Measuring Financial Health around the Globe

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June 2020

Acknowledgements

Executive Summary

We propose a set of survey questions, usable by both researchers and practitioners working on financial inclusion, to measure the "financial health" of individuals. While the term financial health has gained popularity as the intended outcome of financial inclusion interventions, referring to a more holistic approach to understanding how and why financial services are important, there is a lack of consensus between different researchers and organizations on how exactly to define and measure financial health.

We argue for a simple, transparent conceptualization of financial health. We start with a theoretical, almost definitional, assertion: finance is about moving money across time, space, and risky outcomes. Moving money across time means saving (moving money from now to later) or borrowing (from later to now). Moving money across space means sending money from one person or firm to another. Moving money across risk outcomes means being able to be insured, whether informally or formally, by moving money from good outcomes to bad outcomes.

Thus, financial health is ultimately about the ability to move money across time, space, and risky outcomes as cost-effectively as possible. This leads to a clear final outcome concept: financial health is about access to funds—or, more precisely, the ability to access liquidity quickly and affordably. Conceptually this definition captures the ultimate manifestation of related intermediate inputs, including access to financial products and their usage, and prudent financial behaviors such as building reserves and planning ahead. These intermediate inputs are thus quite important as well, and are where most of the existing constructs of financial health have focused.

Putting this together, we propose three primary concepts that encompass financial health: Access-to-Funds, which is a final outcome construct, and Access-to-Finance and Financial Behavior, which are intermediate constructs that each incorporate several components.

For Access-to-Funds, we rely on variations of questions that ask about how challenging it is for a respondent to come up with funds for an unexpected need. This type of question is often referred to in the field of financial inclusion as capturing "resilience", most prominently as part of the World Bank's Global Financial Inclusion (Global Findex) survey. We consider these measures as direct proxies for a broader set of situations that are important to evaluate an individual's financial situation beyond their ability to cope with shocks, including, for example, their ability to make use of economic opportunities, over-indebtedness and their ability to manage day-to-day finances.

For the Access-to-Finance components, we have a list of questions to capture the financial tools, mainly formal, that an individual can access or use. For the Financial Behavior components, we use a series of questions on how an individual manages their financial life, including saving habits, planning, and credit behavior.

We developed the survey instrument for the subsequent large-scale data collection using a multi-step approach. First, we based our framework for financial health on previous work developed by the Financial Health Network and the Center for Financial Inclusion, mapping their financial health indicators into our three main categories: Financial Behavior, Access-to-Finance, and Access-to-Funds. We then reviewed existing quantitative survey measures that capture these concepts. We looked for the most commonly used survey questions, as well as questions that worked particularly well in the field based on IPA's experience and qualitative testing. We also borrowed questions from sources such as the World Bank's Global Findex survey. Finally, we relied on an advisory committee made up of researchers, practitioners, and policy experts to guide the narrowing of candidate questions for later data collection, and to select questions that could be used for a short-form instrument on financial health.

Between June 2018 and February 2019, we collected 11,876 observations using the newly developed survey instrument by adding it as a module to existing data-collection efforts in eight countries: Afghanistan, Bangladesh, Colombia, the Dominican Republic, Ghana, Peru, the Philippines, and Uganda. In addition to cost considerations, one big advantage of adding to existing projects is the additional information that is available for each respondent. Data are not nationally representative in most sites, but are based on samples that were purposefully selected by host projects, with sampling strategies ranging from targeting ultra-poor households for a social protection scheme to targeting teachers. This limits our ability to benchmark countries or regions. On the other hand, the diversity in sites is representative of the types of samples that are encountered in financial-inclusion-related program evaluations. Of the countries in our sample, only Ghana has a nationally representative sample.

An important feature of our data is that they contain rich socio-economic information beyond the specific questions about financial health that were assembled for this tool. The information varies from site to site but most datasets include, amongst other things, measures of income, expenditures, wealth, income sources and demographics. This allows us to correlate the questions from our module with important variables that are related to financial health but that are usually time-consuming to collect, and that can be used, for example, to validate our financial health measures.

The response patterns in the data validate our Access-to-Funds measures. As expected, respondents in richer households are more likely to be able to access funds for an unexpected need. At the same time, even among the wealthiest respondents in the sample, easy access to funds is not universal, suggesting that this measure captures information beyond pure economic status. Access is also generally positively correlated, and often strongly so, with respondents' ability to predict income (even after controlling for economic status), again suggesting that the Access-to-Funds measure corresponds in the expected ways to aspects of an intuitive understanding of financial health. Furthermore, the variation in response patterns across sites generally matches the expected patterns based on sampling strategies. For example, the samples from projects targeting ultra-poor households for social protection interventions in Uganda and the Philippines score lowest on average; microcredit clients in Colombia and the Dominican Republic rank at the top; and average access to funds in the representative sample in Ghana lies between the highest and the lowest scoring sites. Additional empirical validation comes from correlations of the Access-to-Funds questions with survey items in our Access-to-Finance and Financial Behavior sections. Reassuringly, the observed correlations generally go in the expected directions. Better access to, or use of, formal financial products and prudent financial behaviors are generally associated with better Access-to-Funds. Moreover, the behavior and access questions explain a non-trivial part of the variation in Access-to-Funds, even after controlling for demographic and socio-economic variables.

We investigated the possibility of assembling a short-form questionnaire out of the larger set of candidate questions in the Financial Behavior and Access-to-Finance sections in order to create a compact, universally applicable questionnaire. We did not find a clear set of "winning" questions in the Financial Behavior sections but did identify two questions from the Access-to-Finance section. Originally, the idea was to find the items with the highest correlation with the Access-to-Funds questions and augment the list with items based on intuition and the opinion of experts on the advisory committee. However, we find that for the items in the Financial Behavior section, the items which have the highest (relative) predictiveness depend on the specific method used. Averaged across all sites, all items have similarly strong statistical associations when using a flexible functional form. In addition, the relative importance of items varies strongly by site. While some of the variation is possibly explained by the different samples,

we conclude that there is not a small number of questions about financial-health-related behaviors that stand out as top predictors of Access-to-Funds measure of financial health. In the Access-to-Finance section, bank account ownership is predictive of Access-to-Funds, as is, somewhat mechanically, access to formal credit.

To the extent that aggregation of survey responses to the set of questions we propose is desirable, we suggest a basic summing and averaging of responses to the Access-to-Funds questions only. We prefer a simple aggregation for transparency and easy of calculation by users. We focus on the Access-to-Funds section first because we have argued for it as the key measure of financial health and because the pattern of correlations in the data did not support the idea of a short, universally applicable set of Financial Behavior and Access-to-Finance questions that could be aggregated into sub-indices or even an overall index.

For those seeking to measure financial health in a quick and simple way, we recommend applying only the Access-to-Funds module, with one important change. Ultimately, we recommend using the resilience questions included in the upcoming 2020 Global Findex survey in lieu of the questions used for this work. The upcoming 2020 Global Findex survey implements a few changes over the 2017 version that align the latest version more closely with our Access-to-Funds questions, partly in response to our work. As a result, few differences remain between the 2020 Global Findex resilience questions and our Access-to-Funds questions, and the former can reasonably be used to capture the same financial health outcomes that we define here. Usage of the Findex provides an important advantage by allowing for global standardization and comparison, and is linked to rich additional data on respondents for a number of countries that will aid further analysis. As a result, our final recommended survey tool uses the resilience questions from the 2020 Global Findex survey as our Access-to-Funds section.

Practically speaking, our goal is to put forward a short, simple survey tool to capture information on financial health in different markets, and in different population segments within the same market, in a standardized way. There is an obvious tradeoff: the shorter and simpler the survey, the less relevant it is in any individual setting. We hope we have struck the right balance. Adaptations and evidence to guide improvements, both in terms of expanded applicability and improved accuracy, are welcome.

Thus, the work presented here is a starting point to further explore the conceptual and measurement framework. In its current form, the tool in this report can be used by researchers as part of future impact evaluations to standardize the approach to understanding the impact of financial inclusion programs and policies on financial health. Data collection with nationally representative samples could be used to benchmark scores and would allow researchers to see how response patterns and correlations in the mostly purposively drawn samples from this project compare to national or regional averages. Lastly, the collection of panel data could be used to test which measures predict trends in economic wellbeing above and beyond what could be predicted through standard characteristics such as human capital and wealth. In the meantime, we look forward to hearing from researchers and practitioners on ways to refine this work going forward.

I. Introduction

Background

The concept of "financial health" has gained popularity in recent years as a new North Star that should guide financial inclusion policies and programs worldwide. But what constitutes financial health? Defining this conceptually, and constructing a simple empirical measure, is challenging. The idea of financial health is abstract and combines multiple indicators and concepts. Moreover, financial health is not necessarily tied to the usage of formal financial products, and thus cannot be measured solely through financial access indicators as it is possible to be financially healthy outside of the formal financial system. Any measure of financial health must also be able to capture less easily observable indicators such as financial management behaviors, as well as informal planning and coping mechanisms such as social networks. Financial health may also include subjective measures of wellbeing, stress, or satisfaction with one's own position in life. As a result, this measure must go beyond standard measures of poverty, income, or asset ownership. For example, individuals with high incomes may also exhibit low levels of financial health if they fail to live within their means, or carry unsustainable debt burdens.

There is a lack of consensus between different researchers and organizations on how exactly to define and measure financial health. As a result, it is difficult to understand the relative impact of different policies and interventions on improving financial health, as the way progress is measured will vary from case to case. This paper proposes a solution to this problem by introducing a quantitative measurement tool for financial health. This tool can be adopted globally to benchmark progress on financial health as well as to better understand the impact of specific policy interventions and product solutions.

The proposed concept of financial health deliberately attempts to move beyond two alternatives currently common in practice: financial access and income or consumption. Traditionally, financial inclusion researchers have focused on more tangible, easily observable outcomes: the ownership and usage of financial products such as savings accounts or loans. The flagship measure of financial inclusion has been the World Bank's Global Findex survey, demand-side financial access data that the Bank started publishing in 2011 and that remains the most comprehensive global measure of financial product use. According to the Findex, there has been strong progress on access and inclusion in recent years. Between 2014 and 2017, for example, 515 million adults gained formal financial accounts and 69 percent of adults worldwide reported owning an account by 2017.[1] While many more adults now own an account, however, many do not use them. Only 55 percent of adults that same year reported having made one or more transaction in the previous year. While more people than ever before have access to the formal financial sector, these indicators tell us little about the quality or appropriateness of these products, nor how participation in the formal financial sector improves their lives (or does not). High rates of account dormancy persist, and the rapid growth of digital financial services has come with mounting consumer protection risks, such as predatory lending, fraud, and hidden fees. Practitioners and policymakers have begun to rethink how we define and measure the impact of financial inclusion efforts, as it becomes increasingly clear that access alone is not tantamount to improved welfare.

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[1] The World Bank. (2018, April 19). *Financial Inclusion on the Rise, But Gaps Remain, Global Findex Database Shows* [Press release]. Retrieved from https://www.worldbank.org/en/news/press-release/2018/04/19/financial-inclusion-on-the-rise-but-gaps-remain-global-findex-database-shows

While measures of household income, consumption, and poverty are important, they are distinct from financial health. Our goal was to create a measure of financial health that provides insight beyond income and economic status, recognizing the fact that two individuals with the same level of asset wealth might not have the same level of financial health. A measure of financial health should reflect how well a person uses personal finance to seamlessly match their liquidity to their spending needs, whether it be past income, current income, or future income.

There is a rich existing empirical literature related to the impact of financial inclusion, but no consensus on how to construct a useful financial health indicator to serve both researchers and practitioners. A range of different frameworks have been adopted by different organizations, and while some pillars overlap, there is still variation between existing approaches. For example, are positive financial management behaviors such as budgeting and planning a way of achieving financial health, or are they financial health in and of themselves? Without sector-wide consensus on the most appropriate and meaningful indicators, along with a tool that standardizes their measurement, it is difficult to understand the true impact of financial inclusion or to make meaningful comparisons across organizations and projects.

In order to identify the set of indicators that are most important to financial health, and which are simple, cost-effective, and accurate to measure in a standardized way, we constructed, tested and then refined a short quantitative survey instrument that purports to capture financial health. For our definition of financial health, we refer *to the ability and ease with which an individual can access liquidity*. Additional measures of access to financial products and financial management behavior were also captured in the same survey as potential drivers of financial health. We then used this tool to collect data from low-income households in eight countries. This report uses this data to present the most relevant indicators and results from fieldwork targeting diverse population segments, in order to identify the questions most relevant to our concept of financial health. This work provides a framework for future quantitative research on the impact of financial inclusion efforts worldwide, and takes an important step towards the creation of standardized metrics that can inform evidence-based approaches to improving household financial wellbeing.

Global Financial Health Landscape

We characterize existing work on financial health measurement under three broad categories: (i) access to and ownership of financial products; (ii) financially "healthy" behaviors; and (iii) financial outcomes. To date, several organizations have developed frameworks for defining the concept of financial health, both for consumers in the United States and for users in emerging markets. These definitions and approaches to measurement, summarized in Table 1, differ from organization to organization.[2]

There are a few common themes that appear throughout these concepts and definitions: First, the ability to successfully manage day-to-day financial needs; second, resilience to shocks and the ability to access financial resources, either to recover from a setback or to take advantage of an opportunity; third, long-term financial outlook; and fourth, appropriate debt use and effective debt management practices.

Suggested Financial Health Framework

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[2] For a more in-depth comparison of existing financial health definitions and measurement tools, see Rhyne, E. (2020). Measuring financial health: What policymakers need to know. *insight2impact* https://cenfri.org/wp-content/uploads/Measuring-Financial-Health.pdf

The objective of this study was to produce a questionnaire that could identify important financial health "intangibles," contribute to market diagnostics and targeting efforts, and serve as a common measurement tool for program evaluations focused on financial health. While there is some industry consensus surrounding what should be captured by the concept of global financial health, there is still a need to develop both a unifying framework and a method of measuring these outcomes in a simple, cost-effective, accurate, and standardized way that would allow for comparison across settings. In 2017, IPA began work with the Bill & Melinda Gates Foundation to develop a set of quantitative metrics and determine the minimum set that can be used to measure our conceptualization of financial health accurately and efficiently. This was also meant to lay the groundwork for identifying key predictors of future outcomes.

Our project is a continuation of work developed by the Gates Foundation with the Financial Health Network and the Center for Financial Inclusion to build an appropriate financial health framework for developing countries. First, we mapped the six core elements of this framework (see Table 2) into three broad categories: Access-to-Finance, Financial Behavior, and Access-to-Funds. In order to fill each of these categories with indicators, we then collected questionnaires and reports from a variety of researchers and organizations in the financial inclusion space, creating a short-list of frequently used indicators that cover topics within each of these categories. In collaboration with an Advisory Committee, we identified the most important indicators for each of these categories.

The Access-to-Finance section covers the range of financial products and tools that people use. The Financial Behaviors section captures the ways in which people manage their finances and plan for the future (or not). In some cases, an indicator may relate to more than one category. For example, owning a formal savings account may link to the behavior of building and maintaining reserves, as well as the ability to manage and overcome financial shocks.

Financial Health as the Outcome

In contrast to other frameworks, we consider indicators in the Access-to-Finance and Financial Behaviors categories to be inputs to achieving financial health, instead of being part of the financial health definition itself. The standalone outcome measure—the material manifestation of financial health—is the ability to access funds quickly and affordably, which we refer to as Access-to-Funds. The indicators in the accompanying Access-to-Finance and Financial Behaviors sections add more nuance.

Defining the ability to access funds as our main outcome is important for several reasons. First, it captures the results of multiple financial strategies and behaviors such as saving, having access to credit, and access to social networks and money transfers, rather than being prescriptive about the means. Second, it allows for the fact that an individual's financial management strategy, and indeed the way in which they would access liquidity in the case of a need or opportunity, likely represents a combination of approaches, sources of money, and financial tools. Third, it is more than a measure of resilience, i.e., the ability to absorb a negative shock. An individual may need to access outside funds both to overcome a negative shock and to take advantage of an opportunity, such as an investment in a business or in education, or to purchase a large asset. Fourth, the ease with which a person can come up with funds may also be an indication of how overleveraged they are, and whether existing debt obligations or mismanagement prevents them from building reserves or accessing additional credit in the future. The ability to capture both potential positive and negative consequences of debt is important for any definition of financial health, as it separates this concept from financial inclusion. That is, someone with high levels of debt from

a formal financial services provider would be counted as financially included, but not necessarily financially healthy.

In sum, the ability to access funds captures the extent to which finances enable or hinder an individual in their quest to satisfy their consumption preferences. We assert that the ability to access liquidity is correlated with, but conceptually separate from, an individual's income or overall level of asset poverty. A person in a higher wealth bracket may not have liquid savings or access to credit due to personal choices and behaviors, leading to poor financial health outcomes.

This framework assumes that easier access to funds is better. This may not necessarily hold for individuals with certain behavioral tendencies, for example those who lack self-control,[3] or those who may face certain social demands on their money.[4] A growing body of evidence suggests that some individuals may prefer to voluntarily restrict their own access to liquidity as a strategy for preserving or building wealth, or simply as a way to keep money hidden from others (for example, women with low bargaining power in the household hiding resources from a husband or others). Our framework assumes that these are second-order concerns and that for the vast majority of consumers, all else equal, more access to funds is better.

Research Objectives

As a first step towards the creation of such a financial health measurement tool, this research had the following objectives:

1. Develop and pilot a survey that can quantify the concept of financial health.
2. Empirically validate the relationship between financial health outcomes (referred to as Access-to-Funds) and measures of material wealth and other socio-economic household characteristics.
3. Identify the most important inputs to financial health outcomes in the Access-to-Finance and Financial Behaviors categories, and develop and test a survey to quantify them.
4. Identify the importance of each input for financial health.

While this research does seek to understand the relationship between Access-to-Finance and Financial Behavior inputs and our financial health outcome, Access-to-Funds, it is important to note that these relationships are not necessarily causal. Instead we identify inputs that are most closely associated with our measure of financial health; once identified, future research can test the impact of these inputs on our outcome measure as part of rigorous impact evaluations in order to determine if these relationships really are causal.

