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Abstract

Purpose: This paper seeks to highlight opportunities for the banking sector arising from the population's aging and the expected reduction in pension incomes. Home Equity Conversion (HEC) instruments are a potentially useful way of restoring households' finances and satisfying their needs, with implications for the demand for financial services.
Design/methodology/approach: By using an Ordered Probit Regression model, the study analyzes data obtained from a survey of 2,000 Italian households.
Findings: The main finding is that individuals with greater familiarity with consumer credit, a cognitive and decision-making approach favorable to use of credit, and an internal locus of control show greater interest in various forms of equity conversion.
Originality/Value: This study extends the analysis of the determinants of individuals' interest in HEC products. It focuses more closely than existing literature on households' credit behaviors, attitudes towards credit, and locus of control. The paper helps identify potential targets of marketing campaigns and commercial proposals, and highlights the levers that the banks can focus on in communicating with customers and future prospect. Moreover, this work suggests that there is a need to develop greater awareness on the part of people who could be interested in these products. Therefore, appropriate financial education projects should be implemented to develop a better "credit" culture, with due appreciation of the usefulness of credit as a means of supporting household budgets.

Keywords
Home Equity Conversion, Household Finance, Consumer Credit, Locus of Control, Attitude towards Credit, Older consumers

1. Introduction

The gradual aging of the population in developed countries and the reduction in pension incomes is casting doubts on the ability of pension and welfare systems to ensure the coverage of pensioners' healthcare and other services. This has led to increased private investments in supplementary pension plans. However, in many countries, a significant proportion of households' wealth is still in the form of houses and other tangible assets (Lindbergh et al., 2008). This condition has reduced the degree of liquidity of households' accumulated savings and has restricted the ability to use them to top up pension income as well as cover both current and one-off needs.

In such a scenario, Home Equity Conversion (HEC) products acquire particular importance, as they allow the transformation of tangible assets (especially residential property) into a financial form, with a conversion of the value of real estate into cash flows. HEC mortgages, for example, enable property to be converted into cash flows guaranteed by the subsequent sale of an asset, while still guaranteeing borrowers the right to use the property concerned.

HEC products are useful for the following purposes: a) savings are freed up and become an integral part of the financial planning of life-cycle; b) such products are a way of covering one-off expenses, and c) they are a means for managing mismatches among the value of a real estate, its running costs, pension incomes, and accommodation needs. Moreover, from a credit point of view, d) HEC products extend the access to credit of the elderly with pension incomes. Finally, from a Sustainable Development Goals' perspective, HEC products can contribute to improving the financial inclusion of elderly people and reducing the demand for new houses, thereby improving the flexibility of real estate management and the efficiency of the second-home market.

However, despite such potential benefits, the demand for HEC products is very limited and needs to be thoroughly researched (Nakajima, Telyukova, 2017; Davidoff et al., 2017). The present research follows the strand of literature that focuses on HEC products and, more specifically, on the determinants of the interest of individuals in them. This study aims at contributing to a better understanding of such determinants, so as to profile those individuals that might be interested in using HEC products.

Previous studies on the determinants of the interest in HEC products considered these products mostly as a means of planning savings and investments (Rasmussen et al., 1997), or as a financial source of last resort (Stucki, 2006; Venti and Wise, 2004). This paper seeks to contribute to literature by studying the interest in HEC products from an alternative perspective, which might allow a better profiling of customers interested in such products, so as to encourage the promotion and the demand for such financial instruments. Specifically, compared to existing literature, this paper considers HEC products as financial products, and as a particular form of credit use. From this perspective, this study extends the analysis of the determinants of the interest of individuals in HEC products by taking into account some psychological variables that might influence the preferences of individuals with regard to credit access. Therefore, the interest in HEC products is studied as a propensity to use credit services.
In addition to conventional socio-demographic characteristics, this study simultaneously examines:

1. the role of past borrowing behaviors of households and their financial features, such as the use of mortgage loans and consumer credits, the accumulation of property wealth, as well as the importance of bequests in financial choices;
2. the role played by psychological factors, such as the attitudes towards credit, that is, the subjective disposition towards credit, and locus of control, that is, a subjective perception of controlling life events and the effects of choices.

This study mainly addresses two research questions:
1. Does attitude towards credit affect the interest of individuals in HEC products?
2. Does the locus of control affect the interest in HEC products?

To answer these two research questions, the present study analyzes data obtained from a survey of 2,000 Italian households, by using an Ordered Probit Regression model. Italy represents a good field of exploration of the phenomenon, as it is among countries with the highest rate of population aging and the highest level of property wealth. According to the Italian National Institute of Statistics (ISTAT 2018), more than one resident out of five in Italy is 65 years old and over (22.5%), and about 60% of the total wealth of households is made up of real assets (of which 92% is made up of homes).

This is the first study to analyze the relationship between psychological variables, such as the attitudes towards credit and locus of control, and the interest in HEC products, by empirically assessing whether such variables make an independent contribution to explaining the interest in HEC products. Focusing on such psychological antecedents, this paper contributes to literature by providing a psychological explanation of the phenomenon, considering that hardly any other study to date has investigated the interest in HEC products from a psychological perspective.

The findings reveal that, in addition to socio-demographic and financial variables, the attitudes towards credit and locus of control significantly affect the interest in HEC products. Specifically, individuals with a favorable attitude towards credit and those with an internal locus of control are more interested in HEC products. The obtained results also show that the interest in HEC products is lower among older individuals, individuals living in Central and Southern Italy compared to the North, and those with higher income levels. Conversely, the interest in HEC products is higher among individuals who already used consumer credit, those who owned property, those who expected a decrease in income, and those who gave little importance to bequests.

The remainder of the paper is organized as follows: The next section reviews the existing literature on the topic; the third section describes the dataset, specifying the variables and the analytical model; the fourth section presents the statistical results, while the fifth section discusses them. The last section concludes the work by providing the main implications and policy recommendations.

