

Non-monetary benefits of education on individuals' saving behavior and budget management in Spain

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Abstract:

The present paper deals with the non-monetary benefits of education on savings and budget management, which constitutes one of the non-monetary benefits of education (i.e., the effects of education on factors not connected with obtaining income in the labor market, such as health, fertility, crime, consumption etc.) The data set is taken from the 1998 survey carried out by the Spanish Sociological Research Centre.

Results show that education increases the probability that individuals' saving portfolio will contain stock market and other risky and more profitable financial assets (thus increasing households' saving efficiency). Moreover, education trains individuals to manage their household budget more rigorously. Since it increases efficiency and reduces investors' risk aversion, it can also generate external benefits due to the fact that these investments may contribute to a higher rate of economic growth.

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1. Introduction

This paper deals with the non-monetary benefits (henceforth NMBE) of education on savings. NMBE are the effects on factors not connected with obtaining income in the labor market, such as health, fertility, crime, consumption and so on (see prior surveys of the research on NBME in Michael (1982), Haveman & Wolfe (1984), Psacharopoulos (1992), Behrman & Stacey (1997), McMahon (2000), Wolfe & Haveman (2001) and Escardíbul (2000, 2005) for Spain). As Wolfe & Zuvekas (1997) suggest, the overall sum of private non-monetary returns of education may be of the same magnitude as the monetary ones, though in fact McMahon (2004) states that NMBE may be even higher if we consider their external positive effects on economic growth and development.

The NMBE on saving behavior derive from the analysis presented by Michael and Becker for their “new theory on consumption” – see Becker (1967), Michael (1972, 1973), Michael & Becker (1973). In this theory, consumption is considered a production activity: individuals maximize their utility function (U) producing the ‘commodities’ (Z_i) desired (in Becker’s terminology) through a production function:

$$U = u(Z_1, Z_2, \dots, Z_n) \quad (1)$$

$$Z_i = f(x_i, t_i, E) \quad (2)$$

where t_i is time, x_i the market goods and E human capital (basically education) with the restriction of time and income. In this model, which draws on ‘human capital theory’, education is not a direct factor of production but, given certain inputs, may increase the efficiency of production of individual commodities. This is because more educated individuals may have more information (and be more capable of analyzing new information) on how to obtain more (and better) output.

Inside this theoretical framework, Solmon (1975) considers saving as a production process by which education can increase efficiency, since the more educated are able to select a more efficient portfolio. For Solmon, this may be because the more educated are more qualified to analyze the effects of inflation on savings as well as the current and expected returns of various financial assets, the investment alternatives available, and other economic aspects relevant to savings-investment decisions.¹ Education may reduce individuals' risk aversion and encourage them to engage in risky but more lucrative financial investments. As investments of this kind can also promote economic growth, education can generate both private and public non-monetary benefits (Solmon, 1975). Finally, this positive effect of education on savings can be extended to budget management (that is, how individuals supervise their household expenses).

Most studies of these two parameters consider the effect of education on the amount of saving, or the effect of education on decisions related to the savings portfolio, but do not include income in the model (and, thus, do not isolate the non-monetary benefits of education from monetary ones). However, in a pioneering study for the United States, Solmon (1975) shows that, considering income and other socioeconomic variables, education improves understanding of the negative effects of inflation on savings and that more educated investors have better ways of protecting themselves against it and investing in higher return assets. In addition, education reduces risk aversion when investing.

Recently, Haliassos & Bertaut (1995) for the United States, Guiso, Haliassos & Japelli (2002) for several European countries and Alessie, Hochguertel & van Soest (2002) for the Netherlands reveal that, *ceteris paribus*, university graduates are more likely to participate in the stock market and to acquire risky assets. Likewise, Goetzmann & Kumar (2001) indicate that American professionals (technicians and managers, who have higher educational levels) are more likely to diversify their savings portfolio than non-professionals such as manual and non-manual workers.

In this paper we analyze the NMBE on savings in Spain, that is, the direct effects of education on portfolio decisions in order to assess whether education increases individuals' efficiency. We also examine whether education reduces savers' risk aversion and allows a better management of the household budget.

