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**Savings and Financial Literacy:
A Brief Review of Selected Literature**

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Abstract

This paper presents a systematic review of the literature on financial literacy and savings. A total of 183 articles published between 2005 and 2019 were analysed. The review relied on hybrid methods, namely, descriptive, semantic network and narrative analyses. The lexical analysis of the articles' abstracts identified 11 themes: financial literacy, financial literacy measurement, correlates, savings, savings type, financial education, target group, theories, personal finance, financial preparation and financial inclusion. The findings include avenues for future research.

Keywords: savings, financial literacy, systematic review

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1. Introduction

Saving can be viewed as a positive financial behavior (Organization for Economic Co-operation and Development [OECD], 2016) that translates into financial wellbeing for individuals and households. Long-term savings offer opportunities to engage in regular consumption throughout people's life cycle, and short-term or emergency savings provide purchasing power protection in the event of income shocks (Mahdzan and Tabiani 2013). Various studies have analyzed the factors that influence individuals' saving behavior and highlighted the role of financial literacy (e.g., Cupák, Kolev and Brokešová 2019; Pak and Chatterjee 2016; Ramalho and Forte 2019), which has an important function in financial decision making, especially given financial systems' increasing complexity (Potrich, Vieira and Mendes-Da-Silva 2016). People must acquire not only financial knowledge but also the ability and confidence to apply this expertise when making financial decisions (Huston 2010). Increasing financial literacy is part of governments and international organizations' agendas (OECD 2016), and this topic has received increasing attention within the academic community (Pak and Chatterjee 2016).

This paper presents a systematic review of the literature on financial literacy and savings. More specifically, the following research questions are addressed:

1. What are academics' main contributions to the study of financial literacy and savings?
2. What are the main methodological approaches used in research on financial literacy and savings?
3. What are the main themes analyzed within the field of financial literacy and savings?
4. What avenues for future research remain to be explored?

2. Methodology

This systematic literature review analyzed published papers identified by a search for the terms 'financial literacy' and 'saving' in keywords, titles and abstracts listed in the Scopus database. The selected articles are available in English in journals covering the areas of 'business, management and accounting' or 'economics, econometrics and

finance'. A total of 183 articles published between 2005 and 2019 were found by using the following query: TITLE-ABS-KEY ('savings' AND 'financial literacy') AND (LIMIT-TO (DOCTYPE, 'ar') OR LIMIT-TO (DOCTYPE, 're')) AND (LIMIT-TO (LANGUAGE, 'English')) AND (LIMIT-TO (SRCTYPE, 'j') AND (LIMIT-TO (SUBJAREA, 'ECON') OR LIMIT-TO (SUBJAREA, 'BUSI'))).

A spreadsheet was created with the following information on each paper: article title, year, abstract, keywords, authors, authors' affiliation and journal. The approach adopted was a systematic review based on hybrid methods that combined descriptive, semantic network and narrative analyses. The descriptive analysis revealed the studies' evolution by journals, authors, keywords, geographic scope and main methods. Next, a content analysis of the articles was performed using Leximancer, a software application that automatically extracts semantic networks from qualitative data. This software has been used in previous systematic literature reviews (e.g., Crofts and Bisman 2010; Lima et al., 2021) to generate concept maps based on the co-occurrence of words present in abstracts. The present semantic analysis identified the main themes in the abstracts and explored the relationships between key themes. The narrative analysis produced a description of the main themes included in the Leximancer concept map.

3. Results

3.1 Descriptive Analysis

Research on the relationship between financial literacy and savings is a relatively recent topic in the academic literature. Half of the 183 articles under analysis were published between 2016 and 2019, and approximately 20 percent of the papers were published in 2019, appearing overall in 109 different journals. Eight journals account for 28 percent of the studies: Journal of Pension Economics and Finance, Journal of Consumer Affairs, International Journal of Bank Marketing, International Journal of Consumer Studies, Journal of Family and Economic Issues, Journal of Financial Counseling and Planning, Economics and Sociology and Journal of Banking and Finance. The database consulted registers 425 different authors, of whom 393 authors (co)authored only one article. The two most productive scholars in this field are A. Lusardi of the George Washington University School of Business, in Washington, DC, and O.S. Mitchell of the University of

Pennsylvania's Wharton School, in Philadelphia, PA – both located in the United States (US).

Only 10 articles discuss conceptual and/or theoretical studies. The majority of the 173 empirical research papers targeted only one country (161 studies), and only 12 adopted a cross-country approach. The articles cover a wide geographical area including 63 different countries. The countries focused on by the largest number of studies are the US (43 studies), India (17), Australia (15), Germany (13), Malaysia (13), the Netherlands (12), the United Kingdom (9), Israel and Italy (6) and France, Ghana, Slovakia and Sweden (5).

