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Financial capability in  
**COLOMBIA:**  
results from a  
**national survey** on  
financial behaviors,  
attitudes, and knowledge



Financial capability in  
Colombia: results from  
a national survey on  
financial behaviors,  
attitudes, and knowledge

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# Abbreviations

|         |  |
|---------|--|
| BRC     | Central Bank of Colombia (Banco Central de la República)   |
| CONPES  | National Strategy on Social and Economic Policy (Consejo Nacional de Política Económica y Social)                            |
| DANE    | National Statistics Institute of Colombia (Departamento Administrativo Nacional de Estadística)                              |
| FOGAFIN | Colombian Deposit Insurance Fund (Fondo de Garantías de Instituciones Financieras)   |
| GDP     | gross domestic product   |
| IEFIC   | Household Burden and Financial Education Survey (Encuesta de Carga Financiera y Educación de los Hogares)                    |
| INFE    | International Network on Financial Education   |
| OECD    | Organisation for Economic Co-operation and Development   |
| PCA     | principal component analysis   |
| SFC     | Financial Superintendency of Colombia (Superintendencia Financiera de Colombia)  |
| Sisbén  | System for the Selection of Beneficiaries of Social Programs (Sistema de Selección de Beneficiarios para Programas Sociales) |

All dollar amounts are U.S. dollars unless otherwise indicated.

# Executive summary

This first nationally representative survey on financial capability details challenges related to Colombians' financial behaviors, attitudes, and knowledge. Data suggest a disconnect between intended and actual financial behavior. Although 94 percent of Colombians reported budgeting, just 23 percent knew exactly how much they spent in the last week. While 88 percent of Colombians reported concern over future major expenses such as retirement, only 41 percent reported plans to cover their old age expenses fully and just 1 in 5 could fund a major unplanned expense. Even though more than half of those with financial products reported that they comparison shopped and analyzed terms and conditions before selecting products, their analysis may be suboptimal given that 81 percent of the population is unable to calculate a simple interest rate. Limited financial inclusion exacerbates these challenges: 45 percent of the population does not have financial products, and 72 percent has no savings products. Even bank correspondents—retail establishments such as drug stores and gas stations designed to expand financial access by providing basic financial services—are used primarily by those with high financial knowledge and capability. With few ways to smooth income, 65 percent of the Colombian population reports having been short of money to cover basic expenses, either regularly or occasionally. This report provides recommendations aimed at supporting Colombians in turning their good intentions related to financial behaviors into action.

## CONTEXT

Colombia has made solid progress in fostering financial inclusion in recent years. Physical access points for financial services have increased sharply, through programs such as Banca de las Oportunidades that allow banks to offer basic services through correspondents. The government has subsidized accounts for recipients of social transfer programs, and recently an electronic money decree was issued that regulates financial transactions between individuals who are not necessarily linked to a formal financial intermediary. With this increasing penetration of financial services, it is critical to ensure that the Colombian population is equipped to make responsible financial decisions.

Colombian authorities have made financial inclusion a core element of the country's socioeconomic development through enabling policies. In this context, the Central Bank of Colombia (BRC) requested support from the World Bank to develop and execute a nationally representative survey on financial capability. The World Bank worked with counterparts at the BRC to develop and execute the present survey of a nationally representative sample of 1,526 Colombians aged 18 and over. The survey instrument collected data on daily money management practices, financial planning, financial product information and choice, financial knowledge and attitudes, and sociodemographic characteristics.

This report on the survey's results has four objectives:

- To provide empirical evidence on the financial behavior, attitudes, and knowledge of the Colombian population
- To support the design of public policies to enhance both knowledge about and the quality of financial services
- To highlight vulnerabilities and gaps in particular segments of the population with the goal of improving and focusing public policies and interventions where they are most needed
- To provide a basis for international comparison with other countries for which these data are available.

#### DAILY MONEY MANAGEMENT

**Ninety-one percent of those selected to be surveyed reported being responsible for some aspect of their household expenses, with women playing a critical role.** Although just two-thirds of women reported that they contributed financially to the household, 92 percent said they participated in household financial decision making—a higher participation rate than that of men, who collectively contributed to household income at a much higher rate than did women.

**Despite nearly all Colombians reporting that they budget, daily money management is imprecise.** While 94 percent of Colombians reported budgeting how income would be spent, less than a quarter of those surveyed actively monitored spending or had precise knowledge of how much is available for daily expenses.

#### MAKING ENDS MEET AND PLANNING AHEAD

**Despite a relatively short-term planning horizon, over 80 percent of Colombians report a strong achievement orientation.** Most of those surveyed stated that they work hard to be the best, have many aspirations, and look for opportunities to improve their situation. Despite this stated achievement orientation, most

surveyed Colombians have a very short-term planning horizon. Eighteen percent of survey respondents did not report any financial plans, a quarter reported their planning time frame to be one week or shorter, and 21 percent reported a horizon of between one week and one month.

**A majority of Colombians (65 percent) have experienced financial strain, as measured by the amount of income left over after paying for food and other necessities.** Low-income individuals, the elderly, and those with informal sector employment or limited education show vulnerabilities to financial strain. Over half of those who reported running short of money borrowed from family and friends to ease financial strain, and 28 percent of all survey respondents reported owing money to another person.

**More Colombians are planning for the education of their children rather than for unanticipated shocks and their own old age and retirement.** Three-quarters of respondents had dependent children, and 85 percent of those with a dependent child had made some plans to provide for that child's education. However, of those who projected an upcoming major expense, just 23 percent believed they could cover this planned expense; and with regard to unplanned expenses, low-income individuals are particularly vulnerable. Only 41 percent of the population under the age of 60 had made provisions to cover their expenses fully in old age, despite 88 percent citing the ability to fund such expenses as a concern. The most common strategies envisioned to cover old age expenses were to eventually accumulate savings and to continue working through old age.

#### USING AND CHOOSING FORMAL FINANCIAL PRODUCTS

**Of those surveyed, 72 percent do not have any savings products, and 45 percent of those surveyed do not have any financial products at all.** Less than one-quarter of the population has a savings account at a bank or formal financial institution, and about 5 percent use informal savings vehicles. Microinsurance and savings accounts were the most prevalent financial products in Colombia. Credit from formal financial institutions was the most common type of lending product, with 12 percent of respondents reporting having used bank loans. Similar levels of use were reported for credit cards (used by 14 percent of the survey population), life insurance (12 percent), or credit from formal financial institutions (12 percent). Four percent reported using informal rotating savings entities, with 6 percent using informal credit entities such as pawnshops. Users of formal savings products were less likely to report being short of money—of those who do run short of money, 82 percent were not associated with any savings financial intermediary. Many of those receiving benefits from social programs (such as Familias en Acción) have particularly limited usage of formal credit and savings products.

**Although more than half of those with financial products reported selecting their product(s) after comparison shopping and analysis of terms and conditions, the surveyed population has a limited knowledge of interest rates, which may hamper these decisions.** Just one-third of those surveyed could calculate a simple interest rate, which suggests that the general population has difficulty in comprehending percentages. This sheds doubt on the capability of the 55 percent of respondents with financial products who say they actively seek out information and consider many alternatives before making decisions on financial products.

**Close to 69 percent of the surveyed population stated they were never taught how to manage their money, yet most correctly answered questions on basic numeracy, the time value of money, and interest paid on a loan.** More than 60 percent of those surveyed answered at least three out of five financial literacy questions correctly. Parents were the most common source of information for those who had been taught financial education, with women more likely to be taught by mothers, and men more likely to be taught by fathers. Over two-thirds (68 percent) of those surveyed reported getting information or advice for an important financial decision, but just 11 percent reported receiving any current information recently from a financial education program.

#### VARIATIONS IN FINANCIAL CAPABILITY

**Five distinct profiles of financial capability were identified within the Colombian population.** Close to half the population falls into two clusters—“vulnerable money managers” and “very careful low-income money managers”—which are differentiated by the extent to which they monitor spending and are able to cover unexpected expenses. Both groups have similar age, employment, and income profiles, but more of the very careful money managers have financial products that enable them to bridge income gaps and survive financial shocks.

**Financial capability varies by geographic region and age.** For example, inhabitants of the Centro Oriental region show strengths in monitoring expenses and saving behavior, while those in the Sur Occidental region do well with budgeting and obtaining information but have low financial capability in covering unexpected expenses. An analysis of youths in the sample shows that although their behavior is generally on par with adults, they find it more difficult not to overspend compared with older groups and perform more weakly with regard to budgeting behaviors.

#### INTERNATIONAL COMPARISONS

**Compared to those surveyed in six other countries (Armenia, Lebanon, Mexico, Nigeria, Turkey, and Uruguay), Colombians had especially strong budgeting behaviors and achievement orientation.** Colombia had the highest mean scores out of all surveyed countries on these two components. Overall, Colombians also had

high scores on the budgeting, living within means, and not overspending components of financial capability. However, Colombian had a relatively weaker performance than other countries in monitoring their expenses and setting aside funds for unexpected expenses. Relatively low scores related to impulsivity and lack of orientation toward the future were consistent with their lower scores on savings capability.

**With respect to formal financial knowledge, Colombia's level of correct responses to questions related to numeracy, the time value of money, and interest paid on a loan were in line with that of the other countries surveyed.**

However, Colombians had an overall weaker performance related to simple interest rate calculations and understanding of compound interest rates than respondents in the other countries surveyed.

#### LINKAGES BETWEEN FINANCIAL KNOWLEDGE, FINANCIAL BEHAVIOR, AND FINANCIAL INCLUSION

**The results of this study suggest that financial knowledge and capability are important mediators in determining rates of financial inclusion.** In Colombia, a higher level of financial knowledge is associated with a higher financial capability measure for 5 out of 10 components of financial capability and is positively associated with the use of bank accounts. Several components of financial capability also show a positive and statistically significant relationship with measures of financial inclusion such as having a bank account and the probability of using savings products or formal credit. Results suggest that bank correspondents increase access to formal financial products primarily for individuals with high financial capability. For individuals with low financial capability, neither bank branches nor banking correspondents are associated with the use of financial products.

#### POLICY RECOMMENDATIONS

**Increasing financial capability is a crucial element of supporting sound financial decision making in Colombian households and accelerating responsible financial inclusion.** The diversity of challenges identified suggests the need for an approach involving coordinated efforts at national and local levels, working in tandem with government entities, financial institutions, schools, and other stakeholders.

**A multifaceted strategy is needed to address the financial capability challenges listed in this report.** Systematizing a national policy framework on financial capability and education, and a coordination mechanism for those working on financial capability, will help ensure effective policy and program implementation. Development and promotion of tools to enhance decision making by providing people with timely and relevant information can help ameliorate the weaknesses seen in monitoring expenses and support improved financial planning. Encouraging financial insti-

tutions to provide consumers with more enabling product design features could help improve demand for financial products and support savings mobilization which could reduce household vulnerability. Further efforts to strengthen the legal and regulatory framework for financial inclusion will ensure that such products reach more marginalized segments of the population. Attitudes and motivations can be shaped through social marketing, and well-designed financial education interventions can reduce gaps in formal financial knowledge and promote desired financial behaviors. Finally, an effective consumer protection framework is crucial to support the provision of responsible finance in Colombia.

Details of how such interventions could be applied in Colombia are described in greater detail in table E.1, which highlights recommendations to enhance financial capability in the country with respect to the challenges noted above. Recommendations are discussed in detail in chapter 7.

TABLE E.1 RECOMMENDATIONS TO SUPPORT IMPROVED MONEY MANAGEMENT AND FINANCIAL PLANNING AND REDUCE VULNERABILITY IN COLOMBIA

| MAIN CHALLENGE  | POLICY GOAL  | POLICY INSTRUMENT OR PROGRAM<br>(AND SUGGESTED TIME FRAME)   |
|---|--|--|
| Diversity in financial capability challenges requires a clear, coordinated, multi-stakeholder approach  | Ensure effective policy and program implementation   | <ul style="list-style-type: none"> <li>▪ Adopt a clear policy framework to support financial capability—e.g., as defined in the draft National Strategy on Social and Economic Policy (CONPES) <b>(short term)</b></li> <li>▪ Formalize a coordination mechanism for institutions (e.g., the BRC, the SFC, the Ministry of Finance, the Ministry of Education) working to strengthen financial capability to exploit synergies and increase efficiency <b>(short term)</b></li> </ul>  |
| <b>Daily money management and planning ahead</b>  |  |  |
| Less than a quarter of the survey population knew exactly how much they spent in the last week  | Support tools to facilitate tracking of expenses and budgeting   | <ul style="list-style-type: none"> <li>▪ Develop and promote simple budget worksheets, mobile phone- and Internet-based personal finance tools (such as Juntos Finanzas) and their distribution through financial and educational institutions <b>(short term)</b></li> <li>▪ The BRC and the SFC could encourage financial institutions and other stakeholders to use text messages and social media to send simple sustained messages related to personal finance, such as managing account balances, loan repayment, adhering to debt management plans, and other related goals such as savings mobilization <b>(short term)</b></li> </ul>   |
| Just 20 percent of those surveyed felt they could fund a major expense (planned or unplanned) and less than half the population has plans to cover expenses in retirement | <ul style="list-style-type: none"> <li>▪ Encourage people to save for both anticipated and unanticipated major expenses</li> <li>▪ Support planning for predictable life-cycle events</li> </ul> | <ul style="list-style-type: none"> <li>▪ Roll out enabling product design elements for savings mobilization (such as labels for savings accounts, commitment savings accounts future dated mobile payments, and remittance-linked products) to a broader range of the population <b>(short term)</b></li> <li>▪ Enhance the financial education content of websites of financial authorities (such as the BRC and the Colombian Deposit Insurance Fund—FOGAFIN) to focus on events when people might be seeking information about financial decisions <b>(short term)</b></li> <li>▪ Develop financial education interventions to promote savings that could be provided at “teachable moments,” such as at a special milestone—birth of a child, entry into education, retirement—or on receipt of a remittance <b>(medium term)</b></li> </ul> |

*(continued)*

TABLE E.1 RECOMMENDATIONS TO SUPPORT IMPROVED MONEY MANAGEMENT AND FINANCIAL PLANNING AND REDUCE VULNERABILITY IN COLOMBIA (continued)

| MAIN CHALLENGE   | POLICY GOAL  | POLICY INSTRUMENT OR PROGRAM<br>(AND SUGGESTED TIME FRAME)   |
|--|--|--|
| <b>Decisions about financial products and formal financial knowledge</b>   |  |  |
| Over 40 percent of the population does not use financial services, and 72 percent do not use any savings products  | <ul style="list-style-type: none"> <li>▪ Continue to develop financial infrastructure that expands the provision of regulated financial products</li> <li>▪ Support financial inclusion of recipients of social assistance</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Support the passage of the Pague Fácil Pague Digital Law that would support a new class of electronic money issuers to mobilize savings (<b>short term</b>)</li> <li>▪ The SFC could continue to support the outreach of bank correspondents through further enabling regulation (<b>short term</b>)</li> <li>▪ Introduce more competition from private banks into the delivery of Familias en Acción social assistance benefits (<b>medium term</b>)</li> </ul>  |
| Formal financial products, even bank correspondents, are primarily used by individuals with high financial capability or high financial knowledge, but financial education is lacking for more than 70 percent of those surveyed | <ul style="list-style-type: none"> <li>▪ Design financial education interventions systematically, considering global evidence</li> <li>▪ Target interventions to address the vulnerabilities of specific populations</li> <li>▪ Equip low financial capability segments of the population to use financial services</li> </ul> | <ul style="list-style-type: none"> <li>▪ The SFC and other authorities should clarify the definition of what constitutes financial education, and carefully consider the structure of financial education programs provided by financial institutions, given the mixed results of such interventions globally to date (<b>short term</b>)</li> <li>▪ Design programs using insights on the characteristics of key segments and the five main financial capability profiles (e.g., youth tend to overspend) (<b>medium term</b>)</li> <li>▪ Roll out high-quality financial education programs for schools systematically, considering complementary interventions such as education modules that incorporate insights from family members (<b>medium term</b>)</li> </ul>  |
| Weaknesses in ability to calculate interest rates likely hinders decision making on financial products   | <ul style="list-style-type: none"> <li>▪ Support consumer protection interventions that help mitigate effects of limited formal financial knowledge</li> <li>▪ Shape relevant attitudes and behaviors through social marketing</li> </ul>  | <ul style="list-style-type: none"> <li>▪ The SFC could require simplified presentation of financial product pricing information in credit contracts and Internet-based financial product pricing calculators, incorporating insights on good practices in disclosure regimes (<b>medium term</b>)</li> <li>▪ The SFC could consider systematic mass media messaging (such as entertainment education) to protect consumers against potentially deceptive unregulated financial products (<b>short term</b>)</li> <li>▪ The BRC and Colombia's National Administrative Department of Statistics (DANE) could consider expanding their annual Household Financial Burden and Education Survey to unbanked customers in order to better understand the scope of the issue nationally (<b>short term</b>)</li> </ul> |

**Note:** SFC = Financial Superintendency of Colombia.

# Introduction

## 1.1 CONTEXT

Colombia has made solid progress in fostering financial inclusion in recent years. Physical access points for financial services have increased sharply. The program Banca de las Oportunidades was established in 2006 to promote financial inclusion in Colombia. Among other activities, it enables banks to offer basic services through correspondents (for example, retail stores), with 35,746 correspondents registered as of March 2013—more than five times the number of traditional bank branches. There have also been sharp increases in the number of point-of-sale devices and automated teller machines added in the last three years. Consumer credit has become more accessible, in the form of increased penetration by credit and debit cards; and there is greater acceptance of alternative banking technologies. Two million new credit card users were added between 2008 and 2012. The number of loans disbursed through the Colombian financial system increased by 24 percent between 2009 and 2012. Asobancaria reports estimate that market penetration of adults covered by financial services increased from 56 percent in 2008 to 67 percent in September 2012 (Asobancaria 2008, 2012).

Colombian authorities have made financial inclusion a core element of the country's socioeconomic development. In addition to the Banca de las Oportunidades program, an Oportunidades Rurales program has attempted to expand formal financial access to marginalized populations. The government has also subsidized the opening of bank accounts for the vast majority of beneficiaries of the Familias en Acción social transfer program. Regulatory and tax treatment has been lessened for low-balance accounts; this includes exempting them from the 4x1000 tax—a Colombian tax through which 0.04 percent is retained from financial transactions—and introducing simplified account opening procedures. Furthermore, the regulatory and supervisory environment for microcredit has been strengthened. In 2011, a decree on electronic money was issued that regulates financial transactions between individuals who are not necessarily linked to a formal financial intermediary. This focus on responsible financial inclusion is also an integral part of the World Bank strategy to support shared prosperity in Colombia.

With the increasing penetration of financial services, it is critical to ensure that the Colombian population is equipped to make responsible financial decisions. Financial markets and their products have grown in complexity and sophistication. Consumers and small firms face an array of financial decisions regarding credit, securities, insurance, retirement, housing, and education. Colombia has already experienced the negative impacts of a proliferation of Ponzi (pyramid) schemes, which affected an estimated 676,000 people nationwide before the declaration of a social emergency in 2008. And, in the aftermath of the global financial crisis, financial literacy and consumer protection issues have gained new prominence both in Colombia and worldwide.

Regulators have sought to raise awareness about credit and provide financial education to ensure sufficient levels of investor and consumer protection, with the goal of reducing risk to both financial markets and the real economy. Colombian authorities have sought to strengthen the protection of financial consumers through Decree 4327 of 2005, which provided the Financial Superintendency of Colombia (SFC) with a consumer protection mandate; and the Financial Reform Law of 2009, which elaborates the principles of Colombia's financial consumer protection regime and establishes responsibilities for financial institutions regarding the enhancement of information transparency and education on financial products to consumers. Furthermore, a new consumer protection statute (Law 1480 of 2011) entered into effect on April 2012, regulating product liability and penalties and fines available to consumer protection authorities, and authorizing an entity within the SFC with the legal power to resolve conflicts between consumers and financial institutions.

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## 1.2 WHY THIS REPORT?

The Central Bank of Colombia (BRC) requested support from the World Bank to develop and execute a nationally representative survey on financial capability. Although Colombia has a range of complementary studies, this report covers the first nationally representative study to detail the financial behavior, attitudes, and knowledge that comprise financial capability. One complementary national study is the annual Household Financial Burden and Education Survey (IEFIC) jointly undertaken by the BRC and the National Administrative Department of Statistics (DANE). Although its coverage is limited to the banked population of Bogota, unbanked households are also vulnerable to over-indebtedness. Studies such as the 2008 Survey on Informal Financial Services and the 2008 baseline for the Oportunidades Rurales program provided detailed information on household use of the financial system for a subset of the Colombian population. Supply-side data have been used to produce reports on financial inclusion for the banking association Asobancaria and a joint report from SFC and the Banca de las Oportunidades (SFC and BdO 2012).

Global annually updated data sets, such as World Bank's Findex and the International Monetary Fund's Financial Access database, also contain complementary information on financial inclusion.

This report provides insights on consumer behavior, attitudes, and knowledge relevant to initiatives promoting financial education and financial inclusion. Preliminary insights from this study have been used in developing the National Strategy on Social and Economic Policy (CONPES) document outlining the strategy for financial education in Colombia. There is an ongoing debate over measures that would codify a national financial education strategy into law. The findings from this report will be of use to numerous nongovernmental stakeholders (financial institutions, educational institutions, and nongovernmental organizations) that provide financial education and other training to Colombians nationwide. National strategies have the goal of guiding and coordinating public and private initiatives to share best practices and avoid duplication of efforts among the many public and private sector initiatives addressing this issue.

This survey instrument on financial capability was developed and implemented with the support of the Russia Trust Fund for Financial Literacy and Education as part of a global program (box 1.1). An initial phase of qualitative research around the concept of financial capability was conducted in October and December 2010. This phase consisted of 10 focus groups in the urban and rural areas of Bogota, Cartagena, Neiva, Bucaramanga, and Pereira, and was also conducted in a range of low- and middle-income countries worldwide. The focus groups were followed by two phases of 30 in-depth (open) interviews conducted between February and June 2011 which were used to develop the questionnaire on financial capability. This questionnaire was piloted in April 2012 and administered to 1,526 Colombian adults nationwide in June–July 2012 (figure 1.1).

This report has four objectives:

- To provide empirical evidence on the financial behavior, attitudes, and knowledge of the Colombian population
- To support the design of public policies to enhance both knowledge about and the quality of financial services
- To highlight vulnerabilities and gaps in particular segments of the population with the goal of improving and focusing public policies and interventions where they are most needed
- To provide a basis for international comparison with other countries for which these data are available.

## BOX 1.1 SURVEY METHODOLOGY

The Colombia Financial Capability Survey collected a range of information on financial behavior and financial knowledge. The data collected include sociodemographic characteristics, daily money management practices, planning for future events, use of and decisions related to financial products, and financial knowledge. The survey used both objective and attitudinal questions.

The 2012 Colombian survey covered a nationally representative sample of 1,526 adults. Adults over age 18 who reported making financial decisions for their household and/or themselves were eligible for the survey. Respondents were randomly chosen from each eligible and selected household through the use of a Kish grid. Individuals selected for the survey were interviewed face to face in their home by staff of the survey firm Invamer during June and July 2012.

The sample design was probabilistic multiple-stage stratified. The stratification was done by *cabecera-resto*, by substrata regions with a sample proportional to the population of the country, and by unequal *manzanas* or blocks. The selection of blocks was followed by simple random sampling of households and persons. In urban sites, households were ordered clockwise starting with a random household. In rural sites, simple random sampling was used.

Comparable data are available for a range of low- and middle-income countries. The survey questions were developed by the Russia Trust Fund for Financial Literacy and Education, which facilitated the collection of similar data in six other countries: Armenia, Lebanon, Mexico, Nigeria, Turkey, and Uruguay. The Colombia questionnaire was customized to include survey questions on financial knowledge from the Organisation for Economic Co-operation and Development–International Network on Financial Education (OECD/INFE) study, as well as questions on the use of government programs that were not part of the common core on financial capability.

This 2012 survey collected data from adults from all regions of Colombia with a range of sociodemographic characteristics. Females were oversampled, with the sample consisting of 63 percent females and 37 percent males. The full age distribution of the adult population was covered: ages 18–24 (29 percent), 25–46 (35 percent), 47–59 (22 percent), and 60 and older (14 percent). The summary statistics for selected sociodemographic factors are presented in appendix A.

This report describes a baseline measure of the financial capability of the Colombian adult population and highlights key results from the first national survey. Chapter 2 describes key findings related to daily money management and financial planning behaviors and attitudes. Chapter 3 examines decisions related to the use of financial products and level of financial knowledge. Chapter 4 summarizes key behaviors and attitudes into financial capability scores, facilitating the creation of profiles and comparisons among different segments of the population. Chapter 5 presents international comparisons. Chapter 6 examines the relationship between financial capability, financial knowledge, and financial inclusion. Chapter 7 provides policy recommendations related to the key challenges to financial capability identified in the report.

FIGURE 1.1 MAP OF SURVEY COVERAGE



Source: World Bank.

Note: Surveyed states are in blue; nonsurveyed states are in gray.

### 1.3 WHAT IS FINANCIAL CAPABILITY?

The term “financial capability” refers to a broader concept than financial literacy alone. Although the specific definition varies from study to study, financial literacy is often equated with the knowledge and skills needed to make key financial decisions. Studies tend to measure financial literacy based on questions that test knowledge of financial concepts such as the time value of money (inflation), interest rates, compounding, and risk diversification, which are needed to make key financial choices (Huston 2010; Lusardi and Mitchell 2011; Xu and Zia 2012).

Financial capability encompasses an individual's behavior and attitudes related to his or her finances. Approaches differ, but financial capability recognizes that knowledge alone is necessary but not sufficient to make sound financial decisions and to access financial products. The analysis of financial capability that was pioneered in the United Kingdom centered on four areas: managing money, planning ahead, choosing products, and staying informed (Atkinson et al. 2006). A U.S. study (Lusardi 2011) measured Americans' financial capability in four areas: making ends meet, planning ahead, managing financial products, and financial literacy and decision making. This report describes Colombia's financial capability related to daily money management, planning ahead, and choosing financial products; it also explores levels of financial knowledge and the complex relationship between financial capability, knowledge, and inclusion.

Elements of financial capability—particularly financial knowledge—have been linked to a range of behavioral outcomes. Much literature to date has analyzed behaviors related to financial knowledge. Studies on the United States (Lusardi and Mitchell 2009), Italy (Fornero and Monticone 2011), and Japan (Sekita 2011) found that those who are less financially literate are less likely to plan for retirement. Those with more limited financial knowledge are also less likely to choose mutual funds with lower fees (Hastings and Tejada-Ashton 2008). There are also linkages between financial literacy and debt outcomes. Lusardi and Tufano (2009) found that individuals with lower levels of debt literacy tend to transact in a high-cost manner, incurring a higher debt burden and borrowing at a greater cost. The less knowledgeable also report excessive debt loads or that they are unable to judge their debt position. Although there is less evidence to date, attitudes and preferences are also considered to be important elements of financial capability. Mandell and Klein (2007) find evidence supporting motivation as a factor in increasing the financial literacy of respondents.

