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MEASURING financial capability: a new **instrument** and **results** from low- and middle-income countries

Measuring financial capability: a new instrument and results from low- and middle-income countries

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Executive summary

In 2008, the Ministry of Finance of the Russian Federation established a Trust Fund to be administered by the World Bank with the goal of advancing financial capability in low- and middle-income countries. Using the resources provided through the Russia Financial Literacy and Education Trust Fund (RTF), the World Bank organized a team of staff and experts to develop and implement a program consisting of two lines of work directed toward furthering this goal. The first was to develop a means of measuring levels of financial capability in low- and middle-income countries. The second line of work focused on programs to enhance financial capability: the project developed methodological guidance and supported a range of research projects that assessed the impact of such programs in low- and middle-income settings.

This report documents the multiyear effort to develop measures of financial capability and summarizes the findings of this project.¹ The generous funding of the RTF allowed for the application of a very rigorous research-based process of defining the concept of financial capability and developing data collection survey methods and analytical procedures to measure the level and distribution of financial capability within low- and middle-income countries. This involved the active participation of World Bank staff, expert consultants, country-based teams, government officials, and researchers from 12 middle- and low-income countries. This in-depth process and active engagement at the country level has helped to ensure the relevance and effectiveness of the resulting tools for settings that are often quite different than those of the higher-income countries where much of the previous work on these issues has been done. Under the World Bank's RTF program, it has been possible to develop a definition of financial capability, design a national survey capable of assessing individuals' levels of financial capability, and extensively test and analyze the resulting data.

¹ The findings from the evaluation component of the RTF program can be found in Holzmann, Mulaj, and Perotti (2013), which is accessible at www.finlitedu.org.

WHY MEASURE FINANCIAL CAPABILITY?

Countries at all levels of development have an interest in measuring financial capability. In high-income countries, individuals need to accept an increased role in saving for old age or financing education and health care to compensate for reductions in public programs. In low- and middle-income countries, the limited scope of social insurance and safety net programs—along with the erosion of traditional family support mechanisms due to urban migration and employment shifts—leave individuals responsible for lifelong income planning and risk management. This responsibility becomes more challenging when the number and complexity of financial products available increases with overall economic development. The low levels of financial inclusion observed in low- and middle-income countries are partly driven by limited financial capability—which in turn limits the ability to effectively utilize financial resources, smooth consumption over a lifetime, and manage risks.

Financial capability, the capacity to manage financial resources and use financial services in a way that best suits individual needs and the prevalent social and economic conditions, can contribute significantly to both the level and efficacy of financial inclusion. Reliable measures of financial capability are needed to support effective policy development and evaluation in this area. The capacity to evaluate the overall levels of financial capability in a population—and to assess how these change in response to programs directed toward enhancement of financial capability or as a result of the development of financial products and markets—provides essential information to policy makers that can inform national policies and strategies. Identifying vulnerable groups toward which programs can be directed and tailoring interventions that address the particular characteristics, strengths, and weaknesses of different groups rely on the ability to discern the distribution of financial capability across the broad population and to distinguish among subgroups.

FINANCIAL LITERACY OR FINANCIAL CAPABILITY?

Financial literacy has been identified with financial knowledge, which is the understanding of concepts such as compound interest, inflation, and risk diversification (Bernheim and Garrett 1996; Lusardi and Mitchell 2011a); the underlying idea of this approach is that these concepts are the crucial pieces of information an individual needs to choose the optimal allocation of consumption and savings over his or her lifetime (using a standard life-cycle model). A questionnaire to measure financial literacy was developed for the 2004 U.S. Health and Retirement Study by Lusardi and Mitchell (2011a) based on this concept and similar questions were subsequently adopted in many other developed countries. The empirical evidence from these surveys shows that low levels of financial knowledge are associated with poor financial outcomes (Kotlikoff and Bernheim 2001; Hilgert, Hogarth, and Beverly 2003; Lusardi and Mitchell 2011b; Cole, Sampson, and Zia 2011). Some evidence of a causal

link exists, although more work is needed on this topic (see Lusardi and Mitchell 2013 for an overview).

While such financial knowledge may be necessary for making good financial decisions, other authors have suggested that a broader definition of knowledge may be needed and that knowledge alone may not be sufficient to ensure that the financial behaviors needed to achieve good outcomes are adopted. It is argued that knowledge itself comprises at least three different aspects: the first is related to mathematical skills (numeracy), the second is the simple awareness of the existence of financial issues, products, and institutions (Guiso and Jappelli 2005; Carpena et al. 2011), and the third is the know-how required to interact with financial service providers (how to open a bank account, how to use an ATM card, etc.). Furthermore, the translation of knowledge into behavior may be impeded by a lack of skills, by people's motivations (Mandell and Klein 2007), by behavioral aspects such as poor self-control and procrastination, by attitudes such as trust in financial institutions, or by the environment in which decisions are made.

There is therefore a movement toward an extended concept of financial literacy that encompasses behavior and the interaction of knowledge, skills, and attitudes and that also takes into account the impact of the surrounding environment on people's ability to achieve positive outcomes. To reflect the increased focus on behavior rather than simple knowledge, the term "financial capability" has come into use to extend the concept beyond the narrower idea of "financial literacy." The project outlined in this report is designed to further advance this thinking by developing empirically based methods to define and measure the broader concept of "financial capability."

MEASURING FINANCIAL CAPABILITY: THE FRAMEWORK

Measuring financial capability is more complex than simply measuring financial knowledge. As a first step it requires that a determination be made concerning which skills, attitudes, and behaviors should be considered as comprising financial capability. One way to address this task is through a "cognitive-based" approach that assumes that the decision-making process of individuals is guided by knowledge which, in sufficient quantities, allows individuals to translate knowledge into behavior and consequently into desired outcomes. This approach can also be defined as "normative" because the types of skills, attitudes, and behaviors that are considered capable are identified in advance through economic theory or previous evidence.

There were concerns about using such an approach for the present project. It was not clear, a priori, that work done in developed countries would apply to low- and middle-income countries. In fact, there were many reasons to think that some of the specific characteristics of middle- and low-income countries could undermine the

validity of measures developed elsewhere. The higher levels of poverty, the greater share of the population living in rural areas where community pressures can affect individual choices, the higher levels of informality, and greater exposure to risk while having fewer options for risk mitigation are all features of developing countries which could affect financial capability and how it is manifested. At the same time, results of new work on behavioral economics have begun to show how a number of social, psychological, and emotional factors can affect behavior. Cognitive biases, hyperbolic discounting, procrastination, and self-control, among others, can dramatically affect behavior but are not considered in traditional economic theory.

Given these concerns, the project team decided to follow an alternative “positivist” approach that makes no assumption about the operational definition of financial capability, but instead relies on determining this through research in the settings of interest, in the case of this project, in low- and middle-income countries. The World Bank’s RTF program follows the methodology developed by the United Kingdom’s Financial Services Authority (FSA) which recognizes that financial capability is a broad concept that may include knowledge as well as skills, attitudes, and behaviors but makes no assumptions about what these should be, or about the causal relationships among them.

Underlying the approach used are two premises. The first is that financial capability, like other broad and abstract concepts such as intelligence or personality traits (Spearman 1904), cannot be measured directly; instead, a key set of manifestations of this underlying capability is measured. The second premise, borrowed from the conceptual framework of the FSA study done in the United Kingdom, is that financial capability is not limited to one specific area of behavior or knowledge but spans different domains. No assumptions were made, however, as to whether the same domains obtained in the United Kingdom would be relevant for developing countries or whether there was a set of domains that would apply across low- and middle-income countries. The approach used here also made no assumptions about whether it would be possible, ultimately, to construct a single measure of financial capability or if capability would only be able to be evaluated within each specific domain.

The multistep process used to develop tools to measure financial capability in low- and middle-income countries entailed (1) development of an operational definition of financial capability through identification of its key manifestations (focus groups); (2) development and cognitive testing of survey questions to measure the manifestations (in-depth interviews and cognitive testing); (3) data collection (quantitative survey); (4) identification of the key components and domains of financial capability (factor analysis and assignment of scores); and (5) identification of potential target groups for policy interventions (regression and cluster analysis). The end result of this process led to the development of a full questionnaire. Compared to the narrower

concept of financial literacy, which can be assessed using just a few questions, more information is required to measure capability as this can manifest itself in various ways.

PHASE I: HOW DOES FINANCIAL CAPABILITY MANIFEST ITSELF?

Focus groups

Qualitative research techniques were used to identify the key manifestations of financial capability in low- and middle-income countries. The first phase was to conduct focus groups in the eight countries that participated in the qualitative phase of the work: Colombia, Malawi, Mexico, Namibia, Papua New Guinea, Tanzania, Uruguay, and Zambia. Essentially group interviews, focus groups were conducted in each country by a local research team, where a facilitator worked to get the conversation started and to ensure that every member of the group participated in the discussion. The research teams worked from a topic guide that had been developed by the project team and presented at a workshop with the country teams. The original topic guide was slightly modified following discussions at the workshop, because some of the country teams (mostly in Africa and Papua New Guinea) were concerned about using concepts that were too abstract and felt that the discussions needed some minimal framing. It was therefore agreed that people's spontaneous descriptions of financial capability would be captured and more specific back-up topics would be available should participants find the more abstract discussion difficult. These would also be used to assess the relevance of areas that had been identified in high-income countries.

Between 6 and 13 focus groups were conducted in each of the eight participating countries (for a total of 70 focus groups). All the focus group discussions were recorded, transcribed, and translated to facilitate their analysis. For each country, the first focus group transcript was reviewed by the lead expert, who noted the main concepts that emerged from the discussion onto a thematic grid and provided feedback to improve quality. The local research teams completed the grids with results from the other focus groups. The project team reviewed the focus group transcripts against the thematic grids sent by the country teams, and a master grid was produced by synthesizing the results across countries.

The findings from the focus groups

A number of different aspects of capability emerged from the focus groups: behaviors, attitudes, and motivations. There was substantial similarity among the focus groups across the eight countries. Interestingly, the findings from the focus groups also paralleled many of the findings from lower-income groups in higher-income countries like the United Kingdom and Ireland. These concepts from the focus groups matched well with two of the four domains identified in the U.K. FSA study:

day-to-day money management and planning for the future. The most notable difference from high-income countries was that there was very limited mention of use or knowledge of financial products and their relevance to indicating financial capability. It also emerged that psychological characteristics such as impulsivity or action orientation were frequently used by focus group participants when describing financially capable (or incapable) people.

In-depth interviews and cognitive testing

From the manifestations of financial capability emerging from the focus groups, the first steps were taken to identify specific questions that could be used to capture these in a quantitative survey. Available questions from existing capability surveys were reviewed, building on a previous review of work in this area done by the OECD (2009). The project team then designed new questions for concepts that were not adequately covered by existing surveys. Two rounds of in-depth interviews and cognitive testing of questions were carried out by the research teams in each country.

The in-depth interviews were used to test whether questions were well understood, if they provided meaningful information, and if they had the same interpretation across countries. This process also allowed the team to identify questions that discriminated well across groups as well as those that could not be used because they were not income- or education-neutral. The in-depth interviews were similar to a standard survey interview, except that follow-up questions or prompts were used after most questions to check the respondent's understanding and reaction to the questions. Detailed feedback was also gathered from the interviewers to detect any problems with specific questions, words, or expressions.

The feedback was then compared across countries and necessary adjustments were made to the questionnaire (changes in wording, dropping difficult questions, choosing between alternative versions of the same question). A full questionnaire was developed based on the findings from this phase and survey protocols drafted. The final draft questionnaire was then tested on a pilot basis in a sample of 100–200 individuals in each country. The pilot tested both the overall questionnaire and field procedures.

PHASE II: THE FINANCIAL CAPABILITY SURVEY

With the full questionnaire developed and tested, the next phase of the project was implementation and analysis. Not all of the countries involved in Phase I continued on to this phase; timing issues precluded the work in one or two countries and others from the start had only been interested in the qualitative work that would define the concepts. An additional group of countries joined the project for the quantitative phase (which actually began with the pilot test of the full survey) and

the national level survey was carried out in seven countries: Armenia, Colombia, Lebanon, Mexico, Nigeria, Turkey, and Uruguay.

Characteristics of the survey

The goal of the World Bank's RTF Financial Capability Survey is to capture information on the manifestations of financial capability through individuals' behavior, skills, and attitudes related to managing the finances for which they are responsible. Because it focuses on behaviors and actions, the survey instrument cannot be used to assess the financial capability of people who neither manage their own finances nor participate in household financial decisions. For this reason, a cutoff age of 18 and older was applied; from the pilot tests it had been shown that individuals under that age were rarely in charge of finances.

The survey, following the concepts or manifestations of financial capability identified in Phase I, collected data on household composition, role in managing money, day-to-day money management, planning, financial products, motivations, and sources of income, and left space for each country to add optional questions as desired. In many countries, the standard financial literacy questions were included in this section. To save time, questions relevant to the context or community in which a respondent lived were incorporated into a separate Location Questionnaire that was applied at the enumeration area level. Interviews were conducted in face-to-face settings, largely using paper questionnaires although two countries used electronic versions of the questionnaires (computer-assisted personal interviewing, CAPI).

The sample design was a probability sample of individuals 18 years and older with some responsibility for household or personal finances. Only one person was selected per household (with the exception of Nigeria, where all people 18 and older were interviewed). In the absence of viable lists of adults in any of the countries involved in this phase of the work, dwellings were selected and then one individual within the household was randomly selected to be interviewed. Kish tables were used by interviewers to carry out this selection.

Each of the seven countries carried out the survey at the national level with effective sample sizes ranging from 1,200 in Lebanon to 3,000 in Turkey. Nigeria was an exception as the Financial Capability Survey was embedded in an ongoing panel survey with a sample of 5,000 household and all adults were interviewed. The countries followed the protocols developed and only Nigeria was forced to drop some questions: the survey into which it embedded the Financial Capability Survey was already quite lengthy. In all countries, results could be disaggregated between urban and rural areas. In total, slightly fewer than 20,000 individuals were interviewed in this phase of the project.

Findings and lessons learned

The survey showed that most individuals 18 and older participate in household financial decisions although very few people manage only their own funds without any contribution to the household finances or financial decisions. The lowest participation ratio was in Nigeria (74 percent), and the highest was in Armenia (97 percent). Lower participation ratios were seen in households with older heads of household, extended families, or male heads of households, although these findings were not consistent across all countries. Households with a more educated head of the household had greater levels of participation. Younger adults were less likely to participate in household financial matters. And while men and women stated equally that they made joint decisions in their households in terms of day-to-day spending, women were less likely to make decisions around unexpected expenses.

The extensive development phase of the questionnaire meant that few problems arose concerning the questionnaire in the field. Data cleaning exercises showed low levels of missing and inconsistent data, reflecting both the ease of administration of the questionnaire and the extensive testing and training that was done. The coordination among the country teams led to the questionnaires being implemented in the same fashion, easing the process of data harmonization and construction of new variables.

Some concerns raised about the sampling led to recommendations on how this should be improved in the future. Issues arose with survey firms that do not typically do probability sampling and some misuse of the Kish tables appears to have occurred. Understanding whether this resulted in any biases in the data is made difficult by the fact that the universe of respondents, those 18 and older and financially active, is unidentifiable in any available sample frame. Actually the field experience shows that it is too difficult and cumbersome to identify the universe of financially active people 18 and older. The recommendation going forward is to define the universe of respondents as simply all people aged 18 and older regardless of financial activity. The implication of doing this is a slight increase in survey costs: respondents who are financially inactive will be included in the survey (albeit receiving a very short interview) even though they are not the target of the research. However, the benefits of sampling this way are high: the sample frame will be correctly done and weighting will be straightforward. Additionally, in further work, it may be useful to collect other information on these people to understand who the nonactive people are and why.

HOW WELL DOES THE QUESTIONNAIRE WORK?

The project was based on the premise that financial capability is an abstract concept that cannot be measured directly but instead captured through the measurement

of its behavioral manifestations. The focus groups helped identify these manifestations and the questionnaire was designed to capture them. The first stage of the analysis is to assess whether the set of questions asked about each manifestation is capturing one underlying concept—in short, how well the questionnaire achieved this purpose. Principal component analysis was used; this method analyzes the correlation structure of variables in the data set and identifies groups of variables that are explained by (or “load on”) the same unobserved component. These groups, or components, should be the empirical counterparts of the manifestations of financial capability. For example, if all the variables generated from the five questions about planning expenses load on the same component, the resulting component could be used as a measure for “budgeting.” Using the output from this analysis, it is also possible to create a score for each component as a weighted sum of the variables within that group of components. This score could then be considered a partial measure of financial capability.

The results of the analysis showed that 10 components could be identified in each country and that their composition was comparable across countries. These were budgeting, living within one’s means, monitoring expenses, using information, not overspending, covering unexpected expenses, saving, attitude toward the future, not being impulsive, and achievement orientation. The last three components correspond to tested psychological scales for motivations (Strathman et al. 1994; Petrocelli 2003; CentiQ 2008; Stanford et al. 2009; Keinan and Kivetz 2011). Two additional components were identified, but only applied to specific subpopulations.

Overall, the findings in terms of methodology—creating a questionnaire that captures the manifestations of capability identified in the focus groups—are quite reassuring. The components identified in the analysis broadly correspond to the manifestations of financial capability conceptualized from the focus group discussions. The estimated components represent a means of measuring the manifestations of financial capability in a way that is consistent and comparable across countries.

In terms of the financial capability of individuals, the analysis shows that achievement orientation, living within one’s means, and using information score the highest across the countries. Common weak areas appear to be saving, monitoring expenses, and attitude toward the future. All of the countries showed both strong and weak areas (high and low scores on the individual components). Average capabilities were, however, different across countries: for example, Lebanon had among the highest scores for living within one’s means (similar to Uruguay and Nigeria), covering unexpected expenses, attitude toward the future, and not being impulsive, but also showed the lowest score for budgeting. On the other hand, Colombia had the highest score for budgeting, using information and achievement orientation, but had the lowest score for monitoring expenses.

WHAT DID WE LEARN ABOUT FINANCIAL CAPABILITY?

Financial capability has multiple domains

The team looked at how the components were related to each other and whether it was possible to trace these components back to a single underlying ability and construct a single score for financial capability that would be robust and comparable across countries. Here factor analysis with principal component factoring was again used. If the components are found to be correlated in such a way that they can be combined into a smaller set of meaningful scores, these can be interpreted as “domains” of financial capability. The number of domains, like the number of components in the previous step, is determined by the analysis of the data and in particular the correlation structure among the components. If most of the variance in the components can be explained by a single factor, then a single domain will be found, and in that case a single indicator of financial capability would be constructed as the score for that domain.

Previous evidence from studies in high-income countries suggested that finding a single domain of financial capability was unlikely. However, given the different context of the present study—low- and middle-income countries—it remained a question to be addressed empirically. The analysis confirmed that it is not possible in any of the countries to combine the 10 components of financial capability into a single domain. In addition, while it was possible to identify a small group of capability domains in each country, these domains tended to differ in terms of their number and composition across countries. Given this, all further analyses in this report use the set of 10 original components for the cross-country comparisons, and to segment the population in each country in terms of financial capability. It should be noted, however, that within any individual country, analysis could be done at the domain level: two to four domains were found in each country.

Capability varies by component and respondent characteristics

The data analysis shows how financial capability is related to both household and personal characteristics. In line with other literature, women are found to have higher scores on the budgeting and savings components compared to men. Younger adults have lower scores across a range of components and are particularly weak in impulse control and not overspending. Education is associated with higher scores on most components but is also linked to overspending. Geographic location, in and of itself, is not strongly correlated with capability. Household composition, however, does matter: people living in larger households have, on average, lower scores across the financial capability components. This is an important finding: in Nigeria, the only country where all household members were interviewed, the correlation in scores within the household was high, from 0.67 on budgeting to 0.82 for not overspending.

There is evidence that personal and economic circumstances are affecting some of the scores. Every effort was made to avoid this by constructing indicators that take into account, for example, the reason (lack of income) that people borrow or do not save. However, it is not possible to remove this effect completely, and care will be needed in using the results in policy making. Further research will be needed in each country to understand how personal and economic circumstances may constrain financial capability.

There is a positive relationship between the components of financial capability and responsibility for money matters in the household. There are indications that having sole or shared responsibility for financial activities in the household is positively associated with higher scores on related components (i.e., the person responsible for day-to-day money management had higher scores on the monitoring expenditure and not being impulsive components). However, it is not possible to determine causality: does someone become more capable on these components as a result of assuming responsibility or does he or she assume responsibility as a result of being more capable?

Segmenting population groups by their financial capability

The population was segmented into subgroups with particular financial capability profiles. Such analysis can be used by policy makers to determine which groups might benefit from policy interventions and what targeting strategies might be effective. A cluster analysis was conducted for each country in turn, using the financial capability component scores. It was found that a reasonably fine level of detail could be obtained for all countries by segmenting the population into five clusters. (Individual countries will, however, probably prefer a more fine-tuned analysis.) One caveat on the segmentation analysis is that, while a statistic is needed to compare across 10 components at a time, this is not to be mistaken as a measure of overall financial capability: such a single measure is not possible.

The segmentation highlighted differences and similarities across countries. One key similarity is that the groups of people who were, on average, least capable included young people with a tendency to overspending. Second, while there is interplay between financial capability and income, many of the countries included a group of people with very low incomes who were very good at managing their money day to day but either had short-term planning horizons or a low propensity to save (or both). Finally, and of concern for policy makers, is the finding that many people have low capability across a range of components. This is particularly problematic when one of these weaknesses is in the component related to not being inclined to seek information about financial matters. Not only do the people in this group have a number of areas of weakness but such people will, in all probability, have low receptivity to attempts to help them increase their financial capability.

Financial capability and financial literacy are different concepts

A final question the project was able to address is the extent to which financial capability is associated with the narrower concept of financial literacy. Five of the seven countries in the quantitative phase of the project included a standard set of financial literacy questions in their surveys. The analysis reveals a very complex and somewhat inconsistent picture that varies both across the components of financial capability and across countries. Moreover, while in most instances the correlations between the financial literacy score and the financial capability scores were positive this was not invariably the case and there were instances of very strong negative correlations. In short, the results tend to lend support to the idea that financial literacy and capability are different concepts—a view that was expressed in the focus groups and cognitive interviews conducted in the developmental phase of the survey.

CONCLUSIONS AND GOING FORWARD

The World Bank's RTF program has added to the overall body of knowledge on financial capability in middle- and low-income settings, producing important methodological and substantive findings. First, and perhaps most important, the research has shown that it is possible to identify, through a *vox populi* approach, a range of manifestations of financial capability that apply across very diverse countries, from Papua New Guinea to Mexico. Second, the work has demonstrated that it is possible to design a questionnaire that functions across different income groups and quite different cultures to capture these manifestations accurately, minimizing income or cultural biases. (Entirely eliminating all income and cultural biases was not possible and the interpretation of results needs to acknowledge the role that environmental factors can play in affecting an individual's level of financial capability.)

The analysis shows that it is possible to create scores for individual components of financial capability (mirroring the manifestations identified in focus groups) that are robust and meaningful across different countries. However, it is not statistically meaningful to collapse these into a single score for "level of financial capability." Collapsing the components into domains, however, can be conducted at the individual country level, although the number of domains used to capture all the components of financial capability will differ (from two to four for countries studied here). While having a single indicator may be useful for overall comparisons and the inability to develop such a measure is disappointing, it should be kept in mind that for the purpose of designing specific interventions, a more disaggregated measure can be, in fact, more informative and more easily interpreted.

Finally, populations of individual countries can be segmented into groups with varying levels of capability across all components. The strengths and weaknesses

of these groups can be determined—as can their characteristics. These groups can be as fine-tuned as is required to inform approaches to increasing levels of financial capability. Some of the components identified can be tackled through education; for example, learning how to plan spending or to monitor finances. Others will require other types of interventions and policies.

The research here has highlighted some additional questions to be addressed in the area of financial capability. The research showed a complex relationship between financial literacy and capability: this needs further exploration. Issues related to measuring financial capability over time remain to be addressed. Context matters and what may make a person capable today may not in the future. How best to make comparisons from one point in time to another? The study also sheds little light on people who are not financially active. In a household context it would be useful to know who is inactive and what the implications for these individuals are. Some evidence from this study showed more capable persons as being more likely to be responsible for financial decision making: are non-financially active people self-selecting based on their own skills, or are there barriers to participation? Finally, the results here do not address the issue of causality: to what extent are the financial capabilities measured here contributing to individual and household welfare? Generating longitudinal data should be a next step to allow such questions to be answered. The work of the World Bank's RTF program has helped expand knowledge of financial capability, but there remains an interesting range of issues to be explored by future research.

The need for new instruments to measure financial capability

1.1 WHY MEASURE FINANCIAL CAPABILITY?

Over the past few decades, financial literacy and financial education have obtained increasingly more space in the policy agenda in both high-income countries and low-income countries. The recent financial crisis has reinforced the view that individuals need to be better equipped with knowledge and skills to be able to make informed and effective financial decisions. This is particularly important due to the high level of individual responsibility for life-long income planning and risk management, and also the number and complexity of the products now available in financial markets.

Additionally, recent data show that the level of financial inclusion is still very low in developing economies (Demirguc-Kunt and Klapper 2012). Promoting financial knowledge and skills through financial education is seen as one of the possible instruments that policy makers can use to encourage participation in financial markets. Financial education promotes the rational use of financial products by building consumer confidence through improved understanding of advantages and disadvantages related with the use of financial services. Increasing levels of financial inclusion can expand individuals' and households' ability to invest and to protect themselves from risk.

The seminal papers of the economic literature on financial literacy identify this with financial knowledge—that is, the understanding of concepts such as compound interest, inflation, and risk diversification (Bernheim and Garrett 1996; Lusardi and Mitchell 2011a). The underlying idea of this approach is that these concepts are the crucial pieces of information individuals need to choose the optimal allocation of consumption and savings over their lifetime (using a standard life-cycle model). Lusardi and Mitchell (2011a) developed a short questionnaire to measure financial literacy for the 2004 U.S. Health and Retirement Study based on this approach and similar questions were subsequently adopted in many other developed countries. The original questionnaire was subject to restrictions on the number of questions that could be added; however, the three questions included produced a wealth of

evidence on the connections between knowledge and behavior. In later surveys that have adopted a similar approach, measures of financial knowledge have been extended to include many more concepts, including the relationship between bond prices and interest rates and differences between stocks and bonds (see Lusardi and Mitchell 2013 for a review of the literature).

The empirical evidence shows that low levels of financial knowledge are associated with poor financial outcomes. Individuals with low levels of knowledge are seen to have a lower probability of planning for retirement, using financial products, borrowing at good rates, or following other recommended financial practices. The methodology used in most of these studies does not allow a causal interpretation of the link between financial literacy and financial behavior, but several more recent papers have provided evidence of a positive effect of financial literacy on stock market participation, wealth accumulation, and retirement planning (Behrman et al. 2012; Bucher-Koenen and Lusardi 2011; Christiansen, Joensen, and Rangvid 2008; Cole et al. 2011; Hilgert, Hogarth, and Beverly 2003; Kotlikoff and Bernheim, 2001; Lusardi and Mitchell 2009, 2011b; Van Rooij, Lusardi, and Alessie 2011).¹

While this type of knowledge may be necessary for making good financial decisions, it may not be enough to ensure good outcomes. A broader knowledge base may be needed. It is argued that knowledge itself comprises at least three different aspects: the first is related with mathematical skills (numeracy), the second is the simple awareness of the existence of financial issues, products, and institutions (Guiso and Jappelli 2005; Carpena et al. 2011), and the third is the know-how required to interact with financial service providers (how to open a bank account, how to use an ATM card, etc.). Nor is it clear that knowledge by itself is sufficient: the translation of knowledge into behavior may be impeded by a lack of skills, by motivations (Mandell and Klein 2007), by behavioral aspects such as poor self-control and procrastination, by attitudes such as trust in financial institutions, or by the environment in which decisions are made.

In both high-income and low-income countries, the literature is therefore moving toward an extended concept of financial literacy which encompasses behavior and the interaction of knowledge, skills, and attitudes, and which takes into account the impact of the surrounding environment on people's ability to achieve positive outcomes (as an example, box 1.1 discusses existing evidence on gender differences in financial literacy and capability). To reflect the increased focus on behavior rather than knowledge, the term "financial capability" is often used instead of "financial literacy" and will be used throughout this report.

¹ See Lusardi and Mitchell (2013) for an extensive review of the literature.

BOX 1.1 FINANCIAL CAPABILITY VERSUS FINANCIAL LITERACY

An example of the importance of considering a broader concept of capability as opposed to literacy/knowledge is offered by the literature on gender differentials. While studies of financial knowledge clearly show that women are less likely than men to correctly answer questions about basic economic and financial concepts in both high-income and developing countries (Chen and Volpe 2002; Lusardi and Mitchell 2008; Zissimopoulos, Karney, and Rauer 2008; Lusardi and Mitchell 2011b; Atkinson and Messy 2012), the few studies that address gender differences in financial capability have found ambiguous evidence. For example, in most countries that participated in a cross-sectional survey developed by the Organisation for Economic Co-operation and Development (OECD), women appeared to have lower levels of knowledge but scored higher than men in terms of attitudes toward financial matters and also in terms of financial behaviors for some of the countries (Atkinson and Messy 2012). On the other hand, a U.K. study (FSA 2006) found that women had lower levels of capability than men in terms of choosing financial products, planning ahead or staying informed, but had higher levels of capability for certain aspects of money management (keeping track of money). Using data from the U.S. FINRA survey, Lusardi (2010) does not report any evidence of gender differentials in financial capability after controlling for financial literacy. This evidence seems to suggest that by expanding the scope of the analysis from knowledge/literacy to behavior/capability, we might be able to better understand the role of gender in explaining differences in financial outcomes.

While the broader concept of financial capability seems to be promising in terms of providing a common framework across different cultures and different education and income levels, it is also more challenging in terms of measurement. There has been no clear consensus on what constitutes financial capability and how it should be measured. The corollary of this is that only limited tools and evidence have been available to help policy makers identify effective interventions and/or target groups in the population. A further limitation is that the bulk of the work that has been done on financial literacy and financial capability to date has been undertaken in high-income countries. It is not clear to what extent this approach applies to less developed countries where skills related to day-to-day money management are more important and the type of knowledge usually identified as a sign of financial literacy in high-income countries is less obviously relevant. In short, there is a dearth of tools to measure financial capability in low- and middle-income countries.

1.2 KEY CHALLENGES FOR MEASURING FINANCIAL CAPABILITY IN LOW- AND MIDDLE-INCOME ENVIRONMENTS

An overview of the existing methods to measure financial capability is provided in the following sections. Translating methods developed for high-income countries to lower- and middle-income countries, however, is not straightforward. Before describing the available measurement approaches that have been developed previously, it is important to begin to understand what features of low- and middle-income countries would affect the measurement of financial capability. This section discusses these key features.

1.2.1 Access

Typically, people living in low- and middle-income countries have lower levels of access to financial services than those in richer countries. There is no conclusive evidence on the causal relationship between financial access and financial capability. Do people use financial services because they are more capable than those who do not? Or does the use of financial services create an incentive for consumers to improve their understanding of the products and their ability to select and manage them? Research in developing countries has shown that people can be very capable even without using formal financial products (Collins et al. 2009). For example, people may make provisions for their old age by investing in livestock, in materials to build a home, and so on. Access to formal products is no guarantee of capability, of course; using financial products incorrectly (e.g., an excessive use of credit cards or loans beyond the level that can be repaid) can be an indicator of limited financial capability.

This lack of strict correlation between access and capability complicates the measurement of financial capability. An important challenge for capability measurement is first to determine whether the use of financial services should be considered an element of financial capability. If it is determined that access is a related but separate matter, financial capability must be as independent of the level of access as possible. In other words, if a low-income person living in a rural area is able to make ends meet, to save for unexpected events, and so on, it may not be appropriate to consider him or her less capable because he or she is not using a bank account. From a practical point of view, constructing a measure of capability that relies on the use of financial products (e.g., based on how people select a product, or on their punctuality in repaying their credit card debt) could have very limited applicability in developing countries where a large share of the population does not hold any formal financial products. The choice and use of financial products can be therefore considered a separate area for which a measure (if any) could be constructed only for the subsample of people who have products.

1.2.2 Poverty

The greater number of people living on low incomes in low- and middle-income countries compared to high-income countries has important consequences for the measurement of financial capability. Low income limits people's ability to cope with unexpected shocks and to make ends meet regardless of their financial capability. If a person's income is insufficient to cover basic food expenses, then no matter how carefully he or she manages money, the net result will be a shortage of food. It is therefore essential to try and separate aspects that are under the individual's control from the external conditions that may affect the outcome regardless of the individual's efforts. To limit the possibility that the level of income could bias the measure of capability, a partial solution is to take into account attitudes toward the key behaviors (whether the person tries to save as much as possible, whether the person is concerned with being able to cover unexpected expenses, etc.). It is not possible to design a questionnaire on financial capability that is entirely income-neutral, so results from any analysis of this kind should be interpreted carefully.

1.2.3 Education

Developing countries typically have lower levels of educational attainment and general literacy compared to high-income countries. A crucial challenge for financial capability measurement in low- and middle-income countries is therefore to design questions that can be easily understood by everyone, including people who cannot read or write and who may have limited cognitive skills, but that are still applicable and relevant for higher-educated respondents. Developing such questions will require extensive testing to ensure that the questions measure a respondent's level of financial capability rather than his or her ability to understand the question.

1.2.4 Location

A large percentage of the population in developing countries lives in rural areas where access to financial services is more limited. Additionally, rural areas are often characterized by a greater importance of the community in an individual's social and economic life. People support each other financially by forming informal networks for credit and risk management. This has implications both in terms of a higher incidence of informal financial services compared to formal services, and in terms of the limitations these arrangements may place on an individual's ability to make financial decisions independently. (In some communities, it may be impossible to deny financial help to a member of the same community who requests it, for example.) The existence of informal networks can also affect decisions on making provisions for the future. In communities where there is a well-established tradition of adult children supporting their parents in their old age, it may make perfect sense for people to use

their savings to finance their children’s education rather than investing it in financial products.

When designing an instrument to measure financial capability, it is therefore important to obtain a good understanding of how financial decisions are made within the household and about what type of resources—for example, whether a person is only responsible for his or her own money or also managing the household money, whether the person or household is regularly supporting other people outside the household, and what the main sources of income are in the household.

1.2.5 Informality

A measure of financial capability must be able to capture the full range of planning that people undertake to make provision for sickness and old age in low- and middle-income countries. Such countries are often characterized by a larger informal sector where workers have no access to pensions, health insurance, and other benefits typically associated with jobs that comply with social security regulations. For these workers, taking an active role in financial planning and risk management is particularly important. Yet their methods of planning and saving may look less capable if the fact of their informality is not taken into account. At the same time, a measure of financial capability must also be able to take into account the fact that having a pension in a country with universal pension coverage does not make a person financially capable.

Another aspect related to informality in low-income countries is the high level of self-employment and family businesses. Many people who run small businesses in low-income countries do not maintain separate business and household accounts and finances. A survey instrument to measure a person’s capability of managing money will need to clarify what finances (only household or household and business) a respondent is referring to when answering the questions.

1.2.6 Risk management

Individuals in low-income countries are exposed to a variety of risks that create more volatility in income flows and more uncertainty about day-to-day income sources. The higher levels of risk will be internalized by individuals (the financially capable ones), affecting their financial decisions. This element should be taken into account when evaluating the types of decisions that people make. For example, if an individual living on a low income opts to buy a short-term insurance product (e.g., weather-related insurance to support agricultural activities) instead of saving the money for old age, this could be a sign of financial capability.

1.3 KEY AVAILABLE MEASUREMENT APPROACHES

Measuring financial capability is a more complex task than measuring financial literacy. A single concept (and particularly one such as knowledge, where there can be clear right and wrong answers) is much easier to measure (requiring, e.g., only a short survey module instead of a full questionnaire) and score, to compare across countries, and to interpret in economic analysis. On the contrary, once it is decided that the subject of interest is a broader concept encompassing knowledge, skills, attitudes, and behavior, the complex question arises about how to determine the specific aspects that should be included in the survey, and then how the information about these different aspects can be summarized and presented by developing one or multiple indicators of financial capability.

There are two main conceptual approaches for determining which skills, attitudes, and behaviors should be considered as part of financial capability. One option is the “cognitive-based” approach, which assumes that the decision-making process is guided by knowledge: if the individual is sufficiently knowledgeable (or becomes so by receiving financial education), then he or she will take the necessary steps to translate knowledge into positive outcomes; applying skills and turning attitudes into behavior that leads to the desired outcomes. This approach can also be defined “normative” because the types of skills, attitudes, and behaviors that are considered capable are identified in advance through economic theory or previous evidence. For example, it could be considered that the necessary skills will include numeracy and general literacy, and capable behaviors will include saving, diversifying investments, choosing the most convenient financial products for one’s needs, and so on. By adopting a normative approach, the researcher designing a survey of financial capability will know in advance what topics should be covered and can proceed directly to identifying the best questions to measure the selected concepts.²

An alternative approach, developed by the United Kingdom’s Financial Services Authority (FSA), also recognizes that financial capability is a broad concept that may include knowledge as well as skills, attitudes, and behaviors but it does not make any assumptions about what these should be or about the causal relationships among them. The approach is called “positive” as it makes no assumption about the operational definition of financial capability that should be relevant for the specific settings of interest. Implementing this approach requires conducting research with people who live in those settings to determine what makes them capable or incapable, based on what is conducive to good outcomes.

² One example of this approach is the cross-country pilot survey developed by the Organisation for Economic Co-operation and Development (OECD)/International Network for Financial Education (2011).

The World Bank's Russia Financial Literacy and Education Trust Fund (RTF) program team opted for this positive approach as it seems to be particularly helpful for assessing financial capability in settings such as low- and middle-income countries where knowledge of financial capability is limited. Another argument in support of adopting a positive approach is the increasing evidence from behavioral economics research that shows how a number of social, psychological, and emotional factors such as cognitive biases, hyperbolic discounting, procrastination, self-control, etc., can dramatically affect behavior but are not considered in traditional economic theory. Behavioral economics has shown that in the presence of these phenomena, the causal link from knowledge to behavior breaks down. For example, lack of self-control may cause an individual to not stick to her budget plan, or procrastination may lead people to postpone decisions about retirement planning even if they know they have to act on them. In advance there is no knowledge of which of these mechanisms may be at play in the area of financial capability; a positive approach based on research with people living in that context can help to identify the relevant behavioral issues (other examples include peer pressure, social stigma, social status, and so on).

The policy implications of such an approach represent an additional advantage. Instead of a narrow focus on financial education programs, this approach can provide insights on a range of interventions that can be adopted to improve behavior but not necessarily through increased knowledge. Examples include development of decision-enhancing tools (decision trees, computer algorithms), improved consumer protection, shaping attitudes and motivations through social marketing, and the deployment of nudge techniques (such as auto-enrollment in pension schemes).

