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Formal Saving in Developing Economies

Barriers, Interventions, and Effects

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Abstract*

This paper discusses the determinants of and the barriers to formal saving both from the theoretical point of view and based on empirical evidence from various associated interventions and their possible effects at the micro and macroeconomic levels. It presents a comprehensive review of the literature based on a detailed classification of the barriers associated with supply-side factors related to access to financial products and demand-side barriers, related to the use, and frequency of use, of these products. Traditionally, the financial development literature has focused on the barriers associated with the supply of financial services that derive from high information and transaction costs. Recently published literature, however, shows how demand-side barriers, such as lack of trust, the influence of social networks, and certain cognitive biases, among other factors, might be equally important in explaining low or non-existent levels of saving. The paper concludes that such a classification and analysis of the barriers to financial inclusion leads to a deeper understanding of the question of financial inclusion and the actions that need to be taken to address it.

JEL Codes: C93, D13, D14, D91, G21, O17

Keywords: barriers, experimental interventions, financial inclusion, saving

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1. Introduction

Despite the interventions undertaken over the last ten years to promote financial inclusion, in most parts of the world people are still not saving enough, or they do so through informal channels.¹ According to the Global Findex² (Demirguc-Kunt et al., 2015), around 56 percent of adults in the world saved a certain amount of money between 2013 and 2014, whereas only 27.4 percent saved in a formal institution in the same period. This phenomenon is especially pronounced in developing countries. In contrast, some evidence suggests that the poor do save and that they have a small surplus that they do not use for essential expenditures (Collins et al., 2009). However, the channels that they use for saving are mainly informal, such as keeping the money at home or with friends and family, buying jewelry or animals, lending to others, or investing in family businesses.

The task of designing interventions that can encourage formal saving is still a work in progress, and it is therefore imperative to refine our understanding of why individuals behave this way. The importance of understanding formal savings-related habits and decisions is due, principally, to their potential effects at both the micro and the macroeconomic level.

This paper presents a detailed classification of the barriers to saving, or the reasons for not doing so, based on a comprehensive review of the literature. Specifically, we draw a distinction between barriers associated with supply-side factors, which relate more to access to financial products, and demand-side barriers, related to the use and frequency of use of these products. Traditionally, the financial development literature has focused on barriers associated with the supply of financial services, caused by high information and transaction costs. Information costs translate into the demand to satisfy certain requirements, which hampers access to financial institutions, whereas transaction costs mean that it is unfeasible to provide access to financial institutions in remote, hard to reach areas. Financial inclusion policies have focused on resolving this type of barrier primarily by opening bank branches and providing automated teller machines (ATM) in remote areas or by creating basic saving

¹ The informal financial sector includes diverse informal saving and credit mechanisms, which cover a wide variety of financial transactions that are not subject to any regulation. As Mansell (1995: 3) explains: “most of its financial activity takes place in an extra-legal realm: without authorization, without supervision, free from taxation and, generally speaking, unnoticed in the records and the data”.

² The World Bank database, which provides information about saving, loans, risk aversion, and repayment by individuals. This is currently the most complete database in the world in terms of financial inclusion, as it constantly measures the use of financial services by people in different countries and over time. The 2014 Global Findex contains more than 100 indicators, categorized by gender, income, and age.

products. The evidence shows that these initiatives have proved insufficient when it comes to promoting formal saving.

Much of the recently published literature reveals how demand-side barriers, such as lack of trust, the influence of social networks, cultural and religious reasons, and certain cognitive biases or psychological aspects, can be equally important in explaining the low levels or absence of saving in the formal sector. In other words, people might enjoy access to formal saving instruments but prefer not to use them for these reasons. As will be seen below, implementing payment reminders, commitment savings plans, and liquidity limits are interventions that can partially ameliorate certain household saving behavior biases that have been ignored until relatively recently.

In contrast to other works that seek to address the lack of saving, this paper presents a combined analysis of both the barriers that limit household or demand-side saving and those attributable to the supply side or to financial institutions. For example, Frisanchi (2016) focuses on analyzing demand-side barriers, concentrating on the cognitive bias mentioned in the behavioral finance literature. The author examines these barriers in detail in the case of Latin America and the Caribbean. Cavallo and Serebrisky (2006), for their part, analyze supply-side barriers in this region, specifically those related to geographic distance and those arising from financial system inefficiencies. We believe that the combined discussion in this paper of the demand-side and supply-side barriers allows us to deepen the analysis to uncover the underlying factors beneath people's saving decisions and habits. As our conclusions argue, identifying these factors can provide the basis for greater understanding of the whole question of financial inclusion and help design interventions to encourage it. This becomes especially important insofar as, despite many interventions aimed at incentivizing involvement in the formal financial sector in developing countries, participation remains very low.

Karlan et al. (2014) discuss a combination of barriers on both the demand and the supply side. However, in contrast to this paper and those mentioned above, in our study we analyze not only the effects of eliminating or reducing barriers at the micro level; we also appraise the possible effects of encouraging saving at the macro level, in particular, on growth, investment, financial stability, and inequality. As far as we know, such a macroeconomic approach coupled with a comprehensive review of the different barriers has not yet been attempted.

Most recent development agendas include strategies designed to incentivize and facilitate formal household saving. In general, the studies that evaluate these interventions are based on the premise that access to formal saving has enormous

potential to improve the efficiency of the overall economy and to improve the lives of individuals, especially the poorest (Deaton, 2010).

The search for greater access and use of formal financial services is fueling the development of a literature of randomized interventions that seeks to evaluate the effects of such services on the most vulnerable sectors of the population in developing economies. The motivation for this type of study is to find the causal relation between saving and different variables as a way of explaining the motives that drive poor people to save and the possible effects on their welfare. These effects can be observed in various ways, such as consumption smoothing, resistance to negative income shocks, investment in human capital and in productive processes, insurance in social networks, decreased borrowing, increased participation in formal labor markets, reduced anxiety about an uncertain future, and women's empowerment, among others.

The use of such experimental interventions in studies of economic growth has intensified due to the concern on the part of multilateral agencies and academics to respond to questions about the possible lessons to be learned from various programs implemented by national and local governments, as well as multilateral agencies, over many years to improve living conditions and raising productivity in developing economies.

Furthermore, as we will see, the design of most of these actions incorporates certain elements of behavioral economics to identify the cognitive biases that become obstacles to achieving optimal rates of saving which, at the same time, could be used to encourage more desirable behavior in terms of achieving greater saving. For example, certain studies show significant and broad effects on improving access to and use of formal saving through existing channels. These include microcredit or conditional monetary transfers from the government, which achieve transformative consumption because individuals stop spending money on temptation goods (such as alcohol or tobacco) and instead consume durable goods or save money through formal instruments (Banerjee, 2013; Banerjee and Mullainathan, 2010). In this paper, we will discuss each barrier to saving from the theoretical point of view and based on the empirical evidence from the different associated interventions and their possible micro and macroeconomic effects.

At the macroeconomic level, the traditional economic growth literature has focused on analyzing the effects of saving on long-term growth and investment. The empirical evidence (Barro, 1991; De Long and Summers, 1991; Edwards, 1996; Levine, 2005) reveals that higher savings rates and capital accumulation are crucial for explaining the differentials in economic growth between countries. Recently, one group of studies analyzed how financial inclusion affects economic growth, inequality, and

financial stability (Shay et al., 2015a; 2015b). In general, these studies show how the initial levels of various financial inclusion indicators, including saving, have a positive impact on economic growth and that the effects on inequality are mixed and depend on the dimension of financial inclusion considered. Moreover, they provide evidence that access to credit can have a negative effect on stability, whereas access to saving can affect it positively by providing the economy with a more diversified base of deposits.

The rest of this paper is organized as follows: Section 2 discusses the barriers to and determinants of saving. Section 3 appraises recent studies that implement experimental interventions with a view to incentivizing formal saving by solving the problems of transaction and/or information costs in developing economies. Section 4 reviews the results of the interventions based on other methodologies whose objective is to improve formal saving, principally those that consider elements of social networks and behavioral economics. In Section 5, the focus is on discussing the macroeconomic effects of greater financial access. Finally, Section 6 lays out the main findings and conclusions.

2. Barriers to and Determinants of Saving

As mentioned in the introduction, the observation that individuals do not save enough or they do so through informal mechanisms contrasts with the evidence suggesting that the poor do indeed save (Collins et al., 2009), mainly through informal instruments. In Latin America and the Caribbean, according to the Global Findex database, 48 percent of households reported saving in some form or another, 45 percent reported having a savings account in a formal institution, while only 16 percent said they were saving in this type of institution. These percentages are similar to those of Sub-Saharan Africa and very low in relation to emerging and developed economies.

The reasons for not saving in the formal sector are varied and depend both on supply-side factors, related to access to financial products, and on demand-side factors, related to the use and frequency of use of such products. In our discussion of the barriers to saving, we will consider this distinction between access to and use of formal financial services. This classification has proved crucial to understanding financial inclusion and the interventions implemented to reduce barriers (Beck and De la Torre, 2007).