The findings in this report will facilitate discussion about how best to increase financial capability and boost the ability of people to manage their finances in Colombia. Educational interventions are the most commonly mentioned strategy, but financial capability facilitates a more comprehensive approach that considers behaviors and attitudes to help people make better choices in the context of the services and products available to them.

# Daily money management and financial planning

**F**inancial capability encompasses behaviors and attitudes related to participation in financial decisions, planning and monitoring the use of money, and balancing income and expenses to make ends meet. The survey data suggest a disconnect between individuals' financial goals and actual money management behaviors, given that over 90 percent of the population reported engaging in budgeting, yet the level of precision for money management is low for 75 percent of the population. The data also indicate several signs of financial strain among Colombian adults.

Financial capability also encompasses how well people are able to manage expected and unexpected life events, and the data here suggest that most Colombians have made very limited provisions for both planned future events such as retirement and unplanned future shocks. Less than a quarter of surveyed Colombians believed they could fund a major unplanned expense, with low-income individuals particularly vulnerable.

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## 2.1 CHARACTERISTICS OF FINANCIAL DECISION MAKERS

Both Colombian men and women participate actively in a range of household expenditure decisions, although fewer women reported a contribution to household resources. Of the 1,604 individuals selected to participate in the survey, 91 percent reported being responsible for some aspect of their household expenses, such as planning how money was spent, paying household bills (e.g., rent), and/or making financial decisions for the household; approximately 6 percent reported being responsible for their personal expenses only. Five percent of those selected were not eligible for the survey because they did not make financial decisions for their household or for themselves; this resulted in a total sample of 1,526. Of those surveyed, 72 percent reported contributing to their household budget. Although just two-thirds of women reported that they contributed financially to the household, 92 percent said they participated in household financial decision making. As shown in table 2.1, the participation rate of women in household financial and spending decisions was slightly higher than that of men, nearly all of whom said they contributed financially to the household budget (figure 2.1).

TABLE 2.1 FINANCIAL DECISION-MAKING ROLES

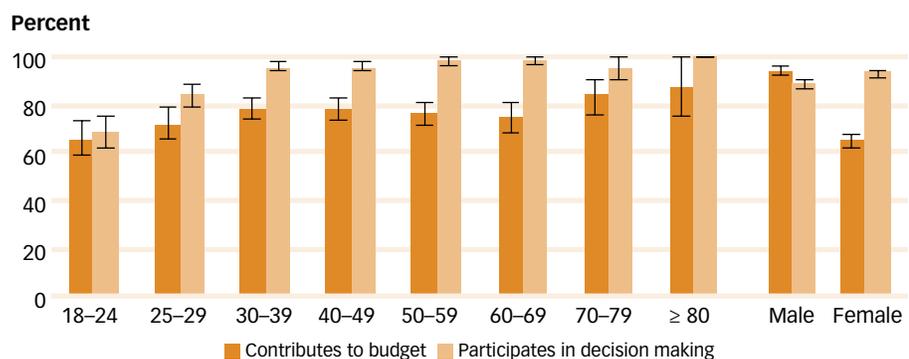
| CHARACTERISTIC          | % MAKING HOUSEHOLD FINANCIAL DECISIONS | % MAKING PERSONAL FINANCIAL DECISIONS | % NOT MAKING ANY FINANCIAL DECISIONS |
|-------------------------|--|---------------------------------------|--------------------------------------|
| Male                    | 84,3                                   | 7,5                                   | 8,2                                  |
| Female                  | 92,2                                   | 4,8                                   | 3,0                                  |
| Age                     |  |                                       |                                      |
| 18–24                   | 76,5                                   | 23,1                                  | 0,4                                  |
| 25–46                   | 92,6                                   | 4,3                                   | 3,1                                  |
| 47–59                   | 91,3                                   | 1,7                                   | 7,0                                  |
| ≥ 60                    | 89,0                                   | 1,5                                   | 9,5                                  |
| Highest education level |  |                                       |                                      |
| Primary or below        | 91,3                                   | 1,9                                   | 6,9                                  |
| Secondary               | 89,5                                   | 6,8                                   | 3,6                                  |
| Tertiary                | 85,0                                   | 10,6                                  | 4,4                                  |

Source: World Bank and Government of Colombia Financial Capability Survey data.

Note: n = 1,604.

Men, young adults, the elderly, and people with higher education are less involved in household financial decision making than other groups. As shown in table 2.1, across age groups, 23 percent of young adults (age 18–24) make only personal financial decisions and 10 percent of the elderly (age 60 and over) do not make any financial decisions. Participation in financial decision making generally increases after age 30, declining slightly after age 60. The survey data also show differences in financial decision making for people with different educational backgrounds. Respondents with tertiary education are more likely to make only personal financial decisions (11 percent compared to 2 percent for those with only primary education or less). Over 80 percent of those who make only personal financial decisions have never been married.

FIGURE 2.1 CONTRIBUTIONS TO THE HOUSEHOLD BUDGET AND ROLE IN FINANCIAL DECISION MAKING, BY AGE AND GENDER

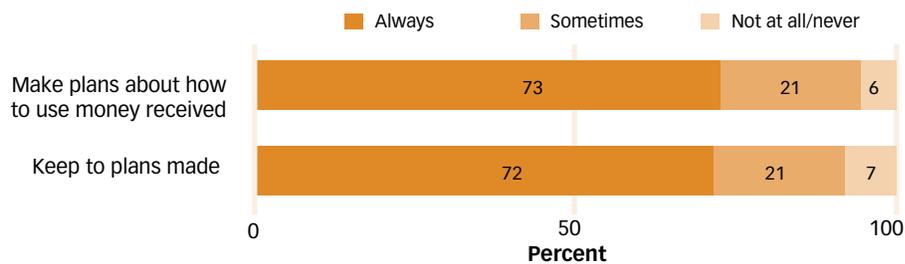


Source: World Bank and Government of Colombia Financial Capability Survey data.

## 2.2 BUDGETING AND MONITORING EXPENSES

Ninety-four percent of the survey respondents said they planned how to use their income, and about two-thirds reported always adhering to these plans (figure 2.2). Respondents who planned were split between those who always planned and those who only planned sometimes. Of those surveyed, 45 percent characterized their plans as exact, 50 percent as rough, and 6 percent reported not making a plan at all. More than half of those not making plans were young adults under age 25; 73 percent of those who did not plan fell into the two lowest income levels.<sup>1</sup> Of those who reported keeping to their expenditure plans, 72 percent reported always keeping to their plans, 21 percent adhered to their plans only sometimes, and 7 percent not at all. Females and urban residents are more likely to make a plan, and urban dwellers are much more likely to make an exact plan than rural dwellers (figure 2.3). Being a woman, a formal sector employee, and over age 60 were all associated with a significantly greater likelihood of making plans about spending.

FIGURE 2.2 MAKING AND ADHERING TO PLANS ABOUT BUDGETING

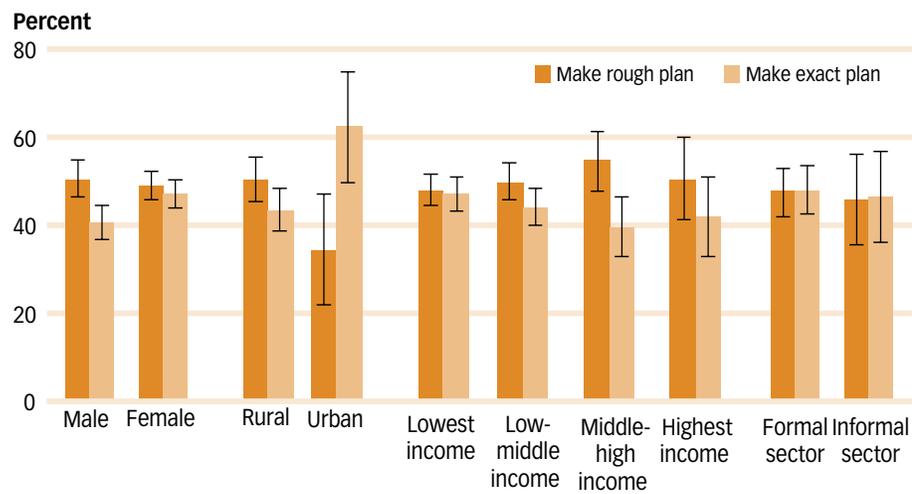


Source: World Bank and Government of Colombia Financial Capability Survey data.

Over half of the survey respondents did not know how much they had available to spend or how much they spent in the last week, suggesting a low level of precision in daily money management. Of the 46 percent surveyed who said they knew how much their household had available for current spending, 24 percent characterized this knowledge as exact rather than rough (figure 2.4). And while 48 percent knew how much they had spent in the last week, just 23 percent said they knew exactly how much they had spent. Of those who do not monitor expenditures, more than half are younger than 25 and 43 percent earn the lowest level of income. Formal sector employees were more likely to have exact knowledge of their spending.

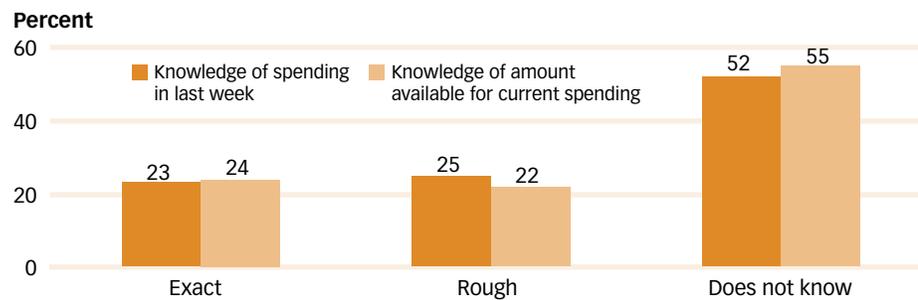
<sup>1</sup> Lowest income: < Col\$650,000; low-middle income: Col\$650,000–Col\$1,300,000; middle-high income: Col\$1,300,000–Col\$2,100,000; highest income: > Col\$2,100,000.

FIGURE 2.3 PLANNING BEHAVIOR BY GENDER, LOCATION, AND INCOME



Source: World Bank and Government of Colombia Financial Capability Survey data.

FIGURE 2.4 PRECISION OF MONEY MANAGEMENT



Source: World Bank and Government of Colombia Financial Capability Survey data.

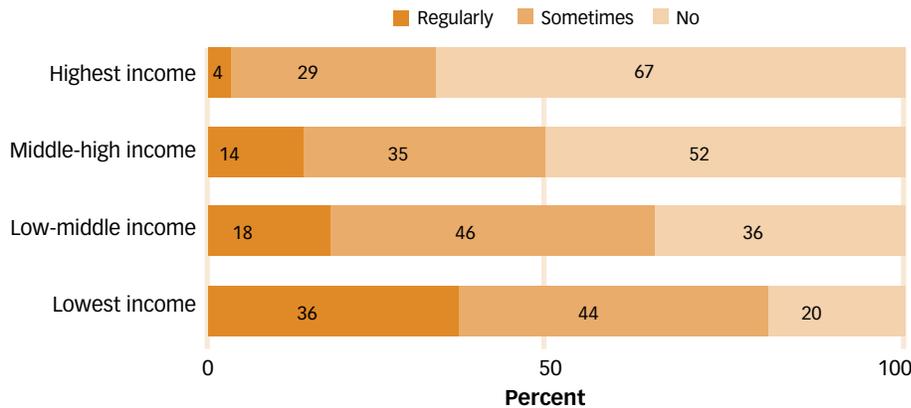
## 2.3 MAKING ENDS MEET: BALANCING INCOME AND EXPENSES

Nearly 70 percent of the surveyed population has experienced financial strain, defined as being regularly or occasionally short of money to cover basic necessities. Twenty-three percent of those surveyed reported being regularly short of money to cover these basic expenses, and an additional 42 percent reported occasional shortfalls. Of those surveyed, 69 percent reported never having money left over after paying for food and other necessities: three-quarters of these people were women, half were under 25 years old, and nearly half were in the lowest level of income. For those who did have leftover funds, saving money as a cushion against unexpected events was by far the most common use for these funds.

Low-income individuals, the elderly, and those with informal sector employment or limited education showed vulnerabilities to financial strain. Low income and a rise in

the cost of living were two of the most commonly cited reasons for failing to cover basic expenses. Not surprisingly, income is highly correlated with being able to make ends meet (figure 2.5). Limited (or no) knowledge of how much money was spent in the last week is correlated with shortfalls in money to cover basic necessities.

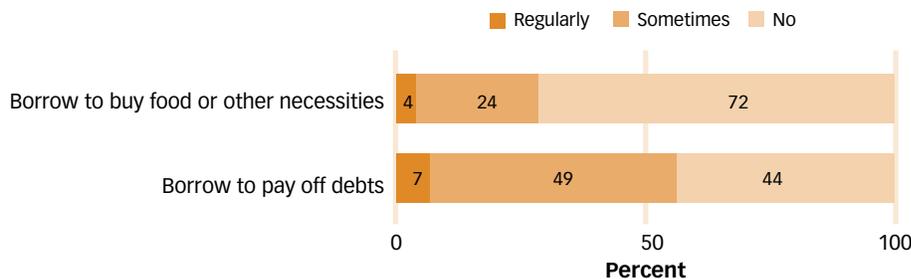
FIGURE 2.5 SHORTFALLS IN MONEY FOR FOOD AND BASIC NECESSITIES



Source: World Bank and Government of Colombia Financial Capability Survey data.

Informal borrowing was a commonly reported coping strategy for easing financial strain. Over half (56 percent) of those who ran short of money cited borrowing from family or friends as their most common solution, while 28 percent reported curtailing their spending. As shown in figure 2.6, 28 percent of those surveyed reported regularly or occasionally borrowing money to buy food or other necessities, while 56 percent reported borrowing to cover other debts. Having less than a high school education and a lower income is correlated with a greater likelihood of borrowing to cover debts. In general, 53 percent of borrowers felt that they had borrowed to their limit, and 14 percent felt they had borrowed more than they could afford; 33 percent felt they could borrow more. These results on indebtedness are similar to data found by the IEFIC (box 2.1).

FIGURE 2.6 COPING STRATEGIES TO COVER SHORTFALLS



Source: World Bank and Government of Colombia Financial Capability Survey data.

## BOX 2.1 COMPLEMENTARY DATA ON INDEBTEDNESS OF BOGOTA'S BANKED POPULATION

Since 2010, the BRC and DANE have fielded an annual IEFIC. This survey attempts to effectively measure levels of indebtedness, saving, and expenditures, as well as household financial knowledge. The survey covers those with a banking relationship or other use of a financial instrument in Bogota, which represents 45 percent of the total loan portfolio of the financial system. Although many of the survey respondents show an overall high level of financial sophistication relative to the respondents of the present financial capability study (more than half of the respondents had a bank account, and one-third were credit card users), these data offer an opportunity to validate certain findings from the present survey.

IEFIC results reveal that most respondents show signs of financial strain. Even among this banked population, most respondents reported that their expenditures were higher than their income; this was particularly true for the lower-income and more poorly educated groups. More than three-quarters of the respondents reported spending their income completely. Only high-income and highly educated groups have some surplus to use for savings, future expenditures, emergencies, etc.

Debt is the most common tool used to cope with a financial imbalance. This may be indicative of low levels of planning or saving for unexpected events. Within the sample where income is lower than expenditure, 47 percent used debt to cover their expenses. The percentage is slightly lower for the highest level of income (41 percent) and higher for those whose highest level of education was elementary or high school (50 percent). Other major ways to cover the imbalance include using savings and help from family and friends.

Most respondents considered their debt level appropriate, and in general people managed to make timely payments on their debts. For those with outstanding debt, 17 percent reported debts exceeding income. Those at higher levels of income or education were likely to agree with a statement characterizing their debt level as appropriate. It is more common among low-income and low-education groups to assert that their debt level is high. People report paying their loans on time: 86 percent overall claimed not to have any overdue loans during the last 12 months. Higher percentages were found among low-income groups (89 percent of the lowest income group) and low-education groups (96 percent of those with no schooling and 90 percent of those with an elementary education). Seven percent of respondents had overdue loans between one and three times during the last year. The proportion is higher for the highest income group (9 percent), versus 4 percent for the lowest income group. Eight percent of college graduates reported overdue loans; none of those without schooling reported overdue loans.

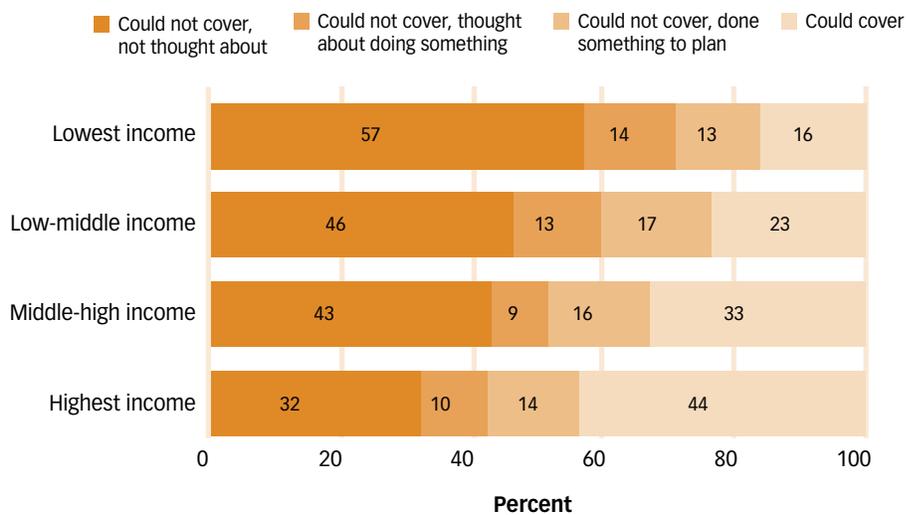
**Source:** Esteban Gómez Gonzalez and Nancy Zamudio Gómez, Financial Stability Department, BRC.

## 2.4 PLANNING FOR MAJOR EXPENSES: EXPECTED AND UNEXPECTED

Of those who projected an upcoming major expense, just 23 percent believed they could cover this planned expense. Thirty-eight percent of those surveyed projected a major upcoming expense in the next year equivalent to one month's income, such as a wedding or other occasion or school fees. Of those who felt they could **not** cover this planned expense, only one-third had made some plans toward covering the expense. Thus, many individuals and households would not be able to draw on personal financial resources even for a planned event.

Less than a quarter of surveyed Colombians believed they could fund a major unplanned expense, with low-income individuals particularly vulnerable. Only 20 percent of those surveyed have done anything to prepare for an unplanned expense equivalent to one month's income. Perceived ability to cope with a major unexpected expense increases greatly with income (figure 2.7). Those employed in the formal sector also project a greater ability to cope with unexpected shocks than those in the informal sector. This vulnerability to shocks is a source of stress: 81 percent of those surveyed feel worried about this situation, including some of those who feel they have the means to cover this unexpected expense.

FIGURE 2.7 ABILITY TO COVER MAJOR UNEXPECTED EXPENSES, BY INCOME GROUP



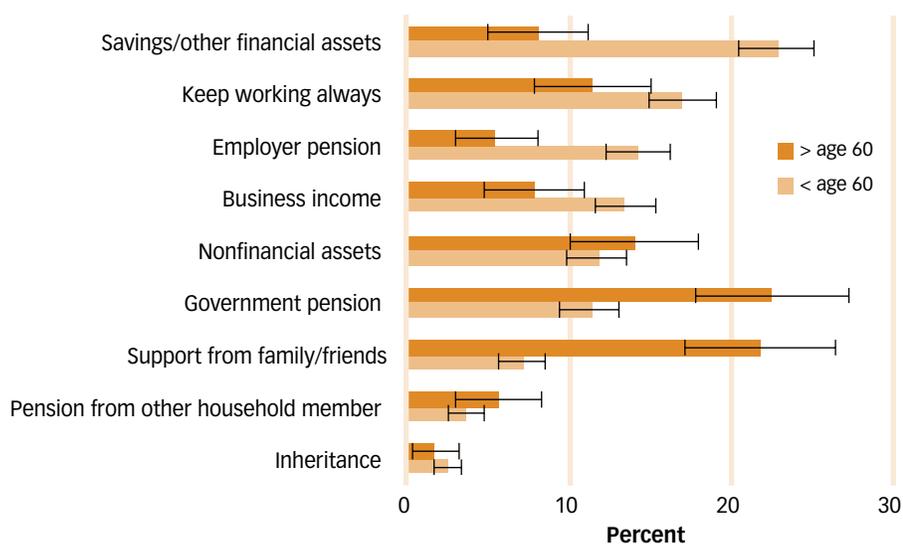
Source: World Bank and Government of Colombia Financial Capability Survey data.

## 2.5 PLANS FOR CHILDREN'S FUTURE AND OLD AGE

Nearly all of those surveyed with dependent children in their household had some plans to support their children's future. Of the population surveyed, 61 percent has dependent children in the household, and 85 percent reported plans for their children's education, 27 percent reported saving money for an inheritance, and 16 percent were saving for their children's future through investments.

On the other hand, only 41 percent of the population under the age of 60 has made provisions to cover their expenses fully in old age. The most common strategies employed by those under age 60 to cover expenses in old age were to accumulate savings or other financial assets and to continue to work (figure 2.8). Of those surveyed who were under the age of 60, about 25 percent were contributing to

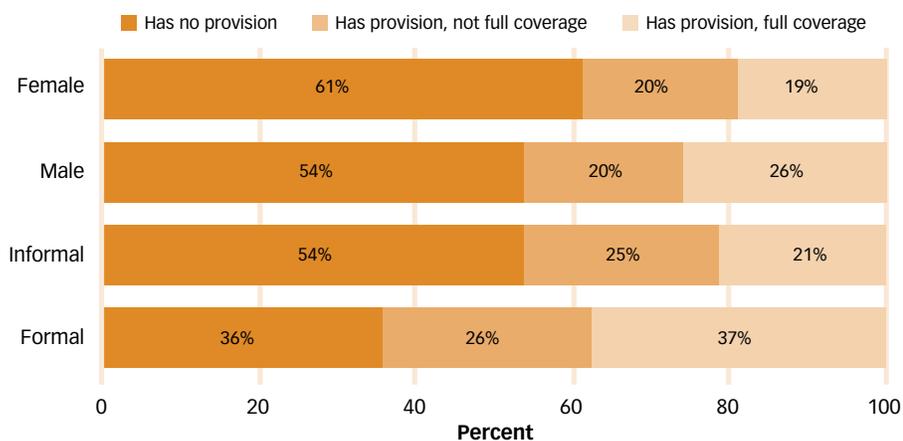
FIGURE 2.8 STRATEGIES EMPLOYED TO COVER OLD AGE EXPENSES



Source: World Bank and Government of Colombia Financial Capability Survey data.

a pension, either through an employer or the government. Less than a quarter (21 percent) believed that the strategies they were pursuing would fully cover their expenses in old age, 20 percent reported partial coverage, and 59 percent reported they had no strategies in place for coverage at all. Unsurprisingly, a higher percentage of those who are employed informally have no provisions for old age, as they do not benefit from government- or employer-provided support (figure 2.9).

FIGURE 2.9 COVERAGE OF OLD AGE EXPENSES, BY GENDER AND EMPLOYMENT (<60 YEARS OF AGE)



Source: World Bank and Government of Colombia Financial Capability Survey data.

A higher percentage of women than men have no provisions for old age, likely reflecting their more limited participation in the formal labor force. The vast majority of those surveyed (88 percent) cited the ability to fund old age expenses as a source of concern. However, the perceived coverage for old age spending varies across age groups. Eighty-six percent of young adults (age 18–24) reported having provisions in place, compared to about three-quarters of people age 25–46 and 47–59.

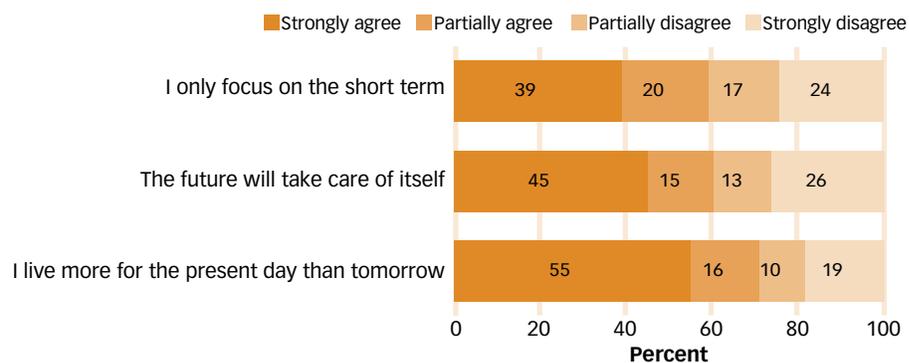
Sixty-five percent of those over age 60 reported having insufficient or no provisions for old age expenses. A government pension was the most commonly reported strategy, used by 23 percent of the over-60 population, with support from family and friends playing an almost equally important role (reported by 22 percent) (figure 2.8). Fourteen percent reported holding nonfinancial assets (house, livestock, jewelry, etc.) for expenses; 11 percent stated they would have to keep working.

## 2.6 ATTITUDES

More than half (55 percent) of the respondents indicated an orientation toward the present rather than the future (figure 2.10). Those expressing this attitude were on average older, slightly less likely to work in the formal sector, and had a lower income level. This orientation toward the present was correlated with statements in which the respondents identified themselves as impulsive.

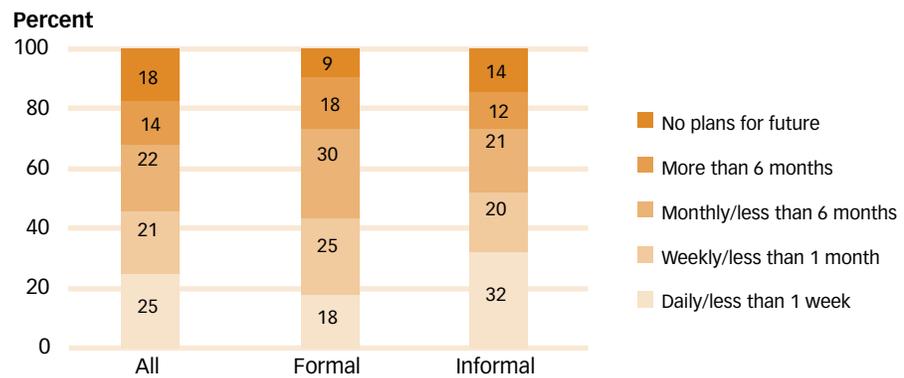
Eighteen percent of survey respondents did not report any financial plans, and a quarter reported their planning time frame to be one week or shorter. As shown in figure 2.11, 25 percent of Colombians report a planning time horizon of less than one week, 21 percent between one week and one month, 22 percent between one month and six months, and 5 percent of more than six months. Those who are employed in the formal sector report longer time horizons, as do those in higher income groups.

FIGURE 2.10 ATTITUDE TOWARD THE FUTURE



Source: World Bank and Government of Colombia Financial Capability Survey data.