1.4 LESSONS LEARNED FROM HIGH-INCOME COUNTRIES

The U.K. study, which was the first to develop and adopt a "positive" approach to measuring financial capability, and similar studies that have replicated the approach in other high-income countries provide many lessons for developing both a conceptual framework and a methodology for questionnaire design. The objective of the FSA study was to conduct a baseline survey of financial capability in the United Kingdom by designing a questionnaire that could be used to construct a measure of capability while taking into account specific individual circumstances (FSA 2005).³ The research plan included a literature review to define a conceptual framework, a qualitative research phase to test the conceptual model and to identify potential ways of

³ The remainder of this section is an adaptation of the original FSA report.

measuring capability, and several waves of cognitive interviews to help design, test, and refine the questions.

The conceptual model developed through the literature review was mostly based on a framework previously developed by the FSA and the Basic Skills Agency (2004). In developing this framework, the team of researchers working for the FSA initially adopted the “cognitive” approach, which considered behavior as “evidence of financial capability,” and it was assumed to be the result of the application of knowledge and skills, with indirect effects from external circumstances and personality. The relevance of this conceptual framework was tested by the FSA researchers through qualitative research across a broad spectrum of the population using focus groups. A different conceptual model emerged from these discussions. People perceived financial capability in much more behavioral terms than anticipated by the researchers. The focus groups identified a range of manifestations of financial capability that subsequent analysis found could be grouped into four broad domains: managing money, planning ahead, making choices, and getting help. Of particular interest for the perspective of developing countries was that the U.K. focus groups conducted with people living on low incomes focused mostly on managing money, as their ability to plan ahead was limited by income, and they only used a limited range of financial products and sources of advice and information (FSA 2005). The results of the focus groups were used to restructure the conceptual framework.

In terms of questionnaire design, the results from the U.K. focus groups clearly indicated the need to develop the instrument around the measurement of behaviors. For each key area of capability, the focus groups indicated the type of things financially capable people do: within “managing money,” they would make a budget, resist the temptation to borrow or to overspend, and keep debt under control; within “planning ahead,” they would save, plan for the long term, and plan for the unexpected; within “making choices,” they would shop around and read the small print; and within “getting help,” they would gather information from TV and newspapers, know where to go for advice, and be aware of their rights. Personality and experience were perceived as additional elements determining the extent of a person’s financial capability.

Other key lessons learned from the U.K. qualitative research included the need to develop questions that were income- and culture-neutral, in order to account for different levels of income (acknowledging the fact that poor people can be capable and rich people can be incapable) and for cross-country and generational differences in perceptions about the use of certain financial products. The research also showed that financial capability is mediated through environmental factors, such as income level or access to financial services, which needs to be taken into account in interpreting the results. For example, the FSA study identified a group of people

with very low incomes who had relatively low levels of financial capability compared with others in the population, but who were described as **fairly capable given their circumstances**.

The U.K. study also developed a methodology for constructing a measure of financial capability. The qualitative research indicated the need for a multidimensional approach for constructing this measure; the focus groups had identified four different areas of financial capability and had also recognized the possibility that some individuals could be good in one area and weak in another. This suggested that separate indicators (or scores) should be constructed for each area. Several methodological options were considered for constructing the scores: (1) a simple arithmetic sum of scores assigned to answers to each question; (2) regression analysis to predict the probability of achieving the desired outcome based on behavioral indicators measured by the survey; and (3) factor analysis to obtain a score for each domain from a linear combination of the questions relevant for that domain. Given the difficulty of assigning a code to each answer as in (1)—because there is not always a right and wrong answer, and it is not always possible to identify a desired outcome for each aspect of financial capability (e.g., in the area of information seeking)—factor analysis was identified as the most appropriate option.

The objectives of using factor analysis to parse the U.K. data were to produce scores for each of the four domains of financial capability identified in the focus groups and to describe the characteristics of people who were the least and the most capable in each domain. Factor analysis was conducted to construct a score for each domain. The results of the factor analysis suggested that two separate scores should be calculated within the first domain (managing money), as two distinguishable factors emerged from the analysis: making ends meet and keeping track of money.

In addition, the U.K. study segmented the population based on scores in these domains using cluster analysis. Cluster analysis calculates a measure of similarity between individuals based on their scores, and groups similar individuals together based on this measure. By looking at the average characteristics of the individuals assigned to each group (or cluster), it is possible to describe each group in terms of sociodemographic variables (e.g., average age, income, years in education, percentage of women) and in terms of their financial capability scores (average group scores in each of the domains). The analysis identified 11 clusters, ranging from a group of people with high average scores across all domains who were, on average, older-age couples with high income using many financial products to a group with very low scores in all domains and composed, on average, of young parents living on low incomes.

The main lesson learned from the U.K. study was that financial capability is mostly about behavior, although taking attitudes into account helps mitigate the bias that

the constraining effect of low income on behavior can have on the measurement of capability. In addition, the study found that financial capability spans across different dimensions (or domains) that cannot be assessed with a single measure, and therefore the level of an individual's capability should be measured across the various domains. Indeed, it was rather common to find that people were very capable in one domain but not in others.

Many other countries, including for example, Canada (Statistics Canada 2009), Ireland (Financial Regulator 2009), Italy (Ambrosetti 2008), the Netherlands (CentiQ 2008), and the United States (FINRA 2009) have adopted this "financial capability" approach, although most of them have not developed their questionnaires through the same long process entailing qualitative research before the actual survey. Most countries have simply used existing financial capability questionnaires and adapted them based on the judgment of experts and policy makers, instead of conducting focus groups with the public. They have also drawn on the U.K. approach to analyze the survey data.

1.5 THE RTF FINANCIAL CAPABILITY MEASUREMENT PROJECT

To fill gaps in knowledge around financial capability, the Russian government established a trust fund in 2008, to be managed by the World Bank, to carry out rigorous research in the field of financial literacy and education. The objective of the RTF has been to contribute to the advancement of financial literacy through developing measurement and program evaluation tools that can be used across space and time to expand knowledge in this area, with a focus on low- and middle-income countries. As is described in this report, the goal of the RTF measurement work was to develop a survey instrument that could be used to measure financial capability in a way that was both comparable across countries and independent of the level of income and education—the financial lives of poor households can be quite sophisticated (Collins et al. 2009 is just one testimony). Developing a measure of financial capability that suits the context of developing countries, where educational achievements and access to financial services are lower and poverty rates are higher, was the key challenge for the RTF measurement work.

In the absence of a clear consensus on what exactly constitutes financial capability, a conceptual framework was needed to develop an operational definition for it and to determine the specific concepts that should be included in the questionnaire and considered as manifestations of financial capability. The project team decided to follow the empirical approach used in the United Kingdom as outlined in the previous section. This approach relies on identifying manifestations of financial capability

through peer judgment about what elements are considered to be conducive to good outcomes and therefore to denote a financially capable person.

The project had two phases: (1) developing a questionnaire, and (2) fielding the survey in multiple countries and analyzing the results to determine what financial capability score could be developed. Implementing the first phase of this empirical approach required a long and structured process (see chapter 2 for more detail). First, a group of low- and middle-income countries interested in financial capability was selected to participate in the process of developing a new financial capability survey instrument. The countries received financial support and guidance from the project team. A group of international experts on qualitative research methods and questionnaire design, including researchers involved in the original U.K. study, was engaged as part of the project team to provide expertise and guidance throughout the process.

Country teams from Colombia, Malawi, Mexico, Namibia, Papua New Guinea, Tanzania, Uruguay, and Zambia, guided by the project team, conducted extensive qualitative research with members of the general public to identify the key manifestations of financial capability: those behaviors, skills, and attitudes that denote financially capable or incapable people. These qualitative findings were compared across countries to identify a common core set of manifestations that seemed to be relevant and most frequently cited everywhere. Questions about these manifestations were then either selected from existing surveys or newly designed, and tested in a coordinated fashion to ensure that they were easily understood, were informative, and had the same interpretation across countries.

Phase II of the project used the quantitative survey questionnaire developed in Phase I to measure manifestations of financial capability across the participant countries. As a way of testing the robustness of the instrument, a new round of RTF funding was advertised to select a group of new countries that would test the questionnaire without having participated in the initial development phase, in some regions not covered by the initial group of countries. The new countries included Armenia, Lebanon, Nigeria, and Turkey. The survey instrument and fieldwork protocols were pilot tested in each country, and further refinement of the questionnaire was carried out. The final step of data collection consisted of conducting nationally representative surveys using the same questionnaire in each of the participating countries: these included Armenia, Colombia, Lebanon, Mexico, Nigeria, Turkey, and Uruguay. From the original group of countries, Malawi, Namibia, and Zambia did not participate in the quantitative stage as they were primarily interested in developing the methodology for future use rather than conducting a national assessment within the time frame of the RTF project, and Papua New Guinea could not proceed beyond

the quantitative pilot stage due to initial delays caused by elections and other logistical problems.

Once the surveys had been fielded in each country, the next methodological question was how to combine the large amount of information collected by the surveys into one or more indicators of financial capability. The experience in the United Kingdom and other high-income countries suggests that financial capability is a multidimensional concept spanning different types of abilities and is not able to be measured with a single indicator. However, given the experimental nature of the work, the project team did not want to make any assumptions about the number and composition of the indicators that would be developed. Instead, as in the U.K. study, appropriate statistical methods would be used to determine this empirically, by looking at how the different manifestations of capability were related to each other in the countries that conducted the surveys.

Factor analysis was used to determine the number and composition of the indicators. In a first step, all the relevant variables (broadly equivalent to the survey questions about concepts cited in the focus groups as manifestations of financial capability) were analyzed jointly to see which groups were formed across the entire data set. Each group of variables was named based on its content and identified as a component of financial capability. After identifying the components, a score was calculated for each individual in each component. In the second step, the relationship among the components was examined to see whether these could be further combined into a single indicator, or at least into a small set of broader domains of financial capability. The results of this analysis were that to achieve comparability across countries, it was advisable to use the set of components rather than a single indicator or financial capability domains. Finally, to help policy makers identify potential target groups for financial education and other forms of financial capability enhancement, the project team analyzed how the component scores varied across different sociodemographic groups in each country and used cluster analysis to identify groups of respondents with similar levels of financial capability.

The following chapters present the process followed to develop the survey instrument (chapter 2); the overall structure and features of the questionnaire (chapter 3); sampling methods, data collection, and harmonization techniques used for constructing a multicountry database from the surveys conducted in a group of pilot countries (chapter 4); statistical methods used to construct indicators of financial capability (chapter 5); and empirical results on levels of financial capability across the different countries (chapter 6). Chapter 7 concludes with key lessons learned on financial capability and its measurement in low- and middle-income environments and it proposes next steps to further advance knowledge and research in this area.

1.6 HOW TO READ THIS REPORT

The report has multiple audiences and purposes. Overall, the report is an effort to document the complex process that was followed to develop a new measure of financial capability in low- and middle-income countries. As such, it is exhaustive, covering process, technical, and methodological considerations as well as methodological and analytic results. A fairly thorough treatment of the technical details has been included for those interested in replicating the work. Key findings and interpretations of the data are covered so that policy makers and researchers interested in designing new policy in the areas of financial capability can learn from the results of the project. Finally, an additional audience for this report is those who might implement the new World Bank's RTF Financial Capability Survey in other countries: understanding the development process behind the survey can enhance the quality of these new surveys. Readers who just want to learn about the results of the study can focus on chapters 2 (results from the qualitative study), 6 (results from the quantitative surveys), and 7 (overall lessons learned and open issues). Statistical details on the methodology are presented in chapters 4 (data collection) and 5 (data analysis); these can be skipped by readers with a nonstatistical background.

Two additional documents may be of interest. The first is a manual on how to implement the Financial Capability Survey (Kempson, Perotti, and Scott 2013). The second is an overview of the entire RTF program, which includes an evaluation of financial literacy efforts as well as the measurement component present here (Holzmann, Mulaj, and Perotti 2013). While the present report focuses on assessing levels of financial capability and identifying potential population targets for policy purposes, the overview report will be particularly helpful for readers interested in comparing alternative programs to increase levels of financial capability.

PART I



Q

ualitative study
process and
results

Developing a survey questionnaire to measure financial capability

2.1 OVERVIEW OF THE PROCESS

Underlying the approach used in this research are two premises. The first is that financial capability, like other broad and abstract concepts such as intelligence or personality traits (Spearman 1904), cannot be measured directly; instead, a key set of manifestations of this underlying capability is measured. The second premise, borrowed from the conceptual framework of the FSA study done in the United Kingdom, is that financial capability is not limited to one specific area of behavior or knowledge but spans different domains. No assumptions were made, however, as to whether the same domains obtained in the United Kingdom would be relevant for developing countries nor whether there were a set of domains that would apply across low- and middle-income countries. The approach used here also made no assumptions about whether it would be possible, ultimately, to construct a single measure of capability or if capability would only be able to be evaluated within each specific domain.

The goal of the research undertaken was to determine how financial capability is manifested and what features of people are associated with high (low) levels of financial capability. Additionally, the research set out to answer the question concerning whether it was possible to construct a measure of capability that could be used to segment the population by level of financial capability

The multistep process used to address these questions entailed (1) development of an operational definition of financial capability through identification of its key manifestations (focus groups); (2) development and cognitive testing of survey questions to measure the manifestations (in-depth interviews and cognitive testing); (3) data collection (quantitative survey); (4) identification of the key components and domains of financial capability (factor analysis and assignment of scores); and (5) identification of potential target groups for policy intervention (regression and cluster analysis). The next sections in this chapter describe objectives, methodology, process and results of steps 1–2, which led to the development of the survey questionnaire. Data collection is described in chapter 4, and methodology and results for steps 4–5 are presented in chapters 5 and 6, respectively.

To ensure that the measure of capability developed under this project would be relevant for low- and middle-income countries, a positivist approach was used wherein the key set of manifestations of financial capability was identified by people from different socioeconomic backgrounds in each of the countries participating in the developmental work. Manifestations of financial capability were identified through focus groups discussions in which participants were asked to describe financially capable and financially incapable people. From these group discussions, a number of different aspects of capability emerged: behaviors, attitudes and motivations. The set of core manifestations of capability was then determined by identifying the concepts that were mentioned most frequently across all the groups in all of the participating countries. These concepts resonated very well with two of the four domains identified in the United Kingdom: day-to-day money management and planning for the future; very little was mentioned about the other two U.K. domains (choosing financial products and staying informed).

After the list of manifestations was identified, the next step was to design appropriate questions to measure them. Available questions from existing capability surveys were reviewed, building on previous survey stocktaking done by the Organisation for Economic Co-operation and Development (OECD) (2009). The project team then designed new questions for concepts that were not adequately covered by existing surveys. Regardless of the source of the questions, questions were tested to make sure that they were well understood, that they provided meaningful information, and that they had the same interpretation across countries. The countries participating in the project tested the questionnaire with two rounds of cognitive (in-depth) interviews. These were very similar to the final survey interviews, except that follow-up questions or prompts were used after many of the questions to check the respondent's understanding and reaction to the questions in the pretest. Detailed feedback was also gathered from the interviewers to detect any problems with specific questions, words, or expressions.

The feedback was then compared across countries and necessary adjustments were made to the questionnaire (changes in wording, dropping difficult questions, choosing between alternative versions of the same question). The final draft questionnaire was then administered in pilot surveys of 100–200 individuals in each country to test and refine the overall format, skip patterns, data entry procedures, etc. Box 2.1 summarizes the key steps followed from defining the concept of financial capability to developing a survey instrument.

BOX 2.1 FROM BASIC CONCEPT TO QUESTIONNAIRE

The main idea of the approach used in this research project was to define the concept of financial capability through the views of the general public in the context of interest and to develop questions to measure levels of capability based on this definition. The key conceptual steps were as follows:

- **Step 1:** Use qualitative methods (focus groups) to identify characteristics or other elements associated by the general public with people who are financially capable or financially incapable. The output of this step consists of recorded transcripts of focus group discussions.
- **Step 2:** Identify from an analysis of the content of the focus group discussions a number of stylized concepts that represent the key manifestations of financial capability. The output of this step is a list of concepts that need to be measured in the survey.
- **Step 3:** Design questions to measure the key manifestations of capability. This was done by looking for relevant existing questions for each concept from previous capability surveys, and by designing new questions when necessary. The output of this step is a draft interview guide that contains multiple choice answer and open-ended questions about each manifestation.
- **Step 4:** Use qualitative interview methods (two waves of semi-structured cognitive interviews) to choose among alternative questions and to identify the most appropriate way of recording replies. The output of this step includes transcripts or detailed interviewer notes with feedback on each question.
- **Step 5:** Finalize the quantitative survey questionnaire. This was done by conducting pilot surveys to test the questions and the precodes selected in the qualitative phase.

2.2 FOCUS GROUPS: PROCESS AND RESULTS

Focus groups were used to understand how people view financial capability: what constitutes a financially capable or incapable person. In the focus groups—a group interview conducted by a facilitator with a small group of 8–10 people invited to discuss the topic of interest—participants were asked to describe financially capable and incapable people. The facilitator’s role was limited to getting the conversation started and to making sure that every person actively participated in the discussion, without suggesting specific topics or expressing any personal views. The topic guide for facilitators was developed by the project team and presented at a workshop with the country teams, where the teams were also provided with some training on the style of facilitation that should be used, the type of people to be invited as participants, etc. The original topic guide was slightly modified following discussions at the workshop, because some of the country teams (mostly in Africa and Papua New Guinea) were concerned about using concepts that were too abstract and felt that the discussions needed some minimal framing. It was therefore agreed that people’s spontaneous descriptions of financial capability would be captured and more specific

back-up topics would be available should participants find the more abstract discussion difficult. These would also be used to assess the relevance of areas that had been identified in high-income countries.¹

The final guide included the following sections:

- Short warm-up (introductions by participants)
- Discussion of general money/resource issues, including the key questions: “Tell me about someone who is [not/very] financially capable, what kind of person are they?” or the alternative, more concrete “What marks out someone who handles these things well from somebody who doesn’t?” (in both cases, the probes were “What sorts of things do they do/not do?,” “What skills and knowledge do they have/not have?,” “What motivations or attitudes do they have?,” “Anything else?,” “Which of these is most important?”)
- Checking the relevance of specific areas (money management, planning for the future, selecting and using financial products, getting information and advice) if not previously mentioned, by describing somebody who is good/bad at it
- Summing up the discussion (making sure that no important concepts were omitted, and noting the most and least important things discussed)

The guidelines provided to facilitators about the style of the focus groups recommended: using the standard probes included in the guide; keeping any additional probe neutral (e.g., by asking “Tell me more about that,” “What do the rest of you think?,” etc.); and intervening if multiple conversations started at the same time, bringing the conversation back to points that were mentioned but not further explored; and asking quiet people to express their views.

In the implementation process, between 6 and 13 focus groups were conducted in each of the eight participating countries (for a total of 70 focus groups). All the focus group discussions were recorded, transcribed, and translated to facilitate their analysis. For each country, the first focus group transcript was reviewed by the lead expert, who noted the main concepts that emerged from the discussion onto a thematic grid. This early review helped to detect any problems in the way the focus groups were conducted and to provide additional guidance to the country teams. For example, this quality check revealed that many of the facilitators had misunderstood the purpose of the focus groups and were asking respondents to describe, instead, how they themselves managed their money. Even in these, however, it was evident that participants were attempting to engage in a more general discussion about people they knew who were either incapable or very capable financially. Detailed

¹ The focus group topic guide is available on the project website www.finlitedu.org.

feedback was provided to each country team on the facilitation and all but two countries refocused their efforts for the remaining groups. Indeed, most of these found that, contrary to expectations, participants had little difficulty with the more abstract section of the topic guide.

The local teams then completed the grids with results from the other focus groups. For each focus group, the grid contained the concepts cited about

- People who are financially incapable,
- People who are very capable,
- Day-to-day money management,
- Planning for the future,
- Choosing/using products,
- Getting information,
- Personality, and
- Other topics.

The focus group transcripts were then given to the project team, which reviewed them against the thematic grids sent by the country teams, and a master grid was produced by evaluating the results across countries.

The analysis was undertaken in two stages:

- The analytical grids and accompanying transcripts were allocated across the team of four experts, who quality checked the grids against the transcripts and produced a master grid which identified key themes across the transcript/grid entries they were allocated. Materials relating to 58 groups were received in time for this analysis.
- The experts then met to bring together the four sets of master grids and produce by consensus the key elements of financial capability identified by focus groups participants, recording the number of transcripts where these applied.

The key manifestations of capability mentioned by the focus groups and their frequency are reported in the first two columns of table 2.1. The results were presented at a second workshop with the country teams, where initial suggestions for questions around the proposed topics were also presented by the Technical Advisory Team.

From a technical perspective, the focus groups provided surprising results; there was a high level of similarity among the participating countries and even compared with people with lower incomes in high-income countries like the United Kingdom and Ireland. The most notable difference from high-income countries was that there was very limited mention of use or knowledge of financial products and their characteristics as an aspect indicating financial capability—although even in the United Kingdom this was much less important for people with lower incomes. It also

TABLE 2.1 MAPPING OF FOCUS GROUP CONCEPTS (MANIFESTATIONS) TO SURVEY QUESTIONS AND ESTIMATED COMPONENTS

FOCUS GROUP CONCEPT	NO. OF GROUPS MENTIONING	QUESTION(S)	COMPONENT	COMMENTS
Day-to-day money management				
Plans spending against income and sticks to it	54/58	B1–B5	Budgeting	
Prioritizes spending on essentials	53/58	B27	Not overspend (part of)	
Self-disciplined/doesn't "waste" money versus spends impulsively or to impress others	51/58	B23–B24 B28 E7–E11	Not overspend (part of) Not impulsive	E questions not related specifically to money Also have optional Qs E19–E30
Lives within means versus runs short of money or has to borrow for essentials	45/58	B6–B7 B9–B10 B13–B16	Living within means	
Tries to save when can/puts money aside at end of budgeting cycle	31/58	C25–C30	Saving (part of)	See also planning for the future section below
Keeps track of money and spending/knows how much money has	21/58	B17–B20	Monitor	
Economizes/knows how to make the most of their money	26/58			Unable to design a suitable Q
Puts others needs before own	20/58	E31–E34		Not related specifically to finances and in the end optional Qs
Maximizing income	10/58			Not included in core because not income-neutral and only applies to those on low or inadequate incomes; Papua New Guinea/Tanzania were to have designed and tested question for the subset of population, but have not done so
Planning for the future				
Thinks and plans ahead versus living for today	50/58	E1–E6	Attitude toward the future	E questions not related to money
Saves/plans for unexpected expenses or events	42/58	C6–C9	Covering unexpected expenses	
Saves/plans for expected or known expenditure in the future	41/58	C2–C5		Not included in analysis because too few people have expected expenses
Enterprising/focuses on self-improvement	41/58	E10–E12	Achieve	E questions not related to money

(continued)

TABLE 2.1 MAPPING OF FOCUS GROUP CONCEPTS (MANIFESTATIONS) TO SURVEY QUESTIONS AND ESTIMATED COMPONENTS (continued)

FOCUS GROUP CONCEPT	NO. OF GROUPS MENTIONING	QUESTION(S)	COMPONENT	COMMENTS
Saves whenever can	40/58	C25–C30	Saving (part of)	See also day-to-day money management above
Plans/makes provision for children's future	35/58	C22–C24		Retained at request of country teams but cannot be included in score as it does not apply to everyone
Puts money aside for regular commitments	25/58			Decided to drop after wave 1 because some people don't have regular bills to pay and needed to shorten this section
Plans/makes provision for old age	21/58	C11–C21	<i>oldage_worry</i>	Not included in overall analysis as variable only available for under 60
Invests in business	13/58			Not included as only applies to those who are self-employed
Selecting and using financial products				
Doesn't borrow more than can afford	30/58	B21–B22	See next column	Included in living within means and removed from scoring for choosing products
Seeks out information before deciding on products will buy/use	28/58	D5–D7	Choosing products (part of)	Not included in overall analysis since it only applies to people who have recently chosen products
Checks product features before selecting/buying	28/58	D8–D9	Choosing products (part of)	Not included in overall analysis since it only applies to people who have recently chosen products
Keeps money in an account for safekeeping	16/58			Not income-neutral so not included. But do collect information on the range of financial products held (D1) for use as an explanatory variable
Other				
Seeks information/advice before making financial decisions	30/58	G1–G2	Information (part of)	Also have some optional Qs on info we might be able to use if all countries have included them, e.g., D11
Able to distinguish between reliable and unreliable information	16/58			Not possible to design a Q that would work across countries as reliability varies so much
Learns from/listens to others	10/58	B17	Information (part of)	

Note: The table reports information collected from the focus groups received by the established deadline (58 out of 70). Transcripts received after the deadline were also reviewed to ensure that no important differences were missed.

emerged that psychological characteristics such as impulsivity or action orientation were frequently used by focus group participants when describing financially capable (or incapable) people.

Two main areas stood out in the focus group general discussions in relation to people who are incapable and people who are very capable financially:

- Day-to-day money management
- Planning for the future—although it was clear that time horizons varied greatly by income. So the poorer people were, the shorter their time horizons.

Most of the discussion in relation to these topics was mentioned spontaneously by participants and even when they were raised as specific topics later in the discussion, the same issues were mentioned again.

In their analysis, the project team disaggregated these two topics into a number of component parts. As table 2.1 shows, the main topics mentioned under day-to-day money management were:

- Planning expenditure against income (mentioned in 54 out of 58 focus groups)
- Prioritizing spending on essentials (53 groups)
- Disciplined spending (51 groups)
- Living within one's means (45 groups)

Other topics relating to day-to-day money management that were mentioned fairly frequently across countries were:

- Trying to save a little money regularly (31 groups)
- Economizing (26 groups)
- Putting money away toward regular monthly commitments (25 groups)
- Keeping track of spending and money available for spending (21 groups)

The main topics mentioned in relation to planning for future needs were:

- Planning ahead/taking a long-term view (50 groups)
- Making provision for unexpected events or emergencies (42 groups)
- Making provision for known or anticipated expenditure (41 groups)
- Saving money (generally) whenever possible (40 groups)
- Being enterprising (41 groups)

Other topics relating to planning for the future that were mentioned fairly frequently across countries were:

- Making provision for one's children's future (but only applicable to those with dependent children) (31 groups)
- Making provision for one's old age (21 groups)

The other two areas identified by the U.K. study (choosing products and being informed) were clearly much less important. These rarely came up in the general discussion at the outset of the focus groups and, even when the facilitator raised them at the end of the focus group, the discussions were brief. At the follow-up project workshop, the country teams also confirmed that this result was obtained because the topics were considered genuinely less relevant rather because participants were tired toward the end of the discussion.

Choosing products was only really relevant to those who had middle or higher incomes. Those with low incomes used no products (including informal ones) or they had such limited options that they were not in a position to make choices. The most commonly mentioned topics were:

- Working out what one can afford to borrow (30 groups)
- Checking product features before buying it (20 groups)
- Proactively seeking information before choosing a product to buy (28 groups)

Being informed, likewise, was not generally considered an important component of financial capability. Only two topics were fairly commonly mentioned across countries:

- Seeking information before making (any) financial decisions (30 groups), and
- Proactively seeking information before choosing a product to buy—also included above (28 groups)

Although other topics were identified, none of them was raised by more than a handful of groups and as such cannot really be considered as key components of financial capability. Most notably, the topics often covered in previous surveys of financial literacy (understanding of inflation, compound interest, etc.) were not mentioned in a single group.

Some more general points were also discussed in the course of the focus groups—sometimes spontaneously and sometimes as a result of probing by the facilitator. First, financial capability was not thought to be related to either household income or an individual's level of education. Indeed, groups identified very capable people who had very low incomes or were poorly educated. Likewise, they identified incapable people with high incomes or high levels of education. Second, participants generally described financial capability in terms of behavior and, when probed, felt that knowledge was not the best indicator. Third, it was apparent that while income plays an important part in determining behavior (e.g., being able to make ends meet or to plan for the future), it is motivations that best distinguish between people who are financially capable and those who are not. The motivations most commonly mentioned spontaneously were:

- Altruism
- Control
- Time orientation
- Impulsivity
- Achievement orientation
- Social status
- Action orientation

Finally, there was a remarkable degree of consensus across the eight countries, far greater than anyone had anticipated. The two main country-specific issues were the emphasis in Papua New Guinea on *wantok* (a traditional system of reciprocal obligations among community members) and the fact that the Mexican groups often focused on managing businesses rather than personal finances. In the latter case, however, this was almost certainly because the facilitator was inclined to ask people to describe how they managed their finances rather than engaging them in a discussion of financially capable/incapable people generally. In other countries too, many people worked informally running a micro-business.

2.3 IN-DEPTH INTERVIEWS: PROCESS AND RESULTS

The next step was identification of existing questions or design of new questions for the key concepts that emerged from the focus groups. The project team consulted a review of 26 existing national and international surveys compiled for the OECD under the same RTF, to maximize use of the number of questions already tried and tested. The Technical Advisory Team designed the remaining questions to be tested. The main criteria for questions were that they should:

- Capture a key concept identified in the focus groups;
- Work across countries and apply to the whole population (i.e., be culture- and income-neutral);
- Be unambiguous;
- Discriminate between more capable and less capable people;
- Avoid scales based on value judgments; and
- Allow the use of different statistical tools for data analysis, including factor analysis.

In terms of potential cultural issues, three main types were uncovered through the focus groups:

- Issues relating to the questions and their wording. An example is the fact that in Papua New Guinea, financial capability was seen in terms of managing

community finances as well as individual or household finances. This did not crop up in any other country and, indeed, did not apply to all six communities in Papua New Guinea either. In such cases, individual countries were encouraged to add questions to the end of the questionnaire. A slightly different example is that in Africa, people do not, culturally, save for funerals—so it would be wise to omit this example from the list of unexpected expenses and emergencies people might plan for. Similarly hurricanes might also be dropped as an example in countries where they do not occur. The question wording should be kept at a general level and ask, for example, about “a major expense or emergency that is equivalent to a month’s income, e.g...”

- Issues that need to be accommodated in precodes. For example, a practicing Muslim would be unlikely to make provision for an emergency by taking out insurance or putting money into an interest-bearing savings account. But it is known from work undertaken with Muslim populations that they do make provision in other ways. The difficulty that arises here is assigning scores to behaviors that are considered capable in one context but not in another. An example used at one of the workshops was that educating children might be a good way of providing for your old age in a poor African country (or indeed in a three-generation Bangladeshi household in a high-income country). But it would probably not be considered capable in the white European populations of Britain, Norway, or the Netherlands. In the U.K. FSA baseline survey, the difficulty that certain behaviors may be considered capable in one context but not in another was handled by deriving a large number of new variables, combining replies from different questions. This is time-consuming and complex and it was avoided wherever possible in the present work.
- Cultural differences that explain why some groups or populations behave differently from others. For example, at the workshop it was said that there is a low level of trust in banks in Russia and this has led to people making little provision for their old age. Another example in the context of Eastern Europe would be a long-term dependence on state provision leading to complacency when things change and individuals need to make provision for themselves. This does not, in itself, mean that it is financially capable not to make any provision for one’s old age—unless there is no longer any state provision. It may, however, explain why some steps are taken rather than others and it might explain why certain groups or countries score rather less well than others. For this reason, the questionnaire included some explanatory questions that captured these factors where they are widespread across countries, and countries were encouraged to add questions covering aspects that were specific to their needs.

In terms of income neutrality, the problem applied particularly to questions relating to planning for the future, where someone who is unable to make any provision for future events (expected or unexpected) through lack of income should not automatically be judged incapable. Similarly, someone who has extensive provision for future events because he or she has a high income should not automatically be judged capable. Two ways of trying to ensure income-neutrality were identified:

1. Ask people if they have made any provision for an unexpected expense (major anticipated expense etc.) and:
 - If they have, ask whether they did this purposely and what provision they have made.
 - If they have not, ask if they considered making any provision and if they have considered it, why they have not actually made some provision, as well as how worried they are if they have no or inadequate provision.
2. Ask people if they have made provision for an unexpected expense and separately measure motivations, such as time orientation and impulsivity. The replies could then either be combined in a new derived variable or entered as separate items into the analysis generating the score.

In some cases, the project team identified more than one possible question from existing surveys that could be used to capture a particular manifestation of financial capability. In these instances, all possible questions were tested in the interviews to identify those that best captured variations in financial capability and met the above criteria.

The first draft of the instrument was a semi-structured interview guide to be tested in two waves of cognitive interviews, gradually refining the questionnaire. Interviewers were asked to record for each question whether it was:

- Not understood and why;
- Difficult to answer and why;
- Or not appropriate for the respondent's circumstances and why.

Interviewers were also asked to record any inconsistencies in the replies given by respondents across questions and to identify questions that did not accurately capture the respondent's level of financial capability as indicated by the generality of questions. This was also a useful tool for ensuring that relevant topics that arose during the interview were adequately covered in the questionnaire, and that appropriate precoded answers were provided. A number of questions were initially kept open-ended to identify the key answers to be included in the precodes. For example, after the question about planning how to spend the money, respondents who did not plan were asked, "Why don't you plan how you will use your income?"; after a

question about setting priorities, people were asked, “What are your main priorities?” and probed with “What else?” Other common questions used were “Why do you say that?,” “Do you feel that the questions you have been asked provide an accurate picture of how you [manage your money day-to-day/plan for the future/etc.]?,” and “Do you feel that we have missed out anything important about how you [manage your money day-to-day/plan for the future/etc.]?” Respondents were also encouraged to provide comments about the questions they were asked.

In addition to cognitive testing, the purpose of the in-depth interview stage was to reduce the number of questions by removing duplication of coverage and focusing on a core set of questions that worked well across countries and all sections of the populations.

In the case of motivations, alternative questions were taken from psychological scales already developed in other studies (e.g., for attitude toward the future, see Strathman et al. 1994, Petrocelli 2003, CentiQ 2008; for impulsiveness, see Stanford et al. 2009; for achievement orientation, see Keinan and Kivetz 2011).

About 15 in-depth interviews were conducted per country in each round, for a total of 117 interviews in the first round and 111 in the second round. In the second round, two different versions of the questionnaire were used (each one assigned to half of the respondents) in order to test alternative approaches particularly for “scaled questions”—for example, questions asking how often someone does something with a scale ranging from always to never. This was identified as an important issue in the first round of interviews, where people with limited education struggled with such scales.

Country teams produced an overall log of feedback on the interview guide, including for each question:

- How many respondents did not understand it and why
- How many respondents found it difficult to answer and why
- How often it was not appropriate for the respondent’s circumstances and why
- Other comments such as inconsistencies in reply compared with other questions, questions that did not accurately capture the respondent’s level of financial capability, suggestions for rewording the question to make it more easily understood or easier to answer, suggested precodes for open-ended questions

This feedback, combined with debriefing sessions organized between the project team and the country teams, informed the subsequent revisions of the questionnaire and the drafting of its pilot version. After each round, the project team reviewed the

interview transcripts and the feedback provided by the country teams to identify the questions, wording, and precodes that worked best.

The in-depth interview stage was very helpful in identifying problems with the structure and wording of some questions, particularly those that were taken from existing surveys carried out in developed countries.

The following is a list of the problems encountered in the in-depth interviews and how they were addressed in the revision of the interview guide:

- For the questionnaire to be relevant for the respondent, he or she had to have some role in managing, if not the household's money, at least his or her own expenses. For this reason, a cutoff age of 18 was chosen as it was considered adequate across the different countries, and filtering questions were used at the beginning of the guide.
- The cognitive testing also stressed the need to customize the wording of some questions to the role played by the respondent in managing the household's finances, since the object of study is how people deal with the resources for which they are responsible. For example, people who are only responsible for their own expenses should be asked whether they themselves have money left over after they have paid for necessary items, while respondents managing their household's resources should be asked whether their household has any money left over. Several questions were therefore included to understand whether the person has any role in managing the household money (either by planning how to spend the money, or being responsible for ensuring that regular expenses and bills are paid, or being responsible for making financial decisions) or if she is only responsible for her own expenses, and two alternative versions of the questionnaire were developed. These two versions are only slightly different (e.g., differences in examples of unexpected expenses, plural "you" versus singular "you," etc.) and only one is applied to each respondent.
- Another important issue was to understand the degree of involvement of the person in the household decisions: whether the respondent is the main person responsible for managing the household's money or if responsibility is shared with someone else in the household. For this purpose, a question about responsibility was added at the end of each relevant section (after questions on day-to-day money management, planning for future and unexpected expenses, and choosing financial products).
- Particularly in countries with high levels of informality and self-employment, many respondents who ran a small business would tend to talk about their finances without distinguishing between personal finances and business

finances. An additional question was therefore added to understand if the business finances were kept separate from the personal and household finances, and if so, respondents were asked to refer only to their personal/household finances while answering the remaining questions.

- Relatively abstract concepts such as “managing” and “budgeting” could not be used as they were not well understood by lower educated respondents; for this reason, in some cases, multiple questions had to be used instead of a single question to ensure that every practical aspect related with the abstract concept was explored (in the case of “managing,” for example, this included planning, making decisions, being responsible for decisions, etc.).
- Respondents with lower education levels had difficulty with the following:
 - Understanding long questions or questions containing negative forms
 - Remembering some of the precodes that were read out after a question
 - Using response scales that were not binary (e.g., a five-point agree/disagree scale).

To the extent possible, the questions were revised to be short, with a simple construct, and to require a yes/no answer. Many questions split into two then had to be combined in the analysis (e.g.: Q1: “Do you agree with...?” A1: Yes/No, followed by Q2: “And do you agree/disagree strongly or only to some extent?” A2: Strongly/To some extent). Results from the second-round of in-depth interviews showed that, in some instances, asking two questions instead of one took less time because the questions were more readily understood by the respondent without the need for further clarification from the interviewer. Two exceptions to this approach were made when asking questions about behaviors that respondents would be more hesitant to admit: spending on unnecessary things before buying food and other essentials, or spending on unaffordable items. In these cases, there was concern that respondents would answer “no” if presented with a simple “yes/no” reply, so more nuanced answer codes were provided at the same time (“regularly/sometimes/rarely/never”).

- When answering questions about attitudes through agreement or disagreement with a specific statement (e.g., “I try to save some money regularly, however little it may be”), some respondents tended to base their responses on whether they **generally** agreed with the statement rather than whether the statement applied to them. It was therefore decided to add some introduction along the lines of “Please tell me whether these statements describe you personally.”

- When asked about making provision for unexpected large expenses (equivalent to a month's income), it was useful to introduce the topic by first asking about **expected** large expenses, to clarify the difference. However, since many people did not have expected expenses equivalent to a month's income, only the questions about unexpected expenses were planned to be used for an indicator of financial capability that would apply to the entire population. Also, early drafts of the interview guide also included questions about provision for an unexpected income loss, but these turned out to be more complex to understand and answer, and were thus eliminated.

Based on analysis of the responses given in the two rounds of cognitive interviews, a selection was made among the variables measuring motivations, in order to retain the ones that worked best to develop robust scales (see chapter 5 for more details on the methodology). As a result of the analysis, the questions about altruism were dropped. In addition, to reduce the length of this section, some questions that measured motivations less frequently cited in the focus groups were made optional (such as need for social status, action orientation, and control).