First, lack of access has been defined traditionally as some form of observable limitation or barrier resulting from the frictions associated with the financial sector: high transaction costs, uncertainty about project results, and information asymmetries between lenders and borrowers. These frictions mean that the supply of adequate

financial services for a large majority of potential clients is limited or nonexistent. These information frictions create barriers, such as demands for collateral, documentation, or high costs that cannot be met by a large portion of the population. In the case of saving, information frictions create barriers such as maintaining a minimum balance to keep an account, account opening charges, documentation, or high fees that most people cannot afford. Sometimes there are high transaction costs, especially in remote or rural areas, which make it unattractive to open a bank branch or a delivery point for financial services. This significantly reduces the supply of financial services to the people living in these areas.

Generally, financial infrastructure and the different available distribution channels for financial products are considered indicators of access: branches and offices of both bank and nonbank entities (microfinance providers, building societies and cooperatives, development banks, bank correspondent agents,³ and so on), ATMs, and bank counters or windows.⁴

There have been attempts to formalize or catalogue the barriers to access to financial products, including saving. According to Beck and De la Torre (2007), the nature of the limitations or barriers can be classified as: (i) geographical: individuals living in rural, remote, and dispersed areas face greater difficulties accessing formal financial products; (ii) socioeconomic: people's socioeconomic characteristics gives rise to possible discrimination on the grounds of race or gender, for example, which limit the range of financial products available to them; and (iii) opportunity: difficulties in accessing formal financial products are intensified when individuals lack the resources to provide collateral or when they do not belong to a well-defined social network that could provide financial resources in case of necessity.

A further classification of such limitations on access to formal financial products is the one employed by Honohan (2004). This article describes the following: (i) price barriers, in which the monetary cost of obtaining and maintaining certain financial services turns out to be high; (ii) information barriers, in which information asymmetries in loan concessions mean that at least a part of potential contracts remain unsigned; and (iii) products and services barriers, in which certain financial services that are much in demand by certain population groups are not provided.

Labor market informality also creates a potential barrier to access to formal financial markets because income from informal work is more volatile and is more likely

³ Bank correspondent agents are agents in businesses such as pharmacies, gas stations, corner shops, supermarkets, or post offices in which certain financial transactions can be carried out: deposits, cash withdrawals, and payment for services, among others.

⁴ For the access indicators, see the International Monetary Fund's Financial Access Survey: <http://data.imf.org/?sk=E5DCAB7E-A5CA-4892-A6EA-598B5463A34C>.

to be paid in cash. Various surveys undertaken in Brazil, Mexico, and Peru (Cavallo and Serebrisky, 2016) reveal how households that work in the formal sector say they have access to formal saving instruments, whereas a greater proportion of informal workers use informal savings instruments. In Peru, for example, 16 percent of households that work informally save in the formal sector, whereas 49 percent of those that work in the formal sector save using formal instruments.

Second, with regard to use, when the decision not to use financial services is determined by intertemporal preferences and investment opportunities, the failure to use financial services by certain individuals does not need to be a problem (Beck and De la Torre, 2007). However, when access is available and private agents display limited or no use of financial services because of lack of knowledge or financial education, lack of savings, employment, or income, mistrust of financial institutions, fear of falling into debt, or as a result of a psychological factor or of systematic discrimination in the past, then infrequent use or lack of use becomes a problem of financial inclusion. The problems of access and use are, therefore, of a different nature. Whereas the problem of lack of access is, essentially, due to market failures that limit the supply of financial services, the problem of use is explained by demand-side factors. The problems of the use of financial services that are, as previously mentioned, on the demand side, extend to levels of saving that are below what might be considered optimal.

Apart from access and use, the most recent definitions of financial inclusion stress the importance of the characteristics of access to and use of financial services. Thus, a third dimension is beginning to be added to the concept of financial inclusion, which examines the nature and the characteristics of access and use in greater depth. It is often referred to as the quality or effectiveness of the access to and use of financial services (AFI, 2011; Roa, 2015; CGAP and World Bank, 2010). Although there are still no specific indicators, all agree that the frame of reference for measuring this dimension must include diversity and adaptability of the product to the clients, financial service variety and alternatives, appropriate regulation and supervision of financial products and services, financial consumer protection policies, and financial education.

Karlan, Ratan, and Zinman (2014a) identify four types of frictions that arise on the lack of access side: transaction costs associated with the high monetary and non-monetary costs that hamper access to formal savings accounts, and on the lack of use side: (i) lack of trust and regulatory barriers related to distrust of formal financial institutions and uneasiness when dealing with regulations for monitoring ownership of formal financial products; (ii) information and knowledge gaps linked to low levels of financial knowledge; and (iii) social restrictions and behavioral biases where the social

dynamics and behavior of individuals affected by behavioral biases that can create distortions in savings decision making play an important role.

Over the last ten years, a group of empirical studies have argued that financial decision making is related to levels of financial education.⁵ This literature is based on the idea that the financial decision making process is increasingly complex. Individuals must seek information and make predictions and calculations under conditions of uncertainty and among ever more sophisticated financial markets, to ensure some financial stability throughout their life cycle. The empirical evidence seems to confirm that financial literacy is very low, especially among low-income groups, women, and the elderly (Lusardi, 2008). In this context, various public and private programs have arisen that seek to promote financial literacy by inculcating good financial decision making and generating trust in formal financial markets.

The studies that have evaluated the effects of the programs reveal a positive correlation between financial education and financial decisions (Lusardi and Mitchel, 2014), although the direction of causality is still unresolved in many of them. Others, however, fail to find that financial literacy exerts a significant effect on financial decisions, identifying cognitive abilities as the main determinants (Fernández et al., 2014). The general consensus, however, is that financial education is important and that program design and implementation may be failing to deliver the desired results. In particular, these programs must bear in mind that to change financial behavior, a series of psychological aspects related to the way that individuals acquire and use information must be taken into consideration (Roa, 2013). Choosing the moments in people's life cycles in which they need specific financial information (such as when buying a house), keeping the messages and the content simple, providing fewer financial options, designing segmented financial education programs, and taking into account the fact that the most successful programs are delivered during childhood (insofar as improving financial behavior during adulthood is more expensive) are, among others, key elements to consider to guarantee the success of programs aimed at establishing or adopting healthy financial habits, such as saving for retirement or avoiding unnecessary borrowing (Lusardi and Mitchell, 2014; Roa, 2013).

In Latin America, a large number of financial education initiatives have been pursued, often based on national financial education strategies, many of which target children and young people. The surveys reveal that, in general, the levels of financial education in the region are low for most segments of the population (García et al., 2013; Mejía and Rodríguez, 2016). The diversity of the programs and of their degree of

⁵ For a full review, see Fernández et al. (2014) and Lusardi and Mitchell (2014).

development is enormous. Together, they highlight the crucial importance of this matter in the region (Cavallo and Serebrisky, 2016; Roa et al., 2014).

With respect to participation in social networks, there is a body of literature that studies how social networks and the degree of trust between their members influence financial decision making and become elements that can ameliorate the impact of asymmetric information problems by complementing or substituting the role of markets and formal financial institutions (Adato, Carter and May, 2006; Chantarat and Barret, 2012; Guiso et al., 2004; Townsend, 1994; Zak and Knack, 2001). Moreover, social networks usually have their own social sanctions to enforce compliance with contracts.

Carpenter and Jensen (2002), for example, analyze the microeconomic determinants that motivate individuals to use formal and informal savings instruments. These authors affirm that, in informal interactions, the agents know each other personally. This reduces problems such as adverse selection, moral hazard, and monitoring. It is also noteworthy that individuals who share social ties wish to maintain them, a situation that provides an incentive to avoid bankruptcy.

However, Guiso et al. (2004), La Porta et al. (1997a; 1997b), and Uzzi (1996) present evidence that societies in which mainly family networks prevail hamper the appearance of big businesses and impersonal organizations, the very institutions that characterize developed economies. Informal financial transactions among members of a network can even be an obstacle to formal saving. Loans or gifts within the network can crowd out resources that might have been earmarked for formal household saving.

In the literature on networks, the use of formal financial instruments is considered to be based largely on the existence of trust in financial institutions. In fact, alongside the lack of employment or income, lack of trust is one of the reasons for not saving in the formal sector most cited by vulnerable people (Demirguc-Kunt et al., 2015). The studies start from the premise that financial operations are always based—regardless of the degree of development—on trust. Regarding a natural experiment in which bank debit cards were issued to beneficiaries of a conditional transfer program in Mexico, Bachas et al. (2015) conclude that, although these transfers are received in savings accounts, most of the beneficiaries opt not to save. These authors observe that after six months of having received the debit card, the beneficiaries begin to save, and their marginal propensity to save increases over time. During the initial months, however, they frequently use their cards to check their bank balances. This, according to the authors, translates into greater proximity to and trust in the financial institution, which thereafter leads to an increase in saving. Moreover, they state that formal saving does not substitute informal saving, but rather that both are enhanced.

