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Life insurance consumption across generations: The roles of financial knowledge, planning horizon, and self-control

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Abstract

Life insurance enhances households' capacity to absorb financial shocks and protects against personal risks that no one likes to contemplate. This is even more important in times of economic hardship such as now, when many Europe countries and particularly Spain are going through difficult times due to rising inflation, the war in Ukraine, and the ongoing COVID-19 pandemic. Although previous studies have analysed the driving forces of life insurance demand, the influence of the individual's financial planning horizon, financial knowledge, and financial self-control have been underexplored. This study analyses the influence of personal financial attributes on life insurance demand and, in so doing, explores whether the effects of such attitudes differ across different generational cohorts (i.e., the silent generation, baby boomers, Gen Xers, and millennials). The data, taken from the *Survey of Financial Competences*, comprises 7245 Spanish individuals. Evidence from multivariate analyses reflects the relevance of standard sociodemographic characteristics in explaining individuals' decisions to become life insurance holders. In contrast, evidence does not support a statistically significant relationship in the case of behavioural variables such as financial self-control and the financial planning horizon.

KEYWORDS

baby boomers, financial knowledge, financial planning horizon, financial self-control, gen Xers, life insurance demand, millennials

1 | INTRODUCTION

A key dimension of households' financial wellbeing is the ability to absorb financial shocks. To this end, life insurance has long been one of the financial products that could be used for safeguarding households against personal risks (e.g., premature death or disablement) that no one likes to contemplate (Bateman et al., 2020; Park & Lemaire, 2011). Households' ability to cope with financial shocks is even

more important in times of economic turmoil such as the present economic difficulties stemming from the Ukraine war-driven shocks or the recent COVID-19 pandemic. In these situations, the greater capacity to absorb financial shocks provided by life insurance matters more (Wei et al., 2020), as this financial product can provide an appropriate safety net for individuals experiencing sudden income disruptions (Kulshreshtha et al., 2023). For this reason, it is important to further identify the driving forces of

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life insurance demand, the paper's main focus, which will be discussed in more detail throughout this introduction.

While mainstream economic theory has traditionally supposed that households will hedge against losses when they feel the need to do so, the prevalence of life insurance ownership remains at low levels, even in Western economies (Bateman et al., 2020). 'In 2018, the total premiums per capita expenditure on life insurance (i.e., life insurance density) was \$1741 on average in OECD countries, more than double the \$722 spent in Spain (OECD, 2022), where total life insurance premiums represented 2.4% of GDP (i.e., life insurance penetration), two percentage points lower than the average for the OECD countries (4.4%) (Insurance Europe, 2020; OECD, 2022). Furthermore, while the trend since 2017 points to an increase in demand for life insurance in Europe, Spain has witnessed a declining trend (Insurance Europe, 2020). Thus, data for 2020 reveal that the total premiums per capita spending on life insurance in Spain dropped to \$521 and the penetration rate decreased by up to 1.9%.

The statistics also show that the demand for life insurance is unevenly distributed between age groups. According to data from the *Survey of Household Finances* (Banco de España, 2019), Spaniards under the age of 35 years consume the smallest amount of pension plans and investment or mixed life insurance (11.8% of the financial assets of these individuals). From age 35 to 64 years, the share of these products in financial portfolios increases steadily (30.6% between 35 and 44 years old; 38.7% between 45 and 54 years old; and 39.6% between 54 and 65 years old). A significant part of these differences between age groups can be explained by the life-cycle hypothesis of Modigliani and Brumberg (1954), but another part remains to be explained. The abovementioned figures suggest that Spaniards below 44 years of age are less financially prepared to absorb financial shocks. Conversely, the current economic landscape means that today's young adults (millennials) and adults (Generation X, abbreviated to Gen X) are making their financial choices at a time of greater unpredictability and risk than earlier generations at identical stages of life (Kelly & Datta, 2015; Nancy, 2016), leaving them increasingly financially vulnerable. In other words, for these generational groups, life insurance purchasing is more important now than it was two decades ago.

Considerable literature on the demand for life insurance has been published (for a comprehensive survey in this field, see Outreville, 2013 or Zietz, 2003). However, to date, research connecting life insurance consumption to some personal characteristics, such as personal financial attributes, is still underdeveloped (Bateman et al., 2020). Nor has the extant literature considered whether the determinants of life insurance demand differ across generations; however, life insurance demand is likely to follow different

life-cycle circumstances (Liebenberg et al., 2012), as previous studies have shown for other types of insurance, such as health insurance (DePew & Gonzales, 2020).

This study aims to fill these gaps in the academic literature firstly by exploring the relationships between personal financial attributes (i.e., financial planning horizon, financial literacy, and financial self-control) and life insurance demand and secondly by analysing whether such relationships differ across generations, namely, the silent generation, baby boomers, Gen X, and millennials. The evidence confirms that financial self-control and financial literacy fail to be driving forces behind life insurance demand, whilst the financial planning horizon appears to be a weak driver. These results hold when considering the different generational cohorts, except for the financial planning horizon, which seems to be a weak driver, but solely for the older millennials subsample.

In light of the pressing nature of this topic, this article makes the following contributions. Firstly, it adds to the existing literature by providing further insights into behavioural determinants of life insurance demand, which seem mainly restricted to households' basic economic and socio-demographic characteristics (Bateman et al., 2020; Lin et al., 2017; Zietz, 2003). Secondly, it also expands the empirical research in two ways. Firstly, five age cohorts are analysed, corresponding to four generations: the silent generation, baby boomers, Gen X, and millennials. Within the last group, we have differentiated two subgroups, older and younger millennials. Secondly, focusing on a South European country, namely Spain, allows a better knowledge of the life insurance demand in non-Anglo-Saxon territories, widely neglected in the literature on this issue.

Following this introduction, Section 2 summarizes the literature review on the topic and Section 3 introduces the empirical data by presenting the data source and the variables that are included in the analyses. Section 4 depicts the evidence from the uni- and multivariate analyses and Section 5 ends by drawing the main conclusions.

2 | INSURANCE DEMAND AND PERSONAL FINANCIAL ATTRIBUTES: LITERATURE REVIEW

A growing number of studies have analysed the determinants of life insurance demand (Bateman et al., 2020; Liebenberg et al., 2012; Lin et al., 2017; Mare et al., 2019; Outreville, 2013), which denotes the importance of consumer demand for these products in the financial service industry (Zietz, 2003). To this end, the life-cycle hypothesis of intertemporal consumption (Ando & Modigliani, 1963) was widely used as a theoretical framework (Rabbani,

TABLE 1 Prior studies about life insurance demand and financial knowledge, financial self-control, and financial planning horizon.