The paper is organized as follows. Section 2 presents a brief overview of the stylized facts that we address. Section 3 describes our framework for the empirical analysis and presents the main features of the data. Section 4 carries out the empirical analysis, confirming that educational level conditions saving behavior and, finally, section 5 concludes and summarizes the main findings.

2. Some stylized facts

Table 1 shows the level of education of the Spanish adult population (25-64 years) in 1998 compared to other EU and OECD countries. Only 33.3% of the Spanish population completed higher secondary education (while the average was almost 60% for the EU, 87% for the United States, 80% for Japan and 56.2% for all OECD countries). There are historical reasons for this discrepancy, but if we analyze the individuals who have studied at university since the nineteen eighties we see that Spain is among the countries with the highest levels in the EU and the OECD.

INSERT TABLE 1 AROUND HERE

If the data in table 1 are compared with those of our sample – though the latter refer only to main wage-earners or their spouse, see table 6 – the percentage of individuals who did not reach lower secondary school is slightly lower in our sample (36.8% versus 44.5% for the whole population), while the percentage of population with university studies is quite similar (15.4% versus 14.0%). In addition, the percentage of those with upper secondary and tertiary non-university studies is slightly higher for the whole population (19.3%) than in our sample (15.4%). Finally, while 22.2% of the Spanish population only completed lower secondary education, in our sample this percentage rises to 32.4% (although it also includes secondary vocational education). Thus, the distribution of educational levels among respondents in our sample is similar to that of the Spanish population as a whole.

As regards savings, INE (2004) shows that the ratio between savings and gross disposable income equaled 12.5% of GDP in 1998 (14.5% in 1995 and 10.6% in 2003).

As far as investments in financial assets are concerned, deposit accounts predominate (36% of all financial assets), followed by stocks (29%), investment funds (19%), insurance and pensions funds (11%), and bonds (3%) among others (see Banco de España, 2005).

As in other Western economies (Guiso, Haliassos & Japelli, 2003), in Spain the savings portfolio has changed dramatically over the last two decades. Bonds, and especially stocks, are now better known and more popular than in the 1980s, when they were seen as assets for rich people ready to take risks. However, most households today still save in traditional ways. As Montllor and Tarrazón (1998) show, Spain has a similar pattern of saving to other countries such as United States, United Kingdom, France, Germany and Italy, though with some differences: Spaniards have a higher percentage of savings in deposits, stocks and investment funds and a lower percentage in insurance and pensions funds.

INSERT TABLE 2 AROUND HERE

We cannot compare the national data with those from our sample because we do not know how much our subjects invested in each kind of asset. However, table 2 displays the kinds of asset in which savers invest. A high percentage of households invest in non-financial assets as well as in liquid assets and deposits (the traditional methods of saving). Comparing the pattern of saving of the households where the main wage earner has a different level of education, as expected, the more educated invest more in stocks, investment funds and pension funds, and less in deposit accounts. While almost all savings of the less educated are in liquid assets and deposit accounts, the more educated use a higher variety of financial instruments (table 3).

INSERT TABLE 3 AROUND HERE

3. The survey data and the model

Our analysis is based on a single cross-sectional household survey ‘Los comportamientos económicos de los españoles: consumo y ahorro’ carried out by the

Sociological Research Centre in October 1998 (CIS, 1999), a national survey of a sample of 2,500 people aged over 18. The survey compiled standard demographic and socioeconomic information, including household earnings, employment status, gender, marital status, age, education and household composition, among other characteristics. It also asked respondents about their saving decisions and budget management. Our approach will only consider those people who reported being the main wage earner or his/her spouse (since it can be assumed that these are the people who take decisions regarding a household's saving).

In order to analyze NMBE on savings we examine several hypotheses. First, we explore whether individual education affects an individual's decision to invest their savings on the stock market (H1). Second, we consider whether education reduces risk-aversion when portfolio decisions are taken (H2), and third, whether education generates efficiency in savings management, that is if more educated individuals invest in financial assets with a higher return (H3). Finally, we investigate whether education allows a better management of the household budget (H4). To contrast all these hypotheses we include annual household earnings. So our education variable does not include monetary effects.

