal payments, pensions, insurance, and charity contributions. Source: HBS.

- Saving is defined as the difference between disposable income and consumption.

[39] Central Statistics Office, *Household Budget Survey 1994-95, Volume 1: Detailed Results for All Households* (Dublin, July 1997), p.5.

- Age. The age variable refers to the age of the "head" of household in the corresponding HBS.

- The real house price is the weighted average of new and secondhand house prices deflated by the harmonized index of consumer prices. We consider the eight regions defined in the HBS: Border, Dublin, Mid-East, Midland, Mid-West, South-East, South-West and West. Table A.1 indicates which prices were used for each region. Source: Department of Environment, Heritage, and Local Government.

Table A1. Correspondence between region and house prices

Region	House Price
South-West	Cork
Dublin	Dublin
West	Galway
Mid-West	Limerick
South-East	Waterford
Border, Mid-East, Midland	Other areas

- The real interest rate is the building societies' mortgage loan representative rate deflated by the consumer price index. Source: CSO.

APPENDIX II: MEDIAN COHORT REGRESSION

The median cohort regression (estimated without weights) is reported in Table A.2. The cohorts are defined by the year of birth of the household head. An attempt was made to estimate a regression with cohorts defined by year of birth, sex of household, and region where the household lives, but many variables were dropped probably because of collinearity.

Table A.2. Cohort Regression

Year of birth=1924	-0.009
	(0.85)
Year of birth=1929	0.003
	(0.09)
Year of birth =1934	-0.026
	(0.59)
Year of birth =1939	-0.021
	(0.43)
Year of birth =1944	-0.009
	(0.18)
Year of birth =1949	0.008
	(0.18)
Year of birth =1954	0.009
	(0.23)
Year of birth =1959	0.012
	(0.42)
Year of birth =1964	0.014
	(0.73)
Year of birth =1969	0.009
	(0.56)
Year of birth =1974	0.000
	(.)
Age	0.342
	(3.70)**
Age^2	-0.015
	(3.20)*
Age^3	0.000
	(2.81)*
Age^4	-0.000
	(2.53)*
Age^5	0.000
	(2.36)+
Year=1999-00	0.011
	(1.29)
Constant	-3.082
	(4.33)**
Observations	24
R-squared	0.98

Robust t-statistics in parentheses
+ significant at 10%; * significant at 5%; ** significant at 1%.

APPENDIX III: NATIONAL PENSIONS REVIEW

The Pensions (Amendment) Act, 2002 required a report on pensions to be completed by September 2006. The Pensions Board published the report on the National Pension Review on January 2006. The report includes a review of previously agreed pension targets, an assessment of current coverage and adequacy, and a discussion of the strategic options for meeting the agreed targets.

The main findings of the report are:

- The projected annual costs of the current Social Welfare retirement pensions and public service pensions are considerably higher than previously expected. In particular, the net cost of State pensions will increase from an estimated 1.6 percent of GNP in 2006 to 6.6 percent by 2056.
- Supplementary pension coverage is currently insufficient and there does not appear to be any improvement in the adequacy of pension provision.[40]

The main recommendations proposed by the Pensions Board for immediate implementation are:

- Introduction of matching contributions for PRSAs.
- Higher rate tax relief for all personal pension contributors.
- Reduced regulation of Standard PRSAs.
- Incentives for SSIA proceeds to be invested in pensions.
- Retiree option to defer Social Welfare pension.

Recommendations for further consideration include:

- Detailed research on women's pension coverage rates.
- Regular projection of Social Welfare pension costs.
- Automatic enrolment in a pension scheme.
- Ongoing pensions awareness and education campaigns.
- Review of Defined Benefit Funding Standard
- Progress review in 2008.

[40] For example, the current pension coverage for workers aged over 30 is 59 percent, compared to the target set by the National Pensions Policy Initiative of 70 percent. Concerning adequacy, defined benefit schemes represent a decreasing proportion of second pillar pensions and, as such schemes usually provide higher benefits than defined contribution pensions, and there is no evidence of significant increase in the level of defined contributions, the report concludes that adequacy may be deteriorating.

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