The empirical research using regression analysis to examine savings' link with financial literacy adopted a variety of econometric methods. These included, among others, structural equation modelling (Potrich, Vieira and Mendes-Da-Silva 2016), partial least squares path modelling (Zulaihati, Susanti and Widyastuti 2020), regression analysis (Lusardi and Mitchell 2011; Sekita 2011), instrumental regression (Bucher-Koenen and Lusardi 2011; van Rooij, Lusardi and Alessie 2012), logistic regression/logit regression (Heckman and Hanna 2015; Pak and Chattwejjw 2016, de Cecco and Estache 2016; Nguyen et al. 2017), probit models (Babiarz and Robb 2014; Mahdzan and Tabiani 2013; Murendo and Mutsonziwa 2017) and ordinal regression (Brounen, Koedijk and Pownall 2016; Loke 2016). The cited studies gathered primary data by developing questionnaires (e.g., Murendo and Mutsonziwa 2017; Potrich, Vieira and Mendes-Da-Silva 2016) and secondary microdata with instruments such as the OECD's financial literacy questionnaire (Loke 2016; Ramalho and Forte 2019), the National Financial Capability Study in the US (Henager-Greene and Cude 2016; Pak and Chatterjee 2016) and the Survey of Living Preferences and Satisfaction (Bucher-Koenen and Lusardi 2011; Sekita 2011).

3.2 *Semantic Analysis*

A content analysis of the 183 articles' abstracts using Leximancer identified 14 themes, which were further collapsed into 11 themes (see Figure 1):

1. The financial literacy theme includes the concepts of financial (knowledge), literacy, significant (topic), level, self-efficacy and training.

2. The theme of financial literacy measurement contains the perceived (knowledge), actual (expertise), survey, development, attitude, data, self-control, behaviour, self-confidence and knowledge concepts.
3. The 'correlates' theme encompasses the concepts of demographic(s), economic (factors) and psychographic(s).
4. The 'savings' theme includes the concepts of savings, risk, preferences, decisions, regular (deduction), investment and planning.
5. The theme of savings type contains the emergency, voluntary (deduction), intention, return, retirement and pension concepts.
6. The theme of financial education includes the concepts of education, programme, impact, money and management.
7. The target group theme comprises the concepts of students, children, adults and young (individuals).
8. The 'theories' theme covers the theory and model concepts.
9. The theme of personal finance contains the household, budgeting, life cycle and wealth concepts.
10. The preparedness theme includes the concepts of preparedness, capability, income and information.
11. The inclusion theme comprises the inclusion and capability concepts.