Finally, some guidelines were also developed for country teams who wanted to add extra questions or optional modules:

- Additional questions on existing topics could be added between sections (e.g., at the end of B and before C), as long as there were introductions explaining that the interview was moving to a new subject and that any new topic was not a sensitive issue and did not change the frame of reference of the respondent.
- In rare cases, up to three questions could be added within a section, if absolutely necessary for the interview flow.
- Ideally the order of the modules should not change.
- Optional topics, however, should be added to the end of the questionnaire.
- If extra questions were added to the core, the overall length of the questionnaire should not exceed 1 hour 15 minutes. Ideally, however, the overall length would be around 50 to 60 minutes (or twice the core).

2.4 PILOT SURVEYS: PROCESS AND RESULTS

After the two rounds of in-depth interviews, the survey questionnaire was finalized and sent to the country teams for testing in pilot surveys before the full-scale data collection. The objective of the pilot phase was to assess any remaining problems with specific questions, skip patterns, or answer codes provided, and to test the respondent selection mechanism and data entry procedures. The data collected by

the country teams were sent to the project team, which also tested the feasibility of cross-country data merging procedures, and conducted some preliminary analysis.

From the original group of countries, Colombia, Mexico, Papua New Guinea, and Uruguay proceeded to the pilot phase; and three new countries joined (Armenia, Lebanon, and Turkey). In each country, about 100–200 people were interviewed for the pilot phase (table 2.2). In Mexico, the questionnaire was originally planned to be attached to a larger survey in which all household members of 18 years of age and over were interviewed (instead of one randomly selected adult), so the pilot sample size was larger. However, for the purpose of preliminary cross-country analysis, one random observation per household was selected from the Mexican database. In Papua New Guinea, one man and one woman were interviewed in each household.

TABLE 2.2 SAMPLE SIZE OF PILOT SURVEYS

COUNTRY	SAMPLE SIZE (FULL VALID CASES)
Armenia	124
Colombia	100
Lebanon	101
Mexico	215 ^a
Papua New Guinea	89
Turkey	123
Uruguay	96

a. To compare with other countries in the preliminary analysis, one individual was randomly selected for each household, with a total sample of 146.

Due to logistic issues, the pilot was implemented much later in Colombia and Papua New Guinea and their data were not available at the time the preliminary analysis was conducted.

Comments were sent from country teams to highlight the problems encountered and these were discussed in individual debriefing sessions with the project team. Overall, the core of the questionnaire measuring levels of financial capability worked well. The main issues that emerged were the following:

- Too many young respondents were selected for answering questions about the household finances, while not being able to provide information beyond their own finances. The selection between “household” (white pages) and “personal” (green pages) versions was therefore made more restrictive.
- A comparison between people who answered the roster questions about the entire household and the person selected to continue the interview suggested

that the random selection of respondents (through the Kish table, as explained in more detail in chapter 4) was not being implemented properly. Recommendations were provided to country teams to improve training of interviewers, supervision, and quality checks.

A few changes were implemented in the final questionnaire as a result of the analysis, mostly aimed at improving the selection of the proper version of the questionnaire (depending on the resources for which the individual was responsible) especially for young respondents, adding checks on key demographic information about the respondent, clarifying/adding precodes, and simplifying the sequence of questions about household income. More specifically:

- To facilitate recording of household members in the roster and quality checks, interviewers were advised to start listing the head of the household and then enter other members in age order—with the oldest first.²
- As an additional quality control check, and to ensure that basic demographic information about the respondent was obtained from the respondent in person, a few roster questions were asked again in other sections for the respondent only.
- Some teams had indicated that there were problems understanding the questions about a respondent's level of education, and that they found it easier to ask either about the total number of years of education or the highest level completed. When repeating the question about education for the respondent only, the format used was the number of years spent in education. Since calculating the number of years for other household members might be difficult (and take too long), the original question about highest level completed was kept in the roster. However, this part was simplified by deleting a question about highest year within highest level completed.

² This method of listing individuals may not be the most practical in countries where the average household size is large, or where the roster respondent is not always able to provide accurate information about the age of all household members. Regardless of method, it is critical that (1) it minimizes the risk of omission of any household members and (2) the same rule is used by all interviewers.

Overview of the survey questionnaire

The final Financial Capability Survey instrument that was developed under the first phase of this project is composed of three parts: (1) the main or individual questionnaire, to be completed by the respondent randomly selected within the household; (2) a questionnaire to be completed by one knowledgeable person for each enumeration area (the “location questionnaire”); and (3) a questionnaire completed by each interviewer (the “interviewer questionnaire”).

3.1 MAIN QUESTIONNAIRE

The main questionnaire was divided into several sections with different purposes (table 3.1).

Table 2.1 presents the mapping of the concepts that emerged from the focus groups, the number of groups that mentioned them, and the identification numbers of related questions included in the final instrument.

In addition to measuring concepts mentioned in the focus groups, the questionnaire collected information on other aspects considered relevant for understanding financial capability; for example, the type of financial products held, the role the individual has in making financial decisions, and the sources and variability of individual and household income.

As previously noted, some sections (B, C, and D) had two different versions: one for people asked about the money they manage both personally and for the household (printed on white pages), and one for people asked only about the management of their own personal money (printed on green pages).

Optional modules were available for interested countries to add to the main questionnaire. These included questions on: financial literacy (knowledge), banking, financial inclusion, credit cards, remittances, financial intermediaries, and consumer protection. These sections were taken from existing surveys and were not subject to the same rigorous testing process as the core questions on financial capability.

TABLE 3.1 CONTENT OF THE MAIN QUESTIONNAIRE

SECTION	PURPOSE AND TOPICS COVERED
R: Household roster and Kish table	<ul style="list-style-type: none"> ▪ This introductory section was answered by a responsible adult available in the household. ▪ The section collected information about demographic composition, education levels and activity status for all members living in the household. ▪ <i>After information is collected about all household members, the respondent for the rest of the interview is randomly selected from the eligible members using a Kish table.</i> This selection process is necessary whenever the sampling frame is based on dwellings/households instead of individuals (as it was the case in all the participating countries). ▪ All members aged 18 or older are considered eligible and proceed to further screening in section A. Note that this method of respondent selection generated some sampling issues that are discussed in chapter 4. A revision of this method is advised, following guidance provided in the manual accompanying the questionnaire (Kempson, Perotti, and Scott 2013).
A: Role in managing money	<ul style="list-style-type: none"> ▪ This section collects information directly from the respondent about her role in managing money and making financial decisions. ▪ The questions aim to identify individuals who really play no role in financial or spending decisions: people who are not responsible for planning the household's expenses, for ensuring bills are paid, or for making any type of financial decision, and who are also not responsible for their own spending were not interviewed as there were no means to measure their financial capability. ▪ People who have some role in managing the household's money or in making financial decisions for the household are directed to one version of the questionnaire (white pages). ▪ People who do not have any role in the household's financial decisions but who are responsible for their own spending are directed to an alternative version of the questionnaire (green pages). The two versions have very minor differences, mostly in wording and in the examples, to make sure that the questions are relevant for the person's particular circumstances.
B: Day-to-day money management	<ul style="list-style-type: none"> ▪ This section is the first of four (B–E) containing questions measuring core aspects of financial capability and includes questions about how people manage their day-to-day money. This includes planning spending against income, spending on food and other necessary items, keeping track of spending, borrowing, and generally managing money.
C: Planning	<ul style="list-style-type: none"> ▪ This section asks questions about planning for future expenditures, including for: known expenditures, unexpected expenditures or emergencies, old age, and/or for one's children.
D: Financial products	<ul style="list-style-type: none"> ▪ The aim of this section is to understand how people choose financial products and services: whether they check the features, terms, and conditions before buying financial products; whether they look for information before buying products; and whether they seek advice or information before making financial decisions. ▪ In order for these questions to be relevant for the respondent's circumstances, they can only be asked of people who have personally chosen the products they have, and who have gotten them sufficiently recently for them to recall the details of how they were obtained. ▪ Another objective of this section is to obtain a broad indication of the level of financial inclusion of the individual by asking which financial products the respondent currently holds (regardless of who chose them or when).
E: Motivations	<ul style="list-style-type: none"> ▪ This section captures underlying motivations that influence the way people behave. This includes questions on attitude toward the future (being forward-looking as opposed to focusing mostly on the present), impulsivity, and achievement orientation.
F: Sources of income	<ul style="list-style-type: none"> ▪ In this section information is collected about all sources of income both for the individual and for the rest of the household. Specific questions are included in order to understand the level of stability of income.
G: General questions	<ul style="list-style-type: none"> ▪ This section includes more general topics such as whether the respondent seeks information or advice before making important financial decisions.

The questionnaire developed by the project team was designed to be used in face-to-face, paper-and-pencil interviews. When possible, however, computer-assisted personal interviews are very helpful to improve data quality, because quality checks can be embedded in the computer-assisted personal interview software to prompt the interviewer when there are inconsistencies in the responses to different questions, or to ensure that answers are in the appropriate range. Due to the cost of the hardware and in some cases to safety considerations, computer-assisted personal interviews were conducted only in Mexico and Uruguay. Further details of data collection procedures are provided in chapter 4.

3.2 THE LOCATION QUESTIONNAIRE

The “location questionnaire” was completed at the enumeration area level to provide additional explanatory variables about living standards and available infrastructure in the area. The respondent for this specific questionnaire was a knowledgeable person in the area, for example, a local leader, a school principal, a health provider, or similar.

Key location aspects measured in the questionnaire were:

- Type of location (rural or urban)
- Distance from nearest schools and hospitals, as well as banks, microfinance institutions, and other types of money lenders
- Means of transportation to reach the above facilities and time required to get there
- Level of usage of the facilities
- Type and features of electricity and water provision
- Incidence of unemployment, crime
- Broad wealth level

The nature of the information collected through this section was inevitably subjective, but supplemented nationally collected statistical data on the survey respondents’ localities, which are often not available at such a fine level of detail.

3.3 THE INTERVIEWER QUESTIONNAIRE

The “interviewer questionnaire” collected information about basic sociodemographic characteristics of the interviewers. These data, appropriately matched to the main

data set, were considered useful for users who want to analyze patterns of nonresponse and other data quality issues.

This questionnaire is self-completed by each interviewer, and it contains questions on:

- Age
- Gender
- Education
- Languages spoken (if relevant for the country)
- Years lived in the country
- Whether interviewer job is part-time or full-time
- Years of experience as an interviewer
- Years of experience as an interviewer in social surveys
- Experience with surveys on financial matters
- Motivations for working as an interviewer
- Level of comfort asking the questions of this survey

3.4 PROTOCOLS

A full set of survey protocols was also developed to ensure that each country's survey was implemented in a way that maximized comparability across countries. Basic decisions on sampling, respondents, and fieldwork protocols were made and discussed at length jointly with the country teams. Interviewer manuals that outline the interviewers' responsibilities, provide detailed instructions for administering the questionnaires, and define each question were also prepared and discussed. As part of the work undertaken in the quantitative phase of the project (see part II for more details), a detailed survey manual was written highlighting the key issues that need to be addressed in implementing the Financial Capability Survey (Kempson, Perotti, and Scott 2013).

PART II



Quantitative study
process and
results

Data collection

The Financial Capability Survey was applied in nationally representative surveys in seven countries: Armenia, Colombia, Lebanon, Mexico, Nigeria, Turkey, and Uruguay. In each country, the Financial Capability Survey questionnaires were translated into the local language and back-translated into English as a quality control procedure. The teams from countries where the survey would be conducted in Spanish coordinated their translations to maximize comparability. The other languages in which the questionnaire was translated included Arabic, Armenian, and Turkish. Nigeria administers its household surveys in English with concurrent interpretation as needed.

Six countries implemented a stand-alone survey. In Mexico, an attempt was initially made to add the financial capability questions to a larger financial inclusion survey. After piloting the overall survey questionnaire and considering the length of the interviews, it was decided to conduct a stand-alone survey for financial capability. Nigeria incorporated the Financial Capability Survey into an ongoing survey but shortened the questionnaire to do so.

Following the survey protocols developed, all of the surveys were of individuals, and interviews were conducted face to face with no proxy respondents allowed. Again with the exception of Nigeria, the sample was representative of the national adult population (aged 18 or older), and in order to be eligible for the interview, the respondent needed to participate in the household's financial or spending decisions and/or be at least partly responsible for his or her own spending.

In Nigeria, a slightly reduced version of the questionnaire was included as a separate module in a larger panel survey (the General Household Survey conducted by the National Bureau of Statistics, and managed by a World Bank team for the Living Standards Measurement Study—Integrated Surveys on Agriculture project). The particular nature of this survey determined some differences with the other countries:

- Since the survey had among its main objectives to collect high-quality data on agriculture, respondents were interviewed twice in the same year—in the post-harvest season and in the post-planting season. The financial capability module was attached to the post-planting wave of data collection, and there-

fore the fieldwork took place a few months later than in other participating countries.

- Because the financial capability questions were included as an additional module, there were some space and time constraints, and this caused a few questions to be dropped, or combined into one using slightly more complex response codes. As we show later, this had some important implications for the analysis that was possible.
- The General Household Survey is a household survey in which all members aged 15 and older are interviewed. For this reason, the Nigeria sample is much larger than the others and it includes all eligible members of the same household instead of one randomly selected member, and the minimum age is lower than in other countries (although the analysis conducted for this report is only based on the sample aged 18 and over).

The implementation of the survey was managed independently by each country team. Nigeria was the only country where a national statistical office carried out the survey although in Mexico the national statistical office was involved in discussions on customizing the questionnaire to Mexico. In all but Nigeria, a private survey firm was selected to manage all aspects of fieldwork according to the project guidelines: defining the sampling strategy, selecting and training the interviewers, conducting the interviews, entering the data in electronic format, doing some basic data cleaning, quality checking, and reporting.

Fieldwork took place between April and July 2012, except in Nigeria where it was completed in November 2012 (table 4.1). In Mexico and Uruguay, computer-assisted personal interviews were implemented, while the interview was conducted in paper-and-pencil mode in the other countries.

As shown in table 4.1, the sample size ranged from 1,214 individuals in Lebanon to 8,789 individuals in Nigeria. The sample size was determined in each country according to the specific sampling strategy adopted by the local team. Details of the sampling strategies are provided in appendix B.

TABLE 4.1 SURVEY SAMPLE SIZE AND FIELDWORK DETAILS BY COUNTRY

COUNTRY	IMPLEMENTING FIRM	OTHER PARTNERS	PERIOD OF DATA COLLECTION (2012)	NUMBER OF COMPLETED INTERVIEWS
Armenia	AM Partners Consulting Company	Central Bank of Armenia	April 11–May 20	2,000
Colombia	Invamer	Banco de la Republica de Colombia	June 16–July 17	1,526
Lebanon	Consultation and Research Institute	Institute of Finance	May 11–July 6	1,214
Mexico	Ipsos	Condusef, CNBV	June 13–24 and July 7–10 (fieldwork suspended due to elections)	2,022
Nigeria	National Bureau of Statistics		September–November	8,789
Turkey	SAM Research & Consulting	Capital Markets Board of Turkey, Turkish Statistics Agency, Central Bank of Turkey	April 21–June 4	3,009
Uruguay	Equipos Mori	Uruguay Central Bank	April 24–June 14	1,401

4.1 SAMPLING AND SELECTION OF RESPONDENTS

The broad guidelines given to each country team for the sampling methodology were:

1. The sample should be a probability-based sample of adequate size to provide results at the national and subnational level.¹
2. Both urban areas and rural areas should be domains of study.
3. It was generally assumed that the sampling frame would be a list of dwellings, since a sampling frame of individuals was not available in any of the participating countries.
4. The individual to be interviewed should be randomly selected within the household. To do this, the interviewer should use the Kish table included in the questionnaire, which provides a method by which each eligible person in a household has an equal probability of selection into the survey sample.
5. The definition of household should be in line with use by national statistical offices.
6. At least three visits should be attempted with the same household before replacement.

¹ The most commonly used method was stratified random sampling.

To facilitate the training of interviewers, particularly on the use of the Kish table and on some specificities of the survey, an interviewer manual was prepared by the project team and adapted by the country teams.² The following section presents some issues encountered in the selection of respondents within the households. In light of these issues, readers who are planning to conduct a similar survey should carefully read the advice for questionnaire revision contained in the manual accompanying the questionnaire.

Two issues that arose in the selection of the respondent. First, the survey needed to be conducted with a random sample of individuals, but only listings of households were available. This required selecting a probability sample of households and then picking the person to be interviewed within the household, again randomly. As there was no way of knowing, a priori, the number of eligible people in each household, the selection of the final respondent had to be done by the interviewer.

The second issue that arose is that the goal of the survey is to measure financial capability. As the manifestations of financial capability identified in the focus groups include actions, behaviors, and motivations, the questionnaire cannot be used to assess financial capability in someone who neither manages his or her own (household's) finances nor participates in decisions about financial matters. In other words, the universe of eligible respondents is not simply the universe of adults ages 18 and older but of adults ages 18 and older who play some role in financial matters. Identifying this universe is not easy and the recommendation going forward is not to do so. We return to this point below.

An interviewer, upon arriving at a sample household, first identified a household respondent, someone knowledgeable about all household members. This informant was asked to provide a list of all household members which the interviewer entered into the questionnaire in the household roster, assigning each person a personal identification number (roster number) (1 for the household head, and 2 to 12—or more—for the other members). The interviewer then collected basic demographic information for all members from a responsible adult, and determined the number of eligible people simply by counting household members aged 18 or older.

To select the respondent for the rest of the survey, a Kish table was used.³ The Kish table in the format used here is a one-page table where the first row lists the possible number of eligible people in the household (1, 2, ..., 25), and the first four columns list the possible last two digits of the household identification number (01

² The interviewer manual in English is available on the project website, www.finlitedu.org.

³ See Kish (1949) for the origin of this method.

to 00).⁴ The rest of the table is prefilled with random numbers. The cell at the intersection between the correct number of eligible people (which we denote by n) and the last two digits of the household ID provides the order number of the person to be interviewed, which we denote by k . For example, if such number were equal to 3, then the third eligible member listed in the roster should be interviewed. The Kish table is designed to give an eligible person a $1/n$ probability of being selected among other household members.

As mentioned above, one complication in the use of the Kish table, which might have affected the quality of the respondent selection mechanism, is that the condition of eligibility depended not only on age, which was easily recorded at the beginning of the household visit, but also on involvement in financial decisions, which could only be assessed by asking questions directly to the selected respondent. While some questions on financial participation were asked of the household respondent in the roster, there was a concern that basing the selection on information provided by this person (who would most likely be the household head) could lead to bias in the final sample if there were issues of either lack of knowledge of others' participation or an incentive to underestimate this participation.

Thus, once a respondent was selected using the Kish table, that person would be administered Section A, which contains the screening questions about financial responsibility. If the selected person turned out not to have any role in managing money (not even his or her own expenses), the interviewer needed to terminate the interview, update the number of eligible members in the roster to $n-1$, and repeat the Kish table procedure. This mechanism revealed two drawbacks:

- The correct number of eligible people may not be correctly recorded, because only one (or two if the first is replaced) adult would go through the additional screening questions and it would not be possible to assess eligibility of the nonselected adults.
- No space was provided to record a revised number of eligible people. Interviewers were asked to change the number if the selected respondent needed to be excluded, but there was no record of whether the interviewer actually did so.

The project team conducted a quality check using data from the first five countries completing the data collection (Colombia, Lebanon, Mexico, Turkey, and Uruguay) by comparing the roster number of the selected adult (recorded as variable r_{15}) with the Kish table number k that the interviewer should have obtained for that house-

⁴ The household identification number was preassigned and should not be in any way be correlated with geographic area or any other sample selection variable.

hold. This is here denoted by $k(r_{14}, hhid)$ to show that this number was found at the intersection of the household ID ($hhid$) with the reported number of eligible people (variable r_{14} in the database). Four cases could be considered as denoting appropriate use of the table:⁵

- $r_{15} = k(r_{14}, HH id)$ or the ideal case where the person was selected on the first attempt and interviewed.
- $r_{15} = k(r_{14}, HH id) + 1$ where a non-eligible person was initially selected, the process was redone, the number of eligible people was updated, and the roster position of the new chosen person reflects the fact that one person in the roster had to be skipped when using the new Kish number.
- $r_{15} = k(r_{14} - 1, HH id)$ where a non-eligible person was initially selected, the process was redone, but the interviewer forgot to correct r_{14} .
- $r_{15} = k(r_{14} - 1, HH id) + 1$ where a non-eligible person was initially selected, the process was redone, the interviewer forgot to correct r_{14} , and the roster position of the new chosen person reflects the fact that one person in the roster had to be skipped when using the new Kish number.

As table 4.2 shows, the use of the Kish table fell in one of these four cases for the vast majority of observations (between 89 percent and 100 percent). The incidence of the ideal case (1) was also very high (over 86 percent), except in Lebanon where it was only 42 percent.

Because of the issues in terms of sampling and survey implementation, the team has revised the recommendations on selection of eligible respondents. Instead of attempting to have a sample of financially active adults, it is preferred to select a sample of all adults aged 18 and older. For those who are identified in Section A as neither participating in their own nor their households' financial decisions, the interview will terminate at the end of Section A. No attempt to replace this person should be done. This results in a slightly increased cost to the survey as a whole, as the people with no financial participation will be included in the sample, even though they are not the target of the research. The share of such adults is small, but not zero. However, the benefits of sampling this way are high: the sample frame will be correctly done and weighting will be straightforward. Additionally, in further work, it may be useful to collect other information on these people to understand who the nonactive people are and why.

⁵ Given the issues discussed above, while correct use of the table must fall in one of the four listed cases, misuse is also possible within these cases.

TABLE 4.2 CASES OF PRESUMED CORRECT AND INCORRECT USE OF THE KISH TABLE

CASE	COLOMBIA		LEBANON		MEXICO		TURKEY		URUGUAY	
	OBS.	%	OBS.	%	OBS.	%	OBS.	%	OBS.	%
$r15 = k(r14, hhid)$	1,518	99	510	42	2,016	100	2,847	95	1,206	86
$r15 = k(r14, hhid) + 1$	8	1	261	21	2	0	59	2	43	3
$r15 = k(r14 - 1, hhid)$		0	226	19	3	0	67	2	113	8
$r15 = k(r14 - 1, hhid) + 1$		0	87	7		0	9	0	6	0
Total potentially correct	1,526	100	1,084	89	2,021	100	2,982	99	1,368	98
Incorrect	0	0	130	11	1	0	27	1	33	2
Total	1,526	100	1,214	100	2,022	100	3,009	100	1,401	100

4.2 DATA HARMONIZATION AND CLEANING

Once the electronic files with data from the different countries were received, the project team conducted the required data cleaning and harmonization procedures in order to construct a consistent and standardized multicountry database that could be used for comparative analysis. The data harmonization consisted of two steps.

In the first step, variables were relabeled and recoded when necessary to provide comparability. The information that remained country specific was flagged with a suffix and country abbreviation (e.g., the variable about level of education has a standardized cross-country version and a country-specific version: the first is labeled r_8_r and the second is labeled $r_8_r_am$ for Armenia, $r_8_r_co$ for Colombia and so on). The following naming convention was used for the variables:

- For single response questions: section letter in small font + _ + question number (example: answers to question C2 will be stored in variable c_2)
- For multiple response questions: each possible response is a separate variable named section letter + _ + question number + _ + code number (example: B12 has possible answers 1 to 12, the variables will be called b_12_code1 , b_12_code2 , ..., b_12_code12)
- For roster variables, r + _ + question number + _ + roster number of the person (example, if Paula is listed as the third person in the roster, her age provided in R4 will be contained in the variable r_4_3).

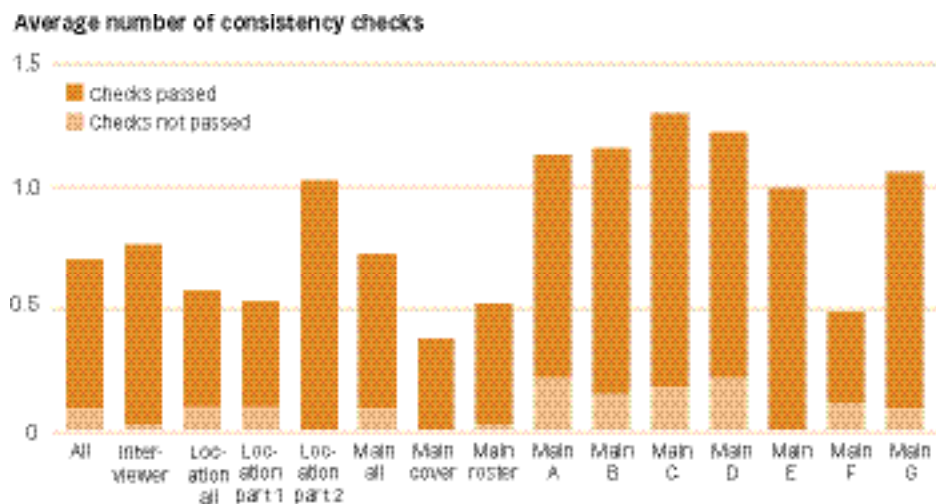
In the second step, consistency checks were performed in order to identify:

- Problems in the skip patterns (e.g., there is an inconsistency if the respondent answers he or she does not use any financial instruments but answers follow-up questions about them).
- Mismatches between the roster and other sections for the same variable information (e.g., the demographic characteristics of the respondent indicated by the roster should match the same information collected in the other sections).
- Answers out of range or unlikely to be correct (e.g., in the questionnaire about location, the time to travel to the nearest school exceeds several hours).
- Missing information coming from responses such as “Don’t know,” “Don’t remember,” “Refuse to answer” and “No answer.”

Table C.1 in appendix C lists the main changes done during harmonization, and figure 4.1 shows the average outcome of consistency checks. For most sections of the household questionnaire, it was possible to construct an average of one consistency check per variable. More than 70 percent of all consistency checks were passed by all observations in the household data. The location and interviewer data presented a higher pass rate of consistency checks of 96 percent and at least 77 percent, respectively.

Finally, the rate of nonresponse to individual questions was analyzed and found to be very low: for the variables used in the analysis, this was under 1 percent in the vast

FIGURE 4.1 AVERAGE NUMBER OF CONSISTENCY CHECKS PER VARIABLE, BY SURVEY AND SECTION



Note: Data are for Armenia, Colombia, Lebanon, Mexico, Papua New Guinea, Turkey, and Uruguay.

majority of cases. Not surprisingly, one exception was the question about individual income, whereas interestingly the variable about household income did not suffer from nonresponse issues.

4.3 CONSTRUCTION OF SURVEY WEIGHTS

Ideally, when probability sampling is used, one should be able to construct weights that reflect the probability of selection of the household. These weights are used whenever the researcher considers the household as the unit of analysis. Person-level weights should be computed for use in analysis of individuals, for example, when comparing levels of financial capability. Person-level weights should reflect the probability of selection of a household member given the eligibility criteria. If the application of the Kish table is correct, then the probability of selection of an individual is the product of the probability of selection of her household and one over the number of eligible adults in the household.

Two issues were encountered in the construction of weights. The first was the possibility of errors in the application of the Kish table for selecting the respondent. The second was the use of sampling methods different from probabilistic sampling. In general, the project team constructed probability weights whenever sufficient information was available and no substantial issues with sampling were found. If this was not feasible, analytic weights were constructed based on the country's distribution of the adult population.

In the case of Nigeria, the calculation of weights is more complex because the survey is a panel, and therefore potential attrition (i.e., households dropping out of the sample from one wave to the next) needs to be accounted for. These weights will be calculated by the team managing the survey: they were not available yet when this report was written. Results based on the Nigerian data should therefore be considered very preliminary.

4.3.1 Correcting for respondent selection issues

Since three questions were included in the roster about contributing to the household budget, participating in the household's financial decisions, and being responsible for own spending, it is possible to identify the number of people that would be considered eligible based on the responsible adult's responses about other household members. This information was not used in the application of the Kish grid since it relied mainly on the perception of the roster respondent about who is responsible for the household and personal finances. Nevertheless, this information can be used to calculate a "lower bound" for the number of eligible people.

This information was also used to compare the demographic composition of the sample with that of people who would be considered eligible based on the roster.

Inspection of the data indicates the presence of a large share of female respondents in the sample. Also, the share of male adults interviewed is lower than the share of men among eligible people based on the roster for at least three countries. Oversampling of women or other demographic groups is a common problem across surveys since some groups are more likely than others to be available in the household during the time the interview is conducted. Another indication that the Kish table may not have been followed rigorously in interviews is the oversampling of some roster positions. For instance, positions 1 and 2 usually correspond to the head of the household and spouse and might be more common among respondents. The data seemed to indicate that there was oversampling of position 2 in at least three countries.

The bias that arises by oversampling certain groups poses a problem for the construction of weights. Analytic weights often use auxiliary information on the population's distribution of demographic groups. Since information on the distribution of eligible adults is not available for the countries studied (since information is missing about involvement in money management), and usual demographic characteristics such as gender and age might be correlated with a person's probability of being interviewed, a more conservative approach is used. Only information concerning geographical location of the household and its population distribution is used to construct analytic weights.

Given the issues presented above, the number of eligible people recorded by the interviewer was not used when calculating the probability of an individual being selected within the household. In its place, the average between a lower bound and an upper bound for the number of eligible people was used. The lower bound, as discussed above, was the number of eligible adults according to the roster; the upper bound was the number of adults. The data showed that the difference between the average number of adults in the household and the number of adults considered eligible based on the roster was small in most countries. Additional checks were performed to compare the overall sample of household members, the sample of members considered eligible based on the roster, and the sample of members who were actually interviewed.

4.3.2 Types of weights constructed

Different types of weights were constructed for use with the data. Ideally, one should weigh the sample by the inverse of the probability of selection of households. Given the different approaches used in sampling households and the lack of detailed data on the sampling frame, it was only possible to construct probability weights for Mexico and Turkey.

When necessary, analytic weights were constructed using information on the geographical distribution of the adult population in the country, as in the cases of Colombia and Armenia. This is a conservative approach which does not rely on information about the gender and age distribution of the adult population in the country. If the construction of analytic weights based on geographic location is not possible due to the lack of detailed information on location of the household, the analytic weights provided by the country team are used, as in the case of Uruguay. The weights for Uruguay use information on the distribution of age, gender, and location of respondents in the survey and in the adult population. Weights were not constructed for the data from Lebanon. Lebanon's data are self-weighted and weights are assumed to equal one for any household.

One potential problem to be considered is nonresponse. We use a cluster-level nonresponse adjustment for the countries where it is possible to construct weights based on the sampling method—Mexico and Turkey. The adjustment is such that if the expected number of households in a cluster is x but the number interviewed is y , the household weights are corrected by a factor of x/y , inflating the weights of undersampled clusters. The correction for nonresponse is not substantial.

Summing up, the following variables were constructed:

- ***weight_hh_prob***: household probability weights equal to the inverse of probability of selection of the household according to information obtained on the sampling method. These weights are corrected for nonresponse such that $weight_hh_prob = (1/Prob(HH)) * (x/y)$ where x is the expected number of households in a cluster and y the number interviewed.
- ***weight_pp_prob***: person probability weights equal to the household probability weights corrected for eligibility. $weight_pp_prob = weight_hh_prob * 0.5(w+k)$ where w is the number of adults in the household and k the number of eligible adults according to questions in the roster.
- ***weight_hh_analytical***: household analytic weights based on the geographical location of the household. $weight_hh_analytical = (Ni/N)/(ni/n)$ where Ni/N is the share of adults in region i in the country's population and ni/n is the share of observations from region i in the sample.
- ***weight_pp_analytical***: person analytic weights equal to household analytic weights corrected for eligibility.
- ***weight_hh_analytical_CT***: household analytic weights constructed by the country team.

- ***weight_pp_analytical_CT***: person analytic weights constructed by the country team equal to household analytic weights constructed by the country team corrected for eligibility.
- ***weight_hh_pooled***: household weights normalized such that the cumulative weights in each country sum to one. These weights should be used in the analysis of cross-country data at the household level. The normalization guarantees that each country has the same total weight in the pooled sample. The choice of weights to be normalized depends on the availability of information at the country level. We follow the rule that the most reliable household weight constructed for each country is used for pooled analysis. This implies that some countries have probability weights while others have analytic weights. Lebanon's sample is self-weighted—household weights equal to one—then normalized. These weights before normalization are available in the variable *cover_hh_weight*, which is country specific and can be used in household-level country-specific analysis.
- ***weight_pp_pooled***: person weights normalized such that the cumulative weights in each country sum to one. These weights should be used in the analysis of cross-country data at the individual level. The choice of weights to be normalized depends on the availability of information at the country level. We follow the rule that the most reliable household weight constructed for each country and corrected for eligibility is used for pooled analysis. Lebanon's sample is self-weighted, corrected for eligibility, and then normalized. These weights before normalization are available in the variable *cover_pp_weight* which is country specific and can be used in individual-level country-specific analysis.
- ***correction_elig and correction_nr***: correction for eligibility and nonresponse, respectively. $correction_nr = (x/y)$ where x is the expected number of households in a cluster and y the number interviewed. $correction_elig = 0.5*(w+k)$ where w is the number of adults in the household and k the number of eligible adults according to questions in the roster.

Available weight types by country are summarized in table C.2. Table C.3 presents the formula for calculating the probability of household selection in Mexico and Turkey.

The basic descriptives are found in chapter 6, where all results of the analysis done to date are found.

M

ethods for developing measures of financial capability

A principal research question of the project was whether it was possible to construct a single measure of financial capability. The project was based on the premise that financial capability is an abstract concept that cannot be measured directly; instead, manifestations can be captured. By measuring the manifestations of financial capability and investigating the relationship between them, it could be determined if financial capability should be analyzed as a single concept or as a multidimensional phenomenon through a set of indicators. In similar work in OECD countries, a single measure could not be constructed, but instead multiple domains were identified. If this turned out to be the case here, another important research question was the extent to which similar domains would be found in low- and middle-income countries. Additional concerns were whether the measure(s) were neutral with respect to culture, education, and income levels and whether such measure(s) could be useful for comparisons across countries.

The process followed to construct measure(s) of financial capability is discussed in this chapter and it was organized into these steps:

1. Preparing the data for analysis.
2. Constructing valid measures (scores) for the components of financial capability, which are the empirical counterpart of the manifestations conceptualized through the focus groups.
3. Testing the possibility of developing a single indicator from the component scores (or to identify a small number of financial capability “domains”).
4. Analyzing the distribution of financial capability scores in the population.
5. Segmenting the population by identifying groups of individuals with capability scores that are similar to other individuals in their group, and different from individuals in other groups.

This chapter contains the technical discussion of how the financial capability measures were constructed. As such it is principally targeted to readers who have a specific interest in the methodology used in the analysis or who may wish to

replicate this work with their own data. To make the chapter more accessible to the nontechnical audience, each section starts with a general overview followed by the technical details and then brief highlights of relevant findings. The full results of the analysis are in chapter 6.

5.1 CONSTRUCTION AND SELECTION OF VARIABLES

To accommodate people with low levels of general literacy and education, the questions were simplified by splitting difficult topics into a sequence of questions, which then had to be combined in the analysis. For example, the direct use of four-point response scales such as “strongly agree/agree to some extent/disagree to some extent/strongly disagree” was avoided by first asking whether respondents agreed or disagreed, and then asking to what extent they agreed or disagreed. By combining responses to the two questions into a single derived variable, the original four-point scale could be used for data analysis. A full list of variables that were constructed for use in the analysis is presented in table 5.1, together with the number of the questions used and the variable coding.

Other variables were constructed to capture conceptual nuances covered in the questionnaire. For example, respondents were first asked whether they plan how to spend their income when they receive it; those who said yes were then asked how regularly they plan (always or only sometimes), how exactly they plan (planning exactly versus making a rough plan), whether they keep to their plan, and—if so—how regularly. Different combinations of these variables were used to create three derived variables: one for the frequency of planning, one on the accuracy of such plans, and one indicating the extent to which they planned and then kept to the plan.