In a recent study, Mehrotra, Somville, and Vandewalle (2016) designed an experiment to evaluate whether an increase in the interaction between clients and bankers influences the former's trust in the latter. To promote interaction, they offer the possibility of: (i) opening accounts for non-bankarized people and (ii) making weekly deposits into their accounts. Analysis of the impact of trust on saving decisions shows how trust in a bank is strong and positively correlated with the use of savings accounts. They conclude that client-bank relations are crucial for formal saving, but that these relationships are not particularly flexible.

In the case of Latin America and the Caribbean, Cavallo and Serebrisky (2016) show how the quality of the institutions and inequality determine, at the country level, whether an individual has a savings account in a formal financial institution. At the individual level, age, gender, and level of education are also key determinants in this region. In the case of Mexico, it was shown that a higher presence of financial institutions in an area can also affect the use of formal savings products.

Browning and Lusardi (1996) find evidence of a decline in the rate of saving in U. S. households in the 1990s compared with previous decades from the 1960s onward. The reasons put forward to explain this trend are diverse and range from household composition (Avery and Kennickell, 1991; Smith, 1994) to the impact of social security programs (Carroll and Summers, 1987), income distribution (Bosworth, Burtless, and Sabelhaus, 1991), lower rates of economic growth during the period considered (Carroll and Weil, 1994; Carroll, Rhee, and Rhee, 1994), evolution of the financial markets (Attanasio, 1993; Bosworth, Burtless, and Sabelhaus, 1991), the composition of wealth (Auerbach, Kotlikoff, and Weil, 1992; Auerbach and Skott, 1995) and psychological reasons (Bernheim, 1993; Thaler, 1994). The diversity of these results provides scope for further research to analyze the ways that psychological aspects and behavioral biases can influence household saving behavior.

In a similar vein, Karlan, Ratan and Zinman (2014) summarize and discuss the main behavioral biases that might lead people not to save sufficiently, such as: (i) preferences (problems of self-control, risk aversion, temporal inconsistency, and so on); (ii) expectations and/or perceptions about future events (overly optimistic or overly pessimistic states); (iii) price expectations; and (iv) decisions conditioned by other variables (e.g., attention deficit). The authors point out that understanding these biases is fundamental for identifying the factors that lead to insufficient saving and for designing products and services that incentivize people to save. As we will see in the review of the studies of the effects of saving at the micro level, most programs take these biases into account and establish mechanisms that promote saving, such as

establishing liquidity limits for accounts, support and commitment for designing a savings plan, providing relevant information and financial education, and so on.

Having had no formal education or training in basic abilities to make use of the resources that societies offer is also a determining factor when it comes to using formal financial instruments, saving included. In the results of the experiment conducted by Carpenter and Jensen (2002) in Pakistan, they found that low literacy can play a significant role in the scant use of the banking sector.

Lack of opportunities among the least privileged sectors of society also determines their financial decisions. For example, Shah, Mullainathan, and Shafir (2012) provide experimental evidence that poverty can explain the amount and type of attention that individuals pay to their problems. Specifically, the authors affirm that a lack of resources creates its own rules, thereby changing the perspective from which people view their problems and make decisions. For example, when people are able to meet their day-to-day expenses, they may pay little attention to these items of expenditure, but when money is scarce, covering their daily expenses goes from being a trivial problem to one of much greater urgency. In other words, the lack of resources increases the pressure and demand to pay more attention to this problem. The authors show how an environment characterized by poverty promotes behaviors that encourage borrowing and low levels of saving. In general, fewer resources means paying more attention to a specific problem, such as having insufficient funds for day-to-day expenses. This might mean that other issues of equal or greater importance, such as saving, are ignored.

The previous discussion reveals that the problems and barriers relating to lack of access are very different from those relating to lack of use. For this reason, as we will see below, the interventions designed to solve each one have been different. In the following section, we explore what has been done in developing economies to incentivize access to formal saving as a driver for increasing productivity and people's wealth in unfavorable socioeconomic situations.

3. Transaction and Information Costs: Lack of Access

Interventions to promote access to formal saving are aimed at reducing the main barriers that arise from the high information and transaction costs associated with financial transactions. With regard to transaction costs, it is noteworthy that most programs have focused on opening bank branches in remote areas, using bank correspondent agents, or establishing mobile banking offices with a minibus or door-to-door saving deposit collection. Currently, initiatives are also underway to reduce

transaction costs through the use of mobile telephone services for financial transactions. With regard to information costs, the interventions seek to reduce or eliminate the paperwork needed to open an account and/or the minimum opening balance or maintenance balance for such accounts. Many of these interventions offer free savings products or preferential interest rates. The following section reviews the most significant studies found in the relevant literature.

With regard to encouraging saving by reducing transaction costs, one group of studies analyzes the effects of augmenting financial access by opening more branches. Burgess and Pande (2005) use information from a bank branch expansion program in India promoted by the central bank. The authors show that poverty fell more quickly in the financially underdeveloped states during the years this policy was implemented, and the number of branches opened in non-bankarized areas had a positive and significant effect on rural poverty. On the production side, rural bank expansion was associated with increases in production and employment in the non-primary sector. Finally, the expansion of branches toward rural areas seems to have significantly increased the flows of bank credit and saving toward rural areas. However, this program ended because of high administrative costs for the commercial banks, especially due to the high default rates on loans.

Similarly, Aportela (1999) analyzes the effect of the expansion of bank branches in Mexico, which were to operate with low administrative costs by being housed in existing post offices. The second part of the reform consisted of creating two saving instruments, one short- and one long-term. The most popular instrument was the short-term one, which reflected depositors' preference for liquidity. In the areas without the expansion, savings rates declined, whereas average savings rates rose in the areas treated by the program. Savings rates climb even more when the head of household is male. Likewise, the savings rate is greater when the number of household members with incomes increases or when the head of household is an employer.

During program implementation, the average income in the treatment areas increased slightly. The program effects were greater for individuals with lower incomes or irregular incomes. This study also concluded that, when low-income households have access to formal financial instruments, they increase their formal saving, without reducing their saving or transfers via informal channels.

One innovative mechanism that drastically reduces transaction costs is the use of mobile telephones to carry out financial transactions. Impact evaluations of this new instrument have been conducted using panel data from household surveys (Jack and Suri, 2014). Ivatury and Pickens (2006) surveyed 515 low-income individuals in South Africa and examined how this segment of the population perceives and uses mobile

telephones for financial transactions. Using their cell phones, individuals can make payments, electronic deposits, third-party transactions, and can check their bank balance. To make cash deposits, they must visit the bank branch or post office, which acts as a correspondent agent. The authors find that, on average, the users of telephone services surveyed made more financial transactions using their cell phones than others who utilize other channels to do the same. For example, users checked their account balances twice as often as non-mobile telephone users.

The conditional transfer programs that make deposits into savings accounts have proved to be, in certain cases, another successful way of fostering saving. These programs reduce the unit cost of access by expanding the client base. Ubfal (2013) presents evidence that individuals in Mexico who benefited from a conditional transfer program via deposits into their savings account increased their overall saving (formal and informal) by 60 percent compared with those that received cash transfers. The total increase in saving was chiefly due to greater formal saving.

However, many beneficiaries of these types of social programs withdraw the money all at once, whether they need it or not. This practice, which is particularly widespread in Latin America compared to other regions, might be attributable to problems of program design and lack of information (Cavallo and Serebrisky, 2016). For example, in Colombia, beneficiaries of a conditional transfer program were given the option of saving a fraction of the transfer in a fixed-term account, which could not be withdrawn until a certain period had elapsed. The households to whom this option was offered saved and invested more in health and education than those that received the transfer in a standard deposit account (Barrera et al., 2011). In the case of Peru, Nuñez et al. (2012) and Trivelli, Montenegro, and Gutiérrez (2011) show how providing financial education to beneficiaries of different government savings account transfer programs was key to increasing the level of saving.

Additionally, the literature identifies interventions that are designed to promote saving by creating new types of free financial products with liquidity limits. For example, Prina (2015) studied the effects of free access to savings accounts provided to women in Nepal, along with the provision of information about saving. Of those that had the option to open an account, 84 percent opened one and 80 percent actively used it. The use of the account was positively related to the value of the household assets and to years of education. The majority of households accumulated small sums of money that were eventually withdrawn completely or gradually to cover a medical emergency, buy food, or repay a debt.

Despite the high rates of participation, the effects on both the monetary and the total assets of the treatment group compared to the control group are imprecise. There

is a noticeable positive and significant effect on spending on education, meat and fish consumption, and events such as festivals and celebrations, but there is also a negative effect on the remaining items of expenditure. In other words, the treatment individuals reorganize their expenditure after opening their savings accounts. Finally, the treatment individuals note an improvement in the household's financial situation.

Using this same database, Coloma and Prina (2013) studied the effect of the program on social networks. The authors show that intervening to provide access to savings accounts altered the existing network of informal transactions among the population. In particular, the results show that the program increased the intensity of the network in terms of the number of people engaging in informal transactions and making gifts and informal loans.