2. HEC Products Use: A Literature Review

The last few years have seen a steadily increasing interest in HEC products. The number of empirical and theoretical studies attempting to explain the interest in HEC products and the propensity to use them in different contexts has gradually grown. Such studies have analyzed the socio-demographic determinants of the demand, and some characteristics of the potential applicants. Moreover, the reasons for the gap between actual and potential demand were also explored by extending the area of investigation to the market and the supply-side.

Scholars have proposed and investigated many variables regarding several socio-demographic and financial aspects. Despite this, a clear conceptual model integrating such a variety of explanatory factors has not yet emerged in literature, most likely because of the practical difficulty in collecting data on such variables within an overarching explanatory model. The difficulty in defining a theoretical framework of reference arises from the complexity and also from the many social externalities of HEC products, which have led, over time, to studies characterized by widely varying approaches and objectives.

The socio-demographic variables are the most-investigated explanatory factors for the demand for HEC products and the propensity to use them. Variables like age, gender, education level, presence of children, household size, occupation, marital status, social class and level of income have proved to be potentially important to explain the interest in HEC products, although their relative effects often produce conflicting empirical results. In greater detail, some studies (Dillingh et al., 2013) found that age is positively related to interest in HEC products, whereas others (Chen and Jensen 1985; Cardona et al. 2014; Fornero et al. 2016) found a negative effect for age.

Gender also seems to be a determinant of the interest in HEC products, but results are conflicting: while Fornero et al. (2016) found no significant effect for gender, Costa-Font et al. (2010), and Dillingh et al. (2013) showed that females are more inclined to use HEC products. As for the role of marital status, Fornero et al. (2016) showed that single and divorced individuals are more interested in HEC products, whereas other work (Delgadillo et al., 2014) conducted in the United States found that marital status had no role in profiling those seeking reverse mortgages. Variables like household size and presence of children are negatively related to interest in HEC products (Caplin and Leahy, 2001; Chou et al., 2006; Dillingh et al., 2013). Costa-Font et al. (2010) and Dillingh et al. (2013) found income to be positively related to interest in HEC products. Also here, literature provided conflicting results, suggesting that such a relationship cannot be easily generalizable to all the groups of population. Some empirical works (Nakajima and Telyukova, 2017; Redfoot et al., 2007; Shan, 2011) indeed reported that pensioners with lower income levels tend to make the most use of HEC products. Following this line of reasoning, some studies highlighted the ratio between equity and current income levels: the "house rich, cash poor" syndrome was considered to explain the interest in HEC products (Case and Schnare, 1994), although some researchers came to the opposite conclusions (Michelangeli, 2010). The inconsistent results provided in literature regarding the role of socio-demographic variables indicate that such factors cannot offer a complete explanatory framework for the interest of individuals in HEC products.

A stream of literature analyzed HEC products from a financial planning perspective and investigated the impact of expectations and preferences on the demand for HEC products. Consistent with the "Behavioral life cycle hypothesis" (Shefrin and Thaler 1988), some studies investigated a series of factors that restrain the "dis-saving" when people get older and hinder the wealth and real estate de-cumulation, as well as the use of HEC products. These factors include the expectation of having sufficient savings to meet personal needs and the aversion to debt against a house (Caplin and Leahy, 2001; Bardhan and Barua, 2003), as well as the importance of leaving a bequest to family members, the fear of losing one's home, and the risk of ending up in a nursing home, together with an emotional bond to the home

(Leviton, 2002; Davey, 1996). Other factors are the unwillingness to spend current resources to allow for possible adverse events in the future (Becker and Mulligan, 1997, Caplin and Leahy, 2001), as well as the presence of a high level of suspicion concerning Equity Release Mortgages (ERMs), worry about the fair valuation of the property, fear of indebtedness, uncertainties about future welfare policies and the high costs of the operation (Davey, 1996). There is also the perceived risk of the operation, combined with other risks concerning health, medical expenses and long-term care and, consequently, the need to preserve their housing equity to self-insure, as well as house price uncertainty (Nakajima and Telyukova, 2017). Finally, another factor concerns the elderly individuals' negative attitude towards borrowing (Mason and Bearden, 1980; Huck, 1987, Gibler and Rabianski, 1993), but on this issue the studies are very poor.

Fornero et al. (2016) examined the role of financial literacy, revealing that individuals with higher levels of financial literacy are more interested in HEC products, and explaining this in terms of better financial planning abilities on the part of people with a higher level of financial knowledge, but their results are conflicting with those reported by Leviton, (2002), Gibler and Rabianski, (1993) and Duca and Kumar, (2014). Recently, Hopkins (2017) found a negative relationship between literacy in reverse mortgage and the interest in this kind of mortgages, as not even the existence of a relationship with a financial adviser increases the likelihood that the respondents would consider a reverse mortgage. Fornero et al. (2016) also emphasized the importance of negative expectations on retirement, debt aversion and risk aversion that increase the interest of Italian home owners in HEC mortgages.

However, although psychological aspects might have an impact on the interest in HEC products, only limited research has been done on this issue. The role of personal, behavioral and psychological variables in explaining households' behaviors and choices has been investigated in relation to a wide variety of financial decisions relating to savings, investments, indebtedness, payment and other choices, both as direct determinants and as mediating variables. Their presence in the study of the propensity to use and interest in HEC products is instead much less common. Furthermore, studies regarding the interest in HEC products are mainly conducted in the context of the so-called retirement-savings puzzle, where HEC products are considered planning or asset management tools.

HEC products, instead, have been rarely regarded as "particular" credit tools. Frequently, scholars studied the effects of the use of HEC products on the replacement of existing credit, both consumer credit (Brown et al., 2015, Bhutta and Keys, 2016; Greenspan and Kennedy, 2008; Hurst and Stafford, 2004) and mortgage (Redfoot et al., 2007). In short, past studies highlighted the use of HEC products and their effect on credit exposure, but did not investigate whether the use of credit products constitutes a determinant of interest in HEC products. The current research also explores the relationship between previous use of credit products and interest in HEC products.