When a few variables were available to measure the same concept and one of these appeared to be too strongly correlated with income, only the more income-neutral variables were included in the analysis to avoid attributing higher levels of capability for actions that are heavily affected by the level of income. This happened with respect to four concepts: running short of money, having money left over after buying food and other essentials, having the ability to cover an unexpected expense equivalent to a month’s income, and having made provision for old-age expenses. In the first case, the effect of income was mitigated by considering the reasons for running short of money instead of the frequency with which this happened. In the second case, an attempt to reduce the effect of income was made by using information about what people do with the money they have left over (only spend on non-essentials versus also save/spend on essentials), but even this measure was not considered sufficiently income-neutral and was, therefore, excluded from the analysis. For both making provisions for unexpected expenses and old age, the selected

TABLE 5.1 DERIVED VARIABLES

VARIABLE	MEANING	COMBINATION OF	VALUES
<i>plan_freq</i>	Whether makes a plan and frequency	B1,B2	1 "No" 2 "Sometimes" 3 "Always"
<i>plan_exactly</i>	Whether makes a plan and precision of plan	B1,B3	1 "No" 2 "Roughly" 3 "Exactly"
<i>plan_keep</i>	Whether makes a plan and how frequently sticks to the plan	B1,B4,B5	1 "No plan" 2 "Plans, never keeps" 3 "Plans, sometimes keeps" 4 "Plans, always keeps"
<i>money_left</i>	Whether has money left over and frequency	B6,B7	1 "No" 2 "Sometimes" 3 "Regularly"
<i>money_left_do</i>	Whether has money left over and how the money is used	B6,B8	1 "Does not have money left" 2 "Has money left and only spends on non-essentials" 3 "Has money left and saves/spends on essentials"
<i>money_short_rev</i>	Whether runs short of money and frequency (REVERSED)	B9,B10,B13, B14	1 "Regularly" 2 "Sometimes" 3 "No"
<i>money_short_why</i>	Whether runs short of money and why	B9,B10,B11,B13, B14	1 "Runs short because of overspending" 2 "Runs short for other reasons" 3 "Does not run short"
<i>borrow_food_rev</i>	Whether borrows money to buy food and frequency (REVERSED)	B13,B14	1 "Regularly" 2 "Sometimes" 3 "No"
<i>borrow_debt_rev</i>	Whether borrows money to repay debts and frequency (REVERSED)	B15,B16	1 "Regularly" 2 "Sometimes" 3 "No"
<i>borrow_afford</i>	Whether comfortable with level of borrowing	B21,B22	1 "Borrowed more than affordable" 2 "Borrowed to limit" 3 "Could borrow more/has not borrowed"
<i>know_spent</i>	Whether knows amount spent and precision	B17,B18	1 "No" 2 "Roughly" 3 "Exactly"
<i>know_available</i>	Whether knows amount available and precision	B19,B20	1 "No" 2 "Roughly" 3 "Exactly"
<i>getinfo</i>	Whether agrees with statement on getting information and advice	G1, G2	1 "Disagree strongly" 2 "Disagree to some extent" 3 "Agree to some extent" 4 "Agree strongly"

(continued)

TABLE 5.1 DERIVED VARIABLES (continued)

VARIABLE	MEANING	COMBINATION OF	VALUES
<i>learn</i>	Whether agrees that statement describes him/her—learning from others' mistakes	B25,B26	1 "Disagree strongly" 2 "Disagree to some extent" 3 "Agree to some extent" 4 "Agree strongly"
<i>disciplined</i>	Whether agrees that statement describes him/her—discipline	B23,B24	1 "Disagree strongly" 2 "Disagree to some extent" 3 "Agree to some extent" 4 "Agree strongly"
<i>cover_unexp_plan</i>	Whether could cover unexpected expense tomorrow (or has done something or thought about it)	C6,C7, C8	1 "Couldn't cover, not thought" 2 "Couldn't cover, thought only" 3 "Couldn't cover, done something" 4 "Could cover"
<i>cover_unexp_worried</i>	Whether could cover unexpected expense tomorrow or is worried about it	C6,C9	1 "Couldn't cover, not worried" 2 "Couldn't cover, a bit worried" 3 "Couldn't cover, very worried" 4 "Could cover"
<i>trysave</i>	Whether statement describes him/her—try to save	C25,C26	1 "No" 2 "To some extent" 3 "Very well"
<i>trysave_reg</i>	Whether statement describes him/her—try to save regularly	C27,C28	1 "No" 2 "To some extent" 3 "Very well"
<i>tryprovision</i>	Whether statement describes him/her—try to have provisions	C29,C30	1 "No" 2 "To some extent" 3 "Very well"
<i>oldage_prep</i>	Whether has a strategy for covering old-age expenses that provides/will provide full coverage	C11b, C13, C14, C18, C19	1 "Has no provision" 2 "Has provision, no full coverage" 3 "Has provision, full coverage"
<i>oldage_worry</i> (for < 60 only)	Whether has any strategies in place for covering old-age expenses or is worried about it	C11b, C13, C15	1 "No provision, not worried" 2 "No provision, a bit worried" 3 "No provision, very worried" 4 "Has provision"
<i>check</i>	Whether checked terms and conditions of the product and how carefully	D8,D9	1 "No" 2 "Roughly" 3 "Exactly"
<i>time_short-focus_rev</i>	Whether agrees with motivation statement/Attitude toward the future/Focus on short term (REVERSED)	E1,E2	1 "Agree strongly" 2 "Agree to some extent" 3 "Disagree to some extent" 4 "Disagree strongly"

(continued)

TABLE 5.1 DERIVED VARIABLES (continued)

VARIABLE	MEANING	COMBINATION OF	VALUES
<i>time_present_rev</i>	Whether agrees with motivation statement/Attitude toward the future/Live for the present (REVERSED)	E3,E4	1 "Agree strongly" 2 "Agree to some extent" 3 "Disagree to some extent" 4 "Disagree strongly"
<i>time_itself_rev</i>	Whether agrees with motivation statement/Attitude toward the future/Future will take care of itself (REVERSED)	E5,E6	1 "Agree strongly" 2 "Agree to some extent" 3 "Disagree to some extent" 4 "Disagree strongly"
<i>impulsive_do_rev</i>	Whether agrees with motivation statement/Impulsiveness/Do things without thinking through (REVERSED)	E7,E8	1 "Agree strongly" 2 "Agree to some extent" 3 "Disagree to some extent" 4 "Disagree strongly"
<i>impulsive_iam_rev</i>	Whether agrees with motivation statement/Impulsiveness/I am impulsive (REVERSED)	E9,E10	1 "Agree strongly" 2 "Agree to some extent" 3 "Disagree to some extent" 4 "Disagree strongly"
<i>impulsive_say_rev</i>	Whether agrees with motivation statement/Impulsiveness/Say things before thinking through (REVERSED)	E11,E12	1 "Agree strongly" 2 "Agree to some extent" 3 "Disagree to some extent" 4 "Disagree strongly"
<i>achieve_look4opp</i>	Whether agrees with motivation statement/Achievement/Always look for opportunities to improve situation	E13,E14	1 "Disagree strongly" 2 "Disagree to some extent" 3 "Agree to some extent" 4 "Agree strongly"
<i>achieve_aspire</i>	Whether agrees with motivation statement/Achievement/Have many aspirations	E15,E16	1 "Disagree strongly" 2 "Disagree to some extent" 3 "Agree to some extent" 4 "Agree strongly"
<i>achieve_workhard</i>	Whether agrees with motivation statement/Achievement/Work hard to be among the best	E17,E18	1 "Disagree strongly" 2 "Disagree to some extent" 3 "Agree to some extent" 4 "Agree strongly"

variables measured whether respondents had a plan and, if not, how worried they were about not having a plan. In this way, low-income respondents who do not have enough resources for covering such expenses would be considered more capable if they at least worried about how they would cope with unexpected expenses and old age.

Some of the concepts that emerged from the focus groups did not apply to the entire population. Since it would not have been possible to include these in an overall indicator of financial capability, these concepts were treated as separate areas of financial capability. These separate concepts included checking terms and conditions before choosing financial products, searching for information from different sources, searching for alternative financial products (only applicable to those who had chosen financial products), and worrying about having made adequate provisions for old age (only asked of people under 60).

5.2 IDENTIFYING COMPONENTS OF FINANCIAL CAPABILITY AND CONSTRUCTING SCORES

The first stage of the analysis is to assess whether the set of questions asked about each manifestation is capturing one underlying concept. This is done using principal component analysis (PCA), which analyzes the correlation structure of variables in the data set and identifies groups of variables that are explained by (or “load on”) the same unobserved underlying component. These groups, or components, are the empirical counterparts of the manifestations of financial capability. For example, if all the variables generated from the five questions about planning expenses load on the same component, the resulting component could be used as a measure for “budgeting.” Using the output from this analysis, it is possible to create a score for each component as a weighted sum of the variables within that group of components. This score can be considered a partial measure of financial capability.

5.2.1 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 Σ :

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

where μ_i and σ_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, 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 Λ 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 Σ , 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 the 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.

5.2.2 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 (Thomson 1951), 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

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

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

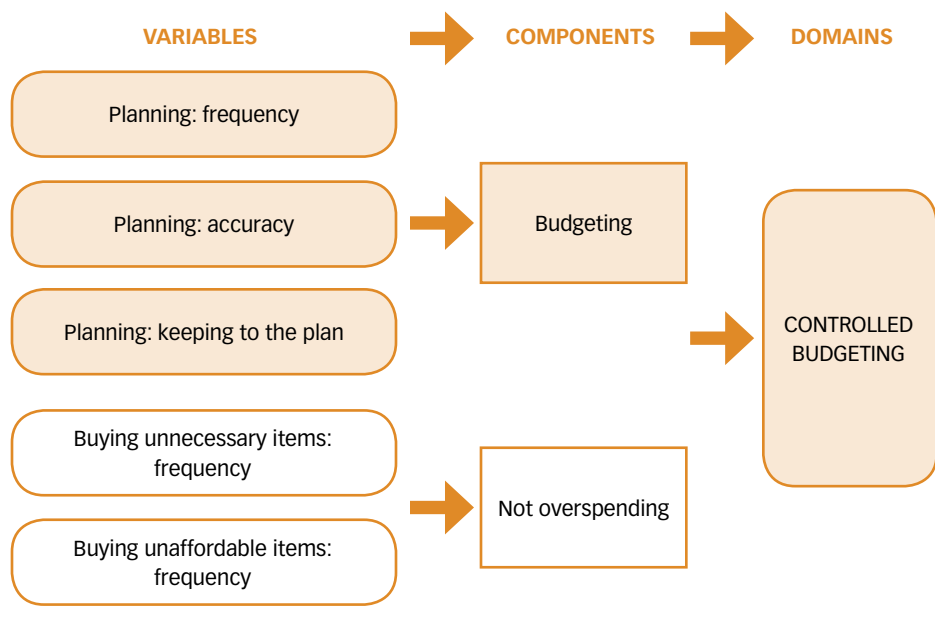
5.3 IDENTIFYING DOMAINS OF FINANCIAL CAPABILITY

Once a score is calculated for each component identified through the PCA, several further questions need to be addressed:

1. How are the components related to one another?
2. Is it possible to trace these components back to a few key underlying concepts (domains of financial capability)? If so, how many?
3. Can this be done in a robust and comparable way across countries?
4. Ultimately, is it possible to trace these components back to a single underlying ability and to construct a single score for financial capability?

Factor analysis with principal component factoring is used to answer these questions, with respondents' component scores used instead of the individual variables. If the components are found to be correlated such that they can be combined into a smaller set of meaningful scores, these can be interpreted as "domains" of financial capability. Figure 5.1 shows an example of this two-stage procedure, where in the first stage all the variables about planning expenses relative to income are found to be part of the same component ("budgeting") and two questions about buying unnecessary or unaffordable items are found to be part of the component "not overspending." In the second stage, these two components are determined to be part of the same financial capability domain ("controlled budgeting").

FIGURE 5.1 FACTOR ANALYSIS ASSOCIATES VARIABLES WITH COMPONENTS AND DOMAINS



The number of domains, like the number of components in the previous step, is determined by the analysis of the data and in particular the correlation structure among the components. If most of the variance in the components can be explained by a single factor, then a single domain will be found, and in that case a single indicator of financial capability will be constructed as the score for that domain. Previous evidence from studies in high-income countries seemed to suggest that this result would be unlikely, however it remained an empirical question given the different context.

The results of the analysis showed that it was not possible in any of the countries to combine the 10 components of financial capability into a single score. In addition, while it was possible to identify a small group of capability domains in each country, these domains tended to differ in terms of their number and composition across countries. As a result, the set of 10 original components was used for international comparisons, and to segment the population in each country.

5.4 SEGMENTING THE POPULATION USING CLUSTER ANALYSIS

Of particular interest for policy makers is the ability to identify subgroups among the population that exhibit specific strengths or weaknesses in terms of financial capability. Knowing which groups in the population have certain weaknesses will help policy makers design tailored interventions to improve capability. If it had been possible to construct one measure using the PCA, such subgroups could be identified by looking at the distribution of this measure. Given the results of the PCA (see above), however, it is necessary to assess strengths and weaknesses across multiple components of financial capability.

One way to do this is to use cluster analysis. Cluster analysis is an iterative process to classify individuals into groups with similar characteristics who differ in important respects from people in other groups. In the present analysis, groups are created (the population is segmented) according to the range of financial capability skills they have, as measured by the component scores.

The clustering process consists of two steps: proximity analysis (to calculate dissimilarity measures between respondents based on the scores) and hierarchical cluster analysis (to determine the number of clusters¹). The two steps are described below.

¹ The number of clusters formed depends on the distribution of the scores and the relationship between the components. For example, if a population is composed of only very incapable people and very capable people across all aspects of financial capability (i.e., a person is either very good at every aspect of financial capability or very bad at all of them), the analysis will likely identify two clusters. Real-case scenarios are generally more complex.

5.4.1 Proximity analysis

To compare individuals along multiple components of financial capability requires the calculation of a dissimilarity measure that takes into account all the components. 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 (summing across the components). Note that this measure is not an overall index of capability, but simply a means to identify individuals who have similar capability scores across the different dimensions.

5.4.2 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).

The cluster centroids are the average capability scores of respondents in the cluster. By looking at these, a particular cluster can be interpreted as being high on particular components of financial capability and low or average on other components. For example, a cluster may be interpreted as very capable if the centroids are all high for different financial capability aspects.

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.

S

urvey results

This chapter presents the results of the empirical analysis conducted by the project team using survey data collected in the seven countries participating in the final stage of the project: Armenia, Colombia, Lebanon, Mexico, Nigeria, Turkey, and Uruguay. Some highlights from the pilot conducted in Papua New Guinea are also presented (box 6.1).

The first section describes the demographic composition of the sample and financial decision-making roles within the household. The following sections describe the results of the analysis conducted to construct financial capability scores, to test whether a single indicator could be developed, and to segment the population in each country according to its levels of capability. The chapter focuses almost exclusively on the development of financial capability scores—an explicit goal of the project; because this is a less standard form of analysis, it requires a more detailed explanation. This is not to suggest that this is the only use of the data or means to analyze them. There are a wide range of analyses that can be done using the data; some of these are ongoing and more are expected given that the harmonized data sets are being made publicly available.

Section 6.2 describes the financial capability components that were identified and how the scores for these components varied with sociodemographic characteristics of the respondents; section 6.3 discusses how the components were related with each other and the feasibility of an overall financial capability indicator; and section 6.4 presents the results of the cluster analysis, which identified subgroups of the population in each country according to their levels of financial capability.

6.1 DESCRIPTION OF THE POOLED SAMPLE

In analyzing the data collected by the Financial Capability Survey surveys, it is important to keep in mind that the sample is not necessarily expected to be representative of the adult population, because eligibility for being interviewed is based on both being 18 years or older and having some role in managing either one's own or one's household finances.

Table 6.1 presents summary statistics on the key sociodemographic variables of the sample.

These include binary indicators (equal to 1 if the category applies to the respondent and 0 otherwise) constructed from categorical and numerical variables for:

- Gender (equal to 1 if respondent is a female)
- Age groups (18–30, 31–40, 41–50, 51–60, and over 60)
- Education groups (primary education completed at most, secondary education completed, some or complete tertiary education)
- Labor force status (formal employee, informal employee, self-employed, unemployed, waiting for busy season, student, retired, sick, doing housework, other)¹
- Living with a partner (either spouse or partner in an informal union)
- Having dependent children²
- Living in a rural area (equal to 1 if the area is considered rural, equal to 0 if the area is considered urban)³
- Having any financial products⁴
- Being responsible for day-to-day money management
- Being responsible for planning for future/unexpected expenses⁵
- Being responsible for choosing financial products⁶
- Household income groups (no income or income below the first country-specific threshold, income between the first and the second country-specific

¹ The two categories of “unemployed” and “waiting for busy season” are grouped together when used as covariates. In Nigeria, there was no distinction between formal and informal employees, so the two categories are merged into one: “employee.” In addition, Nigeria used a different time frame for the labor force status: last seven days as opposed to last four weeks in the other countries.

² Information about dependent children was partly missing in the Uruguay sample so this variable is not used for this country.

³ The location information was incomplete in Colombia and Uruguay so the variable was not used for these two countries.

⁴ In Nigeria the indicator is equal to 1 if the respondent has a bank account, equal to zero otherwise.

⁵ Not available in Nigeria.

⁶ Not available in Nigeria.

TABLE 6.1 SUMMARY STATISTICS OF KEY SOCIODEMOGRAPHIC VARIABLES

	ARMENIA		COLOMBIA		LEBANON		MEXICO		NIGERIA		TURKEY		URUGUAY	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	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 31–40	0.18	0.38	0.19	0.39	0.18	0.39	0.25	0.43	0.23	0.42	0.24	0.43	0.17	0.38
Age 41–50	0.16	0.37	0.22	0.41	0.21	0.41	0.19	0.40	0.21	0.40	0.15	0.35	0.17	0.38
Age 51–60	0.18	0.38	0.17	0.37	0.17	0.37	0.12	0.33	0.15	0.36	0.15	0.36	0.17	0.38
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 education 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 education	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
# household 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
Living with a partner	0.68	0.47	0.60	0.49	0.62	0.49	0.69	0.46	0.75	0.44	0.67	0.47	0.59	0.49
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
Income group 1	0.62	0.49	0.40	0.49	0.20	0.40	0.37	0.48	—	—	0.48	0.50	0.32	0.47
Income group 2	0.24	0.43	0.37	0.48	0.26	0.44	0.34	0.47	—	—	0.25	0.43	0.30	0.46
Income group 3	0.11	0.31	0.16	0.37	0.33	0.47	0.17	0.37	—	—	0.19	0.39	0.21	0.40
Income group 4	0.03	0.18	0.08	0.27	0.21	0.41	0.13	0.33	—	—	0.08	0.27	0.17	0.38
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
E1: 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
E2: 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
E3: self-employed	0.16	0.36	0.10	0.30	0.16	0.36	0.03	0.16	0.08	0.28	0.08	0.27	0.09	0.29
E4: unemployed	0.07	0.25	0.03	0.18	0.02	0.13	0.05	0.22	0.02	0.15	0.03	0.17	0.04	0.20
E5: waiting for busy season	0.01	0.08	0.00	0.06	0.00	0.02	0.02	0.14	0.01	0.07	0.00	0.06	0.00	0.02
E6: student	0.04	0.19	0.02	0.14	0.04	0.20	0.04	0.19	0.36	0.48	0.09	0.28	0.04	0.19
E7: retired	0.18	0.39	0.05	0.22	0.05	0.21	0.04	0.20	0.02	0.12	0.16	0.37	0.17	0.38
E8: sick	0.01	0.12	0.00	0.06	0.01	0.10	0.01	0.12	0.02	0.13	0.00	0.04	0.01	0.08
E9: housework	0.21	0.41	0.25	0.43	0.31	0.46	0.27	0.44	0.04	0.20	0.33	0.47	0.12	0.32
E10: other	0.01	0.08	0.29	0.45	0.00	0.02	0.15	0.35	0.03	0.18	0.01	0.12	0.04	0.20
Financial literacy score	—	—	2.86	1.11	3.18	1.16	2.79	1.27	—	—	2.44	1.38	3.45	1.22
Responsible for day to day	0.60	0.49	0.83	0.38	0.84	0.37	0.74	0.44	0.50	0.50	0.81	0.39	0.81	0.39
Responsible for planning	0.63	0.48	0.81	0.39	0.71	0.45	0.75	0.44	—	—	0.79	0.41	0.80	0.40
Resp. for choosing fin. product	0.58	0.49	0.49	0.50	0.43	0.50	0.66	0.47	—	—	0.48	0.50	0.84	0.37
Income seasonality: 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: variable inc.	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: stable inc.	0.52	0.50	0.30	0.46	0.48	0.50	0.30	0.46	—	—	0.62	0.49	0.43	0.50

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

threshold, income between the second and the third country-specific threshold, income above the third country-specific threshold)⁷

- Level of income variability (no income, variable income, stable income).

The average values presented in table 6.1 for the binary variables can be therefore interpreted as follows: for example, if “female” is on average equal to 0.66 in Armenia, it means 66 percent of the sample is composed of women.

Finally, nonbinary variables include:

- The number of adult members in the household
- A score for financial literacy (knowledge) that is equal to the number of correct responses across five quiz-like questions about mathematical division, interest rates (two questions), and compound interest.⁸

This of course is not an exhaustive list of variables that can be constructed using the Financial Capability Survey data, but just a list of those variables that were deemed most helpful for the analytical purpose of this report. It is hoped that the data will be further explored and analyzed by researchers in the countries included here and in any other organization with an interest in financial capability.⁹

As noted in the section discussing the construction of survey weights, results for Nigeria should be considered preliminary because weights were not yet available at the time this report was written. For all other countries, the most reliable set of available weights is used (see section 4.3).

⁷ An important caveat is the lack of comparability of income group categories across countries. Country teams were asked to customize the income bands in the related question using data on household income distribution from previous studies in their country. In principle, the income bands should have corresponded with quartiles of the per capita income distribution. Given the lack of comparability, these variables only provide a rough classification of households within the country, and they do not aim to provide a reliable measure of income. Income data were not yet available for Nigeria at the time this report was written.

⁸ These questions were optional and were used by all countries except Armenia and Nigeria. Countries were advised to use the same questions used in the OECD/INFE international pilot (Atkinson and Messy 2012). There are no differences in the questions used across countries, except that in Lebanon a more complex version was used for the question about division, and different amounts were used as examples. See appendix D for the specific wording used in each country. The question about inflation has three different valid responses because the question could be interpreted in different ways.

⁹ The data are available on the Trust Fund website: www.finlitedu.org.

6.1.1 Demographic characteristics of the pooled sample

In most countries, the sample shows a higher proportion of women than men: the percentage of women is as high as 66 percent in Armenia and 63 percent in Colombia; it is much lower, but still above 50 percent, in Lebanon, Uruguay, Mexico, and Nigeria (54, 53, 53, and 51 percent, respectively); whereas Turkey is the only country where women are not the majority (just under 50 percent). As discussed in more depth later, this gender differential seems to be explained at least in part by problems in the sampling rather than by differences in financial roles.

The age profiles are somewhat different across countries: the average age ranges from 39.3 in Turkey to 45.9 in Armenia. In Turkey, 36 percent of respondents are in the youngest age group (18–30), while in other countries this group represents between 26 and 29 percent of the sample. On the other hand, the share of respondents aged over 60 is between 10 and 16 percent in all countries except Uruguay and Armenia, where it reaches 20 and 23 percent, respectively.

Survey respondents across countries are also very different in terms of educational attainment. In countries like Turkey and Mexico, the share of individuals who have completed tertiary education is only about 8 percent, whereas the same fraction is a little higher in Nigeria (13 percent) and much higher in Uruguay, Colombia, Lebanon and Armenia (from 18 to 29 percent). While in both Nigeria and Turkey the majority of respondents has either not completed primary or completed primary at most (62 and 51 percent, respectively, in the two countries), most respondents in other countries have higher educational attainment than primary school (between 64 and 73 percent, and even 98 percent in Armenia).

In all countries, household heads are the largest group among interviewees: between 33 percent (Armenia) and 51 percent (Uruguay). Spouses of household heads constitute another 25–35 percent of the sample in all countries, whereas children of household heads are more common in Armenia, Lebanon, Nigeria, and Turkey (between 22 and 30 percent of the sample) than in Colombia, Mexico, or Uruguay (between 16 and 20 percent). Finally, members with other types of relationship with the household head are much less frequently interviewed and represent less than 10 percent of the sample, except in Armenia where they are 19 percent.

In almost all countries, the large majority of respondents are married, with the exception of Colombia where a large fraction of respondents (32 percent) are in an informal union, which is also frequent in Mexico and Uruguay (11 and 16 percent, respectively), but almost nonexistent in other countries. Nigeria is the only country where there is a significant fraction of respondents in polygamous marriage (16 percent). The share of people who have never married varied between

16 percent in Nigeria to 31 percent in Lebanon. Slightly more than half of the sample has dependent children (between 46 in Lebanon and 61 percent in Colombia).

6.1.2 Financial roles within the household

Most of the respondents were interviewed using the “household” version of the questionnaire (white pages), as the large majority of them said that they have some role in the household financial decision making. Few people were asked only about how they manage their own personal expenses: around 10 percent in all countries; the exceptions being Armenia, where almost no one was interviewed using the green pages on personal finances; and Lebanon, where these were used with around 20 percent of respondents. The “individual” version was mostly used for young respondents, in the 18–30 age group. Note, to simplify the survey in Nigeria—where the Financial Capability Survey was embedded in a larger survey—only the standard household version of the questionnaire was used.

As previously mentioned, eligibility for being interviewed depends on whether the person has any role in managing either the household’s or her own money. To assess eligibility, questions are asked directly to the selected respondent. However, two similar questions are asked about each household member to the responsible adult who answers the roster (the household head in about half of the cases). It is therefore interesting to check whether the picture of household decision making provided by the roster respondent is consistent with what the respondents themselves say about their own role.¹⁰

Almost everyone who passed the screening questions in Section A that determined if they were financially active had also been identified as being financially active by the household respondent in the roster. The agreement was above 98 percent in all countries except Colombia, where 6 percent of the financially active people (self-reported) were not considered to be so by the household respondent. This suggests that using the household respondent’s assessment of financial activity as a filter question might have led to some sample bias in Colombia. Overall, the roster respondents identified around 90 percent of all adults as being financially active. Note that in Armenia, though, almost all adults (99 percent) were identified by the household respondent as financially active.

While the age and education distribution of the larger sample of all adult household members is very similar to that of the survey respondents, the latter has a larger share of women and of household heads or spouses. This would suggest that within the household, women are more frequently responsible for money management.

¹⁰ As is discussed below, further validation of the use of the household-level respondent to identify eligible individuals is an important research area going forward.

However, when looking at the sample of people that could be considered eligible for being interviewed based on the roster, there is no evidence of a gender differential. In sum, these results can have two alternative interpretations:

- Assessments of eligibility based on the roster (i.e., based on the roster respondent's response) underplay the role of women.
- The process of respondent selection implemented in the field was somewhat biased toward women (who are typically more likely to be at home during the day).

Given the fact that more than 90 percent of the respondents are also considered eligible from the roster (without any evidence of gender differentials), and that about 60 percent of the roster respondents are women, case 2 seems to be a more plausible explanation.

Interesting insights about households' financial decision-making practices are obtained by looking at the average proportion of adults who participate in the household decisions about money according to the roster. Armenia is the country with the highest ratio, 0.97, with almost all adults involved in financial decisions (a ratio of 1.00 indicates that all adults in the household participate in the decisions). There is some variation in this proportion across countries: it is lowest in Nigeria at 0.74; between 0.84 and 0.87 in Lebanon, Colombia, Mexico, and Turkey; and 0.91 in Uruguay. In Uruguay, this fraction tends to be high at least partly because of the high percentage of households with only one adult: 24 percent, compared to 6 percent in Lebanon and between 12 and 16 percent in the other countries.

In three-generation households (where both a parent and a child of the household head are present), the average fraction of adults who participate in financial decisions is smaller than in the typical nuclear household (head, spouse, and children). In addition, across all countries, fewer adults (as a share of adults) participate in financial decisions of households where the head is older. In Nigeria and Turkey, households with a male head have a smaller share of adults participating in financial decisions. In addition, more adults tend to participate in household decisions if the head has higher levels of education, particularly in Colombia and Mexico.

The proportion of adults who contribute to the household budget varies across countries: 0.61 in Lebanon, 0.62 in Turkey, 0.69 in Mexico, 0.72 in Nigeria, 0.74 in Colombia, 0.78 in Armenia, and 0.85 in Uruguay.

Using information provided by the respondents directly, it is also possible to determine who in the household is responsible for managing day-to-day money and for planning. The same proportion among men and among women say they are at least jointly responsible for day-to-day money management—except in Uruguay, where

it is more common for women to say that they are responsible; and in Nigeria and Turkey, where women are less likely than men to say they are responsible. Younger people are also less likely to say they are responsible for day-to-day money management, except in Colombia and Turkey, where age does not seem to matter. In most countries, people with higher levels of education are more likely to say that they have responsibility for day-to-day money management (Lebanon, Turkey, Armenia, and Nigeria).

Slightly different results are obtained when looking at who is responsible for planning for future or unexpected expenses: women are less likely to say they are responsible in all the countries except Uruguay (this question was not asked in Nigeria). Again young people are less likely to say they are responsible, whereas education only matters in Lebanon and Armenia.

6.2 COMPONENTS OF FINANCIAL CAPABILITY

6.2.1 Financial capability components across countries

The primary objective of the empirical analysis conducted for this report is to develop indicators of financial capability, testing that the measures are suited to the context of each country but also comparable across countries. Using the methodology presented in chapter 5, the analysis was conducted first by using individual country databases separately, then by analyzing the pooled sample of respondents from all countries and comparing the country-specific results to the pooled results.¹¹ This allowed testing the feasibility of a common scoring system across countries for the financial capability measures. Data from Nigeria were not included in the pooled analysis and are analyzed separately because of substantial differences in the set of available variables and sampling approach (all eligible members were interviewed in Nigeria).

As discussed in section 5.1, data preparation included constructing new variables that would be used in the analysis (listed in table 5.1), and dropping those that seemed to be too influenced by the level of income (whether respondents regularly had money left over after buying essentials and what they would do with it, whether they regularly run short of money, whether they have provisions that would cover a large unexpected expense or their old-age expenses in full).

For each country, all the variables were first analyzed jointly by conducting a principal component analysis to identify which variables tended to group together. Then, each set of variables loading most strongly on one component was used in a sepa-

¹¹ The weights used for the analysis are rescaled in such a way that each country is weighted equally.

rate PCA to construct the score for that particular component, thus eliminating the effect of other components or variables that loaded weakly on the component. For components with less than three variables, the component score was calculated as a simple arithmetic mean of the variables.

As shown in table 6.2, the country-specific results indicated that the same variables tended to group together in all countries and the same number of components was identified.¹² Ten components applied to the entire population:

1. Budgeting:
 - Whether people plan how to spend their money when they receive it, and how frequently they do it (*variable plan_freq*)
 - Whether they plan roughly or exactly (*plan_exactly*)
 - How frequently they keep to the plan they make (*plan_keep*)
2. Living within means:
 - Whether people run short of money because of overspending (*money_short_why*)
 - How frequently they borrow to buy food or to repay debts (*borrow_food_rev, borrow_debt_rev*)
 - Whether they have borrowed within affordable levels (*borrow_afford*)
3. Monitoring expenses:
 - Whether respondents know how much money they have spent and how precisely they know (*know_spent*)
 - Whether respondents know how much they have available to spend and how precisely (*know_available*)
4. Using information:
 - Getting information and advice before making important financial decisions (*getinfo*)
 - Learning from other people's mistakes in financial matters (*learn*)
 - Being disciplined (*disciplined*)
5. Not overspending:
 - How frequently respondents buy unnecessary things before buying food and paying for other essentials (*b_27*)

¹² There were minor differences in Nigeria, where some of the variables were not available.

TABLE 6.2 ESTIMATED FACTOR LOADINGS AND SCORING COEFFICIENTS

VARIABLE	FACTOR LOADINGS								SCORE COEFF. ^a
	ARMENIA	COLOMBIA	LEBANON	MEXICO	NIGERIA ^b	TURKEY	URUGUAY	POOLED	POOLED
Budgeting									
<i>plan_freq</i>	0.92	0.89	0.97	0.95	0.87	0.95	0.94	0.95	0.36
<i>plan_exactly</i>	0.91	0.84	0.96	0.94	—	0.94	0.88	0.93	0.35
<i>plan_keep</i>	0.87	0.88	0.97	0.95	0.87	0.95	0.94	0.93	0.36
<i>disciplined^c</i>	—	—	—	—	0.63	—	—		
Living within means									
<i>money_short_why</i>	0.65	0.65	0.78	0.65	0.64	0.75	0.74	0.72	0.35
<i>borrow_food_rev</i>	0.81	0.73	0.83	0.78	0.83	0.86	0.79	0.81	0.40
<i>borrow_debt_rev</i>	0.67	0.71	0.59	0.77	0.70	0.74	0.69	0.67	0.33
<i>borrow_afford</i>	0.70	0.70	0.71	0.54	0.44	0.58	0.63	0.65	0.32
Monitoring expenses									
<i>know_spent</i>	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
<i>know_available</i>	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Using information									
<i>getinfo</i>	0.59	0.60	0.50	0.59	—	0.63	0.44	0.59	0.44
<i>learn</i>	0.67	0.73	0.85	0.70	—	0.79	0.77	0.67	0.50
<i>disciplined^c</i>	0.61	0.64	0.82	0.76	—	0.81	0.71	0.73	0.55
Not overspending									
<i>b_27</i>	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
<i>b_28</i>	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Covering unexpected expenses									
<i>cover_unexp_worried</i>	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Saving									
<i>trysave</i>	0.87	0.87	0.90	0.82	0.90	0.92	0.84	0.88	0.37
<i>trysave_reg</i>	0.87	0.91	0.91	0.86	0.92	0.94	0.89	0.90	0.38
<i>tryprovision</i>	0.87	0.87	0.90	0.84	0.87	0.90	0.81	0.87	0.37
Attitude toward the future									
<i>time_shortfocus_rev</i>	0.61	0.74	0.86	0.80	—	0.78	0.85	0.79	0.44
<i>time_present_rev</i>	0.74	0.84	0.90	0.81	—	0.81	0.87	0.81	0.45
<i>time_itself_rev</i>	0.62	0.78	0.82	0.47	—	0.63	0.81	0.71	0.40
Not being impulsive									
<i>Impulsive_do_rev</i>	0.78	0.76	0.88	0.77	—	0.79	0.76	0.78	0.47
<i>Impulsive_iam_rev</i>	0.48	0.76	0.76	0.73	—	0.76	0.77	0.71	0.43
<i>Impulsive_say_rev</i>	0.80	0.67	0.81	0.77	—	0.71	0.69	0.74	0.45
Achievement orientation									
<i>achieve_lo~p</i>	0.79	0.79	0.82	0.78	—	0.74	0.78	0.79	0.44
<i>achieve_as~e</i>	0.82	0.80	0.86	0.79	—	0.73	0.73	0.79	0.44
<i>achieve_wo~d</i>	0.75	0.73	0.79	0.71	—	0.80	0.67	0.73	0.41

Note: — = not available.

a. The score coefficients presented in the last column correspond to the weights w in the formula on page 58.

b. Nigeria is not included in the pooled analysis.

c. This variable loads on budgeting in Nigeria and on using information in all other countries.

- How frequently respondents buy unnecessary things even if they know that they cannot afford them (*b_28*)
- 6. Covering unexpected expenses:
 - Whether respondents could cover an unexpected expense tomorrow and if not, how worried they are about it (*cover_unexp_worried*)
- 7. Saving:
 - Whether respondents agree that the following statement describes them: "I try to save money for the future" (*trysave*)
 - Whether respondents agree that the following statement describes them: "I try to save some money regularly, even if it is only a little" (*trysave_reg*)
 - Whether respondents agree that the following statement describes them: "I always try to have some provision for emergencies or unexpected expenses" (*tryprovision*)
- 8. Attitude toward the future:
 - Whether respondents agree that the following statement describes them: "I only focus on the short term" (*time_shortfocus_rev*)
 - Whether respondents agree that the following statement describes them: "I live more for the present day than for tomorrow" (*time_present_rev*)
 - Whether respondents agree that the following statement describes them: "The future will take care of itself" (*time_itself_rev*)
- 9. Not being impulsive:
 - Whether respondents agree that the following statement describes them: "I do things without giving them much thought" (*impulsive_do_rev*)
 - Whether respondents agree that the following statement describes them: "I am impulsive" (*impulsive_jam_rev*)
 - Whether respondents agree that the following statement describes them: "I say things before I have thought them through" (*impulsive_say_rev*)
- 10. Achievement orientation:
 - Whether respondents agree that the following statement describes them: "I always look for opportunities for improving my situation" (*achieve_look4opp*)
 - Whether respondents agree that the following statement describes them: "I have many aspirations" (*achieve_aspire*)
 - Whether respondents agree that the following statement describes them: "I always work hard to be among the best at what I do" (*achieve_workhard*)

The last three components correspond to tested psychological scales for motivations (for attitude toward the future, see Strathman et al. 1994, Petrocelli 2003, and CentiQ 2008; for impulsiveness, see Stanford et al. 2009; for achievement orientation, see Keinan and Kivetz 2011).

Two additional components were identified, but only applied to specific subpopulations:

11. Covering old-age expenses (only for people under 60 years of age):
 - Whether respondent has any strategies in place for covering old-age expenses and if not, how worried he or she is about it (*oldage_worry*),
12. Choosing products (only for those who personally chose a financial product in the past five years):¹³
 - Whether respondent checked terms and conditions of the product and how carefully (*check*)
 - Whether respondent searched for information from a range of sources (*d_5*)
 - Whether respondent considered many alternatives before deciding which product to get (*d_6*)
 - Whether respondent searched until he or she found the best product for his or her need (*d_7*)

The findings are quite reassuring. These components broadly correspond to the manifestations of financial capability conceptualized from the focus group discussions (see section 2.2 and table 2.1). In addition, very similar factor loadings (and score coefficients) were found across countries and in the pooled analysis. This similarity makes it possible to use the coefficients from the pooled analysis for calculating component scores in the pooled database (all the countries except Nigeria) (last column of table 6.2).

In summary, these findings show that the first goal of the research project was met: the variables in the questionnaires can be aggregated into components that provide a reliable method for measuring the concepts that emerged from the focus groups. The estimated components represent a means of measuring the manifestations of financial capability in a way that is consistent and comparable across countries.

¹³ Due to a high number of missing values, in Armenia it was not possible to include the variables on “whether respondent considered many alternatives before deciding which product to get” (*d_6*) and “whether respondent searched until he or she found the best product for his or her need” (*d_7*). Similarly in Nigeria, there were many missing values for whether respondent searched until he or she found the best product for his or her need (*d_7*), and all respondents but one said “Yes” to the question on whether the respondent checked the terms and conditions of a financial product (*d_5*), so these two variables could not be used.