Reference	Sample	Variables of interest	Methodology	Main results
Allgood and Walstad (2016)	28,146 U.S. adults	Objective Financial literacy Subjective financial literacy	<i>Probit</i> model Group comparisons	(+) Objective financial literacy (+) Subjective financial literacy
Bateman et al. (2020)	1709 working Australians	Objective Financial literacy Knowledge specific to life insurance	Multinomial <i>logit</i> regression	(+) Objective financial literacy is associated with being in higher decision states (+) Life insurance knowledge is associated with being in higher decision states
Cucinelli et al. (2021)	172 Italian adults	Financial literacy Insurance knowledge	<i>Probit</i> model	(+) Financial literacy play an important role in explaining consumers' insurance knowledge
Dragos et al. (2020)	1579 Romanian consumers	Insurance knowledge	<i>Logit</i> and multinomial <i>logit</i> regression techniques	(+) Financial education expressed through a self-constructed Index of Insurance Knowledge on intention to buy life insurance
Lin et al. (2017)	2472 respondents	Financial literacy	Logistic regression model	(+) Objective financial literacy on the demand for life insurance
Luciano et al. (2015)	7500 Italian individuals	Financial literacy	Linear regression model <i>Tobit</i> model	(+) Objective financial literacy on life insurance market participation
Mare et al. (2019)	1579 Romanian citizens from 42 Romania's countries	Insurance literacy	Cross-section linear regressions	(+) Insurance literacy (level of knowledge about insurance) on the demand for life insurance
Mitra (2016)	28 European countries	Long-term orientation	Ordinary Least Squares (OLS)	(+) Long-term orientation on life insurance demand (shown through density and penetration)
Nomi and Sabbir (2020)	315 adults from Bangladesh	Financial literacy	Structural equation model (SEM)	(+) Financial literacy positively influence on insurance purchase intention
Park and Lemaire (2011)	27 Asian countries	Long-term orientation	GLS regression	(+) Long-term orientation and the life insurance demand.
Rabbani (2020)	6839 Americans	Self-control (self-discipline)	Logistic regression analysis	(+) Self-discipline on life insurance demand
Roa et al. (2021)	701 adults from Guatemala	Financial knowledge Long-term orientation	<i>Logit</i> model	(+) Knowledge of specific financial concepts related to insurance may affect this decision (+) An individual who shows more patience in the long term has a slightly higher probability of having an inclusive insurance product
Mahdzan and Victorian (2013)	259 life insurance policy holders in Kuala Lumpur Malaysia	Financial literacy	ANOVA tests Multiple regression	(-) Subjective financial literacy had no impact on life insurance demand

(Continues)

TABLE 1 (Continued)

Reference	Sample	Variables of interest	Methodology	Main results
Weedige et al. (2019)	389 middle-class consumers in Sri Lanka	Insurance literacy	Structural Equation Modelling (SEM)	(+) Insurance literacy (level of knowledge about insurance) on the demand for life insurance
Wang et al. (2021)	One wave 8438 households and 29,500 individuals Second wave 28,143 households and 97,916 individuals	Financial literacy	Probit and Tobit models	(+) Objective financial literacy significantly increases the probability of purchasing life insurance
Zakaria et al. (2016)	200 Malaysian individuals	Financial literacy	Correlation research <i>Multiple Linear Regression Analysis</i>	(+) Subjective financial literacy on intention to purchase life insurance

2020). Under this approach, purchasing life insurance helps to smooth lifetime consumption by hedging against income uncertainty (income protection), so individuals can maximize the expected lifetime utility (Bernheim, 1991; Campbell, 1980). The theoretical framework also began to build up differing streams of investigation in the field of behavioural economics, for example, the concept of bounded rationality (Simon, 1956), the behavioural life-cycle hypothesis (BLCH; Shefrin & Thaler, 1988), or the theory of planned behaviour (Ajzen, 1991). As a result, the traditional expected utility model has been extended by adding the effects of some psychological traits on insurance demand. This makes sense because the leitmotif of a life insurance policy (i.e., future benefits linked to death or disablement) makes it unlikely that consumers will approach this product only as rational economic agents (Park & Lemaire, 2011). Accordingly, extensive empirical evidence has supported the positive relationship between life insurance demand and risk aversion, bequest motives, marital status, (young/old) dependents, and educational level, as well as the negative relationship between life insurance demand and life span, time preferences, net wealth (including homeownership), and age (Bateman et al., 2020; Lin et al., 2017; Mare et al., 2019).

Recently, an important extension in the behavioural finance literature has explored psychological factors beyond those traditionally associated with life insurance demand (Kumar, 2019). Consistent with this, this study explores the influence of three financial attributes (namely financial knowledge, financial self-control, and financial planning horizon) on life insurance consumption. Table 1 summarizes the studies in the field of life insurance demand that have considered any of these three financial attributes.

2.1 | The role of the financial planning horizon

Until recently, the literature on financial behaviours had devoted little attention to the role played by the length of the individual's financial planning horizon. Nevertheless, financial behaviours, especially long-term ones such as holding life insurance (Park & Lemaire, 2011) or investing in pension plans, should be understood within a planning horizon. Overall, empirical research has demonstrated that individuals' saving behaviour is favoured by longer saving/investment time horizons (Fisher & Montalto, 2010; Lee et al., 2000; Li et al., 1996; Malroux & Xiao, 1995). In this regard, there are several pieces of evidence: (1) households exhibiting a longer planning horizon are more likely to hold retirement assets (DeVaney & Chiremba, 2005; Rey-Ares et al., 2018; Yang & DeVaney, 2012), (2) short-

sighted behaviour is negatively related to holding voluntary accounts for retirement (Brown & Graf, 2013), and (3) longer planning horizons are linked to 'more aggressive saving profiles' (Jacobs-Lawson & Hershey, 2005).

Limited references in the field of life insurance demand address the effect of financial planning horizons, even though life insurance reflects the individual's time preference. Thus, according to Jacobs-Lawson and Hershey (2005), time preferences may be considered the opportunity cost of exchanging present value for future profit. The linkages between the financial planning horizon and life insurance demand can be justified through the theory of planned behaviour (Ajzen, 1991). This theory becomes especially appropriate for explaining 'volitional' behaviours, that is, behaviours involving planning and future orientation, such as insurance consumption. In particular, Ajzen (2002) posits that thoughts on the possible consequences of behaviour influence the individual's current behaviour. Hence, people who opt for a long-term planning horizon are more prone to assigning a greater weight to the future outcomes of their present financial behaviours. Under this approach, present financial decisions occur mainly in response to the unpredictability of future income oscillations, which is indeed the leitmotif of life insurance policies.

The literature summarized in Table 1 shows that only the studies by Park and Lemaire (2011), Mitra (2016), and Roa et al. (2021) have explicitly considered long-term orientation as a potential driver of life insurance demand. The first two studies are country-level studies that find a positive association between life insurance demand and long-term orientation measured through Hofstede's cultural dimension. In turn, Roa et al. (2021) explore the influence of financial planning horizon on life insurance consumption at an individual level. Specifically, these authors show that individuals in Guatemala who exhibit more patience in the long run are slightly more likely to have health and life insurance.

Drawing on previous arguments, the following hypothesis is proposed:

Hypothesis 1. Individuals who tend to have long-term financial planning horizons are more likely to buy life insurance.

2.2 | The role of financial knowledge

A considerable body of research has explored the effect of financial literacy on financial behaviour. Much of the literature evinces a positive relationship between individuals' levels of financial literacy and long-term financial behaviours, particularly regarding investment decisions

(Prasad et al., 2021). This relationship occurs, independently, in terms of both individuals' subjective financial literacy (i.e., the level of self-assessed financial literacy) and their objective financial literacy (Allgood & Walstad, 2016).

The influence of financial knowledge has also been acknowledged regarding life insurance demand. According to Prasad et al. (2021), individuals with higher levels of financial knowledge are more interested in purchasing life insurance. The arguments behind this relationship build on the concept of bounded rationality (Simon, 1956; Simon, 2000), that within the context of financial behaviours, highlights that people are constrained by two main elements: the resources (e.g., financial and informational resources, or time) (Liu et al., 2022) and the mental capabilities required to assess and optimize decision-making while confronting a very challenging financial scenario (Ibrahim & Khaimah, 2009). A life insurance product is a complex financial instrument with terms and characteristics that most people find difficult to evaluate (Bateman et al., 2020), such as both protections and investment instruments of different weights (Mare et al., 2019). Financial literacy provides individuals with the ability to assess complex financial instruments and to make informed decisions in their own best long-term interest when purchasing them (Mandell, 2008). Under this assumption, financially literate individuals are more capable of understanding life insurance policies and the importance of hedging against income uncertainty. Consequently, these individuals may be more prone to taking out life insurance.