Assuming that HEC products can be seen as "particular" credit services, this study can make reference to the stream of literature focused on the role of personal and psychological factors in explaining the interest of individuals in credit use. Use of credit is affected by various personal and psychological factors, and not only by utility maximization (Bertrand et al., 2005). Several studies in this stream investigated the role played by factors such as the meaning that an individual assigns to credit use and indebtedness, as well as particular personality traits, motives, reasons for actions, abilities, preferences, and perceptions.

Focusing on these factors, the present work investigates the effects of attitudes towards credit and of locus of control on the interest in HEC products. Attitude refers to the subjective disposition to respond favorably or unfavorably to an object, a person, or a behavior (Ajzen, 2005; see also Eagly and Chaiken, 1993). The relationship between the attitude towards credit and its use was investigated in many studies, which proved its importance in the decisions taken by individuals on credit use. For instance, Livingstone and Lunt (1992) identified a positive association between an individual's attitude towards credit, level of indebtedness, and intention to repay. A similar correlation emerged in a study by Lea et al. (1993), who focused on households which had run up debts with a water utility firm. Davies and Lea (1995) found a positive relationship between attitude towards credit and indebtedness by analyzing the opinions provided by students who had taken out loans to finance their education. Attitude towards credit also explained the number of credit cards held by college students (Hayhoe et al., 1999), as well as the use of revolving credit cards (Wang et al., 2011). Cosma and Pattarin (2012) found a positive correlation between attitude towards credit, opinions concerning indebtedness, and consumer credit use. Based on findings from past studies and considering HEC products as credit tools, this study might propose that attitude towards credit could be related to the interest of individuals in HEC products. The current research explores such a relationship.

The role played by attitudes in explaining credit use could be put in relation with personality traits, which might shape attitude formation (Tokunaga, 1993; Davies and Lea, 1995). Personality factors are individual-specific as they originate from personal experiences, as well as from family, social and educational backgrounds. Personality factors rule the way of interpreting the environmental and individual circumstances, thereby affecting personal actions in every aspect of life. Most research agrees that personality factors may predict a variety of behaviors; more recently, economists have become interested in studying the role of personality traits as predictors of lifetime earnings, wealth, and saving behaviors (Brown and Taylor, 2014; Cobb-Clark and Schurer, 2013).

This paper focuses on one specific personality trait: the locus of control, which is a psychological concept introduced into the social learning theory over 50 years ago by Rotter (1954, 1966). The locus of control captures a chronic difference among individuals regarding the extent to which they view events in their own life as caused by their own actions or decisions. According to Ajzen (2002), individuals with an *internal* locus of control see events in their own life as caused by their own actions or decisions, while individuals with an *external* locus of control see the same events as caused by factors beyond their control.

Previous psychological research highlighted that individuals with an *internal* locus of control tend to react to a problem in a more constructive way, to actively look for solutions, and are better adjusted than those with an *external* locus of control (Ng et al., 2006; Pearlin and Schooler, 1978). Furthermore, individuals with an *internal* locus of control show direct coping efforts and fewer attempts of suppression when there is a change (Parkes, 1984), show more grit or perseverance in the face of adversity (Caliendo et al., 2015; McGee, 2015, Buddelmeyer, and Powdthavee, 2016), save more both in volume terms and in relation to permanent income (Cobb-Clark et al., 2016), and have higher willingness to take financial risks (Kesavayuth et al., 2018). In particular, an external locus of control reduces the correct decision-making effects of financial education and lessens the care taken over a sound management of personal finances (Hira and Mugenda, 1999; Perry and Morris, 2005).

In short, individuals with an *internal* locus of control tend to be more proactive at finding solutions for their problems and more confident in their abilities to take decisions and manage risks. Based on such findings, it could be interesting to investigate whether and how the locus of control plays a role in explaining the interest in HEC products and, more specifically, whether individuals with an *internal* or *external* locus could be differently interested in HEC products.

Other studies also investigated the locus of control's role in credit behaviors, but the results produced are often conflicting. For instance, studies by Lea, Webley and Walker (1995) and by Davies and Lea (1995) reported an association between an *external* locus of control and a favorable attitude towards debt but did not find a correlation between locus of control and use of credit. Allen et al. (2007) found that people with an *external* locus of control have more favorable attitudes towards money and the use of credit. Conversely, Cosma and Pattarin (2011) found a positive correlation between *internal* locus of control and use of consumer credit. Similarly, Wang et al. (2011) reported a positive correlation between an *internal* locus of control and the use of revolving credit. Furthermore, prior literature highlighted that *external* locus of control is typically associated with "negative" credit behaviors, such as high indebtedness (Dessart and Kuylen, 1986; Livingstone and Lunt, 1992; Tokunaga, 1993), financial problems (Perry and Morris, 2005), irresponsible use of credit cards, and higher levels of revolving debt (Allen, et al., 2007).

In conclusion, it seems that the locus of control may play a major role in explaining credit decisions and, more specifically, the interest of individuals in HEC products. According to current knowledge, the relationship between locus of control and interest in HEC products has not been yet explored. Conversely, this investigation explores such a relationship.
Finally, in addition to other relevant variables investigated in previous literature, this study mainly addresses two research questions:

1. Do attitudes towards credit affect the interest of individuals in HEC products?
2. Does the locus of control affect the interest in HEC products?