II. Survey Development & Data Collection

Questionnaire Design

The first step in questionnaire design was assembling outside experts. In order to inform the development of our financial health questionnaire, as well as the direction of this project overall, IPA established a Financial Health Advisory Committee made up of researchers, policymakers, and donors with expertise in

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[3] For example, see Ashraf, N., Karlan, D., & Yin, W. (2006). Tying Odysseus to the mast: Evidence from a commitment savings product in the Philippines. *The Quarterly Journal of Economics*, 121(2), 635-672.
4 For example, see Schaner, S. (2017). The cost of convenience? Transaction costs, bargaining power, and savings account use in Kenya. *Journal of Human Resources*, 52(4), 919-945.

financial inclusion. In order to guarantee the relevance of this tool, the members of this committee were selected based on their previous work on financial health measurement, specific expertise on conceptual components of the framework, and knowledge of the broader financial inclusion policy and funding environment. The Advisory Committee met periodically throughout the implementation of this project and contributed substantially to the final form of the questionnaire and the data analysis approach.

The next step was developing a preliminary survey instrument. For our initial measurement tool, we began by building an extensive questionnaire bank that drew from dozens of IPA projects, as well as other leading industry surveys such as the World Bank's Global Findex survey. We evaluated existing questions related to our indicators, both to identify questions that have worked well in previous studies and to identify gaps where we would need to craft new questions.

Between January and April of 2018, we ran qualitative field tests on our preliminary survey instrument in five countries: Myanmar, Colombia, Uganda, Tanzania, and Kenya. For each country we included both urban and rural sites for piloting, and we interviewed diverse population groups in terms of observable factors such as age, gender, socio-economic background, and occupation. In total, we interviewed 350 respondents across the five pilot countries.

The key objective of these qualitative field tests was to ensure that the survey was relevant across different cultures and captured the intended concepts. For this purpose, we followed up core questions based on the measurement framework with open-ended probes. For example, there was a core question "*How often does the following statement apply to you: In the past, you have borrowed money that you later regretted borrowing. Would you say this has applied to you: Always, Very often, Sometimes, Rarely, Never?*" This was followed by a list of qualitative open-ended questions such as, *"What did you borrow the money for?*" and "*Why did you regret having borrowed the money?*". This process is described in more detail in Appendix A.

The research team introduced multiple changes into what became the final survey as a result of both the qualitative testing and feedback received from the project's Advisory Committee.
- We simplified the language wherever possible, which made questions easier to understand and translate.
- The team also added detailed introductions for each section, which provided definitions and examples of concepts that respondents found too vague or confusing, such as "investment opportunity." The team removed questions that failed to capture the concepts we sought to measure due to excessive noise in the data, for example asking for the physical distance to the closest financial service provider, or absolute levels of income.
- We used the Poverty Probability Index (PPI) to measure income. Measuring total income was particularly challenging, especially for respondents engaged in farming activities or with other irregular or lumpy sources of income. Eliciting more precise income measures would have required a more extensive module of questions, and was not realistic for the purposes of this exercise. As a result, the team replaced its own income questions with the PPI, a ten-question survey module that is customized to each country, which is designed to quickly capture the likelihood that a household is living below the poverty line.[5] Incorporating the PPI gave us the

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[5] Poverty Probability Index, "About the PPI: A Poverty Measurement Tool," *Innovations for Poverty Action*, https://www.povertyindex.org/about-ppi

ability to approximate consumption in a standardized way, with tools that are customized and validated for the poverty definition of each country in which we collected data.

- We also replaced our own questions related to access to financial services with existing established questions from the Global Findex survey, both for their reliability and comparability with other datasets.

In addition to these changes, we experimentally tested variations on phrasing to see if they produced different responses on financial behavior. We varied whether survey items were expressed in the present tense or the past tense, and with an agreement answer scale or a frequency answer scale. The response patterns varied across sites and questions, but overall respondents were slightly more positive when they were asked a question in the present tense compared to being asked about actual behavior in the past. The differences could be due to respondents wanting to appear to the interviewer in a more positive light when discussing current behaviors compared to the reality captured in recent past behavior. Further research should investigate the cause of those differences, which are detailed in Appendix A.

Survey Instrument

The final survey instrument used for data collection reflects the three domains described earlier in the background section: Access-to-Funds (the outcome), and Financial Behavior and Access-to-Finance (the inputs). Because the first of these is the manifestation of our definition of financial health—defined as the ability to quickly and easily access liquidity—this is our starting point.

Note that the specific questions that were asked varied from site to site. An overview of the differences can be found in Appendix B. In addition, the data for this project contain a codebook that documents the variables available in each site.

Access-to-Funds (Final Outcome)

The outcome—or Access-to-Funds—section (Table 3) was designed as a simple, practical measure of financial health. We rely on a series of questions that ask whether it is possible for a respondent to come up with funds equal to the amount of 1/20th of their country's GNI in a period of one week, as well as in a period of one month. In 2019, this amount was equivalent to about $3,294 for the United States, according to the World Bank.[6] If the respondent does not say that it is impossible to come up with the funds, they are then asked how difficult it would be to come up with these funds, as well as the source of the funds.

The use of a one-week time period varies from the original benchmark set by the 2017 Global Findex survey,[7] which uses a time period of one month. We asked respondents to assess their ability to come up with funds using both timeframes, and then compared responses. Our assumption is that the longer the timeframe, the more likely the individual will be able to come up with funds, and by using a period of one month we will fail to capture people who would not have that same ability during a shorter timeframe that may more accurately reflect real-world emergency scenarios. At the same time, using the one-month

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[6] Author calculations based on World Bank Open Data. Retrieved from
https://data.worldbank.org/indicator/NY.GNP.PCAP.CN

[7] See page 80 of "The Global Findex Database 2017", *World Bank Group*,
https://globalfindex.worldbank.org/sites/globalfindex/files/2018-04/2017 percent20Findex percent20full percent20report_0.pdf

timeframe is also important in order to capture other potential needs, for example the ability to take advantage of an investment opportunity or other major expenditure that may not require an immediate response.

Financial Behavior (Intermediate Input)

The Financial Behavior section (Table 4) includes measures of what we assume to be prudent, "positive" financial behaviors. For example, candidate indicators of good behavior cover regular savings behaviors, planning for short-, medium-, and long-term goals, maintaining good borrowing and credit repayment behavior, self-control regarding spending, and autonomy over spending. This focuses on what people actually do in practice, rather than the financial knowledge or skills attained through past experience or financial education interventions. Each item is a statement that is read to the respondent. After each statement, the respondent is asked "Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?"

There were small differences across sites in how the instrument was administered. The specific instruments for each site can be found in the data repository. At the end of this report, we make recommendations for which instrument to use going forward.

Access-to-Finance (Intermediate Input)

The Access-to-Finance section (Table 5) asks about the three formal financial products that are most universally used, especially by low- and medium-income populations: savings, credit, and payments. Accessibility can be thought of in terms of physical distance to a point of service, and cost of access.

Data and Sample

Innovations for Poverty Action (IPA) conducted data collection using the final version of the Financial Health survey between June 2018 and February 2019. During this period, IPA administered the survey to 11,876 individuals in seven countries. The sample was constructed from six "host" research projects, plus data from one ongoing, nationally representative panel survey (see Table 6). As a result, we were able to collect data from a diverse set of populations, as well as to leverage rich socio-economic data from the host projects themselves to add to our analysis. The host projects are six randomized evaluations that were being either administered by or funded by IPA during the data collection period, and whose research teams allowed us to contribute additional financial health questionnaires to survey data collection that had already been scheduled. This allowed our team to take advantage of existing survey infrastructure and collect data for our project component at low cost. We used host projects in Afghanistan, Bangladesh, Colombia, the Dominican Republic, Peru, the Philippines, and Uganda. The Uganda project includes samples of refugees and nearby host communities, which we analyzed separately. The project's only nationally representative sample comes from Ghana, where we worked with the Ghana Socio-Economic Panel Survey, administered by the Global Poverty Research Lab at Northwestern University, the University of Ghana, and IPA.[8]

In contrast to Ghana, the profile of sample populations in other countries varied widely from host project to host project. In Uganda and the Philippines, subjects were households living in extreme poverty who were eligible for a comprehensive anti-poverty intervention that included support for livelihood

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[8] https://poverty-research.buffett.northwestern.edu/research/clusters/ghana-cluster/index.html

development, asset accumulation, and healthcare access.[9] Notably, the Uganda host project collected data from refugees living in the Rwanwanja Refugee Settlement in southwestern Uganda, which is home to 70,000 refugees, as well as from native Ugandan households located in the communities surrounding the refugee settlement, who were eligible for the same intervention. In Afghanistan, the host project targeted public school teachers living throughout the country, who were therefore by definition all employed. In Bangladesh, the sample consisted of applicants to a government migration lottery system seeking to work overseas. Our samples from Colombia, the Dominican Republic, and Peru were formal financial services users, either clients of a particular microfinance bank (in Colombia and the Dominican Republic), or users of any formal financial institution with at least one formal debt product (in Peru). For this reason, with the exception of Ghana, it is not possible to draw universal conclusions about the financial health for a given country from these datasets; rather, they are reflective of the financial health of the unique population that was sampled for the purposes of these host studies. Additional details on these projects are available in Appendix C.

Of the individuals in our sample, the average age of respondents at each site ranged from 33 to 51 years of age (Appendix Table D1 presents the full set of sample characteristics by site). Across sites, the percentage of women ranged from 20 percent to 95 percent. For example, both subsamples in Uganda, which consist of individuals who qualify for an anti-poverty program targeting the ultra-poor, were 95 percent female. In contrast, the percentage of women in the national survey sample from Ghana was 41 percent. The average PPI poverty likelihood calculated for each subsample (i.e., the probability an individual has consumption levels below twice the national poverty line in their country) ranged from 33 percent to 76 percent. Finally, the percentage of respondents who had received only primary level education or less ranged from 0 percent to 93 percent across the subsamples. In the case of Afghanistan, where the sample was comprised of schoolteachers with formal training, 100 percent of respondents reported having either a college or graduate degree.

Most respondents reported more than one source of income. The combination of income sources, as well as the relative predictability of each source, may influence respondents' ability to manage day-to-day expenses or overcome an unexpected shock. Agricultural income was most frequently mentioned by respondents in both of our Uganda samples, while 93 percent of respondents in Afghanistan (who were all teachers) reported receiving a salary, as well as 72 percent of respondents in Peru. In the Philippines, the most frequently cited source of income was government transfers (74 percent), followed by salary income (66 percent). In Colombia and the Dominican Republic, where respondents were clients of microfinance banks, 84 percent and 69 percent reported being self-employed, respectively.

III. Findings

Access-to-Funds (Final Outcome)

Response patterns

To provide a sense of the basic patterns of our key outcome questions, we describe the response levels and some simple correlations. Table 7 shows that respondents' access to funds varies substantially from sample to sample. In a representative sample in Ghana, 46 percent reported access to funds for an unexpected need within one week was at least "somewhat possible". However, only about 13 percent of refugees living in Rwamwanja refugee settlement stated it would be at least "somewhat possible", and

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[9] https://www.poverty-action.org/impact/ultra-poor-graduation-model

less than 2 percent answered "very possible". In contrast, 81 percent of respondents in the Dominican Republic sample answered at least "somewhat possible," while 50 percent answered "very possible."

Respondents reported lower access to funds over a one-week timeframe compared to a one-month timeframe.[10] This difference is in line with our prior expectations and suggests that respondents understood the questions. Comparing all study sites in Table 8, using a one-week timeframe reduces the number of respondents reporting that access to funds is at least "somewhat possible" by between 5 and 20 percentage points compared to a one-month time frame. A similar pattern is found in the differences between one-week and one-month timeframes for the "how difficult" question.

To assess how access to funds varies with consumption poverty, we compute the share of respondents who reported one-week access to funds to be at least "somewhat possible" separately by PPI[11] percentage bins for each site (Table 9). The PPI is a score based on ten survey questions that is used to predict consumption probability in a given setting. Higher probabilities of poverty are associated with lower access to funds in all but a couple of instances where the number of observations is low. While the direction of the correlation is as expected, we also see a significant proportion of respondents with lower poverty probability who have low access to funds. In Ghana, where our sample is representative of the population at large, only 72 percent of Ghanaians in the lowest poverty likelihood bin considered it at least "somewhat possible" to come up with 1/20th of GNI.

We also find large variation in dispersion of responses by PPI quintiles across sites. For example, in the nationally representative Ghana sample, the quintile with highest poverty probability had much lower access to funds (36 percent consider it at least "somewhat possible" to come up with 1/20th of GNI) than the quintile with the lowest poverty probability (72 percent). In more narrowly selected samples, however, the limited in-sample variation in economic status is reflected in the smaller differences in responses to the Access-to-Funds questions across PPI quintiles. The only other site with large dispersion of response by PPI quintile was Peru, where respondents were randomly selected from any individual with a record in the national credit bureau. These results suggest that sample selection methods could be an important part of the explanation for variations in responses across data sets.

We find that ease of access to funds correlates strongly with the ability to forecast future income streams. This suggests that our Access-to-Funds measure captures important aspects of financial health: individuals in households with less predictable income can be expected to be less financially healthy. We asked respondents, "How easily can you predict the amount of income your household will get next time you expect to receive income?," with four answer choices ranging from "very difficult" to "very easy." The less someone is able predict their own future income, the less confident they feel in their ability to come up with funds for an unexpected need. In Ghana, for example, among those who find it "very easy" to predict income, 70 percent find access to funds at least "somewhat possible", whereas among those who find predicting income "very difficult", the share is only 30 percent (see Table 10). We generally observe a similar pattern in the other sites, albeit with gradients that are not always as pronounced or as consistently monotonic.

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[10] We asked respondents about both timeframes in most sites, but randomized the order in which the two timeframes were presented. On average, respondents report slightly better access to funds for the one-week timeframe when it is asked first. The direction of this effect is consistent across sites, but the magnitude of the effect is small on average (and only statistically significantly different from zero in some sites). The order did not influence responses to the one-month question.

[11] See www.povertyindex.org/about-ppi

The relationship between income predictability and access to funds holds even when controlling for consumption levels, suggesting that the Access-to-Funds measure may be capturing relevant information about financial health beyond standard measures of wealth. In Ghana, for example, among those who both find it "very easy" to predict income and are the least likely to be poor, 86 percent find access to funds at least somewhat possible (see Table 11). Among those in the same poverty likelihood bin who find predicting income "very difficult", the share is only 53 percent. Among those most likely to be poor with "very difficult" income prediction, the same figure is lower yet, at just 24 percent. Other sites show broadly similar patterns (see Appendix D, Table D5), but the smaller sample sizes make comparisons across sub-categories more challenging.

Empirical validation of Access-to-Funds

The basic patterns above support the idea that our Access-to-Funds questions are capturing financial health. We also validate the Access-to-Funds questions by examining their correlation with measures of socio-economic status based on survey items from our host projects that are not in the financial health module, as well as with items from the Access-to-Finance and Financial Behavior sections of the financial health module.

Overall, the correlations validate the Access-to-Funds questions as these correlations point in the expected directions: on average, respondents in households with higher income, assets, education, and more regular savings deposits report better access to funds. For example, Table 12 shows that in Ghana, household consumption is 47 percent (0.51 SDs) higher among those for whom access to funds is at least "somewhat possible" than amongst those with less access. The differences are larger in some sites than in others. In the Philippines, for example, the difference in consumption is smaller but still sizeable, at 10 percent or about 0.32 SDs. Four sites—Afghanistan, Colombia, the Dominican Republic, and Peru—did not collect data on income, consumption, or asset values. One additional site—Bangladesh—did collect this information, but due to concerns about the way that values were calculated we do not report correlation for this site (see Appendix C for more details on our dataset).

We compute univariate correlations of items in the Financial Behavior and the Access-to-Finance section with a weighted average of the Access-to-Funds questions.[12][13] The correlations generally point in the expected direction; more positive behaviors are associated with better ability to access funds for an unexpected need. This holds true in most sites, in particular for savings and planning behaviors. The correlations are shown for each site in Table 13, and a simple average across sites is shown in Table 14.

The Financial Behavior correlations are numerically negative in some cases, but for the most part those negative correlations are small in magnitude. Averaged across sites, one item in the Financial Behavior section is weakly negatively correlated with the ability to access funds: experiencing regret over past purchases. Respondents who stated that they buy things on impulse that they later regret were *more* likely to report being able to come up with funds for an unexpected need. It is possible that, on average, people with higher reported self-control problems are more self-aware or have higher standards of judging their own behavior, and those characteristics are correlated with better access to funds. Having

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[12] For this analysis we use inverse covariance weighting to average one-week, one-month as well as possibility and difficulty versions of the access to funds questions. See section "Further comments on scoring for analysis" for details on the weights. Results are not generally sensitive to the specific method of aggregation.

[13] For a basic overview of the responses in both the Access-to-Finance and Behavior sections of the survey, see Appendix Table D2, Table D3, and Table D4.

ever borrowed is also negatively correlated but this question is mainly a screener for the borrowing behavior questions and does not have a clear 'better' direction.

Similar to the Financial Behavior correlations, the correlations with items in the Access-to-Finance section point in the expected direction. For example, having a formal account or using formal methods to make or receive transfers is generally positively correlated with better ability to access funds. These correlations are shown for each site in Table 15, and the cross-site average is shown in Table 16. In some sites the correlation with formal account ownership is relatively small or even, in the case of Afghanistan, zero.

Access-to-Funds Score

Depending on the application, it might be desirable to aggregate the different questions from the outcome section into an index or score. A single aggregate measure may, for example, provide a simple way to describe financial health in a given sample and facilitate comparisons across samples. In addition, summing or averaging different questions will generally reduce measurement error to the extent that the questions are measuring the same concept.

There are many potential methods for aggregating questions into an index, such as equal weighting, factor analysis, covariance-based weighting, or models from item response theory. We do not believe there are strong conceptual reasons for choosing one over the others. For the sake of transparency and ease of application, we suggest simply averaging responses to the "How possible" and "How difficult" Access-to-Funds questions included in the instrument. To calculate a score, the ordinal responses are assigned numerical values,[14] with higher numbers representing more possible and less difficult access to funds. These values are then added together. Next, we average the sums across both time horizons included in the question prompt—one week and one month—as well as across hypothetical reasons for needing to come up with funds. Because results were similar when the score was averaged across different hypothetical scenarios, for example an unexpected need, a medical emergency, or an investment opportunity, we focus on using only the unexpected need set of questions for scoring. The resulting score has 14 possible values.