Table 4 provides information on the qualitative characteristics of saving decisions that will be considered. Contrasting H1 we generated a dummy variable '*stmk*', assigned a value of 1 when people report saving in financing stock market values (stock market assets, investment funds and public debt). A value of 0 is assigned to those who save in other kinds of investments (non-financial assets, insurance, pension funds, current or saving accounts or in their own business). The analysis is repeated if the respondent is assumed to own 30,050 to 36,060 euros (*stmkh*). In this way, we analyze the criteria differences between decisions based on real and potential availability of financing resources.

In 1998 assets linked to stock market showed higher returns than traditional saving (deposits and similar) – see Montllor and Tarrazón (1998) and Servei d'Estudis de La Caixa (1999). Thus, taking into account financial assets alone, our approach considers (H3) as an efficient saving behavior if education positively affects investments in the stock market (stocks and shares, investment funds and public debt).

Regarding H2, a dummy variable (*noavers*) is created indicating those people who show non-aversion to risk when saving. The no aversion variable is assigned 1 when individuals invest in stock market assets, investment funds and their own business (the riskiest investments of all, available due to their volatility), and 0 otherwise.

INSERT TABLE 4 AROUND HERE

Finally, H4 analyses whether households manage their monetary budget thoroughly. At this point, the sample differs because we consider only those respondents who report administering their household's budget each month. In order to contrast H4 we construct a dichotomous variable (*rigor*) assigning a score of 1 to those people who report managing household accounts with a computer, book or notebook, and with bank statements, and 0 to those who do not manage them in any way.

The percentage of respondents who meet the criteria can be seen in table 5. The table shows that 11.4% of the sample report investing in various kinds of stock market assets (*stmk*) although this proportion rises to 14.5% if respondents have more money to save-invest (*stmkh*). In addition, 14.4% show no aversion to risk (*noavers*), and 20.1% efficient saving behavior.

INSERT TABLE 5 AROUND HERE

Due to the dichotomous nature of dependent variables we used a qualitative response econometric model. H1 to H4 consider a binary logit model with the simple equation (1), where E_i is the educational level of individuals and x_j are those variables that we use to control. Table 6 presents a summary of the data on the full sample for the exogenous variables considered. Due to the lack of appropriate instruments we are unable to test for any possible endogenous behavior. Probit versus logit estimations are compared.

$$\Pr(y = 1/x) = \frac{\exp(\mathbf{b}_0 + \mathbf{b}_1'E_i + \mathbf{b}_2'x_j)}{1 + \exp(\mathbf{b}_0 + \mathbf{b}_1'E_i + \mathbf{b}_2'x_j)} \quad (3)$$

INSERT TABLE 6 AROUND HERE

Education is provided by respondent's educational degree. A six-level categorization is constructed. To describe a respondent's personal characteristics we considered their age (non-linearity is considered by the squared age), marital status (married or not), number of household members and respondent's sex (only considered for H4).

Other exogenous variables correspond to socioeconomic characteristics. We consider: employment status (both working or unemployed), retired, a dummy variable considering house with non financial debt (a household budget constraint that shows whether the household lives in accommodation that is already paid for, has been inherited or donated free), household income (net annual income adjusted by number of household members following Buhman, Rainwater, Schmaus, & Smeeding, 1988)². Labor activity and occupation category are also included (see table 6). Finally, we consider three categorical variables that indicate the individual's expected financial improvement for the next year and a variable that represents the average saving rate for the 1994-98 period in the Spanish regions (called Autonomous Communities, AC) where the respondent lives (these variables are not considered for testing H4).

4. Empirical results

Table 7 contains results for hypotheses H1 to H3. Summary statistics are reported although comparison is non-possible because specific samples are considered for each one of the hypotheses due to missing values. We used weighted least squares to correct the heteroskedasticity problem. Hypotheses H1 to H3 showed a significant proportional inverted relationship between residuals and net income level, whereas for H4 the functional form was proportional. Possible outliers are considered when appropriate.

INSERT TABLE 7 AROUND HERE

The estimates for the different hypotheses show that the university levels of education are always significant and positive, regarding the individual's saving portfolio decisions, no aversion and efficiency. Thus, we conclude that individuals with a

university degree are more likely to save in assets related to the stock market and to be less averse to risk. The more educated also have a more efficient pattern of saving. At this point, our results are in accordance with empirical evidence found in other countries (see section 2).