The average scores for components for each of the countries show both similarities and variation (figure 6.1); the cross-country average scores, standard errors, and confidence intervals for each component are found in table 6.3. All six countries had an average score of 70 or above in achievement orientation and four countries had similarly high scores for living within means and using information. These appear to be the most common areas of strong capability across countries. In contrast,

FIGURE 6.1 AVERAGE COMPONENT SCORES ACROSS COUNTRIES

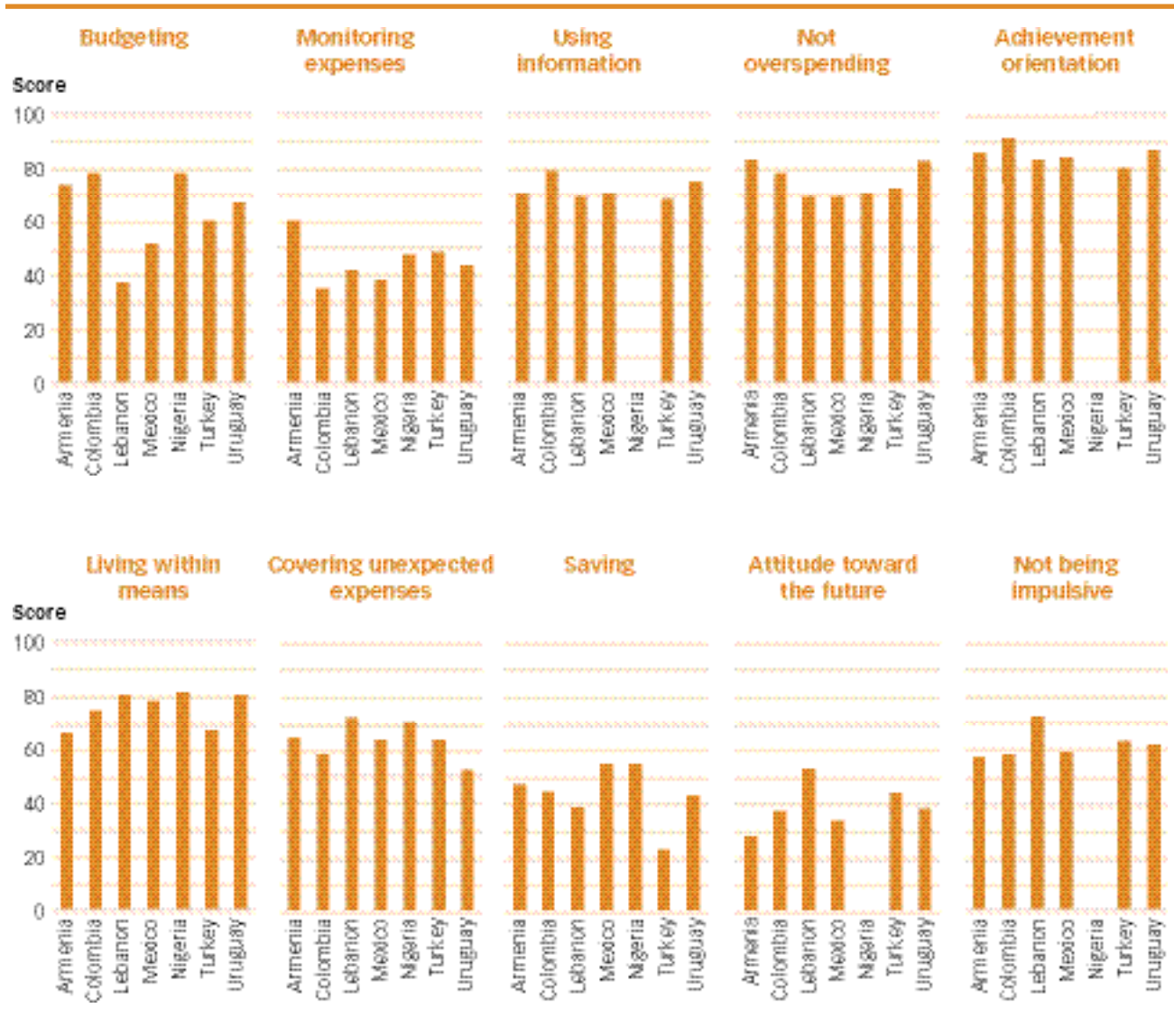


TABLE 6.3 AVERAGE COMPONENT SCORES BY COUNTRY

COUNTRY	MEAN	S.E.	95% CONFIDENCE INTERVAL		COUNTRY	MEAN	S.E.	95% CONFIDENCE INTERVAL	
BUDGETING					COVERING UNEXPECTED EXPENSES				
Armenia	74.25	0.68	72.92	75.58	Armenia	64.13	0.56	63.04	65.22
Colombia	79.54	0.64	78.29	80.79	Colombia	58.58	0.78	57.05	60.12
Lebanon	39.51	1.16	37.23	41.79	Lebanon	73.13	0.93	71.30	74.95
Mexico	52.04	0.84	50.40	53.68	Mexico	64.34	0.70	62.98	65.71
Nigeria	78.34	0.21	77.93	78.75	Nigeria	71.05	0.32	70.43	71.68
Turkey	60.21	0.73	58.79	61.63	Turkey	68.44	0.61	67.25	69.62
Uruguay	71.41	1.01	69.44	73.39	Uruguay	55.38	1.18	53.07	57.70
LIVING WITHIN MEANS					SAVING				
Armenia	67.59	0.52	66.58	68.60	Armenia	46.28	0.84	44.64	47.92
Colombia	75.30	0.51	74.31	76.29	Colombia	44.89	0.89	43.15	46.62
Lebanon	81.56	0.62	80.35	82.77	Lebanon	39.52	1.03	37.51	41.53
Mexico	78.38	0.41	77.57	79.19	Mexico	56.69	0.72	55.28	58.10
Nigeria	81.74	0.18	81.39	82.08	Nigeria	55.25	0.33	54.60	55.90
Turkey	67.85	0.49	66.89	68.81	Turkey	30.25	0.69	28.89	31.60
Uruguay	81.28	0.63	80.04	82.52	Uruguay	43.97	1.05	41.92	46.02
MONITOR					ATTITUDE TOWARD THE FUTURE				
Armenia	62.57	0.76	61.09	64.05	Armenia	27.75	0.54	26.69	28.81
Colombia	35.89	0.88	34.16	37.63	Colombia	37.30	0.82	35.70	38.90
Lebanon	44.02	1.02	42.02	46.02	Lebanon	54.74	0.96	52.86	56.61
Mexico	41.23	0.75	39.76	42.71	Mexico	34.52	0.59	33.37	35.68
Nigeria	47.97	0.34	47.30	48.64	Nigeria	—	—	—	—
Turkey	50.33	0.68	49.00	51.65	Turkey	50.12	0.57	49.00	51.24
Uruguay	47.59	1.01	45.60	49.57	Uruguay	35.46	1.09	33.33	37.59
USING INFORMATION					NOT BEING IMPULSIVE				
Armenia	69.01	0.49	68.05	69.97	Armenia	58.57	0.62	57.35	59.79
Colombia	79.72	0.54	78.66	80.77	Colombia	58.51	0.78	56.99	60.04
Lebanon	70.90	0.61	69.70	72.10	Lebanon	74.29	0.79	72.74	75.83
Mexico	71.69	0.53	70.65	72.72	Mexico	59.31	0.66	58.02	60.60
Nigeria	—	—	—	—	Nigeria	—	—	—	—
Turkey	68.52	0.48	67.57	69.47	Turkey	67.05	0.53	66.01	68.10
Uruguay	75.70	0.77	74.18	77.22	Uruguay	61.64	1.02	59.65	63.63
NOT OVERSPENDING					ACHIEVEMENT ORIENTATION				
Armenia	84.42	0.50	83.43	85.40	Armenia	83.86	0.54	82.79	84.92
Colombia	79.00	0.61	77.79	80.20	Colombia	91.52	0.43	90.67	92.37
Lebanon	69.87	0.84	68.22	71.51	Lebanon	82.43	0.69	81.07	83.78
Mexico	69.65	0.62	68.44	70.86	Mexico	83.80	0.48	82.86	84.74
Nigeria	70.72	0.29	70.15	71.30	Nigeria	—	—	—	—
Turkey	65.82	0.55	64.74	66.89	Turkey	78.55	0.45	77.67	79.42
Uruguay	83.74	0.68	82.41	85.07	Uruguay	85.62	0.66	84.32	86.92

Note: S.E. = standard error; — = not available.

common weak areas appeared to be saving, monitoring expenses (five countries had average scores below 50), and attitude toward the future (four countries had average scores below 50).

Another similar result across the six countries is that every country showed both weak and strong areas, with no country showing more than five scores above 70 out of the 10 components. Average capabilities were however different across countries: for example, Lebanon had among the highest scores for living within one's means (similar to Uruguay and Nigeria), covering unexpected expenses, attitude toward the future, and not being impulsive, but also showed the lowest score for budgeting. On the other hand, Colombia had the highest score for budgeting, using information, and achievement orientation, but had the lowest scores for monitoring expenses.

6.2.2 How financial capability varies across components and demographic groups

After calculating and comparing scores across countries (figure 6.2), it was possible to look at the distribution of the capability scores across broadly defined demographic groups. Figures 6.3, 6.4, and 6.5 show how these components varied in the pooled sample across age, gender, and education. The graphs, however, only take into account one characteristic at a time. Using statistical analysis, it was possible to identify the types of people most strongly associated with high scores for each component. This was done first across all countries and then for each country in turn, using regression analysis to examine the extent to which respondents' individual characteristics related to the component being studied, holding constant the influence of all other characteristics included in the analysis. Key findings from the detailed analysis of the scores for individual components of financial capability are highlighted here (full statistical results are shown in the tables in appendix E).

- In general, women have higher levels of capability than men in the areas of budgeting and saving. This is consistent with the large body of research showing that women play both the main role in budgeting and saving in a household and are more skilled at doing so than men.
- Younger people tend to have lower levels of capability in the area of budgeting and demonstrate a greater propensity to overspending and impulsivity. In contrast, older people tend to be more capable in not overspending and (perhaps not unexpectedly) have lower levels of achievement orientation.
- Geography, in terms of urban and rural areas at least, does not seem to have a consistent effect on scores either across the components of financial capability or within an individual component across countries. For example,

FIGURE 6.2 AVERAGE COMPONENT SCORES BY COUNTRY, SORTED

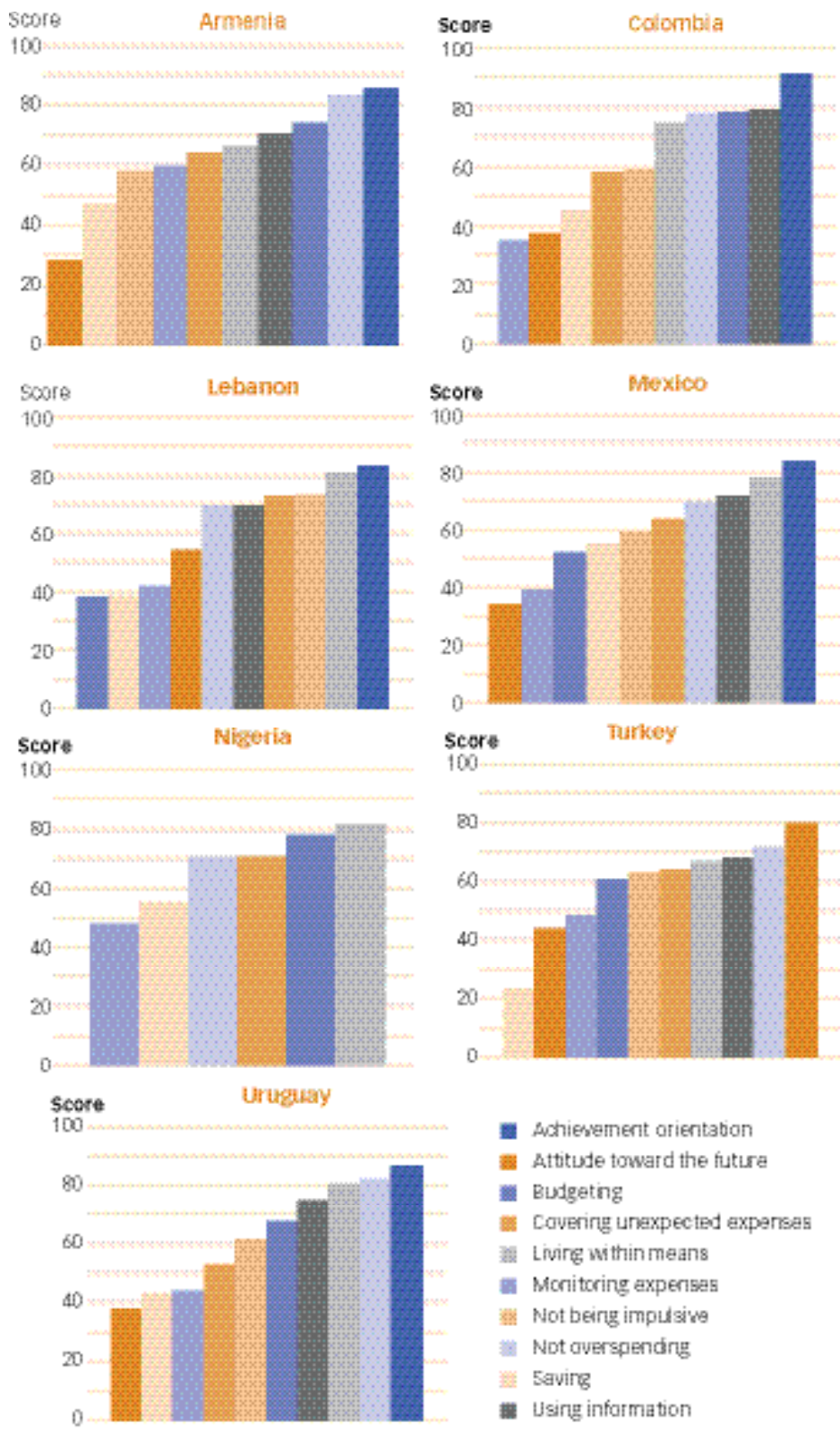


FIGURE 6.3 AVERAGE COMPONENT SCORES BY AGE GROUP

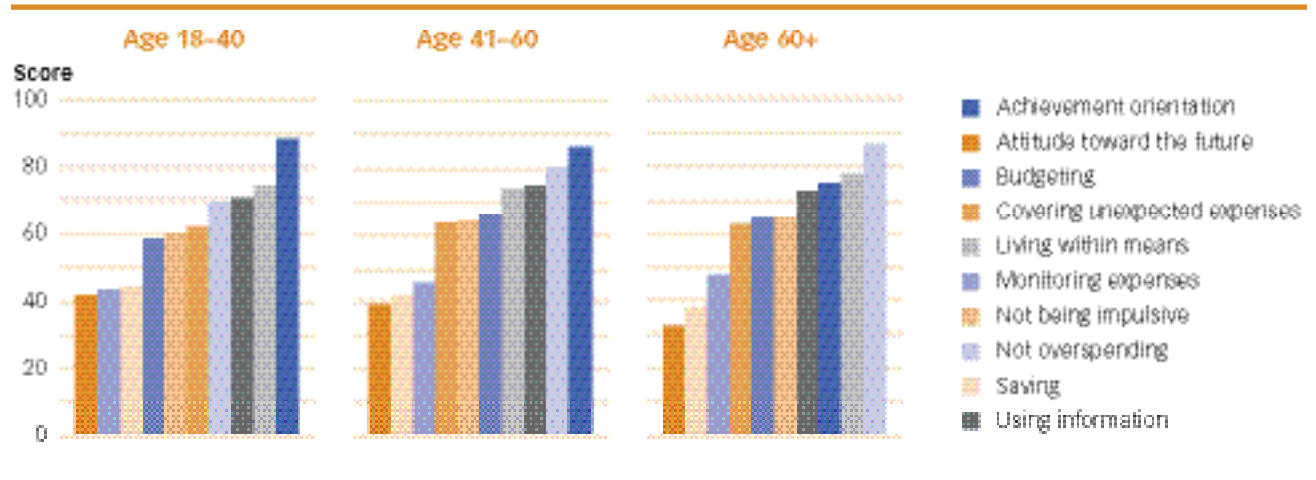


FIGURE 6.4 AVERAGE COMPONENT SCORES BY GENDER

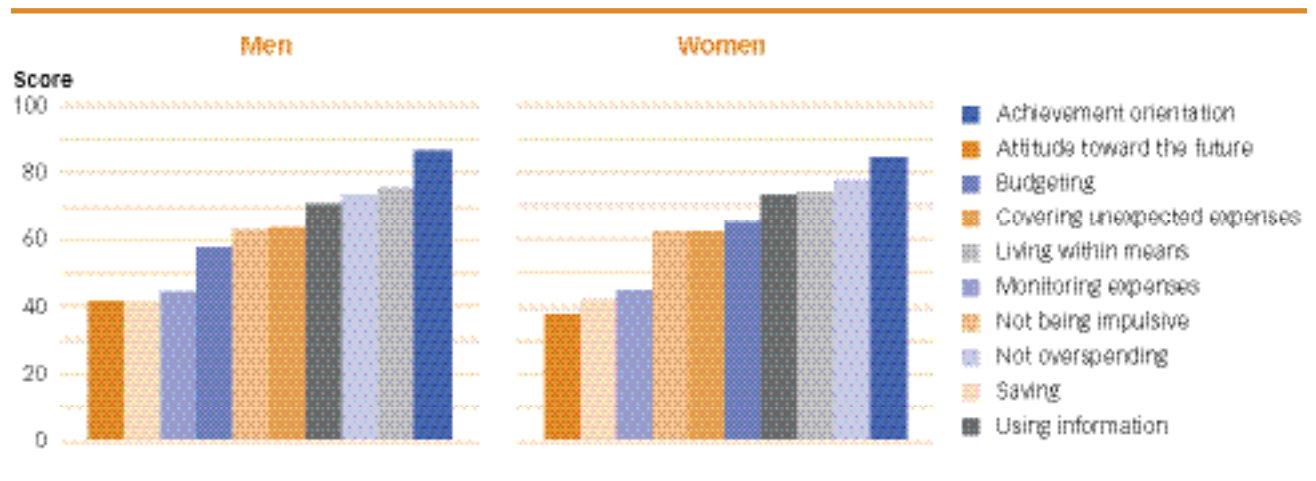
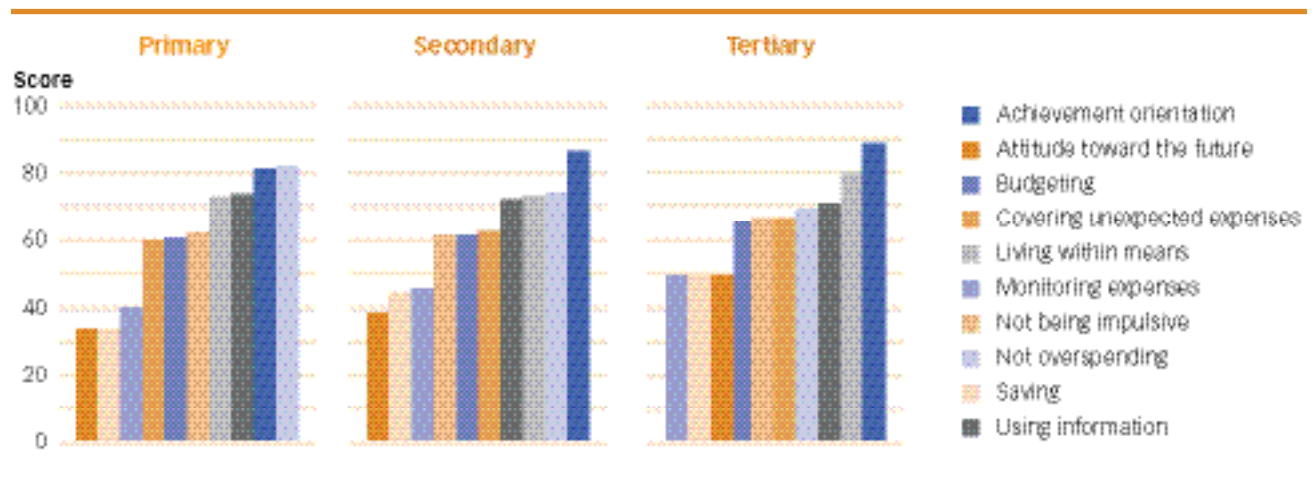


FIGURE 6.5 AVERAGE COMPONENT SCORES BY AGE GROUP



budgeting scores in rural areas are higher than in urban areas in Turkey, but they are lower in Mexico.

- It might be expected that the level of education someone has received will correlate with his or her financial capability. In general, that is what is found: higher levels of education are associated with higher scores for budgeting and being forward-looking and, to a lesser extent, with making provision for unexpected expenses, saving, and not being impulsive. However, higher education levels are also associated with overspending.
- Family circumstances are important. People with dependent children have lower scores for living within their means and covering unexpected expenses—perhaps demonstrating the strain that children can put on money management. On the other hand, parents with children do better in terms of achievement orientation. In general, the larger the household someone lives in, the lower his or her level of financial capability across most components. This is particularly true for living within one's means, monitoring expenses, making provision to cover unexpected expenses, and saving. This may indicate higher levels of financial strain, but may equally indicate that managing money in a larger household (perhaps with responsibilities spread across different adults) can lead to less financial control.
- The Nigeria survey, in which all adults were interviewed, not just one person, sheds light on the question of whether individuals in the same household tend to have similar levels of financial capability. Assessing the correlation among the financial capability scores of the different members of the same household shows that this correlation is positive and quite high. The estimated correlations ranged from 0.67 for budgeting to 0.82 for not overspending.
- The relationship between household income level and an individual's financial capability is also interesting. Higher incomes are frequently associated with higher capability scores, for saving, making provision for unexpected expenses, and choosing financial products. But, at the same time, they are also associated with a tendency to overspend, a lower level of achievement orientation and, to some extent, lower scores for budgeting. Conversely, people with lower incomes tend to do less well in areas such as living within their means, saving, and choosing products, but they achieve higher scores than their better-off peers for not overspending.
- In terms of employment status, informal employees (and to some extent self-employed people too) seem to have lower scores than those in formal employment across many of the components of financial capability.

Taken together, these findings suggest that the effects of economic and family circumstances are not entirely straightforward and the results may be showing, in part, the mediating effect that personal and economic circumstances can have on people's levels of financial capability. So, for example, in these scores, people who try to save but whose (low) income prevents them from doing so would have a lower financial capability score than people who try to save and their income permits them to do so. In other words, the outcomes being measured are influenced by a range of factors. Unpacking these is essential when using the results of surveys of this kind.

The other relationship that is not straightforward is the one between the components of financial capability and responsibility for money matters. There are indications that having sole or shared responsibility for day-to-day money management was positively related to monitoring expenditure and not being impulsive. Sole or shared responsibility for financial planning for the future, on the other hand, tended to be positively associated with planning how income would be spent (budgeting), not overspending, and finding out about money matters. What cannot be extracted from this is causality: do people become more capable in these components as a result of assuming responsibility, or do people assume responsibility because they are more capable? There was no association between having responsibility for selecting financial products and the score for capability on the choosing products component.

6.2.3 Links between financial capability and financial inclusion

In lower-income countries, policies on financial capability are often inextricably linked with those designed to promote financial inclusion. Where a large proportion of the population has little or no experience of using formal financial services, tackling the supply of appropriate financial products often goes hand in hand with policies to stimulate demand and to ensure that consumers have the capability to use financial products in ways that enhance rather than harm their financial well-being.

It is useful, therefore, to investigate the relationship between financial inclusion and the various components of financial capability. Financial inclusion was strongly and negatively associated with living within one's means. This is certainly at least in part implied by the very definition of living within means, which includes not borrowing for essentials and borrowing beyond affordable limits, but it may also have additional explanations. First, it is possible that it is easier to lose control of a budget when using a bank account than it is when budgeting entirely in cash. Likewise, payments associated with insurance policies or credit commitments may put a strain on the budget. Alternatively, people may use credit because they are facing financial strain in order to balance the books. The fact that there was also a link (albeit a much

weaker one) between financial inclusion and overspending suggests that financial inclusion can have the negative effect of making it harder to live within one's income.

On the other hand, financial inclusion was also quite strongly, and positively, associated with saving. Again, though, the explanation is not clear. People who are inclined to save may open accounts to safeguard the money they have put by. Alternatively, saving may be promoted by having access to somewhere safe to keep one's money.

There were also weaker links between financial inclusion and planning how income will be spent (budgeting), monitoring expenditure, finding out about money matters, and being achievement-oriented.

It is also worth noting that in Mexico, which had the lowest levels of financial inclusion (51 percent), financial inclusion was correlated with 9 of the 10 financial capability components. In contrast, in Armenia and Uruguay, where over 80 percent of the population was financially included, it correlated with just two and three components, respectively.

6.2.4 Links between financial capability and financial literacy

Chapter 1 has discussed the differences between the narrow concept of financial literacy and the broader concept of financial capability, which in this report has been identified as a set of behaviors and attitudes rather than knowledge, as a result of the qualitative research conducted in the development stage.

Since recent research has found a correlation between scores on basic financial literacy questions and behavioral outcomes such as retirement saving, it is interesting to assess the links between financial literacy and financial capability in the countries that participated in the RTF program.

This is possible because five countries also measured levels of financial literacy by asking five commonly used quiz-like questions about math, inflation, interest rates, and compound interest, from which a score was calculated as the number of correct answers (see appendix D for the questions).

The analysis reveals a very complex and somewhat inconsistent picture that varies both across the components of financial capability and across countries. Moreover, while in most instances the correlations between the financial literacy score and the financial capability scores were positive, this was not invariably the case and there were instances of very strong negative correlations.

As such, the results tend to lend support to literacy and capability being rather different concepts—a view that was expressed in the focus groups and cognitive interviews conducted in the developmental phase of this survey.

6.3 TESTING THE VALIDITY OF FINANCIAL CAPABILITY DOMAINS FOR INTERNATIONAL COMPARISONS

As discussed in the methodological chapter 5, once the component scores were calculated, the next step was to determine the possibility of obtaining a single score for financial capability. This was done by conducting a second-order factor analysis with the 10 component scores that applied to the entire population, using both the pooled data and the country-specific data sets separately.

In the pooled analysis, it was not possible to summarize all the components in a single factor; instead, two key domains of financial capability seemed to emerge. The first included components such as budgeting, monitoring expenses, using information, not overspending, and achievement orientation. The second domain included living within one's means, covering unexpected expenses, saving, attitude toward the future, and not being impulsive. By looking at the nature of the components loading on each factor, the two domains were described as "controlled budgeting" and "making provisions for the future," respectively.

A similar analysis conducted separately for each country showed that two broadly similar domains emerged in all countries, though their composition and the overall number of domains differed across countries. For example, there were groups of components that tended to load on the same domain in almost all countries, such as budgeting, using information, and monitoring expenses; attitude toward the future and not being impulsive; and saving and covering unexpected expenses. However, the analysis produced two domains in Uruguay, three in Lebanon, Turkey, and Armenia, and four in Mexico and Colombia. In these last two countries, two of the psychological/motivation components (attitude toward the future and not being impulsive) were forming a separate domain, while in other countries they were loading more or less intuitively on other domains.

These results, in conjunction with additional reliability tests, suggested that domain scores should not be used for international comparisons as it is not possible to obtain a comparable scoring system for the domains across countries. As a consequence, it was decided that further comparative analysis involving capability scores would be based on the original 10 component scores instead of the domain scores, which could, however, still be used in the data analysis for an individual country, as was done in the United Kingdom (FSA 2006).

In summary, **financial capability was found to be a composite of skills**, not a single skill that could be measured with a single score. Nevertheless, it is interesting to examine how the components tended to be related with each other in the six

BOX 6.1 HIGHLIGHTS FROM THE PILOT IN PAPUA NEW GUINEA

Papua New Guinea is a particularly interesting country for the purpose of this project, because it is very culturally diverse: more than 800 languages exist.

In the in-depth interviews stage, a translation to Hiri Motu (one of the three official languages, which also include English and Tok Pisin) turned out to be not possible due to difficulties with comparable English language constructs. The questionnaire was therefore translated into Tok Pisin, although issues were experienced in translating the attitudinal and “personality” questions. As a result of feedback from the in-depth interviews, the length of the survey instrument was reduced and the language was simplified in several aspects.

Since Tok Pisin uses primarily concrete terms and is not suited for complex abstract constructs, the objective of the translation was to develop a workable translation of the technical terms, rather than a literal translation. The Institute of National Affairs (INA) produced a Tok Pisin glossary of financial terms, which can be used in future financial surveys. As mentioned earlier in this report, due to logistical and funding issues, a full survey could not be implemented, but a pilot was completed and provided useful insights on the applicability of the questionnaire.

The sampling methodology for the pilot sought to develop a sample of middle/high-income households and low/very low-income households in the Port Moresby area, to test whether the survey could be successfully administered to both groups. The target sample size was 100, with two interviews to be undertaken per household with adult members of the household (one male and one female) who make financial decisions on behalf of the household. Results from the pilot were very encouraging: no respondent indicated unwillingness to answer a question or group of questions in the survey; each question was able to be asked successfully as drafted. In a future application of the instrument at the national level, there may be issues with the Tok Pisin version in regions outside Port Moresby, due to local variance in Tok Pisin. However, the translation sought to develop a generic translation which is likely to be widely understood. The principal finding from the analysis of the data collected during the pilot is that the survey appears to discriminate effectively between respondents.

The actual number of participants in the pilot was 89: of these, 48 belonged to low-income households and were equally divided between men and women; 41 belonged to high-income households and included 22 men and 19 women. The average age in the sample was 39.6 years. Among men, a large majority were formal employees (59 percent), another 17 percent were self-employed, around 11 percent were unemployed or waiting for the busy season, and the remaining 13 percent were either retired, informal employees, studying, or sick. Women were almost equally distributed between self-employment, housework, and formal employment (33, 30, and 26 percent, respectively), and the remaining 11 percent were either unemployed, sick, or in other conditions. It is interesting to note that the “other” category included about 7 percent of the sample, which may suggest the need to conduct additional testing of the response options, or to improve training of interviewers so that they are better able to choose the appropriate existing code. The rate of literacy was about 79 percent overall.

The small sample size and the fact that the sample was not representative of the population limited the type of analysis that could be done. In particular, conducting factor analysis to generate capability scores was not considered meaningful.

(continued)

BOX 6.1 HIGHLIGHTS FROM THE PILOT IN PAPUA NEW GUINEA *(continued)*

However, the pilot data were used to assess whether the questions were able to be answered by all respondents and to discriminate between more or less capable individuals. For example, it was found that 12 percent of the respondents never plan, while 61 percent plan sometimes and 27 percent always plan.

Results seemed to indicate that men and older or higher-educated respondents are more likely to plan compared to women and lower-educated or younger respondents. Worryingly, however, 45 percent of people who plan never keep to the plan they make.

Women seem to be more likely to run short of money and to do so because of overspending. In addition, women and young people are more likely to say that they regularly buy unnecessary things before they have bought food or other essentials, or regularly buy unnecessary things they know they cannot afford.

In the context of Papua New Guinea, where households are typically expected to provide financial support to any *wantok* (literally, person speaking the same language) who needs help, it is important to note that almost all respondents said they provide help in money or in kind to someone outside the household. This system of informal safety nets may of course limit the control that household members have over their own finances.

A very high percentage of respondents say they at least sometimes borrow to buy food or to pay off debts (roughly 90 percent). Interestingly, about 78 percent of respondents say they could borrow more, although this is more likely among women than men. In fact, while none of the women in the sample say they borrowed more than they can afford, 9 percent of men say they overborrowed. People with more years of education are more likely to know how much they have spent or have available to spend.

A large majority of respondents say that they get information or advice before making an important financial decision (80 percent).

Only about 30 percent of respondents could cover a large unexpected expense without borrowing. There was a large difference between men and women under 60 years of age who say they have provisions to cover for old-age expenses (77 percent versus 47 percent), and women are also less likely to say they worry about it. Overall, around 24 percent of respondents say they disagree that the statement “I try to save money for the future” describes them, and an even larger fraction disagrees with the other statements about saving.

About 40 percent of people in the pilot of sample agree with statements like “I live more for the present than for tomorrow,” “The future will take care of itself,” and “I only focus on the short term.” Between 40 and 50 percent agree with statements about impulsivity, whereas around 85 percent of respondents agree with statements denoting achievement orientation. However, since Papua New Guinea did not participate in the second round of in-depth interviews, feedback from the pilot suggested that additional testing of the questions on motivations (section E) might be needed to ensure proper understanding and to determine if the two-step questioning approach is the best in the context of Papua New Guinea.

countries where they were constructed in exactly the same way. The highest positive correlation was found between attitude toward the future and not being impulsive (0.33), whereas the strongest negative correlation was found between covering unexpected expenses and not overspending. This result is likely affected by the level of income, as it was found that higher income was associated with both higher scores for covering unexpected expenses, and lower scores for not overspending. Other positive correlations above 0.2 included budgeting/using information (0.31), budgeting/monitoring (0.25), using information/not overspending (0.23), choosing products/saving (0.24), budgeting/not overspending, saving/using information and saving/living within means (0.22), saving/achievement orientation and using information/achievement orientation (0.21).

6.4 SEGMENTING THE POPULATION

To use the results of the survey to plan a national strategy and design appropriate interventions to raise levels of financial capability, it is helpful to segment the population to identify subgroups with particular needs who can be targeted in different ways. The technique normally used to do this kind of segmentation is called cluster analysis, a statistical technique that identifies groups of people who share a set of characteristics that distinguishes them from others in the population (see section 5.4 for the technical details). The technique allows for the disaggregation of the population into as many subgroups as appears meaningful and useful for policy development.

A cluster analysis was conducted for each country in turn, using the financial capability component scores. It was found that a reasonably fine level of detail could be obtained for all countries by segmenting the population into five clusters. These are therefore included for illustrative purposes. It is, however, important to point out that policy makers and/or practitioners within a country will almost certainly require a more fine-tuned segmentation of the population. This can be done easily.

Finally, a caveat is needed for interpreting the results of the cluster analysis. Regardless of the specific method used to compare two individuals across 10 dimensions (the components of financial capability), it is necessary to use a statistic that summarizes the information and enables comparisons in one dimension. As discussed previously, however, no single statistic can be considered a reliable measure of overall financial capability. It is therefore possible to say that, for example, people in one cluster are on average more capable **in one component** compared to people in another cluster, or even that the first cluster has higher financial capability scores **on average across the 10 components**. It is not possible, however, to say whether one cluster is more capable than another. To clarify the importance of what may seem a

subtlety, it should be noted that it is not possible to determine if being capable in one component is more or less important than being capable in another.

6.4.1 Overview of results

Although the segmentations differed across countries, there are a few general points that can be distilled from this analysis. The most important of these is perhaps the interplay between financial capability and income. In most countries, the clusters with highest average scores were also those with the highest incomes, but at the same time, many of the countries included a group of people with very low incomes who were very good at managing their money day to day but either had short-term horizons or a low propensity to save (or both). In all probability, these areas of low financial capability were, at least to some extent, influenced by their income level.

The second area of interest is the relationship between age and financial capability. In a number of countries, the groups of people who were on average least capable included young people with a tendency to overspending. Also of note is that a number of the low-income but careful money managers with short-term horizons were also elderly—a trait that perhaps is not entirely unexpected.

A further area of note is the often strong link between having low financial capability across a range of areas, including not being inclined to seek information about financial matters. This makes the task of tackling their low financial capability even more difficult. Not only do they have a number of areas of weakness but they will, in all probability, have low receptivity to attempts to help them increase their financial capability.

The subsections that follow present and discuss the findings of the five cluster segmentations for each country in turn and draw out their implications for strategies to raise levels of financial capability.

6.4.2 Armenia

Compared with the other countries that participated in the survey, the Armenian population surveyed was good at day-to-day money management but less good at looking to their longer-term financial needs. They also had high levels of financial inclusion. It is important to bear these things in mind in reading the descriptions of the segmentation of the Armenian population below.

The group with lowest average scores, the **disorganized nonsavers** (cluster 1), was the only one with poor scores for planning how their money would be used and monitoring expenditure (table 6.4). They also had very low levels of saving. They had fairly low scores for choosing financial products yet they had high levels of financial inclusion. On the other hand, they were fairly good at living within their means. This

was a small group (only 1 in 10 of the population); it was the only one with a disproportionately high number of men and slightly more people aged over 60 than the average for the survey population as a whole. Otherwise, they had few distinguishing characteristics in terms of either personal or economic circumstances. Identifying this group for targeted interventions will, therefore, be difficult, although they are obvious candidates for financial education programs covering budgeting and monitoring expenditure, including setting some money aside on a regular basis. Moreover, their low propensity to seek out information to help them manage their finances will make them difficult to reach, except with interventions such as edutainment and social marketing that do not require them to be proactive.

There was a very small group (fewer than 1 in 10) of **elderly low-income careful money managers with short-term horizons** (cluster 2). These people were very good at day-to-day money management and even had money put aside for unexpected expenditure. But they were very unlikely to be saving and they were not forward-looking or achievement-oriented. The explanation for this almost certainly lies in their age. Almost two-thirds of them (63 percent) were aged over 60, and they included by far the largest group of retired people and people living alone. They were also more likely to be in the lowest income groups and were very likely to be living in urban areas (76 percent). It is most unlikely that there would be a need for any interventions with this group.

The remaining three groups were of roughly the same size—each of them was about 27 percent of the population. The first of these were **young and financially capable but don't monitor spending** (cluster 3). Their only other area of potential weakness was a tendency to impulsivity, although like the rest of the population they tended to have short-term horizons. They included the largest group of young people aged under 30 (36 percent) and they also had the lowest levels of responsibility both for day-to-day money management and financial planning, relying on others in the household to do this for them. For this reason alone, they might be a target for financial education programs.

Then there was a group of **nonsavers** who had short-term horizons, did not save, and had low scores for making provision for unexpected expenses (cluster 4). On the other hand, they were good at planning and managing their expenditure. They did not, however, have any clear distinguishing characteristics—either personal or economic, but were drawn from across the population.

The final group was **very financially capable**, with far higher scores for saving than any other group (cluster 5). They also had a high level of financial inclusion. They were particularly likely to be living with a partner and dependent children, were quite highly educated, and had incomes that were very slightly above the average. This

TABLE 6.4 ARMENIA: AVERAGE CHARACTERISTICS OF THE FIVE CLUSTERS

VARIABLE	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5	TOTAL
Budgeting	3.26	87.34	79.79	82.68	84.50	74.13
Living within means	72.06	73.00	65.01	64.55	66.59	66.54
Monitoring expenses	45.76	61.18	31.67	80.53	76.63	60.25
Using information	59.88	59.61	75.40	68.86	73.25	70.54
Not overspending	82.18	95.07	82.00	80.68	85.97	83.53
Covering unexpected expenses	65.36	61.41	65.47	59.40	68.59	64.52
Saving	28.34	16.53	47.64	25.68	80.25	47.27
Attitude toward the future	30.33	23.62	29.04	23.39	33.35	28.61
Not being impulsive	54.49	65.47	52.85	57.11	64.31	58.08
Achievement orientation	76.33	31.54	92.02	89.09	91.11	85.90
Choosing products	51.67	33.19	62.21	58.69	62.08	59.24
Female	0.49	0.79	0.63	0.71	0.66	0.65
Age 18–30	0.24	0.05	0.35	0.23	0.24	0.26
Age 31–40	0.14	0.06	0.19	0.18	0.19	0.17
Age 41–50 (baseline)	0.16	0.10	0.18	0.16	0.17	0.17
Age 51–60	0.16	0.15	0.15	0.20	0.19	0.18
Age 60+	0.31	0.63	0.13	0.23	0.20	0.23
Primary education at most	0.03	0.04	0.02	0.02	0.01	0.02
Secondary education (baseline)	0.67	0.77	0.72	0.68	0.66	0.69
Tertiary education	0.31	0.18	0.27	0.31	0.33	0.29
# of household members 18+	3.33	2.98	3.80	3.50	3.58	3.57
Living with a partner	0.65	0.53	0.69	0.66	0.74	0.68
Has dependent children	0.40	0.19	0.53	0.51	0.58	0.51
Rural area	0.37	0.24	0.43	0.35	0.41	0.39
Has financial products	0.76	0.56	0.84	0.82	0.85	0.82
E1: formal employee (baseline)	0.29	0.09	0.27	0.25	0.28	0.26
E2: informal employee	0.10	0.01	0.07	0.06	0.05	0.06
E3: self-employed	0.15	0.04	0.13	0.16	0.21	0.16
E4: unemployed	0.07	0.00	0.08	0.06	0.07	0.06
E5: waiting for busy season	0.00	0.01	0.01	0.01	0.01	0.01
E6: student	0.04	0.01	0.05	0.04	0.03	0.04
E7: retired	0.22	0.56	0.12	0.19	0.16	0.18
E8: sick/disabled	0.02	0.04	0.01	0.02	0.01	0.01
E9: housework	0.09	0.22	0.25	0.23	0.18	0.21
E10: other	0.01	0.00	0.01	0.00	0.01	0.01
Responsible for day to day	0.57	0.73	0.51	0.66	0.63	0.60
Responsible for planning	0.66	0.75	0.57	0.67	0.64	0.63
Responsible for choosing financial product	0.52	0.60	0.53	0.63	0.60	0.58
Income group 1	0.64	0.76	0.61	0.67	0.56	0.62
Income group 2 (baseline)	0.22	0.14	0.27	0.21	0.26	0.24
Income group 3	0.11	0.08	0.09	0.09	0.14	0.11
Income group 4	0.03	0.01	0.04	0.03	0.04	0.03
Income seasonality: no income	0.07	0.04	0.04	0.03	0.02	0.04
Income seasonality: variable income	0.36	0.21	0.53	0.40	0.48	0.45
Income seasonality: stable income	0.58	0.75	0.43	0.58	0.49	0.52
Number of observations	222	143	526	527	553	1,971

group was composed of people of all ages, both men and women, and people from both rural and urban areas.