FIGURE 2.11 FINANCIAL PLANNING HORIZONS

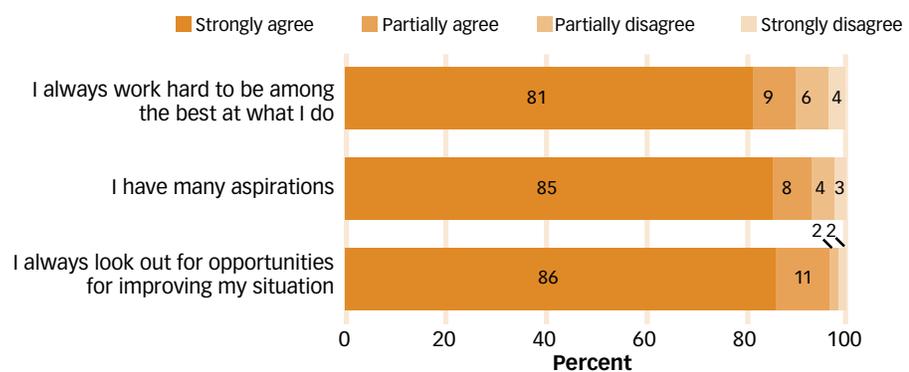


Source: World Bank and Government of Colombia Financial Capability Survey data.

Stable incomes can facilitate access to products and services, which can facilitate planning, such as automatic deductions for savings or pension accounts.

Over 80 percent of the survey respondents reported a strong achievement orientation (figure 2.12). Most Colombians strongly agree with statements affirming that they work hard to be the best, have many aspirations, and look for opportunities to improve their situation. Those who strongly agree are generally slightly younger, employed, and with more income and education.

FIGURE 2.12 ACHIEVEMENT ORIENTATION



Source: World Bank and Government of Colombia Financial Capability Survey data.

# Decisions about financial products and financial knowledge

How people choose financial products that are appropriate for their needs and how they make choices between similar financial offerings is an important part of financial capability. This chapter provides a brief overview of the usage of financial products in Colombia and explores how decisions about financial products are made. Financial inclusion remains a challenge: 45 percent of the population did not report any financial product usage, and 72 percent did not use any savings product. One-third of borrowers felt they could take on higher levels of debt, and those using informal financial products were more likely to feel over-indebted. Although more than half of those with financial products reported comparison shopping and analyzing terms and conditions before selecting the product, the inability of 65 percent of the population to calculate a simple interest rate calls into question the utility of this analysis. Close to 69 percent of the surveyed population stated they were never taught how to manage their money by anyone; 22 percent reported that they had been taught by a parent. Although most reported seeking information or advice for an important financial decision, just 11 percent reported having received current information recently from any financial education program.

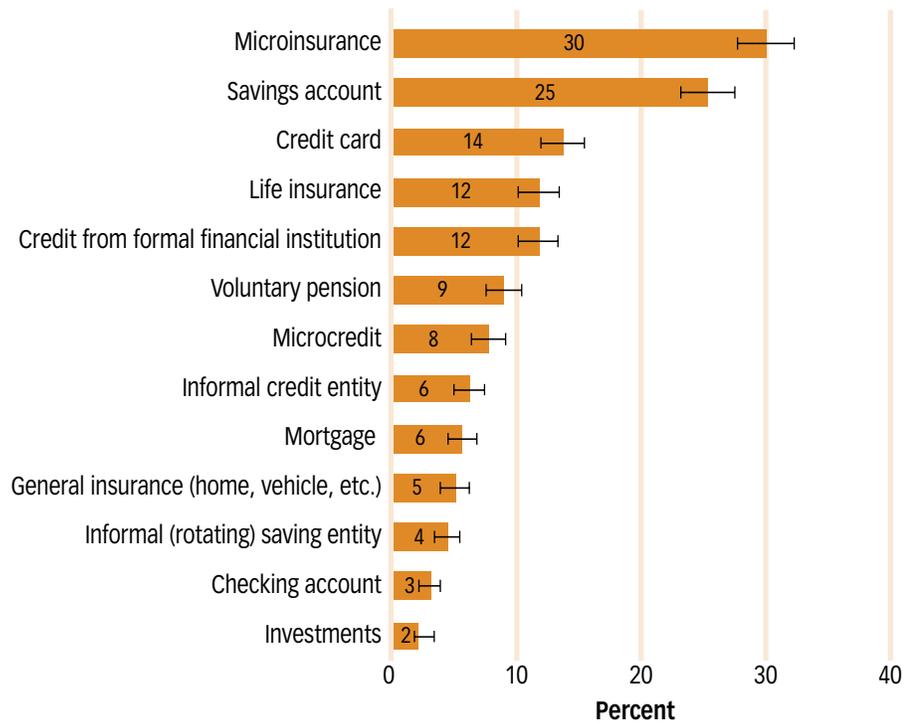
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## 3.1 USAGE OF FINANCIAL SERVICES

Among the financial products utilized by the Colombian population, microinsurance and savings accounts were the most prevalent. Nearly one-third of those surveyed reported having microinsurance (figure 3.1), a high level of penetration not found in other data sources (box 3.1), which could suggest confusion around the term or that funeral insurance (included in the category of microinsurance) is more common than previously believed. The next most commonly reported product was savings accounts from formal financial institutions, used by one-quarter of the population.

Forty-five percent of those surveyed did not report any current financial product usage. Credit cards, life insurance, and credit from formal financial institutions were each used by more than 10 percent of the population. Credit from formal financial institutions was the most common lending product, with 12 percent of respondents using it. Informal financial products were used by a smaller fraction of the popula-

FIGURE 3.1 PERCENTAGE OF THE POPULATION CURRENTLY USING TYPES OF FINANCIAL PRODUCTS



Source: World Bank and Government of Colombia Financial Capability Survey data.

tion: 4 percent uses informal rotating savings entities and 6 percent uses informal credit entities such as pawnshops. Checking accounts and investment products had low penetration in the Colombian population.

Use of financial products (savings and checking accounts, credit cards, personal loans, mortgages, and insurance) is more prevalent among men, urban residents, high-income earners, and formal sector employees. Certain demographic groups—including women, rural residents, and the low-income—are less likely to use almost any financial products (figure 3.2). Among respondents who reported no use of any financial products, income is low on average as is representation in the formal workforce. The survey results show that, other than the use of informal saving, a higher percentage of men than women use financial products, with substantial differences in their respective use of savings accounts (17 percent), voluntary pensions (8 percent), and life insurance (8 percent). The higher income group (that with a monthly income exceeding Col\$650,000) uses significantly more financial products across all categories than do the lower income group. Informal sector workers are more frequent users than formal of informal credit and microcredit entities.

## BOX 3.1 COMPARING DIFFERENT DATA SOURCES ON FINANCIAL PRODUCT USAGE IN COLOMBIA

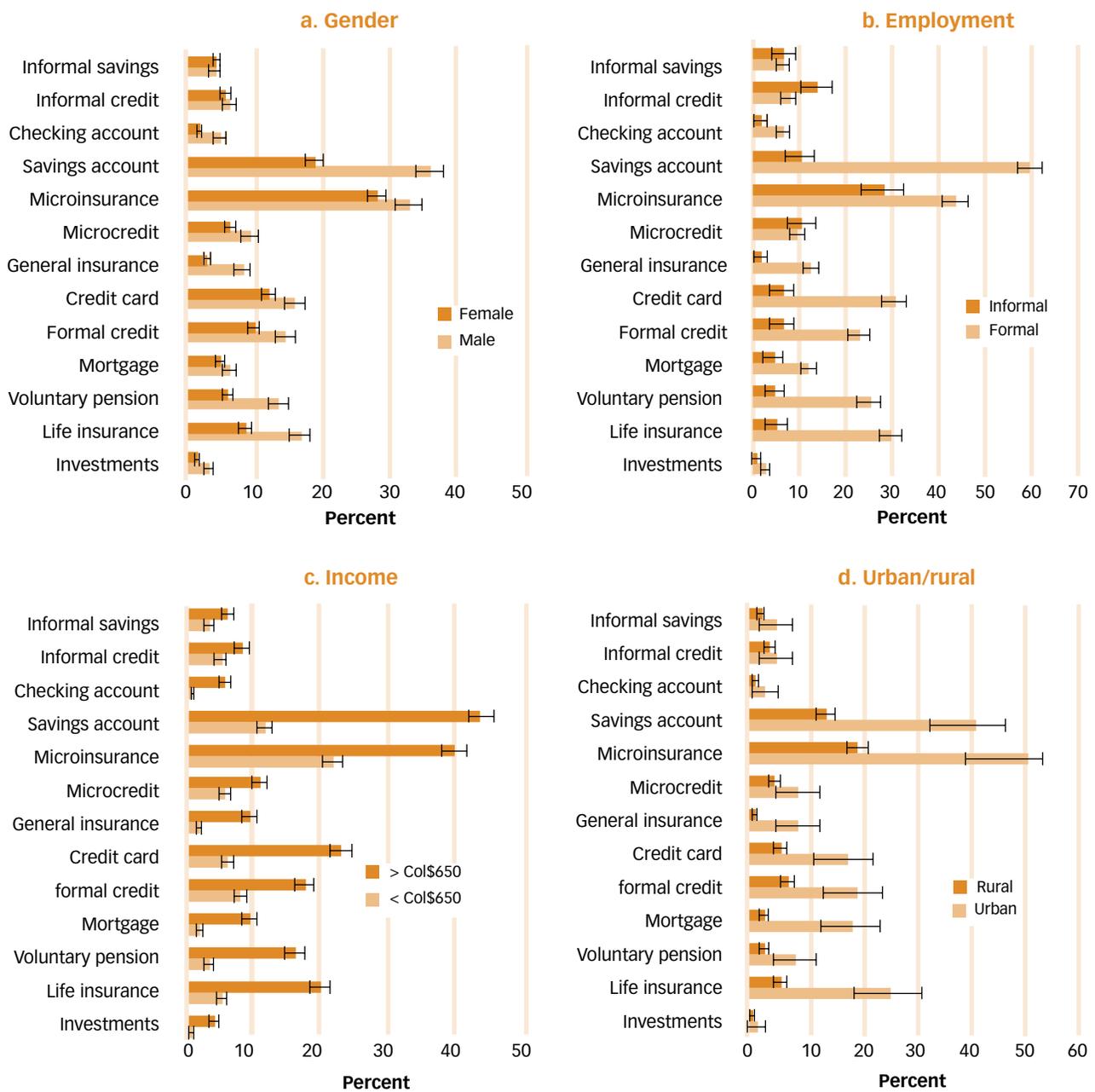
Colombia has a wealth of data on financial inclusion from data sets with different scopes, indicator definitions, and coverage. Here we compare the financial capability data set discussed in this report to two additional data sets that provide complementary information on the development of financial inclusion in Colombia: (1) Colombia's *Reporte de Inclusión Financiera*, which extensively covers the usage of financial products and barriers to that usage, the intended use of remittances, access to financial channels, and elements of financial capability, financial education, and consumer protection; and (2) the Global Financial Inclusion database (Global Findex), a survey conducted in 148 countries around the world, including Colombia, that measures how adults save, borrow, make payments, and manage risk.

The three data sets cover some similar indicators, providing the opportunity to compare data gathered using different methodologies and question formulations. As shown in the table below, some indicators are of similar magnitudes, such as credit from formal financial institutions and credit card usage from the Financial Capability Survey and Findex. However, use of financial account data differs by 5 percent. The *Reporte de Inclusión Financiera* shows statistics on the use of financial products that come from supply-side data from financial institutions, although estimates could be made for product penetration using an estimate of the Colombian adult population. Even among similar surveys, difference in the wording of survey questions, methodologies, and targeted populations could lead to differences in financial inclusion indicators. Triangulating these data sets enables policy makers to have a more nuanced understanding of financial inclusion.

| ITEM                  | FINANCIAL CAPABILITY SURVEY (2012)  | FINDEX (2011)   | REPORTE DE INCLUSIÓN FINANCIERA (2012)  |
|-----------------------|---|---|---|
| Indicators            | <ul style="list-style-type: none"> <li>▪ Savings account: 25.4%</li> <li>▪ Credit card: 14%</li> <li>▪ Credit from a formal financial institution: 11.8%</li> </ul> | <ul style="list-style-type: none"> <li>▪ Account at a formal financial institution: 30.4%</li> <li>▪ Credit card: 10.2%</li> <li>▪ Loan from a financial institution in the past year: 11.9%</li> </ul> | <ul style="list-style-type: none"> <li>▪ Number of savings accounts per 10,000 adults: 11,897</li> <li>▪ Total number of credit cards: 9.4 million</li> </ul> |
| Managing entity       | World Bank, BRC   | World Bank  | SFC, Banca de las Oportunidades   |
| Number of respondents | 1,526   | 1,000   | Supply-side data from financial institutions  |
| Age                   | 18+   | 15+   |   |
| Sample                | Financial decision makers   | Individuals   |   |

Many of those receiving benefits from social programs (such as Familias en Acción) reported particularly limited usage of formal credit and savings products. Half of the surveyed population reported support through the System for the Selection of Beneficiaries of Social Programs (Sisbén), a social program targeted to the low-income population (table 3.1). Over 10 percent received support through a Red Hospitalaria, a hospital network; Familias en Acción; and Family Compensation Funds. Most people covered under the Sisbén, Red Hospitalaria, and Familias en Acción programs do not

FIGURE 3.2 VARIATIONS IN FINANCIAL PRODUCT USAGE, BY SOCIODEMOGRAPHIC SEGMENT



Source: World Bank and Government of Colombia Financial Capability Survey data.

have any savings or credit products, formal or informal. In contrast, beneficiaries of the Family Compensation Funds program have a much higher use of formal savings and credit products; these survey respondents tended to be urban, with half working in the formal sector and 80 percent having savings in formal or informal institutions.

Most of the surveyed population does not save, but those who do most commonly saved for unforeseen shocks. The data show that 72 percent of those surveyed do

TABLE 3.1 USE OF SOCIAL PROGRAMS AND FINANCIAL PRODUCTS BY SURVEY RESPONDENTS (%)

| SOCIAL PROGRAM<br>(% PARTICIPATION RATE) | SAVINGS PRODUCT                   |                                 |               | CREDIT PRODUCT   |                  |                         |               |
|--|-----------------------------------|---------------------------------|---------------|------------------|------------------|-------------------------|---------------|
|  | SAVINGS OR<br>CHECKING<br>ACCOUNT | INFORMAL<br>SAVINGS<br>ENTITIES | NO<br>PRODUCT | FORMAL<br>CREDIT | MICRO-<br>CREDIT | IN-<br>FORMAL<br>CREDIT | NO<br>PRODUCT |
| Sisbén (50)                              | 18                                | 19                              | 54            | 9                | 7                | 8                       | 80            |
| Red Hospitalaria (16)                    | 27                                | 28                              | 40            | 14               | 10               | 10                      | 73            |
| Familias en Acción (15)                  | 19                                | 16                              | 61            | 11               | 10               | 6                       | 82            |
| Family Compensation Funds (13)           | 54                                | 48                              | 20            | 22               | 13               | 9                       | 65            |

Source: World Bank and Government of Colombia Financial Capability Survey data.

not use savings accounts, checking accounts, or informal savings (rotating) entities. About one-third of savers use savings or checking accounts or informal (rotating) savings entities to save for unforeseen events (table 3.2). A slightly larger proportion, 36 percent, of those who save without the assistance of a financial intermediary also are saving for unforeseen events. Less commonly cited motivations for saving are to cover fluctuations in income or investment in business or assets. A higher percentage of savers using a savings or checking account reported saving to cover fluctuations in income or a planned future purchase compared with those saving in informal savings entities or those without some form of savings account.

Users of formal savings services were less likely to report being short of money. Of those who used savings or checking accounts, 34 percent reported that they never ran short of money for food and other necessities. In comparison, a higher

TABLE 3.2 REASONS FOR SAVING BY RESPONDENTS WHO SAVE (%)

| REASON                                       | RESPONDENTS WITH                  |                                 |                       | ALL<br>RESPONDENTS |
|--|-----------------------------------|---------------------------------|-----------------------|--------------------|
|  | SAVINGS OR<br>CHECKING<br>ACCOUNT | INFORMAL<br>SAVINGS<br>ENTITIES | NO SAVINGS<br>ACCOUNT |                    |
| Unforeseen events, emergencies, medical fees | 34.3                              | 32.8                            | 36.2                  | 35.5               |
| Covering fluctuations in income              | 11.9                              | 4.2                             | 5.8                   | 8.3                |
| Food and other necessary items               | 10.5                              | 9.1                             | 11.2                  | 10.8               |
| A known major expenditure                    | 18.7                              | 28.9                            | 10.6                  | 14.0               |
| A planned future purchase                    | 17.4                              | 14.7                            | 7.3                   | 11.7               |
| No specific purpose in mind                  | 13.4                              | 14.6                            | 11.5                  | 12.1               |
| Investment in business                       | 7.6                               | 9.1                             | 4.5                   | 6.1                |
| Investment in assets                         | 6.8                               | 14.1                            | 0.6                   | 3.2                |

Source: World Bank and Government of Colombia Financial Capability Survey data.

percentage (47 percent) of users of informal savings entities and 34 percent of people without formal or informal savings accounts ran short of money. Of those who ran short of money, 82 percent are not associated with any saving financial intermediary.

Although one-third of borrowers felt they could take on higher levels of debt, those using microcredit and informal financial products were more likely to feel over-indebted (table 3.3). More than 30 percent of those who reported borrowing from formal financial institutions, microcredit entities, and informal credit entities, as well as those without these borrowing channels, felt they could afford to borrow more. Interestingly, 40 percent of borrowers of formal financial institutions felt this way, a significantly higher percentage than of people using less formal financial institutions (microcredit, informal financial institution) and those using neither formal nor informal financial institutions. Higher fractions of borrowers from microcredit and informal credit entities feel they have borrowed to their limit (48 percent and 52 percent, respectively). Female debtors were slightly more likely than males to report that they had borrowed more than they could afford, while debtors in higher income groups and urban dwellers were most likely to feel they could borrow more.

TABLE 3.3 PERCEPTION OF BORROWING CAPACITY BY RESPONDENTS WHO BORROW (%)

| PERCEPTION   | RESPONDENTS BORROWING FROM    |                      |                          | ALL RESPONDENTS |
|--|-------------------------------|----------------------|--------------------------|-----------------|
|  | FORMAL FINANCIAL INSTITUTIONS | MICROCREDIT ENTITIES | INFORMAL CREDIT ENTITIES |                 |
| Could afford to borrow more                                    | 39.6                          | 35.9                 | 31.8                     | 32.5            |
| Have borrowed to the limit and could not afford to borrow more | 49.2                          | 47.9                 | 52.1                     | 53.4            |
| Have borrowed more can afford                                  | 11.2                          | 16.2                 | 16.1                     | 14.0            |

Source: World Bank and Government of Colombia Financial Capability Survey data.

## 3.2 MAKING DECISIONS ABOUT FINANCIAL PRODUCTS

More than half of those with financial products reported choosing them carefully. At least 55 percent of the survey respondents with financial products (who constitute half of the total sample) reported searching for information and considering many alternatives when making a decision on financial products. Further, when considering financial product options, 64 percent of respondents reported verifying the terms and conditions in detail (table 3.4). On the other hand, with over 30 percent of those with financial products making limited efforts to obtain product-related information,

TABLE 3.4 RESPONDENT DILIGENCE IN MAKING FINANCIAL PRODUCT DECISIONS, BY TYPE OF PRODUCT (%)

| ACTION TAKEN IN MAKING DECISION                     | SAVINGS OR CHECKING ACCOUNT | INFORMAL SAVINGS ENTITY | FORMAL CREDIT VEHICLE | MICRO-CREDIT | INFORMAL CREDIT ENTITY/ PAWNSHOP | ALL RESPONDENTS |
|---|-----------------------------|-------------------------|-----------------------|--------------|----------------------------------|-----------------|
| Look for information from distinct sources          | 61                          | 48                      | 66                    | 61           | 62                               | 55              |
| Consider various alternatives before deciding       | 63                          | 48                      | 64                    | 61           | 61                               | 55              |
| Look to find the most appropriate product for needs | 65                          | 54                      | 65                    | 63           | 73                               | 60              |
| Verify terms and conditions before contracting      | 77                          | 71                      | 82                    | 73           | 69                               | 71              |
| Verify terms and conditions in detail               | 64                          | 67                      | 58                    | 58           | 62                               | 64              |

Source: World Bank and Government of Colombia Financial Capability Survey data.

this raises concerns as to whether a large segment of the Colombian population is identifying financial products that fit their needs.

People using formal financial services report performing more analysis in making product decisions than people using informal products. A higher percentage of people with savings or checking accounts look for information, consider alternatives, look for the best product, and verify terms and conditions before contracting than people using informal savings entities. Similarly, people who borrow from formal financial institutions are much more likely to verify terms and conditions before contracting than those who receive credit from pawnshops. Formal sector employees reported gathering more information before making financial product decisions than informal workers. Finally, 12 percent more people from the high-income group consider alternatives and verify terms and conditions in detail than those from the low-income group.

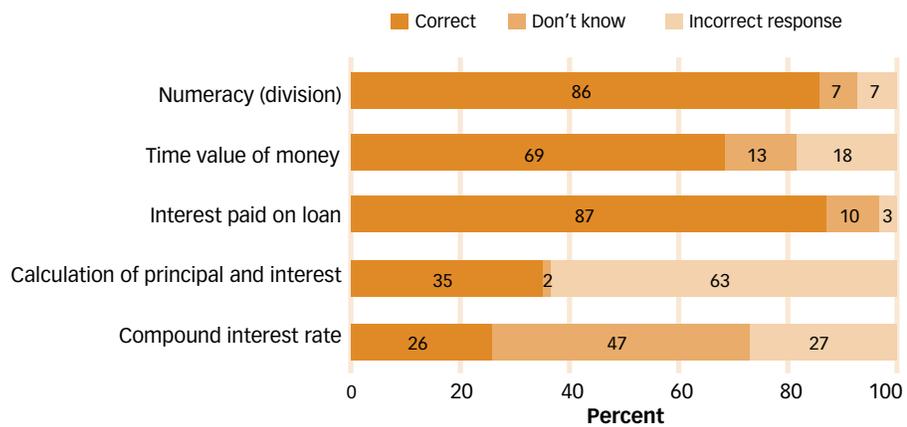
### 3.3 FINANCIAL KNOWLEDGE

Financial knowledge, or financial literacy, refers to the understanding of financial concepts that complements financial capability (Lusardi and Mitchell 2011). Understanding these concepts helps individuals make sound decisions regarding saving, borrowing, and investment. Financial knowledge is analyzed separately from the other components of financial capability in order to maintain the cross-country comparability of results, since not all countries in the financial capability project used the same set of questions to measure financial knowledge. In Colombia, the survey

included five questions related to financial knowledge, ranging from relatively basic questions testing numeracy (division) to more complex interest rate calculations.

The majority of survey respondents correctly answered questions related to basic numeracy, the time value of money (inflation), and interest paid on a loan. Figure 3.3 shows the distribution of responses to questions measuring respondents' levels of financial knowledge. Over 80 percent correctly answered a basic question testing numeracy (division) and a question testing their understanding of the concept of interest paid on a loan. Close to 70 percent understood the concept of the time value of money—that a given amount of money today has a different level of buying power than the same amount of money in the future.

**FIGURE 3.3** DISTRIBUTION OF RESPONSES TO FINANCIAL LITERACY QUESTIONS



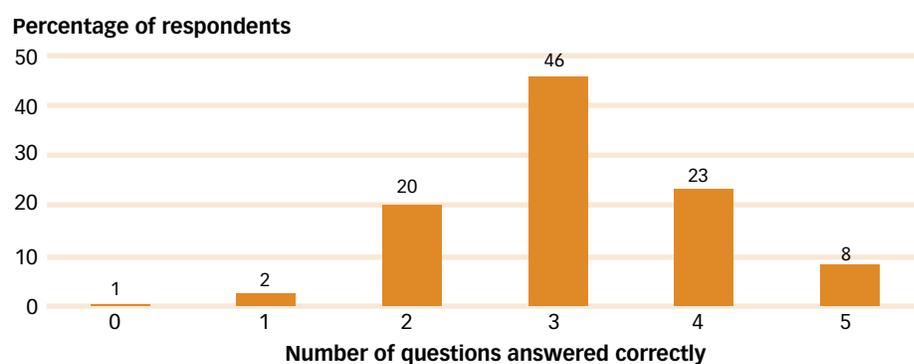
Source: World Bank and Government of Colombia Financial Capability Survey data.

Most of those surveyed were unable to perform interest rate calculations. Only 35 percent of those who chose to answer a question on simple interest rates answered correctly (there was a high rate of nonresponse), and just 26 percent could answer a multiple-choice question testing their understanding of the concept of compound interest.<sup>1</sup> The low levels of correct responses for these interest rate calculations suggest that most people find it more difficult to calculate a percentage than to do division. This lack of understanding calls into doubt the ability of many Colombians to make fully cognizant decisions about financial products.

<sup>1</sup> In a cross-country study, Atkinson and Messy (2012) recorded a response to a multiple-choice compound interest question as correct only if the respondent also correctly answered an open-ended simple interest rate calculation. If the latter practice were used, 10 percent of the Colombians surveyed would be considered as having answered the compound interest question correctly, a result highlighted in chapter 5.

Over 60 percent of those surveyed answered at least three of the financial literacy questions correctly (figure 3.4). Twenty-three percent answered fewer than three questions correctly. However, calculating a financial knowledge score using a simple sum of correct answers makes the assumption that all of the questions asked are equivalent, when some might be considered more important or complex than others. Men and those with higher education and higher income were more likely to answer the financial knowledge questions correctly. Regression results show that being an urban resident or a formal sector employee was not significantly associated with higher financial knowledge, controlling for other characteristics such as gender, age, education, and income.

**FIGURE 3.4 DISTRIBUTION OF CORRECT FINANCIAL KNOWLEDGE RESPONSES**

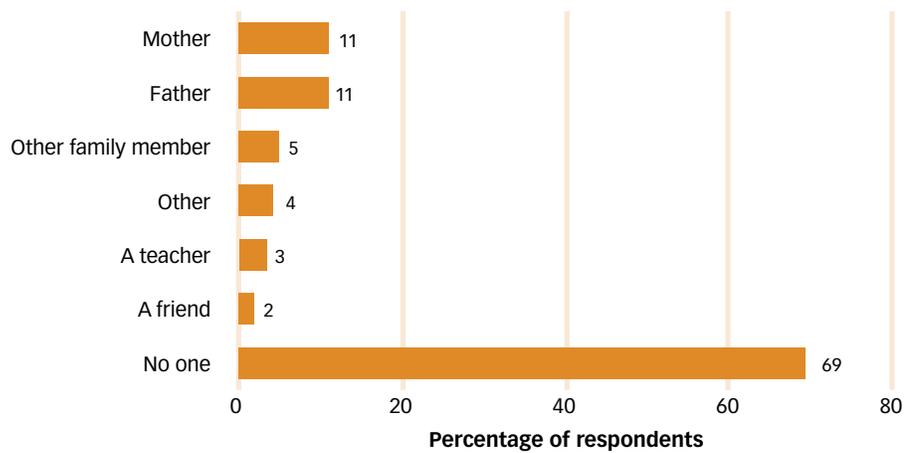


**Source:** World Bank and Government of Colombia Financial Capability Survey data.

Close to 69 percent of the surveyed population stated they were never taught how to manage their money (figure 3.5). For those who were taught how to manage their money, mothers and fathers were the most common sources of guidance, each cited by 11 percent of those surveyed. These results were correlated with age, education, and residency: the older the person, the less frequently they reported being taught money management; the higher the education level, the more frequently they reported having been taught money management, and urban residents generally were more likely to report having been educated on money management. Women were slightly more likely to name their mothers as having educated them, while men were more likely to report their fathers.