Another relevant study that uses liquidity restrictions or commitment accounts and provides information linked to introducing the saving product is Brune et al. (2015). In this study, first, the bank provides technical assistance to a randomly chosen group to open a totally liquid, individual deposit account. The second type of intervention, in addition to providing the standard individual account, provides the group with the opportunity to open a personal account of the commitment type or with liquidity restrictions.

In general, the effects are significant and positive for several of the treatments. First, the intervention programs with the ordinary account and the commitment accounts have positive effects on the frequency and use of bank transactions. Second, with respect to the impact on savings account balances, the effect is also significant for both types of accounts, with higher effects for those with a commitment account or liquidity restrictions. Third, possessing information regarding the savings of others had no effect on informal transfers among friends or family members or, consequently, on saving. Finally, the expansion of the savings accounts, especially the commitment accounts, increased household expenditure and the production of agricultural goods as well as investment in inputs and profitability.

In the work of Prina (2015) and Brune et al. (2015), the new products or opening an account were accompanied by informational programs that explained them, as well as information on the advantages of using them, or of formal saving in general. As information is provided throughout the entire sample, it is impossible to measure the direct impact of disseminating such information. In part, these studies are based on the premise that better-informed individuals will make better financial decisions. This is not always true, and much depends on how the information is transmitted, specifically, on whether people's psychological aspects, which determine information use and acquisition, are taken into account. Assessing psychological aspects is fundamental if

financial education programs are to engender changes in financial behavior (Bruhn et al., 2013; Fernandes, Lynch, and Netemeyer, 2014; Roa, 2013).

Frisancho and Karver (2015) evaluate the effect of providing information about banking products and their performance in a hypothetical situation of opening a savings account in Brazil, Mexico, and Peru. In the cases of Mexico and Peru, the effects were significant but very modest, whereas in Brazil, the fact that information was provided was insignificant.

Flory (2011) directly evaluates the effect of providing information to encourage formal saving on the well-being of households and, in particular, on their wider social networks. The authors evaluate information provision in places in which a mobile bank office using a minibus operates in different areas of Malawi. The information provided consisted of periodic visits to the treatment villages, where informative material that included details about bank services was distributed.

The authors show how the information campaign stimulated the opening of formal savings accounts with the microfinance bank. In the most remote places, the increase was greater. However, in households that already had formal savings accounts, the information campaign had no significant effect. Using different indicators, they detected the most vulnerable groups among the population. In this sample, providing information failed to encourage formal saving.

With regard to inter-household informal transfers, the authors find that an increase in formal savers in a given place leads to an increase in the proportion of vulnerable households that receive one or more monetary gifts provided during famines. This increase in informal transfers had a considerable positive impact on the well-being of vulnerable households, measured by three indicators related to food security and health. Introducing formal saving in Malawi, therefore, had a positive effect on inter-household flows of wealth over the short term. In communities in which marketing campaigns promoted saving, the proportion of those that received cash gifts from other households during famine periods was even higher.

The mixed results achieved by initiatives to reduce supply-side barriers to saving and their interrelation with the existence of an informal financial system have motivated studies such as Wang (2014). In this article, a general equilibrium model is developed in which households can access both the formal and the informal market in matters of credit and saving. The model reveals that with different combinations of fixed costs and collateral requirements, various optimal categories of market selection are obtained. When evaluating the theoretical model using data from Thailand, it is noteworthy that policies whose objective is to promote formal credit (saving) tend to cause a reduction (an increase) in interest rates in the informal market, which has the

effect of reducing saving opportunities (credit) of less (more) productive individuals. This leads to the conclusion that interventions designed to promote the formal financial market must take into account in their design not only the interaction with the informal market, but also the relationship between credit and saving activities.

Finally, although these are not experimental evaluations, we would like to highlight some studies that show how higher levels of household productivity encourage saving. Higher profitability or income earned from higher productivity partly mitigate the high costs of participating in the formal financial sector. For example, Pawasutipaisit and Townsend (2011) attempt to explain how wealth accumulation and social mobility can be determined. Using data from the monthly household survey Townsend Thai over seven years, the authors find that the channel through which households manage to increase their wealth is via saving (81 percent) and, to a much lesser degree, via gifts or remittances. These authors include not only the rate of saving in their analysis, but also the effective use of such savings or, in other words, the return on assets (ROA). They observe that the growth of wealth is positive and significantly correlated with the rate of saving, but less than with the ROA. The covariance analysis shows a positive correlation of the ROA with the households that set out with an initial low level of wealth, with better education, with the youngest members and with a high rate of debt/assets. The latter result seems to indicate that the financial system channels credit to poor households, but with greater profitability. Using a traditional Cobb-Douglas production function, they find that those households with greater marginal capital productivity are more likely to seek credit. Dynamic analysis of the panel shows that the households with greater ROA levels and persistence save the most. Moreover, the households with greater ROA tend to save more by investing. They therefore accumulate physical assets, but they are less likely to use them to smooth consumption. Furthermore, the authors find that these households use cash more often, are more actively involved in financial markets in terms of using formal saving accounts and access to credit, and less involved in informal markets.

Beck, Pamuk, and Uras (2014) theoretically analyze the relationship between productivity, saving, and reinvestment. The authors develop a two-period partial equilibrium model and conclude that the entrepreneurs most willing to reinvest are those that: (i) save in the formal financial sector, (ii) enjoy high borrowing capacity, and (iii) have high productivity. Additionally, the results show that entrepreneurs will decide to save if the cost of accessing the formal saving market is low, productivity is high, or when there is limited access to credit. The possibility of reinvesting is particularly greater for women entrepreneurs and for those entrepreneurs that are not heads of

household. The theoretical implications are analyzed empirically using data from a survey of micro and small entrepreneurs in Tanzania. The empirical results are consistent with the theoretical model. Other studies, such as Alvarez, Buera, and Lucas (2008) and Banerjee and Moll (2009), conclude that household and business savings increase in line with increased productivity.

To summarize, the interventions described in this section that seek to promote formal saving by reducing transaction costs have focused on opening a larger number of branches of formal financial institutions, encouraging use of mobile telephones for banking transactions, using existing platforms (for example, post office networks, governmental transfer programs), creating free financial products with liquidity limits, imposing restrictions or commitments on the management of formal savings accounts, and providing information about financial products. We have seen that the majority of them achieve certain positive effects over the short term, but whether the habit of formal saving persists over the long term is still questionable (Karlan, Ratan, and Zinman, 2014). Moreover, there needs to be a careful consideration of how the productivity of households and businesses impacts their formal credit and saving dynamics.

4. Social Networks and Behavioral Bias: Lack of Use

This section debates the major studies that have evaluated the interventions developed to solve not only access, as we observed in the previous section, but rather the regular use of saving products and financial services and the effects of such interventions. As we will see below, and as previously mentioned, interventions designed to encourage the use of formal savings products and services aim at eliminating the following demand-side barriers: lack of trust in formal financial institutions, cognitive biases, lack of information, and the restrictions associated with participation in informal social networks.

Among the elements that determine the use of formal financial instruments are the types of relationships and resources within the social networks in which individuals take part, as well as elements of interpersonal trust and confidence in institutions. The possible effect of programs that encourage formal saving on financial transactions within people's social networks is a concern of this literature, as we have already seen in some of the studies reviewed in the previous section.

Some studies have attempted to answer this question by using theoretical models. For example, Foster and Rosenzweig (1996) present a theoretical model that evaluates the increase in utility obtained by households when faced with differing

scenarios of formal and informal financial access. The model suggests that the introduction of financial intermediaries partly crowds out the use of informal transactional agreements between households, but that these continue to form a significant part of their financial transactions. In particular, the combination of formal financial intermediaries and informal financial transfers is the scenario that generates the greatest expected utility. This equilibrium is greater than one in which there is only a formal sector or only an informal sector, while the worst-case scenario is the one in which there is no form of access.

The authors contrast the evidence of the model with empirical data from rural villages in India and Pakistan. The results from the two countries show that the proximity of banking agencies positively impacts net financial saving and, therefore, contributes to higher consumption smoothing. Furthermore, the effect of the proximity of bank branches on net transfers is negative; in other words, the proximity of the banking institution displaces the informal agreements. In both countries, once more, the coexistence of formal financial intermediaries and informal transfers is the result that produces the highest utility gains.

The interaction between formal and informal channels to obtain the financial resources needed to address the variability in household income raises the question of how this interaction affects household well-being. For its part, formal saving represents a self-insurance mechanism through which, when faced with a negative income shock, the household uses the resources stored in a formal financial institution. Getting resources from the social network in which the household is embedded constitutes a risk-sharing mechanism. This tradeoff has been studied in the literature from both the theoretical and the empirical perspective. It is worth highlighting that in developing economies the role of social networks as an informal risk-sharing mechanism is important, as demonstrated by Ambrus, Mobius, and Szeidl (2014) and Jackson, Rodríguez-Barraquer, and Tan (2012).

In Ligon, Thomas, and Worrall (2000), a dynamic model is examined in which households can choose self-insurance, through a resource storage mechanism, and/or join an informal insurance agreement with other households. Based on the parameterization of the theoretical model and its computational solution, the authors conclude that the possibility of enjoying access to formal saving can limit the use of informal insurance policies. This evidence is also consistent with Foster and Rosenzweig (1996), as well as with Coloma and Prina (2013).