Thus, empirical evidence summarized in Table 1 shows that objective financial literacy is positively associated with life insurance demand (Allgood & Walstad, 2016; Bateman et al., 2020; Lin et al., 2017; Luciano et al., 2015; Wang et al., 2021) and moving promptly to purchase coverage (Bateman et al., 2020). The influence of perceived or subjective financial literacy on life insurance demand has not only been less investigated but has revealed greater discrepancies among the few references that have considered it. Thus, some studies find a positive relationship between subjective financial literacy and the demand for (Allgood & Walstad, 2016) or intention to buy life insurance (Nomi & Sabbir, 2020; Zakaria et al., 2016), whereas Mahdzan and Victorian (2013) find it to be a nonsignificant determinant of life insurance demand.

Moreover, some studies address insurance-specific knowledge. Lusardi et al. (2020) highlight insurance as one of the areas where financial literacy is most deficient, despite being particularly important in times of economic crisis. While Cucinelli et al. (2021) find a positive relationship between financial literacy and insurance knowledge, other studies demonstrate the positive influence of insurance-specific knowledge on life insurance purchases

(Dragos et al., 2020; Mare et al., 2019; Weedige et al., 2019).

Drawing on previous literature, the following hypotheses are proposed:

Hypothesis 2a. Individuals who display greater levels of objective financial knowledge are more likely to buy life insurance.

Hypothesis 2b. Individuals who display greater levels of perceived financial knowledge are more likely to buy life insurance.

2.3 | The role of financial self-control

Even though theory has recognized the role of self-control in determining individuals' financial behaviour since the 1980s (see Shefrin & Thaler, 1988), research on the subject has been scarce so far (Strömbäck et al., 2017). Overall, empirical evidence has systematically linked self-control difficulties and negative financial behaviours (Strömbäck et al., 2017). Thus, poor self-control levels are related to borrowing (e.g., Achtziger et al., 2015), over-indebtedness (e.g., Gathergood, 2012), and lack of savings (e.g., Strömbäck et al., 2017).

Few references in the literature explore the relationship between financial self-control and life insurance demand, which is grounded in the BLCH (Shefrin & Thaler, 1988). The BLCH assumes that individuals often intend to save but lack the willpower to postpone their consumption for the future, so they rely on various savings mechanisms, such as life insurance, to resist the temptation to spend (Rabbani, 2020). Such saving devices may be overlooked when the individual has self-control problems (Mullainathan & Thaler, 2000), thus preventing them from consistently achieving their long-term financial goals.

The empirical literature summarized in Table 1 evinces that only the study by Rabbani (2020) considers the role of self-control as a driver of life insurance demand, finding that the probability of owning cash-value life insurance increases with self-discipline.

Briefly, based on the preceding literature, it is hypothesised that:

Hypothesis 3. Individuals who display greater levels of self-control are more likely to buy life insurance.

This paper aims to examine all the hypotheses proposed across four different generational cohorts. In so doing, the three hypotheses are examined for five subsamples: the

silent generation, baby boomers, Gen X, older millennials, and younger millennials. To date, only Rabbani (2020) has considered the study of insurance ownership for a particular generation (i.e., young adults). However, insights into how life insurance consumption varies across generations are becoming crucial. Today's younger generations live in an era of higher uncertainty and risk (Cramer, 2014) than the preceding generations were at the same life stage. The post-Great-Recession economy has increased the complexity of the financial landscape in which young people exist (Kim et al., 2019) and has worsened young people's retirement prospects (Kelly & Datta, 2015) and job opportunities (Rubin, 2014). The Ukraine war-driven shocks and the consequences of the recent COVID-19 pandemic are not helping. In such a context, it is reasonable to assume that today's young adults are more likely to benefit from having life insurance (Rabbani, 2020) as it provides income protection. Furthermore, the lack of life insurance among the youngest generations would increase their financial vulnerability and that of society.

In short, the influence of subjective financial knowledge, financial planning horizon, and financial self-control on demand for life insurance has hardly been addressed in the literature, and no study has focused on the potential differences between generations. While it is certain that the literature has consistently related life insurance consumption to age – the general idea is that life insurance demand declines as the individual ages (Lin et al., 2017) – the economic circumstances faced nowadays by young adults make it possible to have a generational effect that also affects life insurance demand.

3 | DATASET AND VARIABLES

3.1 | Dataset

Data were collected from the first edition of the *Survey of Financial Competences* (ECF by its Spanish acronym) in 2016. The ECF is an initiative of the Banco de España (*Bank of Spain*) and the Spanish National Securities Market Commission that aims to assess the level of financial literacy of the Spanish adult population (Banco de España, 2022).

The target population of this survey was composed of Spanish individuals aged between 17 and 80 years who were selected randomly from a large sample provided by the Spanish National Statistics Institute, representing Spain as a whole and each of its regions. Namely, the data was collected using a two-stage sampling method that involved stratification of the first-stage units based on region and municipality size. Of the 8554 valid, complete interviews, we discarded those with no information

on the life insurance demand variable. Thus, our final estimation sample consisted of 7245 respondents.

3.2 | Variables

The main objective of this paper is to analyse the relationship between individuals' financial attributes and life insurance consumption. To do so, the dependent variable was constructed as a dummy variable taking a value of 1 if, at the time of the survey interview, the respondent had subscribed to life insurance as a policyholder (not only as a beneficiary) and a value of 0 otherwise.¹ Life insurance is understood from a narrow perspective; it includes privately purchased life insurance but not life insurance benefits derived from occupational or public pension schemes.

The key independent variables were three financial attributes: financial planning horizon, financial literacy, and financial self-control. The financial planning horizon was measured through a categorical variable of the respondent's degree of agreement with the statement, 'I have set myself long-term financial targets and strive to meet them'. This variable has five categories, in accordance with the possible answers, ranging from 1 ('fully disagree') to 5 ('fully agree') on a Likert scale. The greater the value of this variable, the longer the planning horizon the individual considers in his or her financial decisions. Cardak and Wilkins (2009) and Shim et al. (2012) use analogous variables to capture individuals' financial planning horizons.

Objective financial knowledge and subjective or self-perceived financial knowledge are aimed at measuring individuals' levels of financial literacy. The objective financial knowledge was measured through the number of correct responses to three financial literacy questions dealing with the core financial concepts of compound interest, inflation, and risk diversification (i.e., the 'Big Three' in financial literacy, as referred to by Lusardi & Mitchell, 2011). This categorical variable ranges from 0 (i.e., no answer is correct) to 3 (i.e., all answers are correct). Following Kim et al. (2019) and Despard et al. (2020), subjective financial knowledge was measured through a categorical variable based on respondents' general self-perceived knowledge of financial matters. This variable ranges from 1 ('very poor knowledge') to 5 ('very good knowledge') on a Likert scale.

The financial self-control variable was constructed using an Exploratory Factorial Analysis (EFA). The extraction methodology was principal component analysis, and the rotation method used was Varimax. In this way, self-control consisted of three statements concerning individual attitudes toward saving and spending, close to those used by Ameriks et al. (2007) and Gathergood (2012), who relied

TABLE 2 Factor analysis and reliability of self-control scale.

Self-control statements	Cross-factor loadings
'I tend to live for today and let tomorrow take care of itself'	0.76
'I find it more satisfying to spend money than to save it for the long term'	0.80
'Money is there to be spent'	0.73

on ad-hoc surveys for their research. Table 2 displays the self-control items and their factor loadings. Each item loading represents the percentage of variance explained by the factor or, in other words, its contribution to the explained variance of the self-control variable. Overall, the factors explain 58.43% of the scale's total variance.

Two tests were conducted to verify the existing data's suitability for the analysis. A Kaiser-Meyer-Olkin (KMO) value of 0.64 was considered appropriate. In addition, Bartlett's test of sphericity ($p < 0.000$) was statistically significant.