Although 68 percent of those surveyed reported getting information or advice for an important financial decision, just 11 percent of those surveyed reported having received any current information recently from any financial education program. Lower-income individuals, already more vulnerable to financial shocks, were less likely to report receiving advice on important financial decisions. For the small fraction of those surveyed who did receive information on financial education, TV, radio

FIGURE 3.5 DISTRIBUTION OF SOURCES OF MONEY MANAGEMENT INFORMATION



**Source:** World Bank and Government of Colombia Financial Capability Survey data.

**Note:** Results do not total 100, because respondents could choose multiple responses.

and media reports were the most commonly cited sources. Less than 1 percent of the survey population had participated in the financial education program of Banca de las Oportunidades.

# Variations in financial capability

In this chapter, different behavioral and attitudinal components of financial capability are compared—facilitating identification of strengths and weaknesses both among different segments of the Colombian population and internationally. These components are used to construct distinct profiles of financial capability with the goal of highlighting the diversity of challenges for specific groups. Close to half of Colombia’s population falls into two profile groups: “vulnerable money managers,” and “careful, low-income, money managers.” These profiles are differentiated by the extent to which they monitor spending and are able to cover unexpected expenses. Further analysis of variation in financial capability by region shows a mixed performance across regions for different components of financial capability. An analysis of youth in the sample shows that, although their behavior is generally on par with that of adults, they find it more difficult not to overspend compared to older age groups and score lower on budgeting behaviors.

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## 4.1 COMPONENTS OF FINANCIAL CAPABILITY

Financial capability is a multidimensional concept for which 10 distinct components have been identified. These 10 components, which span a range of behaviors and attitudes related to daily money management, planning ahead, and choosing financial products, are drawn from a report of the Russia Trust Fund for Financial Education and Literacy summarizing results from seven countries that participated in the Trust Fund’s financial capability measurement project (Kempson, Perotti, and Scott 2013). These components were determined through principal component analysis<sup>1</sup> and represent

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<sup>1</sup> Principal component analysis is a data reduction method that uses the correlation structure of variables in the data set to find the smallest possible number of linear combinations of these variables that best synthesize the information contained in the data (see appendix A). Once a combination of variables is identified as explaining or “loading on” the same underlying component, a single component score can be calculated based on a weighted average of the variables in the combination. The weights are the coefficients obtained through the principal component analysis. The goal is to aggregate variables that measure different nuances of the same component in order to obtain a single measure for that component to facilitate analysis and international comparisons.

a means of consistently measuring the dimensions of financial capability across all seven countries in the project. Not all of the countries participating in the project chose to collect information on financial knowledge, so that concept is discussed separately. The 10 components of financial capability are detailed in table 4.1.

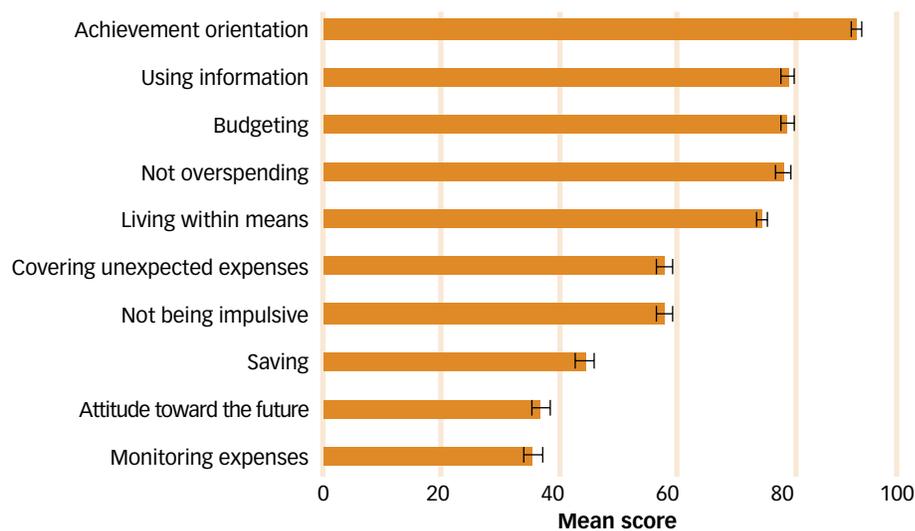
The mean score is calculated for each component on a scale from 0 (least capable) to 100 (most capable). Colombia's highest financial capability component score was for achievement orientation (figure 4.1). Colombia also had high mean scores for the using information, budgeting, and not overspending components. Lower scores were attained for activities related to saving, attitude toward the future, and monitoring expenses; scores for living within means, covering unexpected expenses, and not being impulsive are in the middle.

Comparing Colombian performance across these 10 components illustrates a tension between attitudes and intentions on the one hand and behaviors on the other. While many respondents report actively planning how income will be spent, refrain from overspending, and see themselves as working hard and striving to achieve, they nevertheless have difficulty tracking expenditures, and have imprecise knowledge of current spending or amounts available for future spending. Colombians have high

TABLE 4.1 COMPONENTS OF FINANCIAL CAPABILITY

| COMPONENT                     | DESCRIPTION  |
|-------------------------------|--|
| <b>Behavioral components</b>  |  |
| Budgeting                     | Whether people planned how to spend their money, how frequently they budgeted and how exactly, and how frequently they adhered to their plans                                |
| Living within means           | Whether people run short of money because of overspending, how frequently they borrow, and if they had borrowed at affordable levels   |
| Monitoring expenses           | How precisely respondents knew how much money they spent and how much they had available to spend  |
| Using information             | Combination of getting information and advice before making important financial decisions, learning from other people's mistakes in financial matters, and being disciplined |
| Not overspending              | How frequently people bought things they could not afford or bought unnecessary things before they bought essential items  |
| Covering unexpected expenses  | Whether people are capable of, or expressed concern about, covering unexpected expenses  |
| Saving                        | How regularly people tried to save for the future, to save regularly even if just a little, and to have provisions for emergencies and unexpected expenses                   |
| <b>Attitudinal components</b> |  |
| Attitude toward the future    | Orientation toward the future rather than the present  |
| Not being impulsive           | Acting without thinking things through, self-identifying as impulsive, speaking without thinking   |
| Achievement orientation       | Always looking for opportunities, having aspirations, working hard to be the best  |

FIGURE 4.1 COLOMBIA'S MEAN SCORES FOR COMPONENTS OF FINANCIAL CAPABILITY



Source: World Bank and Government of Colombia Financial Capability Survey data.

scores for using information and budgeting, but their reported orientation toward saving is among the lowest capability scores for the country.

The results of the regression analysis presented in table D.1 in appendix D highlights how scores on the 10 components of financial capability vary across factors such as gender, age, education, employment, income, and an index of financial knowledge. These factors each show different degrees of association with the financial capability scores. In Colombia, women, on average, score significantly higher than men on budgeting, but significantly lower on saving. This finding is somewhat inconsistent both with results for other countries in the Trust Fund study and with a large body of external research that finds that women are typically better savers than men. Youth score significantly higher than older age groups on the components for attitude toward the future, saving, and living within means. However, Colombian youth find it significantly more difficult to not overspend compared with older age groups, which is consistent with their lower scores on the impulsivity component of financial capability.

Those who have completed tertiary education score significantly higher than those with only secondary or primary education (the baseline group) on monitoring expenses, saving, attitude toward the future, and not being impulsive. Those with only primary education, on the other hand, score significantly higher than their more educated counterparts on not overspending even after controlling for income level.

Income has a clear positive relationship with living within means but a negative relationship with not overspending. The lowest-income group scores significantly higher

on not overspending compared to higher-income groups. This result is likely due to the fact that lower-income groups have essentially no disposable income as well as very limited access to credit cards and loans. Those in the lowest-income group also have the lowest score on average for saving, all other factors held constant. Formal sector employment is associated with better scores for budgeting, living within means, and not being impulsive, but does not necessarily suggest better, more consistent, saving behavior.

## 4.2 PROFILES OF FINANCIAL CAPABILITY IN COLOMBIA

Five distinct clusters of financial capability were identified within the Colombian population (table 4.2). These groups were identified through cluster analysis

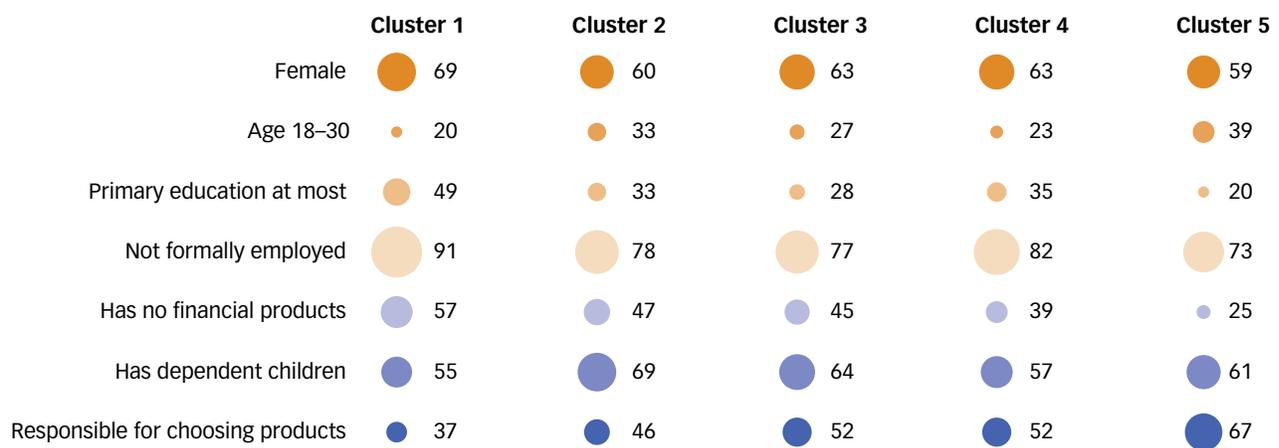
TABLE 4.2 FINANCIAL CAPABILITY CLUSTERS IN THE POPULATION

| CLUSTER  | BEHAVIOR AND ATTITUDES  | CHARACTERISTICS  |
|--|---|--|
| 1. Older low-income nonsavers (22% of respondents)             | Below-average scores on all components except covering unexpected expenses. Lowest scores for saving, monitoring expenses, and achievement orientation but for the most part inclined to live within means and not overspend. Low scores on attitude toward the future and very limited concern about old age.                                  | Highest number of below-average scores on all components and highest percentage (54%) of low-income individuals. Lowest level of financial inclusion (43% have products) and low capability to choose and use financial products. Forty-four percent were over age 50 and were least likely to have dependent children. Half had primary education or less. This group had the lowest financial knowledge score. |
| 2. Young, carefree, overspenders (17% of respondents)          | Strong achievement orientation and high scores for seeking information on financial matters. Poor at budgeting and living within means; lowest score on not overspending. Largely unable to monitor spending, and relatively low levels of provision for unexpected expenses. Low scores on not being impulsive and attitude toward the future. | High proportion of young people (almost half were below age 40, including 36% under age 30), from all income levels. Highest proportion of people with dependent children and a disproportionate number of single parents. Moderate-low level of financial inclusion, with 53% having financial products.  |
| 3. Vulnerable money managers (29% of respondents)              | Good daily money managers. Very high scores for budgeting and not overspending. Not inclined to impulsivity with the highest score on this component; also very good on using information. Very low level of provision for unexpected expenses, not especially diligent at monitoring expenditures.   | The largest of the five clusters with people from all educational levels and ages. Compared with the other groups, they were most likely to be in the middle of the income distribution and had the most stable incomes. Average level of financial inclusion, with 55% having a financial product.  |
| 4. Very careful low-income money managers (19% of respondents) | Good at budgeting and at monitoring spending, with little inclination to overspend. Good provision for unexpected expenses. Slightly below-average scores for saving and attitude toward the future.  | Highest proportion of formally employed workers, and second highest proportion of low-income individuals relative to the other clusters. Close to average in other respects.   |
| 5. Committed savers (13% of respondents)                       | Above-average scores on all components of financial capability except monitoring expenses. Adept at making financial provisions for the future, with high scores on saving, covering unexpected expenses, and attitude toward the future. Lower scores on budgeting and monitoring.   | Dominated by young, well-educated, and formally employed workers with relatively high incomes. They also had the highest level of financial inclusion, with 75% having a financial product.  |

(Kempson, Perotti, and Scott 2013; see appendix B for description), to help policy makers and other stakeholders understand the diversity of challenges facing specific groups in their population. Cluster analysis was used because it permits comparison of scores across all 10 components of financial capability. The identification of clusters has the potential to facilitate more targeted interventions to improve financial capability. Figure B.1 in appendix B presents the mean scores for each cluster across all 10 components of financial capability.

Close to half the population falls into two clusters, “vulnerable money managers,” and “very careful low-income money managers,” which are differentiated by the extent to which they monitor spending and are able to cover unexpected expenses. Both groups (Clusters 3 and 4 in figure 4.2), have similar age, employment, and income profiles; but the very careful money managers (Cluster 4) are, on average, less educated, and have a higher rate of ownership of financial products which enables them to better bridge income gaps and survive financial shocks.

FIGURE 4.2 SOCIODEMOGRAPHIC CHARACTERISTICS OF EACH CLUSTER



Source: World Bank and Government of Colombia Financial Capability Survey data.

### 4.3 REGIONAL VARIATION OF FINANCIAL CAPABILITY

Colombia shows mixed performance on components of financial capability across regions.<sup>2</sup> Understanding disparities across departments can enable policy makers to implement interventions to improve financial capability in a targeted way. Table 4.3

<sup>2</sup> In this chapter, the geographic regions of the surveyed departments are as follows: *Antioquia Eje Cafetero region*: Antioquia, Caldas, Chocó, Quindío, Risaralda; *Bogotá region*: Bogotá; *Centro Oriental region*: Boyacá, Caquetá, Cundinamarca, Huila, Meta, Norte de Santander, Santander, Tolima; *Norte Caribe region*: Atlántico, Bolívar, Cesar, Córdoba, La Guajira, Magdalena, Sucre; and *Sur Occidental region*: Cauca, Nariño, Valle. The Financial Capability Survey does not cover

TABLE 4.3 AVERAGE FINANCIAL CAPABILITY BEHAVIORAL AND KNOWLEDGE SCORES BY REGION

|   | ANTIOQUIA<br>EJE CAFETERO | BOGOTÁ | CENTRO<br>ORIENTAL | NORTE<br>CARIBE | SUR<br>OCCIDENTAL |
|---|---------------------------|--------|--------------------|-----------------|-------------------|
| Financial capability behavioral component |                           |        |                    |                 |                   |
| Budgeting                                 | 79                        | 78     | 75                 | 78              | 84                |
| Living within means                       | 74                        | 72     | 76                 | 77              | 73                |
| Monitoring expenses                       | 36                        | 36     | 39                 | 27              | 37                |
| Using information                         | 79                        | 79     | 78                 | 80              | 82                |
| Not overspending                          | 80                        | 76     | 76                 | 78              | 80                |
| Covering unexpected expenses              | 59                        | 58     | 59                 | 59              | 56                |
| Saving                                    | 42                        | 43     | 49                 | 47              | 43                |
| Financial knowledge                       | 2.8                       | 3.0    | 2.9                | 2.7             | 2.9               |
| GDP per capita (2011 \$)                  | 6,343                     | 10,951 | 8,023              | 5,065           | 5,633             |

Source: DANE and IFS.

Note: Financial capability scores range from 0 to 100; financial knowledge scores range from 1 to 5 correct responses. Regional averages only take into account the departments included in the survey.

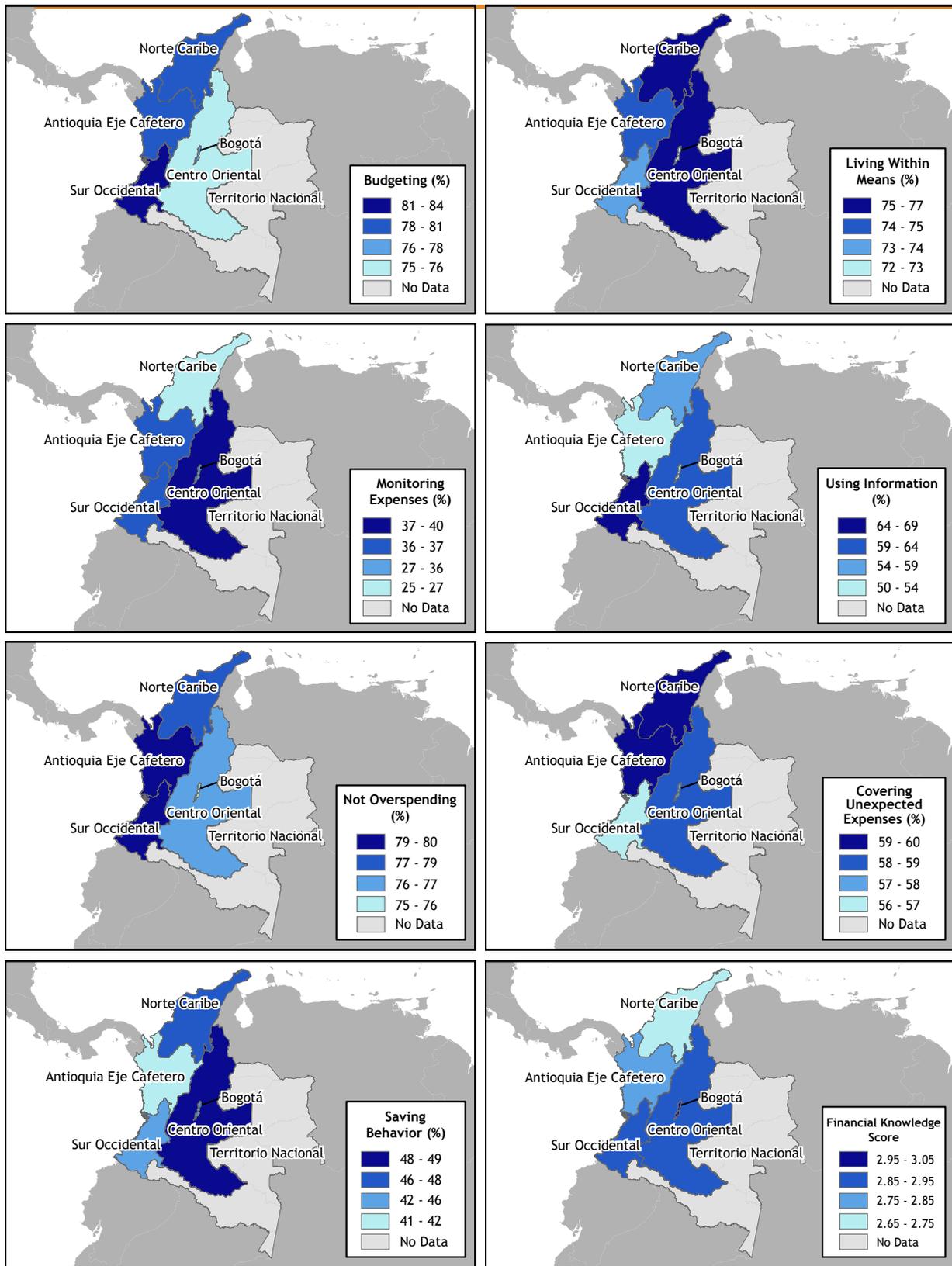
shows financial capability scores by region, and figure 4.3 maps these scores. Although cross-regional differences in financial capability scores are generally small and often statistically insignificant, the monitoring expenses score has a broader range.

Centro Oriental and Sur Occidental are the regions with slightly better financial capability, and the Bogotá region shows marginally lower scores. The Centro Oriental region is the second richest region, with a gross domestic product (GDP) per capita of \$8,023; compared to the other regions, it has the highest scores on monitoring expenses and saving, but lower scores for budgeting and using information. The Sur Occidental region, consisting of a few low-income departments, scores the highest on budgeting, not overspending, and using information, but has low financial capability in covering unexpected expenses. The Bogotá region around the country's capital has the highest GDP per capita. It has marginally lower scores than the other regions on living within means and not overspending but a higher score on financial knowledge; none of these differences are statistically significant.

Antioquia Eje Cafetero and Norte Caribe show moderate scores across financial capability components. Antioquia Eje Cafetero, which consists of coffee-producing departments, is a higher-income region. It has the highest financial capability score (along with Sur Occidental) on not overspending, but a relatively low inclination toward saving behavior. Norte Caribe has a number of relatively low-income departments and the lowest GDP per capita in the sampled region. It scores high on

every department of Colombia (see figure 1.1), but the regional-level financial capability maps in figure 4.3 show all departments to better illustrate regional tendencies.

FIGURE 4.3 FINANCIAL CAPABILITY BEHAVIORAL AND KNOWLEDGE SCORES MAPPED BY REGION



Source: World Bank and Government of Colombia Financial Capability Survey data.

living within means and covering unexpected expenses, but has a lower score for budgeting; this suggests a mixed financial capability.

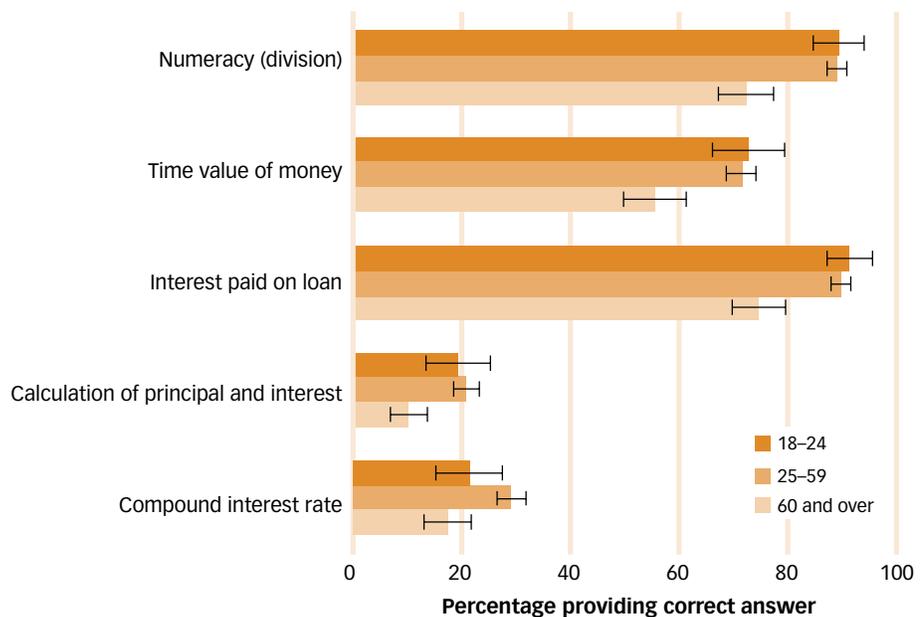
#### 4.4 FINANCIAL CAPABILITY OF YOUTH

This section compares the youth population age 18–24 with the adult population on three key aspects of financial capability—knowledge, attitudes, and behavior—with the goal of providing information on a population often targeted for financial education interventions. Appendix C provides a more detailed exposition of this analysis.

Colombian youth are much better educated than older cohorts, with 32 percent having completed tertiary education and 60 percent having completed secondary education. Youth in Colombia are also more likely to report formal sector employment than older cohorts. They are less likely to contribute to the household and to participate in household financial decision making than adults.

While youth score higher on questions of financial knowledge compared to the 60 and over age group, their financial knowledge is largely on par with adults in the age 25–59 group (figure 4.4). This is not surprising given that the average educational level of youth is higher than that of older age groups (see appendix C). Colombian youth do slightly better than adults on basic questions of division, the concept of interest rates, and the time value of money (the difference being statistically insignificant).

FIGURE 4.4 FINANCIAL KNOWLEDGE BY AGE GROUP



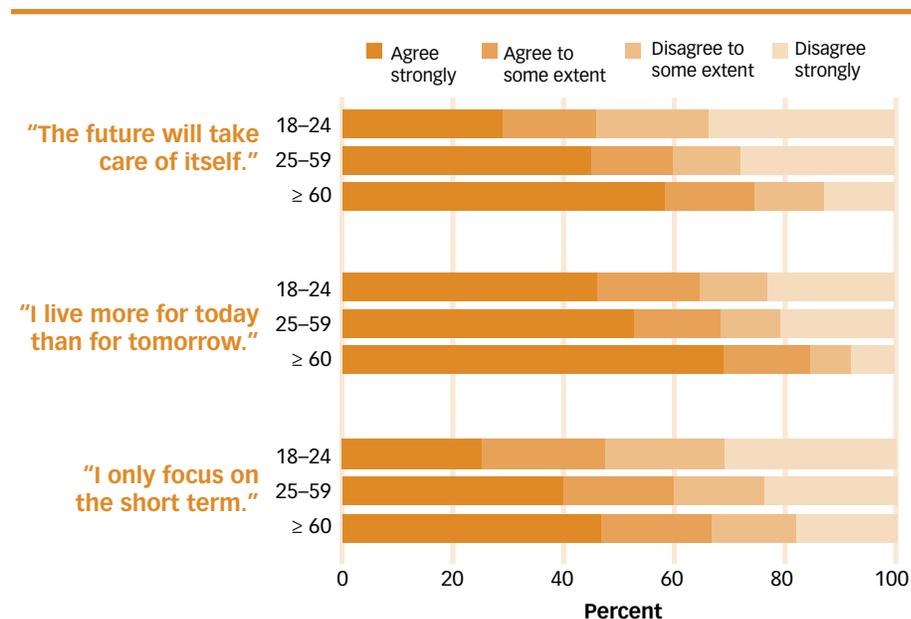
Source: World Bank and Government of Colombia Financial Capability Survey data.

nificant); they score slightly worse than adults on the more complex questions of principal and compound interest. As the purchasing power of the age 18–24 group increases, and as they gain financial independence, we would expect to see increases in their financial knowledge beyond the level of the current adult cohort.

Youth appear to prioritize longer-term needs more than older age groups. Attitudes form a crucial link between knowledge and behaviors. Figure 4.5 shows a trend between age and attitude toward the future. Older age groups are more focused on the present, whereas youth are more likely to be concerned about future needs. To the statement “The future will take care of itself,” 46 percent of Colombian youth agreed strongly or to some extent. The percentages agreeing with this statement are even larger in older age groups. Sixty percent of Colombian adults in the age 25–59 group agreed with this statement, as did 75 percent of those in the age 60 and over category. Responses to the statement “I only focus on the short term,” and “I live more for today than for tomorrow,” show similar trends. Analysis of responses to questions about impulsivity and achievement orientation indicates that while youth characterize themselves as being more impulsive than do adults, their achievement orientation is comparable to that of adult cohorts.