3. Material and methods

3.1 The study sample

The data used in this study were collected from a survey of 2,000 Italian households, and involved the administration of a questionnaire to the financial decision-maker.[1] The sample was selected according to a proportionate stratified sampling technique, which is typically effective in assuring sample representativeness of the target population (Benzo et al., 2018). The sample composition, as summarized in Table 1, reflected characteristics of the Italian population, especially in terms of household size and geographical region of residence. Indeed, the proportions of households of different sizes, as reported in Table 1, reasonably paralleled those of the whole population. Indeed, according to the latest Census data available in Italy at the time of data collection, 9.6% of the Italian household population had one component, 20.9% had two components, 24.9% had three components, 29.2% had four components, 11.2% had five components, and 4.2% had six or more components (Italian Census, 2001). Similarly, the proportions of households living in the three major geographical areas of Italy, as reported in Table 1, greatly paralleled those of the whole

[1]The investigation was performed using the CATI system and applying all the relevant logical and flow consistency checks included in this system, together with ACS (Automatic Call Scheduling) modules for the automatic management of sample lists.

population: 44.9% of Italian households lived in Northern Italy, 19.1% lived in Central Italy, and 36% lived in Southern Italy (islands included) (Italian Census 2001). Table 1 contains a detailed sample description based on socio-demographic data provided by the respondents.

The sample was equally split between households who had actually used consumer credit during the previous 24 months and those who had not used credit. This was necessary to provide a dataset with a large enough number of credit-user households.

(Insert Table 1 about here)

3.2 The questionnaire

The questionnaire was comprised of 45 questions, appropriately differentiated between the two groups of households (credit users and non-users). Questions were related to socio-demographic characteristics, financial and equity profile, attitude towards credit, locus of control, and interpretation of the role and functions of consumer credit. Questions about the current macro-economic situation, the effects of the financial crisis on the household's budget, current consumer-saving-indebtedness strategies and future expectations were asked at the end of the questionnaire to avoid influencing the tone of replies towards other sections.

Two specific sections of the questionnaire focused on psychological characteristics: the first section consisted of twelve questions to assess the attitude towards credit and the second one of six questions concerning the locus of control. Respondents were not forced to express an opinion, since they were given the option of not replying to every question.

3.3 Attitude towards credit

Attitude towards credit indicates the subjective disposition towards credit, based on cognition and feelings about it, which may be associated with a greater or lesser tendency to use credit. For the purposes of this study, it is useful to divide the concept of attitude into three significant aspects: cognitive, affective, and behavioral components.

The *cognitive component* consists of a set of items, such as information, knowledge, beliefs, opinions, perceptions and ideas about credit, which have been built up by individuals throughout their lifetime in response to experiences and interactions with the environment. The cognitive component helps to establish the reference framework within which decisions are taken.

The *affective* (or *emotional*) *component* consists of the emotions, feelings and, above all, sensations aroused by credit such as having the impression of being in debt. The affective component reflects the value attributed to credit, as well as a structure of preferences in the cognitive component which could be distorted by external factors.

The *behavioral component* refers to all explicit behaviors in relation to credit and, in part, also to actual intentions which have not yet been turned into actions. With regard to the use of credit, these behaviors are adopted in relation to money management, household budget and use of consumer credit, differentiated by type of expenditure.

One section of the questionnaire aims to assess the respondents' psychological characteristics. This section consisted of twelve questions about attitudes towards credit.

The assessment of attitude towards credit is based on the approach of Lea et al. (1995). Five items related to cognitive, three to emotional and four to behavioral attitude (Table 2). All questions elicited an expression of agreement concerning a given statement on a five-point Likert scale (from 1 = Strongly disagree, to 5 = Strongly agree).

(Insert Table 2 about here)

The approach of Lea et al. (1995) was preferred to alternatives, like that of Xiao et al. (1995) or its evolution by Hayhoe et al. (1999), since it avoids any reference to credit card use, which, for the purpose of this study, might introduce a confounding bias, as it elicits answers that are also correlated with attitudes towards money.

3.4 Locus of Control

Locus of control is a personality factor related to how individuals perceive their ability to control life events. An *internal locus of control* refers to the perception of being in control of life events, that is, the feeling that the outcomes of situations and personal affairs depend on individual decisions and capabilities. On the other hand, an *external locus of control* implies a perception that personal events are beyond control, as they solely depend on external and unpredictable factors. Therefore, an individual with an *internal locus of control* pays more attention to events capable of providing information to guide his/her decisions. This individual constantly attempts to make full use of his/her abilities and to increase his/her cognitive capacities. He/she is generally much less affected by external inputs and conditioning. Conversely, individuals with an *external locus of control* are less inclined to plan their actions and spend time in assessing the effects of financial decisions.

Locus of control is considerably more difficult to measure than attitudes. Initial attempts by Rotter (1966) required 23 questions, while Levenson (1973) used 24 in a clinical study. When samples are larger than in traditional clinical studies, as it is typical in survey analyzes, scales based on a smaller number of items are preferable. Craig et al. (1984) tested a 17-item scale, while Lumpkin (1985) proposed a more parsimonious solution, based on six items only, which is suitable for large-scale studies. In Lumpkin's scale, three questions are focused on external locus of control, while the other three on internal locus of control. Considering the large sample analyzed and the questionnaire administration method adopted in this study, Lumpkin's solution was preferred (Table 3).

(Insert Table 3 about here)

Responses to each question on internal locus of control were assessed on a five-point Likert scale (from 1 = Strongly agree, to 5 = Strongly disagree). Responses regarding external locus of control were scored in the opposite direction (from 1 = Strongly disagree, to 5 = Strongly agree). This meant that the higher the scores on all six items, the more the corresponding answers indicated an external locus of control.

3.5 Definition of variables

The dependent variable, consisting in the interest of respondents in HEC instruments, was measured by means of a question describing their meaning, in order to avoid, as far as possible, distortions arising from different interpretations or varying levels of knowledge regarding these instruments. The question was phrased as follows: "How much do you agree with the possibility of using property to obtain extra income (e.g., a guaranteed income for life) or an amount of money to increase spending power, by selling the ownership of a home or another property but retaining the right to live there for the rest of one's life?". The answers to this question were provided on a five-point scale (from 1 = Strongly disagree, to 5 = Strongly agree). Data collected constituted the dependent variable (*Y*), which was named *interest in home equity conversion*.

The explanatory variables were subdivided into three groups: socio-demographic variables, variables linked to financial decisions, and psychological variables. Explanatory variables were recoded, as described in the Appendix, to conduct a meaningful statistical analysis.