After scale reliability was established, the financial self-control variable was constructed as a continuous variable where negative values reflect lower levels of the respondent's financial self-control and positive values reflect higher levels.

Besides the key independent variables, the empirical analyses also include a set of control variables (e.g., age, gender, marital status, and risk preferences). Table 3 contains the definitions of all variables that are part of the empirical analyses.

4 | EMPIRICAL ANALYSIS

4.1 | Univariate analysis

The sample individuals were classified into five age groups based on their birth year to analyse the potential differences in the relationships between financial attributes and life insurance demand across generations. Thus, the silent generation includes those people born between 1936 and 1950 (13.69% of the sample); baby boomers include those born between 1951 and 1964 (24.75%); Gen X includes those born between 1965 and 1979 (33.79% of the sample); and Gen Y (or the millennial generation) is split into the older millennials, born between 1980 and 1989 (15.53%), and the younger ones, born between 1990 and 1998 (12.16%). This distinction among the millennial subsample is made because the older millennials are likely to be at a life cycle stage more like the Gen Xers than at a stage similar to the younger millennials, most of whom are still

TABLE 3 Description of dependent and independent variables.

Variable	Definition
Life insurance	Dummy variable: (1) the respondent has, at the time of the interview, a life insurance subscribed as a policy holder -not only as a beneficiary-; (0) otherwise.
Financial planning horizon	Categorical variable on respondent's degree of agreement with the statement 'I have set myself long-term financial targets and strive to meet them', ranging from 1 (fully disagree), to 5 (fully agree). Therefore, it is assumed that the higher the category, the longer the planning horizon the individual considers when making financial decisions.
Objective financial knowledge	Categorical variable ranging from 0 to 3 on the number of correct answers to the following questions on core financial concepts: - Let us suppose you deposit €100 in a savings account with fixed interest of 2% per annum. In this account there are no commissions or taxes. If you make no deposit or withdrawal, once the interest has been paid to you how much money will there be in the account after five years? [Over €110/Exactly €110/Less than €110/it is impossible to say with the information given/Other answers]. - It is usually possible to reduce the risk of investing in the stock market by buying a wide range of stocks and shares [True/False]. - Imagine that five siblings had to wait a year to obtain their share of €1000, and that inflation that year was 1%. Within one year they will be capable of buying... [More than they could today with their share of money/The same amount/Less than what they could buy today/...].
Perceived financial knowledge	Categorical variable on the respondent's self-rated general knowledge on financial matters: (1) very poor; (2) fairly poor; (3) average; (4) fairly high; (5) very high
Financial self-control	Continuous variable on the respondent's self-control constructed by applying the EFA (see Table 2 for a broader definition).
Age/Age ²	Continuous variable on respondent's age/age squared.
Gender	Dummy variable: (1) male; (0) female.
Marital status	Dummy variable: (1) the respondent usually lives in his/her household with his/her partner/spouse; (0) otherwise.
Dependent children	Dummy variable: (1) the respondent usually lives in his/her household with his/her own (or his/her partner/spouses') children younger than 18; (0) otherwise.
Employment status	Categorical variable on the respondent's employment status: (1) employed [reference category]; (2) self-employed; (3) unemployed; (4) retired or early retired; (5) out of workforce.
Income	Categorical variable on the total annual gross income of the household. Six categories: (1) below €9000 [reference category]; (2) €9001-14,500; (3) €14,501-26,000; (4) €26,001-44,500; (5) €44,501-67,500; (6) €67,500 or over.
Homeownership	Dummy variable on the ownership status of the main residence: (1) the respondent is the owner of his/her main residence (through purchase; inheritance, or gift); (0) otherwise (e.g., rental, free use...).
Educational attainment	Categorical variable referring to the maximum education level that the survey respondent has completed: (1) early childhood education or primary education [reference category]; (2) lower secondary education; (3) upper secondary education; (4) post-secondary non-tertiary education or short-cycle tertiary education; (5) tertiary education.
Risk preferences: risk aversion	Categorical variable on respondent's degree of agreement with the statement 'I'm prepared to risk a little money on saving or investing, if I can then obtain a better return in the future', ranging from 1 (fully agree), to 5 (fully disagree). Therefore, it is assumed that the higher the category, the higher the individuals' degree of risk aversion when making financial decisions.

Note: The key independent variables are in the dark shaded areas.

students. Table 4 shows the brief statistics for the overall sample and the five subsamples.

Overall, 31.51% of the sample has life insurance, even though this rate diverges depending on the age cohort considered. Thus, evidence shows that life insurance follows a hump-shaped pattern by age; that is, the

percentage of people who have life insurance seems to increase with age, reaching its maximum at the Gen Xers' current age and subsequently decreasing. Thus, 45.51% of Gen Xers have life insurance, while this percentage falls to 13% for the silent generation and 14.64% for younger millennials.

TABLE 4 Characterization of respondents: mean of dependent and independent variables by sub-sample.

	Overall sample	Silent generation	Baby boomers	Gen Xers	Old millennials	Young millennials
Birth years	1951–1998	1936–1950	1951–1964	1965–1979	1980–1989	1990–1998
Age range ^a	17–80	65–80	51–66	36–51	26–37	17–27
Sample size	7245	992	1793	2448	1125	881
Life insurance	31.51%	13.00%	28.61%	45.51%	35.38%	14.64%
Financial self-control	0.0004	−0.16	0.03	0.10	0.009	−0.11
Objective financial knowledge	None (0)	13.71%	9.37%	11.32%	16.53%	16.69%
	Low (1)	33.77%	29.89%	31.13%	35.11%	38.48%
	Medium (2)	36.19%	36.98%	35.46%	32.71%	31.90%
	High (3)	16.33%	23.76%	22.10%	15.64%	12.94%
Subjective financial knowledge	Very poor (1)	27.02%	19.07%	13.36%	11.64%	11.01%
	Fairly poor (2)	29.44%	29.39%	26.80%	28.53%	29.85%
	Average (3)	38.10%	44.73%	51.23%	51.02%	50.17%
	Fairly high (4)	5.04%	5.91%	7.52%	7.29%	8.97%
	Very high (5)	0.40%	0.89%	1.10%	1.51%	
Financial planning horizon	1 ('Shortest')	36.29%	24.93%	17.86%	12.71%	9.42%
	2	20.40%	25.15%	18.26%	16.00%	13.62%
	3	23.00%	16.83%	21.31%	24.53%	25.88%
	4	22.03%	12.40%	23.98%	29.07%	29.74%
	5 ('Longest')	14.29%	6.45%	14.87%	17.69%	21.34%
	Average (1–5)	2.90	2.25	3.00	3.23	3.40
Age	47.31	71.18	57.63	43.97	31.79	22.18
Gender: male	49.88%	53.33%	51.53%	50.33%	47.73%	53.58%
Marital status: married	65.81%	72.68%	77.08%	77.29%	60.71%	11.69%
Dependent child(ren)	30.77%	0.71%	12.94%	64.09%	41.33%	5.11%
Employment situation	Employed	44.25%	40.94%	59.84%	64.36%	31.33%
	Self-employed	11.01%	1.11%	15.60%	11.64%	3.86%
	Unemployed	14.15%		16.83%	18.22%	17.03%
	Retired	15.11%	80.65%	0.90%		
	Out of workforce	15.47%	17.74%	6.82%	5.78%	47.79%
Household income	<€9000	12.99%	13.33%	12.58%	12.62%	13.96%
	€9001–€14,501	21.38%	20.86%	17.40%	21.42%	24.52%

(Continues)

TABLE 4 (Continued)