6.4.3 Colombia

The Colombian population surveyed differed from those living in other countries in that they were especially good at planning their expenditure but rather poor at monitoring how they had spent their money and making provision for unexpected expenses. Moreover, unlike most other countries, the cluster analysis did not identify a single group where the average score for budgeting and planning expenditure was very low. They also had fairly low levels of financial inclusion.

In Colombia, the group with the highest number of below-average scores was the **older low-income nonsavers** (cluster 1), who accounted for about one-fifth of the population (table 6.5). They had a very low tendency to save, did not monitor how their money had been spent, and were inclined to impulsivity and taking a short-term view. On the other hand, they were not particularly inclined to overspend and for the most part they lived within their means, although they were the group with the lowest scores in this area. They had also made a reasonable level of provision for unexpected expenses. They included the smallest proportion of people who were financially included (43 percent) and, among these, the level of capability with regard to choosing and using appropriate financial products was low. Well over 4 in 10 (44 percent) of them were over 50 years old, and reflecting their age, they were the group that was least likely to have dependent children living with them. They were particularly likely to be in the lowest income group (54 percent). Half of them (49 percent) had been educated only to the primary level and they had low scores for the financial literacy questions. Given their age, income, and level of financial inclusion, members of this group were probably managing their finances as well as could be expected. It is unlikely that they would be a key target group for financial capability interventions, unless there was a policy to increase their level of financial inclusion.

In contrast, the **young carefree overspenders** (cluster 2) would be the most obvious focus for such interventions and they would be likely to be quite receptive, given their reasonably high scores for seeking information about financial matters. Accounting for just under one in five (17 percent) of the population surveyed, they were by far the most impulsive of the five groups and had a carefree attitude to the future. They were also the group that was most inclined toward overspending, did not monitor how their money was spent, and had relatively low levels of provision for unexpected expenses. On the other hand, in common with the Colombian population as a whole, they did plan how they would use their income and lived within their means. They were one of two groups with a high proportion of young people (almost

TABLE 6.5 COLOMBIA: AVERAGE CHARACTERISTICS OF THE FIVE CLUSTERS

VARIABLE	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5	TOTAL
Budgeting	63.78	75.11	84.81	89.42	78.91	78.47
Living within means	70.74	70.03	76.82	72.66	87.04	74.75
Monitoring expenses	8.59	25.79	31.47	80.16	37.23	34.99
Using information	69.62	75.86	83.98	85.01	83.44	79.43
Not overspending	78.90	65.47	82.19	82.42	77.40	77.93
Covering unexpected expenses	66.17	50.45	34.81	70.35	93.60	58.47
Saving	13.77	56.58	50.64	42.00	77.44	45.13
Attitude toward the future	25.67	27.08	49.27	33.42	51.89	37.43
Not being impulsive	49.26	37.28	76.24	56.64	70.95	58.99
Achievement orientation	84.67	94.69	93.38	93.18	93.40	91.62
Choosing products	41.29	57.42	60.36	59.28	64.18	57.32
Covering old-age expenses (under 60)	61.61	67.51	65.35	68.25	78.52	67.24
Female	0.69	0.60	0.63	0.63	0.59	0.63
Age 18–30	0.20	0.33	0.27	0.23	0.39	0.27
Age 31–40	0.15	0.23	0.19	0.18	0.20	0.19
Age 41–50 (baseline)	0.21	0.20	0.26	0.22	0.14	0.22
Age 51–60	0.20	0.17	0.14	0.18	0.14	0.17
Age 60+	0.24	0.08	0.14	0.19	0.13	0.16
Primary education at most	0.49	0.33	0.28	0.35	0.20	0.34
Secondary education (baseline)	0.41	0.49	0.47	0.44	0.43	0.45
Tertiary education	0.10	0.18	0.24	0.21	0.37	0.21
# of household members 18+	3.40	3.29	3.18	3.05	2.87	3.19
Living with a partner	0.59	0.61	0.64	0.56	0.61	0.60
Has dependent children	0.55	0.69	0.64	0.57	0.61	0.61
Has financial products	0.43	0.53	0.55	0.61	0.75	0.55
E1: formal employee (baseline)	0.09	0.22	0.23	0.18	0.27	0.19
E2: informal employee	0.05	0.07	0.06	0.06	0.06	0.06
E3: self-employed	0.12	0.12	0.07	0.08	0.12	0.10
E4: unemployed	0.04	0.03	0.04	0.02	0.01	0.03
E5: waiting for busy season	0.00	0.01	0.00	0.00	0.01	0.00
E6: student	0.01	0.02	0.02	0.04	0.01	0.02
E7: retired	0.06	0.04	0.05	0.05	0.06	0.05
E8: sick/disabled	0.00	0.00	0.00	0.00	0.00	0.00
E9: housework	0.34	0.19	0.26	0.26	0.16	0.25
E10: other	0.28	0.31	0.26	0.31	0.30	0.29
Financial literacy score	2.52	2.74	3.05	2.94	3.11	2.86
Responsible for day to day	0.82	0.79	0.85	0.87	0.79	0.83
Responsible for planning	0.83	0.75	0.81	0.86	0.81	0.81
Responsible for choosing financial product	0.37	0.46	0.52	0.52	0.67	0.49
Income group 1	0.54	0.38	0.36	0.41	0.22	0.40
Income group 2 (baseline)	0.31	0.39	0.40	0.37	0.34	0.37
Income group 3	0.13	0.11	0.18	0.13	0.26	0.16
Income group 4	0.02	0.12	0.05	0.08	0.18	0.08
Income seasonality: no income	0.08	0.06	0.08	0.08	0.03	0.07
Income seasonality: variable income	0.63	0.66	0.58	0.63	0.66	0.63
Income seasonality: stable income	0.29	0.29	0.34	0.28	0.30	0.30
Number of observations	340	259	440	287	200	1,526

half were below age 40 including 36 percent under 30). They were drawn from all income and education levels. Their only distinguishing feature was that they included the highest proportion of people with dependent children and clearly included a disproportionate number of single parents.

About 3 in 10 people were **careful money managers but exposed to financial shocks** (cluster 3). Their main area of weakness was their very low level of provision for unexpected expenses, although, like the rest of the Colombian population, they were not especially diligent at monitoring their expenditure. In contrast, they had a high level of control over their day-to-day finances. They had very high scores for budgeting and planning their spending and they had very low levels of inclination to overspending and impulsivity. They were drawn from people of all ages and all levels of education. Compared with other groups, they were most likely to be in the middle of the income distribution, and they had the lowest level of income variability. They were the largest of the five groups, and given their dispersal in the population and the fact that their financial capability weaknesses were ones that were widespread in the population, they would be best assisted by population-wide programs of intervention, perhaps using edutainment or social marketing tools.

The next group were **very careful low-income money managers** (cluster 4), who made up about one in five of the population. They had very high scores both for planning their spending and (unusually for Colombia) for monitoring how their money had been spent. They had little inclination to overspend and had made fairly good provision for unexpected expenses. They had slightly below-average scores for saving and being forward-looking, but this might well be a result of their low incomes—their main distinguishing feature.

The final group, and the smallest of the five, had no areas where their financial capability scores were below average. These **committed savers** were particularly adept at making financial provision for the future. They had high levels of saving and of provision for unexpected expenses and for their old age. On the other hand, they were not nearly as careful at planning and monitoring their day-to-day spending as the previous group. They tended to be young, well educated, and in formal employment with relatively high incomes. They also had very high levels of financial inclusion.

6.4.4 Lebanon

Compared with other countries, the population of Lebanon was poor at planning day-to-day finances and saving, but had high average scores for not being impulsive, being forward-looking, and making provision for unexpected expenses.

The cluster analysis identified a small group (under 10 percent of the population) of **poor day-to-day money managers and financial planners** (table 6.6). They neither planned nor monitored their day-to-day expenditure nor were they able to live within their means. They also had low scores for saving and for making provision for unexpected expenses. On the other hand, they were the group least inclined to overspending and they were not especially impulsive. They were by far the poorest of the five groups, combined with which, they were the group most likely to live as a couple with dependent children. This would suggest that financial strain, combined with low financial capability, accounted for their low scores. They had very low levels of education (50 percent were educated to the primary level only) and low scores for financial literacy. They were the group that was most likely to be financially excluded; only 39 percent of them had financial products and these people had a very low score for choosing financial products. They tended to be middle-aged (aged between 40 and 60), included roughly equal numbers of men and women, and were the group most likely (40 percent) to live in a rural area. For this group, the priority would be helping them to maximize their incomes, coupled with improving the way they planned and managed their finances. Any attempt to increase their level of financial inclusion would need to be accompanied by safeguards to help them choose and use appropriate financial products. They would be reasonably receptive to financial education initiatives, having fairly high scores for seeking information.

A further 2 in 10 of the Lebanese population were **young disorganized overspenders**. Like the previous group, they neither planned nor monitored their expenditure, nor did they save. But unlike them, they were very inclined to overspending although they said that they were living within their means. They also had relatively low levels of financial inclusion and were not good at choosing products. As a group, they tended to be young (50 percent were aged below 30), single, male, and to live in urban areas. They were spread across the income range, but included above-average numbers of people in informal or self-employment. They also included the second largest proportion of students. They would, in all probability, be one of the highest priorities for financial capability interventions for several reasons. Not only were their scores low across many areas, but this was almost certainly due to their low financial capability rather than low income. Moreover, their relatively high level of informal or self-employment would mean that there would be a spillover into managing their business finances too. They would, however, be difficult to reach, as they had very low scores for seeking out information on financial matters and would thus be unlikely to attend conventional financial education classes.

The largest group (about 3 in 10 of the Lebanese population) were **careful money managers with short-term horizons**. They scored high in terms of day-to-day money management, not overspending, and living within their means. But they had below-average scores on all aspects of planning for the future and had short-term

TABLE 6.6 LEBANON: AVERAGE CHARACTERISTICS OF THE FIVE CLUSTERS

VARIABLE	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5	TOTAL
Budgeting	0.00	1.24	77.05	28.58	78.96	38.38
Living within means	57.71	85.74	73.30	92.64	86.50	81.01
Monitoring expenses	39.47	25.05	56.85	26.94	74.84	41.79
Using information	71.91	53.73	77.91	70.70	78.76	69.69
Not overspending	95.02	53.00	83.48	65.92	50.87	69.20
Covering unexpected expenses	49.06	69.20	56.63	95.92	90.91	72.68
Saving	15.99	18.21	26.25	67.85	71.94	38.91
Attitude toward the future	29.38	50.76	44.38	77.67	54.10	53.81
Not being impulsive	66.38	63.49	68.79	86.96	76.81	72.75
Achievement orientation	69.96	90.64	74.02	90.95	88.42	83.52
Choosing products	47.07	50.98	60.25	64.22	85.56	62.85
Covering old-age expenses (under 60)	65.36	60.20	70.37	82.49	78.66	71.14
Female	0.55	0.46	0.62	0.50	0.63	0.55
Age 18–30	0.12	0.50	0.23	0.25	0.36	0.30
Age 31–40	0.19	0.17	0.18	0.17	0.21	0.18
Age 41–50 (baseline)	0.27	0.12	0.23	0.23	0.23	0.21
Age 51–60	0.23	0.12	0.19	0.18	0.14	0.17
Age 60+	0.19	0.09	0.17	0.18	0.06	0.14
Primary education at most	0.51	0.21	0.34	0.22	0.10	0.27
Secondary education (baseline)	0.40	0.50	0.43	0.48	0.50	0.46
Tertiary education	0.08	0.28	0.23	0.30	0.40	0.27
# of household members 18+	3.54	3.71	3.53	3.37	3.32	3.51
Living with a partner	0.74	0.43	0.67	0.67	0.63	0.62
Has dependent children	0.60	0.32	0.51	0.46	0.53	0.47
Rural area	0.41	0.26	0.39	0.33	0.27	0.33
Has financial products	0.39	0.48	0.53	0.72	0.74	0.57
E1: formal employee (baseline)	0.20	0.28	0.25	0.39	0.39	0.30
E2: informal employee	0.09	0.17	0.14	0.04	0.08	0.11
E3: self-employed	0.12	0.19	0.12	0.21	0.13	0.16
E4: unemployed	0.02	0.04	0.01	0.00	0.00	0.02
E5: waiting for busy season	0.00	0.00	0.00	0.00	0.01	0.00
E6: student	0.04	0.07	0.03	0.01	0.09	0.04
E7: retired	0.07	0.02	0.07	0.06	0.01	0.05
E8: sick/disabled	0.04	0.00	0.01	0.00	0.00	0.01
E9: housework	0.41	0.22	0.38	0.28	0.30	0.31
E10: other	0.00	0.00	0.00	0.00	0.00	0.00
Financial literacy score	2.70	3.23	3.05	3.38	3.43	3.18
Responsible for day to day	0.83	0.83	0.84	0.87	0.81	0.84
Responsible for planning	0.73	0.62	0.73	0.75	0.73	0.71
Responsible for choosing financial product	0.26	0.35	0.39	0.56	0.57	0.43
Income group 1	0.37	0.17	0.28	0.09	0.13	0.20
Income group 2 (baseline)	0.35	0.27	0.27	0.25	0.21	0.27
Income group 3	0.21	0.36	0.27	0.39	0.37	0.33
Income group 4	0.08	0.20	0.18	0.27	0.30	0.21
Income seasonality: no income	0.12	0.06	0.05	0.03	0.02	0.05
Income seasonality: variable income	0.48	0.54	0.42	0.50	0.34	0.47
Income seasonality: stable income	0.40	0.40	0.52	0.47	0.64	0.48
Number of observations	130	265	343	309	140	1,187

horizons. The key to this may lie, at least in part, in their low incomes; they were the second poorest of the five groups. Six in 10 of them were women, they tended to be over 40 years old, and they included the second highest level of rural inhabitants. Initiatives targeted at this group would focus on saving—particularly for unexpected expenses.

The **affluent disorganized budgeters** were another fairly large group (accounting for about a quarter of the population). What marked them out were their poor scores on planning and monitoring their day-to-day spending. They also had a tendency toward overspending. They were, however, living within their means and saving for future needs. Compared with the population as a whole, they were older, well educated, and had high incomes. They would be vulnerable if they suffered a sudden drop in income that lasted for more than a short period of time as, with their disorganized budgeting, they would find it difficult to adjust their spending to meet their new circumstances.

Finally, there was a small group of all-around **good money managers, but with a strong tendency to overspend**. Indeed, they had high or very high scores on everything except overspending, where they had the lowest score of all five groups. They were young women (57 percent were aged below 40, including 36 percent below the age of 30). They were well educated (40 percent to the tertiary level) and had high incomes (67 percent were in the upper half of the income distribution). Like the previous group, they could be at risk if they had a sustained drop in income, unless they were able to rein in their spending. Story lines in edutainment programs might be the most appropriate way of alerting them to the risk that they face.

6.4.5 Mexico

Compared with people living elsewhere, the people interviewed in Mexico tended to have short-term horizons and were much less likely to plan how they would spend their money. They were, however, more inclined to save.

Around one in five in the Mexican population can best be described as **unsophisticated money managers** (table 6.7). They were the group with the lowest average scores and had below average scores on all but two components. But they were not inclined to overspending and they lived within their means. Their scores for planning how their money would be spent (budgeting) and monitoring their finances were very low indeed. So too were their scores for saving and for choosing products (among those that had them); they also had the lowest levels of financial inclusion. Compared with the rest of the population, this group was more likely to have a low income (83 percent of them were in the two lowest income groups). Their incomes were also variable, and a quarter of them were working in the informal economy (19 percent) or self-employed (5 percent). They had low levels of education, with almost

TABLE 6.7 MEXICO: AVERAGE CHARACTERISTICS OF THE FIVE CLUSTERS

VARIABLE	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5	TOTAL
Budgeting	1.01	73.62	74.89	2.63	75.59	51.86
Living within means	76.41	77.63	67.28	85.56	82.93	78.05
Monitoring expenses	24.88	34.23	62.29	51.23	40.14	38.78
Using information	60.81	70.50	71.92	76.37	79.23	71.25
Not overspending	71.62	72.32	47.26	69.53	75.89	69.57
Covering unexpected expenses	49.04	38.13	87.12	87.44	86.92	63.53
Saving	33.95	44.99	56.14	78.42	77.20	55.05
Attitude toward the future	30.92	33.09	30.68	36.39	40.26	34.39
Not being impulsive	52.23	61.15	40.42	70.18	69.25	59.32
Achievement orientation	78.11	84.69	81.64	84.30	90.99	84.38
Choosing products	30.34	53.37	68.08	72.02	72.65	58.73
Covering old-age expenses (under 60)	54.83	62.13	73.86	54.66	74.09	64.76
Female	0.49	0.57	0.53	0.53	0.52	0.53
Age 18–30	0.32	0.28	0.37	0.26	0.26	0.29
Age 31–40	0.22	0.20	0.31	0.29	0.30	0.25
Age 41–50 (baseline)	0.16	0.22	0.17	0.18	0.21	0.19
Age 51–60	0.12	0.15	0.10	0.08	0.11	0.12
Age 60+	0.18	0.16	0.05	0.18	0.11	0.14
Primary education at most	0.47	0.38	0.25	0.36	0.30	0.36
Secondary education (baseline)	0.49	0.56	0.66	0.59	0.54	0.55
Tertiary education	0.04	0.06	0.09	0.05	0.16	0.09
# of household members 18+	2.87	2.91	2.68	2.66	2.81	2.82
Living with a partner	0.65	0.68	0.68	0.70	0.73	0.69
Has dependent children	0.49	0.57	0.54	0.52	0.57	0.55
Rural area	0.44	0.35	0.31	0.47	0.36	0.38
Has financial products	0.37	0.49	0.59	0.61	0.57	0.51
E1: formal employee (baseline)	0.12	0.22	0.40	0.29	0.29	0.24
E2: informal employee	0.19	0.16	0.13	0.11	0.13	0.15
E3: self-employed	0.05	0.01	0.03	0.04	0.03	0.03
E4: unemployed	0.07	0.06	0.04	0.02	0.03	0.05
E5: waiting for busy season	0.02	0.02	0.02	0.02	0.01	0.02
E6: student	0.05	0.04	0.02	0.04	0.03	0.04
E7: retired	0.03	0.05	0.02	0.04	0.05	0.04
E8: sick/disabled	0.01	0.02	0.00	0.03	0.01	0.01
E9: housework	0.30	0.29	0.22	0.27	0.26	0.27
E10: other	0.16	0.13	0.12	0.15	0.16	0.15
Financial literacy score	2.61	2.83	2.62	2.71	3.00	2.79
Responsible for day to day	0.64	0.76	0.75	0.77	0.79	0.74
Responsible for planning	0.67	0.74	0.75	0.75	0.82	0.75
Responsible for choosing financial product	0.50	0.64	0.79	0.64	0.75	0.66
Income group 1	0.47	0.45	0.29	0.32	0.24	0.37
Income group 2 (baseline)	0.34	0.35	0.32	0.28	0.36	0.34
Income group 3	0.11	0.11	0.26	0.11	0.26	0.17
Income group 4	0.08	0.10	0.13	0.29	0.14	0.13
Income seasonality: no income	0.13	0.12	0.06	0.05	0.09	0.10
Income seasonality: variable income	0.58	0.61	0.67	0.63	0.55	0.60
Income seasonality: stable income	0.29	0.27	0.27	0.32	0.36	0.30
Number of observations	441	606	279	189	507	2,022

half (47 percent) having only received primary education, and they had the lowest financial literacy scores of the five groups. Despite including above-average numbers of people aged over 60 (18 percent), they had the lowest proportion of people describing themselves as retired (3 percent), suggesting that many were continuing to work in old age because of a lack of financial provision. They included the second highest proportion of people living in a rural area, but even so, almost 6 in 10 of them (56 percent) lived in towns and cities. This group would almost certainly be a focus of any strategy to raise levels of financial capability. However, given their low incomes, it may be that many of them were living day to day with little scope for saving and making provision for the future. Similarly, since they were living within their means and not overspending, it could be that their very low incomes meant that they could keep control over their finances without planning or monitoring expenditure. Their low scores on choosing financial products, coupled with high level of financial exclusion, similarly suggest that they largely managed their money in cash and would be vulnerable consumers of financial products and services. With so many areas of weakness, almost certainly more than one intervention would be required and priorities would need to be set for the most pressing areas to be tackled. Moreover, given the incidence of informal and self-employment, it is almost certain that their needs would span both their business and personal finances and that, in all likelihood, these would not be separated. Their low scores for seeking information and low levels of education suggest that it is unlikely they would be reached by classroom-based financial education initiatives.

The **short-term money managers** (cluster 2) were particularly strong at aspects of day-to-day money management and budgeting in particular, but they were poor at saving and making provision for the future, particularly for unexpected expenses. They also had the second lowest score for choosing financial products: only about half of them (49 percent) were financially included. As a group, these people had the second lowest incomes (80 percent were in the two lowest income quartiles). Compared with others, they were more likely to be middle-aged (between the ages of 41 and 60) and to have dependent children. On the whole, they were urban dwellers; only 3 in 10 of them lived in a rural area. They accounted for almost a third of the population and formed the largest of the three groups. This group would almost certainly be targeted with interventions to encourage them to plan for their financial needs, but their low levels of financial inclusion and vulnerability with regard to choosing and using financial products and services would also need to be addressed.

The third group was the **young overspenders** (cluster 3), whose main areas of weakness were a strong tendency to impulsivity and overspending; perhaps as a consequence, they also had the lowest scores for living within their means. On the other hand, they were strong in money management (both budgeting and monitoring

their finances) and financial planning (both for unexpected expenses and for their old age). They formed one of the two smallest groups, and accounted for just over 1 in 10 of the population. Compared with the rest of the Mexican population, they were relatively young and reasonably well educated. They had the highest level of formal employment and incomes that were slightly higher than average. This group would almost certainly be targeted with interventions designed to help them curb their tendency to overspend and rely on credit to make ends meet. They would be particularly vulnerable to a change in their circumstances leading to a reduction of income.

A fourth group can, perhaps, best be described as **affluent but disorganized** (cluster 4). They were very poor budgeters; indeed, most of them made no attempt to plan how their money would be used. They also had the lowest score for planning for their old age. That said, they did live with their means and were particularly strong at some aspects of planning for the future, including saving when they could and making provision for unexpected expenses. They were also good at choosing financial products and had the highest level of financial inclusion. This was the smallest group of all, accounting for fewer than 1 in 10 of the Mexican population. They had high incomes compared with the rest of the population—which almost certainly explains why they were able to live within their means without budgeting and planning their expenditure. They were the group that was most likely to live in rural areas (47 percent) and to have been educated to the secondary level. It is unlikely that they would be a high priority for interventions to improve their budgeting skills. On the other hand, given their high incomes, it is likely that they would be a target group for interventions designed to increase saving toward one's old age.

Finally, there was a group of people (cluster 5), representing a quarter of the population, who were **careful money managers and planners**. They had the highest average capability scores and had above-average scores for everything except monitoring their finances. That said, in common with the rest of the Mexican population, they had low scores for both monitoring their finances and having a short-term time horizon with regard to money. Compared with the rest of the population, this group was more likely to have steady incomes that were in the middle of the income distribution and to be well educated (16 percent were educated to the tertiary level); it also had the highest scores for financial literacy. It is unlikely that there would be a need to target this group with interventions to raise their financial capability. The fact that they did not monitor their spending yet managed to live within their means suggests that it was not necessary for them to do so.

6.4.6 Nigeria

Nigeria undertook the survey later than the other countries and as part of a much larger survey covering other topics as well. Consequently, it did not include as many

components of financial capability. It did not, for example, include any of the motivation questions that contributed to the scores for attitudes toward the future, impulsivity, or achievement orientation. Nor did it cover provisions made for old age or inclination toward collecting information about financial matters. As a consequence, the cluster analysis was carried out on a more limited range of aspects of financial capability than were identified in the developmental focus groups. These restrictions in the survey content have limited the richness of the cluster analysis and its interpretation; this is something that should be borne in mind by anyone considering replicating the survey.

On this limited range of components, the population of Nigeria did not stand out as having areas of particular strength or weakness compared with the populations of the other countries studied, although it was notable for being the one country where there was not a group that was failing to live within their means, and one of only two countries where no group had very low scores for planning day-to-day spending (table 6.8).

Moreover, the survey collected a more limited range of information about the population that could be compared with that available for other countries. Most importantly, it collected no information on income variability, and it was not possible in the time available for this analysis to create an income variable that was comparable to other surveys. It also did not record if someone had dependent children and had no general measure of financial inclusion—just for bank account-holding, which was low (21 percent of the population surveyed).

The smallest of the five groups (1 in 10 of the population) was the only one with more than one area of weakness on the limited range of financial capabilities covered (cluster 1). These **financially excluded nonsavers** had very low scores for saving, and they did not do well monitoring their spending either. They had the lowest level of bank account-holding and scores for choosing financial products were very low. They were slightly younger than average, with slightly lower levels of education. It is unfortunate that we do not know their income levels, as this might account for their low levels of saving and financial inclusion.

The second group (cluster 2) was **exposed to financial shocks** and was the largest of the five groups (almost 3 in 10 of the population). They had by far the lowest scores for provision to cover unexpected expenses and their level of saving was slightly below average. They had a slight tendency to overspend and this might account for these scores. Without information about their impulsivity or income, it is difficult to identify whether it is low capability or low income that is the main contributory factor. The personal characteristics of this group mirrored that of the population as a whole.

TABLE 6.8 NIGERIA: AVERAGE CHARACTERISTICS OF THE FIVE CLUSTERS

VARIABLE	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5	TOTAL
Budgeting	67.73	78.03	79.13	78.04	82.74	78.34
Living within means	83.36	78.78	83.81	82.32	82.58	81.74
Monitoring expenses	24.78	46.84	9.48	65.18	69.56	47.97
Not overspending	71.01	65.65	73.12	46.48	92.65	70.72
Covering unexpected expenses	72.10	35.27	84.35	96.38	82.45	71.05
Saving	4.90	49.81	64.46	68.71	66.00	55.23
Choosing products	41.67	64.92	60.89	61.80	58.95	60.43
Female	0.55	0.53	0.54	0.47	0.48	0.51
Age 18–30	0.30	0.26	0.25	0.25	0.25	0.26
Age 31–40	0.20	0.22	0.24	0.26	0.23	0.23
Age 41–50 (baseline)	0.18	0.20	0.22	0.23	0.20	0.21
Age 51–60	0.13	0.15	0.14	0.16	0.16	0.15
Age 60+	0.19	0.17	0.15	0.10	0.16	0.15
Primary education at most	0.71	0.67	0.63	0.68	0.64	0.66
Secondary education (baseline)	0.19	0.22	0.22	0.18	0.21	0.21
Tertiary education	0.10	0.12	0.15	0.14	0.15	0.13
# of household members 18+	2.61	2.57	2.71	2.74	2.74	2.67
Living with a partner	0.68	0.75	0.75	0.79	0.74	0.75
Rural area	0.69	0.66	0.66	0.77	0.75	0.71
Has a bank account	0.12	0.20	0.24	0.21	0.22	0.21
E1: employee (baseline)	0.60	0.66	0.66	0.66	0.66	0.65
E3: self-employed	0.13	0.17	0.18	0.23	0.19	0.18
E4: unemployed	0.04	0.01	0.02	0.00	0.02	0.02
E5: waiting for busy season	0.01	0.00	0.00	0.00	0.01	0.00
E6: student	0.04	0.03	0.04	0.03	0.04	0.04
E7: retired	0.05	0.03	0.02	0.01	0.01	0.02
E8: sick/disabled	0.04	0.02	0.02	0.01	0.02	0.02
E9: housework	0.08	0.05	0.06	0.06	0.04	0.06
E10: other	0.02	0.01	0.01	0.00	0.01	0.01
Responsible for day to day	0.48	0.49	0.52	0.52	0.47	0.49
Number of observations	921	2,447	1,387	1,675	2,253	8,683

About one in six of the population was **poor at monitoring expenditure** (cluster 3). Otherwise they had scores that were about the average for the population and, in the area of saving, above the average. They were perhaps very slightly better educated than the average and had a slightly higher level of bank account-holding; even so, this latter was only 24 percent.

Then there was a group of people who were **inclined to overspending** and had the lowest scores in this area. On the other hand, they had high levels of provision for unexpected expenses and were pretty good at saving compared with the rest of the population. They also had high scores for monitoring their spending. Again, unfortunately, the lack of income and motivation data inhibits the interpretation of these findings.

About a quarter of the Nigerian population had no areas of particular weakness and was especially strong in the areas of monitoring expenditure and not overspending.

6.4.7 Turkey

Compared with other countries, the population of Turkey had a low propensity to save—yet people under the age of retirement had good provision for their old age. The explanation for this seemingly contradictory finding can almost certainly be attributed to the fact that about half of people under the age of 65 said that they had access to a government pension payable to everyone. Indeed, making provision for old age was the only area of financial capability that was very similar across the clusters (table 6.9).

In Turkey, there were two groups with generally low levels of financial capability across most components, although there were some subtle differences between them. Neither group had a propensity to seek out information on financial matters and so would be difficult to reach. The first of these, the **young incapable money managers**, had low scores in all areas except living within their means and overspending (cluster 1). But compared with the population as a whole, they were especially bad at planning how they would use their income, monitoring expenditure, and saving. They included a disproportionate number of men; they were young (46 percent were aged under 30) and included an above-average proportion of single people and people without dependent children. Half of them were in the lowest income group and had a relatively high level of income variability. Almost 3 in 10 were either self-employed or worked informally. With so many areas of low financial capability, they would almost certainly be the target group for a range of interventions. For those in informal or self-employment, this would include interventions on planning and monitoring expenditure for their business as well as personal life. They accounted for just over 1 in 10 of the population.

The second group of people with generally low levels of capability, the **young overspenders** (cluster 2), were really quite good at living within their means and making provision for unexpected expenses, but had by far the strongest tendency to overspend of the five groups and were very bad at monitoring their spending and saving. They also had the lowest level of financial inclusion and very low scores for choosing financial products capably. They were the youngest of the five groups (73 percent of them were aged under 40), and were inclined to be single and to not have dependent children. They included a disproportionate number of men, but not to the same extent as the previous group. In contrast with the previous group, they were rather better off financially, which might help explain how they could live within their means despite overspending. They too would almost certainly be the target of a range of interventions, but perhaps with a focus on not overspending and controlling their

TABLE 6.9 TURKEY: AVERAGE CHARACTERISTICS OF THE FIVE CLUSTERS

VARIABLE	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5	TOTAL
Budgeting	3.83	33.92	81.78	74.01	84.97	63.78
Living within means	62.77	75.48	61.34	61.09	79.55	67.27
Monitoring expenses	36.36	26.51	56.61	63.18	67.99	50.95
Using information	59.28	50.18	76.39	76.21	83.34	70.36
Not overspending	65.96	45.26	85.96	65.56	70.77	70.83
Covering unexpected expenses	51.83	82.87	54.02	39.49	95.20	64.66
Saving	12.78	13.90	9.26	40.58	73.37	24.35
Attitude toward the future	34.09	51.66	32.75	54.62	56.06	42.99
Not being impulsive	53.19	53.92	62.21	77.45	72.93	63.05
Achievement orientation	75.62	66.97	85.09	87.24	86.12	80.82
Choosing products	40.72	35.18	57.45	68.67	64.14	55.02
Covering old-age expenses (under 60)	71.01	77.95	71.81	75.70	78.55	74.57
Female	0.31	0.42	0.52	0.46	0.48	0.47
Age 18–30	0.46	0.47	0.27	0.34	0.36	0.35
Age 31–40	0.15	0.26	0.22	0.30	0.27	0.24
Age 41–50 (baseline)	0.14	0.09	0.21	0.13	0.14	0.16
Age 51–60	0.13	0.12	0.21	0.14	0.15	0.17
Age 60+	0.12	0.07	0.09	0.08	0.08	0.08
Primary education at most	0.46	0.32	0.59	0.47	0.38	0.47
Secondary education (baseline)	0.49	0.58	0.36	0.41	0.46	0.44
Tertiary education	0.05	0.10	0.05	0.12	0.16	0.09
# of household members 18+	2.80	3.24	3.12	2.99	2.76	3.04
Living with a partner	0.59	0.51	0.75	0.64	0.68	0.66
Has dependent children	0.39	0.37	0.61	0.57	0.49	0.51
Rural area	0.05	0.02	0.05	0.05	0.08	0.05
Has financial products	0.64	0.50	0.66	0.69	0.61	0.62
E1: formal employee (baseline)	0.22	0.34	0.14	0.28	0.38	0.24
E2: informal employee	0.11	0.04	0.12	0.05	0.03	0.08
E3: self-employed	0.16	0.07	0.08	0.09	0.13	0.09
E4: unemployed	0.08	0.01	0.06	0.00	0.00	0.03
E5: waiting for busy season	0.00	0.00	0.01	0.00	0.00	0.00
E6: student	0.08	0.20	0.05	0.08	0.04	0.09
E7: retired	0.17	0.12	0.17	0.19	0.16	0.16
E8: sick	0.00	0.00	0.00	0.00	0.00	0.00
E9: housework	0.18	0.21	0.36	0.28	0.25	0.28
E10: other	0.01	0.01	0.01	0.04	0.02	0.02
Financial literacy score	2.59	2.57	2.56	2.70	2.69	2.60
Responsible for day to day	0.79	0.89	0.80	0.89	0.91	0.85
Responsible for planning	0.80	0.76	0.86	0.79	0.91	0.83
Responsible for choosing financial product	0.51	0.41	0.51	0.60	0.64	0.52
Income group 1	0.50	0.35	0.56	0.37	0.41	0.47
Income group 2 (baseline)	0.25	0.28	0.27	0.24	0.18	0.25
Income group 3	0.16	0.22	0.15	0.26	0.25	0.19
Income group 4	0.09	0.15	0.02	0.12	0.16	0.09
Income seasonality: no income	0.22	0.08	0.20	0.06	0.13	0.15
Income seasonality: variable income	0.22	0.19	0.19	0.22	0.21	0.20
Income seasonality: stable income	0.56	0.72	0.61	0.72	0.66	0.65
Number of observations	287	526	832	298	563	2,506

finances. This group was twice as large as the first and accounted for one-fifth of the population.

The largest group of all (a third of the Turkish population) were **older low-income nonsavers** (cluster 3). In fact, people in this group were really very careful money managers with particularly high levels of capability with regard to planning their spending and avoiding overspending. Their main area of significant weakness was in the area of saving—even for a population where saving levels were generally very low. They also had relatively low levels of provision for unexpected expenses. They had the lowest incomes of the five groups and included the largest proportion of people living as a couple and with dependent children. So, their incomes had to stretch to cover more people than in the other four groups. Their circumstances go some way toward explaining their low levels of saving. But they also had very short-term orientation and this, too, would contribute to their failure to save. They included more women (and full-time home makers) than any of the other groups; they had below-average levels of education and a disproportionate number of people aged between 41 and 60. They could well form the focus for an initiative designed to promote or incentivize saving.

Just over 1 in 10 of the population were **quite well-off but exposed to financial shocks** (cluster 4) On the whole, they were financially capable across most of the key components. Their key weakness was their failure to make provision for unexpected expenses—where they had by far the lowest average score compared with other groups. They had high levels of financial inclusion and were particularly capable with regard to choosing financial products. As a group, they had middle to high incomes that were stable—but no other important distinguishing characteristics.

The remaining group (cluster 5) was very financially capable, aided perhaps by its higher-than-average income. They were relatively well educated yet, interestingly, had financial literacy scores and levels of financial inclusion that were only at about the average.

In Turkey, about one-fifth of the population showed very high average scores on all components (cluster 5). Women, people with higher incomes, and people living in rural areas were more likely to belong to this group, whereas students and people with primary or lower education were less likely to belong to this group.

6.4.8 Uruguay

Compared with the populations of other countries, Uruguayans were not good at making provision to cover unexpected expenses nor were they good at choosing products. On the other hand, they had a low tendency to overspending; all of the five groups were living within their means or had low levels of overspending. As in Turkey,

many people had access to a government pension so the level of provision for old age did not vary much across the cluster groups (table 6.10). Levels of financial inclusion were very high and so too were average financial literacy scores.

The group with the lowest average capability scores were **young incapable money managers** (cluster 1). They were the only ones with very low scores for budgeting and planning their spending. And they had low average scores across a range of the components of financial capability, including monitoring their expenditure, saving and looking to the future. They had the lowest level of financial inclusion and were not good at choosing financial products. Nevertheless, like most Uruguayans, they did live with their means and were not particularly inclined to overspending. They were young (42 percent were aged below 30), and disproportionately male and single. The great majority had been educated to the secondary level, and they were drawn from across the income groups, although they did have the highest level of income instability. They would form the main target group for financial capability interventions but their low propensity to use information to enable them to manage their money means that they would not be easy to persuade to participate. Edutainment and social marketing might, therefore, have a greater chance of success than conventional financial education. They made up about one in six of the population surveyed.

The largest group of people, who were **low-income short-term money managers**, accounted for over a quarter of the population (cluster 2). Unlike the previous group, they were very good indeed at planning how their money would be used, but they had short-term horizons, little provision for unexpected expenses, and a low propensity to save. They also had a strong tendency to impulsivity. They were the poorest of the five groups (42 percent were in the lowest income group), which may well explain these findings. Their only other key distinguishing feature was that they were disproportionately women.

Financially exposed older people made up a sixth of the population (cluster 3). Although they had above-average scores in many areas of financial capability, they had the lowest scores of all five groups in the area of provision for unexpected expenses and, like many in Uruguay, had short-term horizons. On the other hand, they both planned and monitored their spending carefully and had almost no tendency to overspend. They included disproportionate numbers of older people (36 percent were aged over 60), and a third of them were retired. They were the second poorest of the five groups. A large proportion of them had been educated only to the primary level.