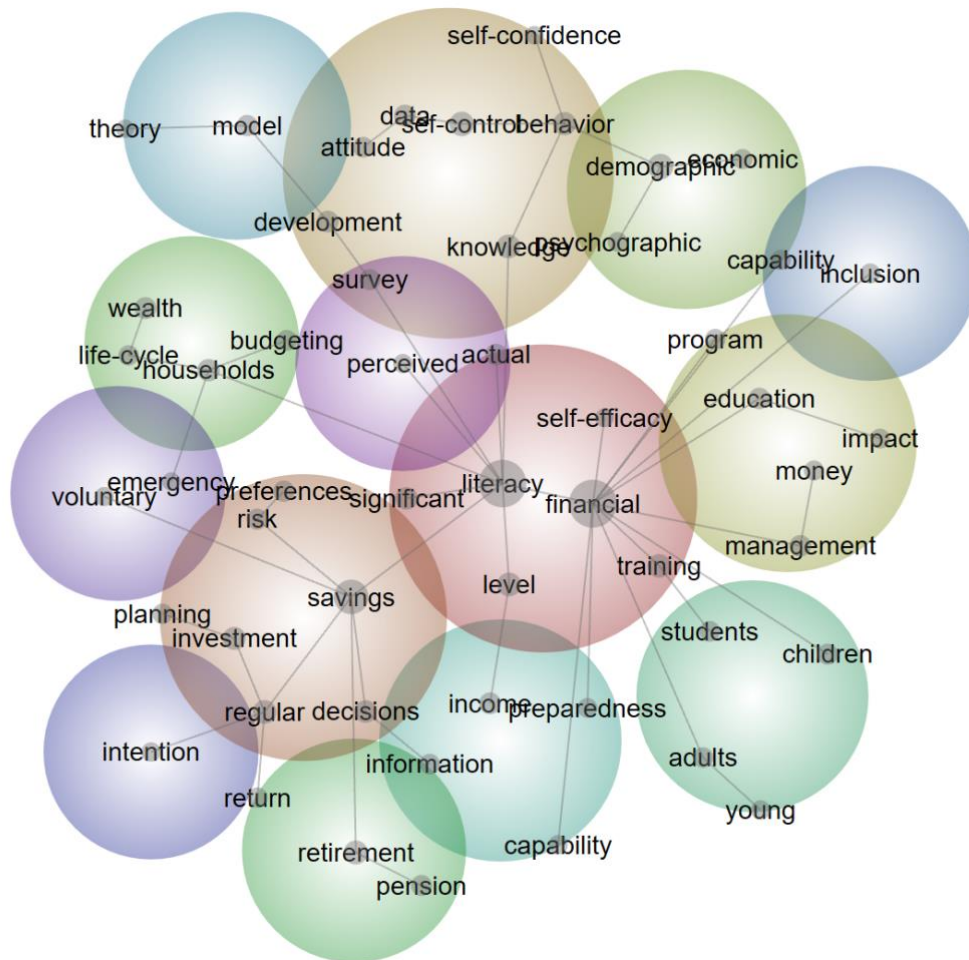


Figure 1. Conceptual Map (Number = 183 Abstracts)

3.3 Narrative Analysis

3.3.1. Financial Literacy

According to Huston (2010), financial literacy's definition has evolved from merely being knowledgeable about financial matters (i.e., understanding) to integrating additionally the ability to apply knowledge to daily financial decisions (i.e., use). Huston (2010, 306) defines financial literacy, more specifically, as 'measuring how well an individual can understand and use personal finance-related information'. This concept is related to individuals' ability to obtain, understand and evaluate the information needed to make practical personal finance decisions (Xue et al. 2019). The OECD (2016) states that financial literacy is people's capacity to use the knowledge and skills they acquire. This

conceptual model thus involves three dimensions: financial knowledge, attitudes and behavior (OECD/International Network on Financial Education [INFE] 2011).

Empirical research has found that financial literacy is associated with short- and long-term financial behavior. Individuals with high levels of financial literacy are more likely to make good choices regarding savings and low indebtedness levels. For example, this kind of literacy is positively related to intentions to save for retirement (Bongini and Cucinelli 2019), savings over the previous 12 months (Mahdzan and Tabiani 2013) and financial preparation for income shocks (Loke 2016).

3.3.1. *Financial Literacy Measurement*

The literature reveals a lack of consensus on how to operationalize and measure financial literacy (Ramalho and Forte 2019; Xue et al. 2019). Many studies assessed financial literacy based on observed financial knowledge. This one-dimensional view highlights the importance of a correct understanding of financial concepts (Boisclair, Lusardi and Michaud 2017; Cupák, Kolev and Brokešová 2019; Jappelli and Padula 2015; Lusardi and Mitchell 2011; Van Rooij, Lusardi and Alessie 2012). Observed financial knowledge can be subdivided into basic knowledge about topics such as compound interest, inflation, time value of money and monetary illusion and advanced knowledge about topics such as asset risk, long-term return, volatility and diversification (Nguyen et al. 2017; Potrich, Vieira and Mendes-Da-Silva 2016). Other research (Zulaihati, Susanti and Widyastuti 2020) measured perceived knowledge through self-confidence. A third group of studies simultaneously considered current knowledge and perceived knowledge as indicators of financial literacy and determinants of saving behavior (Babiarz and Robb 2014).

In addition, the literature discusses the relationship between current and perceived knowledge, with an emphasis on two scenarios. First, limited observed knowledge and extensive perceived expertise contribute to overconfidence. Second, broad observed knowledge and restricted perceived expertise result in underconfidence (Ramalho and Forte 2019), so under- and overconfidence are behavioral biases that can influence financial behavior. Pak and Chatterjee (2016) focused on both observed and perceived knowledge and measured financial literacy's impact on savings (i.e., emergency and retirement) for the study's entire sample and overconfidence group.

The literature has also discussed financial literacy's multidimensional role and analysed the relationships between the three dimensions mentioned previously (see section 3.3.1). For instance, the model proposed by Potrich, Vieira and Mendes-Da-Silva (2016) and Ramalho and Forte (2019) incorporates current financial knowledge, perceived financial knowledge and financial attitude as antecedents of financial behavior. Potrich, Vieira and Mendes-Da-Silva (2016) compared three models with different relationships between the components of financial literacy, behavior, knowledge and attitude and concluded that financial knowledge and attitude are correlated with and mutually predict financial behavior. Murendo and Mutsonziwa (2017) applied a multivariate approach to measuring financial literacy, including financial attitude, confidence and knowledge.