		Overall sample	Silent generation	Baby boomers	Gen Xers	Old millennials	Young millennials
Homeownership	€14,501–€26,000	28.38%	32.26%	27.66%	26.67%	28.71%	29.85%
	€26,001–€44,500	23.22%	17.43%	21.19%	26.43%	25.78%	21.68%
	€44,501–€67,500	9.32%	5.65%	10.49%	11.52%	8.27%	6.36%
	>€67,500	4.72%	2.62%	6.47%	5.39%	3.20%	3.63%
		79.13%	91.94%	86.95%	79.86%	58.58%	73.33%
Educational attainment	Early or primary (1)	14.98%	44.15%	19.07%	7.56%	6.13%	55.62%
	Lower secondary (2)	27.12%	27.12%	32.52%	26.96%	22.67%	22.25%
	Upper secondary (3)	21.44%	8.57%	18.18%	21.69%	20.36%	43.36%
	Post-secondary (4)	12.60%	5.04%	8.81%	15.28%	18.22%	14.19%
	Tertiary (5)	23.86%	15.12%	21.42%	28.51%	32.62%	14.64%
Risk preferences: risk aversion	1 ('Risk tolerance')	11.88%	6.55%	8.87%	11.60%	16.09%	19.41%
	2	23.74%	11.79%	18.13%	24.88%	31.38%	35.64%
	3	20.69%	13.91%	19.02%	21.28%	24.00%	25.88%
	4	19.25%	21.88%	22.87%	20.30%	14.76%	11.69%
	5 ('Risk aversion')	24.43%	45.87%	31.12%	21.94%	13.78%	7.38%
	Average (1–5)	3.21	3.89	3.49	3.16	2.79	2.52

Note: In the case of the dummy variables, the value of the mean reports the percentage of people who fulfil the condition according to which those variables take the value set to 1.

^aThe classification of respondents by age cohort was done based on the year of birth of respondents, not on the age, as only the year of birth (not the month) is reported.

As regards the financial planning horizon, evidence from our sample reveals that the younger the age cohort, the greater the preference for long-term financial goals. Indeed, millennials agree more with the statement, 'I have set myself long-term financial targets and strive to meet them', suggesting that this age group prefers to set a longer planning horizon when making financial decisions. Kim et al. (2019) found similar evidence contradicting the idea that millennials prefer immediate rather than delayed gratification, as some strands of previous literature acknowledge.

The levels of objective and perceived financial knowledge are fairly similar among the different age cohorts, despite pointing to a greater level of objective financial knowledge among older generations. Accordingly, regarding objective financial literacy, 60.74% of baby boomers and 57.56% of Gen Xers demonstrate a medium or high level of financial literacy. In comparison, these percentages drop to less than 50% among the millennials, especially the younger ones. Evidence supports that respondents tend to be cautious when self-assessing their financial knowledge: most respondents report an average level of financial knowledge, and relatively few consider that they have the greatest levels of financial literacy. Indeed, less than 10% of the sample, irrespective of the age cohort considered, report a fairly high or very high level of financial knowledge, with the percentage being slightly higher among the younger cohorts.

The degree of financial self-control is analogous among the oldest generations, achieving its highest value among Gen Xers, whereas it is lower among millennials (especially younger millennials). This evidence reinforces the idea that young people experience more difficulty in managing their impulsivity (Romer et al., 2010).

Men and women are equally represented in the five subsamples considered. The majority of members of the silent generation (72.68%), baby boomers (77.08%), Gen Xers (77.29%), and older millennials (60.71%) are married, while this percentage plummets to 11.69% among younger millennials. Similarly, few younger millennials (5.11%) have dependent children living at home, while this percentage increases among older millennials (41.33%) and Gen Xers (64.09%) and drops to 0.71% and 12.94% among the two oldest generational cohorts. Most baby boomers, Gen Xers, and older millennials work in either employment or self-employment, while most younger millennials (47.79%) are out of the workforce. This last age cohort comprises people aged 17–27, most of whom are still students. Members of the silent generation are mostly retired (80.65%).

Data displayed in Table 4 shows no substantial differences between the income distribution of the different age cohorts. Only in the case of baby boomers, Gen X,

and older millennials is the income distribution slightly skewed to higher income brackets. The differences between age cohorts regarding homeownership rates are greater. Thus, 91.94% of silent generation members are homeowners, closely followed by baby boomers (86.95%) and Gen Xers (79.86%). Curiously, a greater percentage of younger millennials (73.33%) than older millennials (58.58%) are homeowners.

Younger age cohorts seem to have achieved greater educational attainment than previous generations, except younger millennials, who, due to their age, might not yet have reached their highest level of educational attainment. This evidence points to what Tulgan and Martin (2001) stated –millennials seem 'the most educated-minded generation in history'. Indeed, the older millennials are the age cohort with the highest percentage of people who graduated from university (32.62%).

Finally, regarding financial risk preferences, the older the generation, the fewer risk individuals are willing to bear when saving or investing. Thus, on a Likert scale of 1–5, where a higher value points to greater disagreement with the statement 'I'm prepared to risk a little money on saving or investing if I can then obtain a better return in the future', 45.87% of members of the silent generation strongly disagree with the statement, and therefore seem the most risk averse, while 13.78% and 7.38% of older and younger millennials, respectively, are unwilling to risk their money when saving or investing.

4.2 | Multivariate analyses: The role of financial attributes

Multivariate analyses were conducted in two different stages. In the first stage, four models for the overall sample were presented. Model 1 includes the key independent variable of the financial planning horizon, and Models 2–4 sequentially add the remaining three key independent variables (Table 5). In the second stage, the model, including all key independent variables, was re-estimated for each of the five age cohorts considered (Table 6).

Given the binary nature of the dependent or response variable, we estimate a set of probit models, which create a non-linear association between the dummy response variable and the set of regressors based on the following expression:

$$\Pr(Y = 1|X) = F(\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k)$$

where Y stands for the dependent variable (taking a value of 1 for those who have subscribed to life insurance as policyholders and a value of 0 otherwise), X is a vector

TABLE 5 Probit estimations for the overall sample: marginal effects.

		Model 1	Model 2	Model 3	Model 4
Financial self-control					0.001 (0.005)
Objective financial knowledge [Ref. None (0)]	Low (1)			−0.018 (0.017)	−0.017 (0.017)
	Medium (2)			0.002 (0.017)	0.002 (0.017)
	High (3)			−0.018 (0.019)	−0.018 (0.019)
Subjective financial knowledge [Ref. Very poor (1)]	Fairly poor (2)		0.007 (0.016)	0.006 (0.017)	0.004 (0.017)
	Average (3)		0.027 [†] (0.016)	0.027 [†] (0.016)	0.025 (0.016)
	Fairly high (4)		0.039 (0.024)	0.040 (0.025)	0.038 (0.025)
	Very high (5)		0.088 (0.057)	0.088 (0.058)	0.087 (0.058)
Financial planning horizon [Ref. 1 ('Shortest')]	2	0.005 (0.016)	0.005 (0.016)	0.008 (0.017)	0.010 (0.017)
	3	0.015 (0.016)	0.012 (0.016)	0.014 (0.016)	0.017 (0.017)
	4	0.036* (0.017)	0.032 [†] (0.017)	0.035* (0.017)	0.037* (0.017)
	5 ('Longest')	0.029 (0.019)	0.025 (0.019)	0.026 (0.019)	0.029 (0.019)
Age		0.024*** (0.003)	0.024*** (0.003)	0.025*** (0.003)	0.024*** (0.003)
Age ²		−0.00003*** (0.000)	−0.00003*** (0.000)	−0.00003*** (0.000)	−0.00003*** (0.000)
Gender: male		0.041*** (0.010)	0.038*** (0.010)	0.040*** (0.011)	0.040*** (0.011)
Marital status: married		0.039** (0.013)	0.040** (0.013)	0.040** (0.013)	0.039** (0.013)
Dependent children		0.107*** (0.014)	0.106*** (0.014)	0.108*** (0.014)	0.108*** (0.014)
Job situation [Ref. employed]	Self-employed	0.043** (0.016)	0.043** (0.016)	0.044** (0.016)	0.044** (0.016)
	Unemployed	−0.088*** (0.014)	−0.086*** (0.015)	−0.087*** (0.015)	−0.086*** (0.015)
	Retired	−0.053* (0.023)	−0.053* (0.023)	−0.050* (0.023)	−0.051* (0.024)
	Out of workforce	−0.115*** (0.015)	−0.115*** (0.015)	−0.114*** (0.016)	−0.115*** (0.016)