Along the same lines of the effects of formal saving on social networks, Chandrasekhar, Kinnan, and Larreguy (2015) do not encounter negative effects from greater access to saving via the informal transfers that occur in such networks. The

study shows that access to saving enables individuals to temporarily smooth income, which is not guaranteed between members of the network. The main result is that applying contracts as a commitment mechanism increases the transfers (cooperation) and reduces volatility (well-being), while access to saving can partially compensate for the absence of such contracts. The social network as a risk-sharing mechanism is more effective when there is greater social proximity and when there is less asymmetry in the importance (or centrality) of the members in the network.

Kast and Pomeranz (2014) highlight the possibility that an individual's ability to save interacts with the types of relationships and resources found in his or her social network. Using a randomized experiment applied to 3,500 low-income earners in Chile, the authors find that, when given easy access to free saving products, people in the treatment group reduce their debts, usually in the form of loans contracted in the informal networks. Moreover, the article shows that precautionary savings and credit act as substitutes when it comes to self-insurance or consumption smoothing.

The most salient points revealed by this article illustrate the effects of social networks and individual behavioral bias. Furthermore, it demonstrates that the interaction between the individuals' capacity to save and the resources they find in their social networks acts, according to the authors, in two ways that are associated with "other-control problems." On the one hand, colleagues and the social environment can make it harder for individuals to save due to the pressure to share resources but, equally, the sense of commitment can make formal saving easier. The authors find evidence that informal loans in social networks represent a significant obstacle to opening a bank account. Moreover, the very lack of commitment to save, or self-control problems, is an additional obstacle to saving.

The results of this article make a further interesting contribution to the literature that studies the relationship between poverty and measures of subjective well-being. Specifically, Kast and Pomeranz (2014) suggest that in addition to the importance of income and poverty levels for subjective well-being, the variance and the risk to which people are exposed also play an important role. People with scant resources, generally, experience great worry and anxiety about their economic future. The authors found improvements in well-being when backward looking (they perceive recent economic difficulties as less severe) and forward looking (less anxiety about their financial future) among households with greater financial access. The authors point out that their results suggest that reducing the mental barriers and the fear of entering a banking institution, or generating trust by providing access to a reliable institution, can play an extremely important role in encouraging people to open bank accounts.

Using a natural experiment, Bachas et al. (2015) seek to analyze the impact on formal saving of providing debit cards to individuals who already receive conditional cash transfers from the Mexican government into their saving accounts, but do not use such accounts to save. The authors find that during the first six months there were no noticeable increases in saving by individuals but, after this period, people begin to trust the banking institution and there is an increase in savings in bank accounts. Additionally, they offer evidence that these individuals make these savings via a self-control mechanism, by which they begin to spend less on temptation goods (alcohol, tobacco, and sugar). In other words, the phenomenon of consumption smoothing referred to by Banerjee and Mullainathan (2010) can be observed, but not because formal savings have substituted informal savings. They therefore conclude that informal saving is difficult to achieve.

The use of cognitive bias to encourage the use of saving products via activities that foster saving planning and the use of regular reminders characterize the designs that seek to promote formal saving by adopting a behavioral economics approach.

Within this group of studies, we highlight the work of Atkinson et al. (2013). The authors evaluate the impact of three financial saving products offered to the clients who requested a loan from branches of a bank in Guatemala. The control group was offered the opportunity to open a savings account at the time when the loan was disbursed. Thereafter, two treatments were made. In the first, the clients that take out new loans are offered the chance to set monthly saving deposits which they are recommended to make each time they make a loan repayment (open treatment). The second group (default treatment) is offered the same treatment but they are informed that the bank will set an amount equivalent to 10 percent of the loan unless the client decides to change it. The reminders are issued every month. When offered the three products, the clients receive information about the benefits of saving (both pamphlets and verbal reinforcement) and an explanation of the terms of the contract.

The results show that the treated individuals who were offered the open treatment are more likely to make at least one monthly deposit and they have accumulated net savings that are four times greater than the savings of the control group. The default treatment doubles the probability that an individual will open an account when taking out a loan and increases the saving rates and the final balances by a factor of six compared to the control group.

With regard to the use of the account, a very low percentage of people in the control group made an additional deposit in their savings accounts, whereas the percentage was greater for the two treatment groups, especially the default treatment group. It is interesting to note that an amount suggested externally can have greater

power than an amount chosen by the person. The default treatment reduces the need to know how much to save and makes the decision easier. Endorsement effect theory suggests that the clients assume that this advice comes from an institution with greater knowledge and understanding about what should be the optimal rate of saving.

Likewise, loan repayment is higher in the treatment groups than in the control group. The authors present a theoretical model in which they show that the simultaneous provision of credit and saving products enables a higher fraction of the population to eventually escape from a debt-financed equilibrium. Likewise, they present evidence that the saving deposits and the loan repayments are complementary; the saving instruments enable faster liquidation of the debt and improve general performance with regard to repayment.

In developed economies, in which a large part of the population has access to the financial sector, interventions have also been made to encourage the use of saving instruments that imply an established saving plan or automatic subscription (Beshears et al., 2010a; Choi et al., 2002; 2004; Madrian and Shea, 2001). These studies show that when new employees begin working at a business and are automatically signed up to the saving plan (opt-in design), only a small proportion decides to abandon the plan. But, when the saving program is not automatically assigned, less than half of the employees sign up. The reason is that when the program is provided automatically, there are costs associated with the option of leaving related to the decision itself, with postponing it (procrastination), or with contracting a different plan, among others. Beshears et al. (2010b) find, moreover, that low-income employees are more likely to maintain the automatically chosen rate (although it may be high) than are those with higher incomes. These results suggest that low-income workers face greater barriers when it comes to active decision making, due to their lack of understanding or delays in making decisions.

The Multilateral Investment Fund and the Inter-American Development Bank have promoted the development in Latin America and the Caribbean of saving plans associated with bank accounts with different degrees of commitment and rewards, as described in Frisanchio (2016). The preliminary results suggest that the commitment strategies do lead to higher rates of bank account opening, but their use tends to diminish over time. Procrastination or lack of attention reduces the incentives to make deposits over the long term. The individuals need additional strategies to make account use last. Issuing reminders or providing certain information might be the way to maintain that use over time. For example, in a recent experiment in Colombia involving young people who already have savings accounts, a financial information campaign was provided via text messages as a way of mitigating limited information bias, lack of

self control and attention (Frisancho, 2016). In the study, three treatments were implemented: a financial education campaign with monthly messages and two saving reminders with different time frequencies. The results show that saving reminders, irrespective of their frequency, have a significant effect on account balances, mainly due to reduced cash withdrawals. Financial education, however, had no significant effect on saving.

With a view to defining saving plans and reminders via elements of behavioral economics, Karlan et al. (2014) study the effect on saving habits of introducing reminders and a commitment account with liquidity restrictions. These authors implement three field experiments carried out by three different banks in Bolivia, Peru and the Philippines. The sample consists of people who were provided with new commitment accounts in these countries, which differed in design in each country. After opening the account, each person was randomly assigned to a different treatment: with or without reminders, and then according to the content and the regularity of the message in the reminder group. Although the treatments follow the same logic—messages that vary in information and regularity—when they were applied they presented significant differences in each country.

The results can be classified into two groups, according to the variation of the message content, and the regularity with which they were sent. In general, for the three countries, it was found that reminders increase the probability of saving in the commitment account as well as increasing the amounts saved, although the evidence is not quite as accurate with regard to the latter. With respect to the content, it is noteworthy that messages that mention a saving goal (for a future expenditure) and financial incentives are particularly effective. Others that concentrate on the losses and gains of saving did not have significant impacts. This result is important insofar as the act of providing financial information or knowledge does not guarantee a behavior change. In this case, only certain information prompted a change. Furthermore, whether or not the messages were regular did not have a noticeably significant effect. What is noticeable is that although the impact was different, the results were the same in all three countries.

With a view to formalizing the results, the authors provide a simple model to explain them. The utility to the individuals is a linear combination between perceived utility from ordinary consumption and utility from extraordinary expenditure with a non-negative probability. Those able to make a future spending plan have a higher expected utility than those who cannot (second component effect of the utility). As a result, the model shows that reminders do change saving behavior.

A large number of the studies reviewed here focus on the impact of permanent programs, since it is assumed that the bias comes from a fixed preference parameter. Schaner (2015) takes an alternative view and examines whether individuals can sustain better saving conduct after exposure to temporary incentives to make changes in saving behavior. For this purpose, the results of a field experiment carried out in rural areas in Kenya are analyzed, where the incentive consisted of giving couples the opportunity to open three bank accounts (two individual and one joint) with randomly selected annual interest rates. The rates were subsidized for six months and chosen for being the highest currently available in the market at that time, and were similar for all three accounts.

The majority opted either to open only the joint account or only the individual accounts. In the short term, it was noticeable that the accounts with subsidized interest rates are more likely to be opened and used than those without them. Likewise, offering interest rates in an account implies a reduction in the use of other accounts. Relocating savings between accounts does not represent an increase in the total savings in the accounts offered in the experiment.