In the Access-to-Funds section, we also asked respondents about how they would come up with funds. We allowed for open-ended, enumerator-coded responses and then required the respondent to indicate which of the sources they mentioned would be the main source (average responses by site are reported in Table 7). Knowing the source of these funds can provide valuable descriptive information about the coping strategies and funding sources available to, and preferred by, different segments of the population. This information could be used as a reference tool to design interventions, for example by better identifying areas where better products or services could replace higher cost (or higher risk) strategies such as the use of predatory moneylenders. However, for the purposes of constructing a financial health score, we do not include the source of funds in the numeric scoring to avoid penalizing certain coping strategies, such as borrowing from friends and family, over others. Including the source of funds as part of the score would require us to judge which sources are "good" and which are "bad," and numerically rank which sources are better than others. Rather than incorporate these judgments into the index, our working definition of financial health is agnostic to methods and financial products. In addition, answer

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[14] Responses to possibility questions are numbered as follows: "Very Possible" = 4; "Somewhat Possible" = 3; "Not Very Possible" = 2; "Not at All Possible" = 1. Responses to difficulty questions are numbered as follows: "Very easy" = 4; "Somewhat Easy" = 3; "Somewhat Difficult" = 2; "Very Difficult" = 1. Responses were marked as 0 if the question was skipped due to a prior response.

patterns to this question varied widely from sample to sample and were highly dependent on context, without a clear pattern to suggest which methods might be "better."

The mean values for the score we construct, for each of the different sites, are shown in Table 17 (additional information on score distribution can be found in Appendix Table D6). Of the nine study sites included in this exercise, the samples from Colombia and the Dominican Republic have the highest financial health as measured by our score, with both achieving a score of 6.1. The three samples from IPA's ultra-poor social protection projects in Uganda (two sites) and the Philippines rate the lowest, with the refugee population in Uganda scoring worst at 2.4. Ghana's financial health score falls in the middle of the nine sites with a score of 4.4. It is the only nationally representative sample in our study, and thus the only score which could be used to benchmark financial health in the country as a whole.

These results correspond to the composition of each of our samples in terms of income, access to banking, and economic vulnerability (described in Appendix Table D1). Respondents in Colombia and the Dominican Republic, who achieved our highest scores, were existing clients of lending institutions who were largely self-employed (84 percent and 69 percent, respectively), in addition to also having a high proportion of salary income (46 percent in Colombia and 64 percent in the Dominican Republic). Their existing access to credit and the nature of reported income streams would suggest they should have higher financial health scores, and indeed their average score of 6.1 is highest in the study. In contrast, respondents in both of the Uganda sites, where the average scores were under 3.0, rely primarily on agricultural income (71 percent of those in the Host community and 61 percent in the Refugee community). However, income source does not explain the full story. The sample from the Philippines also scored low on financial health at 2.5, but 66 percent of respondents reported receiving salary income. The three least financially healthy samples correspond to projects where participants were targeted for a social protection program based on their poverty status.

Overall, these results are encouraging and speak to the financial health score's potential to be used as a tool for segmentation. In Ghana, our only nationally representative sample, we are able to further segment the population to understand how financial health scores may change based on different demographic characteristics. Ghana's national financial health score is 4.4, falling squarely in the middle of the range of scores across the different sites. However, there are important differences between groups within Ghana, as seen in Table 18. First, respondents of working age, i.e., younger than 60 years old, score slightly higher than the average (4.6), while those over the age of 60 score worse (3.9). Second, men in our sample score slightly higher than the average at 4.7, while female respondents have an average score of 4.0.[15] Finally, higher level of education were correlated, on average, with higher financial health score. Respondents with a college or graduate degree had an average financial health score of 5.1, while those with less than a primary school education had an average score of 3.7.

We show scores for the Ghana population by access to formal accounts and to credit in Table 19. Respondents with access to formal accounts and access to credit score much higher on the financial health score than the national average. The financial health scores of respondents with formal accounts are nearly two points higher than those of respondents who do not report owning a formal account.

Financial institutions or government programs may be interested in measuring the financial health scores of potential new users, or even current clients or beneficiaries, as a way to inform targeting and new

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[15] Samples are not representative at the individual level, and in Ghana both male and female respondents are heads of household.

program or product development. Finally, this financial health measure can be used as part of experimental research in order to measure the causal impact of financial inclusion or of different products or financial behaviors on financial health.

Further comments on scoring for analysis

We find that results of the various analyses are not generally sensitive to the specific construction of the aggregate measure of the Access-to-Funds questions. For example, for the item selection step of our analysis presented in the next section, we ran our analysis with various methods of aggregation. Using Principal Component Analysis (PCA), averaged z-score standardization, simple averaging, and Inverse Covariance Weighting (ICW), the method of aggregation did not matter substantively. Nevertheless, there are some benefits to using more complex methods and, hence, some analysis of this report is based on an ICW index of the Access-to-Funds questions, following Anderson (2008).[16] This index is constructed by weighting individual components by the average of the inverse pairwise covariance of each component variable. Intuitively, the ICW method weights variables that provide unique information—in the sense of a component being *less* easily explained by other components—more highly than an index of first principal components of a PCA. In contrast, a PCA implicitly assumes that components are only partly measuring the same concept and thus the weights are higher for components that are more related to each other, and thus explain more of the variation of the resulting index. The ICW also weights more precise data more highly than would be the case, for example, with simple averaging. Empirically, the ICW index is more smoothly and normally distributed in our specific dataset than simple averaging. We therefore used an ICW index as the main left-hand side variable in the item selection analysis for evaluating predictiveness of the Financial Behavior and Access-to-Finance section items, and for evaluating response differences in behavior variants.

Item selection for Access-to-Finance and Financial Behavior sections

In addition to our financial health Access-to-Funds measure, we collected data on a larger set of candidate questions in the Access-to-Finance and the Financial Behavior sections than could realistically be included in a quick and simple survey instrument. In this section we seek to determine which of the items from the Access-to-Finance and Financial Behavior questions appear to be most important for the Access-to-Funds measures. One potential application for this ranking exercise could be the selection of a smaller subset of Access-to-Finance and Financial Behavior questions for use in a short-version instrument for future work. The candidate questions reflect inputs that potentially determine an individual's financial health. While this analysis can make no claims to causal impact, it is a starting point for researchers and policymakers interested in influencing financial health as an outcome.

We find that there is not a clear enough pattern in the data to warrant the selection of specific items from the larger set of candidate questions within the Financial Behavior section. The patterns are mixed in the Access-to-Finance section as well, but a few candidate questions stand out. The lack of pattern may be due in part to the sampling of the different datasets used in our analysis. We discuss our approach and results in detail below.

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[16] Anderson, M. L. (2008). Multiple inference and gender differences in the effects of early intervention: A reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects. *Journal of the American Statistical Association*, 103(484), 1481-1495.

The data-driven approach for item selection proceeded as follows. First, we inspected the data for variables that show too little variation to be practically useful. In general, all variables had non-trivial variation in response patterns in at least a subset of the sites. In Ghana, for example, the government provides a national health insurance program, the National Health Insurance Scheme (NHIS). As a result, respondents in the Ghana sample almost uniformly reported knowing what health insurance was and having health insurance products. In comparison, only 4–7 percent of respondents in the two Uganda sites reported the same. In another example, almost 20 percent of Ghanaian respondents in the panel survey responded that they had never borrowed, even though the prompt in the behavior section indicates this refers to lifetime borrowing including outside of the formal financial system. Other sites reported that close to 100 percent of the sample had borrowed previously, which is logical considering that our samples from Colombia, the Dominican Republic, and Peru drew from microfinance clients and individuals appearing in the formal credit bureau.

Second, we correlate the variables in the Access-to-Finance and Financial Behavior sections with Access-to-Funds using several different approaches. All else equal, those variables that are more strongly correlated with Access-to-Funds are assumed to be better candidate questions. We describe the methods and results in the next two subsections.

Financial Behavior section of the survey

<u>Relative importance of items</u>

To identify candidate questions from the Financial Behavior section, we conducted the following procedure to determine how well each item explains Access-to-Funds. First, we correlated each item with a weighted average of the Access-to-Funds questions.[17] To accommodate the variations in the wording of the response options (frequency versus agreement scale), we create z-scores by standardizing each question variation through subtracting its mean and dividing by its standard deviation. For these univariate correlations we implicitly assume the ordinal responses are cardinal, with values assigned as 1 through 4 and 5, depending on the question variation. While there appears to be an overall pattern of slightly stronger correlations concentrated among the savings (see the first column for each site in Table 13—items 8 and 9) and the planning variables (items 11–16) compared to other types of questions like borrowing or autonomy, there is considerable variation in correlations by site.

Second, we ran an OLS regression of the Access-to-Funds average on all items at the same time. We ran this regression in two ways. First, we used the same variable construction as for the simple univariate correlations described above ("Continuous RHS", with p-values shown in the second column for each site in Table 13). Second, we used a more flexible specification that includes separate indicator variables for

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[17] We use inverse covariance weighting (ICW) to create the aggregate measure of the different Access-to-Funds questions in most steps of our empirical data analysis in this section. This method gives more weight to items that add the most information to the overall index, in the sense of being less correlated with other items to be weighted. See Anderson, M. L. (2008). We tested different methods of creating the headline score for the purposes of item selection and did not find large differences in variable selection based on the way in which the outcome index was defined. See section "Further comments on scoring analysis" for a discussion of different aggregation methods.

each response level, and also separates indicator by question wording variation ("Dummied RHS" in the third column for each site in Table 13). The patterns are broadly similar to those of the simple correlations, in particular for the continuous RHS specification. The planning and savings variables are jointly significant for both types of regression specifications in most sites. The pattern differs between the two specifications with regards to the relative importance of the borrowing group of variables. They are jointly significant in all sites for the Continuous RHS specification but significant in many fewer sites for the Dummied RHS specification. As a result, the more flexible Dummied RHS specification does not support the pattern of the simple correlations that showed the planning and saving are relatively more important. Instead, all groups of variables show some correlations with the Access-to-Funds average in most sites. This can also be seen in the simple average across sites in Table 14, Column 3, which shows that all items have relatively similar p-values in the flexible specification.

Third, we use machine learning tools to corroborate our findings. The results, using a Lasso-based stability selection procedure described below, are similar to those of the OLS. In the simpler specification (in the fourth column for each site for Table 13 and for the across-site average in Table 14), saving and planning tend to have a higher item selection (π_{max}) score, but the picture is much more mixed in the more flexible specification (fifth column for each site in Table 13 and for the across-site average in Table 14). The combination of savings variables still appears as the most important in the latter, but borrowing and planning have similar scores.

Stability selection refers to the automated process of choosing the combination of variables that best predicts some outcome with relatively few predictor variables. The method, introduced in Meinshausen and Buhlmann (2010),[18] avoids some of the disadvantages of model selection via OLS or regular Lasso, and is used in the construction of the PPI.[19] The stability selection procedure tries to focus on the stable covariates. It adds random noise to the original problem by generating bootstrap samples of the data and uses a learning algorithm to select those variables into the final model that are selected in a high share of the bootstrapped samples. For the implementation of the stability selection, we ran Lasso regressions for a range of 10 different penalty parameter values. For each parameter value, we ran a Lasso regression 100 times on random subsamples. We compute the share of times a given variable was selected (i.e., its coefficient was non-zero) for each parameter value. We then take the maximum of the shares over the range of parameter values we tested. We reference this number as π_{max} in the tables that include the stability selection results.

Lastly, we conducted two additional sets of analyses based on simple OLS regressions. We regress the Access-to-Funds index on all the flexible version ("Dummied RHS" described above) of all items in the Financial Behavior section and subsequently remove one item at the time to show the change in R^2 (see

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[18] Meinshausen, N. and Bühlmann, P. (2010), Stability selection. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 72: 417-473.

[19] With OLS regression, one would have to manually run many regressions, adding and subtracting predictor variables in some arbitrary fashion and making arbitrary judgements about which model is best. Lasso regressions automate the task of variable selection by algorithmically shrinking model coefficients and setting some to zero, which reduces the number of variables left in the model and creates a simplified predictive model. Lasso regression requires the specification of a tuning parameter, namely the penalty the objective function places on the sum of absolute values of the regression coefficients. Typically, the penalty parameter is determined using cross-validation, which is based on dividing the data into random subsets to test the out-of-sample prediction accuracy of proposed penalty parameters. Even so, the results can be sensitive to the specific choice for the penalty parameter. Cross-validation may not select the right model, i.e., selection of the correct value for the penalty parameter. As an alternative, stability selection offers a more robust way to select variables.

Appendix Table D12). As an individual item, across all sites, the first savings item "set aside income for future" has the highest change in R^2 associated with its removal from the list of regressions, indicating that is has the most explanatory power when all other items are already included in the list of regressors. However, this analysis, all other analysis described above, focuses on individual items. This gives a relative disadvantage to items that belong to a group of items with several other members. For example, conditional on all other items of the borrowing category, the marginal contribution of any single borrowing-category item may be small; but as a group they might have *higher* explanatory power. This is indeed what we are finding when we group the items by categories and repeat the analysis of R^2 differences by removing entire groups of items. Across all sites, the borrowing items have the highest marginal explanatory power relative to other categories of items when all other item categories are already part of the regression (see Appendix Table D13).

Based on the data analysis described above, we conclude that no subset of items stands out robustly above all others. Within study sites, the type of variables that are most strongly correlated with the outcome index are sensitive to the specific functional form chosen. Between sites, the type of variables most strongly correlated with the outcome index vary substantially. Since sites were not made up of randomly chosen representative samples, except for Ghana, we cannot be sure about the source of this variation in results. There are two potential reasons: either the varying characteristics of the samples imply varying levels of financial health, or cultural and linguistic differences led to our questions being interpreted differently so that what constitutes financial health looks fundamentally different across sites.

Prediction of Access-to-Funds

Moving beyond the relative importance of the different items, we can also analyze the overall joint strength of each section's correlation with the Access-to-Funds weighted average. The adjusted R-values in Table 13 show that a non-trivial part of the variation in Access-to-Funds can be explained by the items in the Financial Behavior section, at least in some sites. For example, in Ghana approximately 27–28 percent of the variation can be explained by the variables in the Financial Behavior section, depending on the specification used. In contrast, in the Dominican Republic only between 6–8 percent of the total variation can be explained by the variables in the Financial Behavior section.

We use analysis to help assess the strength of the correlation. The variables used in the Financial Behavior section are often correlated with the outcome index and are statistically significant at conventional levels. In that sense, the variables potentially add explanatory power to any measurements of financial health. However, the strength of the correlation might be limited for practical applications. Using simple standard methods like OLS or more sophisticated machine learning methods, we can only moderately improve on the prediction accuracy of a random guess, as we illustrate next.

To measure prediction accuracy, we first split the sample into a test dataset consisting of two-thirds of our sample, and a training dataset made up of the remaining third. We then train ten sets of models on the test data, successively adding to the models with the top ranked, second top ranked, etc., of each site's variables from the item selection.[20] Finally, we divide the sample into two halves and compare if the top half of predicted values in a given site coincides with the top half of actual values. With a random guess, there is an expectation that 50 percent of predictions would be right. For the richest model that includes all top-ten selected items, the true difference ranges from 54–67 percent, i.e., 4–17 percentage

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[20] The ranking is based on the π_{max} values shown in Table 13. We show the ranks for reference in Appendix Table D7.

points better than a random guess. The prediction accuracy of both the OLS method and an Elastic Net regression are displayed in Table 20. For comparison, a simple OLS performs similarly to the Elastic Net in terms of prediction accuracy. We find that we can improve prediction accuracy over guessing using the Financial Behavior questions, albeit only somewhat moderately. In our data, financial behavior does not seem to be driving variation in access to funds.

We use the same method to show that our instrument adds information beyond standard socio-economic variables like wealth, income, assets, and demographic characteristics. We repeat the same procedure as before, but first we residualize our target variables with respondents' socio-economic information. This means that we run a regression and save the residuals for each observation, where the residual represents the part of the outcome that is *not* explained by socio-economic factors. These residualized outcome index variables are then used in the prediction, as above. These results are displayed in Table 21. Compared to predicting the unresidualized outcome ("Standard" columns), we lose up to 6 percentage points of prediction accuracy compared to predicting access to funds after controlling for socio-economic factors by residualizing ("Residualized" columns), depending on the site and the number of variables used for prediction. This means that some—but not all—of the predictiveness of the Financial Behavior variables is due to their correlations with socio-economic factors. In Ghana, the predictiveness decreases relatively more but in the Uganda "Host" sample, the prediction accuracy is similar regardless of whether socio-economic factors are taken into account or not.

Question wording experiment

We also experimentally tested different phrasings of the Financial Behavior questions. We randomly assigned respondents to receive one of four variants based on the combination of framing verb tense and response scale type. That is, we phrased the question with either present-tense framing or past-tense framing, and used either an agreement scale or a frequency scale for the response options.

The phrasing of the question had statistically significantly different levels of responses, but the difference was not substantive. We display the variants tested in Appendix Table D8. Across all questions, the present-framed version with the agreement choice scale had the strongest correlation with Access-to-Funds on average. For some questions this was not the case, but we consider the differences to be too small to warrant introducing additional complexity to the instrument by changing the question format within instrument. Appendix Tables D9 and D10 show the figures that our conclusions are based on, with table notes explaining details of the analyses.

Access-to-Finance section of the survey

Relative importance of items

We repeat the procedures used with the Financial Behavior section items, applied to the items in the Access-to-Finance section. The univariate correlations between the Access-to-Finance section items and the weighted average of Access-to-Funds are presented in Table 15, and in the first column of Table 16 for the average values across sites.

Two groups of items have relatively consistent correlations with the outcome index across sites. The first one was expected, since it is a narrower, borrowing-focused version of the main Access-to-Funds section question: "If you wanted to borrow [1/20th of GNI per capita], would it be possible for you to borrow the money from any source?" The second is about formal account ownership: "Do you currently have an

account at any of the following places: a bank; [insert locally available financial institutions]; your mobile phone; or another type of formal financial institution?" Other items' correlations vary across site, including differences in signs.[21]

We also run OLS regressions of the outcome index on the items in the Access-to-Finance section. Results (p-values) are presented in the second column of each site. Overall, all groups of variables show some correlation with the outcome index in most sites. This can also be seen for the average across sites in Table 16. On average, all items have relatively similar p-values, although there is substantive variation across sites. One exception to this is the item "no formal account because of religious reasons."