TABLE 5 (Continued)

		Model 1	Model 2	Model 3	Model 4
Household income [Ref. <€9000]	€9001–€14,500	0.008 (0.019)	0.008 (0.019)	0.009 (0.020)	0.007 (0.020)
	€14,501–€26,000	0.075*** (0.019)	0.073*** (0.019)	0.075*** (0.020)	0.074*** (0.020)
	€26,001–€44,500	0.106*** (0.021)	0.103*** (0.022)	0.104*** (0.022)	0.104*** (0.022)
	€44,501–€67,500	0.146*** (0.027)	0.142*** (0.027)	0.145*** (0.027)	0.145*** (0.028)
	>€67,500	0.194*** (0.033)	0.187*** (0.033)	0.191*** (0.033)	0.192*** (0.033)
Homeownership		0.088*** (0.012)	0.090*** (0.012)	0.090*** (0.012)	0.091*** (0.012)
Educational attainment [Ref. Early or primary (1)]	Lower secondary (2)	0.012 (0.018)	0.009 (0.018)	0.006 (0.019)	0.007 (0.019)
	Upper secondary (3)	0.068*** (0.020)	0.060** (0.020)	0.056** (0.021)	0.059** (0.021)
	Post-secondary (4)	0.038 [†] (0.022)	0.030 (0.022)	0.028 (0.023)	0.030 (0.023)
	Tertiary (5)	0.064** (0.021)	0.053* (0.022)	0.051* (0.022)	0.053* (0.023)
Risk preferences [Ref. 1 ('Risk tolerance')]	2	−0.036* (0.017)	−0.036* (0.017)	−0.037* (0.017)	−0.036* (0.017)
	3	−0.014 (0.018)	−0.014 (0.018)	−0.013 (0.018)	−0.012 (0.018)
	4	−0.059*** (0.018)	−0.058** (0.018)	−0.058** (0.018)	−0.056** (0.018)
	5 ('Risk aversion')	−0.064*** (0.018)	−0.063*** (0.018)	−0.063*** (0.018)	−0.064*** (0.018)
N		7460	7446	7279	7245
R ² McFadden		0.1433	0.1438	0.1404	0.1411

Note: This table shows the average marginal effects of probit estimations. Robust standard errors are included in parentheses. *d.f.* stands for degrees of freedom.

[†] $p < 0.1$;

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

that includes the set of all regressors, β stands for the coefficients of the regressors, and F is the cumulative distribution function (CDF) of a normal distribution.

Table 5 displays the average marginal effects of the probit estimations on the overall sample. Although the estimates demonstrate that those who somewhat agree with the statement 'I have set myself long-term financial targets and strive to meet them' are more likely to be life insurance holders, the statistical significance found is weak and, therefore, the evidence does not allow the financial planning horizon to be considered a strong

determinant of life insurance demand. Park and Lemaire (2011) state that financial behaviours involving long-term decisions, such as decisions concerning life insurance demand, should not be understood without considering a long-term planning horizon, probably because the reward for life insurance is not immediate but delayed. However, our evidence does not allow us to confirm $H1$.

Similarly, objective, and subjective financial knowledge fail to drive life insurance consumption, and therefore $H2a$ and $H2b$ are not supported. Previous studies confirmed a positive association between financial

TABLE 6 Probit estimations by age cohort: marginal effects.

		Global sample	Silent generation	Baby boomers	Gen Xers	Old millennials	Young millennials
Financial self-control		0.001 (0.005)	−0.004 (0.010)	0.013 (0.011)	−0.003 (0.010)	0.010 (0.014)	−0.013 (0.011)
Objective financial knowledge [Ref. None (0)]	Low (1)	−0.016 (0.017)	0.031 (0.037)	−0.047 (0.037)	0.032 (0.033)	−0.121** (0.038)	0.043 (0.036)
	Medium (2)	0.006 (0.017)	0.041 (0.037)	−0.011 (0.037)	0.030 (0.033)	−0.043 (0.039)	0.016 (0.038)
	High (3)	−0.013 (0.019)	0.064 (0.048)	−0.080* (0.037)	0.040 (0.036)	−0.080† (0.046)	−0.020 (0.041)
Subjective financial knowledge [Ref. Very poor (1)]	Fairly poor (2)	0.003 (0.017)	−0.003 (0.029)	−0.028 (0.031)	0.044 (0.033)	0.038 (0.052)	−0.050 (0.035)
	Average (3)	0.025 (0.016)	0.037 (0.030)	0.007 (0.030)	0.035 (0.032)	0.042 (0.049)	0.005 (0.037)
	Fairly high (4)	0.038 (0.025)	0.026 (0.054)	0.011 (0.049)	0.067 (0.046)	0.048 (0.069)	0.007 (0.054)
	Very high (5)	0.095 (0.059)	0.491* (0.215)	0.238† (0.129)	−0.097 (0.090)	0.213† (0.124)	
Financial planning horizon [Ref. 1 ('Shortest')]	2	0.006 (0.017)	0.004 (0.028)	−0.010 (0.029)	0.013 (0.032)	0.044 (0.054)	−0.006 (0.051)
	3	0.017 (0.017)	0.011 (0.031)	−0.039 (0.030)	0.035 (0.031)	0.052 (0.050)	0.056 (0.053)
	4	0.035* (0.017)	0.027 (0.036)	−0.007 (0.032)	0.062† (0.032)	0.106* (0.050)	−0.003 (0.047)
	5 ('Longest')	0.024 (0.019)	0.063 (0.055)	−0.030 (0.035)	0.038 (0.036)	0.131* (0.058)	0.012 (0.051)
Age		0.001 (0.000)	−0.007* (0.003)	−0.010*** (0.003)	−0.004† (0.002)	0.017*** (0.005)	0.016** (0.006)
Gender: male		0.039*** (0.011)	0.001 (0.023)	0.033 (0.022)	0.060** (0.020)	0.071* (0.028)	0.001 (0.025)
Marital status: married		0.054*** (0.013)	0.011 (0.024)	−0.012 (0.026)	0.046† (0.027)	0.066† (0.034)	0.102† (0.053)
Dependent children		0.145*** (0.014)	−0.104*** (0.023)	0.030 (0.032)	0.090*** (0.023)	0.125*** (0.035)	0.038 (0.063)
Job situation [Ref. employed]	Self-employed	0.045** (0.017)	−0.079 (0.061)	0.084* (0.033)	0.045† (0.027)	0.013 (0.043)	−0.019 (0.050)
	Unemployed	−0.091*** (0.015)		−0.089** (0.031)	−0.105*** (0.028)	−0.068† (0.037)	−0.061* (0.029)
	Retired	−0.161*** (0.016)	−0.088 (0.120)	−0.033 (0.033)	−0.259** (0.088)		
	Out of workforce	−0.160*** (0.014)	−0.069 (0.074)	−0.082** (0.030)	−0.190*** (0.038)	−0.105† (0.054)	−0.023 (0.030)
Household income [Ref. <€9000]	€9001–€14,500	−0.002 (0.020)	0.082 (0.055)	−0.042 (0.039)	0.000006 (0.039)	0.022 (0.053)	0.033 (0.045)
	€14,501–€26,000	0.065** (0.020)	0.107† (0.055)	0.029 (0.040)	0.105** (0.036)	0.118* (0.051)	0.065 (0.046)
	€26,001–€44,500	0.095*** (0.022)	0.153* (0.074)	0.096* (0.046)	0.122** (0.039)	0.138* (0.056)	0.051 (0.050)