In the long term, the use of subsidized individual accounts belonging to men and the joint accounts increased, while use of individual accounts opened by women did not. The effect of the treatment on the men's accounts implies an increase in entrepreneurial initiative that, at the same time, generates a rise in both income and assets. The subsidy to the joint account positively affects investment in household goods and improves matrimonial relationships. The document does not find evidence of significant long-term impacts of the subsidized interest rates given to the women's accounts. Although the results contradict other similar documents with regard to the effect of the accounts provided to women (Karlan and Zinman, 2014; Kast, Meier, and Pomeranz, 2012), the author gives two possible explanations for this fact. First, it is possible that the women returned to their old saving patterns once the experiment was over. Second, the returns on capital of the women's businesses might not have been sufficiently high.

In addition to analyzing the effects of different interventions to encourage the use of formal saving products and services, some studies, such as the one reviewed above, focus on gender and analyze the importance of giving women the possibility of opening accounts in the formal sector. Dupas and Robinson (2013) study the impact of a free saving product with liquidity restrictions on the businesses of a group of informal street sellers in a rural village in Kenya. The sample is made up of market sellers (the majority of them women) and bicycle taxi drivers (all men), the majority without formal bank saving accounts.

The results showed that the average daily saving in the bank is significantly greater in the group with access to the free account, but the effect of the treatment is uneven. There is an increase for the saleswomen, but not for the male taxi drivers. The saleswomen, moreover, did not reduce their informal savings. The women of the sample have preferences that are biased toward the present and, therefore, they are tempted to spend any cash they possess. Moreover, these women face regular demands from their husbands, family members, or neighbors. Having money in the bank and not enjoying immediate access enabled the women to increase their savings.

The results also suggest that the treatment had a substantial effect on the women's ability to invest in their businesses. This is notable due to the fact that only a minority of women used the accounts, which means that the effect for those that really did use the account is extremely significant.

Also in relation to the importance and the effects of providing greater financial access to women, Ashraf, Karlan, and Yin (2010) studies the effect of commitment saving products on women's empowerment in the Philippines. Specifically, they introduce various treatments. The first treatment consists of a marketing campaign stressing the importance of saving. In the second, women are offered the marketing and, moreover, a commitment saving product, which requires that clients commit to not withdrawing the money until they have achieved a saving goal or after a date they set themselves. On top of this treatment, they are offered a closed box at a small cost, which only the bank can open, in which to make savings at home. The barrier to making these small deposits is psychological—a phenomenon known as “mental account”—as, at any moment, they could break open the box. Most of the clients acquired the box.

The results of the study show that the commitment saving product impacted positively on women's decision-making power in the household, above all for women with only a priori medium decision-making power and married women. It is striking that the mere offer of the product, even if not even finally acquired, engendered a sense of guilt when the money was spent rather than saved. The treatment that only provided saving information or marketing had a positive effect, although much weaker with regard to women's decision-making power and saving.

The authors conducted two previous studies using the same database from the Philippines (Ashraf, Karlan, and Yin, 2006a; 2006b). They evaluated the effect of offering a commitment saving product and a door-to-door deposit collection service with a certain cost on saving behavior and on compliance with the saving plan. For the women, being married, less educated, and younger increased the probability that they would register for the program. Distance from the bank branch as a measure of the

transaction cost of the deposit without the collection service turned out to be a determinant of registration. The magnitude of the impact of the deposit collection service on saving was significant, but less than in the experiment of commitment saving products.

There are many mechanisms, both psychological and economic, whereby the deposit collection service can increase savings: by decreasing transaction costs, facilitating control via financial planning, providing a commitment instrument for controlling impulses, and so on. This impact on saving has a clear implication, which is that individuals consume less when offered the deposit collection service.

Callen et al. (2014), in the same spirit as the previous studies, introduce a product without liquidity restrictions in a financial institution in Sri Lanka, situated far from the household to avoid easy access. However, deposits can be made regularly, as these are collected door-to-door every week via a wireless service terminal. The most innovative aspect of their work is that they evaluate the reason behind a common result in the studies in the literature: greater access has the effect of boosting household expenditure, when a kind of “magic income effect” appears. In an attempt to solve the riddle of the origin of this increased income, they focus their analysis on the source of the savings.

After the treatment, the number of transactions with the formal financial institution increased nearly fourfold, the flow of saving to the saving accounts nearly doubled, and saving rose. The increase in saving was translated almost immediately into an increase in income alongside reduced investment by the micro-entrepreneurs, both induced by a relatively small increase in saving. To explain this result, the authors use an intertemporal substitution of leisure model (Blanchard and Fischer, 1989). Analysis of the model reveals that an increase in interest rates increases the future desired consumption relative to present consumption, which causes individuals to increase their efforts in the labor market during the initial period to the detriment of leisure, in order to save more.

In the sample, this is true for wage earners but not for the self-employed. The former decide to work more and devote less time to leisure due to the increased return on saving. The fact that investment decreases distinguishes this study from those that find that the use of formal financial instruments complements business investment (Banerjee and Newman, 1993).

Finally, the results suggest that individuals with problems of self-control would amass greater savings over the long term if they managed to commit themselves in the short term thanks to the program. Likewise, the authors find that participation in rotating savings and credit associations (ROSCAs) and credit unions increased; formal saving

complemented the informal saving mechanisms. This result, therefore, coincides with the studies that conclude that the number of informal financial transactions by individuals with greater financial access rises. Nonetheless, this finding is inconsistent with those that point out that formal saving serves to protect savings from the financial demands of the networks to which people belong, or those that point out that formal saving mechanisms substitute previously established informal mechanisms (Attanasio and Rios-Rull, 2000).

The study by Chin, Karkoviata, and Wilcox (2011) is in line with the interventions that make use of the reminder tool. This article evaluates the impact of facilitating the opening of saving accounts for Mexican immigrants in the United States on saving and remittances. Its experimental design consisted of randomly assigning assistance to obtain a *matrícula consular* card, the document required to open a bank account in the United States. The treatment group was given help to assess their documents, obtain any missing documentation, make an appointment at the consulate, get transportation to the consulate, fill in the card application forms, and pay the card fee. Additionally, they were given reminders to open a bank account in the United States. The authors find that migrants in the treatment group were more likely to obtain a bank account in the United States. Access to a bank account meant that the migrants kept more money in the United States and sent less back home.

To end this section, we highlight the significance of analyzing the potential effect of introducing formal saving on household well-being and on the balance between self-insurance and risk-sharing decisions. Specifically, the households' existing social dynamic and building trust in formal financial institutions deserve special consideration. Furthermore, there is evidence that individuals' self-control problems when it comes to financial decision-making could be mitigated by the use of reminders, strong commitments to saving goals and/or positive reinforcement when such goals are reached, automatic enrollment in savings plans, subsidizing interest rates for saving accounts, and providing information. Likewise, the question arises of how to extend good formal saving habits in a sustainable fashion.

5. The Macroeconomic Effects of Financial Inclusion

The studies reviewed in the previous sections take a microeconomic approach to analyzing the effects of saving decisions and their main determinants. They focus on household saving, rather than saving by businesses. For the most part, enterprises do not suffer from the problems and barriers to saving analyzed in the previous sections. Only informal businesses, which in general are categorized as households in national

accounts, encounter such barriers. In this section, we delve deeper into the question of the lack of saving and its effects from a macroeconomic perspective, which takes into account aggregate saving throughout the economy. As we shall see, including businesses in the analysis makes it difficult in some cases to establish the macroeconomic effects of financial inclusion.

From the macroeconomic perspective, the determinants and effects of saving have been explored in the traditional literature on economic growth, in which saving is one of the main drivers of growth. Under different assumptions of the production function, these studies put forth endogenous growth models in which the agents themselves decide the optimal path of consumption and saving, as in Aghion and Howitt (1992), Lucas (1988), and Romer (1986; 1990). In these studies, saving sometimes determines the accumulation of physical capital, in others the level of innovation or technical progress, and, therefore, the rate of growth of the economy.

Faced with the question of what is the causal relationship between saving and investment, theoretical models can be found in the literature that support both directions. The argument that saving generates the funds to finance investment underlies the models of Feldstein and Bacchetta (1991) and Feldstein and Horioka (1980), while the increase in saving sparked by increased demand for investment goods constitutes the basis of the models of Blomstrom, Lipsey and Zehan (1996). Moreover, empirical evidence exists for the positive correlation between the rate of saving and of investment (Baxter and Crucini, 1993), although when it comes to the direction of causality between them, the evidence is inconclusive (Attanasio, Picci, and Scorcu, 2000; Ezzo and Keho; 2010; Sinha, 2002; Tsoukis and Alyousha, 2001).

In Latin America and the Caribbean, saving and investment rates are low and below those found in other emerging countries, as are the rates of economic growth and productivity (Levy and Schady, 2013). For this reason, the design of coherent policies that promote both saving and investment as drivers of economic growth is crucially important in this region (Serebrisky et al., 2015).