Next, we present results from the stability selection procedure. The structure of the Access-to-Finance section is slightly different from the Financial Behavior section, so we adjusted how the counting of selected items worked. Whereas each question in the Financial Behavior section was asked to each respondent, the Access-to-Finance section made use of skip-patterns, with follow-up questions conditional on respondent replies. The format of the Access-to-Finance response choices also differed. Each Access-to-Finance question had a yes or no answer, compared to an ordinal scale in the Financial Behavior section. As a result, initial questions are counted as candidate questions for the stability selection counting if a follow-up question is chosen. In addition, there is no Continuous RHS version of the analysis in this section in general since all items are indicator variables. Finally, due to survey length limitations, the Access-to-Finance section was not asked in the Peru site.

The stability selection procedure provides more consistent results than the OLS regression in the Access-to-Finance outcomes. The third column in each site on Table 15 reports these results. Three questions had π_{max} of greater than .80:

1. If you wanted to borrow [1/20th of GNI per capita], would it be possible for you to borrow the money from any source?
2. Do you currently have an account at any of the following places: a bank; [insert locally available financial institutions]; your mobile phone; or another type of formal financial institution?
3. In the past 12 months, have you, personally, given or sent money to, or received money from a relative or friend living in different areas inside [country] in any of the following ways: through a bank or another type of formal financial institution; through a mobile phone; through a money transfer service?

These results are confirmed when we conduct a change-in-R^2 analysis analogous to the one conducted for the Financial Behavior section (Appendix Table D14).

Based on the data analysis described above, we conclude that both questions (1) and (2) in the aforementioned list should be used as questions for a reduced-length questionnaire. In addition, (3) could be considered based on the item selection results of the stability selection, though less so based on the more basic OLS approach.

Prediction of the Access-to-Funds outcome index

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[21] Note that some of these correlations include a small percentage of the total sample if the question was not applicable to all respondents.

The overall joint strength of the correlation of the Access-to-Finance section items with the Access-to-Funds outcome index is comparable to the correlations in the Financial Behavior section. The adjusted R-values of Table 15 show that a non-trivial part of the variation in the Access-to-Funds outcome index can be explained with the items in the Access-to-Finance section, at least in some sites. For example, in Ghana approximately 26 percent of the variation can be explained by variables in the Access-to-Finance section. In other sites, however, the items are less strongly correlated. For example, in the Dominican Republic, 9 percent of the total variation can be explained by variables in the Access-to-Finance section. However, as in the Financial Behavior section, some of the small correlations may be a result of small samples. On average across sites, 16 percent of the variation in the Access-to-Funds outcome index can be explained by the Access-to-Finance section.

These items also produce non-negligible prediction accuracy. The corresponding results are presented in Table 22.[22] The improvement in accuracy over random guessing ranges between 5 percent and 20 percent for the Elastic Net regressions when all ten predictors are included. For comparison, a simple OLS performs similarly in terms of prediction accuracy. Unlike in the Financial Behavior section, the information content of a single question is often severely limited because all Access-to-Finance variables are binary. In most sites, adding one question will result in the algorithm guessing the same one or two values for the entire sample. As more questions are added, the Access-to-Finance prediction results start to behave more similarly to the Financial Behavior section.

We also validate the information content of the Access-to-Finance section by running a residualized version of the analysis, as in the Financial Behavior section. These results are shown in Table 23. The predictions controlling for socio-economic information (Residualized) show a moderate loss in accuracy compared to the standard predictions, depending on the site. When all ten questions are added, for examples, we see a prediction loss of 5 percentage points in Ghana and for refugees in Uganda, a loss of 10 percentage points in the Philippines, but no loss for hosts in Uganda. Similarly to the Financial Behavior section, while some of the correlation of the items in the Access-to-Finance section with Access-to-Funds is due to those items' correlations with socio-economic indicators, the Access-to-Finance items do add information above and beyond those socio-economic indicators.

IV. Recommended Instrument

Our work collected data on candidate questions to cover topics that are commonly included in financial health frameworks. We classified our questions into three sections: Access-to-Funds, Financial Behavior, and Access-to-Finance. In our definition, the Access-to-Funds section is the most direct manifestation of financial health—the ability and ease with which an individual can come up with funds for an unexpected need. For those seeking to measure financial health in a quick and simple way, we recommend applying only the Access-to-Funds module of the questionnaire. Furthermore, as explained below, we recommend using the 2020 Findex's resilience questions in lieu of the questions used for this work.

Our Access-to-Funds section first asks how possible it would be for the respondent to come up with 1/20th of GNI per capita for an unexpected need. Everyone who does *not* answer "impossible" is then asked how

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[22] Since all predictors in the access section are binary, there is little information in only two predictors, which capture only four possible answer patterns; in Tables 22 and 23 we therefore omit the less informative results based on including only two predictors.

difficult it would be. We ask both "possibility" and "difficulty" questions with a one-month and one-week time frame.

The phrasing of these questions is similar to the 2017 Findex resilience question, but differs in three important ways. First, the 2017 Findex question asks about accessing funds in case of an emergency, while our preferred phrasing refers to a broader "unexpected need." The broader phrasing allows the question to include the ability to take advantage of a capital or human capital investment opportunity or any other use of funds, rather than just encompassing the ability to weather a shock.

Second, our Access-to-Funds questions ask how possible it would be to access funds, with respondents selecting answers "Very possible," "Somewhat possible," "Almost possible," or "Impossible", followed by how difficult access to funds would be. The 2017 Findex question, in contrast, used only "Possible," and "Not Possible" response options (though the 2014 survey did have the larger list of answer choices). In initial pilot testing, we found that providing more response options reduced the number of people who reported "Impossible," but who, upon probing, said that it would be possible, albeit very difficult, to come up with the required funds.

Third, our Access-to-Funds questions ask for both one-month and one-week timeframes, while the 2017 Findex used only one month. A scenario with a period of one week might better capture ability to deal with emergencies and a period of one month may be more appropriate when capturing ability to access funds more broadly. In addition, asking over two different time periods and averaging the replies may help to decrease measurement error.

The upcoming 2020 Findex survey, which was collecting data in the field at the time of writing this report, implements a few changes over its 2017 version, which means that the latest version aligns more closely with our Access-to-Funds section.[23] First, the 2020 Findex survey has changed its resilience questions to first ask *how* a respondent would come up funds. In response, respondents can answer "I could not come up with the money" but this option is not part of the list of questions that are read out to the respondent. Starting the module by asking for the source of funds presumably reduces the number of respondents who would report "impossible" even though access to funds might be possible, albeit very difficult. This change is in line with the spirit of our set of questions, which start with asking for possibility using a question that includes "not possible" as one of several graded answer choices. Second, the 2020 Findex survey now includes a question that asks about the difficulty of accessing funds, following the initial source-of-funds question. This addition and sequencing are similar in spirit to our set of questions, which ask about possibility followed by difficulty. Third, the 2020 Findex questionnaire implements both the one-month and one-week timeframes.

The 2020 Findex questions use the "emergency" framing, while we prefer to use "unexpected need." In our work we asked about an unexpected need first, and in some sites followed up with the same question specifically about an emergency. Responses from the two versions of the question were highly correlated. However, we did not randomize the order in which the questions were posed, so the correlation is in part due to anchoring. Notably, the emergency phrasing typically had more positive responses than the unexpected need phrasing, even though the latter phrasing in theory nests the former. Conceptually we

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[23] Leora Klapper, Lead Economist in the Finance and Private Sector Research Team of the Development Research Group at the World Bank and founder of the Global Findex database, served as a member of the Advisory Committee for this project.

prefer to use "unexpected need" because it encompasses both resilience as well as the ability to spend on things like family commitments, leisure, or taking advantage of an investment opportunity. We feel comfortable selecting this framing because the responses to each version are highly correlated.

Following the changes to the 2020 Findex Survey, which were made during the work for this report and partly in response to our work, few differences remain between our Access-to-Funds section and the Findex survey's latest iteration of the resilience question. The 2020 Findex questions are now very similar in spirit to the module that we developed and tested, and can reasonably be used to capture the same financial health outcome we define. Furthermore, using questions from the 2020 Findex survey provides an important advantage by allowing for global standardization and comparison, as the Findex data is collected using nationally representative samples in a large number of countries with rich linked data on respondents for comparison and further analysis. As a result, our final recommended survey tool, found in Appendix B, uses the resilience questions from the 2020 Findex survey as our Access-to-Funds section.

Our work also attempted to identify the most important questions from the remaining two sections, Financial Behavior and Access-to-Finance, to add to a longer version of a financial health survey instrument. Our analysis showed that, particularly in the Financial Behavior section, none of the questions could be identified as clear winners across the multiple settings in which they were tested. For those wishing to use a longer version of our instrument to capture data on Financial Behavior and Access-to-Finance questions in addition to the Access-to-Funds measure, we recommend picking from the long-form version of the recommended tool in Appendix B and either selecting those indicators that may be most relevant to your setting, or collecting responses on all and then testing to see which questions are most strongly correlated with financial health for your target population.

V. Limitations

This project provides a quantitative measure of financial health, which can be used as a standardized measure in both applied research and by policymakers and practitioners for benchmarking purposes. The final survey instrument resulting from this work is comprised of the Financial Behavior and Access-to-Finance questions that we have determined are most important to our financial health measure, and thus are the most relevant questions for inclusion in such an instrument. However, there are a number of limitations to the broad applicability of the results of this work due to the data collected as well as the methodological tools used.

Representativeness

This report uses observational data to generate correlations between sections of the survey. These data are comprised of a wide range of population types with different demographic and economic characteristics, and demonstrate the applicability of our Access-to-Funds measure across diverse settings and a wide range of population types. However, the external validity of conclusions from these samples is limited due to how the samples were selected. With the exception of the Ghana sample, we cannot extrapolate any learnings about the population at large from the data samples we use from each country. Nonetheless, these questions are relevant to, and provide useful financial health information about, each of the samples in our study.

Causality

This report does not make any causal claims around the impact of the Financial Behaviors and Access-to-Finance variables on financial health, and rather identifies and measures outcomes without identifying a causal chain. Moreover, the many variations in responses that covary with respondent characteristics raise a number of questions about what is driving positive financial behavior and how these behaviors are interrelated with wealth, income, and expenditures. This work offers an important jumping off point for the exploration of these relationships using experimental and other approaches.

Hypotheticals

Respondent answers to our Access-to-Funds questions are speculative, and we cannot observe what the respondent would or could do in reality. This study provides strong motivation for using this survey in future research. In particular, our work motivates the study of exogenous shocks—including both positive shocks like randomly provided investment opportunities and negative shocks like random medical emergencies—to measure both resilience and the financial behaviors and access to financial products that can moderate such resilience.

V. Conclusions

This research puts forth a quantitative measure of financial health based on the ease of an individual's access to funds in the face of an unexpected need. We use this tool to score the financial health of each of our nine sample populations and observe important variation in scores across sites. The variation corresponds to the contextual and socio-economic differences of each population. In our one nationally representative sample, we also segment the population by different socio-economic characteristics and observe variation in financial health scores between these segments. We empirically validate the measure by correlating it, within sites, with socio-economic variables. We conclude that this measure is a useful and easy-to-use tool that can help policymakers and researchers alike to measure and track financial health outcomes in a variety of contexts.

This research also attempts to identify the most important inputs to financial health outcomes in the Access-to-Finance and Financial Behavior categories, and to develop and test a quantitative instrument to measure them. We find that there are variables in both our Access-to-Finance and Financial Behavior sections that collectively do appear to explain variation in the financial health outcome, even above and beyond standard socio-economic indicators. We show that there is not one universal set of financial access and financial behavior items that correlate with our measure of financial health and provide a generalizable method for identifying such indicators in any given economic context.

As a product of this work, we offer a revised survey instrument that has been further improved based on the learnings from this project. The final result is a blueprint for segmenting populations to target policy and practitioner attention, and for measuring the success of financial inclusion policies in improving financial health.

VI. Tables

Table 1. Alternative Definitions of Financial Health

Organization	Name of Concept	Definition
Financial Health Network (formerly Center for Financial Services Innovation)	Financial Health (United States)	Eight indicators of financial health: 1. Spend less than income 2. Pay bills on time 3. Have sufficient liquid savings 4. Have sufficient long-term savings 5. Save a sustainable debt 6. Have a prime credit score 7. Have appropriate insurance 8. Plan ahead for expenses
Financial Health Network & Center for Financial Inclusion	Financial Health (International)	An individual is financially healthy when he or she: 1. Balances income and expenses 2. Builds and maintains reserves 3. Manages existing debts and has access to potential resources 4. Plans and prioritizes 5. Manages and recovers from financial shocks 6. Uses an effective range of financial tools
Financial Sector Deepening – FSD Kenya	Financial Health	Respondents are considered financially healthy if they are able to: 1. Manage everyday finances 2. Cope with risk 3. Invest in livelihoods and future
Gallup	Financial Security	Respondents are considered to be financially secure if BOTH of these situations apply to them: 1. They could cover ALL of their basic needs, like food, housing and transportation, for more than six months if they lost their income and had to survive only on their savings or things they could sell. 2. Making payments to pay back the money they owe does not make it difficult for them to pay for the other things they need.
insight2impact	Financial Needs	Financial needs are a result of using financial services to accomplish the four behaviors: 1. Transfer of value 2. Liquidity 3. Resilience 4. Meeting goals
Kantar's Financial Inclusion Insights	Financial Health	How much do you agree or disagree with the following eight statements: 1. I have enough money to pay for my living expenses 2. I spend less money than I make each month 3. I pay my bills on time and in full 4. I have an emergency fund that is large enough to cover unplanned expenses 5. I am confident that my income will grow in the future 6. I earn enough money to pay back debt and also pay for my living expenses 7. Friends and family rely on me to help with their finances 8. I have the skills and knowledge to manage my finances well
U.S. Consumer Financial Protection Bureau	Financial Well-Being	A state of being wherein a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and is able to make choices that allow enjoyment of life.

Table 2. Mapping Indicators to Existing Financial Health Framework

	Access					
	Behavior					
	Outcomes					

Group	Category	Financially healthy individuals...	1. Balances income and expenses	2. Builds and maintains reserves	3. Manages existing debts and has access to potential resources	4. Plans and prioritizes	5. Manages and recovers from financial shocks	6. Uses financial tools
Access	Formal savings							
	Formal credit							
	Formal transfers							
Behavior	Borrowing behavior	Make good decisions about how much and whether to borrow						
	Credit repayment behavior	Repay debt in a timely and healthy fashion						
	Savings regularity	Save regularly						
	Short-term planning	Actively budget and plan short-term finances						
	Long-term planning	Plan and save for longer-term goals						
	Awareness of one's own finance	Are aware of their own finance						
	Timeliness of planned bill payments	Make planned bill payments in time						
	Self-control	Have control over their own spending temptations						
	Autonomy	Have autonomy and control over financial decisions within the household						
Outcomes	Access to liquidity/funds	Can raise/access additional /outside liquidity, quickly and affordably						
	Subjective Financial well-being	Feel secure in their financial future						

*Subjective well-being questions have been developed by the CFPB (US) and are currently being developed by Gallup (Global)

Table 3. Access-to-Funds Questions

Access to funds,	*Imagine that you have an unexpected need and you need to come up with [insert 1/20th of GNI per capita]. How possible is it that you could come up with this amount within the next 1 week?*
1 week	Coded on a 4-point scale from 1= Very possible to 4 = Not at all possible [If answer is NOT "Not at all possible"]
	Imagine that you have an unexpected need and you need to come up with [insert 1/20th of GNI per capita]. How difficult is it that you could come up with this amount within the next 1 week?
	Coded on a 4-point scale from 1= Very difficult to 4 = Very Easily [If answer is NOT "Not at all possible"]
	How would you come up with this money within the next 1 week? Do not prompt; list all that apply
	[If multiple options are selected] *Which one is the main source from which you would get this money?*
Access to funds,	*Imagine that you have an unexpected need and you need to come up with [insert 1/20th of GNI per capita]. How possible is it that you could come up with this amount within the next 1 month?*
1 month	Coded on a 4-point scale from 1= Very possible to 4 = Not at all possible
	[If answer is NOT "Not at all possible"]
	Imagine that you have an unexpected need and you need to come up with [insert 1/20th of GNI per capita]. How difficult is it that you could come up with this amount within the next 1 month?
	Coded on a 4-point scale from 1= Very difficult to 4 = Easily [If answer is NOT "Not at all possible"]
	How would you come up with this money within the next 1 month? Do not prompt; list all that apply [If multiple options are selected] *Which one is the main source from which you would get this money?*
Income Volatility	How easily can you predict the amount of income your household will get next time you expect to receive income?

Table 4. Financial Behavior Questions

Borrowing	*You are typically careful about deciding whether to borrow money or make purchases on credit.*
	You sometimes borrow money or make purchases on credit, but on reflection you should have taken more time to think about whether to borrow.
	You make good decisions about how much to borrow or purchase on credit.
	You sometimes borrow more money or make more purchases on credit than you should.
	When you borrow money or make purchases on credit, you repay what you borrowed in the agreed upon timeframe.
	You sometimes borrow money from other sources to repay existing debts.
Saving	*Thinking about your main sources of income, how often does the following statement apply to you: you typically save or set aside some of the income that you receive for the future.*
	Over the past year, how would you describe your household's income and spending? Did you generally spend much more than, a little more than, about the same as, a little less than, or much more than your income?
Planning	*You have plans for how you will pay for your expenses for the next 1 week.*
	You have plans for how you will pay for your expenses for the next 1 month.
	You have plans for how you will pay for your expenses for the next 3 months.
	You have a financial goal to reach for the next 12 months.
	You have a financial goal to reach for the next 5 years.
	You have plans for your finances for old age when you retire.
Autonomy	*If you have a small amount of money, such as [PPP-adjusted local currency units for 0.50 USD] or [PPP-adjusted local currency units for 2 USD], you can decide how to spend it on your own.*
	When an expensive item [like a bicycle or a cow] is purchased by your household, your opinion is typically listened to in the decision of what to buy.
Other	*You sometimes miss or delay a bill payment.*
	You sometimes buy things that you later regret because you bought them on impulse.