TABLE 6 (Continued)

		Global sample	Silent generation	Baby boomers	Gen Xers	Old millennials	Young millennials
	€44,501–€67,500	0.136*** (0.028)	0.126 (0.091)	0.117* (0.055)	0.196*** (0.045)	0.151* (0.072)	0.116 (0.078)
	>€67,500	0.180*** (0.034)	0.297* (0.136)	0.241*** (0.067)	0.207*** (0.054)	0.146 (0.097)	0.058 (0.081)
Homeownership		0.091*** (0.012)	0.023 (0.037)	0.065* (0.030)	0.154*** (0.024)	0.128*** (0.029)	0.023 (0.028)
Educational attainment [Ref. Early or primary (1)]	Lower secondary (2)	0.024 (0.019)	−0.030 (0.025)	−0.002 (0.031)	0.038 (0.043)	−0.044 (0.065)	−0.043 (0.047)
	Upper secondary (3)	0.075*** (0.021)	−0.005 (0.036)	0.099** (0.038)	0.077† (0.045)	−0.018 (0.068)	−0.052 (0.051)
	Post-secondary (4)	0.049* (0.023)	0.000 (0.045)	0.103* (0.047)	0.018 (0.047)	−0.054 (0.068)	−0.057 (0.047)
	Tertiary (5)	0.072** (0.023)	0.106* (0.046)	0.089* (0.042)	0.054 (0.048)	−0.066 (0.068)	−0.073 (0.045)
Risk preferences [Ref. 1 ('Risk tolerance')]	2	−0.034† (0.017)	−0.022 (0.039)	−0.020 (0.039)	−0.027 (0.034)	−0.025 (0.042)	−0.063* (0.030)
	3	−0.012 (0.018)	0.013 (0.044)	−0.040 (0.039)	−0.014 (0.036)	0.022 (0.044)	0.013 (0.036)
	4	−0.053** (0.018)	−0.021 (0.039)	−0.067† (0.037)	−0.053 (0.035)	−0.057 (0.048)	−0.024 (0.040)
	5 ('Risk aversion')	−0.063*** (0.018)	−0.040 (0.039)	−0.095** (0.037)	−0.055 (0.036)	−0.020 (0.051)	−0.029 (0.044)
N		7245	992	1793	2448	1125	881
R ² McFadden		0.1328	0.1313	0.1180	0.1050	0.1131	0.072

Note: This table shows the average marginal effects of probit estimations. Robust standard errors are included in parentheses. *d.f.* stands for degrees of freedom.

†*p* < 0.1;

p* < 0.05; *p* < 0.01; ****p* < 0.001.

literacy and insurance demand (Nomi & Sabbir, 2020), particularly between objective financial knowledge and insurance demand (e.g., Allgood & Walstad, 2016; Bateman et al., 2020); however, previous evidence was less conclusive on the effect of perceived financial literacy. Mahdzan and Victorian (2013) also failed to confirm that individuals' self-reported financial literacy drives life insurance demand.

Nor does financial self-control constitute such a determinant. To date, no study has addressed this issue; only Rabbani (2020) considered the effect of a similar variable (i.e., self-discipline) on the ownership of cash-value life insurance, finding a positive association for younger American adults. However, our data do not support *H3*.

In the second stage, Model 4 is replicated for the five age cohorts considered. Table 6 displays the average marginal effects of the probit regressions for the overall sample and the five subsamples. Evidence suggests that the financial planning horizon may drive older millennials' life insurance demand. Thus, the longer the financial

planning horizon of the older millennials, the more likely they are to demand life insurance.

Financial knowledge –objective or perceived– also fails to constitute a driver of life insurance consumption among Spaniards. This finding differs from that of Dragos et al. (2020), who found that financial literacy, measured by a self-constructed index of insurance knowledge, plays a prominent role in explaining life insurance demand. It is important to note that the financial literacy questions in the ECF are not specific to insurance planning, which might explain their nonsignificant relationship with life insurance demand.

Focusing in on the effect of self-control by age cohort, empirical evidence confirms that self-control fails to constitute a driver of life insurance consumption in any of the subsamples considered. Rabbani (2020) found a positive association between self-discipline (i.e., individuals' efforts to persevere in goal-directed tasks) and cash-value life insurance ownership for Americans born between 1980 and 1984. However, the

relationship between financial self-control and life insurance demand for our subsample of older millennials is not statistically significant.

4.3 | Robustness analysis

The previous analysis reveals provocative findings: of the three financial attributes considered, only the financial planning horizon demonstrates weak evidence of a positive relationship (of the four categories of the variable, only one shows weak statistical significance) to the life insurance demand of Spanish households, while neither financial knowledge nor financial self-control constitute a driving force of the demand for life insurance products. These outcomes could be partly explained by the wide coverage of survivors' benefits under the Spanish public pension system, which covers one of the main risks included in life insurance policies (i.e., premature death), thus leading the Spanish population to acquire less voluntary private insurance than populations in other countries.

Additionally, the purchase of life insurance is extensively imposed by lenders as a necessary condition for granting a loan. According to a report from the Spanish General Council of Insurance Mediators' Associations (CECAS, 2020), this kind of condition for formalizing a loan was found in 74% of mortgages and 53% of consumer loans in Spain. The usual practice is to promise reductions in the differential with the Euribor if insurance is taken out, as life insurance linked to mortgages is one of the most common types of insurance policies offered (71% of mortgage holders). Moreover, 75% of the people who have taken out a mortgage or consumer loan are still insured under the same policy (CECAS, 2020). Therefore, a significant part of the life insurance holders in the sample may have acquired policies linked to loans, especially mortgages. In other words, life insurance demand might reflect an imposition by the lenders rather than a voluntary choice of the households. As a result, life insurance consumption would be little dependent on the financial attributes of individuals in a country such as Spain. To test this possibility, the estimations in Table 6 were replicated by restricting the sample to the non-mortgage holders. Table 7 shows the marginal effects of these estimations for only the key independent variables.

As shown in Table 7, the financial attributes analysed have a similar effect to when the sample is not restricted to the non-mortgage holders. Indeed, the main difference affects the control variable of homeownership, which lacks statistical significance. In other words, the results show that homeowners are more likely to hold life insurance products than non-homeowners when the sample

includes mortgage and non-mortgage holders, which supports the proposal that life insurance used to be a widespread condition for formalizing a loan with a credit institution in Spain.

4.4 | Multivariate analysis: The role of sociodemographic controls

As regards the control variables, the findings are mostly consistent with previous research. Thus, men have around a 3.9% higher probability of owning life insurance products than women, though this finding does not hold for the silent generation, baby boomer, or younger millennial subsamples. In contrast, the estimates show that among Gen Xers and older millennials, males have a 6% and 7.1% higher probability of becoming life insurance holders than females. Contrarily, Lin et al. (2017) demonstrated that men have a lower probability of owning life insurance than women.

Empirical evidence also demonstrates that having a partner or dependent children at home seems to foster life insurance demand among Spaniards. The statistical significance of the relationship between marital status and life insurance demand is strong when considering the global sample but becomes weak when considering the different subsamples. The statistical significance of the variable of dependent children at home is stronger. These outcomes might reflect the fact that once individuals form their own family, they become more aware of financial responsibilities and the situation in which the family could find itself if one of the partners dies, which might lead to a higher subscription to term life insurance to thus offer financial protection to dependents upon death of the principal (except for the silent generation, where having dependent children would lead to a 10.4% lower probability of subscription). Besides, those who are parents might be more likely to bequeath their children a legacy through, for instance, unit-linked life insurance.