3.6 The models

The data were statistically analyzed using an Ordered Probit Regression model, as the dependent variable *Y*, relating to *interest in home equity conversion (HEC) products*, was an ordinal variable assessed on a five-point scale (from 1 = Strongly disagree, to 5 = Strongly agree). The Ordered Probit Regression represents the most recommended statistical technique to appropriately analyze data when the dependent variable is ordinal (Franses and Paap, 2004; Kolodinsky et al., 2004). Indeed, the ordinal nature of the dependent variable implies that the distances between the five categories – namely, from "Strongly disagree" to "Strongly agree" – are not equal. This violates one of the assumptions of the linear regression, which might have led to inaccurate estimates (Long and Freese, 2001).

The analysis involved the estimation of three models, the results of which are summarized in Table 4. In Model 1, the dependent variable was regressed on the socio-demographic variables. In Model 2, it was regressed on both the socio-demographic variables and variables relating to the respondents' financial situation. Finally, in Model 3, the dependent variable was regressed on the socio-demographic variables, the financial ones, and the psychological variables relating to attitudes and locus of control. Overall, the models were significant and revealed statistically significant relationships between some independent variables and the dependent variable.

(Insert Table 4 about here)

4. Results

With reference to the socio-demographic predictors, the analysis returned significant regression coefficients for class of age, area of residence, and income. In particular, considering a confidence level of 90%, a relationship existed between class of age and the dependent variable that was negative and significant (b = -0.090, p < 0.01), suggesting that older respondents expressed a lower interest in HEC products. The analysis also revealed a positive effect on the dependent variable for residing in the north of Italy (AREA1, b = 0.159, p < 0.10) and a negative effect for (natural logarithm of) per-capita income (b = -0.164, p < 0.10), indicating that households residing in Northern Italy (compared with to Central Italy) and those with lower income tended to be more interested in HEC products.

With regard to predictors of the financial situation, the obtained results showed a positive effect of consumer credit status (b = 0.502, p < 0.01) and of property ownership (b = 0.268, p < 0.10) on the dependent variable, suggesting that households who had used consumer credit and owned some property could be more interested in HEC products. Instead, the analysis revealed a negative effect for income expectations (b = -0.102, p < 0.10) and for importance of legacies (b = -0.127, $p < 0.01$), indicating that those who expected a decrease in their future income and those who put lower importance to legacy expressed a greater interest in home equity conversion.

With regard to the psychological predictors, results revealed that attitude towards credit was positively related to the dependent variable (b = 0.241, $p < 0.01$), whereas locus of control was negatively related to it (b = -0.124, $p < 0.05$). These effects meant that respondents with a more favorable attitude and those with a mainly internal locus of control were more interested in HEC products.

However, because the ordered probit regression coefficients summarized in Table 4 cannot be interpreted as in the standard linear regression (e.g., Kolodinsky et al., 2004), the analysis also estimated the marginal effects, which allowed a better understanding of the relative effects of the independent variables on the interest in HEC products. The analysis returned a set of marginal effects for each level of the dependent variable, with each marginal effect indicating the magnitude of the impact that the associated independent variable had on the corresponding level of the dependent variable. The estimated marginal effects reported in Table 5 indicate that class of age, consumer credit status, property ownership, importance of legacies, attitude towards credit, and locus of control were the most relevant predictors of the interest in HEC products.

(Insert Table 5 about here)

Overall, the estimates should not be subject to a substantial risk of endogeneity. The socio-demographic variables, capable of capturing most of the heterogeneity between respondents (due to psychological and cultural factors) were inherently not subject to reciprocity, since they were structurally not liable to change in response to the degree of interest in HEC products. With regard to the financial variables, it should be noted that the estimated parameters remained consistent across Model 2 and Model 3, as they remained unchanged even after the introduction of the psychological variables. The risk of a distortion due to omitted explanatory variables, therefore, appears to be negligible.

5. Discussion

The analysis returned significant relationships between several socio-demographic, financial, and psychological variables, on the one hand, and the interest in HEC products, on the other. Looking at the socio-demographic variables, the analysis revealed significant effects for class of age, area of residence, and (natural logarithm of) income. A first finding may be that the interest in HEC products is lower among older individuals: elderly people are less interested in using their properties (and their homes) to top up their current incomes. This seems counter-intuitive at first glance, especially if one considers the growing needs of the elderly. Yet it is consistent with other studies and, in particular, with that by Fornero et al. (2016). Indeed, if one considers HEC products as credit instruments, the negative relationship between class of age and interest in HEC products can be explained through a limited willingness of elderly people to use credit. Although marginally significant, the analysis highlighted the positive effect of residing in Northern Italy, as respondents living in that part of Italy tended to be more interested in HEC products.

As for the income, in contrast with Fornero et al. (2016)'s work, the relationship between household income and interest in HEC products was marginally significant. Such a relationship was negative, meaning that the interest in HEC products tends to be higher among individuals with a lower income. The obtained results are consistent with other empirical findings in literature (Nakajima and Telyukova, 2017; Redfoot et al. 2007; Shan, 2011).

With regard to the financial variables, the analysis revealed significant effects for consumer credit use, property ownership, income expectations, and importance of legacies. Having used consumer credit in the past seems to play a major role: respondents who made use of consumer credit exhibited a greater interest in HEC products. Use of consumer credit is a behavioral variable that reflects familiarity with credit (and indebtedness), and its significant and positive relation with interest in HEC products represents an important finding that enriches our understanding of individual determinants of recourse to HEC products. In contrast to the existing literature (see Nakajima and Telyukova, 2017; Redfoot et al., 2007), the variable regarding a previous use of mortgage loans was unrelated to the interest in HEC products. The irrelevance of such an effect was not surprising. Indeed, many people tend to view mortgage loans as a way of purchasing their home, and thus as a means of satisfying their accommodation needs. As a consequence, mortgage loans might be viewed more as a form of savings than as a form of credit use and, as such, it might be an unreliable indicator of a propensity to use credit (or familiarity with it).