Table 5. Access-to-Finance Questions

Formal account	*Do you currently have an account at any of the following places: a bank; [insert locally available financial institutions]; your mobile phone; or another type of formal financial institution?*
	[if answer is yes]
	Does your employer offer the option of automatically setting money aside into a separate account whenever you receive income? [If answer is yes] *Do you use such an automatic savings plan?*
	[If answer is no] *Please tell me whether each of the following is a reason why you, personally, do not have an account at a bank or another type of formal financial institution: because financial institutions are too far away, financial services are too expensive, you don't have the necessary documentation, you don't trust financial institutions, religious reasons, and/or you don't have enough money to use financial institutions.*
Transfer	*In the past 12 months, have you, personally, given or sent money to or received money from a relative or friend living in different areas inside [country] in any of the following ways: through a bank or another type of formal financial institution; through a mobile phone; through a money transfer service?* [If answer is yes for money transfer service and no for all others]
	Please tell me whether each of the following a reason why you, personally, have not sent or received money using a formal financial institution, mobile phone, or money transfer service: because the service provider is too far away, the service provider is too expensive, you don't have the necessary documentation, you don't trust the service provider, and/or you have no need for transfer services at a formal institution.
Credit	*If you wanted to borrow [1/20th of GNI per capita], would it be possible for you to borrow the money from [a bank; an MFI; an informal money lender; insert locally available financial institution]?*
	[If answer is yes]
	Would you need a guarantor? [If answer is yes]
	Would you have to put a collateral?
Insurance	*Do you know what [life; health] insurance is?*
	[If answer is yes]
	Do you have [life; health] insurance?

Table 6. Sample Composition

COUNTRY	#	POPULATION	DATA COLLECTION PERIOD
Ghana	5669	Nationally representative households in a panel	July 2018 – November 2018
Philippines	1402	Ultra-poor HHs in Negros Occidental province	June 2018 – September 2018
Uganda (Host)	844	Households in communities surrounding Rwanwanja Refugee Settlement	August 2018 –November 2018
Uganda (Refugees)	786	Households in the Rwanwanja Refugee Settlement	August 2018 – November 2018
Afghanistan	622	Public school teachers	November 2018
Bangladesh	954	Applicants to a government migration lottery	July 2018 – November 2018
Colombia	579	Clients of microfinance bank	January 2019 – February 2019
Dominican Republic	578	Clients of microfinance bank	January 2019 – February 2019
Peru	442	Borrowers with at least 1 formal debt product, appearing in the credit bureau	November 2018
Total	11876		

Note: Countries are ordered by level of completeness of the data, that is, by the number of covariates available in each dataset. The Ghana sample contains the highest number of covariates, while the Peru sample contains the fewest.

Table 7. Mean Responses in the Outcome Section for Access to 1/20th of GNI for an Unexpected Need Within 1 Week

Question	Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Peru
Possibility: very or somewhat possible	0.46	0.35	0.18	0.13	0.58	0.79	0.73	0.81	0.34
Possibility: very possible	0.22	0.20	0.03	0.02	0.19	0.32	0.44	0.50	0.15
Difficulty: very or somewhat easy	0.29	0.10	0.11	0.07	0.16	0.46	0.52	0.60	0.26
Difficulty: very easy	0.13	0.02	0.02	0.00	0.06	0.23	0.23	0.20	0.06
Source of funds									
Savings	0.29	0.07	0.05	0.04	0.17	0.28	0.16	0.29	0.27
Social Network	0.23	0.11	0.12	0.11	0.35	0.49	0.36	0.21	0.11
Formal source	0.02	0.01	0.01	0.02	0.03	0.05	0.32	0.23	0.05
Informal moneylender	0.01	0.01	0.03	0.08	0.05	0.06	0.04	0.25	0.02
Manager or supervisor at work			0.00	0.00	0.05	0.01	0.00	0.02	0.03
Informal savings group	0.00	0.01	0.10	0.03	0.02	0.01	0.01	0.01	0.02
Sell durable asset	0.02	0.00	0.01	0.01	0.05	0.01	0.01	0.03	0.01
Sell productive asset	0.04	0.03	0.08	0.02	0.03	0.09	0.01	0.02	0.05
Money from working	0.20	0.26	0.02	0.03	0.05	0.13	0.08	0.08	0.13
Pay advance from employer			0.00	0.00	0.11	0.00	0.01	0.02	0.03
Social network, w/o expectation of repayment			0.02	0.01	0.01	0.03	0.00	0.09	0.08
Other	0.03	0.01	0.00	0.01	0.01	0.00	0.01	0.02	0.00
Main Source of Funds									
Savings	0.24	0.06	0.04	0.03	0.15	0.22	0.14	0.26	0.23
Social Network	0.19	0.10	0.10	0.10	0.32	0.38	0.30	0.14	0.10
Formal source	0.01	0.01	0.01	0.01	0.02	0.01	0.27	0.15	0.05
Informal moneylender	0.01	0.01	0.02	0.07	0.03	0.02	0.03	0.17	0.01
Manager or supervisor at work			0.00	0.00	0.03	0.00	0.00	0.01	0.02
Informal savings group	0.00	0.00	0.09	0.03	0.01	0.00	0.00	0.00	0.02
Sell durable asset	0.00	0.00	0.01	0.01	0.02	0.01	0.01	0.01	0.01
Sell productive asset	0.00	0.00	0.07	0.02	0.01	0.07	0.01	0.01	0.04
Money from working	0.20	0.28	0.01	0.02	0.04	0.12	0.07	0.06	0.10
Pay advance from employer			0.00	0.00	0.08	0.00	0.01	0.01	0.02
Social network, w/o expectation of repayment			0.01	0.01	0.01	0.02	0.00	0.07	0.06
Other	0.03	0.01	0.00	0.00	0.01	0.00	0.01	0.02	0.00
N	5655	1384	805	735	588	915	574	564	441

Note: This table reports the percentage of respondents who agreed with each question. All percentages are averages conditional on the respondent receiving the first question in a question set.

Table 8. Differences in Possibility or Ease of Accessing 1/20th GNI per capita for an Unexpected Need across Sites

Site	Possibility			Difficulty			N
	1 Week	1 Month	Diff.	1 Week	1 Month	Diff.	
Ghana	0.46	0.62	0.16	0.29	0.43	0.14	5655
Philippines	0.21	0.41	0.21	0.02	0.05	0.03	590
Uganda (Host)	0.18	0.32	0.14	0.11	0.21	0.10	805
Uganda (Refugee)	0.13	0.27	0.14	0.07	0.19	0.13	735
Afghanistan	0.58	0.63	0.05	0.16	0.20	0.04	588
Bangladesh	0.79	0.90	0.10	0.46	0.62	0.17	915
Colombia	0.76	0.96	0.20	0.56	0.71	0.15	192
Dominican Republic	0.81	0.95	0.14	0.60	0.72	0.13	564

Note: This table reports the differences between the set of respondent that respond it is somewhat or very possible/difficult to access 1/20th of GNI per capita by 1 week and 1 month. Order of time was randomized. All respondents in this table's sample answered both questions.

Table 9. Somewhat or Very Possible to Access 1/20th GNI for an Unexpected Need within one week, by PPI poverty likelihood bins

P(below poverty line)	Ghana		Philippines		Uganda (Host)		Uganda (Refugee)		Afghanistan		Bangladesh		Colombia		Dominican Republic		Peru	
	Mean	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*
0-20%	0.72	1026	0.39	31	0.31	36	0.06	16	0.36	16	1.00	9	0.74	238	0.93	15	0.68	22
20-40%	0.50	1450	0.44	90	0.22	46	0.29	21	0.46	21	0.85	48	0.73	133	0.85	137	0.40	57
40-60%	0.39	1216	0.35	175	0.25	142	0.14	113	0.63	113	0.81	293	0.72	89	0.84	206	0.42	123
60-80%	0.32	1088	0.32	437	0.17	230	0.12	187	0.64	187	0.79	276	0.67	75	0.76	160	0.33	114
80-100%	0.36	829	0.35	651	0.14	346	0.12	393	0.57	393	0.76	289	0.76	33	0.61	31	0.17	125

Note: P(below poverty line) is the likelihood that a respondent's household has a consumption level per capita that is below 200% of the applicable national

Table 10. Somewhat or Very Possible to Access 1/20th GNI for an Unexpected Need within one week, by Ease of Predicting Future Income

Ease of Income Prediction	Ghana		Philippines		Uganda (Host)		Uganda (Refugee)		Afghanistan		Bangladesh		Colombia		Dominican Republic	
	Share	*N*	*Share*	*N*	*Share*	*N*	*Share*	*N*	*Share*	*N*	*Share*	*N*	*Share*	*N*	*Share*	*N*
Very easy	0.70	572	0.38	21	0.56	18	0.13	24	0.72	43	0.79	85	0.87	115	0.54	69
Somewhat easy	0.64	906	0.50	135	0.26	76	0.20	74	0.71	77	0.73	238	0.82	199	0.44	144
Somewhat difficult	0.54	1490	0.41	522	0.25	160	0.15	143	0.58	279	0.70	198	0.79	177	0.28	105
Very difficult	0.30	2680	0.27	705	0.14	546	0.11	441	0.50	189	0.72	53	0.71	73	0.16	82
N	5648		1383		800		682		588		574		564		400	

Note: Income prediction was asked in relation to the next time the respondent would receive income.

Table 11. Somewhat or Very Possible to Access 1/20th of GNI due to an Unexpected Need by PPI Poverty Likelihood Bins & Income Predictability in Ghana

P(below poverty line)	Ease of Income Prediction				
	Very easy	*Somewhat easy*	*Somewhat difficult*	*Very difficult*	N
0-20%	0.86	0.81	0.69	0.53	1025
20-40%	0.67	0.65	0.56	0.36	1448
40-60%	0.47	0.55	0.50	0.27	1215
60-80%	0.53	0.52	0.46	0.21	1087
80-100%	0.55	0.54	0.50	0.24	829
N	569	903	1476	2656	5604

Note: P(below poverty line) is the likelihood that a respondent's household has a consumption level per capita that is below 200% of the applicable national poverty line.

Table 12. Variation in Background Characteristics Based on Possibility to Respond to an Unexpected Need of 1/20th GNI across Sites

Question	Sample	Ghana		Philippines		Uganda (Host)		Uganda (Refugee)		Afghanistan		Bangladesh		Colombia		Dominican Republic		Peru	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Respondent Age	Overall	49.46	17.70	43.18	11.28	39.44	14.21	32.52	10.81	36.24	12.16	43.53	16.47	51.41	11.49	43.79	13.69	41.81	12.05
	Possible	47.89	16.66	42.42	10.00	39.65	12.43	35.32	10.83	35.67	11.42	43.79	16.56	51.03	11.37	43.72	13.63	43.31	12.33
	Not Possible	50.80	18.44	43.58	11.88	39.39	14.58	32.12	10.76	37.03	13.09	42.70	16.22	52.42	11.78	44.08	13.97	41.04	11.84
Respondent Female	Overall	0.41	0.49	0.85	0.36	0.95	0.21	0.95	0.23	0.20	0.40	0.29	0.46	0.68	0.47	0.80	0.40	0.52	0.50
	Possible	0.35	0.48	0.86	0.35	0.93	0.26	0.97	0.18	0.17	0.38	0.27	0.44	0.65	0.48	0.80	0.40	0.48	0.50
	Not Possible	0.46	0.50	0.84	0.36	0.96	0.20	0.94	0.23	0.23	0.42	0.38	0.49	0.76	0.43	0.79	0.41	0.54	0.50
Number of Household Members	Overall	3.37	2.26	5.83	1.93	4.73	2.53	4.63	2.41			4.17	2.02						
	Possible	3.49	2.32	5.94	1.93	5.13	2.61	5.07	2.43			4.26	2.07						
	Not Possible	3.26	2.20	5.77	1.93	4.64	2.51	4.57	2.40			3.81	1.76						
Respondent education																			
Less than Primary	Overall	0.31	0.46	0.01	0.08	0.34	0.47	0.63	0.48	0.00	0.00			0.13	0.34	0.13	0.34	0.03	0.17
	Possible	0.23	0.42	0.01	0.08	0.29	0.45	0.62	0.49	0.00	0.00			0.10	0.30	0.12	0.33	0.00	0.00
	Not Possible	0.37	0.48	0.01	0.09	0.35	0.48	0.63	0.48	0.00	0.00			0.20	0.40	0.17	0.39	0.04	0.21
Primary	Overall	0.15	0.35	0.56	0.50	0.59	0.49	0.29	0.45	0.00	0.04			0.37	0.48	0.44	0.50	0.00	0.00
	Possible	0.13	0.34	0.51	0.50	0.58	0.50	0.30	0.46	0.00	0.05			0.35	0.48	0.43	0.50	0.00	0.00
	Not Possible	0.16	0.36	0.59	0.49	0.59	0.49	0.29	0.45	0.00	0.00			0.43	0.50	0.48	0.51	0.00	0.00
Secondary	Overall	0.36	0.48	0.35	0.48	0.06	0.24	0.08	0.27	0.00	0.00			0.31	0.46	0.33	0.47	0.50	0.50
	Possible	0.36	0.48	0.38	0.49	0.11	0.32	0.08	0.27	0.00	0.00			0.33	0.47	0.36	0.48	0.36	0.48
	Not Possible	0.35	0.48	0.33	0.47	0.05	0.22	0.08	0.27	0.00	0.00			0.27	0.45	0.22	0.42	0.57	0.50
College or Graduate	Overall	0.11	0.31	0.09	0.28	0.01	0.11	0.01	0.07	1.00	0.04			0.19	0.39	0.10	0.30	0.38	0.49
	Possible	0.13	0.34	0.11	0.31	0.02	0.14	0.00	0.00	1.00	0.05			0.22	0.42	0.09	0.29	0.57	0.50
	Not Possible	0.09	0.28	0.07	0.26	0.01	0.09	0.01	0.08	1.00	0.00			0.10	0.30	0.13	0.34	0.28	0.45
Household Income, 30 days (PPP-adjusted USD)	Overall	170.00	4740.40	469.10	366.70	61.60	148.80	164.20	311.30										
	Possible	226.00	6127.80	526.40	412.40	119.70	224.60	264.60	477.10										
	Not Possible	115.90	2811.70	438.80	336.40	48.90	123.00	149.90	277.30										
Household Consumption, 30 days (PPP-adjusted USD)	Overall	234.60	209.90	572.60	242.30	144.90	310.60	216.30	335.10										
	Possible	283.90	232.60	609.40	250.10	251.50	461.60	367.30	520.50										
	Not Possible	192.80	178.20	553.10	235.80	122.00	262.20	194.60	293.70										
Household Asset Value (PPP-adjusted USD)	Overall	4369.00	10889.00	1460.00	1862.00	*	*	*	*										
	Possible	6811.00	14119.00	1673.00	2112.00	*	*	*	*										
	Not Possible	2295.00	6377.00	1347.00	1705.00	*	*	*	*										
PPI Score	Overall	52.72	16.98	50.49	14.55	33.07	11.64	29.29	11.46	41.79	15.94	60.78	12.16	52.95	15.58	56.41	11.59	52.41	16.34
	Possible	57.63	17.84	51.06	14.76	36.27	12.05	31.17	10.85	41.48	15.06	61.30	12.21	53.29	15.79	57.19	11.36	58.55	14.58
	Not Possible	48.54	15.01	50.20	14.44	32.38	11.44	29.02	11.53	42.23	17.09	58.82	11.78	52.06	15.01	53.15	12.00	49.27	16.32
N, All respondents		2596.00		479.00		144.00		92.00		341.00		724.00		417.00		456.00		149.00	
Share Possible		0.46		0.35		0.18		0.13		0.58		0.79		0.73		0.81		0.34	
Share Not Possible		0.54		0.65		0.82		0.87		0.42		0.21		0.27		0.19		0.66	

Note: This table reports the background characteristics of respondents who either reported that it was possible or very possible to pay an unexpected expense of 1/20th GNI (Possible) and respondents that reported it not very possible or impossible to pay (Not Possible). All percentages are averages conditional on the respondent receiving the first question in a question set.

* Asset values were not produced for the Uganda data; instead, counts of assets and land ownership were constructed for the provisional dataset. These asset indices were used in the stability selection, but are not reported here as they are in units of standard deviations within the sample.