A similarly sized group of people were **at risk to mis-selling of financial products** (cluster 4). They had quite high scores in almost all the components of financial capability but, like a large proportion of the Uruguayan population, tended to have a short-term orientation. They had a high level of financial inclusion but below-average

TABLE 6.10 URUGUAY: AVERAGE CHARACTERISTICS OF THE FIVE CLUSTERS

VARIABLE	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5	TOTAL
Budgeting	12.03	80.86	85.28	80.14	80.34	68.53
Living within means	80.51	73.95	78.49	87.66	85.65	81.04
Monitoring expenses	35.99	38.17	58.67	43.10	52.57	44.97
Using information	60.27	73.61	83.68	80.25	80.20	75.24
Not overspending	74.53	77.51	90.95	87.01	85.28	82.22
Covering unexpected expenses	49.92	40.58	30.16	89.50	62.09	54.54
Saving	36.75	33.00	40.44	62.27	54.25	44.97
Attitude toward the future	28.17	19.86	20.26	20.26	78.38	37.27
Not being impulsive	55.91	36.19	84.52	56.26	81.57	61.19
Achievement orientation	85.47	87.67	78.39	90.23	90.57	87.31
Choosing products	41.78	49.41	57.70	47.52	64.44	53.66
Covering old-age expenses (under 60)	58.10	58.21	65.86	53.14	68.36	61.17
Female	0.46	0.62	0.60	0.50	0.54	0.55
Age 18–30	0.42	0.27	0.15	0.29	0.23	0.27
Age 31–40	0.12	0.20	0.12	0.16	0.23	0.18
Age 41–50 (baseline)	0.18	0.21	0.20	0.11	0.23	0.19
Age 51–60	0.15	0.18	0.17	0.16	0.19	0.17
Age 60+	0.14	0.15	0.36	0.27	0.12	0.18
Primary education at most	0.20	0.36	0.44	0.41	0.16	0.29
Secondary education (baseline)	0.67	0.52	0.42	0.48	0.51	0.53
Tertiary education	0.12	0.13	0.13	0.11	0.33	0.18
# of household members 18+	2.66	2.53	2.19	2.55	2.54	2.52
Living with a partner	0.47	0.58	0.63	0.61	0.68	0.59
Has financial products	0.79	0.90	0.88	0.89	0.91	0.88
E1: formal employee (baseline)	0.42	0.41	0.35	0.36	0.46	0.41
E2: informal employee	0.12	0.09	0.05	0.09	0.08	0.09
E3: self-employed	0.05	0.11	0.05	0.11	0.15	0.10
E4: unemployed	0.08	0.03	0.03	0.03	0.04	0.04
E5: waiting for busy season	0.00	0.00	0.01	0.00	0.00	0.00
E6: student	0.04	0.04	0.02	0.03	0.05	0.04
E7: retired	0.12	0.13	0.33	0.20	0.09	0.15
E8: sick/disabled	0.00	0.01	0.01	0.00	0.00	0.00
E9: housework	0.10	0.15	0.08	0.14	0.11	0.12
E10: other	0.06	0.03	0.07	0.04	0.02	0.04
Financial literacy score	3.76	3.37	3.36	3.42	3.90	3.59
Responsible for day to day	0.75	0.86	0.86	0.81	0.85	0.83
Responsible for planning	0.71	0.86	0.86	0.87	0.86	0.83
Responsible for choosing financial product	0.76	0.84	0.88	0.85	0.88	0.84
Income group 1	0.25	0.42	0.38	0.36	0.13	0.30
Income group 2 (baseline)	0.33	0.32	0.31	0.30	0.26	0.30
Income group 3	0.24	0.18	0.18	0.17	0.31	0.22
Income group 4	0.18	0.08	0.13	0.16	0.29	0.17
Income seasonality: no income	0.40	0.28	0.20	0.37	0.10	0.26
Income seasonality: variable income	0.35	0.34	0.18	0.27	0.48	0.32
Income seasonality: stable income	0.25	0.38	0.62	0.36	0.42	0.42
Number of observations	144	244	139	147	227	901

scores for choosing financial products, putting them at risk to mis-selling (or mispurchase) of financial products. They were disproportionately drawn from people aged between 31 and 50, and 4 in 10 of them had been educated only to the primary level. They would be clear candidates for initiatives to protect them against mis-selling.

The final group was very financially capable and had above-average scores on all the components of financial capability. They were concentrated in the two highest income groups and had by far the largest proportion of people in the highest income group, in full-time employment or self-employment, and educated to the tertiary level.

G

oing forward

The generosity of the RTF allowed for the application of very rigorous sets of procedures to define financial capability, develop a method of assessing levels of financial capability in a population through a national survey, and analyze the data collected. Rarely is such rigor possible. Through this process, a range of outputs have been developed that are freely available for others to use. These include the following:

- An extensively tested questionnaire that has been shown to be relevant across a wide range of low- and middle-income countries
- Guidance on conducting the survey and a set of interviewer instructions to accompany the associated questionnaire
- Supplementary questionnaires that collect contextual information about the localities in which survey respondents live and about the interviewers
- A full report on the survey methodology, process of development and implementation, and survey results
- Documentation on the qualitative research phase (a focus group topic guide, in-depth interview guides, and feedback forms and instructions provided to research teams and interviewers)
- Survey data sets from seven countries and related documentation.

The final version of all of these materials is available on the RTF website (www.finlitedu.org).

Important lessons have been learned. First and perhaps most important, it is possible to identify, through a *vox populi* approach, a range of manifestations of financial capability that apply across very diverse low- and middle-income countries, from Papua New Guinea to Mexico. Moreover, these manifestations resonate with the findings of research done with lower-income groups in high-income countries such as the United Kingdom. These manifestations are primarily related to behavior, with motivations being important in ensuring income neutrality.

Second, it is possible to design a questionnaire that works across different income groups and quite different cultures to capture these manifestations accurately, minimizing an income or culture bias. As was shown, eliminating such income and cultural biases entirely is not possible and the interpretation of results needs to acknowledge the role that environmental factors can play in affecting an individual's level of financial capability.

Third, it is possible to create scores for individual components of financial capability (mirroring the manifestations identified above) that are robust and meaningful across different countries. However, it is not statistically meaningful to collapse these into a single score for "level of financial capability." It is possible to identify two broad domains using the pooled data, designated "controlled budgeting" and "making provision for the future." Cross-country comparisons at this level are not statistically robust, as there are subtle differences across countries in the composition of these two domains. Collapsing the components into domains can, however, be conducted at the individual country level, although the number of domains used to capture all the components of financial capability will differ (from two to four in the six countries studied here). While having a single indicator may be useful for overall comparisons and the inability to develop such a measure is disappointing, it should be kept in mind that for the purpose of designing specific interventions, a more disaggregated measure can be, in fact, more informative and more easily interpreted.

Finally, populations of individual countries can be segmented into groups with varying levels of capability across all 12 components. The strengths and weaknesses of these groups can be determined—as can their characteristics. These groups can be as fine-tuned as is required to inform approaches to increasing levels of financial capability. Some of the components identified can be tackled through education; for example, learning how to plan spending or to monitor finances. Others will require other types of interventions and policies.

This section summarizes the key results and lessons learned, both from a methodological perspective on measuring financial capability, and from a more analytical point of view. The field of financial capability is however relatively new and many methodological issues and research questions remain open, as discussed in section 7.4. It is hoped that the contribution of the RTF will be a starting point for further rigorous research in this area. For example, several other countries have used or are planning to use the questionnaire: among these, Mongolia, Morocco, Mozambique, the Philippines, and Tajikistan.¹

¹ Results and documentation from these surveys will be published on the World Bank's Financial Inclusion and Infrastructure Practice website at <http://responsiblefinance.worldbank.org>.

7.1 LESSONS FROM THE QUALITATIVE STUDY

Many lessons about financial capability measurement were learned through the process of developing the questionnaire:

- Potential cultural issues in questionnaire design were identified in the focus groups: for example, some issues were related to the specific examples provided; others had to be addressed in the precodes that needed to be customized to the country's circumstances—which also needed to be taken into account when interpreting the results (e.g., in some countries, everyone receives an old-age pension and there is thus less need to plan for old age).
- Because focus group participants pointed out that the level of income had little to do with the level of financial capability, the questions were designed to be as income-neutral as possible. However, this was rather difficult, particularly in the areas of planning for the future and planning for unexpected expenses.
- The context of the household's financial decision making was important in determining the relevance of many questions. It was therefore necessary to adapt the questions to the role the individual had within the household, and to exclude from the survey (or at least from the financial capability questions) respondents with no role in managing either the household's money or their own expenses.
- Even though some abstract concepts such as "managing" proved to be difficult to use in specific questions, focus group participants did not have any problems in providing a description of what it means to be capable—a rather abstract concept.
- Framing of questions is important: for example, those about unexpected expenses were better understood if preceded by questions about expected expenses.
- The correct facilitating approach for focus groups is not always well understood by survey firms, and it is important to provide clear instructions and training. Some facilitators tended to ask participants how they themselves managed money instead of asking them to describe what capable or incapable people do.
- Some respondents, particularly those with lower levels of education, had difficulty understanding long questions or those expressed in negative forms, and in remembering multiple or long response options.

- There was initially a misunderstanding of questions asking for respondent agreement with statements read, because respondents tended to say whether they agreed with the statement in general, while the purpose was to see if the statement described them personally.

7.2 LESSONS FROM THE QUANTITATIVE STUDY

Further methodological lessons were learned from the quantitative implementation of the survey:

- The selection of the respondent proved to be a challenging task. There were problems with the interviewers selecting the respondent of the survey, especially in the pilot where it was clear that some interviewers were not using the Kish grid properly. Determining the eligibility of each household member based on the information provided by the responsible adult answering the roster was considered too unreliable to use, which led to further problems in the selection. In general the mechanism for determining the correct number of eligible people was cumbersome. As a consequence, the survey manual now suggests that future surveys of this kind should simply aim to achieve a sample that is representative of the adult population, among which there will be a fraction of people for whom most of the financial capability questions would not apply.
- The extensive cognitive testing of the interview questions was successful. Apart from the selection mechanism, the questions proved to be easily answered by most respondents and few inconsistencies were found.
- Despite the team's best efforts to develop income-neutral questions, some variables obtained from the questionnaire could not be used because they were, indeed, affected by the level of income. More generally, the financial capability measures developed with this survey are not completely independent of the level of income. In short, while a careful choice of the topics to be included in the questionnaire and the specific design of the questions does help to mitigate the effect of income on financial capability measurement, this effect cannot be entirely avoided and needs to be explicitly addressed as part of the interpretation of the results.
- Most respondents are involved in household finances, not just their own. The version of the questionnaire designed for those who only manage or make decisions about their own money was used much less frequently and was mostly used with respondents under 30.

- There was no evidence of a sharp contrast between the financial participation of an individual as stated by the respondent and as described by the responsible adult answering the roster. There were, however, some differences, suggesting that further research is needed to determine whether asking one household member about participation by all other members provides accurate information.
- Among the 12 financial capability component scores that could be constructed, 2 were only relevant for subgroups of the population.

7.3 FINANCIAL CAPABILITY IN LOW- AND MIDDLE-INCOME ENVIRONMENTS

In addition to important methodological lessons learned through the qualitative and quantitative phases of the project, interesting findings about financial capability in low- and middle-income environments emerged. The report has highlighted a few examples of the types of research questions that can be addressed using these data:

- The manifestations of financial capability most frequently cited by the general public in low- and middle-income countries were similar to those that emerged in the U.K. study. Aspects of day-to-day money management and planning for the future were mentioned most frequently, while manifestations relating to choosing products and staying informed were much less frequently cited across these countries (if cited at all). Other elements that appeared to be relevant from both the qualitative research and the statistical analysis were psychological motivations (which were not assessed in the United Kingdom) such as impulsiveness, attitude toward the future, and achievement orientation/being enterprising.
- Financial capability was not perceived by focus groups participants as related with income or education. However, income clearly affected behavior and therefore motivations had an important role in distinguishing who is capable and who is not among lower income groups.
- For many people who operate small businesses, it was difficult to distinguish between personal finances and business finances—this perhaps complicates the analysis but also suggests that financial education interventions focusing on personal finances may also have spillovers on the business management skills of small entrepreneurs and vice versa.
- The results from the survey show that across all countries, people are better at living within their means and not overspending than they are at planning their spending, keeping track of their finances, or saving. They also tend to

have short time horizons, being more focused on the present rather than the future. On the whole, the lower the scores were in the overall analysis, the greater the variability across countries.

- In terms of differences across demographic groups, women were found to have higher levels of capability than men in budgeting and saving; young individuals were more achievement-oriented but more inclined to overspend and be impulsive, and had lower budgeting skills. Higher education was in general found to be associated with higher capability, except for overspending.
- As noted above, the effect of income could not be completely excluded from the measures of capability: members of higher-income households seemed to be more capable in saving, planning for unexpected expenses, and choosing products.
- Informal employees and to some extent the self-employed seemed to have lower financial capability scores compared to formal dependent employees. This suggests that the least capable groups may not be easily reached through employer-provided financial education programs.
- The link between financial inclusion and financial capability was not easy to interpret, but for example, it seemed to be rather weak in areas of capability like budgeting and monitoring expenses.
- Financial knowledge (literacy) did not have a clear link with the financial capability scores across countries. While in most countries there was a positive correlation between financial literacy and the scores for saving, living within one's means, achievement orientation, and not being impulsive, fewer significant relationships were found for the other areas.
- Even with the limitations implied by some sampling issues, the survey results suggest that the large majority of adults contribute to household financial decisions or are at least responsible for their own expenses.
- While there was no difference between men or women in responsibility for day-to-day money management, women were less likely than men to say they have responsibility for planning for future or unexpected expenses.
- The proportion of adults involved in the household's financial decisions appeared to be smaller in three-generation households compared to nuclear households, and in households where the head was older or a male.
- Members of larger households, with dependent children particularly, seem to have less financial control and have lower scores for living within their means and covering unexpected expenses.

- At least in the context of Nigeria, where this type of analysis was possible, it was found that financial capability scores of members of the same households were positively correlated.

7.4 QUESTIONS GOING FORWARD

The field of financial capability is new, and while the present research may have added to the overall body of knowledge on the subject, it has also raised questions and issues that future work should address. Ongoing work in other countries may well shed light on some of these issues. For others, additional data or analysis may be warranted.

The first concern is that, while the qualitative fieldwork was done across a wide range of countries (in terms of GDP), the quantitative survey was implemented mainly in middle-income countries. The results from the two lower-income countries could not be analyzed consistently with those from the other countries: in Papua New Guinea, only a pilot was done; in Nigeria, the Financial Capability Survey questionnaire was shortened. Analysis of the ongoing surveys in Mongolia and Tajikistan (countries outside the project that are presently implementing the Financial Capability Survey) will help validate the findings.

Second, for country-specific studies, more attention is needed in identifying the context in which households and individuals are acting. As the financial capability component and domain scores in a country are relative and not absolute measures, financial capability will vary over time. In a country with no pension programs, for example, investing in one's children is a valid, and financially capable, strategy for planning for old age. Once such a system is implemented and becomes universal, however, not contributing to a pension may well indicate a lack of financial capability. The same logic holds for comparisons across countries. The interpretation of the scores is context specific, and further work on how to make comparisons, especially across time, is needed.²

Third, an expansion of this work would be to develop questions to determine the characteristics of people who are not financially active. If surveys could be done in which all adult members of the household were interviewed, this would provide an understanding of intra-household dynamics and how these might affect policy design. The work in Nigeria has shed some light on these issues, but there seems to be a larger research agenda on this topic.

² For example, does the U.K. approach—creating scores using the original loadings for comparison purposes, but also creating a new set of scores with the loadings that arise from the analysis of the new data—work equally well in low- and middle-income countries?

Fourth, there is a growing interest in the relationship between the so-called “big five” psychological traits (openness, conscientiousness, extroversion, agreeableness, and neuroticism—OCEAN; Hurd et al. 2012) or specific behavioral economics issues (procrastination, hyperbolic discounting, status quo bias, etc.) and financial behavior (see Della Vigna 2009 for a review). While the qualitative research conducted for this project did emphasize the role of psychological motivations such as attitude toward the future, impulsiveness, and achievement orientation, the analysis was limited to the specific concepts that emerged in the focus group discussion. Further data collection and analysis would be required to explore the links between these motivations and the OCEAN traits or specific behavioral issues.

Finally, the hypothesis behind the project and the motivation for measuring financial capability is that higher levels of financial capability are linked, either by correlation or causally, with higher levels of welfare. In other words, individuals and households with greater financial capability are better able to smooth consumption and protect themselves from exogenous shocks. This hypothesis remains to be tested. At a minimum, testing the hypothesis will require the presence of panel data, wherein individuals are tracked over time. The financial capability questions were added into the Nigeria General Household Survey panel, and it is hoped this will provide a first test of this hypothesis in the next two years. However, other efforts at collecting panel data are needed.



A ppendixes

Selection of the country pilots

The project team developed a selection procedure for allocating available resources to relevant survey projects in low- and middle-income countries where the implementing national agencies were interested in adopting a common methodology and willing to participate in the development process according to guidelines provided by the project team, in exchange for cofinancing of the survey and comprehensive technical support at any stage.

In April 2010, a first call for proposals was issued to select the projects that would participate in the entire process, including the preliminary qualitative research phase and the final quantitative survey implementation. Proposals were submitted through a World Bank staff person working in the relevant regional department and acting as the task team leader. Proposals were reviewed by the project team. Eligibility criteria included a focus on low- or middle-income countries and on low-income groups in the first phase; commitment to participate in the RTF workshops; and agreement to follow the RTF guidelines. In addition to eligibility criteria, projects were selected based on quality of the proposal, skills and commitment of the team involved, and quality of support by national institutions, as well as on cofinancing requirements to ensure full commitment from local counterparts. From the 16 proposals submitted, the RTF selected 6 projects covering eight countries: Colombia, Mexico, and Uruguay in the World Bank's Latin America and the Caribbean region; Tanzania and a joint project for Namibia, Zambia, and Malawi in the Africa region; and Papua New Guinea in the East Asia and Pacific region.

A new call for proposals was issued in March 2011 to select additional countries to join the program by implementing national surveys to test the questionnaire developed through the preliminary qualitative research. The purpose of this second round of funding was twofold. One objective was to achieve coverage of regions that had not participated in the preliminary phase of the program. The second objective was to test and implement the common questionnaire in countries that had not participated in the development stage. Following a very similar selection procedure, new grants were awarded to Armenia, Lebanon, and Turkey. From the group of initially selected countries, Colombia, Mexico, and Uruguay went on to implement a full survey; Papua New Guinea conducted a pilot; and the African countries did not

participate in the final stage due to a lack of cofinancing or to time frames that were not compatible with the overall RTF program. In October 2012, Nigeria joined the group with a project that implemented the financial capability questionnaire as a module attached to a large panel household survey.

The complex development process followed by the project team offered many opportunities to learn from the testing done by the country teams at each stage of the project. The complexity also presented several challenges: as a collaborative effort involving very different countries, close cooperation among the country teams was required, for example, through participation in the three workshops, and constant interaction with the project team.

The workshops with the project and country teams proved to be very helpful in clarifying the objectives and methodological approach of the project, providing country teams with a forum for discussion and experience sharing, and building a collaborative team. Coordinated timing was essential to ensure that each revision of the interview guide or questionnaire was based on the broadest possible feedback, and it was certainly positively affected by the need to meet deadlines for the upcoming workshops.

As it emerged for most pilot countries, the most valuable benefit from participating in the project was not the secured financial support, but the technical support and learning process that led to methodology development through knowledge sharing with experts and members of other country teams.

Sampling strategies in the country pilots

B.1 SAMPLING IN ARMENIA

The sampling in Armenia was planned to be multistage stratified with probability proportional to size (PPS). The stratification starts with *marzes* (provinces) according to the shares of their adult population. In each *marz*, the sample is distributed between urban and rural residences according to the shares of urban and rural population. Sampling of residences is equally distributed between primary and secondary streets.

To apply the respondents' selection mechanism (Kish table), a limited number of communities was selected in each *marz*: two urban and three rural communities. This allowed providing centralization in each community and implementing at least 10 interviews in each.

The selection of urban communities in *marzes* was done in the following way. Based on the team's experience and expert opinions, two urban communities of different socioeconomic background were selected in each *marz*. In general, one of these urban communities was the *marz* center or the biggest town of the *marz*, and the other was a remote town located comparatively far from the *marz* center. The sample distribution between the towns of each *marz* was done according to the population proportions in those towns.

The selection of rural communities was done as follows. To guarantee the representativeness of communities of different socioeconomic background, zoning of communities according to distance from the *marz* center was applied. The assumption is that the closer the community is to the *marz* center, the better the socioeconomic conditions in those communities. The following zones were distinguished: (1) zone near to the *marz* center, (2) zone of middle distance from the *marz* center, and (3) zone of far distance from the *marz* center. One rural community was selected from each zone. The sample was distributed equally between rural communities in each *marz*.

In the selection of households, three approaches were applied to form the enumeration areas. The household selection in Yerevan is based on administrative division

of the city. Yerevan is divided into 12 districts. In each of the 10 districts of Yerevan, two streets (one primary and one secondary) were selected. In the other two districts (Nork-Marash and Nubarashen), one street in each was selected due to the small population size. In large towns, where the sample size was relatively big, four enumeration areas were selected for each, including two primary and two secondary streets. This was the case of Gyumri, Vanadzor, and Abovyan towns. In all other communities, both urban and rural, two enumeration areas for each, including one primary and one secondary street, were selected. Three rural communities of Vayots Dzor *marz* were exceptions, where one enumeration area for each was selected due to the small population size.

B.2 SAMPLING IN COLOMBIA

The sample design was probabilistic multiple-stage stratified. The stratification was done by *cabecera-resto*, by substrata regions with sample proportional to the population in the country, and by unequal *manzanas* or blocks. The selection of blocks was followed by simple random sampling of households and persons.

1. **Sampling point.** For each substratum, a list was prepared ordering municipalities from largest to smallest according to the population of the stratum. A random number was picked out of the total population as the root, and it is iterated until the number of interviews planned in the substratum is reached, with 8 interviews by sampling point.
2. **Manzanas.** Blocks were ordered from largest to smallest in terms of socioeconomic level, and for each municipality, blocks were taken randomly, with four cases per block.
3. **Households and persons.** In urban places, households were ordered clockwise starting with a random household. In rural places, simple random sampling was used. Selection of respondents within the household was done by Kish grid.

B.3 SAMPLING IN LEBANON

Lebanon lacks a standard sampling base that can be followed systematically in field surveys. Therefore, the sampling method changes in accordance with the requirements of each different study. The sample distribution was done based on two of the Central Administration of Statistics sources: Household Living Conditions 2004, where the distribution of household is available by governorate and by cluster (grouped *cazas*), and the Household Living Conditions 1997 to determine population distribution within the *cazas* at the *circonscription foncière* (CF) level, which is the smallest statistical unit available. The final stages of the sampling methodology relied on PPS to reduce the need for ex post weighting.

After the distribution of households per governorate was defined, 1,200 questionnaires were distributed by *cazas*. The number of questionnaires in each *caza* followed the population distribution in each *caza* in 1997 given the lack of newer data available. Within each *caza*, the questionnaire was distributed by CF with PPS. A predetermined number of respondents selected per *caza* was used, such that the total number of questionnaires to conduct in the *caza* was divided by the minimum number of questionnaires to be done in each site—in this case, five.

It was not possible to provide the interviewer with the address of particular dwellings or households. An example of how the interviewer could implement the questionnaires is as follows: the interviewer has a target of five questionnaires to be filled at the village level. One questionnaire could be filled at the village entrance, one at the end of the village, and three in the center, in different neighborhoods. The selected households should be resident for more than six months.

B.4 SAMPLING IN MEXICO

The survey design is probabilistic, stratified, and multistage. It gives a representative sample at the national level, selecting localities in all parts of the country. The primary unit is the locality. The sample distribution has urban and rural strata proportional to the weight of each in the total population. An adjustment was made to give higher representation to urban localities, which concentrate higher proportions of the population.

To reach rural areas, it was necessary to work with information on electoral sections. Once localities were selected, cartography work was done to identify which electoral sections were within each locality in the sample. Usually, the number of electoral sections within a locality is proportional to the locality's population size.

For each electoral section in the sample, there is an address where the neighbors vote. The addresses are taken as the starting point for interviewers. Interviewers start by walking to the right and continuing this way. If no contact is made, interviewers return until they get an effective interview or a refusal. To guarantee sufficient dispersion, the interviewers move to the next block after obtaining an effective case.

B.5 SAMPLING IN NIGERIA

The General Household Survey (GHS) panel sample consists of 5,000 households that are a subsample of the GHS core survey of 22,000 households. The panel households are visited twice per wave of the panel—post-planting period and post-harvest period. In the years of the panel, the postharvest visit is implemented jointly with the core GHS sample of 22,000 households (5,000 panel and 17,000 nonpanel households).

The sample is designed to be representative at the national level as well as at the zonal (urban and rural) levels. The sample size of the GHS panel (unlike the full GHS) is not adequate for state-level estimates.

The sample is a two-stage probability sample:

1. The primary sampling units were the enumeration areas. These were selected based on PPS of the total enumeration areas in each state and the Federal Capital Territory, Abuja, and the total households listed in those enumeration areas. A total of 500 enumeration areas were selected using this method.
2. The second stage was the selection of households. Households were selected randomly using the systematic selection of 10 households per enumeration area. This involved obtaining the total number of households listed in a particular enumeration area, and then calculating a sampling interval by dividing the total number of households listed by 10. The next step was to generate a random start "r" from the table of random numbers which stands as the first selection. Consecutive selection of households was obtained by adding the sampling interval to the random start.

Determination of the sample size at the household level was based on the experience gained from previous rounds of the GHS, in which 10 households per enumeration area are usually selected and give robust estimates.

In all, 500 clusters/enumeration areas were canvassed, and 5,000 households were interviewed. These samples were proportionally selected in the states such that different states had different sample sizes. Households were not selected using replacement. Thus the final number of households interviewed was slightly less than the 5,000 eligible for interviewing. The final number of households interviewed was 4,986, for a nonresponse rate of 0.3 percent. A total of 27,533 household members were interviewed. In the second, or postharvest visit, some households had moved as had some individuals; thus, the final number of households with data in both points of time (postplanting and postharvest) is 4,851, with 27,993 household members.

B.6 SAMPLING IN TURKEY

The sampling method in Turkey consisted of several stages using statistical region and type of settlement (urban/rural) as stratification criteria. Districts were selected as primary sampling units and urban neighborhoods/rural villages as secondary sampling points, all with PPS.

Ten interviews per neighborhood or village and two points per district were set as the goal. Two separate selection lists were prepared, one with districts with an urban population stratified by region and the other with districts with a rural population,

also stratified by region. Regions were represented in proportion to their share in the urban/rural adult population, and districts were eligible for selection (once or several times) depending upon the size of their rural and/or urban population and the sampling interval.

Once the districts were drawn, urban neighborhoods and rural villages/subdistricts in each selected district were identified. In urban areas, simple random sampling identified five streets per selected neighborhood, and systematic sampling identified two residential buildings on each selected street (followed by random sampling of households if the building was an apartment block). In rural areas, households were randomly selected from the local registry of village headmen.

B.7 SAMPLING IN URUGUAY

The sample in Uruguay is random and stratified with proportional allocation according to geographic region. The sample was selected in several stages, with a first stage that identified the cities/localities, a second stage that determined the zones or blocks, and a third stage where the survey household was identified and the respondent selected.

1. To select the cities/localities, the target population was divided into five strata: Montevideo, cities/localities with more than 30,000 inhabitants, cities/localities with between 10,000 and 30,000 inhabitants, cities/localities with fewer than 10,000 inhabitants, and rural locations. The number of cases assigned to each stratum was made taking into account the weight of each stratum in the total target population. The number of cases assigned to each locality was similarly made according to the population weight of each locality in the total of the selected locations.
2. The blocks within each locality were chosen on a random and population-weighted basis.

After selecting the block, systematic sampling was used to identify the household. The routine is always carried out clockwise. The first house to be called on will be randomly assigned a number between one and four. After that, the routine is followed until four surveys per block have been completed. If necessary, a properly selected substitute block is used.

Data cleaning and harmonization tables

TABLE C.1 MAIN DATA HARMONIZATION AND CONSISTENCY CHECKS

VARIABLE	HARMONIZATION	CONSISTENCY CHECK	CORRECTION
Roster			
<i>r_5_</i>	Recoded to standard		
<i>r_9_</i>	Recoded to standard		
<i>r_8_</i>	Country specific		
<i>r_15</i>	Correct mismatch	Mismatched roster-respondent age, gender, or status	Replaced R15 with correct respondent ID for the roster member whose age and gender match the corresponding respondent variables
Interviewer and location data			
<i>loc_1</i>	Recoded to standard		
<i>loc_5_**</i>	Recoded to standard	Loc5 no reliable if hours per km (Loc3) is > 2 hours/km	Set to missing
<i>lob_7</i>	Recoded to standard	Can't differentiate between "Don't know, didn't answer"	Set to missing
<i>lob_1 to lob_6</i>	Recoded to standard	Value labels where 8 is "No answer" (Uruguay)	Recode 8 to .a
Section B			
<i>b_8_</i>	Recoded to standard	Didn't respond Yes & answered follow-up	Set to missing
<i>b_11_</i>	Recoded to standard	Didn't respond Yes & answered follow-up	Set to missing
<i>b_12</i>	Recoded to standard	Didn't respond Yes & answered follow-up	Set to missing
<i>b_29</i>	Recoded to standard		
Section C			
<i>c_12</i>	Recoded to standard		
<i>c_13</i>	Recoded to standard	Responded Yes & <i>c_12</i> item not mentioned	Set to missing
<i>c_18</i>	Recoded to standard	Didn't respond No & answered follow-up	Set to missing
<i>c_17_yesno</i>	Created	Cross-country comparability	Extra variable created

(continued)

TABLE C.1 MAIN DATA HARMONIZATION AND CONSISTENCY CHECKS (continued)

VARIABLE	HARMONIZATION	CONSISTENCY CHECK	CORRECTION
<i>c_20_yesno</i>	Created	Cross-country comparability	Extra variable created
<i>c_21_yesno</i>	Created	Cross-country comparability	Extra variable created
<i>c_3</i>	Recoded to standard	Didn't respond No/Don't Know/Refused & answered follow-up	Replaced <i>c_3</i> = 3
<i>c_16</i>	Recoded to standard	Didn't respond 4 & answered follow-up	Replaced <i>c_16</i> = 4
<i>c_23</i>	Recoded to standard	Didn't respond >0 & answered follow-up	Replaced <i>c_23</i> = .
<i>c_24_*</i>	Recoded to standard	Didn't respond >0 & answered follow-up	Replaced <i>c_24_*</i> = . if <i>c_22</i> = 0 <i>c_23</i> = 0 <i>c_23</i> > = .
<i>c_24_*</i>	Recoded to standard	Mentioned None of These & mentioned at least one of 1–6	Replaced <i>c_24_7</i> = 0 if <i>c_24_1</i> = 1 <i>c_24_2</i> = 1 <i>c_24_3</i> = 1 <i>c_24_4</i> = 1 <i>c_24_5</i> = 1 <i>c_24_6</i> = 1
Section D			
<i>d_1_*_standard</i>	Created	Cross-country comparability	Extra variable created
<i>d_16_</i>	Recoded to standard		
<i>d_3_</i>	Recoded to standard	Didn't respond Yes & answered follow-up	Set to missing
<i>d_5</i>	Recoded to standard	Didn't respond 1–12 & answered follow-up	Set to missing
<i>d_9</i>	Recoded to standard	Didn't respond 1–12 & answered follow-up	Set to missing
<i>d_15</i>	Recoded to standard	Didn't respond 1–12 & answered follow-up	Replaced <i>d_15</i> = 1
Sections F–G			
<i>f_5</i>	Recoded to standard		
<i>f_6</i>	Recoded to standard	Responded No Personal Income At All & responded Yes to at least one	<i>f_6_11</i> = 2
<i>f_17</i>	Recoded to standard	One-person household status does not match Roster status	Change F17 to Yes if Roster shows 1-person household. Change F17 to No if Roster shows > 1-person household.
<i>f_17_*</i>	Recoded to standard	Didn't respond No & answered follow-up	Change F17 1–11 to missing if F17 = Yes
<i>f_14_</i>	Created	Create country-specific harmonized variables	
<i>f_15</i>	Created	Create country-specific harmonized variables	
<i>f_13</i>	Recoded to standard	Didn't respond Yes to 1–10 & answered follow-up	Set to missing
<i>f_16</i>	Recoded to standard	Didn't respond Yes to 1–10 & answered follow-up	Set to missing
<i>f_17_11</i>	Recoded to standard	Responded No Household Income At All & responded Yes to at least one of 1–10	Replaced <i>f_17_11</i> = 2
<i>g_5_1</i>	Recoded to standard		

TABLE C.2 AVAILABLE TYPES OF WEIGHTS

VARIABLE	WEIGHT TYPE	COUNTRY
<i>weight_hh_prob</i>	Household weight based on probability	Turkey, Mexico
<i>weight_pp_prob</i>	Person weight based on probability and eligibility	Turkey, Mexico
<i>weight_hh_analytical</i>	Household analytic weight	Turkey, Mexico, Colombia, Armenia
<i>weight_pp_analytical</i>	Person analytic weight	Turkey, Mexico, Colombia, Armenia
<i>weight_hh_analytical_CT</i>	Household analytic weight done by country team	Mexico, Uruguay, Colombia
<i>weight_pp_analytical_CT</i>	Person analytic weight done by country team	Mexico, Uruguay, Colombia
<i>weight_hh_pooled</i>	Household weight—normalized pooled sample	All countries: Mexico and Turkey = PR, Colombia and Armenia = AN, Uruguay = AN_CT, Lebanon = Self-weighted
<i>weight_pp_pooled</i>	Person weight—normalized pooled sample	All countries: Mexico and Turkey = PR, Colombia and Armenia = AN, Uruguay = AN_CT, Lebanon = Self-weighted

TABLE C.3 PROBABILITY OF HOUSEHOLD SELECTION FOR MEXICO AND TURKEY

MEXICO	<p>Probability = Prob(locality)*Prob(electoral zone)*Prob(household in the zone)</p> <p>Prob(locality) = (population in the district*number of localities selected)/population of the strata</p> <p>Prob(electoral zone) = number of electoral zones selected/number of electoral sections</p> <p>Prob(household in the zone) = (1/population of a zone)*10</p> <p>where the population of a zone is approximated by the population of the district divided by the number of electoral sections and the number of electoral zones selected is 2. Since the third stage was done with a random walk instead of with a listing operation the population of the electoral zone is only approximate.</p>
TURKEY	<p>Probability = $P_{ur} * (D_{up}/R_{up}) * (N_{up}/D_{up}) * 2 * (1/HH_{npop}) * 10$</p> <p>$P_{ur}$ = number of districts planned to be selected in urban region</p> <p>HH_{npop} = number of households in each selected neighborhoods</p> <p>N_{up} = the neighborhood urban population</p> <p>D_{up} = district's urban population</p> <p>C_{up} = country's urban population</p> <p>R_{up} = region's urban population</p> <p>The case for rural households is analogous.</p>

Optional OECD/INFE questions on financial literacy used in the RTF surveys

QUESTION	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY
Math— division	<p>CF1. Imagine que se les da un regalo de \$1.000 a cinco hermanos. Si los hermanos tienen que compartir el dinero en partes iguales, ¿cuánto dinero recibe cada uno?</p> <p>CORRECT: 200</p>	<p>H-1. Let's suppose that a family inherited 10 million Lebanese pounds: the mother received half of the sum, while her two kids divided the rest equally. What is the share of each of the three family members?</p> <p>1. Relevant answer: specify H-1a (mother's share) H-1b (children's share)</p> <p>2. Irrelevant answer 77. I don't know 88. Refused to answer the question</p> <p>CORRECT: Q H1a = 5,000,000 Q H2a = 2,500,000</p>	<p>H8. Imagine que le dan un regalo de \$1,000 pesos a cinco hermanos. Si los hermanos tienen que compartir el dinero por igual, ¿cuánto recibe cada uno?</p> <p>CORRECT: 200</p>	<p>FL1. Imagine that five brothers are given a gift of TL 1.000. If the brothers have to share the money equally how much does each one get?</p> <p>CORRECT: 200</p>	<p>CF1. Imagine que se les da un regalo de \$1.000 a cinco hermanos. Si los hermanos tienen que compartir el dinero en partes iguales, ¿cuánto dinero recibe cada uno?</p> <p>Anotar la cantidad.</p> <p>CORRECT: 200</p>

(continued)

QUESTION	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY
Inflation	<p>CF2. Ahora imagine que los hermanos deben esperar un año para recibir su parte de los \$1.000. En el plazo de un año podrán comprar:</p> <p>1. (Leer) Más con su parte del dinero de lo que podrían hoy en día;</p> <p>2. (Leer) La misma cantidad;</p> <p>3. (Leer) O, menos de lo que podrían comprar hoy en día.</p> <p>4. Depende de la inflación</p> <p>5. Depende de los tipos de cosas que quisieran comprar</p> <p>8. No sabe</p> <p>CORRECT: 3, 4,5</p>	<p>H-2. The judge decided to postpone the delivery of the inheritance for a full year. After one year, will the family members be able to buy <i>(reserved for the researcher: read the options 1 to 3)</i>:</p> <p>1. A bigger amount of things with their share of money, compared to what they can buy today</p> <p>2. The same amount</p> <p>3. Or, a smaller amount compared to what they can buy today</p> <p>4. It depends on the inflation rate</p> <p>5. It depends on the kind of things they want to buy</p> <p>6. Irrelevant answer</p> <p>77. I don't know</p> <p>88. Refused to answer</p> <p>CORRECT: 3, 4,5</p>	<p>H9. Ahora imagine que los hermanos tienen que esperar un año para obtener su parte de los \$1.000. Un año después serán capaces de comprar:</p> <p>a. Más con su parte del dinero de lo que podrían hoy en día;</p> <p>b. La misma cantidad;</p> <p>c. O bien, menos de lo que podría comprar hoy.</p> <p>d. Depende de la inflación</p> <p>e. Depende de los tipos de cosas que desean comprar</p> <p>CORRECT: c, d, e</p>	<p>FL2. Now imagine that the brothers have to wait for one year to get their share of the TL 1.000. In one year's time will they be able to buy:</p> <p>1. (Read out) More with their share of the money than they could today</p> <p>2. (Read out) The same amount</p> <p>3. (Read out) Or, less than they could buy today</p> <p>4. It depends on inflation (Do not read)</p> <p>5. It depends on the types of things that they want to buy (Do not read)</p> <p>8. Don't know (Do not read)</p> <p>9. Refused (Do not read)</p> <p>CORRECT: 3, 4,5</p>	<p>CF2. Ahora imagine que los hermanos deben esperar un año para recibir su parte de los \$1.000. En el plazo de un año podrán comprar:</p> <p>1. (Leer) Más con su parte del dinero de lo que podrían hoy en día;</p> <p>2. (Leer) La misma cantidad;</p> <p>3. (Leer) O, menos de lo que podrían comprar hoy en día.</p> <p>4. Depende de la inflación</p> <p>5. Depende de los tipos de cosas que quisieran comprar</p> <p>6. No sabe</p> <p>CORRECT: 3, 4, 5</p>
Interest 1	<p>CF3. Una tarde usted presta \$25 a un amigo y él le devuelve \$25 al día siguiente. ¿Cuánto interés ha pagado sobre este préstamo?</p> <p>CORRECT: 0</p>	<p>H-3. Let's suppose that a friend borrowed from you 100 000 LBP, and paid you back 110 000 LBP in one year. What is the interest rate he paid on the loan? <i>(reserved for the researcher: read the question another time if the respondent asked you to do so)</i></p> <p>1. Relevant answer: specify Q H-3a</p> <p>2. Irrelevant answer</p> <p>77. I don't know</p> <p>88. Refused to answer the question</p> <p>CORRECT: Q H-3a = 10 (assuming percentage)</p>	<p>H10. Usted presta \$ 25 a un amigo una noche y le regresa los \$25 de nuevo al día siguiente. ¿Cuánto le pagó de interés a usted por este préstamo?</p> <p>CORRECT: 0</p>	<p>FL3. You lend TL 25 to a friend one evening and he gives you TL 25 back the next day. How much interest has he paid on this loan?</p> <p>CORRECT: 0</p>	<p>CF3. Una tarde usted presta \$25 a un amigo y él le devuelve \$25 al día siguiente. ¿Cuánto interés ha pagado sobre este préstamo?</p> <p>CORRECT: 0</p>