3.3.3. *Demographic, Psychographic and Socioeconomic Correlates*

Different econometric models developed regarding financial literacy and savings' relationship include a diverse set of explanatory and/or control variables. These include, among others, demographic and socioeconomic variables such as gender, age, household size, qualifications, marital status, income and/or wealth and employment status (Bongini and Cucinelli 2019; Cupák, Kolev and Brokešová 2019; Heckman and Hanna 2015; Lachance 2014). Other variables incorporated in models are risk tolerance (Brounen, Koedijk and Pownall 2016; Nguyen *et al.* 2017), attitudes, subjective norms, perceived control (Bongini and Cucinelli 2019), self-confidence, underconfidence (Ramalho and Forte 2019), institutional factors (Heckman and Hanna 2015) and cognitive, connotative and affective factors (Kerry 2018).

3.3.4. *Savings*

Saving is recognised as a positive financial behaviour that leads to families' improved wellbeing in the short and long term (Babiarz and Robb 2014; OECD 2016). Savings facilitate balanced consumption throughout individuals' life cycle and maintain purchasing power regardless of income shocks due to unemployment, disability, unanticipated medical expenses or the costs entailed by purchasing a home or car (Heckman and Hanna 2015).

3.3.5. *Savings Type*

Researchers have considered different time horizons when focusing on savings. Boisclair, Lusardi and Michaud (2017); Cupák, Kolev and Brokešová (2019); and de Cecco and Estache (2016) studied retirement savings, and Bongini and Cucinelli (2019) analysed students' intention to save for retirement. Other investigations have examined emergency savings (Babiarz and Robb 2014; Henager-Greene and Cude 2016; Loke 2016; 2017a; 2017b), which are usually defined as savings that can cover individuals' typical expenses for three months (Babiarz and Robb 2014). Nguyen *et al.* (2017), in turn, focused on regular saving habits, while Murendo and Mutsonziwa (2017) included savings over the previous 12 months when measuring people's savings. Brounen, Koedijk and Pownall (2016) identified individuals who save as those willing to sacrifice their present wellbeing to ensure specific results in the future. Henager-Greene and Cude (2016) and Pak and Chatterjee (2016) examined both long-term (i.e., retirement) and short-term savings (i.e. emergency). Finally, Murendo and Mutsonziwa (2017) applied the concept of 'savings portfolio', which includes formal (i.e., savings in financial institutions) and informal savings (i.e., non-institutional mechanisms).

3.3.6. *Financial Education*

Governments have sought to design more efficient approaches to increasing financial literacy through financial education (Potrich, Vieira and Mendes-Da-Silva 2016). This education is a process in which individuals develop a deeper understanding of financial products, key concepts, primary risks and skills that facilitate decisions about ways to manage personal finances successfully. Financial education contributes to financial literacy (Yong, Yew and Wee 2018), namely, how the relevant knowledge and skills can be applied (Potrich, Vieira and Mendes-Da-Silva 2016). Clark *et al.* (2014) concluded that training employees in retirement planning increases their intention to continue discounts for retirement plans. Financial education programmes have been developed for different target groups and educational levels (Potrich, Vieira and Mendes-Da-Silva 2016).

3.3.7. *Target Groups*

The majority of empirical research on financial literacy and savings have relied on representative adult samples (Cupák, Kolev and Brokešová 2019; Ramalho and Forte

2019). Other studies have analysed students (Bongini and Cucinelli 2019; de Cecco and Estache 2016; Potrich, Vieira and Mendes-Da-Silva 2016), millennials (Yong, Yew and Wee 2018), groups with higher-than-average financial literacy such as teachers (Zulaihati, Susanti and Widyastuti 2020) and US Federal Reserve System collaborators (Clark *et al.* 2014).

3.3.8. Theories

Various empirical research projects have been inspired by the life-cycle model of consumption and savings (Modigliani and Brumberg 1954) and consumption function (Friedman 1957). Based on the life-cycle theory, Fernández-López *et al.* (2010) suggests that the amount of savings increases with age. The financial literacy process was also analyzed from a behavioral perspective (Bongini and Cucinelli 2019; Yong, Yew and Wee 2018). In addition, the theory of planned behavior (TPB) (Ajzen 1991; 2002) assumes, in this context, that behavioral intentions are influenced by three variables. These are subjective norms (i.e., social pressures to engage in behaviours), attitudes (i.e., subjective evaluations of favorable or unfavorable behavior) and perceived behavioral control (i.e., perceptions of individuals' ability to engage in behaviors). Croy, Gerrans and Speelman (2010) further examined intent to save for retirement using a modified version of the TPB model, which includes the original base variables, as well as the importance of planning, preparation for planning and risk tolerance.