Table 13. Response Correlations in the Financial Behavior Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Ghana					Philippines					Uganda (Host)				
Item	Nationally Representative Survey					Graduation Sample (Negros Occidental Province)					Graduation Sample (Communities Surrounding Rwanwania Refugee Settlement)				
	Correlation	p-value Continuous RHS	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS	Correlation	p-value Continuous	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS	Correlation	p-value Continuous RHS	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS
1 Borrowed ever	-0.05	0.66	0.02	0.00	0.01	-0.16	0.27	0.00	0.44	0.01	-0.04	0.74	0.13	0.00	0.00
2 Repay full loans in time	0.13	0.00	0.00	0.06	0.70	0.14	0.74	0.00	0.25	0.52	0.17	0.08	0.37	0.43	0.64
3 Borrow to repay debt	-0.02	0.00	0.01	0.20	0.14	0.14	0.42	0.00	0.47	0.73	0.15	0.07	0.55	0.52	0.59
4 Careful when deciding whether to borrow	0.07	0.08	0.07	0.00	0.02	0.14	0.51	0.21	0.36	0.85	0.06	0.94	0.05	0.01	0.76
5 Makes good decisions about how to borrow	0.08	0.80	0.60	0.00	0.11	0.11	0.39	0.00	0.03	0.45	0.14	0.09	0.09	0.23	0.48
6 Borrows for unnecessary purchases	0.05	0.74	0.24	0.00	0.03	0.05	0.23	0.00	0.01	0.88	-0.05	0.87	0.24	0.01	0.45
7 Borrows more money than should	0.05	0.62	0.27	0.00	0.02	0.11	0.41	0.00	0.06	0.50	-0.08	0.20	0.93	0.09	0.28
8 Set aside income for future	0.40	0.00	0.00	1.00	1.00	0.14	0.01	0.05	0.53	0.52	0.21	0.56	0.02	0.27	0.74
9 Over the past year, spend less than income	0.10	0.00	0.00	0.63	1.00	0.05	0.39	0.11	0.05	0.34	0.05	0.03	0.85	0.10	0.44
10 Miss or delay bill payments	0.04	0.00	0.00	0.10	0.96	-0.02	0.58	0.04	0.01	0.85	-0.06	0.20	0.73	0.00	0.29
11 Have plans for expenses 1 week out	0.37	0.00	0.31	1.00	1.00	0.03	0.02	0.00	0.00	0.50	0.25	0.25	0.29	0.56	0.61
12 Have plans for expenses 1 month out	0.39	0.00	0.00	1.00	1.00	0.10	0.60	0.33	0.03	0.12	0.30	0.09	0.19	0.96	0.70
13 Have plans for expenses 3 months out	0.36	0.85	0.19	0.65	0.93	0.16	0.03	0.00	0.60	0.20	0.28	0.78	0.56	0.53	0.87
14 Has a financial goal for next 1 year	0.36	0.16	0.01	0.02	1.00	0.17	0.65	0.07	0.49	0.35	0.30	0.05	0.56	0.72	0.87
15 Has a financial goal for next 5 years	0.32	0.38	0.07	0.03	0.56	0.18	0.22	0.00	0.82	0.56	0.25	0.40	0.47	0.06	0.67
16 Has plans for finances for old age	0.40	0.00	0.00	1.00	1.00	0.11	0.96	0.00	0.09	0.32	0.31	0.00	0.05	1.00	1.00
17 Buy things on impulse that later regret	-0.10	0.00	0.00	0.52	0.23	-0.08	0.23	0.01	0.20	0.51	-0.08	0.67	0.64	0.02	0.42
18 Decide how to spend small amount of money on own						-0.04	0.06	0.06	0.17	0.43	0.00	0.29	0.13	0.00	0.45
19 Decide how to spend large amount of money on own						0.05	0.22	0.18	0.06	0.63	0.17	0.00	0.01	0.65	0.39
Correlation with PI Max Continuous RHS	0.62	-0.44	-0.19			0.38	-0.23	-0.21			0.82	-0.54	-0.24		
Correlation with PI Max Dummied RHS	0.76	-0.49	-0.34			0.16	-0.01	-0.09			0.80	-0.10	-0.20		
Adjusted R2		0.27	0.28				0.06	0.16				0.16	0.20		
P-value of Joint Test of Significance															
Borrowing (items 1-7)		0.00	0.00				0.03	0.00				0.01	0.00		
Saving (items 8 & 9)		0.00	0.00				0.02	0.01				0.09	0.04		
Planning (items 11-16)		0.00	0.00				0.00	0.00				0.00	0.00		
Autonomy (items 18 & 19)												0.00	0.00		
N	5655	5655	5655	5655	5655	590	590	590	590	590	805	805	805	805	805

Table 13. Response Correlations in the Financial Behavior Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites (cont.)

	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
	Uganda (Refugee)					Afghanistan					Bangladesh				
Item	*Graduation Sample (Rwanwania Refugee Settlement)*					*Teachers*					*Applicants to Government Migration Lottery*				
	Correlation	p-value Continuous	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS	Correlation	p-value Continuous	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS	Correlation	p-value Continuous	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS
1 Borrowed ever	-0.10	0.37	0.00	0.03	0.00	-0.16	0.01	0.06	0.52	0.01	-0.01	0.68	0.00	0.01	0.03
2 Repay full loans in time	0.16	0.04	0.00	0.66	0.74	0.17	0.35	0.06	0.46	0.50	0.05	0.40	0.05	0.07	0.69
3 Borrow to repay debt	0.08	0.92	0.01	0.12	0.79	0.16	0.50	0.34	0.27	0.33	-0.04	0.73	0.30	0.04	0.35
4 Careful when deciding whether to borrow	0.10	0.89	0.01	0.05	0.60	0.15	0.32	0.07	0.40	0.48	0.05	0.27	0.00	0.03	0.35
5 Makes good decisions about how to borrow	0.14	0.23	0.62	0.40	0.37	0.19	0.11	0.24	0.76	0.42	0.02	0.67	0.02	0.00	0.48
6 Borrows for unnecessary purchases	-0.02	0.92	0.08	0.01	0.33	-0.08	0.07	0.69	0.06	0.47	0.04	0.25	0.01	0.03	0.46
7 Borrows more money than should	-0.01	0.07	0.06	0.00	0.45	-0.03	0.73	0.35	0.01	0.55	0.01	0.43	0.02	0.00	0.46
8 Set aside income for future	0.17	0.24	0.00	0.50	0.81	0.27	0.00	0.00	1.00	0.98	0.18	0.01	0.03	0.89	0.92
9 Over the past year, spend less than income	0.03	0.58	0.75	0.02	0.43	0.18	0.00	0.13	0.83	0.87	0.15	0.01	0.00	0.88	0.95
10 Miss or delay bill payments	-0.04	0.66	0.00	0.01	0.55	-0.08	0.50	0.11	0.00	0.26	0.08	0.23	0.00	0.19	0.86
11 Have plans for expenses 1 week out	0.18	0.89	0.15	0.16	0.72	-0.12	0.00	0.02	0.67	0.57	0.26	0.00	0.00	1.00	0.93
12 Have plans for expenses 1 month out	0.26	0.00	0.00	1.00	0.51	-0.07	0.14	0.00	0.11	0.37	0.21	0.78	0.00	0.33	0.77
13 Have plans for expenses 3 months out	0.17	0.59	0.00	0.11	0.50	0.05	0.85	0.17	0.00	0.17	0.17	0.06	0.21	0.19	0.15
14 Has a financial goal for next 1 year	0.14	0.71	0.45	0.09	0.31	0.05	0.60	0.75	0.01	0.14	0.10	0.30	0.23	0.00	0.18
15 Has a financial goal for next 5 years	0.15	0.33	0.14	0.29	0.59	0.10	0.25	0.29	0.06	0.19	0.05	0.24	0.00	0.01	0.68
16 Has plans for finances for old age	0.13	0.30	0.56	0.23	0.36	0.05	0.46	0.12	0.00	0.07	0.06	0.81	0.11	0.00	0.13
17 Buy things on impulse that later regret	-0.08	0.60	0.62	0.08	0.22	-0.17	0.02	0.10	0.75	0.81	0.08	0.10	0.40	0.47	0.62
18 Decide how to spend small amount of money on own	0.04	0.66	0.07	0.00	0.24	0.18	0.01	0.00	0.70	0.59					
19 Decide how to spend large amount of money on own	0.08	0.98	0.60	0.05	0.15	0.07	0.93	0.21	0.02	0.10					
Correlation with PI Max Continuous RHS	0.69	-0.67	-0.18			0.31	-0.74	-0.49			0.77	-0.62	-0.09		
Correlation with PI Max Dummied RHS	0.54	-0.11	-0.44			0.27	-0.55	-0.27			0.53	-0.49	-0.34		
Adjusted R2		0.08	0.13				0.21	0.20				0.10	0.17		
P-value of Joint Test of Significance															
Borrowing (items 1-7)		0.01	0.00				0.00	0.00				0.82	0.00		
Saving (items 8 & 9)		0.39	0.00				0.00	0.00				0.00	0.00		
Planning (items 11-16)		0.00	0.00				0.00	0.00				0.00	0.00		
Autonomy (items 18 & 19)		0.90	0.29				0.02	0.00							
N	735	735	735	735	735	588	588	588	588	588	915	915	915	915	917

Table 13. Response Correlations in the Financial Behavior Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites (cont.)

	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)
	Colombia					Dominican Republic					Peru				
Item	Microfinance Borrowers					Microfinance Borrowers					Borrowers				
	Correlation	p-value Continuous RHS	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS	Correlation	p-value Continuous	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS	Correlation	p-value Continuous RHS	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS
1 Borrowed ever	-0.10	0.60		0.38	0.00	0.05	0.00	0.91	0.00	0.00					
2 Repay full loans in time	0.09	0.54	0.88	0.43	0.94	0.09	0.03	0.00	0.08	0.61	0.33	0.10	0.00	0.97	0.00
3 Borrow to repay debt	-0.06	0.55	0.87	0.23	0.99	-0.16	0.00	0.12	0.76	0.66	0.00	0.55	0.00	0.92	1.00
4 Careful when deciding whether to borrow	0.00	0.81	0.27	0.27	0.96	0.06	0.43	0.37	0.06	0.39	0.07	0.75	0.00	0.93	0.69
5 Makes good decisions about how to borrow	0.06	0.95	0.60	0.26	0.95	0.07	0.57	0.30	0.05	0.61	0.31	0.41	0.00	0.97	1.00
6 Borrows for unnecessary purchases	0.11	0.34	0.60	0.46	1.00	0.00	0.57	0.23	0.00	0.37	-0.04	0.72	0.00	0.97	1.00
7 Borrows more money than should	0.00	0.08	0.23	0.40	0.98	0.04	0.57	0.53	0.00	0.61	-0.16	0.54	0.00	0.92	1.00
8 Set aside income for future	0.10	0.72	0.75	0.43	0.96	0.20	0.01	0.08	0.93	0.61					
9 Over the past year, spend less than income	0.24	0.01	0.15	0.92	1.00	0.18	0.03	0.12	0.75	0.81					
10 Miss or delay bill payments	0.08	0.37	0.09	0.51	0.79	0.07	0.55	0.02	0.04	0.85	0.08	0.58	0.00	0.96	1.00
11 Have plans for expenses 1 week out	0.15	0.60	0.80	0.19	0.25	0.08	0.55	0.79	0.04	0.05					
12 Have plans for expenses 1 month out	0.20	0.28	0.75	0.69	0.08	0.05	0.27	0.87	0.01	0.04					
13 Have plans for expenses 3 months out	0.20	0.83	0.15	0.42	0.04	0.10	0.18	0.39	0.13	0.10					
14 Has a financial goal for next 1 year	0.24	0.08	0.51	0.94	0.02	0.15	0.26	0.70	0.53	0.20					
15 Has a financial goal for next 5 years	0.18	0.92	0.03	0.26	0.00	0.11	0.35	0.57	0.14	0.43					
16 Has plans for finances for old age	0.20	0.62	0.64	0.57	0.00	0.08	0.74	0.50	0.02	0.09					
17 Buy things on impulse that later regret	0.09	0.16	0.48	0.70	0.19	0.03	0.70	0.09	0.00	0.28	-0.16	0.18	0.00	0.96	0.84
18 Decide how to spend small amount of money on own	0.01	0.72	0.00	0.35	0.01	0.03	0.75	0.05	0.04	0.39					
19 Decide how to spend large amount of money on own	0.07	0.55	0.30	0.31	0.00	0.05	0.93	0.00	0.01	0.40					
Correlation with PI Max Continuous RHS	0.60	-0.75	-0.05			0.23	-0.63	-0.24			0.49	-0.42			
Correlation with PI Max Dummied RHS	-0.27	-0.12	0.22			0.00	-0.13	-0.72			-0.54	0.59			
Adjusted R2		0.06	0.39				0.08	0.06				0.11	-0.01		
P-value of Joint Test of Significance															
Borrowing (items 1-7)		0.73	0.00				0.00	0.00				0.06	0.00		
Saving (items 8 & 9)		0.03	0.04				0.00	0.00							
Planning (items 11-16)		0.26	0.15				0.32	0.53							
Autonomy (items 18 & 19)		0.82	0.00				0.94	0.00							
N	192	192	192	192	192	564	564	564	564	564	136	136	136	136	136

Table 14. Response Correlations in the Financial Behavior Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites

	(46)	(47)	(48)	(49)	(50)
		Average Across Sites			
Item					
	Correlation	p-value Continuous	Joint p-value Dummied RHS	π_max Continuous RHS	π_max Dummied RHS
1 Borrowed ever	-0.07	0.42	0.16	0.17	0.01
2 Repay full loans in time	0.15	0.25	0.15	0.38	0.59
3 Borrow to repay debt	0.03	0.41	0.24	0.39	0.62
4 Careful when deciding whether to borrow	0.08	0.56	0.12	0.23	0.57
5 Makes good decisions about how to borrow	0.13	0.47	0.27	0.30	0.54
6 Borrows for unnecessary purchases	0.01	0.52	0.23	0.17	0.55
7 Borrows more money than should	-0.01	0.40	0.27	0.16	0.54
8 Set aside income for future	0.21	0.19	0.12	0.69	0.82
9 Over the past year, spend less than income	0.12	0.13	0.26	0.52	0.73
10 Miss or delay bill payments	0.02	0.41	0.11	0.20	0.71
11 Have plans for expenses 1 week out	0.15	0.29	0.30	0.45	0.58
12 Have plans for expenses 1 month out	0.18	0.27	0.27	0.52	0.45
13 Have plans for expenses 3 months out	0.19	0.52	0.21	0.33	0.37
14 Has a financial goal for next 1 year	0.19	0.35	0.41	0.35	0.38
15 Has a financial goal for next 5 years	0.17	0.39	0.20	0.21	0.46
16 Has plans for finances for old age	0.17	0.49	0.25	0.36	0.37
17 Buy things on impulse that later regret	-0.05	0.29	0.26	0.41	0.46
18 Decide how to spend small amount of money on own	0.04	0.41	0.05	0.21	0.35
19 Decide how to spend large amount of money on own	0.08	0.60	0.21	0.18	0.28
Correlation with PI Max Continuous RHS	0.55	-0.56	-0.21		
Correlation with PI Max Dummied RHS	0.25	-0.16	-0.27		
Adjusted R2		0.12	0.18		
P-value of Joint Test of Significance					
Borrowing (items 1-7)		0.18	0.00		
Saving (items 8 & 9)		0.07	0.01		
Planning (items 11-16)		0.07	0.08		
Autonomy (items 18 & 19)		0.53	0.06		
N	10180	10180	10180		

Table 15. Response Correlations in the Access-to-Finance Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites

Item		(1)	(2)	(3)	(4)	(5)	(6)
		Ghana			Philippines		
		Nationally Representative Survey			Graduation Sample (Negros Occidental Province)		
		Correlation	Joint p-value Dummied RHS	π_max Dummied RHS	Correlation	Joint p-value Dummied RHS	π_max Dummied RHS
1	Has any formal account	0.41	0.84	1.00	0.09		1.00
	Doesn't have formal account due to….						
2	…because financial institutions are too far away	0.15	0.02	1.00	0.00	0.02	0.07
3	…because financial services are too expensive	0.08	0.21	0.01	0.01	0.53	0.04
4	…because you don't have the necessary documentation	0.00	0.03	0.00	0.00	0.00	0.03
5	…because you don't trust financial institutions	0.15	0.00	0.90	0.03	0.28	0.05
6	…because of religious reasons	0.01	0.17	0.00	0.04	0.00	0.26
7	…because you don't have enough money to use financial institutions	-0.27	0.00	0.62	-0.10	0.10	0.50
8	…because someone else in the family already has an account	0.05	0.82	0.00	0.07	0.84	0.24
9	…because you cannot get an account	0.08	0.63	0.00	-0.08	0.00	0.52
10	…because you have no need for financial services at a formal institution	0.10	0.80	0.03	-0.01	0.03	0.31
11	…for any other reason	0.08	0.13	0.03			
12	Has a formal account AND has automatic savings options				0.10	0.34	0.56
13	Has a formal account AND uses automatic savings				-0.47	0.02	0.56
	Has access to credit of 1/20th of GNI…						
14	…from any listed source	0.24	0.06	1.00	0.31	0.28	1.00
15	…from a bank	0.25	0.25	0.84	0.13	0.91	0.24
16	…from a MFI	0.35	0.52	0.00	0.24	0.55	0.22
17	…from a SACCO	0.21	0.42	0.00	0.22	0.07	0.86
18	…from a money lender	0.50	0.68	0.00	0.25	0.13	0.74
19	…from any source AND doesn't need a guarantor >=1 source	0.09	0.01	0.08	-0.05	0.37	0.20
20	…from any source AND doesn't need collateral >=1 source	0.04	0.96	0.03	0.09	0.01	0.18
21	Knows what life insurance is	0.33	0.00	1.00	0.09	0.00	0.21
22	Has life insurance	0.13	0.03	0.00	0.04	0.65	0.09
23	Knows what health insurance is	0.03	0.06	0.00	-0.10	0.20	0.94
24	Has health insurance	0.05	0.03	0.00	-0.02	0.60	0.40
	Received money from or sent money to a friend or relative…						
25	…via any formal source						
26	…in cash						
27	…via a formal institution						
28	…via a mobile phone						
29	…via a money transfer service						
	Didn't receive from or send money to friend/relative because…						
30	…the service provider is too far away						
31	…the service provider is too expensive						
32	…you don't have the necessary documentation						
33	…you don't trust the service provider						
34	…you have no need for transfer services at a formal institution						
	Has a formal account…	0.39	0.80	0.84			
35	…with a bank	0.04	0.29	0.00			
36	…with a MFI	0.06	0.32	0.00			
37	…with a SACCO	0.01	0.92	0.00			
38	…with a money lender	0.08	0.02	0.00			
39	…with a credit co-op	0.07	0.01	0.00			
40	Has access to credit of 1/20th of GNI from a credit co-op						
41	Has access to a credit of 1/20th of GNI through mobile money						
	Correlation with PI Max Dummied RHS	0.38	-0.14		0.14	-0.21	
	Adjusted R2		0.26			0.13	
	N	5655	5655	5655	590	590	590

Table 15. Response Correlations in the Access-to-Finance Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites (cont.)