(continued)

QUESTION	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY
Interest 2	<p>CF4. Suponga que usted pone \$100 en una cuenta de ahorros con una tasa de interés garantizada del 2% por año. Usted no hace otros depósitos en esta cuenta ni retira ningún dinero. ¿Cuánto habría en la cuenta al finalizar el primer año, una vez que se paguen los intereses?</p> <p>CORRECT: 102</p>	<p>H-4a. Suppose that you deposited 100 000 LBP in a savings account with a guaranteed interest rate of 5% a year. What is the total sum in your account at the end of the first year, after adding the interest rate on the initial sum?</p> <p>1. Relevant question: specify Q H-4a1 2. Irrelevant answer</p> <p>77. I don't know 88. Refused to answer the question</p> <p>CORRECT: Q H-4a1 = 105,000</p>	<p>H11. Suponga que usted pone \$ 100 en una cuenta de ahorros con una tasa de interés garantizada del 2% anual. No se hace ningún pago en esta cuenta y no retira dinero durante el año. ¿Cuánto habrá en la cuenta al final del primer año, una vez que el pago de intereses se hace?</p> <p>CORRECT: 102</p>	<p>FL4. Suppose you put TL 100 into a savings account with a guaranteed interest rate of 2% per year. You don't make any further payments into this account and you don't withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made?</p> <p>CORRECT: 102</p>	<p>CF4. Suponga que usted pone \$100 en una cuenta de ahorros con una tasa de interés garantizada del 2% por año. Usted no hace otros depósitos en esta cuenta ni retira ningún dinero. ¿Cuánto habría en la cuenta al finalizar el primer año, una vez que se paguen los intereses?</p> <p>CORRECT: 102</p>
Compound interest	<p>CF5. Y cuánto habría en la cuenta luego de cinco años. Habría: <i>(Leer)</i></p> <p>1. Más de \$110 2. Exactamente \$110 3. Menos de \$110 4. Imposible saberlo de la información proporcionada 8. No sabe</p> <p>CORRECT: 1</p>	<p>H-4b. What is the total sum in your account at the end of the fifth year? Is it:</p> <p>1. More than 125 000 2. 125 000 exactly 3. Less than 125 000 4. Or, is it impossible to know the sum based on the information given 5. Irrelevant answer 77. I don't know 88. Refused to answer</p> <p>CORRECT: 1</p>	<p>H12. ... ¿Y cuánto sería en la cuenta al cabo de cinco años? Sería:</p> <p>a. Más de \$110 b. Exactamente \$110 c. Menos de \$110 d. ¿O es imposible decir con la información dada?</p> <p>CORRECT: a</p>	<p>FL5. And how much would be in the account at the end of five years? Would it be: <i>(Read out)</i></p> <p>1. More than TL 110 2. Exactly TL 110 3. Less than TL 110 4. Or is it impossible to tell from the information given 5. Don't know <i>(Do not read)</i> 6. Refused <i>(Do not read)</i></p> <p>CORRECT: 1</p>	<p>CF5. Y cuánto habría en la cuenta luego de cinco años. Habría: <i>(Leer)</i></p> <p>1. Más de \$110 2. Exactamente \$110 3. Menos de \$110 4. O es imposible saberlo de la información dada 5. No sabe</p> <p>CORRECT: 1</p>

Regressions of component scores

In the following tables:

- Baselines are indicated in **boldface**
- * = statistical significance level of 10%
- ** = statistical significance level of 5%
- *** = statistical significance level of 1%

TABLE E.1 REGRESSION OF COMPONENT SCORES FOR BUDGETING

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	5.088**	5.854***	8.805*	8.200***	6.243	3.344	6.263***	-0.052
Age 18–30	-1.302	-0.949	-9.113*	-3.420	-13.828**	1.179	-4.143**	-3.997***
Age 31–40	-1.474	-0.488	-3.278	-3.250	-10.363*	4.657	-1.837	-1.023
Age 41–50								
Age 51–60	0.909	6.832**	0.278	0.200	4.293	6.762*	1.741	2.368***
Age 60+	-5.138	1.547	-1.756	-4.466	4.613	6.659	-2.722	2.251**
Primary education at most	-6.425	-1.749	-2.699	-5.532*	0.210	4.958*	-1.888	-4.253***
Secondary education								
Tertiary education	-0.567	4.367*	8.468*	8.983**	4.393	5.095	4.130***	2.062*
# household members 18+	0.686	0.849	-0.653	0.253	0.693	-1.613	-0.043	0.112
Living with a partner	-0.429	-0.739	2.972	4.425	2.027	5.584*	2.155*	0.170
Has dependent children	1.617	2.112	0.271	-0.850	10.627**		3.188**	
Rural area	1.633		2.809	-5.456**	1.056			-2.261**
Income group 1	1.382	1.834	5.384	-0.583	5.723	-2.007	2.471*	
Income group 2								
Income group 3	0.310	-0.620	-1.851	8.460**	-1.100	-3.453	0.017	
Income group 4	3.391	-5.577	0.141	-4.543	-4.443	-9.531**	-3.138	
Has financial products	3.547	-0.334	3.139	5.304**	0.595	6.302	3.687***	3.871***
E1: formal employee								
E2: informal employee	-4.685	-5.646	4.553	-6.876*	-6.841	-3.525	-3.360	
E3: self-employed	3.216	-8.918**	-5.926	-16.491*	-3.296	-0.840	-4.486*	0.378
E4: unemployed				-5.422				
E4+5: unemployed	-0.688	-2.156			-2.266	-7.654	-4.316	-0.997
E6: student	-1.783		4.564	-13.011*	-18.053*	-7.017	-5.910	-2.313
E7: retired	8.911*	4.017	5.890	4.588	-4.050	-3.399	4.700*	-4.121**
E8: sick	-1.666						0.357	0.261
E9: housework	2.522	-4.107	2.314	-10.020***	-0.638	-1.257	-2.447	-0.782
E10: other	-9.989	-3.734		-8.336**	-4.103	-10.005	-3.532*	1.292
Financial literacy score		-0.020	1.005	0.871	5.065***	-0.122		
Responsible for day to day	3.195	5.035	-5.742	5.101	10.085	0.093	2.713	-0.392
Responsible for planning	0.380	-1.811	8.964*	4.849	1.864	11.291**	3.029*	
Armenia							17.654***	
Colombia							24.501***	
Lebanon							-14.282***	
Mexico								
Turkey							8.016***	
Uruguay							12.310***	
Constant	60.509***	75.767***	26.795**	42.763***	33.297***	51.671***	43.046***	82.095***
Adjusted R ²	0.019	0.035	0.035	0.079	0.144	0.064	0.181	0.050
N	1,703	1,494	1,060	2,002	2,965	1,322	9,971	8,088

TABLE E.2 REGRESSION OF COMPONENT SCORES FOR LIVING WITHIN MEANS

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	-0.831	-2.076	1.269	0.184	0.012	0.609	-0.527	-0.115
Age 18–30	-1.873	4.738**	-1.803	-2.470	0.083	5.170*	-0.014	1.695**
Age 31–40	0.894	0.975	-2.236	-0.228	-2.468	2.978	-0.252	0.236
Age 41–50								
Age 51–60	-0.662	3.715	2.720	0.806	-0.890	2.630	1.156	-0.664
Age 60+	1.928	4.185	6.663*	3.159	0.381	3.055	4.095***	1.570*
Primary education at most	-0.776	-0.159	-2.754	-1.813	2.141	-1.733	-0.966	0.296
Secondary education								
Tertiary education	8.600***	1.594	-0.815	5.195**	0.228	-1.821	4.187***	1.345
# household members 18+	-1.460***	-1.698***	-1.875***	-0.533	-0.075	-2.697***	-1.314***	-0.219
Living with a partner	-0.135	-1.035	-3.822*	-0.488	3.725	1.608	0.420	0.018
Has dependent children	-5.179***	-2.623	-4.632*	-0.732	-6.775**		-4.064***	
Rural area	-8.756***		-3.057*	2.087*	0.136			-0.246
Income group 1	-6.114***	-4.531**	-8.23***	-2.934**	-2.208	-2.511	-4.658***	
Income group 2								
Income group 3	5.684**	5.024**	4.589*	-0.175	2.384	6.932***	4.179***	
Income group 4	5.668	6.219**	10.308***	1.872	5.989*	11.972***	7.496***	
Has financial products	-16.521***	-4.334**	-5.499***	-9.476***	-15.263***	-1.740	-9.600***	0.415
E1: formal employee								
E2: informal employee	1.466	-3.860	-9.710***	-0.204	-7.235	-2.577	-4.300***	
E3: self-employed	-0.062	-3.644	1.806	-0.121	-1.525	1.043	-3.100**	-1.187*
E4: unemployed	-5.527*			-5.635*			-6.393***	-4.959**
E4+5: unemployed		-4.096			-13.020***	-4.088		
E6: student	7.716*		-1.481	1.724	4.401	5.352	3.926*	1.406
E7: retired	-2.382	-3.135	3.163	2.428	-5.228	1.682	-3.503**	-0.587
E8: sick	-9.131						-7.729**	-0.878
E9: housework	0.103	0.904	-1.868	2.688	-6.382*	2.344	-0.630	1.250
E10: other	4.246	-3.231		1.269	-8.169	-4.883	-2.807**	2.426
Financial literacy score		0.420	1.339*	0.965**	0.853	1.209*		
Responsible for day to day	-0.045	-3.637	6.144**	0.867	-5.582	-3.246	-0.259	-0.520
Responsible for planning	-0.868	4.950*	-4.899**	-0.579	-1.492	7.581***	0.151	
Armenia							-7.315***	
Colombia							-2.004**	
Lebanon							0.969	
Mexico								
Turkey							-9.077***	
Uruguay							4.598***	
Constant	93.480***	83.036***	89.866***	81.806***	84.820***	74.696***	90.141***	81.906***
Adjusted R ²	0.261	0.071	0.152	0.093	0.213	0.123	0.171	0.005
N	1,698	1,494	1,062	2,002	2,904	1,286	9,893	8,051

TABLE E.3 REGRESSION OF COMPONENT SCORES FOR MONITORING EXPENSES

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	8.568***	-3.081	3.814	2.183	1.398	-2.302	0.950	-4.417***
Age 18–30	-5.472	1.020	-3.281	1.203	2.842	-2.497	-2.256	-0.405
Age 31–40	-1.304	5.664	0.450	2.910	-3.212	-0.226	-0.039	0.369
Age 41–50								
Age 51–60	7.556**	2.403	-1.374	-0.379	6.613	8.360**	2.624	1.913
Age 60+	6.496	3.677	-2.011	-1.685	17.279*	0.908	1.764	-1.296
Primary education at most	-6.755	-1.851	-1.151	-0.689	-0.699	1.606	-3.601**	-1.314
Secondary education								
Tertiary education	2.025	2.621	2.524	-3.673	-8.109	5.986*	0.401	1.288
# household members 18+	-1.095	-2.087**	-2.579**	-4.066***	-2.468*	-3.090**	-2.551***	0.365
Living with a partner	-1.738	-5.303*	-4.842	-0.528	3.653	1.196	-1.405	0.217
Has dependent children	7.298***	1.515	2.938	-3.176	3.337		2.306	
Rural area	0.111		0.096	0.418	4.178			6.648***
Income group 1	3.158	-1.663	2.595	-3.496	6.789	-6.044*	0.163	
Income group 2								
Income group 3	2.771	3.018	-2.628	8.925***	7.830	-2.856	3.375*	
Income group 4	3.752	8.877*	-9.057*	13.932***	9.788	0.374	4.839**	
Has financial products	0.234	5.883**	4.234	3.403*	4.624	8.549**	4.225***	0.417
E1: formal employee								
E2: informal employee	2.810	-4.581	5.819	-9.274***	-6.295	-0.513	-1.731	
E3: self-employed	2.157	-7.781*	-6.248	-5.183	-6.859	-11.621**	-5.177**	0.404
E4: unemployed				-5.024				
E4+5: unemployed	-4.289	-15.387**			7.769	-6.929	-3.726	-8.791*
E6: student	-1.074		11.292	-6.000	-6.555	-13.096*	2.729	-1.201
E7: retired	-1.494	-1.628	13.440*	2.689	-4.503	-2.527	1.904	-7.326**
E8: sick	9.916						-1.983	-6.968*
E9: housework	-1.469	-3.232	6.868	-8.921***	-2.972	-0.898	-1.383	0.055
E10: other	-7.940	-2.031		-8.489***	-12.548	2.785	-1.786	0.611
Financial literacy score		2.006*	1.109	-0.125	6.689***	0.735		
Responsible for day to day	6.773**	5.291	0.238	4.737*	3.783	3.439	5.492***	0.467
Responsible for planning	5.529*	-1.493	4.600	6.810**	-4.471	3.792	1.744	
Armenia							21.491***	
Colombia							-3.849**	
Lebanon							2.633	
Mexico								
Turkey							10.253***	
Uruguay							1.869	
Constant	44.008***	34.122***	40.495***	44.579***	28.560**	38.889***	39.097***	45.170***
Adjusted R ²	0.080	0.065	0.039	0.105	0.105	0.074	0.091	0.017
N	1,703	1,494	1,060	2,002	2,978	1,269	9,966	8,088

TABLE E.4 REGRESSION OF COMPONENT SCORES FOR USING INFORMATION

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	2.998*	1.640	4.913**	0.696	2.922	1.392	2.402**	
Age 18–30	3.721*	-0.996	-9.347***	-0.073	-5.669*	-2.534	-2.374*	
Age 31–40	3.286	1.838	-2.607	2.782	-6.831*	-0.456	0.036	
Age 41–50								
Age 51–60	-0.873	1.170	-0.776	0.374	-11.168**	0.711	-1.113	
Age 60+	-7.962**	-0.572	3.637	-0.194	-6.697	0.868	-2.414*	
Primary education at most	1.410	-2.373	0.707	2.070	1.839	1.828	1.067	
Secondary education								
Tertiary education	-0.859	-0.774	-0.763	0.744	-1.519	-0.789	-1.427	
# household members 18+	1.532***	0.078	0.419	-0.205	-1.069	0.624	-0.012	
Living with a partner	2.226	3.271*	2.943	1.744	8.673***	3.767*	3.966***	
Has dependent children	-0.056	-0.321	-0.207	-1.451	-0.210		0.214	
Rural area	2.172		2.735	-2.929*	4.945**			
Income group 1	0.209	1.682	2.251	-1.781	-0.403	1.998	0.670	
Income group 2								
Income group 3	-4.436*	-0.169	-1.799	5.700***	-1.787	1.013	-0.149	
Income group 4	-4.063	0.413	-5.470*	6.065**	-11.152*	1.673	-2.196	
Has financial products	0.486	4.098**	0.885	2.596*	6.557**	2.441	4.124***	
E1: formal employee								
E2: informal employee	-0.486	1.494	-6.389*	-3.031	0.702	0.086	-2.699*	
E3: self-employed	3.780*	0.837	-4.287	-4.261	1.840	-0.898	-0.742	
E4: unemployed	2.342	-0.831		-7.024*				
E4+5: unemployed					9.856*	-3.564	-0.678	
E6: student	-1.019		2.063	4.502	8.905	3.734	2.231	
E7: retired	3.038	0.858	1.953	4.456	6.807	2.156	0.926	
E8: sick	-1.795						-1.736	
E9: housework	1.314	0.542	-1.297	-0.861	5.355	-1.380	0.280	
E10: other	0.981	0.978		-2.318	4.614	-5.795	-0.680	
Financial literacy score		0.837	2.403***	-0.526	1.095	0.876		
Responsible for day to day	0.589	1.085	1.130	2.617	3.664	0.177	1.001	
Responsible for planning	3.598*	3.445	4.582*	4.380*	11.967**	-0.493	5.285***	
Armenia							-1.061	
Colombia							7.613***	
Lebanon							-1.128	
Mexico								
Turkey							-4.173**	
Uruguay							1.782	
Constant	57.493***	67.555***	55.880***	65.732***	47.769***	65.147***	61.789***	
Adjusted R ²	0.055	0.015	0.118	0.051	0.162	0.009	0.067	
N	1,697	1,494	1,060	2,002	2,815	1,152	9,741	

TABLE E.5 REGRESSION OF COMPONENT SCORES FOR NOT OVERSPENDING

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	0.493	-0.114	-0.950	-1.297	2.222	0.112	1.009	1.178*
Age 18–30	-5.250*	-7.316***	-16.166***	-5.542*	-4.280	-5.910**	-7.837***	-2.767**
Age 31–40	-1.337	-5.175*	-4.487	-1.853	0.080	-1.790	-2.758**	-2.302*
Age 41–50								
Age 51–60	5.141**	3.461	-2.612	3.607	4.164	-0.141	2.004	2.048*
Age 60+	6.857**	5.673*	3.225	2.633	7.241	3.768	4.150**	4.968***
Primary education at most	-3.500	7.097***	6.875**	3.020	5.626*	0.247	4.365***	-1.890
Secondary education								
Tertiary education	-5.636***	-0.987	-2.372	-0.836	2.391	-1.341	-3.041**	1.852
# household members 18+	0.630	-0.471	1.225	0.565	1.204	-1.013	0.309	-0.985*
Living with a partner	1.858	0.685	-0.155	-2.998	4.648	1.070	1.142	-1.152
Has dependent children	0.417	2.150	2.892	0.358	5.204		2.405**	
Rural area	1.968		7.421***	3.941**	1.292			-0.393
Income group 1	3.109*	5.816***	5.592*	-1.517	12.647***	1.575	5.095***	
Income group 2								
Income group 3	-4.977*	2.577	-5.865*	-0.977	0.917	-1.106	-1.704	
Income group 4	-8.995	-3.400	-8.915**	3.200	-12.315**	-0.398	-4.712**	
Has financial products	-2.260	-2.785	-1.108	-6.029***	0.421	-2.782	-2.494**	0.684
E1: formal employee								
E2: informal employee	-2.078	-1.265	2.494	4.808*	7.268	15.536**	1.714	
E3: self-employed	-1.017	2.884	-4.874	-0.474	-3.704	1.166	-0.941	-1.369
E4: unemployed				-3.127				
E4+5: unemployed	1.356	0.321			15.521**	1.647	0.924	13.107***
E6: student	-12.844**		-1.529	3.355	5.777	-11.456*	-2.990	5.078*
E7: retired	2.957	3.070	-0.008	11.792***	3.068	-0.663	4.241**	-1.313
E8: sick	9.551***						8.667**	7.170**
E9: housework	1.973	1.100	2.774	8.061***	0.862	1.025	3.242**	-4.960**
E10: other	-2.426	-1.246		2.986	4.800	0.943	-0.333	1.747
Financial literacy score		0.544	0.280	1.478**	-0.346	-0.673		
Responsible for day to day	1.344	2.725	4.414	2.997	-12.450***	-0.234	-0.028	-2.919***
Responsible for planning	-0.320	3.630	0.848	-0.806	13.026**	-1.670	2.776*	
Armenia							13.907***	
Colombia							7.630***	
Lebanon							2.085	
Mexico								
Turkey							1.580	
Uruguay							13.450***	
Constant	79.055***	68.843***	64.162***	63.216***	51.631***	91.512***	63.892***	76.249***
Adjusted R ²	0.144	0.143	0.199	0.061	0.266	0.047	0.159	0.024
N	1,700	1,494	1,060	2,002	2,990	1,330	9,995	8,096

TABLE E.6 REGRESSION OF COMPONENT SCORES FOR COVERING UNEXPECTED EXPENSES

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	1.525	1.015	-0.234	2.575	4.895	-3.318	0.642	-3.021***
Age 18–30	0.471	-1.388	-1.895	-2.782	-2.744	2.796	-0.647	-0.011
Age 31–40	1.415	-3.865	1.017	-0.179	-0.923	1.720	0.323	0.759
Age 41–50								
Age 51–60	1.627	-0.477	2.825	-5.425	-0.845	8.573*	1.108	-0.528
Age 60+	0.658	-2.747	6.702	-4.130	-2.283	10.667*	1.481	-3.921**
Primary education at most	-4.519	-0.073	-3.949	-0.792	-6.621*	2.304	-1.869	1.657
Secondary education								
Tertiary education	3.076	-1.916	3.060	1.280	2.873	-4.513	0.317	3.937**
# household members 18+	-0.408	0.381	-1.030	-1.820*	-0.652	-0.676	-0.692	0.441
Living with a partner	-1.324	-1.384	0.996	4.323*	-1.817	0.745	0.589	1.824
Has dependent children	0.763	0.398	-6.347*	-5.338**	-3.981		-2.580*	
Rural area	-0.008		-2.253	4.545**	5.090*			3.368**
Income group 1	-0.662	1.840	-5.155	-1.737	5.662	-2.248	0.087	
Income group 2								
Income group 3	7.093**	2.258	3.830	8.919***	4.899	5.917	5.889***	
Income group 4	12.956**	11.184**	6.658	10.787***	19.364***	16.039***	11.956***	
Has financial products	-0.293	3.385	-1.085	5.316***	-4.597	5.348	0.803	2.724*
E1: formal employee								
E2: informal employee	4.788	1.209	-12.045**	-2.107	-11.851*	4.383	-3.992*	
E3: self-employed	1.798	4.991	6.645*	6.856	-0.441	1.451	2.071	2.375*
E4: unemployed				-7.770*				
E4+5: unemployed	2.454	-2.902			-0.654	7.296	-0.289	-8.261***
E6: student	2.279		3.877	-4.374	-3.036	1.951	-0.778	-4.639
E7: retired	3.706	-0.791	10.233*	-2.607	-6.522	-4.449	-2.320	-6.658**
E8: sick	5.131						-7.636	-4.151
E9: housework	2.890	3.196	2.916	-4.117	-7.532	5.134	-0.291	0.102
E10: other	3.260	5.992*		0.640	-6.969	-1.511	2.465	-7.578
Financial literacy score		-0.268	2.921**	0.589	-4.820***	3.208***		
Responsible for day to day	-1.403	-0.469	2.284	-1.444	4.145	-4.790	0.048	-0.464
Responsible for planning	0.064	3.204	-0.083	5.128*	3.066	4.510	1.931	
Armenia							2.063	
Colombia							-5.012***	
Lebanon							7.152***	
Mexico								
Turkey							1.021	
Uruguay							-10.529***	
Constant	62.090***	51.344***	65.415***	60.323***	79.372***	32.171***	62.725***	66.563***
Adjusted R ²	0.013	0.007	0.063	0.061	0.096	0.049	0.053	0.017
N	1,699	1,494	1,062	2,002	2,888	1,285	9,873	8,088

TABLE E.7 REGRESSION OF COMPONENT SCORES FOR SAVING

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	5.449*	-4.941*	5.739	4.493*	7.186*	0.131	2.988**	-3.296***
Age 18–30	5.621	10.215***	-3.585	0.043	-0.210	7.164*	3.675**	-4.301***
Age 31–40	3.503	1.340	-6.863*	1.600	-2.427	1.935	0.521	-0.656
Age 41–50								
Age 51–60	-0.295	-5.794	-7.502*	-1.719	-3.644	0.751	-2.581	-0.058
Age 60+	3.796	-7.390*	2.600	0.988	0.921	-0.218	-1.780	-1.810
Primary education at most	1.500	-3.294	-4.170	-4.967*	-6.888*	4.490	-4.578***	-3.675***
Secondary education								
Tertiary education	-0.713	6.180*	-1.573	4.311	-1.388	-3.372	0.546	2.638
# household members 18+	0.252	-1.031	-2.445**	-2.667***	-0.855	-0.134	-1.290**	1.949***
Living with a partner	0.785	2.429	6.084*	5.059**	4.110	6.115**	4.743***	2.466*
Has dependent children	4.613	3.973	-3.601	-2.240	-4.902		0.448	
Rural area	9.459***		3.301	-0.953	5.528			4.731***
Income group 1	-3.696	-4.212	-10.609**	-7.529***	-1.226	-3.853	-5.322***	
Income group 2								
Income group 3	8.424*	-0.159	1.620	11.661***	4.414	4.356	4.825***	
Income group 4	9.175	3.238	12.852***	5.357*	14.151**	8.979**	10.112***	
Has financial products	4.687	9.161***	10.836***	4.090**	-2.593	8.296*	6.162***	9.934***
E1: formal employee								
E2: informal employee	-3.582	0.916	-9.961*	-6.821**	-17.613***	6.980	-7.035***	
E3: self-employed	6.253	3.158	-1.691	-0.658	-0.815	-1.863	1.892	0.340
E4: unemployed				-7.370				
E4+5: unemployed	2.828	1.539			-23.205***	-1.447	-7.299***	-16.706***
E6: student	-5.477		0.774	0.609	-24.402**	-2.215	-7.863*	-7.512*
E7: retired	-9.985*	2.330	-11.065	-4.684	-2.890	0.527	-3.148	-15.044***
E8: sick	-11.929						-12.642**	-13.522***
E9: housework	-4.098	-1.375	-4.540	-7.278**	-6.769	3.392	-4.986**	-2.158
E10: other	2.816	-0.120		-0.374	1.802	-8.165	-1.366	-16.054**
Financial literacy score		1.225	3.214**	1.702**	0.177	3.739***		
Responsible for day to day	0.395	0.249	-11.503**	2.894	0.471	-4.475	-1.725	0.843
Responsible for planning	-2.112	-4.235	6.340*	5.689*	2.707	5.249	1.912	
Armenia							-8.288***	
Colombia							-10.060***	
Lebanon							-18.996***	
Mexico								
Turkey							-30.522***	
Uruguay							-16.117***	
Constant	34.114***	42.563***	36.295***	50.002***	30.846***	14.205*	54.875***	48.920***
Adjusted R ²	0.055	0.120	0.152	0.126	0.096	0.065	0.148	0.061
N	1,701	1,494	1,060	2,002	2,939	1,301	9,929	8,087

TABLE E.8 REGRESSION OF COMPONENT SCORES FOR ATTITUDE TOWARD THE FUTURE

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	-3.001	-2.239	-0.271	-1.257	1.587	0.465	-0.875	
Age 18–30	2.408	9.316***	-9.869**	3.610	-3.159	2.325	1.060	
Age 31–40	1.029	4.127	-4.427	3.806*	-1.115	6.992	2.083	
Age 41–50								
Age 51–60	-3.359	-6.391*	-0.273	2.674	-0.465	4.456	-1.287	
Age 60+	-3.551	-7.293*	-4.968	1.064	0.377	-5.348	-3.444*	
Primary education at most	8.744	-4.991*	-6.380*	-4.475**	-8.100*	-6.561*	-6.177***	
Secondary education								
Tertiary education	8.459***	7.541**	5.679*	10.727***	-0.836	11.321***	7.732***	
# household members 18+	0.340	-0.547	-0.881	-0.246	-1.165	-1.840	-0.832*	
Living with a partner	1.021	5.923**	5.125	1.837	-2.268	5.143*	3.346***	
Has dependent children	-1.196	-4.623*	-6.692*	1.783	2.757		-1.089	
Rural area	-2.080		1.709	0.946	6.104*			
Income group 1	-0.313	-1.485	-3.403	-3.995*	-4.877	-6.794*	-3.500***	
Income group 2								
Income group 3	5.872*	2.272	4.231	0.179	2.420	8.919**	3.912**	
Income group 4	6.741	3.260	0.062	-3.487	11.122*	7.276*	2.736	
Has financial products	0.961	3.182	0.256	1.878	-5.891*	8.975**	0.628	
E1: formal employee								
E2: informal employee	-3.913	-7.150	-12.863***	-0.568	-6.039	5.463	-5.085**	
E3: self-employed	-2.170	-3.755	3.079	7.662*	-7.608	5.583	-0.180	
E4: unemployed				0.383				
E4+5: unemployed	-2.064	2.033			-24.618***	4.544	-2.426	
E6: student	3.785		-4.030	1.334	-18.346*	17.281*	-2.483	
E7: retired	0.168	-0.651	-7.793	4.104	-2.091	4.204	0.937	
E8: sick	-10.153*						-5.815	
E9: housework	-0.812	-3.664	-2.633	0.909	-7.181	0.370	-2.636*	
E10: other	17.684*	-0.931		0.772	-6.991	-6.186	-0.453	
Financial literacy score		1.674*	4.317***	0.735	0.253	-0.092		
Responsible for day to day	0.831	-0.724	12.109***	1.803	5.684	4.147	2.222	
Responsible for planning	-0.543	5.004	1.021	-0.092	-5.067	-6.602	0.032	
Armenia							-7.200***	
Colombia							2.539*	
Lebanon							16.760***	
Mexico								
Turkey							10.357***	
Uruguay							2.366	
Constant	27.276***	30.808***	38.741***	28.131***	61.404***	28.774***	36.889***	
Adjusted R ²	0.068	0.118	0.113	0.038	0.097	0.129	0.131	
N	1,696	1,494	1,053	2,002	2,875	1,213	9,822	

TABLE E.9 REGRESSION OF COMPONENT SCORES FOR NOT BEING IMPULSIVE

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	-1.899	-0.564	1.332	1.205	5.331	-1.601	0.626	
Age 18–30	-2.580	-4.229	-12.487***	-3.712	-4.009	-0.009	-5.126***	
Age 31–40	-0.350	-4.219	-4.753	-1.260	0.353	3.417	-1.558	
Age 41–50								
Age 51–60	-0.302	-5.669	2.196	3.146	1.687	5.326	-0.198	
Age 60+	-1.724	0.582	3.928	4.779	8.736	5.534	3.096*	
Primary education at most	-0.543	-2.756	-7.198**	-3.008	0.765	-0.054	-3.100**	
Secondary education								
Tertiary education	3.225	5.275*	2.085	1.899	0.558	4.797	3.303**	
# household members 18+	-0.592	0.715	-0.435	0.308	-2.137*	-1.914	-0.761*	
Living with a partner	1.536	2.691	7.775**	0.844	1.374	4.498*	3.391***	
Has dependent children	1.071	-4.000	-4.898*	1.482	7.538**		0.686	
Rural area	-3.037		0.878	3.071	4.640*			
Income group 1	-0.138	-1.959	-4.738	-0.765	3.960	-4.698	-1.021	
Income group 2								
Income group 3	4.847	0.991	1.743	0.009	5.805	3.092	2.720*	
Income group 4	4.880	-1.120	-5.314	5.018*	8.465*	3.242	0.651	
Has financial products	-3.416	1.901	-3.203	3.174*	-0.396	-1.785	0.982	
E1: formal employee								
E2: informal employee	-4.028	-6.268	-14.090***	2.034	-4.684	-5.690	-5.993***	
E3: self-employed	0.786	-6.012	0.226	-1.699	-7.282	3.898	-1.506	
E4: unemployed				3.437				
E4+5: unemployed	-5.123	-0.013			10.719	2.513	-1.665	
E6: student	1.104		-4.049	-0.860	-11.992*	1.461	-4.778	
E7: retired	3.024	-1.139	-9.380	9.729*	-4.438	-1.799	-1.078	
E8: sick	-9.819						-5.627	
E9: housework	-0.729	1.280	-5.828	5.243*	-4.114	-5.328	-0.696	
E10: other	3.887	-2.490		2.093	-3.594	4.761	-1.576	
Financial literacy score		3.294***	0.897	1.298*	1.948*	1.631		
Responsible for day to day	2.499	-2.065	10.413***	1.304	9.906*	1.030	2.690*	
Responsible for planning	-4.277*	6.143*	-1.778	1.745	-0.756	3.466	0.703	
Armenia							-2.445	
Colombia							-0.823	
Lebanon							12.313***	
Mexico								
Turkey							4.716**	
Uruguay							-0.655	
Constant	64.827***	49.237***	72.964***	46.012***	49.902***	54.313***	59.191***	
Adjusted R ²	0.018	0.042	0.129	0.023	0.126	0.042	0.063	
N	1,700	1,494	1,058	2,002	2,918	1,233	9,880	

TABLE E.10 REGRESSION OF COMPONENT SCORES FOR ACHIEVEMENT ORIENTATION

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	-0.190	-0.089	-1.340	-0.836	4.379*	-2.594*	-0.320	
Age 18–30	3.683*	0.920	7.422***	-0.334	1.298	2.367	3.273***	
Age 31–40	0.817	0.791	4.290*	-0.274	0.082	0.392	1.865*	
Age 41–50								
Age 51–60	-1.749	-2.093	-3.325	-2.268	-6.851*	0.850	-2.577**	
Age 60+	-11.696***	-7.623***	-9.681**	0.297	-14.991***	-2.738	-8.470***	
Primary education at most	4.915	-0.317	-2.234	-0.643	2.376	1.728	0.482	
Secondary education								
Tertiary education	-0.229	-0.309	1.068	3.052	-3.645	0.736	0.619	
# household members 18+	0.770	0.164	-0.101	0.840	1.513*	0.646	0.807***	
Living with a partner	-1.272	2.780**	2.806	2.763*	0.018	4.454***	1.229	
Has dependent children	4.257***	-0.118	-0.459	4.780***	0.811		2.618***	
Rural area	2.914*		-3.897**	-0.826	1.900			
Income group 1	0.454	0.530	-3.369	-3.214*	1.647	-1.772	-0.107	
Income group 2								
Income group 3	0.300	-0.470	0.895	0.815	-2.760	-1.755	-0.153	
Income group 4	-2.106	2.843*	1.123	-2.659	-2.778	-5.934**	-0.343	
Has financial products	5.638***	0.386	-0.494	6.396***	2.139	1.068	3.770***	
E1: formal employee								
E2: informal employee	-1.841	3.119*	-1.754	-1.358	-5.566	-2.013	-1.853*	
E3: self-employed	1.033	2.641*	1.716	-7.092*	-2.653	0.397	0.541	
E4: unemployed				0.978				
E4+5: unemployed	-3.240	2.080			-5.034	-4.155	-1.803	
E6: student	-3.506		6.354**	10.586***	0.214	0.800	2.505	
E7: retired	-6.028*	-8.188*	-3.670	-4.228	-0.217	-9.418***	-5.523***	
E8: sick	-13.253*						-14.411***	
E9: housework	-6.346***	-6.381***	-8.024***	-1.258	-4.712	-2.743	-5.943***	
E10: other	-3.874	1.483		1.311	-1.437	-11.453**	-0.248	
Financial literacy score		1.585**	2.927***	1.506***	0.891	0.232		
Responsible for day to day	0.300	2.013	7.220**	-0.298	3.438	-2.875	1.617	
Responsible for planning	0.851	-1.072	-0.215	2.548	4.159	4.340*	1.237	
Armenia							2.093*	
Colombia							6.692***	
Lebanon							-1.215	
Mexico								
Turkey							-4.861***	
Uruguay							0.467	
Constant	80.533***	86.197***	71.368***	71.122***	66.804***	84.268***	78.241***	
Adjusted R ²	0.156	0.131	0.236	0.089	0.081	0.083	0.128	
N	1,702	1,494	1,056	2,002	2,934	1,217	9,890	

TABLE E.11 REGRESSION OF COMPONENT SCORES FOR CHOOSING PRODUCTS

VARIABLE	ARMENIA	COLOMBIA	LEBANON	MEXICO	TURKEY	URUGUAY	POOLED	NIGERIA
Female	5.018	-5.245	2.814	6.414	-0.218	-4.282	-0.380	1.434
Age 18–30	4.393	1.348	10.573	-6.688	-12.776*	-8.300	-3.479	-10.155**
Age 31–40	6.928*	1.774	2.997	1.520	-1.648	-5.387	0.998	-7.984**
Age 41–50								
Age 51–60	-4.406	3.286	-8.776	-11.491*	1.087	-12.005*	-4.640	-9.253**
Age 60+	-10.112*	-17.669*	2.283	6.198	-5.385	-8.644	-7.118*	-1.848
Primary education at most	4.455	1.404	-9.959	-6.410	-0.420	0.658	-2.928	-9.796**
Secondary education								
Tertiary education	5.799	2.937	4.111	4.406	10.344*	5.640	4.234*	5.459*
# household members 18+	2.064*	2.806*	1.923	-2.621*	0.499	0.206	0.951	0.921
Living with a partner	8.240*	2.003	7.662	5.328	-1.246	2.540	3.486*	4.504
Has dependent children	0.279	4.820	-0.760	-6.369	-6.907		-3.211	
Rural area	1.813		-12.458**	-0.337	-0.757			-7.640**
Income group 1	-4.347	8.443	-26.178***	-3.158	-2.981	-6.214	-3.018	
Income group 2								
Income group 3	-5.596	6.972	-3.613	8.703*	8.957	3.042	4.779*	
Income group 4	1.914	15.061**	7.216	9.853*	8.776	12.618**	12.569***	
Has financial products								
E1: formal employee								
E2: informal employee	-11.057*	-8.111	-6.616	-7.593	-4.832	1.238	-7.703**	
E3: self-employed	-0.119	0.018	3.692	-12.655	12.555*	-6.389	2.106	-3.684
E4: unemployed				-6.832				
E4+5: unemployed	-1.060	2.038			-16.619*	-4.561	-7.139*	-7.960
E6: student	3.969		21.356	-9.156	-0.969	11.335	0.341	4.556
E7: retired	-3.284	7.369	-6.766	-7.944	-1.986	-4.049	-2.592	-4.676
E8: sick	-20.498						-18.633*	-7.544
E9: housework	-7.675	-1.225	2.590	-9.188	5.770	-3.048	-2.119	-11.455
E10: other	-24.002	-3.829		-7.520	8.694	4.728	-1.798	5.672
Financial literacy score		-1.072	-2.464	3.797***	2.650	1.538		
Responsible for day to day	-0.341	-4.334	3.537	-2.649	17.720	9.064	2.559	-2.409
Responsible for planning	3.712	8.992	10.804	6.022	-9.273	7.072	3.807	
Resp. for choosing product	3.742	-7.923	11.834	5.515	7.028	4.046	3.321	
Armenia							1.262	
Colombia							-2.669	
Lebanon							-3.628	
Mexico								
Turkey							-5.816*	
Uruguay							-7.318**	
Constant	40.947***	49.803***	38.341*	51.338***	37.063**	35.475***	51.061***	65.586***
Adjusted R ²	0.053	0.027	0.111	0.082	0.104	0.068	0.055	0.037
N	868	723	475	974	1,850	901	5,367	1,696

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