An interesting complementary issue corresponds to the analysis of marginal effects of education.³ Figure 1 reports the results for the predicted probability changes for H1 to H3. In the H1 estimation, the propensity to save in the stock market rises by 21.6% when individuals have a lower university degree compared to those without university studies and by 30.9% when they have a higher university degree. Marginal effects hardly change for the highest level of education when people answer assuming a hypothetical income between 30,050-36,060 € (22.0% for lower university degree and 29.8% for higher degree). As regards the H2 hypothesis (no aversion to risk) those with general and vocational upper secondary education are 18.3% more likely to report no risk aversion, a figure that rises to 25.7% in those with a first stage university degree and to 34.9% in those with a second stage degree. This substantial rise in probability confirms our previous hypothesis of a lower aversion to risk among those people with sound financial knowledge. Finally, those with university qualifications are the most efficient: their probability of behaving efficiently is 40.9% higher than those who did not complete secondary school.

INSERT FIGURE 1 AROUND HERE

Although we have focused here on the non-monetary benefits of education on savings, several comments are in order on the effect of other explanatory variables on dependent ones. Table 7 shows that age is negatively related to our hypothesis on savings, non-aversion and efficiency (a low significant sign is associated with square form that allows non-linearity). Older people are less likely to invest in the stock market, have higher aversion to risk and are less efficient. This finding mirrors those of other studies – see, among others, Gollier (2002), Bodie, Merton & Samuelson (1992) and Gollier and Zeckhauser (2002).

Household net income is positively related to investment in the stock market (real and potential) as well as to efficiency and non-aversion. Households at the upper income

levels are more likely to invest in stock market assets, are more efficient savers and have less risk aversion. To examine the income effects by age, we use the parameters estimated to compute predicted probabilities as income changes for fixed age values (30, 40, 50 and 60 years of age). The fall in the likelihood of investing in the stock market in the older groups shows a clear negative effect of age (see figure 2).

INSERT FIGURE 2 AROUND HERE

There is a positive significant relation between no-further housing costs (house) and investing in the stock market as well as efficiency (though the relation is not significant if individuals have a hypothetical amount of money to invest). Moreover, individuals with no-further housing costs show a lower aversion to risk – not surprisingly, since the absence of liquidity constraints (cost of the house) allows consumers to increase their implicit time horizon and reduces risk aversion (Gollier, 2002).

To consider differences in occupational individual characteristics, we take employment in agriculture as category of reference (and group all occupations related to services in just one category). Results show that occupational categories are positively related only to our saving and efficiency hypotheses. Regarding occupation categories, and in comparison with the self-employed, we observe that wage-earners are less likely to invest in stock market assets and to behave efficiently, and have a higher aversion to risk. Moreover, employers also show higher aversion to risk although this has no significant effect on their investment in the stock market (maybe because they dedicate part of their investments to their own businesses instead).

While being married reduces risk aversion, the number of household members increases the probability of investing savings in the stock market. Moreover, being active (non-out of work) increases risk aversion and the probability of investing in the stock market, whereas retirement is not significant in any hypotheses (a result also observed for the variable that indicates the average saving rate of the region where individuals live).

As regards individuals' financial expectancy for the next year, negative expectancy reduces the probability of investing in the stock market while those who expect no changes in their financial situation are lower risky.

INSERT TABLE 8 AROUND HERE

Finally, with regard to rigorous budget management, table 8 shows that education promotes better management. Marginal effects show that budget management is 79.4% higher for those who finished lower secondary education, 82.3% for those who finished upper secondary education, 86.4% for those with a first stage university degree and 80.0% for those with a second stage university degree (the small reduction of the percentage in the last case may be due to the fact that some higher educated individuals do not directly control their budget).

If other variables are considered, income also increases individuals' rigorousness in managing their budget. In contrast, less rigorous behavior is observed when there are no further housing costs and among women responsible for managing the household budget.

5. Concluding remarks

In contrast to previous studies which have assessed whether more educated individuals have a higher amount of savings, in this paper we analyze the effects of education on saving portfolio decisions and on budget management. We also examine whether education increases saving efficiency and allows individuals to obtain a higher return.