In particular, the region's private sector is made up of a large percentage of small and informal businesses (Busso, Fazio, and Levy, 2012), which, for different reasons, lack incentives to grow and/or join the formal economy. This situation generates problems of low productivity and scant private saving capacity (Becerra, Cavallo, and Noy, 2015). Therefore, Busso, Fernández, and Tamayo (2015) posit the need to promote greater productivity in the region as a driver of long-term economic growth and private saving. Obtaining funds for business investment is, consequently, a matter of crucial importance in the region. International empirical evidence indicates that in developed and developing economies alike, firms finance investment chiefly

through retained earnings; in other words, from their own savings. Latin American and Caribbean firms also display this type of behavior. It is moreover assumed that this can be partly explained by the low level of development and depth of the region's financial system (Busso, Fernández, and Tamayo, 2015).

The literature on economic growth considers the assumption of financial markets without frictions. It is for this reason that, although such studies can provide conceptual frameworks that enable the determinants of saving and its potential effects on growth to be analyzed, they limit the possibility of exploring the question of financial development and, in particular, of the lack of access to and use of formal financial markets.

Taking the classical literature on growth from the end of the 1990s as a reference, a variety of theoretical and empirical studies have been developed that introduce imperfections into the financial markets (Levine, 2005). The theoretical studies argue that through different functions, financial institutions reduce or eliminate information frictions, transaction costs, and contractual compliance costs associated with financial transactions. By doing so, they stimulate the ultimate determinants of economic growth: the accumulation of physical and human capital and technological innovation (Levine, 1997).

The empirical literature on the impact of financial development also suggests that economies with a more efficient financial sector obtain higher growth, although the specific mechanisms are not usually described and the causality can work in both directions. The general consensus of these studies is the existence of a positive correlation between financial development and economic growth (Levine, 2005; Pasali, 2013). However, the results of empirical studies carried out after the recent financial crisis suggest that the relationship between growth and financial development might not be linear; for low levels of financial development, the relationship between both variables is positive and when there are high levels of development, the relationship becomes negative (Cecchetti and Kharroubi, 2012).

Although financial inclusion is an element of financial sector development, in the empirical studies of the literature on growth and financial development the latter is measured by the levels of financial deepening (credit over GDP, or M2 over nominal GDP). However, a deeper financial sector does not necessarily mean a more inclusive financial sector if—as happens in many emerging economies—access to the financial sector is concentrated in the population with the highest incomes. In order to begin to study the effect of greater access and use on the economy, the traditional measures of financial deepening must be complemented with other financial development measures. Until a few years ago, these were unavailable, but recently some

international agencies have been designing projects to build solid indicators of financial access and use at the macroeconomic level via surveys of households, enterprises, and financial institutions (e.g., the IMF's Financial Access Survey (FAS) and the Global Findex).

Using these new indicators, a small group of recent studies by the IMF and the World Bank have begun to analyze empirically the relationship between growth, financial stability, inequality, and financial inclusion. Most of the studies consider indicators associated with saving and credit. The following section reviews the studies that analyze the effect of financial inclusion measured using indicators of access to and use of savings on macroeconomic variables.

Ardic, Imboden, and Latortue (2013) explore the relationship between financial inclusion, economic growth, and income inequality. By analyzing the correlations between the FAS indicators, they suggest that financial inclusion (measured by the indicator of use: number of saving accounts per 1,000 adults) is positively correlated with per capita GDP and a series of variables measuring economic growth and deepening of the financial system. Furthermore, they find that greater financial inclusion is associated with lower inequality, but not in a linear way. Specifically, for countries with low levels of financial inclusion and financial system deepening, inequality tends to increase initially, and to diminish thereafter insofar as the financial system becomes deeper and more inclusive.

Ardic, Imboden, and Latortue (2013) also explore the relationship between financial access and financial stability, using correlations. The study indicates that, although the literature on the links between stability and inclusion establishes a positive relationship between the two phenomena (Roa, 2016), the empirical evidence still seems unable to confirm such a relationship. When this relationship is measured in terms of deposit account differentials, financial inclusion presents neither a positive nor a negative correlation. The authors suggest that the lack of a positive correlation might be due in part to the lack of solid data, but it might also mean that the relationship between stability and financial inclusion is not direct.

The link between the greater coverage of bank deposits before the crisis of 2008 and the dynamic growth of bank deposits during the crisis is examined in Han and Melecky (2013). The authors find that greater access to bank deposits can mean that the financial base of the bank deposits is more diversified and, therefore, more resistant in times of financial stress. Thus, policy initiatives to improve financial stability in this way should not only focus on the prudential macro regulation measures established following the financial crisis, but also recognize the positive effect of greater access to bank deposits on financial stability.

A measurement, using non-parametric methods, of the linear interdependence between stability and inclusion at different levels of aggregation is made in Čihák et al. (forthcoming). The financial stability measures focus on capacity of resistance, volatility, and banking crises. Financial inclusion is gauged mainly using different measures of saving. First, for the aggregate analysis of the relationship between stability and financial inclusion, they create a financial inclusion index that incorporates, among other things, the number of savings accounts and deposits of both individuals and enterprises. Second, they carry out an analysis of correlations at the individual level (individuals and enterprises) of this relationship with the same saving indicators. The data cover 158 countries during the period 2009–2014.

Their results show that, although the average correlations suggest a predominant tradeoff between inclusion and stability, the distribution of the even correlations points with a high probability to the existence of both tradeoffs and synergies. Specifically, the correlations at high levels of stability imply that the tradeoff might be invariable for the inclusion of people, but hump-shaped for the inclusion of enterprises, for which there might be an optimal level of financial stability/instability that maximizes inclusion.

In addition, the empirical results show that the tradeoffs can be originated largely by sudden outbreaks of access to credit, on the one hand, or periods of high instability and reestablishment of resistance, on the other. In a similar vein to Han and Melecky (2013), the possible synergies might arise from the greater use of savings and the penetration of insurance policies that foster the capacity of resistance of the economy and the financial services.

In a recent study, Sahay et al. (2015a) analyze the benefits in terms of growth and stability when there is greater financial development. Financial development is defined as the combination of depth, access, and efficiency, where access is measured by the number of ATMs and the number of branches, both per 100,000 adults.

The authors show that the positive effect on economic growth gets weaker with high levels of financial development. Curiously, the reduction of the effect arises from financial deepening, rather than greater access or efficiency. Therefore, in countries in which the maximum benefit of the increase in financial institution deepening has already been reached, greater advantages might be gained by increasing access. With regard to stability, the relationship between economic growth and economic stability is also nonlinear. Moreover, the risks to financial stability increase alongside the level of financial deepening.

Sahay et al. (2015b) study the links between financial inclusion with economic growth, financial and economic stability, and inequality. The authors emphasize the

importance of considering financial inclusion as a multidimensional concept in which the details matter. Therefore, the analysis covers financial inclusion by various elements: channels and modes of access, deposits, credit, and insurance policies. The indicators include the suppliers (number of branches of commercial banks, ATMs for every 100,000 adults, saving accounts in commercial banks for every 100,000 adults, and deposits in commercial banks for every 100,000 adults) and the users.

First, using simple cross-section regressions, the authors show that the initial levels of the different types of financial inclusion indicators, including the saving indicators, had a positive impact on growth over 10 years. Specifically, greater access for businesses and households, as well as the increase in the number of women using these services, leads to higher growth. Furthermore, the sectors that depend on external financing grow more rapidly in countries that have greater access and use, and financial inclusion is especially beneficial in sectors where guarantees are harder to find. However, the marginal effects on growth from increasing both inclusion and financial deepening begin to decline amid high levels of financial development (the benefits might even be negative for certain advanced economies). The analysis shows that the benefits of financial inclusion on growth are independent of those attributable to the general level of financial development. Likewise, they explore the link between financial inclusion and income inequality. The authors suggest that financial inclusion can improve the economic situation of people on low incomes, especially in developing countries. Furthermore, they argue that the gender gap in financial inclusion seems to be positively correlated with income inequality.

Sahay et al. (2015b) conclude that the benefits of economic growth decrease both with the increase of inclusion and of financial deepening, and that there are tradeoffs with financial stability. Therefore, promoting financial inclusion must be accompanied by improved financial oversight.

To conclude this section, we underline the importance of saving and investment by businesses for the rate of productivity growth and economic growth, especially in the Latin America and Caribbean region. Therefore, economic policies aimed at achieving the objective of higher private sector productivity must be coherent (Serebrisky et al., 2015), as the incentives are not aligned to ensure that a large proportion of informal firms see the benefits of becoming formal (Busso, Fazio, and Levy, 2012).

With regard to the financial sector, the following points can be inferred from the studies mentioned in this paper: (i) financial inclusion can have a positive effect on economic growth; (ii) increased access to credit without adequate regulation seems to be the main factor that can lead to higher financial instability. In contrast, an increase in the base of deposits is a factor of financial stability; and (iii) access reduces inequality,

but this effect tends to diminish and even disappear for countries that enjoy intermediate or high levels of financial development. It would seem that financial inclusion reduces inequality by drastically loosening credit restrictions for the poorest people. In other words, an inclusive, competitive, and adequately regulated financial sector is vital for the process of generating higher levels of saving, investment, and productivity growth.