Property ownership was found to be positively related to the interest in HEC products, a finding suggesting that home owners are relatively more interested in mechanisms that could enable them to use their property wealth in different ways. Expecting an increase in future income, instead, was negatively related to the interest in HEC products. Although the effect was marginally significant, it suggests that people who expect an increase in their income in the future are less interested in HEC products. The result regarding the importance of legacies was in line with the existing literature (Caplin and Leahy, 2001; Dillingh et al., 2013; Nakajima and Telyukova, 2017; see also Fornero et al. 2016). Results revealed that people who assign a greater importance to bequests are less interested in HEC products, likely because such individuals view their wealth as a source of "value" for their family members that should not be given away in exchange for cash flows. Consistent with this reasoning, Model 2's estimates showed that unmarried (or single) respondents exhibited a greater interest in HEC products.

Looking at the psychological variables, the analysis showed significant effects for both attitude towards credit and locus of control. The overall attitude of respondents towards credit was positively related to the interest in HEC products. Furthermore, respondents with a strong internal locus of control exhibited a greater interest in HEC products. This effect might be due to a greater attention paid by these individuals to the consequences of their own decisions, which is likely to generate a higher propensity to plan and manage their budgets. This tendency might contribute to explaining a greater interest in forms of access to credit in exchange for the posthumous handover of property wealth to cover routine or unplanned cash flow needs.

6. Conclusions

In countries like Italy, where a relevant proportion of households' wealth consists of real estate, especially houses, Home Equity Conversion (HEC) products may play a crucial role in the financial and credit system. Population aging and a decreasing ability of pension and welfare systems to ensure long-term healthcare have been making HEC products more and more critical. HEC products could become the fourth leg of the traditional retirement "stool" based on Social Security benefits, pension and personal savings (Johnson and Simkins, 2014).

Managing a low degree of liquidity of accumulated savings is expected to become a key component of retail banking products. Banks could contribute to bridging the gap between the actual and potential demand for HEC products but, to this end, it is essential to better understand how they are perceived by individuals and which factors might contribute to an interest in such products. This is particularly true for elderly people, who represent the main target of HEC products, even though they are less interested in such products compared with other age groups. As far as it is known, this is the first study to investigate the interest in HEC products by also considering the psychological variables, such as attitude towards credit and locus of control, within an overarching model, which includes socio-demographic and financial variables. As a complement to past studies, the most interesting empirical findings indicate that familiarity with consumer credit identified through previous use of consumer credit, a favorable attitude towards credit, and an internal locus of control determine a greater interest in using HEC products. These findings have relevant implications for research, society, and practice.

From the theoretical point of view, this paper contributes to the strand of literature exploring the consequences of attitudes and personality traits on economic outcomes and, particularly, on the interest in HEC products. The main theoretical implication regards the incorporation of previously examined variables into an overarching model that has been expanded to include relevant psychological antecedents. Moreover, the interpretation of HEC products as credit products may open a new stream of study, which can be applied in future investigations on HEC products and the antecedents behind their use. To the extent that these findings contribute to the future understanding of households' economic decisions, they may influence policy options in such a way as to support households in meeting sustainable long-term objectives.

From a societal point of view, the low level of interest shown by elderly people – the market segment for which these products are intended – suggests that improving the quality of technical aspects of such products (e.g., regulatory safeguards) may not be enough to encourage market demand. A crucial aspect for the development of this type of market might be investing in marketing communication strategies aimed at raising the awareness of elderly consumers about the potential of HEC products. Such investments might be useful to encourage elderly people without direct heirs and with a low income to use HEC products, thereby obtaining immediate cash flows that might improve their quality of life.

From a banking perspective, banks should develop marketing communication strategies aimed at promoting HEC products by targeting consumers interested in such instruments. According to the findings of this analysis, such strategies might be targeted at specific groups of people (e.g., young or middle aged, living in Northern Italy, and with a low income), as well as people with a specific financial profile (e.g., familiarity with consumer credit, property owners, consumers with a decreasing income outlook, and/or a low importance assigned to bequests). Provided that all these qualities are under the spotlight of bank marketing managers, banks should develop specific marketing policies dedicated to expanding the market of HEC products. Marketing communication strategies could be designed to inform and persuade, even by appealing directly to people's emotions. Therefore, the technical characteristics and practical advantages of HEC products should be highlighted, in order to develop a positive attitude towards credit, in general, and these products, in particular. Because internal locus of control is another psychological antecedent of the interest in HEC products, banks' marketing communication strategies could leverage aspects that may increase the sense of control of consumers. In addition to communication strategies, banks might invest in other marketing strategies aimed, for example, at increasing the opportunities for customers to get proper information about financial products and choose investments or saving plans by themselves. Indeed, past literature on personal control (Inesi et al., 2011) showed that providing individuals with opportunities to make their own choices allows them to express their own preferences and perceive that the satisfaction of such preferences is determined by their decisions and actions: a situation that might increase, even only temporarily, their internal locus of control.

By analyzing the role of psychological variables, the present research has opened a new stream of investigation regarding HEC products. Future studies could contribute to such a stream by examining other psychological factors, regarding, for example, basic personality traits (e.g., the so-called Big Five factors; Digman, 1990) and psychological states (e.g., sense of power; Rucker and Galinsky, 2009), which have not been considered in this work. These features might improve the understanding of the reasons why individuals use HEC products, on the one hand, and provide new marketing strategies to expand the market of such products, on the other.