Results show that university studies increase the probability that individuals' saving portfolios contain stock market and other risky financial assets. Moreover, university increases the probability that individuals invested in assets that produced a higher return in the Spanish economy during the period considered. Therefore, we conclude that education increases efficiency, due to the fact that educated individuals have a better understanding of information related to savings and economic conditions and, therefore, they choose the assets with a higher return.

In addition, the lower aversion to risk of the more educated may produce external benefits since these investments can contribute to economic growth. Even if it is

assumed that an individual's financial investments are indicated by external advisers, the results suggest that education may allow people to choose their advisers more efficiently. Furthermore, in terms of efficiency, education is more relevant than wealth or age.

Finally, education equips individuals to manage their household budget more rigorously and generates positive non-monetary effects.

6. Notes

1. Solmon (1975) indicates that even if the more educated seek advice when taking decisions on investment it is likely that they can discriminate among advisers in a more efficient way.

2. The whole net annual household income is corrected by the number of members of the household, following the method proposed by Buhman et al (1988): $Y=X/s^\theta$, with: Y=corrected income; X=no corrected income, s=size of the household, θ =parameter between 0-1. The selected scale of equivalence is $\theta=0.5$, which has similar effects to that of the OECD, where income is corrected by the number of members of the house following this equation: [1* main wage-earner] + [0.7* other adults] + [0.5* non adults].

3. Marginal effects for each educational dummy have been calculated assuming that other educational variables are zero.

7. References

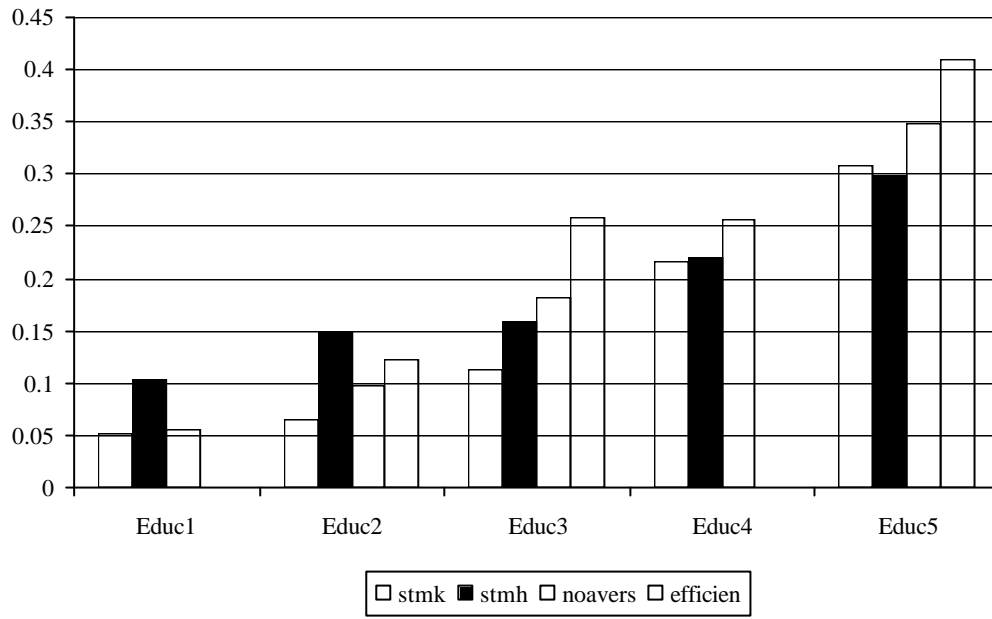
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Figure 1 Marginal effects of education