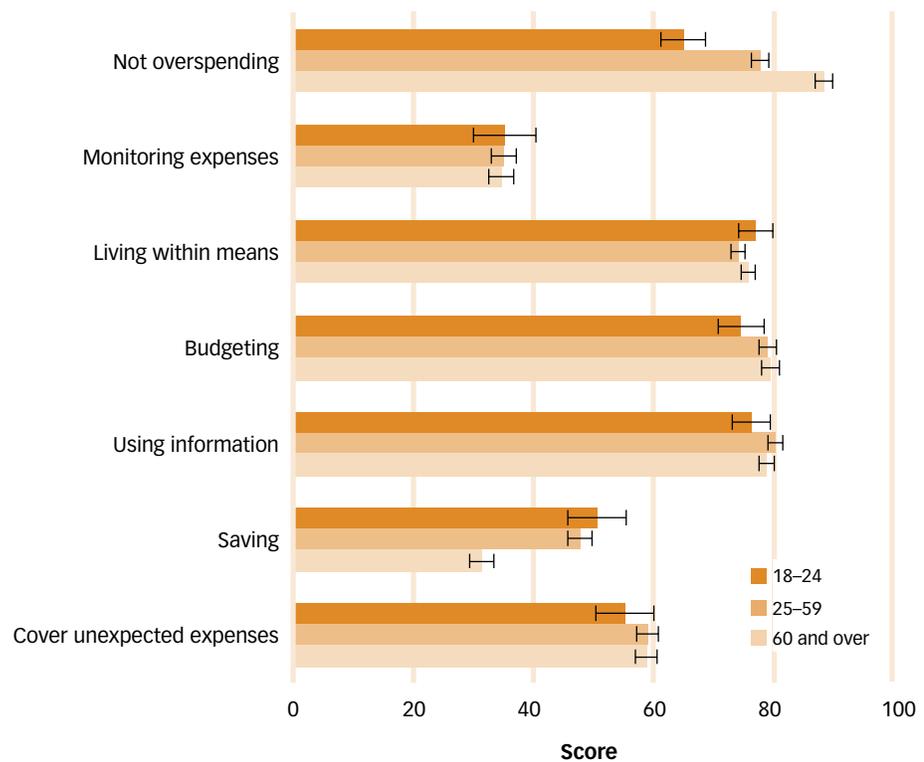
On indicators of sound financial management, such as not overspending and budgeting, youth score slightly lower than adults. Colombian youth find it significantly more difficult to not overspend compared to older age groups. Youth score significantly lower on budgeting behavior compared to the age 25–59 group (figure 4.6).

FIGURE 4.5 PERCENTAGE AGREEING WITH EACH STATEMENT BY AGE GROUP



Source: World Bank and Government of Colombia Financial Capability Survey data.

FIGURE 4.6 MEAN SCORE ON BEHAVIORAL COMPONENTS OF FINANCIAL CAPABILITY



Source: World Bank and Government of Colombia Financial Capability Survey data.

Reasons for this may be that youth simply face greater expenses than do adults as they are trying to establish careers and households, or that since the majority of youth are living with parents, they have some buffer against the consequences of overspending.

Few youth (and adults) report actively monitoring spending, but most report generally living within their means. The mean score for youth on monitoring expenses is 35, indicating only approximate knowledge of how much money is available and how funds are spent. However, youth do report living within their means for the most part. The mean score for youth on living within means is 76, which indicates fairly low rates of indebtedness and short-term borrowing. Youth also report a higher orientation toward saving than the older age groups. The majority of youth use information in financial decision making, although at slightly lower levels than the adult population. Adults in the age 25–59 group outperform youth on measures of using information to support financial decision making and the ability to cover unexpected expenses.

# International comparisons

This chapter compares the financial capability of Colombians to residents of a diverse set of countries. Comparisons to the other six countries that participated in the financial capability pilot study (Armenia, Lebanon, Mexico, Nigeria, Turkey, Uruguay) show that Colombians report especially strong budgeting behaviors and achievement orientation but display relatively weaker performance in monitoring their expenses and setting aside funds for unexpected expenses. With respect to formal financial knowledge, Colombia's level of correct responses to questions related to numeracy, the time value of money (inflation), and the concept of interest paid on a loan were in line with a set of countries surveyed through an Organisation for Economic Co-operation and Development (OECD) financial literacy pilot study (Armenia, Hungary, Ireland, Peru, South Africa, and the United Kingdom). However, Colombia displayed a weaker performance than the other countries surveyed with regard to interest rate calculations.

The financial capability surveyed utilized for Colombia was also applied in six other countries that were selected to receive funding to implement this first set of surveys on financial capability. Colombia was selected from a pool of applicant countries—along with Armenia, Lebanon, Mexico, Nigeria, Turkey, and Uruguay—by the Russia Financial Literacy and Education Trust Fund project to participate in the process of developing and piloting these financial capability surveys. These comparator countries were linked by an interest in piloting a new survey instrument rather than in shared or similar socioeconomic conditions.

The international comparisons rely on 10 components of financial capability, rather than on a single financial capability score. Analysis revealed that it was not possible to develop a single index score for financial capability by combining scores on the 10 components of financial capability.<sup>1</sup> Figure 5.1 compares Colombian responses with those provided in other countries (where available) on each component.

Compared to survey participants in the other six countries, the Colombian respondents were especially good at planning their expenditures but were the worst at

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<sup>1</sup> For further explication, see footnote 1 in chapter 4.

FIGURE 5.1 CROSS-COUNTRY COMPARISON OF COMPONENTS OF FINANCIAL CAPABILITY



Source: Kempson, Perotti, and Scott 2013.

monitoring how they had spent their money and among the worst in making provisions for unexpected expenses. Cluster analysis did not identify a single group in Colombia where the average score for budgeting was very low—a finding not shared with the other countries studied. Colombia also had a fairly low level of financial inclusion, with only 55 percent of the population having a financial product; the comparable percentage in Uruguay, for example, was 87 percent.

Compared to the other pilot countries, the Colombian survey respondents were the most achievement oriented and the most inclined to use information in financial decision making. Colombia had the highest mean scores of all countries on these two components (figure 5.1). Overall, Colombians also scored high on the living within their means and not overspending components of financial capability. They scored lower than most on monitoring of spending (as noted above) and on saving. Colombia's non-impulsivity and orientation toward the future rather than the present were not as high as in other countries, which is consistent with its lower scores on saving capability.

The countries for which financial capability data are available show diverse socioeconomic conditions—particularly related to educational attainment, structure of employment, and income flows. As shown in table 5.1, some characteristics were similar across countries, such as the higher proportion of women than men in the survey samples (63 percent in Colombia). In contrast, a higher percentage of Colombian respondents had dependent children (61 percent) than was the case in any of the other countries surveyed. The share of survey respondents who had completed secondary education varied widely, ranging from 20 percent in Nigeria to 45 percent in Colombia to 69 percent in Armenia, indicating major differences in educational coverage among the countries compared. Colombia had the smallest percentage of formal sector employees sampled of any country. Colombia and Mexico had the lowest percentage of survey respondents who considered their income to be stable (30 percent).

Internationally comparable data are available for a range of financial knowledge questions as well. Financial knowledge questions were not applied by all of the countries in the Financial Capability Survey, so Colombia's performance is compared to a sample of countries in the 2012 OECD/International Network on Financial Education (INFE) pilot study, from which the financial questions reported on here were drawn. Table 5.2 shows the performance of the eight countries that participated in the OECD/INFE pilot study.

With respect to financial knowledge, Colombia's level of correct responses to questions related to numeracy, the time value of money, and interest paid on a loan was in line with that of other countries surveyed. Colombians performed fairly well on

TABLE 5.1 SUMMARY STATISTICS OF KEY SOCIODEMOGRAPHIC VARIABLES

| VARIABLE                               | ARMENIA |      | COLOMBIA |      | LEBANON |      | MEXICO |      | NIGERIA |      | TURKEY |      | URUGUAY |      |
|--|---------|------|----------|------|---------|------|--------|------|---------|------|--------|------|---------|------|
|  | MEAN    | SD   | MEAN     | SD   | MEAN    | SD   | MEAN   | SD   | MEAN    | SD   | MEAN   | SD   | MEAN    | SD   |
| Female                                 | 0.66    | 0.48 | 0.63     | 0.48 | 0.55    | 0.50 | 0.53   | 0.50 | 0.51    | 0.50 | 0.50   | 0.50 | 0.53    | 0.50 |
| Age 18–30                              | 0.26    | 0.44 | 0.27     | 0.45 | 0.30    | 0.46 | 0.29   | 0.46 | 0.26    | 0.44 | 0.36   | 0.48 | 0.29    | 0.45 |
| Age 60+                                | 0.23    | 0.42 | 0.16     | 0.37 | 0.14    | 0.35 | 0.14   | 0.35 | 0.15    | 0.36 | 0.10   | 0.31 | 0.20    | 0.40 |
| Primary ed. at most                    | 0.02    | 0.14 | 0.34     | 0.47 | 0.27    | 0.45 | 0.36   | 0.48 | 0.66    | 0.47 | 0.51   | 0.50 | 0.31    | 0.46 |
| Secondary ed. at most                  | 0.69    | 0.46 | 0.45     | 0.50 | 0.46    | 0.50 | 0.55   | 0.50 | 0.20    | 0.40 | 0.41   | 0.49 | 0.52    | 0.50 |
| Tertiary education                     | 0.29    | 0.46 | 0.21     | 0.41 | 0.27    | 0.44 | 0.09   | 0.28 | 0.13    | 0.34 | 0.08   | 0.27 | 0.18    | 0.38 |
| # of hh members 18+                    | 3.56    | 1.45 | 3.19     | 1.49 | 3.51    | 1.50 | 2.82   | 1.17 | 2.94    | 1.57 | 3.10   | 1.48 | 2.49    | 1.03 |
| Has dependent children                 | 0.50    | 0.50 | 0.61     | 0.49 | 0.46    | 0.50 | 0.55   | 0.50 | —       | —    | 0.52   | 0.50 | —       | —    |
| Rural area                             | 0.39    | 0.49 | 0.34     | 0.47 | 0.33    | 0.47 | 0.38   | 0.49 | 0.71    | 0.45 | 0.04   | 0.20 | 0.09    | 0.28 |
| Has financial products                 | 0.81    | 0.39 | 0.55     | 0.50 | 0.57    | 0.50 | 0.51   | 0.50 | 0.21    | 0.42 | 0.58   | 0.49 | 0.87    | 0.33 |
| Formal employee                        | 0.26    | 0.44 | 0.19     | 0.39 | 0.31    | 0.46 | 0.24   | 0.43 | 0.42    | 0.49 | 0.22   | 0.41 | 0.41    | 0.49 |
| Informal employee                      | 0.06    | 0.24 | 0.06     | 0.23 | 0.11    | 0.31 | 0.15   | 0.36 | —       | —    | 0.08   | 0.27 | 0.08    | 0.28 |
| Self-employed                          | 0.16    | 0.36 | 0.10     | 0.30 | 0.16    | 0.36 | 0.03   | 0.16 | —       | —    | 0.08   | 0.27 | 0.09    | 0.29 |
| Unemployed                             | 0.07    | 0.25 | 0.03     | 0.18 | 0.02    | 0.13 | 0.05   | 0.22 | 0.08    | 0.28 | 0.03   | 0.17 | 0.04    | 0.20 |
| Retired                                | 0.18    | 0.39 | 0.05     | 0.22 | 0.05    | 0.21 | 0.04   | 0.20 | 0.36    | 0.48 | 0.16   | 0.37 | 0.17    | 0.38 |
| Housework                              | 0.21    | 0.41 | 0.25     | 0.43 | 0.31    | 0.46 | 0.27   | 0.44 | 0.02    | 0.13 | 0.33   | 0.47 | 0.12    | 0.32 |
| Other                                  | 0.01    | 0.08 | 0.29     | 0.45 | 0.00    | 0.02 | 0.15   | 0.35 | 0.04    | 0.20 | 0.01   | 0.12 | 0.04    | 0.20 |
| Income seasonality:<br>no income       | 0.03    | 0.18 | 0.07     | 0.26 | 0.05    | 0.22 | 0.10   | 0.30 | —       | —    | 0.15   | 0.36 | 0.24    | 0.43 |
| Income seasonality:<br>variable income | 0.45    | 0.50 | 0.63     | 0.48 | 0.47    | 0.50 | 0.60   | 0.49 | —       | —    | 0.24   | 0.42 | 0.32    | 0.47 |
| Income seasonality:<br>stable income   | 0.52    | 0.50 | 0.30     | 0.46 | 0.48    | 0.50 | 0.30   | 0.46 | —       | —    | 0.62   | 0.49 | 0.43    | 0.50 |

Source: World Bank and Government of Colombia Financial Capability Survey data.

Note: — = not available; SD = standard deviation.

questions about the concept of interest paid on a loan and on questions about basic numeracy.

Compared to many other countries in the OECD/INFE study, Colombia demonstrated weaker performance on interest rate calculations, but these results were similar to those for Mexico and Peru. Colombia had a lower percentage of correct responses than the other countries surveyed on the questions related to simple and compound interest rates. These results were only slightly lower than that of Mexico and Peru, however, suggesting a consistent Latin American weakness with regard to these questions.

TABLE 5.2 INTERNATIONAL COMPARISON OF PERCENTAGES OF CORRECT RESPONSES TO KNOWLEDGE QUESTIONS

| QUESTION   | ARMENIA | COLOMBIA | HUNGARY | IRELAND | MEXICO | PERU | SOUTH AFRICA | UNITED KINGDOM |
|--|---------|----------|---------|---------|--------|------|--------------|----------------|
| Numeracy (division)  | 86      | 86       | 96      | 93      | 82     | 90   | 79           | 76             |
| Time value of money  | 83      | 69       | 78      | 58      | 58     | 63   | 49           | 61             |
| Interest paid on loan  | 87      | 87       | 95      | 88      | 83     | —    | 65           | 90             |
| Calculation of principal and interest                                      | 53      | 35       | 61      | 76      | 37     | 40   | 44           | 61             |
| Compound Interest rate (and correct calculation of principal and interest) | 18      | 10       | 46      | 29      | 14     | 14   | 21           | 37             |

**Source:** Analysis of 2012 Colombia and Mexico Financial Capability Surveys (World Bank and Governments of Colombia and Mexico). With the exception of Colombia and Mexico, data are from the OECD/INFE survey as described in Atkinson and Messy (2012).

**Note:** — = not available. Atkinson and Messy (2012) recorded a response to the multiple-choice compound interest rate question (row 5 in the table) as correct only if the respondent also correctly answered the previous open-ended simple interest rate calculation (row 4). Other studies (e.g., Xu and Zia 2013) simply report the correct responses to the multiple-choice compound interest question irrespective of the answer to the simple interest rate calculation. Following the latter practice means that 26 percent of Colombians surveyed answered the compound interest question correctly, a result highlighted in section 3.3.



# Linkages between financial capability and financial inclusion

In Colombia, dialogue and policies related to improving financial capability and financial knowledge often complement efforts to promote responsible financial inclusion. Understanding the linkages between these issues can facilitate better design and better targeting of policy interventions. This chapter documents a positive association between financial knowledge and 5 of 10 components of financial capability. It then looks at the relationship between financial knowledge, financial capability, and product usage, finding that greater financial knowledge is positively associated with the use of bank accounts, and that higher financial capability is related to a higher probability of using savings products and formal credit. The chapter concludes with results that suggest that banking correspondents increase access to formal financial products only for individuals with relatively high financial capability.

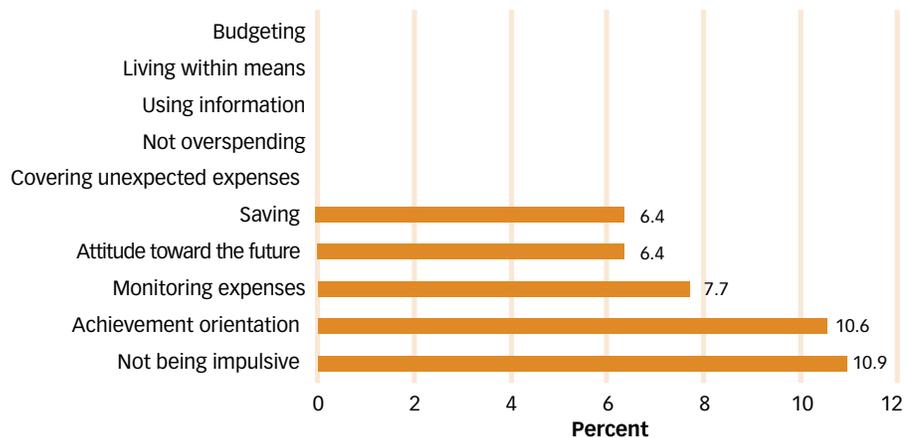
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## 6.1 FINANCIAL KNOWLEDGE AND CAPABILITY

A number of studies have found links between financial knowledge and elements of financial behavior. Using data from the United States, Lusardi and Tufano (2009) find that individuals who have low measured levels of financial knowledge tend to pay minimum balances on credit cards, incur late fees on cards, and use informal sources of credit. Stango and Zinman (2009) show that people who make mistakes in interest and future value calculations tend to borrow more and save less. Lusardi and Mitchell (2009) illustrate that people with low levels of financial knowledge think less about retirement and that most of them have not planned for retirement at all. A survey of Russian households shows that financial knowledge is significantly and positively related to retirement planning involving private pension funds and schemes (Klapper and Panos 2011). Hastings and Tejeda-Ashton (2008) conducted a survey in Mexico that reveals that less knowledgeable individuals tend to choose pension mutual funds with higher fees. Appendix E discusses this literature in greater detail. The Colombian financial capability data set provides an opportunity to add to this literature because of the range of data it collects on both financial knowledge and financial capability.

In Colombia, a higher financial knowledge score is associated with a higher financial capability measure for 5 out of 10 components of financial capability. The analysis examines the relationship between the financial knowledge score and each of the 10 financial capability measures (listed in table 4.1), controlling for several personal and municipality characteristics that could lead to a spurious relationship between knowledge and capability (see appendix D for more details on the methodology). Two of the behavioral components (monitoring expenses and saving) and all three attitudinal components are correlated with financial knowledge. The other five behavioral components—budgeting, living within means, using information, not overspending, and covering unexpected expenses—show no statistically significant relationship with financial knowledge (figure 6.1). Financial knowledge had the largest correlations with the not being impulsive and achievement orientation components, followed by monitoring expenses.<sup>1</sup>

FIGURE 6.1 CORRELATIONS BETWEEN FINANCIAL KNOWLEDGE AND CAPABILITY BENCHMARKED BY STANDARD DEVIATION



Source: World Bank and Government of Colombia Financial Capability Survey data.

Note: Correlations are based on the estimates shown in appendix D. The correlations reflect how much the score for each financial capability component increases when the financial knowledge score increases by one standard deviation (the standard deviation of this score is 1.1), where the increase in the capability measure is scaled to represent percentage points of the standard deviation of the capability measure.

<sup>1</sup> The correlations reflect how much each financial capability measure increases when the financial knowledge score increases by one standard deviation, where the increase in the capability measure is scaled to represent percentage points of the standard deviation of the capability measure. This scaling is used because the same size increase (e.g., 2 points) could be either large or small depending on how much variation there is in the capability measure. For example, if most people score around 50 on a given capability component, a 2-point increase would represent a larger magnitude than for a component on which most people score between 10 and 90.

## 6.2 FINANCIAL KNOWLEDGE, CAPABILITY, AND PRODUCT USAGE

This section uses the financial knowledge and capability component measures discussed earlier in this report and examines the extent to which they predict whether an individual or household uses a range of formal and informal financial products.

The analysis focuses on five frequently used financial products: bank accounts, credit cards, formal loans, informal savings, and informal credit. The relationship between financial knowledge or financial capability and the use of these products is measured through a regression analysis described in detail in appendix D. Table 6.1 displays abridged results from this analysis, representing the partial correlation between each financial knowledge or capability component measure and the likelihood of using each financial product. These partial correlations measure the relationship between financial knowledge or capability and financial product use after controlling for other factors that could be driving this relationship (see appendix D).

TABLE 6.1 PARTIAL CORRELATIONS BETWEEN FINANCIAL KNOWLEDGE, FINANCIAL CAPABILITY COMPONENTS, AND USE OF FINANCIAL PRODUCTS

|   | DEPENDENT VARIABLE:<br>DUMMY VARIABLE INDICATING WHETHER THE INDIVIDUAL HAS A |         |             |         |             |         |                  |         |                 |         |
|---|---|---------|-------------|---------|-------------|---------|------------------|---------|-----------------|---------|
|   | BANK ACCOUNT  |         | CREDIT CARD |         | FORMAL LOAN |         | INFORMAL SAVINGS |         | INFORMAL CREDIT |         |
|   | CORRELATION   |         | CORRELATION |         | CORRELATION |         | CORRELATION      |         | CORRELATION     |         |
| Financial knowledge score               | 0.018*  | (0.010) | -0.014      | (0.009) | 0.012       | (0.010) | 0.005            | (0.005) | 0.008           | (0.005) |
| Financial capability component          |   |         |             |         |             |         |                  |         |                 |         |
| Budgeting                               | 0.006   | (0.004) | -0.003      | (0.004) | -0.003      | (0.005) | 0.001            | (0.002) | -0.004          | (0.003) |
| Monitoring expenses                     | 0.008**   | (0.003) | 0.002       | (0.003) | 0.001       | (0.003) | 0.004**          | (0.002) | -0.001          | (0.002) |
| Using information                       | 0.019***  | (0.005) | -0.001      | (0.004) | 0.010***    | (0.004) | 0.002            | (0.003) | -0.001          | (0.003) |
| Not overspending                        | -0.009*   | (0.005) | -0.006      | (0.004) | -0.011**    | (0.004) | -0.004           | (0.003) | -0.007*         | (0.004) |
| Covering unexpected expenses            | 0.002   | (0.004) | 0.003       | (0.003) | 0.002       | (0.003) | 0.003*           | (0.002) | -0.001          | (0.002) |
| Saving                                  | 0.023***  | (0.003) | 0.003       | (0.002) | 0.002       | (0.003) | 0.003*           | (0.002) | -0.003          | (0.002) |
| Attitude toward the future              | 0.014***  | (0.004) | 0.001       | (0.004) | 0.004       | (0.004) | 0.001            | (0.002) | 0.002           | (0.002) |
| Not being impulsive                     | 0.007*  | (0.004) | -0.000      | (0.003) | 0.006**     | (0.003) | 0.002            | (0.002) | -0.002          | (0.003) |
| Achievement orientation                 | 0.016***  | (0.005) | 0.012***    | (0.004) | 0.024***    | (0.005) | 0.006**          | (0.003) | 0.008***        | (0.003) |
| Financial capability index <sup>a</sup> | 0.056***  | (0.009) | 0.007       | (0.007) | 0.014*      | (0.008) | 0.013**          | (0.005) | -0.008          | (0.006) |

Source: World Bank and Government of Colombia Financial Capability Survey data.

Note: See appendix D for sources of control variables and more details. Partial correlations measure the relationship between financial knowledge or capability and financial product usage after controlling for personal and municipality characteristics that could be driving the relationship. Robust standard errors in parentheses. Statistical significance levels: \* 10 percent, \*\* 5 percent, \*\*\* 1 percent.

a. Average of components listed above.

A higher financial knowledge score is positively associated with the use of bank accounts, but shows no statistically significant relationship with use of other financial products (credit cards, formal loans, informal savings, informal credit). Answering an additional financial knowledge question correctly is associated with a 1.8 percentage point increase in the likelihood of having a bank account. The results in table 6.1 are not causal, and we are not certain of whether more people with formal knowledge are more likely to seek bank accounts, or whether people are more knowledgeable because of their exposure to these financial products.

Several components of financial capability show a positive and statistically significant relationship with having a bank account and informal savings. Table 6.1 displays the relationship between nine measures of financial capability and financial product usage.<sup>2</sup> The results show that achievement orientation is strongly and positively correlated with use of all financial products. The not overspending component, on the other hand, is negatively associated with the likelihood of having a formal loan or informal credit.

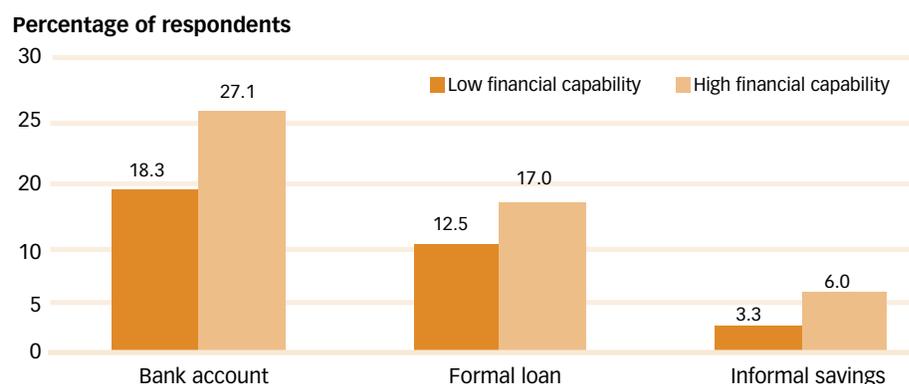
Higher financial capability is related to a higher probability of using savings products and formal credit. The last row of table 6.1 summarizes the results by showing the relationship between product usage and a financial capability index that is the average of the nine components listed. The results of this index indicate that, overall, higher financial capability is related to a higher probability of using savings products (bank accounts and informal savings), as well as to a higher probability of using formal credit.

Figure 6.2 illustrates these results by showing the percentage of individuals who have a bank account, formal loan, or informal savings, split up by level of financial capability. Individuals classified as low (high) financial capability are those who have a financial capability index below (above) the median. Individuals with high financial capability are one and a half to two times more likely to have a bank account or informal savings as individuals with low financial capability. They are also 35 percent more likely to have a formal loan.

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<sup>2</sup> The living within means component is excluded here since it is based in part on questions that ask about use of loans and may thus be mechanically correlated with financial product usage. The other financial capability measures are not based on questions about product usage. In some developed countries, such as the United States and the United Kingdom, measures of financial capability have included product usage as a component. However, under the Russia Financial Literacy and Education Trust Fund project, it was decided to construct measures of financial capability that do not rely on the use of financial products, as in many developing countries (including Colombia and Mexico), a large portion of the population does not use any products, in part because the supply of financial services is often more limited than in developed countries. See also Kempson, Perotti, and Scott (2013). The numbers are scaled so they correspond to a 10-point increase in the capability measure. For example, a 10-point increase in the monitoring expenses capability is associated with a 0.8 percentage point increase in the likelihood of having a bank account.