Overall, compared to those employed, people who are unemployed, retired, or not in the labour force (e.g., students) are less likely to demand life insurance. In contrast, the self-employed are more likely to hold life insurance policies than employees, though this evidence only holds for the overall sample and for the baby boomer and Gen X subsamples.

Except for the subsample of younger millennials, high-income households are more likely to take out life insurance, as these individuals have more disposable income for saving and investing. Besides, homeowners are more likely to subscribe to life insurance than non-homeowners. As mentioned, this relationship might be explained by the 'obligation' of mortgage holders to take

TABLE 7 Probit estimations by age cohort: marginal effects (sub-sample of the non-mortgage holders).

		Global sample	Silent generation	Baby boomers	Gen Xers	Old millennials	Young millennials
Financial self-control		−0.005 (0.006)	−0.002 (0.010)	0.009 (0.012)	−0.005 (0.013)	−0.019 (0.015)	−0.015 (0.011)
Objective financial knowledge [Ref. None (0)]	Low (1)	0.010 (0.019)	0.042 (0.038)	−0.019 (0.041)	0.071 (0.046)	−0.073 [†] (0.041)	0.047 (0.037)
	Medium (2)	0.035 [†] (0.019)	0.035 (0.038)	0.017 (0.042)	0.111* (0.045)	−0.020 (0.043)	0.027 (0.039)
	High (3)	0.022 (0.022)	0.050 (0.050)	−0.038 (0.042)	0.118* (0.054)	−0.013 (0.052)	−0.028 (0.040)
Subjective financial knowledge [Ref. Very poor (1)]	Fairly poor (2)	−0.004 (0.018)	−0.022 (0.028)	−0.042 (0.031)	0.053 (0.046)	0.081 (0.056)	−0.032 (0.037)
	Average (3)	0.021 (0.017)	0.036 (0.030)	−0.017 (0.031)	0.005 (0.042)	0.110* (0.049)	0.020 (0.038)
	Fairly high (4)	0.028 (0.028)	0.048 (0.058)	−0.005 (0.050)	0.032 (0.066)	0.061 (0.088)	0.019 (0.056)
	Very high (5)	0.103 (0.070)	0.384 (0.285)	0.345 [†] (0.195)	−0.117 (0.083)	0.351* (0.150)	
Financial planning horizon [Ref. 1 ('Shortest')]	2	−0.024 (0.017)	−0.012 (0.028)	−0.034 (0.029)	−0.068 (0.041)	0.028 (0.058)	−0.010 (0.049)
	3	−0.020 (0.017)	−0.012 (0.029)	−0.082** (0.028)	−0.028 (0.040)	0.032 (0.054)	0.043 (0.052)
	4	−0.003 (0.018)	−0.007 (0.033)	−0.030 (0.032)	0.043 (0.043)	0.063 (0.057)	−0.020 (0.045)
	5 ('Longest')	−0.003 (0.020)	0.074 (0.061)	−0.048 (0.033)	0.045 (0.050)	0.059 (0.066)	−0.017 (0.047)
Control variables		YES	YES	YES	YES	YES	YES
N		4779	851	1198	1104	779	835
R ² McFadden		0.080	0.1334	0.1190	0.0923	0.078	0.0575

Note: This table shows the average marginal effects of probit estimations, restricting the sample to those individuals who do not have a mortgage. The estimates are only displayed for the key independent variables, but the ones for the control variables can be provided on request. Robust standard errors are included in parentheses. *d.f.* stands for degrees of freedom.

[†] $p < 0.1$;

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

out life insurance aimed at cancelling the debt in case of premature death, thus financially protecting their family from the shock. Indeed, this relationship does not hold when the sample is restricted to non-mortgage holders.

It was expected that greater educational attainment would favour the demand for life insurance, as it increases the awareness of unfavourable shocks and the desire for protection. However, educational attainment fails to be statistically significant in shaping insurance demand, as Dragos et al. (2020) also found. Finally, regarding risk preferences, the data indicate that the greater the individuals' risk aversion, the less willing they

are to demand life insurance, as this financial product is not exempt from risk, as happens with unit-linked insurance. Therefore, risk preferences seem to play a leading role in the financial decision analysed, at least among baby boomers.

5 | CONCLUSIONS

Personal traits have recently arisen as factors that may affect individuals' life insurance consumption. This study empirically examines the relationship between life

insurance demand and three individual financial attributes – that is, financial planning horizon, objective and perceived financial knowledge, and financial self-control – and whether such relationships differ across five age cohorts – that is, the silent generation, baby boomers, Gen X, older millennials, and younger millennials. In doing so, this study extends the existing insurance literature by analysing three overlooked variables in an unstudied context, namely the Spanish context. Life insurance is an essential financial product for economically protecting households against personal disasters, especially during economic instability, such as during the ongoing COVID-19 pandemic. However, life insurance expenditure per inhabitant in Spain is less than half of the average expenditure in OECD countries (Insurance Europe, 2020; OECD, 2022), which makes it crucial to understand the personal and behavioural traits of people who take out life insurance.

Evidence from this paper reinforces the relevance of the conventional sociodemographic drivers of life insurance demand, including age, gender, responsibility for a marriage partner or children, employment status, homeownership, and household income. Overall, these determinants of life insurance demand hold across the five age sub-groups, albeit with different significance levels. The results further denote weak evidence of a positive relationship between the long financial planning horizon and life insurance demand among older millennials.

In addition, other surprising results call for further analysis in future research. More specifically, the findings fail to demonstrate statistically significant relationships between life insurance demand and objective and/or self-perceived financial knowledge and self-control. The lack of statistical significance of some financial attributes may be partly due to the features of the life insurance market in Spain. The Spanish public pension system extensively covers the risk of premature death just as life insurance does, which could mitigate the consumption of life insurance from the demand side. Moreover, this consumption may be driven mainly from the supply side by the common practice of lenders requiring the purchase of life insurance to obtain a loan.

Despite the contributions, we acknowledge some limitations to the study. Firstly, this study is based on secondary data, which limits the measurement of some variables. For instance, the dependent variable of life insurance does not allow distinguishing between term life insurance and whole life insurance, and the measurement of self-control is not as straightforward, as the items used to proxy for these financial traits can also reflect time preferences or attitudes toward money. Secondly, general financial knowledge is considered a key independent variable, but future studies should consider insurance-specific knowledge. In this regard, we considered the use of alternative datasets, such as the *Survey of*

Household Finances, which includes a complete set of financial questions, thus allowing a more complete analysis of life insurance (e.g., by considering four categories: insurance that covers the risk of death, unit-linked or other investment insurance, mixed and other). But unfortunately, it fails to provide information about key independent variables, such as financial literacy. Thirdly, the data are cross-sectional and refer to a single country. Personal characteristics and financial behaviours are affected by cultural aspects (Liu et al., 2019) and country-specific characteristics and conditions. Thus, the results may not be generalized to other countries, so future studies should replicate the models in other social and cultural contexts. Despite its limitations, the *Survey of Financial Competences* constitutes an interesting data source, being the only one, at present, that measures the financial knowledge of the Spanish population.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study comes from the Survey of Financial Competences, that is a joint initiative of the Banco de España and the Comisión Nacional del Mercado de Valores. Data are available at <https://app.bde.es/pmk/en/ecf/2016>

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ENDNOTE

¹ The *Survey of Financial Competences* does not allow the type of insurance policy (i.e., covers the risk of death; unit-linked or other investment insurance, mixed...) of the respondent to be distinguished. Data from the *Survey of Household Finances* reveals that more than 70% of life insurance policies purchased by Spaniards cover the risk of death and about 20% are mixed life insurance.

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