**Figure 2 Predicted probabilities for saving in the stock market:
Income effects by age**

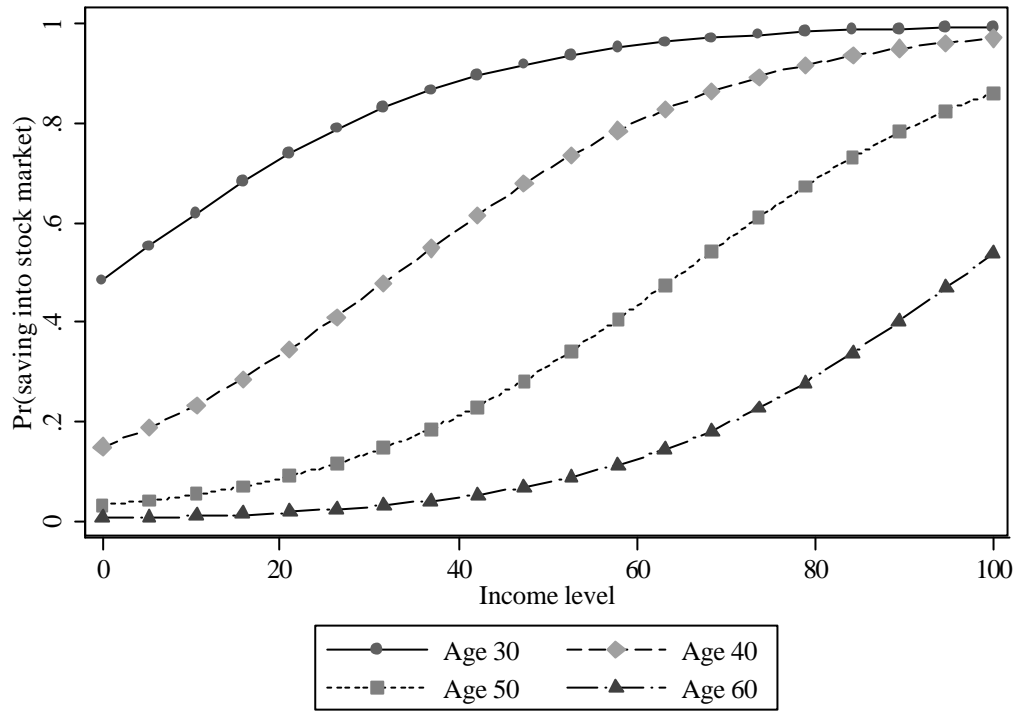


Table 1 Percentage of population 25 to 64 years of age by level of educational attainment, 1998

Countries	Pre- primary & prim.	Lower secondary	Upper secondary	Post sec. non- tertiary	Tertiary non- university	Tertiary- univers.	All educ. levels
	Isced 0/1	Isced 2	Isced 3	Isced 4	Isced 5B	Isced 5A/6	
	(1)	(2)	(3)	(4)	(5)	(6)	
Austria (z)	X (2)	26.7	56.9	5.7	4.5	6.2	100
Belgium	20.3	23.0	31.4	X (3)	13.5	11.8	100
Denmark	0.1	21.4	53.3	X (3)	19.8	5.4	100
Finland (z)	X (2)	31.7	38.8	--	16.7	12.8	100
France	21.1	18.2	40.0	0.2	10.0	10.5	100
Germany	2.1	14.1	56.4	4.4	9.0	14.0	100
Greece (z)	45.4	9.0	26.2	3.9	4.2	11.3	100
Ireland	23.1	25.6	30.2	X (3,5)	10.5	10.6	100
Italy	25.5	30.9	30.3	4.6	X (6)	8.7	100
Netherlands	12.5	23.2	40.1	X (6)	X (6)	24.2	100
Portugal	67.7	12.2	10.9	X (3)	2.7	6.5	100
<i>Spain</i>	<i>44.5</i>	<i>22.2</i>	<i>13.5</i>	<i>X (5)</i>	<i>5.8</i>	<i>14.0</i>	<i>100</i>
Sweden	11.8	12.1	48.1	X (5)	15.4	12.6	100
U. Kingdom	X (2)	19.2	57.3	X (5)	8.2	15.4	100
EU-14 average	19.6	20.7	38.1	1.3	8.6	11.7	100
Australia	X (2)	44.0	30.6	X (3)	8.8	16.6	100
Canada	X (2)	20.3	28.0	12.9	20.2	18.6	100
Czech Rep.	X (2)	14.7	74.9	X (3)	--	10.4	100
Hungary	4.3	32.4	50.1	X (3)	X (6)	13.2	100
Iceland	2.4	35.7	30.0	11.0	5.0	15.9	100
Japan	X (2)	20.1	49.5	X (6)	12.7	17.7	100
Korea	18.6	16.0	43.3	--	5.1	17.0	100
Mexico	58.7	20.1	7.8	--	1.2	12.2	100
New Zealand	X (2)	27.3	39.1	7.0	13.9	12.7	100
Norway (z)	0.2	16.7	56.3	1.0	2.1	23.7	100
Poland	X (2)	21.7	64.3	3.1	X (6)	10.9	100
Switzerland	X (2)	18.5	58.5	X (3)	9.0	14.0	100
Turkey	74.3	8.0	11.6	--	X (6)	6.1	100
United States	5.0	8.6	51.5	X (3)	8.3	26.6	100
OECD average	24.4	19.4	27.8	5.4	9.4	13.6	100