FIGURE 6.2 USE OF FINANCIAL PRODUCTS BY INDIVIDUALS WITH LOW OR HIGH FINANCIAL CAPABILITY



**Source:** World Bank and Government of Colombia Financial Capability Survey data.

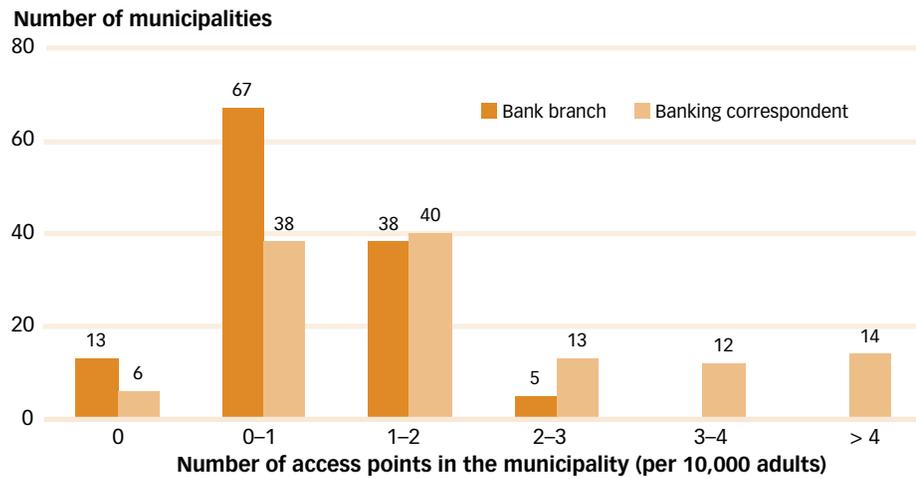
**Note:** Low (high) financial capability is defined as having a financial capability index below (above) the median. The index is an average of the nine financial capability components listed in table 6.1. The differences shown in this figure control for personal and municipality characteristics (see appendix D).

### 6.3 FINANCIAL KNOWLEDGE, FINANCIAL CAPABILITY, ACCESS TO FINANCE, AND FORMAL PRODUCT USAGE

This section analyzes the financial capability data with municipality-level financial infrastructure data to see if increased access to financial services through banking correspondents is associated with greater use of financial products and how this correlates with financial capability. As discussed in chapter 3, only about 25 percent of Colombians report having a formal (bank) account and 14 percent report having a credit card. A first step for bringing more individuals into the formal banking system is to provide access points for financial institutions. The SFC, the BRC, and the Banca de las Oportunidades collect comprehensive data on the number of bank branches in each municipality. Figure 6.3 illustrates the distribution of bank branches across 123 municipalities covered in the Colombian Financial Capability Survey: 13 municipalities have no bank branches, and the remaining municipalities have between one and three bank branches per 10,000 adults.

The data set from the SFC and the BRC also includes information on the number of banking correspondents in each municipality. Starting in 2006, banks have signed correspondence agreements with retail stores and other institutions to provide access to banking services through the store or branch network of these establishments. The services provided through correspondents vary from bank to bank, but often include payment services, money withdrawal, money deposits, and credit card payments (according to information from the Banca de las Oportunidades).

FIGURE 6.3 DISTRIBUTION OF BANK BRANCHES AND CORRESPONDENTS ACROSS MUNICIPALITIES



Source: SFC and BRC.

Note: Data are for the 123 municipalities covered by the Colombia Financial Capability Survey.

The average number of banking correspondents for the 123 municipalities in the Colombian Financial Capability Survey is 2.0 per 10,000 adults, exceeding the 0.8 bank branches per 10,000 adults. Figure 6.3 shows that correspondents provide more bank access points in these municipalities compared to bank branches. Only 6 municipalities have no correspondents, compared to 13 that have no bank branch. In addition, 26 municipalities have more than three correspondents per 10,000 adults, while no municipalities have more than three bank branches per 10,000 adults.

Results suggest that banking correspondents increase access to formal financial products only for individuals with high financial capability. Tables D.4 and D.5 in appendix D present analysis examining the extent to which the presence of bank branches and banking correspondents in a municipality is associated with use of financial products by respondents to the Colombian Financial Capability Survey. Although the relationships are not causal, these results show that bank branches are positively associated with bank account usage only for individuals with high financial capability. There is no statistically significant relationship between number of bank branches in a municipality and number of individuals surveyed who use credit cards. On the other hand, the number of banking correspondents is associated with greater use of both bank accounts and credit cards for individuals with high financial capability. For individuals with low financial capability, neither bank branches nor banking correspondents are associated with use of financial products.

# C onclusions and recommendations

This report presents findings from the first nationally representative survey on financial capability in Colombia and details important challenges related to financial behavior, attitudes, and knowledge.

- Chapter 2 reports that daily money management practices appear imprecise or very limited for most of those surveyed. Although most of the population claims to budget, less than a quarter of the survey population knew how much they spent in the previous week. Plans to cover major expenses are limited: just 20 percent of Colombians feel they could fund a major unplanned expense, and less than half the population under the age of 60 has made provisions to fully cover old age expenses.
- Chapter 3 highlights the fact that use of most formal financial products remains limited. Nearly three-quarters of the population is not using savings products and with few ways to absorb financial shocks, nearly two-thirds of the Colombian population reports having been short of money to cover basic expenses. Even for those who do use financial products, decision making to choose these products may be impaired due to a lack of knowledge of interest rates.
- In chapter 4, components of financial capability are analyzed to construct profiles that occur within the Colombian population. Close to half the population falls into two profiles: “vulnerable money managers” and “careful, low-income, money managers.”
- Chapter 5 benchmarks Colombia’s financial capability performance against that of other countries for which comparable survey data are available. It finds that Colombians report relatively strong budgeting behaviors and achievement orientation but relatively limited monitoring of expenses and saving of funds for unexpected expenses compared to their counterparts. With respect to formal financial knowledge, Colombians’ level of correct responses to questions related to numeracy, the time value of money (inflation), and interest paid on a loan were in line with other countries surveyed. However, they had

fewer correct responses related to interest rate calculations than in other countries.

- Chapter 6 examines the relationship between financial knowledge, financial capability, and financial product usage. It finds that greater financial knowledge is associated with the use of bank accounts, and that higher financial capability is related to a higher probability of using savings products and formal credit. Results indicate that banking correspondents increase access to formal financial products primarily for individuals with relatively high financial capability.

The following recommendations highlight ways in which the diverse challenges noted above can be addressed. Systematizing a national policy framework on financial capability and education, and a coordination mechanism for those working to enhance financial capability, will ensure effective policy and program implementation. Development and promotion of tools that provide consumers with timely and relevant personal finance information can help ameliorate the weaknesses seen in monitoring expenses and improve financial planning. The availability of better-designed and more accessible financial products can increase demand for financial products and lead to savings mobilization that would reduce household vulnerability. Strengthening the legal and regulatory framework for financial inclusion will ensure that such products reach more marginalized segments of the population. Attitudes and motivations can be shaped through social marketing, and well-designed financial education interventions can reduce gaps in formal financial knowledge and promote desired financial behaviors. Finally, an effective consumer protection framework is crucial to support the growth of a responsible financial services sector in Colombia.

1. **Adopt a multisectoral policy framework for financial capability and develop a coordinating mechanism for entities working to strengthen financial capability to help address the diversity of challenges noted in this report and support efficient implementation of planned programs and policies.**
  - Colombia has various initiatives under development that could usefully **support a strategy for financial education and financial capability**. A National Strategy for Economic and Financial Education was proposed in 2010 by the Ministry of Finance, the BRC, the SFC, the Colombian Deposit Insurance Fund (FOGAFIN), and others, but was never formally adopted. More recently, the CONPES document (which cites preliminary data from this study) has been under development. There have also been proposals to enshrine a financial education strategy in law.

- Formalize an **inter-institutional coordination mechanism for the numerous government entities active in financial education and financial inclusion** to harmonize policies, exploit synergies among key stakeholders, and reduce duplication of efforts around financial capability. Current collaboration between the government entities involved in financial education and financial inclusion is voluntary, and coordinating the efforts of the numerous public entities active in financial education—such as the BRC, the Department of National Planning, the Ministry of Education, the Ministry of Finance, FOGAFIN, and the SFC—as well as an array of private sector stakeholders is complicated. Coordinating entities have been implemented in countries such as Mexico, which formalized the functions of a National Council of Financial Inclusion and a Financial Education Committee in 2011. The Brazilian government has supported an entity that coordinates public and private involvement in financial education. Initiatives under discussion, such as the CONPES document or a law on financial education, would serve to formalize greater inter-institutional commitment.
2. **Develop and promote technology that increases timely access to personal finance information with the goal of supporting financial monitoring and planning behaviors that are currently lacking in much of the Colombian population.**
- Colombian authorities could support the development of **mobile phone- and Internet-based personal finance tools** and their distribution through financial and educational institutions. These tools can help households track spending by categorizing transactions and motivate savings toward budget goals. In recent years, a number of tools with web and/or mobile phone interfaces have been developed, such as HelloWallet, Mint, Pageonce, and Juntos Finanzas. In particular, Juntos Finanzas (which won the 2012 G20 innovation award for financial inclusion) is suitable for a range of Colombian households, as it was developed specifically to help cash-based households, is available in English and Spanish, and is an SMS (short message service) -based application that works with the simplest cell phones. Financial authorities could encourage tool developers to partner with financial institutions to promote the use of these tools among their clients and to develop complementary tools for personal finance.
  - The SFC could encourage financial institutions and other stakeholders to use **text messages and social media** to shape attitudes and behaviors related to personal finance. Simple sustained messages could leverage the high achievement orientation of Colombians by encouraging them to manage account balances, repay loans, adhere to debt management plans,

and save. Such interventions to promote positive behaviors have had good results in several countries. For example, a study of financial institutions in Bolivia, Peru, and the Philippines showed that letters, or text message reminders, to save increased the likelihood of reaching savings goals by 3 percent and the total saved in the reminding financial institution by 6 percent (Karlan et al. 2012). Some nongovernmental organizations in India have targeted the financial behavior of illiterate populations through voice-mail. A randomized control trial in the Philippines found that personalized reminders to repay loans were associated with timely repayment (Karlan, Morten, and Zinman 2012).

- **Enhance the financial education content of websites of financial authorities** (such as the BRC and FOGAFIN) **to increase the focus on events (or teachable moments)** when people might be seeking information about financial decisions. A teachable moment could be paying for education; the purchase of a home; a milestone occasion such as a marriage, the birth of a child, or retirement; or even the registering of a consumer complaint on a financial product. For example, the Periodic Economic Benefits program (BEPS), which provides income protection to the low-income elderly who do not qualify for a pension, could be utilized as a vehicle to provide financial education. Currently, the BRC website places more emphasis on economics and central bank functions, while FOGAFIN focuses on the importance of saving. New Spanish-language content on the U.S. Consumer Financial Protection Bureau website offers one model, with clear information on how to buy a car or a home or pay for college.<sup>1</sup> Evidence from other countries suggests that providing information at teachable moments can be welfare-enhancing. Using a sample of Indonesian migrants, Doi, McKenzie, and Zia (2012) show that financial education can have large effects when provided at a teachable moment, but that this impact varies by training recipient. Duflo and Saez (2011) find positive impacts of financial education on planning for retirement or investment portfolio choices leading to an increase in retirement plan participation. This information could also be provided in pamphlets and other printed media or formalized in a financial education setting to reach a diverse audience.
3. **Expand the availability of financial products and program interventions designed to help consumers save for anticipated and unanticipated major expenses by encouraging Colombian financial institutions to support enabling product design elements for savings mobilization.**

<sup>1</sup> Accessible in Spanish at <http://www.consumerfinance.gov/es/>.

- **Labeling savings** for specific goals is a simple, relatively cheap, way to make gains from a savings account feel tangible and curb tendencies to overspend. In Colombia, banks such as AV Villas are piloting mobile phone wallets with different “pockets” named for specific goals (such as vacations, special events, or education), but such products are not available to most of the population. A randomized controlled trial found that treatment groups in Ghana with access to accounts that individuals labeled for specific savings goals saved 31 percent more on average than the control group (Karlan et. al 2012). A Peruvian financial institution created jigsaw puzzles with pictures of savings goals (like a child in school or a vehicle). The group receiving a puzzle piece for each deposit was 2.3 percentage points more likely to meet its savings commitment than the control group (Karlan et al. 2009).
  - **Commitment savings accounts** enable users to voluntarily restrict access to their savings for a set period of time, helping them establish discipline while avoiding the distraction of less valuable daily purchases. For example, after one year, individuals in the Philippines who gave up access to their savings for a set period of time increased their savings 81 percent relative to a control group (Ashraf, Karlan, and Yin 2006). Such savings accounts could also be used to encourage retirement savings. A deferred payment scheme that utilizes **future dated mobile payments** has been proposed as the functional equivalent of traditional commitment savings for mobile phones (Mas 2013). Hybrid savings-insurance products have been popular in India.
  - **Remittance-linked products** aligned with the needs of migrant workers and their families offer the opportunity to move transfers directly into savings products. Such products exist but could be made more widely available in Colombia. The design of such products could draw on insights from a study of U.S.-based El Salvador migrants (Ashraf et. al 2011), which found that savings accounts that offer the remittance senders greater monitoring and control over their account accumulate the most savings.
4. **Continue to develop financial infrastructure that expands the provision of products by regulated financial institutions to a larger share of the Colombian population.**
- Enactment of **the proposed Pague Fácil Pague Digital Law would support a new class of electronic money issuers** as part of Colombia’s financial inclusion strategy. This law would authorize issuers to offer a narrow set of financial services—namely, raising deposits from the public and offering electronic payment services, but not lending against those

funds. Because of their more limited activities, they would be subject to much lower capital requirements and a streamlined regulatory regime based on their specific risks. This law would complement the decree for Depósitos Electrónicos enacted in December 2011, which was designed to lower the cost of managing low-value savings accounts.

- Continue to **support the outreach of bank correspondents through enabling regulation**. Individual authorization of financial institutions wishing to engage in correspondent banking may not be necessary now that banks and regulators have extensive experience with the model and its risks. The SFC could consider waiving the requirement for financial institutions to seek its approval before launching correspondent bank services. Given that most bank correspondents are proprietary to one bank, the SFC could also clarify in its regulations that correspondent infrastructure can be shared across banks on a single-acquirer model, without requiring each bank to have a separate contract with each correspondent.
  - Encourage more **competition from private banks in the delivery of Familias en Acción social welfare benefits**. Chapter 3 discusses how the vast majority of recipients withdraw their cash in full as soon as the money is credited to their accounts. Currently, BancoAgrario and Davivienda manage the payment of these benefits, but if more banks viewed Familias en Acción as an opportunity to offer a fuller range of appropriate products for these families, or if beneficiaries had the option of choosing the financial institution from which to receive their benefits, this might lead to more effective financial inclusion. The challenge lies in banks' recognition of the market value of these clients.
5. **Financial education interventions can be useful in addressing gaps in financial knowledge (as demonstrated in international comparisons) and in shaping behaviors and attitudes, but they should be carefully designed and targeted given the mixed impact of global interventions to date.**
- Support efforts to **clarify what constitutes financial education**. The consumer protection law of 2009 obligates regulated financial institutions in Colombia to undertake financial education, but does not provide a clear definition of financial education. These institutions are required to develop a plan to fulfill the financial education requirement, but since there are no clear guidelines as to what these programs should contain, it is possible for bank education programs to mix product marketing with the teaching of financial concepts. The CONPES financial education strategy under development and legal proposals under debate could provide clarity on this issue.

- Carefully consider the structure of financial education **programs provided by financial institutions**. As noted, Colombian financial institutions have been required to provide financial education since 2009. One of the only rigorous evaluations of the impact of such interventions (Bruhn, Ibarra, and McKenzie 2013) studies a financial literacy course offered by a financial institution in Mexico City and finds that take-up of voluntary programs was extremely low and that the benefits of the training were modest (a 9 percent increase in financial knowledge and a 9 percent increase in savings outcomes; with no impact on credit card behavior, retirement savings, or borrowing). While financial literacy courses may be beneficial for some segments of the population—such as individuals with higher levels of education, who are accustomed to learning in a classroom setting—other types of interventions may be needed to reach the broader population.
- **Target interventions** to address the vulnerabilities of specific populations. This report outlines how financial capability among Colombians varies by age, income, educational attainment, employment, and location (region). It also outlines the sociodemographic and behavioral characteristics of five broad profiles of for financial capability, the most prevalent being “vulnerable money managers” and “very careful low-income money managers.” Understanding the behaviors, attitudes, and weaknesses of particular groups—such as the greater tendency of youth to overspend—could enhance the design and implementation of policies and programs to curb negative tendencies.
- Roll out **high-quality financial education programs to schools** systematically. Colombia has advanced plans to provide school-based financial education, possibly as soon as next year. Although key competencies and standards for students to achieve are being defined, current discussions suggest that modules for financial education instruction will be left to the discretion of each school, following training by the Ministry of Education. While this customized approach has its benefits, this diversity will make it difficult to evaluate the effectiveness of such programs. Furthermore, lack of models for teaching materials may burden certain schools with fewer resources to develop these new curricula. In addition to defining general standards, Colombia could consider developing and testing modules for financial education, as was done in Brazil. Bruhn et al. (2013) conducted a randomized evaluation of a financial education program in Brazilian public high schools that incorporated modules into different aspects of the curriculum. They find positive effects on knowledge, attitudes, and behaviors, including a 24 percent increase in student savings rates. School-based

education programs could be coupled with programs promoting responsible use of financial products, such as the opening of savings accounts for youth.

- Consider mechanisms to **incorporate parental involvement** into financial education interventions. Although nearly 70 percent of those surveyed reported that they did not receive any formal financial education, 22 percent reported some instruction from their parents. Bruhn et. al (2013) found in their Brazil study that interventions for other household members, such as videos stressing the importance of financial management within the family and integrated assignments that involved family budgeting, had positive spillovers—such as a 17 percent increase in the number of parents tracking monthly expenses.
6. **Operationalize elements of the existing consumer protection framework to help mitigate the effects of limited formal financial knowledge.**
- The SFC could require **simplified presentation of financial product pricing information in credit contracts and planned web tools**, incorporating insights from recent research on good practices in disclosure. Given the finding of limited ability to calculate interest rates among Colombians, the SFC could consider including in the minimum information required for financial contracts guidance that financial institutions present total costs in pesos in addition to annual percentage rates. This insight could also be incorporated in a pricing calculator for a range of products to be hosted on the SFC website, in lieu of the not very user-friendly Excel spreadsheets that currently contain pricing data for credit cards and current accounts at <http://www.superfinanciera.gov.co>. A study on the use of Afores (retirement investment funds) in Mexico (Hastings and Tejada-Ashton 2008) found that workers with low financial knowledge are better able to analyze and compare the fees charged by funds when they are presented as total costs in pesos rather than in terms of an annual percentage rate.
  - The SFC could consider systematic **mass media messaging** to protect consumers against potentially deceptive unregulated operations. Given that nonregulated entities (such as pyramid schemes) have been a problem in Colombia, authorities could consider warning the general population against such products through social marketing. The SFC has a large team of staff members dedicated to shutting down these schemes, but could also increase efforts to inform a broad audience about the perils of these schemes by developing concise key messages and transmitting them through mass media. For example, those who viewed financial education messages provided through a popular South African soap opera had

a significantly higher financial knowledge and were almost twice as likely as those who did not view the soap opera with its educational messages to borrow from formal sources and were less likely to engage in gambling (Berg and Zia 2013).

- The BRC and DANE could explore **expanding the annual IEFIC to ensure national representation**. This survey has provided useful information on the level of indebtedness and financial education of the banked population of Bogota, and could include a nationally representative sample.

7. **Sustained analysis is needed to support the financial capability agenda.**

- Regular monitoring and evaluation could be undertaken through the implementation of G20-recommended indicators related to financial capability (currently under development).
- Building on this comprehensive financial capability data set as a baseline, Colombian authorities could consider implementing this survey (or a smaller subset of key questions) in a year or two, in an effort to gather panel data and perhaps test the impact of specific interventions within the population.
- Additional research could explore the strengths and weaknesses of target population segments in greater detail, and analyze links between the Financial Capability Survey and other data sources to provide greater depth to the topic of challenges to financial capability.



# Construction of financial capability scores

The text in sections A.1 and A.2 is taken from Kempson, Perotti, and Scott (2013: 58–61).

The main objective of the Russia Financial Literacy and Education Trust Fund measurement project was to develop indicators of financial capability that are as neutral as possible with respect to culture and to education or income levels. One of the key questions to be answered through empirical analysis was the possibility to construct valid measures that can be used for comparisons across countries.

## A.1 IDENTIFYING FINANCIAL CAPABILITY COMPONENTS

The aim of the analysis is to construct a score  $S_c$  for each component  $c$  of financial capability ( $c = 1, \dots, C$ , where the number of components  $C$  is unknown) as a linear combination of the (standardized) variables  $V_1, V_2, \dots, V_K$  contained in the data set, which have correlation matrix  $\Sigma$ :

$$S_c = w_{c1} \frac{V_1 - \mu_1}{\sigma_1} + w_{c2} \frac{V_2 - \mu_2}{\sigma_2} + \dots + w_{cK} \frac{V_K - \mu_K}{\sigma_K}$$

where  $\mu_i$  and  $\sigma_i$  denote, respectively, the mean and standard deviation of  $V_i$ , and the weights  $w$  are unknown. A key advantage of factor analysis is that the weights attributed to each component are not determined in advance, but are calculated through empirical analysis and therefore reflect the importance of each variable in the context of interest; low- and middle-income countries for this project. A specific weight  $w_{ci}$  (which denotes the importance of the  $i$ th variable for component  $c$ ) can be zero, meaning that variable  $i$  is not relevant for a specific component  $c$ . In short, this means that neither the number nor the nature of the components is determined a priori. For example, if there are 10 variables in the data set, it might be that two components exist, where the first is a combination of the 1st, 3rd, and 10th variables only, and the other variables are relevant for the second component. By looking at which specific variables are relevant for a particular component, it is possible to identify the nature of the component. The results of this analysis are then compared to the manifestations of financial capability that emerged from the focus groups. If

the components are comparable to the focus group concepts, they can be considered reliable measures for these concepts.

Several procedures exist to extract components from data. A frequently applied method is PCA [principal component analysis], which captures all of the variance of the variables and is the most adequate technique when the measurement scales are not yet validated. PCA is based on maximization of the variance of  $S_1$  to find the weights for the first component ( $w_{11}, \dots, w_{1k}$ ), maximizing the variance of  $S_2$  to find the weights of the second component ( $w_{21}, \dots, w_{2k}$ ), and so on, subject to the constraint that the sum of the squared weights for each component be equal to one. The weights that solve this maximization problem are a function of the matrix of correlations between the components, and of its eigenvalues and eigenvectors. This method produces a matrix  $\Lambda$  of factor loadings, which represent the correlation between each variable and the components. The columns of this matrix are equal to the eigenvectors of the correlation matrix  $\Sigma$ , scaled by the square root of the corresponding eigenvalue.

Alternative extraction methods include principal factoring (reducing the variance explained by the components to the shared variance among the variables, not total variance), and maximum likelihood (aimed at reproducing the correlation matrix). Principal factoring is preferred when a clear a priori structure for the scales and constructs in the analysis is assumed. Maximum likelihood has the advantage of being able to test the statistical fit of the component solution. A completely different method is confirmatory factor analysis, in which the structural relationships between the variables are determined a priori and tested using maximum likelihood estimation. Since the goal of the present project was to develop measure(s) of financial capability, an exploratory type of analysis was favored; hence PCA was selected as the main analysis technique.

PCA extracts as many components as there are variables in the correlation matrix, in order of decreasing explained variance. Typically, the first few components explain a large percentage of the variance, say over 50 percent. At some point, the marginal contribution of a component becomes too low and the remaining components are omitted. One common criterion to decide about the number of components to be retained is that a component have an eigenvalue greater than one, meaning that the component explains more than the average variance explained by each component. Another criterion, often applied in combination with the eigenvalue criterion, is the scree test, in which the eigenvalues are plotted against the components. Since the principal components are ordered from high to low, the eigenvalues at first drop very quickly, then level off. Usually there is a break in the slope of the line drawn through the first few eigenvalues and the slope of the line drawn through the remaining

eigenvalues. The “kink” between the two lines indicates the cutoff point for components: those before the kink are retained and those after it are omitted.

It is recommended that at least three measures be included in the PCA, several of which should be substantially correlated. To test whether the set of chosen variables is adequate for PCA, Kaiser’s measure of sampling adequacy is usually calculated and a value over 0.60 is considered adequate (Tabachnick and Fidell 2001). For the analysis, the Kaiser measure was calculated and a value higher than 0.60 was obtained except for one component of capability (using information, for which it was 0.56).

Although the principal components explain the common variance among the variables, the component weights, shown in the component loading matrix, cannot be interpreted easily. The initial PCA solution represents the variables in the orthogonal component space. By rotating the space, the variables can be represented such that they are maximally related to certain components, indicating convergent validity, and minimally to other components, indicating discriminant validity. Rotation results in high weights for some components and low weights for other components for the same variable. The rotated component loading matrix can be interpreted more easily, since typically each component is related to a particular set of variables, and not to the remaining variables. The interpretation then follows from the nature of the high-loaded variables. For example, a component that is highly related to questions such as “When you receive money, do you plan how it will be used?,” “Do you plan exactly how you will use the money or only make a rough plan?,” and “Do you keep to the plan you made for spending your money?” might be interpreted as “budgeting.” Rotation may be accomplished in many different ways, the main ones being orthogonal rotation, assuming that the components are unrelated, and oblique, in which case the components are allowed to be correlated. If the structure of the data is not known beforehand, it is good practice to run PCA with oblique rotation first, and if the component correlations are low (e.g., below 0.32), to present the orthogonal rotation, effectively neglecting the low correlations (Tabachnick and Fidell 2001). Interpretation problems arise if the same variable has more than one high loading, in which case the components cannot be interpreted uniquely. Sometimes a solution is to drop such a variable from the analysis.

To assess the reliability of the components, the standard Cronbach’s alpha is used as a measure of reliability based on the number of items related to a component (the more items, the higher the internal consistency will be) and on the average correlation between the items. Cronbach’s alpha varies between 0 and 1, and values higher than 0.65 are typically considered to denote satisfactory reliability. In this project, the Cronbach’s alpha calculated for the components was higher than 0.65 except for

two components (using information and not being impulsive, for which it was 0.37 and 0.61, respectively).

The results of the analysis showed that 10 components could be identified in each country and that their composition was comparable across countries. Two additional components were identified but only applied to subgroups of the population (people under 60 years, and people who choose financial products personally). These components are described in more detail in chapter 6 of Kempson, Perotti, and Scott (2013)].

## A.2 CONSTRUCTING COMPONENT SCORES

Once a group of variables is identified as loading on the same component, a single score can be calculated for each individual with respect to that component, by weighting each variable by the coefficients obtained through the PCA. The most commonly used procedure to obtain the coefficients  $w$  is the regression approach... which calculates the matrix of score coefficients as  $\Lambda\Sigma^{-1}$ .

The component scores are standardized (have zero mean and unit variance) and in principle may run from  $-\infty$  to  $+\infty$ . However, because the range of values of the observed variables is limited, the range of component scores is also limited. One more easily interpretable way of presenting the component scores consists of rescaling them between extremes formed by the responses of an extremely incapable person (who would score 0) and responses of an extremely capable person (who would score 100). This procedure amounts to having the questionnaire completed (hypothetically) by two such extreme persons, then calculating their respective component scores to be used for rescaling. The rescaling formula is

$$S^* = 100*(S - a)/(b - a)$$

with  $S$  the original component score,  $a$  the minimum score, and  $b$  the maximum score.