Beverly *et al.* (2008) developed a model tested most recently by Heckman and Hanna (2015), which assumes that saving behavior are influenced by two types of variables – individual and institutional. The former variables are economic resources and needs (i.e., income and expenses), social networks (i.e., peer-related incentives to save or not), financial literacy (i.e., knowledge of financial concepts and products) and psychological variables. Institutional factors are based on institutional theory, which assumes that 'individuals and households' saving behavior is shaped by the institutional processes through which saving occurs' (Beverly and Sherraden 1999, 463). Related studies have identified seven institutional factor dimensions: access, security, incentives, information, facilitation, expectations and limits (Heckman and Hanna 2015).

3.3.9 Personal Finances

Regarding personal finances, the OECD (2019) suggests that researchers need to analyse the following financial behavior: budgeting, savings, purchases, payments, choice and selection of financial products, objectives and control. Saving is considered a positive behavior because it offers families a more stable consumption pattern throughout members' life cycle. Savings thus allow families to maintain their quality of life during periods of economic crisis or to deal with income shocks associated with unemployment, disability or retirement (Heckman and Hanna 2015).

3.3.10. *Financial Preparedness*

Loke (2016) investigated families' financial preparedness for shocks. Various unplanned events (i.e., illness, disability, unemployment and loss of income) can require families to reorganize their finances. Some events that trigger shocks may not be covered by insurance or social security systems. If families do not have the resources and liquidity to cope with shocks, they can incur excessive debt, so financial preparation is related to emergency funds. The literature reports that families are prepared for income shocks if they have resources that cover three months or more of normal expenses – without a loss of quality of life. If families can only cover 1 to 3 months (i.e., less than 1 month), their preparedness is considered to be moderate or weak (Loke 2016).

3.3.11. *Financial Inclusion*

Financial inclusion has been measured in terms of not only access to and use and quality of banking services but also the existence of bank accounts, savings and bank loans (Lyons and Kass-Hanna 2019). The OECD (2016) defines financial inclusion as the continued promotion of all population segments' access to a wide variety of financial products and services through innovative approaches, including financial education. Financial literacy has, therefore, been positively associated with financial inclusion (Verma and Kumari 2016).

4. Conclusion

This study sought to answer four research questions by conducting a systematic review of the literature on savings and financial literacy published until the end of 2019. Regarding the first question (i.e., What are academics' main contributions to the study of financial literacy and savings?), 183 papers were published in 109 different Scopus-

indexed journals by 425 different authors. With respect to the second question (i.e., What are the main methodological approaches used in research on financial literacy and savings?), approximately 93 percent of the above studies relied on empirical research. While studies focused on 63 countries, the most frequently chosen countries were the US, India, Australia, Germany, Malaysia and the Netherlands. Empirical research that related different saving behavior to levels of financial literacy applied different methodologies in terms of data sources (i.e., primary vs secondary), type of savings studied and measured, approach to measuring financial literacy, control variables and econometric methods.

Concerning the third research question (i.e., What are the main themes analyzed within the field of financial literacy and savings?), a lexical analysis of the articles' abstracts identified 11 different themes: financial literacy, financial literacy measurement, correlates, savings, savings type, financial education, target group, theories, personal finance, financial preparation and financial inclusion. The last research question focused on the potential for future research (i.e., what avenues of research remain to be explored?). In terms of methodology, 9 out of 10 empirical studies were carried out within a single country. Future research could capitalize on the OECD's common methodology developed for studies with cross-country designs.

In addition, researchers need to identify the channels by which financial literacy is translated into savings. Endogeneity in financial literacy as reflected by econometric models should also continue to be addressed. The variables used in self-assessments of savings can further be complemented with a conceptual framework that incorporates individuals' specific circumstances and needs.

Another issue on which future research should focus is biases (i.e., underconfidence vs overconfidence) – especially whether these affect financial literacy and savings' relationship. Studies based on TPB using explanatory psychographic variables could further reveal the relative importance of variables such as attitudes, subjective norms and perceived controls. Financial education also needs to be examined more broadly to cover both psychographic areas and financial knowledge. Various researchers have found a positive connection between financial literacy and savings, and many governments are committed to developing financial literacy programs. Future work

should thus evaluate specific programs designed to meet different market segments' financial literacy needs.

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