Notes: X (a)= data in column (a); (z) = Year of reference 1997.

Source: OECD (2000).

Table 2 Percentage of financial assets of the households of the sample

Asset	Share on total assets (1)	Share on financial assets (2)
Liquid assets and deposit accounts	44.2	78.0
Stocks and shares	5.9	10.5
Investment funds	6.7	11.8
Insurance and pensions funds	7.4	13.0
Bonds and similar	0.4	0.7
Non financial	48.2	--

Notes: (1) Percentage of households that declare to have invested their savings in a specific asset (each household indicates a maximum of two assets); (2) Percentage of households that declare to have invested their savings in a specific financial asset (each household indicates a maximum of two financial assets).

Table 3 Percentage of financial assets of the most and less educated individuals of our sample (1)

Asset	University second stage (ISCED 5A-6)		Less than primary education (ISCED 0)	
	Share on total assets (2)	Share on financial assets (3)	Share on total assets (2)	Share on financial assets (3)
Liquid assets & deposit accounts	24.8	44.1	62.2	95.5
Stocks and shares	5.7	10.2	3.0	4.5
Investment funds	27.6	49.2	0.7	1.1
Insurance & pensions funds	13.3	23.7	2.2	3.4
Bonds and similar	1.9	3.4	0.0	0.0
Non financial	53.3	--	39.3	--

Notes: (1) education considers the level of education of main wage-earner of the household; (2) Percentage of households that declare to have invested their savings in a specific asset (each household indicates a maximum of two assets); (3) Percentage of households that declare to have invested their savings in a specific financial asset (each household indicates a maximum of two financial assets).

Table 4 Definitions related to the dependent variables

Categories included	Value (1/0) as dependent variable		
	H1 Stmk / Stmkh	H2 Noavers	H3 Efficien
Non-financial assets			
Real Estate (housing and land)	0	0	--
Own business	0	1	--
Stock of durable goods and other expenses	0	0	--

Financial assets			
Savings or deposit accounts	0	0	0
Insurance (all kinds)	0	0	0
Pension funds	0	0	0
Investment fund	1	1	1
Public Debt (all types)	1	0	1
Stock market (stocks and shares)	1	1	1

Table 5 Characteristics of the analyzed dependent variables

Variable	Share of respondents (=1)	Sample size
<i>stmk</i>	0.114	1,032
<i>stmkh</i>	0.145	1,760
<i>noavers</i>	0.144	1,032
<i>efficien</i>	0.201	618
<i>rigor</i>	0.675	1,380