6. Discussion and Conclusions

Economic theory has attempted to provide insights into the determinants of saving from its very beginnings. To a large extent, this interest is due to the potential effects of saving at both the microeconomic level—on spending, income, well-being, and others—and the macroeconomic level—on growth, equality, and stability, among others. In this article we have reviewed the literature that studies the determinants of and the barriers to formal saving, as well as the interventions designed to promote saving in developing economies and their potential effects.

Categorizing the barriers to financial inclusion as barriers to access, on the one hand, and to use, on the other, enables the question of financial inclusion and the interventions that need to be undertaken to be better understood. With regard to restricted access to formal saving, the literature reviewed refers to eliminating the barriers proposed by the traditional theory of financial markets: high transaction and information costs. We have noted that interventions designed to reduce transaction costs consist chiefly of establishing more branches and ATMs in rural areas and establishing mobile branches or bank correspondent agents. In general, evidence from surveys and databases shows that, for the most part, developed economies have carried out this type of intervention to bring formal financial markets closer to people, thereby largely solving the problem of lack of access.

The experimental evaluations show how, in general, these interventions encourage access to saving instruments. Although, due to their recent appearance, there are still no experimental studies that evaluate the effect making financial transactions using cellphones, panel data studies reveal that the effect of mobile telephones seems to be significant with regard to enhanced access to formal financial instruments.

As far as information costs are concerned, in general the barriers consist of demands for extra paperwork or collateral and the high fees associated with the use of each product or financial service. Therefore, we have seen how a large proportion of the interventions have been aimed at the possibility of acquiring free saving products or

those with a preferential cost that forego demands for documents or collateral. These products are commonly known as free or basic saving products. In the studies reviewed, acquiring these products is voluntary, and those who decide to acquire them can participate more actively in the formal financial sector. Nonetheless, some of the treatment households decide against acquiring the product, which highlights the existence of other barriers that influence lack of use.

In this regard, while projects such as the FAS and other initiatives designed to measure access⁶ show that it has increased considerably—in terms of growth in the number of branches, ATMs, bank correspondent agents or cellphones—formal saving continues to be a pending issue for developing countries. For example, in Latin America, despite the rise in the number of public bank branches and bank correspondent agents, and even of the development of regulatory frameworks for creating simplified or basic accounts (Cavallo and Serebrisky, 2016), the percentage of people that claim to save formally has increased only slightly, by 14 percent from 2011 to 2014 (Global Findex). This situation highlights the need to rethink the supply-side interventions designed to encourage saving.

For example, in this region, as in most developing countries, the average costs of financial intermediation are very high. In order to break with this trend, various supply-side interventions are discussed in Cavallo and Serebrisky (2016). First, they suggest reducing financial market frictions via regulatory and institutional reforms that seek to: (i) promote the provision of good-quality information about the potential borrowers, and (ii) ensure compliance with financial contracts. Second, they suggest reducing the high fixed costs by expanding the client base by creating simplified products. If, as occurs in certain cases, these products are unprofitable, then institutions can be encouraged to provide them by public subsidies. If the problem is inadequate regulation, or unwarranted requirements to access this type of product, then interventions should focus on the corresponding regulatory reforms. Another example of a supply-side intervention is seen when prohibitive costs limit the physical penetration of bank branches in remote areas. Governments can help expand the presence of bank branches via direct subsidies, or implement regulations to stimulate competition and the important role of public banks. The authors point out that each intervention will depend on the specific circumstances in the country.

In addition to the supply-side barriers that hamper saving, in Latin America the lack of trust, social restrictions caused by informal transfers, and inconsistent temporal preference biases are particularly significant barriers that are linked to the use of

⁶ In Latin America, the most important is the Microscopio Global: <http://www.fomin.org/es-es/PORTADA/Conocimiento/DatosdeDesarrollo/Microscopio.aspx>

financial products (Cavallo and Serebrisky, 2016). Taking into account the types of demand-side interventions to encourage use discussed in this paper could provide a key to understanding the different mechanisms and effects associated with saving regularly and via different instruments.

Specifically, one important challenge is to maintain over the long term the positive short-term effects observed in the interventions that have hitherto been designed to promote formal saving habits among households. It is for this reason that interventions are being developed to address them. With regard to trust, certain interventions encourage the dynamics and repeated interactions with the formal financial sector. The studies are few and they demonstrate the need to examine further the role of trust in financial transactions and especially how to build trust. Financial education programs that provide information about saving products and the institutions themselves, financial consumer protection policies, and the regulation of financial entities would seem to be fundamental for building trust.⁷

The financial education programs described in the studies reviewed here provide information about saving products as well as the benefits of saving. Although the results regarding their effects in certain cases are inconclusive, behavioral economics maintains that the way the information is transmitted is the key to achieving change or encouraging healthy financial behavior. Therefore, when designing interventions, it is crucial to consider the psychological aspects involved in the way that people access and use information. In particular, the use of reminders, saving plan commitments, product liquidity restrictions, automatic product subscription, and exposure to temporary incentives are all elements that meet with success in most of the interventions designed to promote the regular use of formal savings products.

In evaluating the success of the interventions, their effect on access to and use of savings products and services is not the only element that should be taken into account. At the microeconomic level, it is notable that the possible or potential effects of the interventions on the resources shared in social networks on poverty, expenditure, income, subjective well-being, production, women's empowerment, and even on the levels of borrowing are analyzed in equal detail. In most of the studies, the effects are positive. Only in the case of borrowing levels does it appear that higher participation in formal markets can lead households into over-indebtedness that may jeopardize stability. Therefore, this result coincides with the macroeconomic literature concerned with possible links between financial stability and greater financial inclusion for people, especially via credit expansion.

⁷ See: <http://cfi-blog.org/2016/03/10/a-huge-step-forward-but-can-regulators-cope/>

With regard to the effect of saving on credit, only a few studies address the impact of access to one financial product on the use of other formal financial products. The general result is that saving and credit are not substitutes, but rather that households use both simultaneously to cover their spending needs. This result is consistent with the evidence observed in most developing economies, as in the case of Latin America (Frisancho and Kalver, 2015). Most studies are interested in the effect of saving on informal financial transactions within the social networks in which the individuals participate. The general conclusion is that formal saving coexists with informal methods and that complement each other to achieve a more efficient result. Moreover, greater participation in the formal financial sector benefits all members of the networks, even those that are excluded.

With regard to the methodology used to evaluate the effects of the different interventions at the micro level, randomized interventions have become widely used instruments as a way of measuring causal effects in the recent literature on economic growth. This is possible because such methods are based on the random assignment of participants from different studies between the individuals that effectively are assigned a particular treatment in the study and those that are not assigned to this treatment, and thus are considered the control group.

For their part, studies that evaluate the macroeconomic effects of financial inclusion are few and recent. In general, most of them are based on the literature of classic growth and financial development models, in which information and transaction frictions limit participation in the formal financial sector. This literature employs rigorous conceptual frameworks to demonstrate the positive effects of financial development on the ultimate determinants of economic growth. In these models, saving directly affects productivity and, therefore, economic growth. This finding also appears in the empirical literature, although the causality is still unclear.

Of the studies reviewed here, it can be inferred that greater participation by economic agents in the formal financial sector has very beneficial and permanent effects on economic growth and stability, although the effect on inequality is ambiguous. The latter result is striking insofar as the programs seem to exert a positive effect on equality at the microeconomic level.

With regard to the effects on financial stability, a matter of increasing interest following the 2008 financial crisis, from the few studies reviewed here it seems that higher participation by the population in the formal sector through saving and insurance positively affects stability. This is because it provides a more diversified and stable base of deposits, more efficient intermediation of resources, and greater household

capacity to deal with shocks and vulnerabilities. In the case of credit, however, the effects of financial inclusion on financial stability are ambiguous.

Although there are few studies at the macro level, most point out that the relationship between financial inclusion and macroeconomic variables may not be direct. Therefore, the microeconomic analysis that seeks both to understand the determinants of saving beyond the neoclassical framework of perfect financial markets (or even of those models of growth that already include information and transaction frictions) and to analyze the mechanisms by which financial decisions affect the different variables, can be extremely useful for increasing understanding of relationships at the macroeconomic level.

This paper therefore concludes by stressing the importance of consistently studying the determinants of individual financial decisions, as well as their potential effects on the well-being of both individuals and society. Social policies aimed at improving the quality of life for underprivileged economic agents, including those that promote both household and business saving and investment, should seek to enhance economic productivity (Levy and Schady, 2013). Although this is not the overt aim of this paper, we share the message contained in the latter reference, by stressing the need for coherence between policies designed to increase the rate of saving and investment by private agents, to regulate the financial system to make it more stable and inclusive and to incentivize productivity and economic growth. Such coherence not only implies a complex problem of coordination between various government entities at a given point in time, but also emphasizes the need for policy congruence over the long term.

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