		(7)	(8)	(9)	(10)	(11)	(12)
		Uganda (Host)			**Uganda (Refugee)**		
		Graduation Sample (Communities Surrounding Rwanwania Refugee Settlement)			*Graduation Sample (Rwanwania Refugee Settlement)*		
Item		Correlation	Joint p-value Dummied RHS	π_max Dummied RHS	Correlation	Joint p-value Dummied RHS	π_max Dummied RHS
1	Has any formal account	0.17	0.00	0.53	0.08	0.51	0.84
	Doesn't have formal account due to….						
2	…because financial institutions are too far away	-0.02	0.52	0.00	0.03	0.56	0.08
3	…because financial services are too expensive	-0.08	0.06	0.10	0.06	0.75	0.21
4	…because you don't have the necessary documentation	-0.09	0.45	0.10	0.02	0.90	0.08
5	…because you don't trust financial institutions	-0.07	0.79	0.05	0.09	0.00	0.54
6	…because of religious reasons	-0.01	0.00	0.05	-0.02	0.00	0.01
7	…because you don't have enough money to use financial institutions	0.00	0.00	0.24	0.00	0.83	0.08
8	…because someone else in the family already has an account	-0.02	0.00	0.00	0.02	0.39	0.01
9	…because you cannot get an account						
10	…because you have no need for financial services at a formal institution	0.00	0.38	0.02	0.06	0.03	0.32
11	…for any other reason						
12	Has a formal account AND has automatic savings options	0.02	0.01	0.04	0.06	0.04	0.13
13	Has a formal account AND uses automatic savings	0.05	0.91	0.00	-0.12	0.39	0.12
	Has access to credit of 1/20th of GNI…						
14	…from any listed source	0.29	0.27	1.00	0.32	0.75	1.00
15	…from a bank	0.21	0.20	0.61	0.11	0.04	0.35
16	…from a MFI	0.24	0.00	0.90	-0.03	0.00	0.00
17	…from a SACCO	0.15	0.88	0.02	0.16	0.30	0.50
18	…from a money lender	0.22	0.30	0.05	0.30	0.00	0.59
19	…from any source AND doesn't need a guarantor >=1 source	0.08	0.78	0.09	-0.09	0.15	0.56
20	…from any source AND doesn't need collateral >=1 source	0.02	0.93	0.02	0.07	0.00	0.21
21	Knows what life insurance is	0.08	0.00	0.02	0.09	0.26	0.53
22	Has life insurance	0.04	0.04	0.00	-0.08	0.00	0.19
23	Knows what health insurance is	0.07	0.00	0.02	0.03	0.21	0.10
24	Has health insurance	0.11	0.01	0.00	0.17	0.18	0.10
	Received money from or sent money to a friend or relative…						
25	…via any formal source	0.24	0.20	1.00	0.12	0.19	0.71
26	…in cash	0.11	0.94	0.09	0.04	0.12	0.01
27	…via a formal institution	0.05	0.69	0.07	-0.06	0.00	0.03
28	…via a mobile phone	0.23	0.00	0.20	0.12	0.45	0.20
29	…via a money transfer service	0.09	0.51	0.11	0.07	0.61	0.08
	Didn't receive from or send money to friend/relative because…						
30	…the service provider is too far away	0.26	0.02	0.13	-0.18	0.76	0.00
31	…the service provider is too expensive	0.02	0.84	0.00	-0.21	0.00	0.07
32	…you don't have the necessary documentation	-0.04	0.82	0.00	0.17	0.20	0.19
33	…you don't trust the service provider	0.16	0.23	0.00	0.33	0.07	0.23
34	…you have no need for transfer services at a formal institution	-0.09	0.15	0.01	-0.22	0.10	0.00
	Has a formal account…						
35	…with a bank						
36	…with a MFI						
37	…with a SACCO						
38	…with a money lender						
39	…with a credit co-op						
40	Has access to credit of 1/20th of GNI from a credit co-op						
41	Has access to a credit of 1/20th of GNI through mobile money						
	Correlation with PI Max Dummied RHS	0.64	-0.27		0.54	0.05	
	Adjusted R2		0.14			0.13	
	N	805	805	805	735	735	735

Table 15. Response Correlations in the Access-to-Finance Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites (cont.)

		(13)	(14)	(15)	(16)	(17)	(18)
			Afghanistan			Bangladesh	
			Teachers			Applicants to Government Migration Lottery	
Item		Correlation	Joint p-value Dummied RHS	π_max Dummied RHS	Correlation	Joint p-value Dummied RHS	π_max Dummied RHS
1	Has any formal account	0.00	0.00	0.68	0.17	0.02	1.00
	Doesn't have formal account due to….						
2	…because financial institutions are too far away	0.00	0.28	0.03	0.04	0.09	0.09
3	…because financial services are too expensive	0.07	0.13	0.05	-0.01	0.00	0.04
4	…because you don't have the necessary documentation	0.00	0.12	0.01	-0.16	0.53	0.02
5	…because you don't trust financial institutions	-0.01	0.18	0.05	0.13	0.93	0.03
6	…because of religious reasons	0.12	0.00	0.40			
7	…because you don't have enough money to use financial institutions	0.18	0.43	0.18	-0.51	0.00	0.09
8	…because someone else in the family already has an account	0.10	0.30	0.12	-0.31	0.67	0.00
9	…because you cannot get an account						
10	…because you have no need for financial services at a formal institution	0.10	0.07	0.08	0.14	0.01	0.07
11	…for any other reason						
12	Has a formal account AND has automatic savings options	0.15	0.00	0.20	0.02	0.96	0.44
13	Has a formal account AND uses automatic savings	0.17	0.00	0.12	0.20	0.99	0.27
	Has access to credit of 1/20th of GNI…						
14	…from any listed source	0.27	0.09	1.00	0.37	0.51	1.00
15	…from a bank	0.16	0.06	0.26	0.28	0.00	1.00
16	…from a MFI	0.13	0.47	0.07	0.19	0.07	0.05
17	…from a SACCO				0.29	0.02	0.70
18	…from a money lender	0.23	0.06	0.75	0.32	0.00	0.97
19	…from any source AND doesn't need a guarantor >=1 source	-0.01	0.35	0.05	0.24	0.00	1.00
20	…from any source AND doesn't need collateral >=1 source	0.00	0.01	0.02	0.10	0.02	0.61
21	Knows what life insurance is	0.12	0.02	0.44	0.13	0.40	0.81
22	Has life insurance	0.01	0.01	0.07	0.02	0.90	0.33
23	Knows what health insurance is	0.10	0.16	0.34	0.11	0.14	0.88
24	Has health insurance	-0.08	0.30	0.24	0.07	0.04	0.40
	Received money from or sent money to a friend or relative…						
25	…via any formal source	0.01	0.06	0.91	0.03	0.85	0.84
26	…in cash	0.11	0.27	0.16	0.06	0.08	0.18
27	…via a formal institution	0.08	0.00	0.11	0.06	0.39	0.16
28	…via a mobile phone	-0.09	0.06	0.68	0.02	0.00	0.21
29	…via a money transfer service	0.14	0.00	0.52	0.04	0.00	0.13
	Didn't receive from or send money to friend/relative because…						
30	…the service provider is too far away	0.03	0.91	0.00	-0.18	0.50	0.49
31	…the service provider is too expensive	0.14	0.65	0.03	-0.09	0.00	0.22
32	…you don't have the necessary documentation	0.22	0.13	0.00	-0.27	0.00	0.16
33	…you don't trust the service provider	0.11	0.00	0.00	-0.15	0.00	0.02
34	…you have no need for transfer services at a formal institution	0.03	0.00	0.00	-0.11	0.26	0.02
	Has a formal account…						
35	…with a bank						
36	…with a MFI						
37	…with a SACCO						
38	…with a money lender						
39	…with a credit co-op						
40	Has access to credit of 1/20th of GNI from a credit co-op						
41	Has access to a credit of 1/20th of GNI through mobile money	0.13	0.00	0.60			
	Correlation with PI Max Dummied RHS	0.19	-0.35		0.61	-0.05	
	Adjusted R2		0.18			0.23	
	N	588	588	588	915	915	915

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Table 15. Response Correlations in the Access-to-Finance Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites (cont.)

		(19)	(20)	(21)	(22)	(23)	(24)
			Colombia			Dominican Republic	
			Microfinance Borrowers			Microfinance Borrowers	
Item		Correlation	Joint p-value Dummied RHS	π_max Dummied RHS	Correlation	Joint p-value Dummied RHS	π_max Dummied RHS
1	Has any formal account	0.24	0.63	1.00	0.11	0.56	0.74
	Doesn't have formal account due to….						
2	…because financial institutions are too far away	-0.34	0.12	0.03	0.23	0.01	0.27
3	…because financial services are too expensive	0.32	0.17	0.91	0.14	0.10	0.21
4	…because you don't have the necessary documentation	0.17	0.11	0.21	0.12	0.37	0.01
5	…because you don't trust financial institutions	0.13	0.01	0.54	0.12	0.67	0.04
6	…because of religious reasons				0.05	0.01	0.00
7	…because you don't have enough money to use financial institutions	-0.22	0.81	0.38	-0.16	0.74	0.02
8	…because someone else in the family already has an account	0.05	0.75	0.05	0.22	0.11	0.19
9	…because you cannot get an account						
10	…because you have no need for financial services at a formal institution	0.06	0.16	0.38	0.12	0.23	0.22
11	…for any other reason						
12	Has a formal account AND has automatic savings options	0.06	0.69	0.67	-0.03	0.00	0.24
13	Has a formal account AND uses automatic savings	-0.10	0.96	0.29	0.17	0.00	0.22
	Has access to credit of 1/20th of GNI…						
14	…from any listed source	0.20	0.29	1.00	0.02	0.00	0.99
15	…from a bank	0.23	0.00	0.90	0.09	0.20	0.24
16	…from a MFI	0.13	0.06	0.10	0.07	0.00	0.54
17	…from a SACCO	0.19	0.24	0.78	0.04	0.20	0.02
18	…from a money lender	0.06	0.56	0.20	0.17	0.05	0.79
19	…from any source AND doesn't need a guarantor >=1 source	0.11	0.76	0.29	0.08	0.15	0.16
20	…from any source AND doesn't need collateral >=1 source	0.12	0.26	0.68	0.13	0.05	0.56
21	Knows what life insurance is	0.06		0.55	0.06	0.41	0.14
22	Has life insurance	0.08	0.97	0.38	0.06	0.30	0.06
23	Knows what health insurance is	0.04	0.61	0.48	0.06		0.10
24	Has health insurance	-0.02	0.57	0.19	0.04	0.18	0.08
	Received money from or sent money to a friend or relative…						
25	…via any formal source	0.21	0.72	0.99	0.14	0.87	0.73
26	…in cash	0.08	0.37	0.16	0.06	0.76	0.03
27	…via a formal institution	0.18	0.07	0.50	0.13	0.35	0.17
28	…via a mobile phone	0.15	0.12	0.62	0.06	0.05	0.03
29	…via a money transfer service	0.18	0.11	0.44	0.13	0.28	0.41
	Didn't receive from or send money to friend/relative because…						
30	…the service provider is too far away		0.20	0.34	-0.04	0.97	0.00
31	…the service provider is too expensive	0.31	0.66	0.07	-0.08	0.47	0.00
32	…you don't have the necessary documentation			0.00	-0.11	0.25	0.01
33	…you don't trust the service provider	0.44		0.00	0.08	0.11	0.01
34	…you have no need for transfer services at a formal institution	0.09		0.00	0.17	0.05	0.10
	Has a formal account…						
35	…with a bank						
36	…with a MFI						
37	…with a SACCO						
38	…with a money lender						
39	…with a credit co-op						
40	Has access to credit of 1/20th of GNI from a credit co-op						
41	Has access to a credit of 1/20th of GNI through mobile money						
	Correlation with PI Max Dummied RHS	0.32	-0.14		0.31	-0.15	
	Adjusted R2		0.16			0.09	
	N	192	192	192	546	564	564

Table 16. Response Correlations in the Access-to-Finance Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites

		(25)	(26)	(27)
		Average Across Sites		
Item		Correlation	Joint p-value Dummied RHS	π_max Dummied RHS
1	Has any formal account	0.16	0.37	0.85
	Doesn't have formal account due to….			
2	…because financial institutions are too far away	0.01	0.20	0.20
3	…because financial services are too expensive	0.07	0.24	0.20
4	…because you don't have the necessary documentation	0.01	0.31	0.06
5	…because you don't trust financial institutions	0.07	0.36	0.28
6	…because of religious reasons	0.03	0.03	0.12
7	…because you don't have enough money to use financial institutions	-0.13	0.36	0.26
8	…because someone else in the family already has an account	0.02	0.49	0.08
9	…because you cannot get an account	0.00	0.32	0.26
10	…because you have no need for financial services at a formal institution	0.07	0.21	0.18
11	…for any other reason	0.08	0.13	0.03
12	Has a formal account AND has automatic savings options	0.05	0.29	0.33
13	Has a formal account AND uses automatic savings	-0.01	0.47	0.23
	Has access to credit of 1/20th of GNI…			
14	…from any listed source	0.25	0.28	1.00
15	…from a bank	0.18	0.21	0.56
16	…from a MFI	0.16	0.21	0.24
17	…from a SACCO	0.18	0.30	0.41
18	…from a money lender	0.26	0.22	0.51
19	…from any source AND doesn't need a guarantor >=1 source	0.06	0.32	0.30
20	…from any source AND doesn't need collateral >=1 source	0.07	0.28	0.29
21	Knows what life insurance is	0.12	0.16	0.46
22	Has life insurance	0.04	0.36	0.14
23	Knows what health insurance is	0.04	0.20	0.36
24	Has health insurance	0.04	0.24	0.18
	Received money from or sent money to a friend or relative…			
25	…via any formal source	0.13	0.48	0.86
26	…in cash	0.08	0.42	0.11
27	…via a formal institution	0.07	0.25	0.17
28	…via a mobile phone	0.08	0.12	0.32
29	…via a money transfer service	0.11	0.25	0.28
	Didn't receive from or send money to friend/relative because…			
30	…the service provider is too far away	-0.02	0.56	0.16
31	…the service provider is too expensive	0.01	0.44	0.07
32	…you don't have the necessary documentation	-0.01	0.28	0.06
33	…you don't trust the service provider	0.16	0.08	0.04
34	…you have no need for transfer services at a formal institution	-0.02	0.11	0.02
	Has a formal account…			
35	…with a bank			
36	…with a MFI			
37	…with a SACCO			
38	…with a money lender			
39	…with a credit co-op			
40	Has access to credit of 1/20th of GNI from a credit co-op			
41	Has access to a credit of 1/20th of GNI through mobile money			
	Correlation with PI Max Dummied RHS	0.39	-0.16	
	Adjusted R2			
	N	10044	10044	10044

Table 17. Mean Outcome Score by Site

Site	Mean Outcome Score	N
Colombia	6.1	192
Dominican Republic	6.1	564
Bangladesh	5.7	915
Ghana	4.4	5655
Afghanistan	4.1	588
Peru	3.8	136
Uganda (Host)	2.8	805
Philippines	2.5	590
Uganda (Refugee)	2.4	735

Table 18. Segmentation of Scores by Demographic Characteristics, Ghana

Characteristic	Mean Score	SD
General population	4.4	(2.33)
Respondent age (years)		
Younger than 30 years of age	4.2	(2.35)
Between 30 and 39 years of age	4.9	(2.21)
Between 40 and 59 years of age	4.6	(2.28)
60 years old or older	3.9	(2.37)
Respondent gender		
Male	4.7	(2.27)
Female	4	(2.36)
Respondent education, highest achieved		
Less than primary	3.7	(2.16)
Primary	4.1	(2.35)
Secondary	4.6	(2.29)
College or graduate	5.1	(2.23)

Table 19. Segmentation of Scores by Access to Financial Services, Ghana

Characteristic	Mean Score	SD
General population	4.4	(2.33)
Respondent has any formal account		
Yes	5.6	(2.13)
No	3.6	(2.13)
Respondent has access to credit of 1/20th of GNI		
Yes	6	(1.96)
No	4.9	(2.26)

Table 20. Prediction Accuracy of OLS and Elastic Net Regressions with Continuous RHS Variables by 10 Largest π_max Questions

Cumulative Number of Questions	Ghana		Philippines		Uganda (Host)		Uganda (Refugee)		Afghanistan		Bangladesh		Colombia		Dominican Republic	
	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net
1	0.61	0.61	0.56	0.55	0.54	0.54	0.65	0.65	0.62	0.63	0.59	0.59	0.66	0.66	0.53	0.56
2	0.63	0.63	0.55	0.55	0.64	0.64	0.64	0.64	0.61	0.61	0.60	0.60	0.75	0.77	0.56	0.55
3	0.64	0.64	0.59	0.59	0.65	0.65	0.64	0.64	0.58	0.58	0.62	0.63	0.66	0.68	0.60	0.59
4	0.67	0.67	0.57	0.55	0.66	0.66	0.65	0.66	0.60	0.60	0.63	0.61	0.57	0.60	0.56	0.57
5	0.67	0.67	0.55	0.57	0.65	0.64	0.65	0.64	0.60	0.60	0.62	0.61	0.57	0.57	0.53	0.53
6	0.67	0.68	0.58	0.58	0.65	0.66	0.65	0.64	0.63	0.63	0.61	0.62	0.55	0.58	0.54	0.54
7	0.67	0.67	0.58	0.58	0.65	0.64	0.65	0.65	0.63	0.61	0.60	0.61	0.57	0.57	0.53	0.54
8	0.67	0.67	0.59	0.59	0.67	0.65	0.64	0.65	0.62	0.62	0.60	0.61	0.54	0.58	0.54	0.53
9	0.67	0.67	0.60	0.58	0.67	0.66	0.65	0.65	0.62	0.62	0.61	0.62	0.51	0.57	0.54	0.53
10	0.67	0.67	0.58	0.57	0.66	0.65	0.65	0.64	0.61	0.62	0.61	0.62	0.52	0.55	0.54	0.54
Test Set N	1886	1886	197	197	269	269	246	246	197	197	306	306	65	65	189	189
Training Set N	3769	3769	393	393	536	536	489	489	391	391	609	609	127	127	375	375
Sample N	5655	5655	590	590	805	805	735	735	588	588	915	915	192	192	564	564

Note: The training-test split was 1/3 for this sample.

Table 21. Prediction Accuracy of Elastic Net Regressions with Continuous RHS Variables by Top 10 π_max Questions

Cumulative Number of Questions	Ghana		Philippines		Uganda (Host)		Uganda (Refugee)	
	Standard	Residualized	Standard	Residualized	Standard	Residualized	Standard	Residualized
1	0.61	0.55	0.55	0.54	0.54	0.54	0.65	0.64
2	0.63	0.60	0.55	0.52	0.64	0.61	0.64	0.63
3	0.64	0.61	0.59	0.55	0.65	0.62	0.64	0.64
4	0.67	0.62	0.55	0.55	0.66	0.63	0.66	0.65
5	0.67	0.62	0.57	0.55	0.64	0.64	0.64	0.64
6	0.68	0.62	0.58	0.56	0.66	0.64	0.64	0.64
7	0.67	0.61	0.58	0.54	0.64	0.63	0.65	0.61
8	0.67	0.62	0.59	0.53	0.65	0.63	0.65	0.63
9	0.67	0.62	0.58	0.54	0.66	0.63	0.65	0.62
10	0.67	0.62	0.57	0.54	0.65	0.63	0.64	0.61
Test Set N	1886	1852	197	196	269	267	246	246
Training Set N	3769	3803	393	394	536	538	489	489
Sample N	5655	5655	590	590	805	805	735	735

Note: Variables order and inclusion is based on the ranking of selected variables in the stability selection. Prediction is based on whether the predicted outcome index was in the top half or bottom half of the out-of-sample actual score based on a regression including the top 1-10 selected questions. The training-test split was 1/3 for this sample.