Table 6 Sample characteristics on respondents to each independent variable

Variable	Full sample
Educ0-No educational degree (pre-primary or less)	0.106
Educ1-Primary education	0.262
Educ2-Lower secondary education & vocational	0.324
Educ3-General & vocational upper secondary education	0.154
Educ4-University lower degree (<i>diplomados</i>)	0.072
Educ5-University higher degree (<i>licenciados & doctores</i>)	0.082
Age: <i>Mean</i>	49.95
<i>Standard deviation</i>	16.12
Marital status (percent married)	0.772
Hmem- Household members:	
<i>1 member</i>	0.097
<i>2 members</i>	0.269
<i>3 members</i>	0.233
<i>4 members</i>	0.236
<i>Over 4 members</i>	0.165
Non-out of work (working or unemployed): active	0.502
Retired people	0.267
House- Household with non further costs	0.661
Net Income-Household earnings per member (thousands €)	
<i>Mean</i>	7,334
<i>Standard deviation</i>	6,308
Exp- Financial expectancy	
<i>Exp1-Improve next year</i>	0.116
<i>Exp2-Stability next year</i>	0.425
<i>Exp3-Deteriorate next year</i>	0.459
Oc- Occupation activity	
Oc1-Professionals and managers	0.136
Oc2- Employed at offices and persons in charge	0.126
Oc3-Trader and shopkeeper	0.056
Oc4-Personal and safety services	0.114
Oc5- Miner, manufacturing, construction and transport	0.432
Oc6-Agriculture	0.136
Cat- Occupation category	
Cat1-Employer	0.058
Cat2-Self-Employed	0.177
Cat3-Wage earners	0.765
Sex (females=1) -only for H4	0.605

Table 7 Binary logit estimates for H1, H2 and H3 hypotheses

Hypotheses	H1		H2	H3
Dependent variable	<i>stmk</i>	<i>stmkh</i>	<i>noavers</i>	<i>Efficien</i> (1)
Constant	-0.774	-3.690 ^a	-0.680	0.735
Educ1	-0.189	0.252	-0.111	
Educ2	0.044	0.665	0.498	-0.298
Educ3	0.659	0.738	1.215 ^c	0.635
Educ4	1.427 ^c	1.138 ^b	1.653 ^b	
Educ5	1.908 ^b	1.550 ^a	2.091 ^a	1.289 ^c
Age	-0.168 ^a	-0.004	-0.120 ^b	-0.183 ^a
Squared age	0.002 ^b	0.0002	0.001 ^b	0.002 ^b
Marital status	-0.374	-0.333	-0.565 ^b	-0.246
Hmem	0.194 ^c	0.095	0.164	0.064
Non-out of work	0.984 ^b	0.356	0.827 ^c	0.866
Retired	0.755	-0.054	-0.060	0.498
House	0.881 ^a	0.045	0.665 ^a	0.753 ^b
Net income	0.053 ^a	0.038 ^a	0.043 ^a	0.081 ^a
Exp2	-0.691	0.093	-0.724 ^c	-0.276
Exp3	-0.771 ^c	0.191	-0.590	-0.352
Oc1	1.228 ^b	0.201	0.656	1.688 ^a
Oc2-3-4	0.909 ^c	-0.038	0.369	1.343 ^b
Oc5	1.116 ^b	0.077	0.714	1.254 ^b
Cat1	-0.846	-0.544	-1.151 ^b	-0.995
Cat3	-1.439 ^a	-0.211	-1.770 ^a	-1.631 ^a
AC saving rate	0.047	0.016	0.039	0.036
Observations	688	1094	688	401
χ^2	146.41	151.69	142.23	139.8
Pseudo R ²	0.224	0.133	0.201	0.275
Predictions Correctly classified	88.39%	84.19%	86.36%	81.59%

Note: superscripts a, b and c denote significance at 1, 5 and 10% respectively

(1) For H3 we have considered Educ2 as Educ1+Educ2 whereas Educ5 means Educ4+Educ5 due to lower sample size

Table 8 Binary logit estimates for H4 hypothesis

Dependent variable	<i>rigor</i>	<i>Marginal effects</i>
Constant	0.347	
Educ1	0.375	0.661
Educ2	1.068 ^a	0.794*
Educ3	1.245 ^a	0.823*
Educ4	1.557 ^a	0.864*
Educ5	1.095 ^b	0.800*
Age	0.027	
Squared age	-0.0003	
Marital status	0.358	
Hmem	-0.089	
Non-out of work	-0.273	
Retired	-0.394	
House	-0.594 ^a	
Net income	0.053 ^a	
Oc1	0.142	
Oc2-3-4	0.307	
Oc5	0.129	
Cat1	0.068	
Cat3	-0.267	
Sex	-0.581 ^a	
Observations	988	
χ^2	132.4	
Pseudo R ²	0.131	
Predictions Correctly classified	74.40%	

Note: superscripts a, b and c denote significance at 1, 5 and 10% respectively

* means significance for the parameter