## A.3 COMPARING FINANCIAL CAPABILITY

Regression analysis was used to examine the extent to which respondents' individual characteristics were associated with each of the 10 components of financial capability. Table A.1 lists the sample summary statistics for the covariates used in the regressions. All are binary variables (equal to 1 if the category applies to the respondent, equal to 0 otherwise), except for the number of adults in the household and the financial knowledge score. The means presented for the binary variables are interpreted as follows: for example, if "female" is on average equal to 0.53, then this means 53 percent of the sample are women.

TABLE A.1 SAMPLE STATISTICS FOR KEY SOCIODEMOGRAPHIC VARIABLES

| VARIABLE                                   | MEAN | STANDARD DEVIATION |
|--|------|--------------------|
| Female                                     | 0.63 | 0.48               |
| Age 18–30                                  | 0.27 | 0.45               |
| Age 31–40                                  | 0.19 | 0.39               |
| Age 41–50                                  | 0.22 | 0.41               |
| Age 51–60                                  | 0.17 | 0.37               |
| Age 60+                                    | 0.16 | 0.37               |
| Primary education at most                  | 0.34 | 0.47               |
| Secondary education                        | 0.45 | 0.5                |
| Tertiary education                         | 0.21 | 0.41               |
| # household members 18+                    | 3.19 | 1.49               |
| Living with a partner                      | 0.6  | 0.49               |
| Has dependent children                     | 0.61 | 0.49               |
| Rural area                                 | 0.34 | 0.47               |
| Income group 1                             | 0.4  | 0.49               |
| Income group 2                             | 0.37 | 0.48               |
| Income group 3                             | 0.16 | 0.37               |
| Income group 4                             | 0.08 | 0.27               |
| Has financial products                     | 0.55 | 0.5                |
| E1: Formal employee                        | 0.19 | 0.39               |
| E2: Informal employee                      | 0.06 | 0.23               |
| E3: Self-employed                          | 0.1  | 0.3                |
| E4: Unemployed                             | 0.03 | 0.18               |
| E5: Waiting for busy season                | 0    | 0.06               |
| E6: Student                                | 0.02 | 0.14               |
| E7: Retired                                | 0.05 | 0.22               |
| E8: Sick                                   | 0    | 0.06               |
| E9: Housework                              | 0.25 | 0.43               |
| E10: Other                                 | 0.29 | 0.45               |
| Financial literacy score                   | 2.86 | 1.11               |
| Responsible for day to day                 | 0.83 | 0.38               |
| Responsible for planning                   | 0.81 | 0.39               |
| Responsible for choosing financial product | 0.49 | 0.5                |
| Income seasonality: no income              | 0.07 | 0.26               |
| Income seasonality: variable income        | 0.63 | 0.48               |
| Income seasonality: stable income          | 0.3  | 0.46               |

Source: World Bank and Government of Colombia Financial Capability Survey data.

Note:  $n = 1,526$ .



# Segmenting the population using cluster analysis

This appendix draws on analysis from Kempson, Perotti, and Scott (2013) summarizing results from all of the countries in the Russia Financial Literacy and Education Trust Fund financial capability project. Cluster analysis was used by the project team to segment the population into groups with comparable levels of capability. This iterative procedure aggregates individuals into groups that have shared attributes distinguishing them from others in the population (in this case, similar financial capability strengths and weaknesses). This approach was used, for example, in the United Kingdom and in the Netherlands.

The clustering process consists of two steps: proximity analysis (to calculate dissimilarity measures between respondents) and hierarchical cluster analysis (to determine the number of clusters). The steps are described below, as per Kempson, Perotti, and Scott (2013: 64).

## B.1 PROXIMITY ANALYSIS

This step is only required if a single measure of financial capability cannot be developed. In this case, individuals need to be compared along many dimensions, by calculating a dissimilarity measure that takes into account all the dimensions. Several methods can be used to calculate dissimilarity, but a very common one is the squared Euclidean distance, defined as

$$d(X, Y) = \sum_i (X_i - Y_i)^2$$

with  $X_i$  and  $Y_i$  the values of the  $i$ th variable for individuals  $X$  and  $Y$ . In other words, the distance between two observations is calculated as the sum of the squared differences between the values of the observations. Note that this measure should not be interpreted as an overall index of capability, but simply as a practical method to identify individuals who have similar capability scores across the different dimensions.

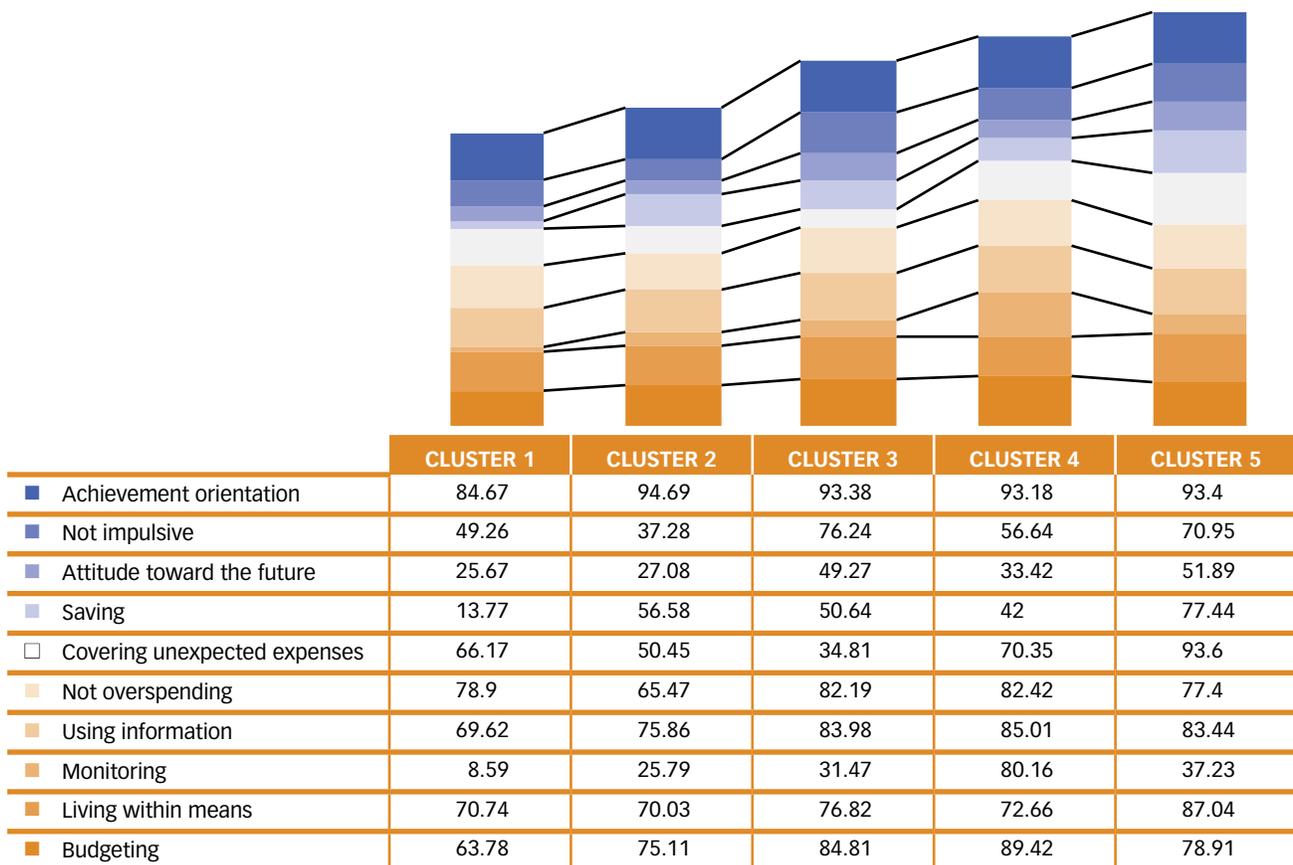
## B.2 HIERARCHICAL CLUSTER ANALYSIS

The distances between the respondents serve as a starting point for the hierarchical cluster analysis to determine the number of clusters or groups of respondents. The procedure initially assigns each of the  $N$  respondents to a separate cluster, so that

in the first iteration there are  $N$  clusters. In each of a maximum of  $N-1$  consecutive steps, the two most similar clusters are merged. Clusters that are combined in later stages are more dissimilar than clusters that are combined in earlier stages. If the within-cluster variation in adjacent steps becomes too large, it is considered an indication that the two clusters are too dissimilar for merging: the process is terminated before merging the dissimilar clusters. The differences of the minimized within-cluster sum of squares between two steps are used to determine the number of clusters (Ward’s method; see Bacher, Pöge, and Wenzig 2010).

We can then describe, or profile, the types of people who tend to be in each of the clusters by summarizing their sociodemographic characteristics (age, gender, relationship with household head, education, income, etc.). Regression models can also be estimated to look at these characteristics jointly. For example, by estimating a logistic regression model for the probability of belonging or not belonging to each of the clusters, we may find that people with specific characteristics (e.g., women or respondents with dependent children) are more likely to belong to a particular cluster than people with different characteristics.

FIGURE B.1 SCORES ON FINANCIAL CAPABILITY COMPONENTS BY CLUSTER



Source: World Bank and Government of Colombia Financial Capability Survey data.

# Youth financial capability

This appendix compares the youth population, aged 18–24, with the adult population, on the three key aspects of financial capability—knowledge, attitudes, and behavior—with the goal of providing information on a population often targeted for financial education interventions. Young people are entering an increasingly complex financial services market due to the opening up of emerging markets, technological advances, and financial deregulation. Potentially, they have access to a greater variety of financial products than older generations and, in some cases, must make important financial decisions at younger ages. In this changing financial environment in middle- and low-income countries, parents are not uniformly equipped to transmit sound financial management skills. For poorer parents, their educational levels and financial knowledge may be lower than that of their children. This would suggest that one of the mechanisms by which governments can support financial decisions of the poor is through increasing the financial capability of youth.

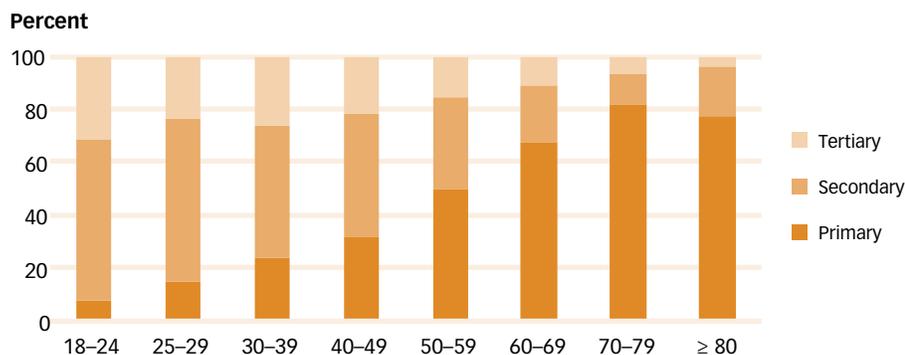
For this analysis, “youth” is defined as those between the ages of 18 and 24. The sample age range in the Colombian Financial Capability Survey is 18–97, with a median age of 42. The adult population is divided into two categories, those between the ages of 25 and 59—typically the age range for active labor force participation—and those aged 60 and over.

## C.1 EDUCATION, EMPLOYMENT, AND PARTICIPATION IN HOUSEHOLD FINANCES

Colombian youth are much better educated than older cohorts, with 32 percent of youth having completed tertiary education and 60 percent having completed secondary education. Fourteen percent of youth report that they are still students. By comparison, only 22 percent of adults in the age 25–59 category have completed tertiary education and only 47 percent have completed secondary education (figure C.1). However, the higher educational attainment of youth does not necessarily translate into better financial capability, as discussed below.

Youth in Colombia are more likely to report formal sector employment than older cohorts. Twenty-six percent of youth in Colombia have formal sector jobs, while only 11 percent are self-employed or in the informal sector; another 14 percent self-

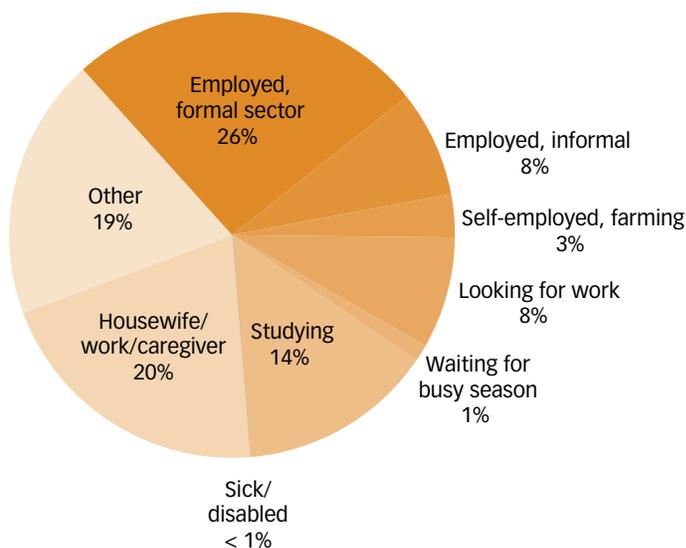
FIGURE C.1 EDUCATIONAL ATTAINMENT BY AGE



Source: World Bank and Government of Colombia Financial Capability Survey data.

report as students (figure C.2). This picture changes for the age 25–59 group, as the percentage reporting formal sector jobs drops to 22 percent and the percentage of self-employed and those in informal sector jobs increases to 17 percent. The percentage of respondents reporting “other” employment jumps significantly from 19 percent to 32 percent between the age 18–24 and 25–29 groups. Across age groups, the respondents who report no employment outside the home are consistently female. Housework and caring for family members is the responsibility of women. Thirty-two percent of female youth report no employment outside of the home; this percentage increases (to 37–55 percent) in the older age groups.

FIGURE C.2 EMPLOYMENT OF YOUTH (AGED 18–24)



Source: World Bank and Government of Colombia Financial Capability Survey data.

Although most are financially active, Colombian youth are less likely to contribute to the household and participate in household financial decision making than are adults. Although the majority of youth (59 percent of those in the age 18–24 group) are still living with parents, they are financially active. Sixty-six percent of youth contribute to household budgets, and 72 percent participate in household financial decisions. The high level of financial involvement of Colombian youth is also reflected in personal financial management. Sixty-nine percent of Colombian youth report that they are “mainly” responsible for their own personal spending.

## C.2 FINANCIAL KNOWLEDGE, ATTITUDES, AND BEHAVIORS

While youth score higher on questions of financial knowledge compared to the age 60 and over group, their financial knowledge is largely on par with adults in the age 25–59 groups (see figure 4.4 in chapter 4). This is not surprising given that the average educational level of youth is higher than in older age groups. As the purchasing power of the age 18–24 group increases and as they gain financial independence, we would expect to see increases in their financial knowledge beyond the level of the current adult cohort.

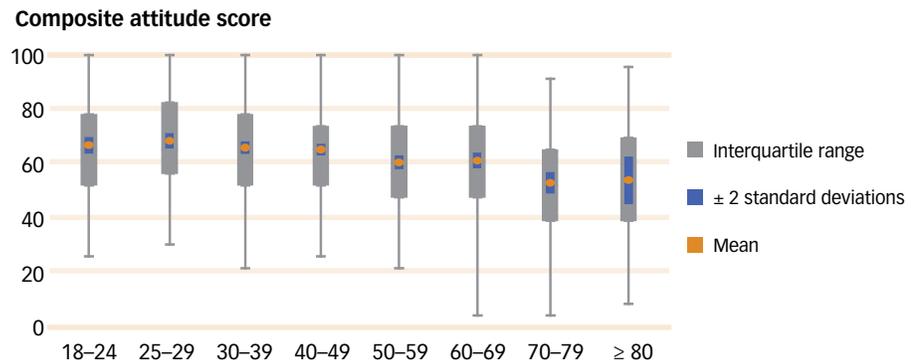
Colombian youth do slightly better than adults on basic questions of division, the concept of interest rates, and the time value of money (inflation); these differences are, however, statistically insignificant. They do slightly worse than adults on the more complex questions of principal and compound interest. On the compound interest question, Colombian youth score significantly lower than the age 25–59 group, but overall only about 1 in 5 respondents answered this question correctly. Eighty-five percent of Colombian youth are able to do simple division, and 73 percent understand the concept of the time value of money. The majority of youth understand simple interest rate calculations.

Youth appear to prioritize longer-term needs more than older age groups. Attitudes form a crucial link between knowledge and behaviors, and figure 4.5 in chapter 4 shows a trend between age and time preference. Older groups are more focused on the present, whereas youth are more likely to be concerned about future needs. For the statement “The future will take care of itself,” 46 percent of Colombian youth agreed strongly or to some extent. The proportions agreeing with this statement are even higher in older age groups. Sixty percent of Colombian adults in the age 25–59 category agreed with this statement, as did 75 percent of those in the age 60 and over category. Responses to the statements “I only focus on the short term” and “I live more for the present day” show similar trends.

Analysis of responses to questions about impulsivity and achievement orientation indicates that while youth are more impulsive in speech and action than adults, their achievement orientation is comparable to that of adult cohorts. A composite score

for attitudes was developed by combining individual responses to the questions on attitude toward the future, impulsivity, and achievement orientation. Figure C.3 shows the distribution of this composite score for each age group. The mean score of youth in the age 18–24 group is higher than that of all other age groups except the age 25–29 group. The differences between youth and middle-aged cohorts are largely insignificant at the 95 percent confidence level, but youth do have a significantly higher score than the age 60 and over groups.

**FIGURE C.3 MEAN SCORE ON A COMPOSITE INDEX OF ATTITUDES BY AGE GROUP**



Source: World Bank and Government of Colombia Financial Capability Survey data.

On indicators of sound financial management, such as not overspending and budgeting, youth score slightly lower than adults. Colombian youth find it significantly more difficult to not overspend compared to older age groups. As shown in figure 4.6 in chapter 4, youth score significantly lower on budgeting behavior compared to the age 25–59 group. Reasons behind this might be that youth simply face greater expenses than adults as they are trying to establish careers and households, or that since the majority of youth are living with parents, they have some buffer against the consequences of overspending.

Few youth (or adults) report actively monitoring spending. The mean score for youth on monitoring expenses is 35, indicating only approximate knowledge of how much money is available and how funds are spent. Youth do report living within their means for the most part. The mean score for youth on living within their means is 76 for Colombia, indicating fairly low rates of indebtedness and short-term borrowing. The majority of youth are using information in financial decision making, although at slightly lower levels than the adult population. Adults in the age 25–59 groups outperform youth on measures of choosing financial products, obtaining financial information to support decision making, and the ability to cover unexpected expenses.

# Methodology to analyze linkages between financial capability and financial inclusion

## D.1 RELATIONSHIP BETWEEN FINANCIAL KNOWLEDGE AND FINANCIAL CAPABILITY

To analyze the relationship between financial knowledge and financial capability, table D.1 displays the results from 10 separate ordinary least squares regressions of the following form:

$$FinancialCapability_{i,m} = \alpha + \beta FinancialKnowledge_{i,m} + \gamma X_{i,m} + \delta Z_m + \varepsilon_{i,m} \quad (1)$$

where *FinancialCapability* is one of 10 measures of financial capability (see full list in table D.1), *FinancialKnowledge* is the financial knowledge score (see definition in table D.6), *X* is a set of individual control variables (see table D.8), and *Z* is a set of municipality control variables (see table D.9). The control variables are included to isolate the relationship between financial knowledge and capability that is not driven by these other variables. The standard errors of the regression are clustered at the municipality level.

The numbers reported in the first row of table D.1 are the coefficients  $\beta$  from the 10 regressions. That is, they show the partial correlations between financial knowledge and each measure of capability after controlling for personal and municipality characteristics that could be driving the relationship. The sizes of the correlations represent the increase in each financial capability measure for a one-point increase in the financial knowledge score (as described below, the financial knowledge score runs from 0 to 5, representing the number of correct answers to five financial knowledge questions, while the financial capability measures are scaled from 0 to 100).

Figure 6.1 in chapter 6 graphically displays the results in the first row of table D.1. The numbers plotted in this figure show by how much each financial capability measure increases when the financial knowledge score increases by one standard deviation (the standard deviation of this score is 1.1), where the increase in the capability measure is scaled to represent percentage points of the standard deviation of the capability measure.

TABLE D.1 RELATIONSHIP BETWEEN FINANCIAL KNOWLEDGE AND FINANCIAL CAPABILITY

| VARIABLE                         | DEPENDENT VARIABLE: FINANCIAL CAPABILITY |                     |                   |                   |                     |
|----------------------------------|--|---------------------|-------------------|-------------------|---------------------|
|                                  | BUDGETING                                | MONITORING EXPENSES | USING INFORMATION | NOT OVER-SPENDING | LIVING WITHIN MEANS |
| Financial knowledge score        | 0.687 (0.630)                            | 2.406** (1.105)     | 0.714 (0.529)     | 0.449 (0.545)     | 0.311 (0.458)       |
| Female                           | 5.746*** (1.656)                         | -2.938 (1.984)      | 1.267 (1.226)     | 2.247** (1.145)   | -0.919 (1.510)      |
| Middle aged (35–39)              | -2.266 (1.557)                           | 0.878 (2.169)       | -2.480* (1.337)   | 5.762*** (1.254)  | -4.194*** (1.353)   |
| Old age (60+)                    | 1.214 (2.730)                            | 6.968** (3.412)     | -1.403 (1.709)    | 11.826*** (1.633) | 2.681 (1.860)       |
| Married                          | 2.529 (1.722)                            | -0.844 (2.421)      | 2.366* (1.406)    | 0.276 (1.370)     | -1.191 (1.367)      |
| Secondary education              | 1.690 (2.112)                            | 0.991 (2.861)       | 2.035 (1.942)     | -7.551*** (2.314) | -0.743 (1.714)      |
| Higher education                 | 0.366 (1.870)                            | 5.778** (2.636)     | 2.235 (1.596)     | -9.618*** (1.553) | 2.175 (1.775)       |
| Formal job                       | 7.587*** (2.218)                         | 4.994 (3.659)       | 0.815 (1.765)     | -1.212 (2.244)    | 4.568** (1.784)     |
| Employed                         | -3.447* (1.850)                          | 0.902 (2.843)       | -0.041 (1.501)    | 0.628 (2.082)     | -1.647 (1.637)      |
| Medium income                    | -1.205 (1.437)                           | 0.936 (2.351)       | 0.648 (1.579)     | -4.208*** (1.391) | 2.765** (1.266)     |
| High income                      | -1.292 (2.494)                           | 5.193 (3.560)       | 0.703 (1.879)     | -4.112* (2.227)   | 5.852*** (1.840)    |
| Household questions              | 7.642*** (2.617)                         | 0.542 (3.845)       | 11.166*** (2.648) | 6.439** (3.155)   | -0.100 (3.560)      |
| Rural location                   | -0.148 (1.998)                           | -3.769 (2.847)      | -1.786 (1.440)    | 0.146 (1.523)     | 1.085 (1.364)       |
| In-between wealthy region        | -1.032 (4.260)                           | 1.608 (2.998)       | 1.484 (2.340)     | -2.038 (4.012)    | 3.444 (5.257)       |
| Poor region                      | -3.638 (4.202)                           | 3.068 (3.775)       | 1.986 (2.110)     | 0.858 (4.202)     | 2.999 (5.662)       |
| Bank branches per 10,000 adults  | -0.978 (2.023)                           | 3.576 (2.436)       | -2.415 (1.550)    | 1.629 (1.627)     | -0.166 (1.271)      |
| Correspondents per 10,000 adults | -0.211 (0.259)                           | -1.114** (0.451)    | 0.179 (0.216)     | -0.906** (0.377)  | -0.153 (0.238)      |
| Transfers per capita             | -1.767 (4.930)                           | 0.342 (6.752)       | 10.383** (4.550)  | -7.498 (5.787)    | -2.174 (4.054)      |
| Constant                         | 71.369*** (6.442)                        | 22.027*** (6.838)   | 62.797*** (5.332) | 82.165*** (5.471) | 72.459*** (5.022)   |
| R-squared                        | 0.077                                    | 0.093               | 0.063             | 0.187             | 0.076               |
| Observations                     | 1,251                                    | 1,251               | 1,251             | 1,251             | 1,251               |

*(continued)*

TABLE D.1 RELATIONSHIP BETWEEN FINANCIAL KNOWLEDGE AND FINANCIAL CAPABILITY (continued)

| VARIABLE                         | DEPENDENT VARIABLE: FINANCIAL CAPABILITY |                    |                            |                     |                         |
|----------------------------------|--|--------------------|----------------------------|---------------------|-------------------------|
|                                  | COVERING UNEXPECTED EXPENSES             | SAVING             | ATTITUDE TOWARD THE FUTURE | NOT BEING IMPULSIVE | ACHIEVEMENT ORIENTATION |
| Financial knowledge score        | 0.360 (0.921)                            | 2.013** (0.949)    | 1.848** (0.813)            | 3.020*** (0.893)    | 1.628*** (0.449)        |
| Female                           | 0.025 (2.006)                            | -5.445*** (1.716)  | -2.646 (1.621)             | 1.730 (1.965)       | -3.039** (1.186)        |
| Middle aged (35–39)              | 1.397 (2.197)                            | -8.729*** (2.271)  | -7.271*** (2.025)          | 1.741 (1.983)       | -1.456 (0.938)          |
| Old age (60+)                    | -0.282 (2.778)                           | -16.356*** (3.123) | -12.781*** (2.758)         | 7.495*** (2.638)    | -12.334*** (1.770)      |
| Married                          | -1.608 (1.979)                           | -1.168 (2.099)     | 1.981 (2.214)              | 1.743 (2.311)       | 2.376*** (0.867)        |
| Secondary education              | 2.146 (2.494)                            | 7.078** (2.829)    | 0.100 (3.091)              | 1.272 (3.025)       | 1.944* (1.118)          |
| Higher education                 | -0.023 (2.205)                           | 7.942*** (2.846)   | 9.963*** (2.242)           | 6.075** (2.521)     | 0.748 (1.280)           |
| Formal job                       | -3.485 (2.948)                           | 2.765 (3.429)      | 2.335 (3.226)              | 4.768* (2.691)      | -1.027 (1.168)          |
| Employed                         | -1.774 (2.520)                           | 2.426 (2.781)      | -2.450 (2.736)             | -2.699 (2.577)      | 3.543*** (0.857)        |
| Medium income                    | -1.495 (1.967)                           | 5.434** (2.189)    | 3.487 (2.370)              | 2.428 (2.271)       | -0.545 (1.130)          |
| High income                      | 3.565 (3.026)                            | 8.614*** (3.228)   | 7.468*** (2.877)           | 3.953 (2.993)       | 0.124 (1.600)           |
| Household questions              | -1.032 (4.473)                           | 13.969*** (3.737)  | 2.723 (3.337)              | -3.855 (4.561)      | 1.482 (1.281)           |
| Rural location                   | 1.399 (2.111)                            | -0.422 (2.493)     | 3.638 (2.490)              | -0.980 (2.479)      | 0.363 (1.019)           |
| In-between wealthy region        | -2.428 (4.902)                           | -5.926 (4.799)     | -18.115*** (5.465)         | -7.320 (5.200)      | 1.888 (2.096)           |
| Poor region                      | -3.730 (5.067)                           | -5.374 (5.147)     | -18.257*** (5.697)         | -5.090 (5.329)      | -0.558 (2.658)          |
| Bank branches per 10,000 adults  | -0.671 (2.140)                           | 3.431 (2.607)      | -2.250 (2.191)             | 2.872 (2.172)       | -2.111** (0.998)        |
| Correspondents per 10,000 adults | 0.099 (0.353)                            | -0.267 (0.420)     | 0.460 (0.393)              | -0.959** (0.399)    | 0.277* (0.148)          |
| Transfers per capita             | 2.815 (5.979)                            | 6.103 (7.380)      | 7.971 (8.095)              | -11.792* (6.370)    | 5.492** (2.713)         |
| Constant                         | 65.559*** (8.148)                        | 26.259*** (6.894)  | 44.184*** (7.784)          | 51.856*** (7.246)   | 86.197*** (3.212)       |
| R-squared                        | 0.034                                    | 0.149              | 0.138                      | 0.067               | 0.197                   |
| Observations                     | 1,251                                    | 1,251              | 1,251                      | 1,251               | 1,251                   |

Source: World Bank and Government of Colombia Financial Capability Survey data.