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Biography

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Appendix
Explanatory variables' description

Explanatory variable	Description
Socio-demographic variables	
Gender (GENDER)	Binary variable assuming the value 1 to indicate male and 0 to indicate female.
Class of age (AGE)	Variable ranging from 1 to 7, where 1 = 18-24 years, 2 = 25-34 years, 3 = 35-44 years, 4 = 45-54 years, 5 = 55-64 years, 6 = 65-74 years, 7 = +74 years.
Marital status (STATUS)	Binary variable assuming the value 1 to indicate that the respondent was single and 0 to indicate that the respondent was married.
Household size (HOUSEHOLD)	Variable ranging from 1 to 6, where each value denoted the number of household components (the value 6 indicating the possibility that the household had 6 or more components).
Residence in North Italy (AREA1)[1]	Binary variable assuming the value 1 for respondents residing in northern regions of the country and 0 in all other cases.
Residence in South Italy or Islands (AREA2)[1]	Binary variable assuming the value 1 for respondents residing in southern regions of the country or the islands and 0 in all other cases.
Size of the municipality of residence (MUNSIZE)	Binary variable assuming the value 1 for respondents residing in municipalities with population over 40,000 and 0 for respondents residing in municipalities with population up to 40,000.
Education up to middle school (EDU1)[2]	Binary variable assuming the value 1 for respondents educated up to middle-school diploma and 0 in all other cases.
University or post-graduate education (EDU2)[2]	Binary variable assuming the value 1 for respondents with university or post-graduate education and 0 in all other cases.
Income (NLINCOME)	Natural logarithm of per capita income as estimated using the equivalence scales adopted by the Italian National Institute of Statistics (ISTAT 2016).
Financial variables	
Mortgage status (MORTGAGE)	Binary variable assuming the value 1 for respondents who had used a mortgage loan for residential needs and 0 for respondents who had not.
Consumer credit status (CREDIT)	Binary variable assuming the value 1 for those who had used consumer credit and 0 for those who had not.
Above-average literacy (FINLIT1)[3]	Binary variable assuming the value 1 for respondents showing above-average financial literacy and 0 in all other cases.
Below-average literacy (FINLIT2)[3]	Binary variable assuming the value 1 for respondents with below-average literacy and 0 in all other cases.
Property ownership (HOUSES)	Binary variable assuming the value 1 for respondents who stated that they own and 0 for those who did not own property.
Income expectations (EXPINCOME)	Variable capturing the expectation of respondents about their income over the next five years, which was assessed on a five-point scale, where 1 = expected reduction of 30%, 2 = expected reduction of 10%, 3 = will remain stable, 4 = expected increase of 10%, 5 = expected increase of 30%.
Personal impact of crisis (PERCRISIS)	Binary variable assuming the value 1 for those who considered that their household situation was seriously impacted by the financial crisis and 0 for those who considered the impact weak or non-existent.
General impact of crisis (GENCRISIS)	This variable was originally assessed using a question that asked respondents to indicate their perception of the impact of the crisis on the general economic situation by choosing one out of four options: a) "It is not as bad as they say"; b) "It will pass over, just like all the other crises"; c) "It will make us all a bit less well off in the future"; d) "It will force us to significantly cut back our purchasing habits". Those who chose Options a) and b) were classified as respondents who perceived the impact to be weak or non-existent, whereas those who chose Options c) and d) were classified as respondents who perceived the impact to be relevant. Therefore, a binary

	variable was created, which assumed the value 1 for those who considered the crisis to have had a relevant impact and 0 for those who had perceived the impact to be weak or non-existent.
Importance of legacies (BEQUEST)	This variable was assessed only on respondents with children. Only 1,411 out of 2,000 respondents (70.6%) answered a question asking them to rate the importance they assigned to bequeathing houses and other properties to children using the four-point scale, where 1 = not important at all, 2 = a little important, 3 = somewhat important, 4 = very important.
Psychological variables	
Attitude towards credit (ATTITUDE)	Variable obtained by averaging the individual items' scores obtained on the attitude scale (α = 0.61), with higher values for this variable indicating more positive attitudes towards credit.
Locus of control (LOC)	Variable capturing the respondents' degree of internal versus external locus of control, which was obtained by averaging the individual items' scores obtained on the *LoC* scale (Lumpkin, 1985). Three items related to an *internal Locus of control* and two to an *external Locus of control* (note that item 5 in Table 3 was deleted). The scores on these five items were averaged to constitute a *LoC* index, which ranged from 1 (*internal LoC*) to 5 (*external LoC*) (α = 0.43).

[1] The situation in which AREA1 = AREA2 = 0 captured the group of respondents residing in Central Italy, which thus served as reference category.

[2] The situation in which EDU 1 = EDU2 = 0 captured the group of respondents educated to high-school diploma level, which served as reference category.

[3] This variable referred to the level of financial knowledge in credit use decisions and was assessed using a quiz in which respondents answered a question asking what kind of loan one should apply for if he/she would like to know in advance the installment and duration. Respondents had to choose between four options: a) "a variable rate loan indexed to Euribor with fixed installments"; b) "a bank overdraft"; c) "a fixed rate loan with fixed installments"; d) "don't know". Those who chose Option a) were classified as respondents with an average level of knowledge; those who chose Option c) were classified as respondents with a level of knowledge above the average; and those who chose Options b) or d) were classified as respondents with a level of knowledge below the average. Therefore, a three-categorical variable was obtained, which was transformed into the two binary variables FINLIT1 and FINLIT2. Based on the coding scheme described above for the two binary variables, the situation in which FINLIT1 = FINLIT2 = 0 captured the group of respondents with average financial literacy, which thus served as reference category.

Table 1: Sample description

Variable	Statistic methods	Frequency	%
1. Gender	Female	1,212	60.6
	Male	788	39.4
2. Age	18-24 years	86	4.3
	25-34 years	181	9.1
	35-44 years	425	21.3
	45-54 years	479	24.0
	55-64 years	428	21.4
	65-74 years	282	14.1
	+74 years	119	6.0
3. Marital status	Married	1,542	77.1
	Single	458	22.9
4. Household size	1	400	20.0
	2	493	24.7
	3	428	21.4
	4	528	25.4
	5	140	7.0
	6 (and above)	31	1.6
5. Geographical area	North Italy	881	44.1
	Central Italy	385	19.3
	South Italy (and islands)	734	36.7
6. Municipality of residence size	Population below 5,000	360	18.0
	Population from 5,000 to 40,000	898	44.9
	Population from 40,001 to 250,000	453	22.7
	Population over 250,000	289	14.5
7. Education level	None/primary school	88	4.4
	Middle school diploma	500	25.0
	High school diploma	1,136	56.8
	Degree/postgraduate	276	13.8

N = 2,000.

Table 2: Questionnaire items for assessing attitudes by component

Cognitive component
1. Taking out a loan is a good thing as it allows you to make your life better
2. It is a good idea to have something now and pay for it later
3. Having debt is never a good thing
4. Credit is an essential part of today's lifestyle
5. It is important to live within one's means
Emotional component
6. I am not worried by having debt (this condition is not stressful for me)
7. I like having a credit card
8. I do not like borrowing money
Behavioural component
9. I prefer to save up for an expensive purchase
10. It is better to go into debt than to let children go without Christmas presents
11. Even on a low income, I save a little regularly
12. Borrowed money should be repaid as soon as possible

Table 3: Questionnaire items for assessing locus of control

Internal LoC	
1. When I make plans I am almost certain that I can make them work	
2. What happens to me is my own doing	
3. Doing things the right way depends upon ability; luck has nothing to do with it	
External LoC	
4. Many of the unhappy things in people's lives are partly due to bad luck	
5. Getting a good job depends mainly on being in the right place at the right time	
6. Many times I feel that I have little influence over the things that happen to me	

Table 4: Results of the ordered probit regression analysis on the dependent variable: interest in home equity conversion.

Variable	Model 1 (n = 1,856) (b)	Model 2 (n = 1,304) (b)	Model 3 (n = 1,304) (b)
Socio-demographic variables			
GENDER (Gender)	-0.006	0.107	0.077
AGE (Class of age)	-0.077***	-0.093***	-0.090***
STATUS (Marital status)	0.049	0.235*	0.208
HOUSEHOLD (Household size)	0.042	-0.031	-0.045
AREA1 (Residence in North Italy)	0.129*	0.149*	0.159*
AREA2 (Residence in South Italy or islands)	0.086	-0.025	-0.030
MUNSIZE (Size of municipality of residence)	0.119**	0.070	0.087
EDU1 (Education up to middle school)	-0.083	-0.126*	-0.119
EDU2 (University or postgraduate education)	-0.029	0.007	-0.007
NLINCOME (Natural log. of estimated per capita income)	0.021	-0.154*	-0.164*
Financial variables			
MORTGAGE (Mortgage status)		-0.058	-0.078
CREDIT (Consumer credit status)		0.569***	0.502***
FINLIT1 (Above-average literacy)		0.017	0.049
FINLIT2 (Below-average literacy)		0.093	0.139
HOUSES (Property ownership)		0.254***	0.268***
EXPINCOME (Income expectations)		-0.087*	-0.102*
PERCRISIS (Personal impact of crisis)		0.022	0.037
GENCRISIS (General impact of crisis)		0.001	0.008
BEQUEST (Importance of legacies)		-0.115***	-0.127***
Psychological variables			
ATTITUDE (Attitude towards credit)			0.241***
LOC (Locus of control)			-0.124**
Intercepts			
Intercept 1	-0.300	-1.994	-1.918
Intercept 2	0.669	-0.985	-0.900
Intercept 3	1.092	-0.575	-0.486
Intercept 4	1.741	0.127	0.223
LR χ^2	42.84***	132.00***	148.06***
Pseudo R^2	0.008	0.037	0.042

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 5: Estimated marginal effects of the ordered probit regression analysis.

Variable	Dependent variable: Interest in home equity conversion				
	1 (Strongly disagree)	2 (Disagree)	3 (Neither disagree, nor agree)	4 (Agree)	5 (Strongly agree)
Socio-demographic variables					
GENDER (Gender)	-0.029	0.005	0.008	0.011	0.006
AGE (Class of age)	0.034***	-0.006***	-0.009***	-0.013***	-0.007***
STATUS (Marital status)	-0.076*	0.008***	0.020*	0.030	0.018
HOUSEHOLD (Household size)	0.017	-0.003	-0.004	-0.006	-0.003
AREA1 (Residence in North Italy)	-0.060*	0.010*	0.015*	0.022*	0.012*
AREA2 (Residence in South Italy or islands)	0.011	-0.002	-0.003	-0.004	-0.002
MUNSIZE (Size of municipality of residence)	-0.033	0.005	0.008	0.012	0.007
EDU1 (Education up to middle school)	0.045	-0.009	-0.012	-0.016	-0.009
EDU2 (University or postgraduate education)	-0.003	0.000	0.001	0.001	0.001
NLINCOME (Natural log. of estimated per capita income)	0.062*	-0.011*	-0.016*	-0.023*	-0.012*
Financial variables					
MORTGAGE (Mortgage status)	0.030	-0.005	-0.008	-0.011	-0.006
CREDIT (Consumer credit status)	-0.189***	0.033***	0.048***	0.069***	0.039***
FINLIT1 (Above-average literacy)	-0.019	0.003	0.005	0.007	0.004
FINLIT2 (Below-average literacy)	-0.052	0.008	0.014	0.020	0.011
HOUSES (Property ownership)	-0.100***	0.014***	0.026***	0.038***	0.022***
EXPINCOME (Income expectations)	0.039*	-0.007*	-0.010*	-0.014*	-0.008*
PERCRISIS (Personal impact of crisis)	-0.014	0.002	0.004	0.005	0.003
GENCRISIS (General impact of crisis)	-0.003	0.001	0.001	0.001	0.001
BEQUEST (Importance of legacies)	0.048***	-0.008***	-0.012***	-0.018***	-0.010***
Psychological variables					
ATTITUDE (Attitude towards credit)	-0.091***	0.016***	0.024***	0.034***	0.018***
LOC (Locus of control)	0.047**	-0.008**	-0.012**	-0.017**	-0.009**

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.