Note: Robust standard errors, clustered at the municipality level, in parentheses. Regressions also include 22 department dummy variables that are not reported in the table. Statistical significance levels: \* 10 percent, \*\* 5 percent, \*\*\* 1 percent.

## D.2 RELATIONSHIP BETWEEN FINANCIAL KNOWLEDGE, FINANCIAL CAPABILITY, AND PRODUCT USAGE

To analyze the relationship between financial knowledge, financial capability, and product usage, table 6.1 in chapter 6 displays the results from 55 separate ordinary least squares regressions (five product usage measures multiplied by 11 financial knowledge or capability measures) of the following form:

$$ProductUsage_{i,m} = \alpha + \beta FinancialCapability_{i,m} + \gamma X_{i,m} + \delta Z_m + \varepsilon_{i,m} \quad (2)$$

where *ProductUsage* is a dummy variable indicating whether the individual *i* in municipality *m* reports having the financial product (see full list of product usage dummy variables in table D.7), *FinancialCapability* is a measure of financial knowledge or capability (see full list in table D.6), *X* is a set of individual control variables (see table D.8), and *Z* is a set of municipality control variables (see table D.9). The control variables are included to isolate the relationship between financial capability and product usage that is not driven by these other variables. The standard errors of the regression are clustered at the municipality level.

The numbers reported in table 6.1 are the coefficients  $\beta$  from the 55 regressions. Tables D.2 and D.3 display the full regressions for the financial knowledge score and the financial capability index.

Figure 6.2 in chapter 6 plots the percentage of individuals with low financial education who report having each financial product, where low financial capability is defined as having a financial capability index below the median. The bars for individuals with high financial capability are computed as the percentage of individuals with low financial education who report having each financial product plus the coefficient from the following regression multiplied by 100 (for each financial product):

$$ProductUsage_{i,m} = \alpha + \beta HighFinancialCapability_{i,m} + \gamma X_{i,m} + \delta Z_m + \varepsilon_{i,m} \quad (3)$$

where all variables are defined as in equation (2), except that *HighFinancialCapability* is an indicator variable for the individual having a financial capability index above the median. The standard errors of the regression are clustered at the municipality level.

The coefficient  $\beta$  in equation (3) represents the difference in product usage across individuals with high and low financial capability, after controlling for individual and municipality characteristics that could be driving this difference.

TABLE D.2 FINANCIAL KNOWLEDGE AND USE OF FINANCIAL PRODUCTS

| VARIABLE                         | DEPENDENT VARIABLE:<br>DUMMY VARIABLE INDICATING WHETHER THE INDIVIDUAL HAS A |                   |                  |                     |                    |
|----------------------------------|---|-------------------|------------------|---------------------|--------------------|
|                                  | BANK<br>ACCOUNT   | CREDIT CARD       | FORMAL LOAN      | INFORMAL<br>SAVINGS | INFORMAL<br>CREDIT |
| Financial knowledge score        | 0.018* (0.010)  | -0.014 (0.009)    | 0.012 (0.010)    | 0.005 (0.005)       | 0.008 (0.005)      |
| Female                           | -0.065*** (0.022)   | -0.006 (0.018)    | -0.031 (0.024)   | 0.018 (0.011)       | -0.005 (0.016)     |
| Middle aged (35–39)              | 0.010 (0.026)   | 0.043* (0.026)    | 0.024 (0.025)    | -0.025 (0.015)      | 0.012 (0.015)      |
| Old age (60+)                    | 0.061* (0.033)  | 0.021 (0.028)     | -0.018 (0.029)   | -0.031 (0.025)      | -0.019 (0.020)     |
| Married                          | 0.003 (0.028)   | 0.027 (0.021)     | 0.030 (0.027)    | 0.027 (0.017)       | -0.011 (0.016)     |
| Secondary education              | 0.072** (0.033)   | -0.002 (0.022)    | 0.016 (0.030)    | 0.025 (0.020)       | -0.021 (0.022)     |
| Higher education                 | 0.163*** (0.027)  | 0.071*** (0.021)  | 0.026 (0.030)    | 0.015 (0.016)       | -0.021 (0.022)     |
| Formal job                       | 0.323*** (0.036)  | 0.111*** (0.031)  | 0.041 (0.037)    | -0.015 (0.027)      | -0.026 (0.032)     |
| Employed                         | -0.017 (0.026)  | 0.007 (0.021)     | 0.022 (0.025)    | 0.026 (0.016)       | 0.040 (0.025)      |
| Medium income                    | 0.070** (0.028)   | 0.063*** (0.021)  | 0.108*** (0.025) | 0.008 (0.016)       | 0.012 (0.019)      |
| High income                      | 0.277*** (0.041)  | 0.262*** (0.036)  | 0.202*** (0.033) | 0.030 (0.024)       | 0.013 (0.023)      |
| Household questions              | 0.060 (0.044)   | 0.063** (0.032)   | 0.135*** (0.031) | 0.055** (0.025)     | 0.038* (0.022)     |
| Rural location                   | 0.040 (0.026)   | -0.005 (0.018)    | -0.034 (0.025)   | 0.014 (0.013)       | -0.023 (0.021)     |
| In-between wealthy region        | 0.035 (0.056)   | 0.049 (0.032)     | 0.014 (0.067)    | 0.008 (0.037)       | -0.024 (0.033)     |
| Poor region                      | 0.012 (0.047)   | 0.075*** (0.028)  | 0.031 (0.086)    | -0.010 (0.038)      | -0.031 (0.039)     |
| Bank branches per 10,000 adults  | 0.025 (0.026)   | 0.006 (0.016)     | -0.004 (0.025)   | -0.002 (0.014)      | 0.013 (0.013)      |
| Correspondents per 10,000 adults | -0.001 (0.005)  | 0.001 (0.003)     | -0.008* (0.005)  | 0.003 (0.003)       | -0.003 (0.002)     |
| Transfers per capita             | 0.110 (0.082)   | 0.120** (0.058)   | 0.086 (0.069)    | 0.012 (0.054)       | 0.146*** (0.041)   |
| Constant                         | -0.103 (0.102)  | -0.193*** (0.059) | -0.155 (0.096)   | 0.001 (0.048)       | -0.021 (0.047)     |
| R-squared                        | 0.304   | 0.186             | 0.120            | 0.068               | 0.052              |
| Observations                     | 1,251   | 1,251             | 1,251            | 1,251               | 1,251              |

Source: World Bank and Government of Colombia Financial Capability Survey data.

Note: Robust standard errors, clustered at the municipality level, in parentheses. Regressions also include 22 department dummy variables that are not reported in the table. Statistical significance levels: \* 10 percent, \*\* 5 percent, \*\*\* 1 percent.

TABLE D.3 FINANCIAL CAPABILITY AND USE OF FINANCIAL PRODUCTS

| VARIABLE                         | DEPENDENT VARIABLE:<br>DUMMY VARIABLE INDICATING WHETHER THE INDIVIDUAL HAS A |                   |                  |                  |                  |
|----------------------------------|---|-------------------|------------------|------------------|------------------|
|                                  | BANK ACCOUNT  | CREDIT CARD       | FORMAL LOAN      | INFORMAL SAVINGS | INFORMAL CREDIT  |
| Financial capability index       | 0.056*** (0.009)  | 0.007 (0.007)     | 0.014* (0.008)   | 0.013** (0.005)  | -0.008 (0.006)   |
| Female                           | -0.065*** (0.022)   | -0.002 (0.017)    | -0.033 (0.024)   | 0.018 (0.011)    | -0.008 (0.016)   |
| Middle aged (35–39)              | 0.019 (0.025)   | 0.042 (0.026)     | 0.027 (0.025)    | -0.022 (0.015)   | 0.012 (0.015)    |
| Old age (60+)                    | 0.066** (0.030)   | 0.029 (0.028)     | -0.020 (0.028)   | -0.030 (0.024)   | -0.024 (0.019)   |
| Married                          | -0.001 (0.027)  | 0.024 (0.021)     | 0.029 (0.027)    | 0.026 (0.017)    | -0.009 (0.016)   |
| Secondary education              | 0.067** (0.033)   | -0.005 (0.022)    | 0.016 (0.030)    | 0.024 (0.020)    | -0.019 (0.022)   |
| Higher education                 | 0.152*** (0.025)  | 0.062*** (0.020)  | 0.027 (0.030)    | 0.013 (0.016)    | -0.014 (0.022)   |
| Formal job                       | 0.311*** (0.035)  | 0.110*** (0.031)  | 0.038 (0.037)    | -0.018 (0.027)   | -0.025 (0.032)   |
| Employed                         | -0.014 (0.028)  | 0.005 (0.021)     | 0.023 (0.026)    | 0.027 (0.017)    | 0.041 (0.025)    |
| Medium income                    | 0.069** (0.028)   | 0.059*** (0.020)  | 0.110*** (0.025) | 0.008 (0.016)    | 0.015 (0.019)    |
| High income                      | 0.266*** (0.040)  | 0.254*** (0.036)  | 0.202*** (0.034) | 0.027 (0.024)    | 0.019 (0.023)    |
| Household questions              | 0.036 (0.042)   | 0.060* (0.033)    | 0.129*** (0.031) | 0.050** (0.025)  | 0.042* (0.022)   |
| Rural location                   | 0.042 (0.027)   | -0.006 (0.018)    | -0.032 (0.025)   | 0.014 (0.013)    | -0.022 (0.021)   |
| In-between wealthy region        | 0.051 (0.047)   | 0.058* (0.033)    | 0.015 (0.071)    | 0.011 (0.037)    | -0.031 (0.034)   |
| Poor region                      | 0.026 (0.041)   | 0.086*** (0.029)  | 0.030 (0.090)    | -0.007 (0.039)   | -0.039 (0.041)   |
| Bank branches per 10,000 adults  | 0.023 (0.025)   | 0.006 (0.016)     | -0.004 (0.025)   | -0.002 (0.015)   | 0.013 (0.014)    |
| Correspondents per 10,000 adults | 0.000 (0.005)   | 0.002 (0.003)     | -0.008 (0.005)   | 0.003 (0.003)    | -0.003 (0.002)   |
| Transfers per capita             | 0.105 (0.082)   | 0.116** (0.057)   | 0.087 (0.069)    | 0.011 (0.055)    | 0.150*** (0.042) |
| Constant                         | -0.395*** (0.096)   | -0.273*** (0.066) | -0.210* (0.117)  | -0.065 (0.060)   | 0.049 (0.065)    |
| R-squared                        | 0.323   | 0.185             | 0.121            | 0.072            | 0.052            |
| Observations                     | 1,251   | 1,251             | 1,251            | 1,251            | 1,251            |

Source: World Bank and Government of Colombia Financial Capability Survey data.

Note: Robust standard errors, clustered at the municipality level, in parentheses. Regressions also include 22 department dummy variables that are not reported in the table. Statistical significance levels: \* 10 percent, \*\* 5 percent, \*\*\* 1 percent.

Tables D.4 and D.5 each display the results from four separate ordinary least squares regressions (two types of formal financial products—bank accounts and credit cards—times two types of access points—bank branches and banking correspondents) of the following form:

$$ProductUsage_{i,m} = \alpha + \beta HighFinancialCapability_{i,m} + \beta_1 HighFinancialCapability_{i,m} \times BankBranches_m + \beta_2 LowFinancialCapability_{i,m} \times BankBranches_m + \gamma X_{i,m} + \delta Z_m + \varepsilon_{i,m} \quad (4)$$

$$ProductUsage_{i,m} = \alpha + \beta HighFinancialCapability_{i,m} + \beta_1 HighFinancialCapability_{i,m} \times Correspondents_m + \beta_2 LowFinancialCapability_{i,m} \times Correspondents_m + \gamma X_{i,m} + \delta Z_m + \varepsilon_{i,m} \quad (5)$$

where all variables are defined as in equation (2), but instead of including control variables for bank branches per 10,000 adults or correspondents per 10,000 adults, the regression includes two interaction terms between either (1) number of bank branches per 10,000 adults in the municipality times an indicator variable for the individual having high financial capability or knowledge and (2) number of bank branches per 10,000 adults in the municipality times an indicator variable for the individual having low financial capability or knowledge; or (1) number of correspondents per 10,000 adults in the municipality times an indicator variable for the individual having high financial capability or knowledge and (2) number of correspondents per 10,000 adults in the municipality times an indicator variable for the individual having low financial capability or knowledge. The interaction terms with bank branches and correspondents are not included in the same regression since they are highly correlated with each other. The standard errors of the regressions are clustered at the municipality level. Tables D.4 and D.5 display the coefficients  $\beta_1$  and  $\beta_2$  from equations (4) and (5) which represent the partial correlation between bank branches or correspondents and financial product usage for individuals with high or low financial capability (or knowledge), respectively.

TABLE D.4 PARTIAL CORRELATIONS BETWEEN FINANCIAL ACCESS POINTS AND USE OF FINANCIAL PRODUCTS, BY FINANCIAL CAPABILITY LEVEL

|  | DEPENDENT VARIABLE:<br>DUMMY VARIABLE INDICATING WHETHER THE INDIVIDUAL HAS A |         |             |         |
|--|---|---------|-------------|---------|
|  | BANK ACCOUNT  |         | CREDIT CARD |         |
| Bank branches per 10,000 adults ×<br>Individuals with high financial capability          | 0.066**   | (0.030) | 0.017       | (0.019) |
| Bank branches per 10,000 adults ×<br>Individuals with low financial capability           | -0.016  | (0.028) | 0.004       | (0.018) |
| Banking correspondents per 10,000 adults ×<br>Individuals with high financial capability | 0.010**   | (0.005) | 0.005**     | (0.002) |
| Banking correspondents per 10,000 adults ×<br>Individuals with low financial capability  | -0.007  | (0.005) | -0.001      | (0.003) |

**Sources:** BRC; World Bank and Government of Colombia Financial Capability Survey data (see below for details and sources of control variables).

**Note:** Regressions include the following control variables (see tables below for definitions): female, middle-aged, old age, married, secondary education, higher education, formal job, employed, medium income, high income, household questions, rural location, bank branches per 10,000 adults, correspondents per 10,000 adults, transfers per capita, in-between wealthy region, poor region, and 22 department dummy variables. Robust standard errors in parentheses. Statistical significance levels: \* 10 percent, \*\* 5 percent, \*\*\* 1 percent.

TABLE D.5 PARTIAL CORRELATIONS BETWEEN FINANCIAL ACCESS POINTS AND USE OF FINANCIAL PRODUCTS, BY FINANCIAL KNOWLEDGE LEVEL

|  | DEPENDENT VARIABLE:<br>DUMMY VARIABLE INDICATING WHETHER THE INDIVIDUAL HAS A |         |             |         |
|--|---|---------|-------------|---------|
|  | BANK ACCOUNT  |         | CREDIT CARD |         |
| Bank branches per 10,000 adults ×<br>Individuals with high financial capability          | 0.037   | (0.028) | 0.010       | (0.019) |
| Bank branches per 10,000 adults ×<br>Individuals with low financial capability           | -0.009  | (0.028) | 0.010       | (0.023) |
| Banking correspondents per 10,000 adults ×<br>Individuals with high financial capability | 0.002   | (0.005) | 0.003       | (0.002) |
| Banking correspondents per 10,000 adults ×<br>Individuals with low financial capability  | -0.001  | (0.005) | -0.001      | (0.003) |

**Sources:** BRC; World Bank and Government of Colombia Financial Capability Survey data (see below for details and sources of control variables).

**Note:** Regressions include the following control variables (see tables below for definitions): female, middle-aged, old age, married, secondary education, higher education, formal job, employed, medium income, high income, household questions, rural location, bank branches per 10,000 adults, correspondents per 10,000 adults, transfers per capita, in-between wealthy region, poor region, and 22 department dummy variables. Robust standard errors in parentheses. Statistical significance levels: \* 10 percent, \*\* 5 percent, \*\*\* 1 percent.

TABLE D.6 COLOMBIAN FINANCIAL LITERACY SURVEY VARIABLE DEFINITIONS: FINANCIAL KNOWLEDGE AND FINANCIAL CAPABILITY

| VARIABLE  | DEFINITION  |
|---|---|
| Financial knowledge index   | Number of correct answers to five financial knowledge questions (index from 0 to 5)       |
| Nine components of financial capability (budgeting, monitoring expenses, using information, not overspending, covering unexpected expenses, saving, attitude toward the future, not impulsive, achievement orientation) | As defined in previous chapters (scale from 0 to 100)                                     |
| Financial capability index  | Simple average of nine financial capability components listed above (scale from 0 to 100) |

TABLE D.7 COLOMBIAN FINANCIAL LITERACY SURVEY VARIABLE DEFINITIONS: FINANCIAL PRODUCT USAGE

| VARIABLE         | DEFINITION  |
|------------------|---|
| Bank account     | Based on questions d_1_10 and d_1_11<br>Dummy variable indicating whether the respondent reports having a "Cuenta de ahorros" or "Cuenta corriente (chequera)"  |
| Credit card      | Based on question d_1_6<br>Dummy variable indicating whether the respondent reports having "Tarjetas de crédito"  |
| Formal loan      | Based on questions d_1_5 and d_1_8<br>Dummy variable indicating whether the respondent reports having a "Un crédito formal (por ejemplo de consumo, que sea diferente de familia o amigos)" or "Un crédito formal de una entidad de microcrédito" |
| Informal savings | Based on question d_1_13<br>Dummy variable indicating whether the respondent reports having "Ahorro informal (roscas, natilleras, cadenas)"   |
| Informal credit  | Based on question d_1_12<br>Dummy variable indicating whether the respondent reports having "Crédito informal (prestamistas informales como casas de empeño, gota a gota, pagadario)"   |

TABLE D.8 COLOMBIAN FINANCIAL LITERACY SURVEY VARIABLE DEFINITIONS: INDIVIDUAL CONTROL VARIABLES

| VARIABLE            | DEFINITION  |
|---------------------|---|
| Female              | Based on question r_2<br>Dummy variable indicating whether the individual is female   |
| Age                 | Based on question r_4<br>Two dummy variables indicating whether the individual is middle-aged (35–59) or old (over 59); “young” (18–34) is the omitted category in the regressions  |
| Marital status      | Based on question f_2<br>Dummy variable indicating whether the individual is married  |
| Education           | Based on question r_8_co<br>Two dummy variables indicating whether the individual has completed secondary or higher education; primary education or less is the omitted category  |
| Employment          | Based on question f_5<br>One dummy variable indicating whether the individual works (either as an employee or self-employed); another dummy variable indicating whether the individual has a formal sector job  |
| Income              | Based on question f_23<br>Two dummy variables indicating whether the household has a medium (Col\$566,700–Col\$1,133,400) or high (> Col\$1,133,400) income level; low income (< Col\$566,700) is the omitted category  |
| Survey questions    | Based on question a_6<br>Dummy variable indicating whether the individual answered questions about the financial products that he or she personally uses or that the household uses   |
| Rural location      | Dummy variable indicating whether the individual lives in a rural area  |
| Location wealth     | Based on question loc_14<br>Two dummy variables indicating whether the individual lives in a location that this “in-between” or “poor”; “wealthy” is the omitted category   |
| <i>Departamento</i> | 22 dummy variables indicating which department the individual lives in (Atlántico, Bolívar, Boyacá, Caldas, Caquetá, Cauca, Cesar, Chocó, Córdoba, Huila, La Guajira, Magdalena, Meta, Nariño, Norte de Santander, Quindio, Risaralda, Santander, Sucre, Tolima, Valle, Valle del Cauca; Antioquia is the omitted category) |

TABLE D.9 COLOMBIAN FINANCIAL LITERACY SURVEY MUNICIPAL-LEVEL VARIABLE DEFINITIONS AND SOURCES

| VARIABLE   | DEFINITION   | SOURCE                                     |
|--|--|--|
| Transfers from the central government to the municipality per capita | Total transfers from the central government to the municipality divided by total population; this variable is used as a proxy for municipal GDP per capita | Departamento Nacional de Planeación (2011) |
| Bank branches per 10,000 adults                                      | Number of bank branches divided by number of adults living in the municipality times 10,000  | BRC (2011)                                 |
| Correspondents per 10,000 adults                                     | Number of banking correspondents divided by number of adults living in the municipality times 10,000   | BRC (2011)                                 |

# Literature review: financial knowledge, capability, and behavior

A number of studies have investigated the relationship between financial knowledge and financial behavior. Using data from the United States, Lusardi and Tufano (2009) find that individuals who have low measured levels of financial knowledge tend to pay minimum balances on credit cards, incur late fees on cards, and use informal sources of credit. Stango and Zinman (2009) show that people who make mistakes in interest and future value calculations tend to borrow more and save less. Lusardi and Mitchell (2009) illustrate that people with low levels of financial knowledge think less about retirement and that most of them have not planned for retirement at all. A survey of Russian households shows that financial knowledge is significantly and positively related to retirement planning involving private pension funds and schemes (Klapper and Panos 2011). And in Mexico, Hastings and Tejeda-Ashton (2008) conducted a survey that reveals that less knowledgeable individuals tend to choose mutual pension funds with higher fees.

These studies tend to measure financial literacy based on questions that test knowledge of the time value of money (inflation), interest rates, compounding, and risk diversification, although the specific measures used vary from study to study (see also Xu and Zia 2012 for a discussion of different measures of financial knowledge). Most studies do not aim to measure financial capability in addition to financial knowledge, and thus there is little existing evidence about the relationship between financial capability and financial behavior.

One caveat with the studies mentioned above is that these results are not necessarily causal. They show a correlation between proxies for financial knowledge and outcomes of interest, but these correlations may simply reflect unobserved characteristics of individuals such as their numeracy, ability, parental background, or other such features. Although some studies try to measure these characteristics and try to account for them in the analysis, some of these features may not be measurable and can thus potentially bias the results.

A growing literature tries to address this issue by relying on quasi-experimental or experimental variation in the provision of financial education programs to measure the impact of financial knowledge on financial behavior. The context of these studies

varies widely—for example, in terms of the economic environment and the type of individuals targeted through the financial education programs.

Compulsory financial education classes taught in high schools have been the subject of a number of studies. Bernheim, Garrett, and Maki (2001) use exogenous variation in high school financial education mandates across U.S. states to show that students exposed to financial education classes save more as adults. However, Cole and Shastry (2008) cast doubt on these findings, showing that they are not robust to controlling for state-fixed effects and examining effects over time. Shorter-term evidence comes from Bruhn et al. (2013), who conducted a randomized experiment providing financial education in Brazilian public high schools. They find positive effects on financial knowledge, attitudes, and behaviors, and an increase in savings rates. These impacts are small in absolute magnitude: a 3 percentage point increase in knowledge, and a 1 percentage point increase in savings. In Germany, Lührmann, Serra-Garcia, and Winter (2012) find teenagers given financial literacy training show increased interest in and knowledge of financial matters, and save more in a hypothetical task, but they do not measure actual savings.

Other studies have focused on providing financial education to working adults, recognizing the differences in households' financial needs and exposure across developed and developing countries. The literature in developed countries tends to study the impact of financial education on planning for retirement or investment portfolio choices. Duflo and Saez (2011) show that participation in seminars discussing retirement savings leads to an increase in retirement plan participation.

In the developing country context, impact evaluations of financial literacy training have studied the unbanked, insurance take-up, and migrants. One of the first papers to examine the impact of financial education in a developing country was by Cole, Sampson, and Zia (2011). The authors implemented a field experiment in Indonesia where they offered randomly selected unbanked households a financial education course geared toward opening a bank savings account. They find that the financial education course had no effect on the likelihood of opening a bank savings account in the full sample, but it had modest effects for uneducated and financially illiterate households. Cai (2011) used a randomized experiment to show that farmers in rural China are more likely to take up crop insurance and become less price sensitive after attending financial education sessions.

Gibson, McKenzie, and Zia (2012); Doi, McKenzie, and Zia (2012); and Seshan and Yang (2012) analyze how providing information and financial education affects the behavior of migrants and their households. Gibson, McKenzie, and Zia (2012) work with migrants in New Zealand and Australia, and find that financial education increases knowledge about remittance transaction costs but does not lead to changes in the amount of remittances sent or use of the cheapest remittance

method. Using a sample of Indonesian migrants, Doi, McKenzie, and Zia (2012) find that impacts on financial knowledge, behavior, and savings are largest when both the migrants and their families receive financial education. The results show that financial education can have large effects when provided at a teachable moment, but that this impact varies according to who is receiving the training. Seshan and Yang (2012) find that Indian migrants in Qatar increase savings after financial education training, but only if they had low financial knowledge to begin with.

Overall, the literature thus finds a positive relationship between financial knowledge and use of formal financial products. Impact evaluations of financial education courses suggest that this relationship is, at least in part, causal. However, these evaluations also highlight that financial education courses often only lead to behavior change for certain groups of individuals—such as those who had low knowledge to begin with—but not for others. In addition, the measured impacts are often small, and participation rates in financial education courses tend to be low. The small effects and low participation rates suggest that classroom-style workshops may not be the best way of conveying financial education to adults, who may not have the time or motivation to attend such workshops. The literature is now moving toward exploring whether innovative channels for providing financial education can affect behavior. Ongoing studies in India, Peru, South Africa, and the United States (among others) are testing whether the provision of information via videos, radio, mass media, or video games is effective in improving individuals' financial decisions (see, e.g., Berg and Zia 2013).

Finally, while literature has mostly focused on financial knowledge so far, it has also touched on concepts related to specific financial capability. Some of the financial education courses studied through impact evaluations try to teach techniques to improve budgeting and monitoring of expenses. For example, Bruhn et al. (2013) find that a comprehensive financial education program in Brazilian high schools leads to an increase in the percentage of students and parents who make a list of expenses. The program also increased saving rates. Other studies have examined the relationship between time preferences and saving behavior. Brown, Chua, and Camerer (2009) conducted a behavioral laboratory experiment and find that individuals with present-biased preferences have a tendency to overspend. Ashraf, Karlan, and Yin (2006) show that commitment savings accounts can help increase savings for individuals with present-biased preferences. However, more research is needed to investigate the relationship between different components of financial capability and the use of different financial products.



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