Table 22. Prediction Accuracy of OLS and Elastic Net Regressions for Access-to-Finance Section by 10 Largest π_max Questions

Cumulative Number of Questions	Ghana		Philippines		Uganda (Host)		Uganda (Refugee)		Afghanistan		Bangladesh		Colombia		Dominican Republic	
	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net	OLS	Elastic Net
3	0.69	0.49	0.65	0.65	0.59	0.67	0.67	0.67	0.56	0.50	0.68	0.60	0.54	0.55	0.47	0.47
4	0.69	0.69	0.65	0.65	0.67	0.59	0.67	0.65	0.58	0.50	0.67	0.67	0.52	0.55	0.58	0.57
5	0.68	0.68	0.65	0.65	0.67	0.67	0.65	0.67	0.58	0.59	0.66	0.66	0.52	0.51	0.57	0.58
6	0.68	0.69	0.64	0.65	0.67	0.67	0.65	0.65	0.58	0.56	0.66	0.67	0.51	0.54	0.58	0.59
7	0.69	0.68	0.65	0.65	0.67	0.67	0.67	0.65	0.61	0.59	0.66	0.67	0.49	0.49	0.60	0.57
8	0.69	0.69	0.67	0.63	0.65	0.65	0.69	0.69	0.61	0.60	0.67	0.68	0.49	0.54	0.58	0.57
9	0.69	0.70	0.64	0.63	0.65	0.64	0.68	0.69	0.60	0.59	0.67	0.68	0.48	0.55	0.55	0.58
10	0.69	0.70	0.64	0.66	0.65	0.64	0.68	0.69	0.59	0.61	0.66	0.66	0.48	0.55	0.56	0.58
Test Set N	1886	1886	197	197	269	269	246	246	197	197	306	306	65	65	189	189
Training Set N	3769	3769	393	393	536	536	489	489	391	391	609	609	127	127	375	375
Sample N	5655	5655	590	590	805	805	735	735	588	588	915	915	192	192	564	564

Note: Only dummied RHS variables are displayed because each access question is a yes/no variable and dummies are equivalent to continuous variables in these calculations. Variables order and inclusion is based on the ranking of selected variables in the stability selection. Prediction is based on whether the predicted outcome index was in the top half or bottom half of the out-of-sample actual score based on a regression including the top 1-10 selected questions. The training-test split was 1/3 for this sample. Since all predictors in the access section are binary, there is little information in only two predictors, which capture only four possible answer patterns, and, therefore, we omit the less informative results based on including only two predictors in this table.

Table 23. Prediction Accuracy of Elastic Net Regressions for the Access-to-Finance Section by Top 10 π_max Questions

Cumulative Number of Questions	Ghana		Philippines		Uganda (Host)		Uganda (Refugee)	
	Standard	Residualized	Standard	Residualized	Standard	Residualized	Standard	Residualized
3	0.49	0.66	0.65	0.63	0.67	0.67	0.67	0.63
4	0.69	0.67	0.65	0.62	0.59	0.67	0.65	0.65
5	0.68	0.65	0.65	0.62	0.67	0.64	0.67	0.64
6	0.69	0.65	0.65	0.63	0.67	0.64	0.65	0.63
7	0.68	0.66	0.65	0.56	0.67	0.63	0.65	0.64
8	0.69	0.65	0.63	0.56	0.65	0.66	0.69	0.64
9	0.70	0.65	0.63	0.56	0.64	0.64	0.69	0.64
10	0.70	0.65	0.66	0.56	0.64	0.64	0.69	0.64
Test Set N	1886	1886	197	197	269	269	246	246
Training Set N	3769	3769	393	393	536	536	489	489
Sample N	5655	5655	590	590	805	805	735	735

Note: Only dummied RHS variables are displayed because each access question is a yes/no variable and dummies are equivalent to continuous variables in these calculations. Variables order and inclusion is based on the ranking of selected variables in the stability selection. Prediction is based on whether the predicted outcome index was in the top half or bottom half of the out-of-sample actual score based on a regression including the top 1-10 selected questions. The training-test split was 1/3 for this sample. Since all predictors in the access section are binary, there is little information in only two predictors, which capture only four possible answer patterns, and, therefore, we omit the less informative results based on including only two predictors in this table.

Appendix A - Instrument Development and Qualitative Feedback

Instrument Development

Between October and December 2017, IPA conducted a review of existing measures of financial inclusion and well-being and built an extensive questionnaire bank. This questionnaire bank was constructed based on survey instruments delivered as part of IPA projects, as well as from major surveys on financial situations such as the Global Findex survey, Finscope, and the Financial Inclusion Insights survey. First, IPA collected 23 survey tools from these candidate surveys. We then developed a list of over 400 items after mapping these items to the measurement framework. Finally, these questions were developed into an instrument as part of the selection process.

This instrument was sent to the Advisory Committee for initial validation. Committee members reviewed the instrument and shared the challenges they had faced, and lessons drawn from similar questions as part of their experience with financial inclusion instruments. This feedback was used to refine the instrument into a set of core questions in each of the IPA framework's categories—Access-to-Finance, Financial Behavior, and Access-to-Funds—which could then be piloted. The Advisory Committee continued to support the development of this instrument as the items were iteratively modified as part of IPA's piloting process.

In parallel to receiving feedback from the Advisory Committee, IPA ran qualitative field tests in five different countries between January and April 2018. Qualitative field tests were conducted in Myanmar, Colombia, Uganda, Tanzania, and Kenya, with pilots of the instruments conducted in both urban and rural sites. Respondents were selected to ensure that they represented a diverse set of observable characteristics such as age, gender, socio-economic background, and occupation. Approximately 80 respondents in Myanmar, 30 respondents in Colombia, 70 respondents in Uganda, 70 respondents in Tanzania, and 100 respondents in Kenya were interviewed.

This piloting included a structured process wherein questions were asked to the respondents, followed by a survey administered to the interviewer to capture their perceptions of each question's efficacy. This ensured that the instrument i) was understood similarly across different cultural contexts and ii) that the questions captured the intended measurement concepts. The questionnaire administered to the interviewer included a list of open-ended qualitative questions to ensure that the multiple- and single-response items captured the full financial behaviors that were meant to be measured by the financial health instrument.

In each country, a small team of five to ten interviewers was recruited and trained for one full day on how to deliver the pilot instrument (which incorporated the first set of feedback from the project's Advisory Committee). The training ensured that interviewers had a good understanding of the measurement target of each core question. Interviewers were also trained to probe each respondent further with a standardized set of follow-up questions. This information was used to validate gaps in the questions in that iteration of the instrument.

The field teams spent three days conducting interviews in an urban site and another three days in a rural site as part of iterative testing of the questionnaire. At the end of each day, or the following morning, interviewers shared feedback with the research team. The team updated the individual items based on respondents' understanding. These modifications were then tested during the following day using the

same process. Findings and changes made to the instrument as a result of this piloting process are displayed below.

Table A1. Pilot Testing Results

Section	Findings	Changes
General Context	Household income was challenging to capture for several reasons, such as (i) irregular income earners like farmers had difficulty recalling and calculating profits and (ii) individuals did not know the income of their spouse in some contexts.	The income module was replaced with country-specific Poverty Probability Index (PPI) questionnaires to approximate the level of consumption of households. Questions on income volatility and predictability were added.
Access-to-Finance	Many respondents had trouble calculating and reporting the interest rate on loans they would be charged if they were to borrow.	Credit period was changed from three months to one month to reflect the shorter credit period commonly offered in developing contexts. Follow-up questions were included to help calculate the interest rate with different repayment schedules.
Financial Behavior	Statements with pronoun "I" were confusing to respondents.	Pronoun was changed to "You" in all behavior statements.
	Agreement scale was not well understood in some contexts.	Frequency scale was added to be tested alongside the agreement scale.
	Some respondents did not consider purchasing goods on credit or borrowing from social network as borrowing.	Introduction to the borrowing questions was updated to include various examples that should be categorized as borrowing. All borrowing statements were updated to explicitly mention "purchasing goods on credit" as an example of borrowing.
	Respondents often confused poor borrowing decision with ex-post regret.	The statement was rephrased to capture poor decision-making when borrowing.
	Setting aside a part of daily income to pay for expenses on the following day was often reported as saving.	The statement was rephrased to clarify.

For short-term planning, it was reported that respondents did not perceive 3-month and 6-month horizons differently.	1-week, 1-month, and 3-month periods were used.
For long-term planning, respondents did not consider other financial goals such as investment as a long-term goal.	"Savings goal" was replaced with "financial goal".

Qualitative Surveying

IPA developed a qualitative feedback survey to learn whether the field team perceived that the questions in IPA's financial health tool were capturing the measurement concepts well and if there were any issues that had not been discovered during the piloting. This survey was filled out by members of field teams that either supervised or directly collected data collection for the full-scale survey. This survey was especially relevant for countries where IPA did not run qualitative field testing independently of the host project, such as Afghanistan, Bangladesh, Ghana, and the Philippines.

At the end of each host project's data collection, IPA collected feedback from the field team through this survey. In total, 83 field staff participated in this qualitative feedback survey. While most respondents of this survey—about 86 percent—were those who personally conducted the interviews, there were also other respondents who oversaw the data collection such as research assistants or field managers. In Colombia and the Dominican Republic, where IPA tested the financial health tool independently, this feedback survey was administered to the entire field management team that supported these surveys. In other countries, where IPA added the financial health tool as part of the host projects' instrument, a subset of field staff were selected to receive the qualitative survey. This amounted to approximately 20 percent of field officers.

The survey primarily assessed respondent understanding of each item. Field officers reported that the majority of the questions were well understood by respondent, and that there were few if any problems understanding the question. Some questions, however, were not well understood by a sizeable proportion of respondents:

- Overall, about 22 percent of the field officers indicated that the automatic savings question was poorly understood due to the lack of such services in their respective countries.
- While insurance questions were well understood in middle-income countries like Colombia and the Dominican Republic, some field officers in low-income countries like Uganda and Afghanistan reported that these had been poorly understood due to the rarity of such services in the region.
- A small number of field officers in Uganda and Afghanistan mentioned that some respondents had difficulty recalling the household's overall income and spending over the last year.

The survey also included questions that compared every variant included in the financial health questionnaire, such as agreement versus frequency response scales and present versus past framing. Approximately 60 percent agreed that the present-framed questions and frequency scales were either more or as easily understood as the past-framed questions and agreement scales. In Afghanistan and Bangladesh, the field management teams expressed that the agreement scale was more likely to lead to misunderstandings, and that respondents were more likely to respond with what is more socially desirable, rather than describing their own behaviors.

Appendix B – Financial Health Survey Instrument

Access-to-Funds

1	a	Now, imagine that you have an emergency and you need to pay [insert 1/20 of GNI per capita in local currency units]. What would be the MAIN source of money that you would use to come up with [insert 1/20 of GNI per capita in local currency units] within the NEXT 30 DAYS? (Read 1-6)	1. Savings 2. Family, relatives, or friends 3. Money from working 4. Borrowing from a bank, employer, or private lender 5. Selling assets 6. Some other source 7. (I could not come up with the money) 99. (DK) 77. (Refused)
	b	How difficult would it be for you to come up with [insert 1/20 of GNI per capita in local currency] within the NEXT 30 DAYS? Would it be very difficult, somewhat difficult or not difficult at all?	1. Very difficult 2. Somewhat difficult 3. Not difficult at all 99. (DK) 77. (Refused)
	c	How difficult would it be for you to come up with [insert 1/20 of GNI per capita in local currency] within the NEXT 7 DAYS? Would it be very difficult, somewhat difficult or not difficult at all?	1. Very difficult 2. Somewhat difficult 3. Not difficult at all 99. (DK) 77. (Refused)

Access-to-Finance

		In this section, I am going to ask you about your access to financial services.	
1		An account can be used to save money, to make or receive payments, or to receive wages or financial help. Do you currently have an account at any of the following places: a bank, [insert locally available financial institutions], your mobile phone, or another type of formal financial institution?	1. Yes 2. No
2	a	*[If 1 is Yes]* Does your employer offer the option of automatically setting money aside into a separate account whenever you receive income?	1. Yes 2. No
	b	*[If 2a is Yes]* Do you use such an automatic savings plan?	1. Yes 2. No
3		*[If 1 is No] Please tell me whether each of the following is a reason why you, personally, do not have an account at a bank or another type of formal financial institution.*	
	a	Because financial institutions are too far away	1. Yes 2. No
	b	Because financial services are too expensive	1. Yes 2. No
	c	Because you don't have the necessary documentation (identity card, wage slip, etc.)	1. Yes 2. No
	d	Because you don't trust financial institutions	1. Yes 2. No
	e	Because of religious reasons	1. Yes 2. No
	f	Because you don't have enough money to use financial institutions	1. Yes 2. No

4		*In the past 12 months, have you, personally, given or sent money to or received money from a relative or friend living in a different area inside the country in any of the following ways?*	
	a	You handed cash to this person or sent cash through someone you know.	1. Yes 2. No
	b	You sent money through a bank or another type of formal financial institution (for example, at a branch, at an ATM, or through direct deposit into an account).	1. Yes 2. No
	c	You sent money through a mobile phone.	1. Yes 2. No
	d	You sent money through a money transfer service.	1. Yes 2. No
5		*Please tell me whether each of the following is a reason why you, personally, have not sent or received money using a formal financial institution or mobile phone or money transfer service?*	
	a	Because the service provider is too far away	1. Yes 2. No
	b	Because the service provider is too expensive	1. Yes 2. No
	c	Because you don't have the necessary documentation (identity card, wage slip, etc.)	1. Yes 2. No
	d	Because you don't trust the service provider	1. Yes 2. No
	e	Because you have no need for transfer services at a formal institution	1. Yes 2. No
6		*If you wanted to borrow [1/20th of GNI per capital from a [Repeat this prompt 5 times for Bank; MFI; SACCO; informal local money lender, and; common local lending institution]:*	
	a	Would it be possible for you to borrow [1/20th of GNI per capita] from a [financial service provider]?	1. Yes 2. No
	b	*[If 4a is Yes]* Would you need a guarantor?	1. Yes 2. No
	c	*[If 4a is Yes]* Would you have to put a collateral?	1. Yes 2. No
7	a	Do you know what a life insurance is?	1. Yes 2. No
	b	*[If 5a is Yes]* Do you have life insurance? Please include individual and gro	1. Yes 2. No
8	a	Do you know what a health insurance is?	1. Yes 2. No
	b	*[If 6a is Yes]* Are you covered by any type of public or private health insur	1. Yes 2. No

Financial Behavior

		In this section, I am going to ask you about your behaviors.	
1 a		Over the past year, how would you describe your household's income and spending? Did you generally spend much more than, a little more than, about the same as, a little less than, or much more than your income?	1. Generally spend much less than income 2. Generally spend a little more than income 3. Generally spend about the same as income 4. Generally spend a little less than income 5. Generally spend much more than income
b		Did any of that spending include any large purchases such as a house, a piece of land, a vehicle or any other large investments that are usually bigger than your average 1-month income?	1. Yes 2. No

c	Putting them aside, how would you describe your household's income and spending?	1. Generally spend much less than income 2. Generally spend a little more than income 3. Generally spend about the same as income 4. Generally spend a little less than income 5. Generally spend much more than income	
d	If you generally spent more than your income, how did you make up the difference? *(*Do not Prompt*) (Select All)*	1. Used savings 2. Received help from others without the expectation of paying back 3. Got behind on bill payments; didn't pay bills 4. Borrowed from my social network (family, friends, relatives, etc.) 5. Borrowed from formal source 6. Borrowed from informal source with interest (money lender)	7. Borrowed from informal savings group 8. Sold durable asset 9. Sold productive asset 10. Renegotiated payment plan on existing debts/extended loan payments 11. Cut back on expenses 12. Got additional money from working 13. Did nothing 14. Declared bankruptcy
	Many people borrow money from various sources, formal and informal financial institutions, friends, family to meet their financial bligations. Furthermore, people often purchase goods and services on credit and defer the payment to a later time. Please think about all these borrowing experiences including money, goods, and services for the following questions.		
2	You are typically careful about deciding whether to borrow money or make purchases on credit. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot	
3	You sometimes borrow money or make purchases on credit, but on reflection you should have taken more time to think about whether to borrow. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot	
4	You typically make good decisions about how much to borrow or purchase on credit. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot	
5	You sometimes borrow more money or make more purchases on credit than you should. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot	
6	When you borrow money or make purchases on credit, you typically repay what you borrowed in the agreed upon timeframe. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot	

7	You sometimes borrow money from other sources to repay existing debts. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
	There are many ways to save money. Some people open a savings bank or mobile money account. Some keep cash somewhere at home, hidden in a safe place, or with a friend or family member. Others buy things such as [common local examples of assets and in-kind savings people engage in; examples south-asia: gold, east africa: stored food] as a means of saving. Please think about all these ways of saving for the next question.	
8	You typically save or set aside some of the income that you receive for the future. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
	Some people plan their income, expenses and savings to achieve their short-term and long-term goals.	
9	You have plans for how you will pay for your expenses for the next 1 week. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
10	You have plans for how you will pay for your expenses for the next 1 month. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
11	You have plans for how you will pay for your expenses for the next 3 months. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
12	You have a financial goal to reach for the next 12 months. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
13	You have a financial goal to reach for the next 5 years. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
14	You have plans for your finances for old age when you retire. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
	Thinking about the recurring bill payments you have such as school fees, rent, water, electricity or fuel:	
15	You sometimes miss or delay a bill payment. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
16	You sometimes buy things that you later regret because you bought them on impulse. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot
17	If you have a small amount of money, such as [PPP adjusted $0.50] or [PPP adjusted $2.00], you can typically decide how to spend it on your own. Would you say you agree a lot, somewhat agree, somewhat disagree, or do not agree at all?	1. Not agree at all 2. Somewhat disagree 3. Somewhat agree 4. Agree a lot

Context		
1	What is your age?	
2	Respondent's gender	1. Female 2. Male
3	What is the highest level of education you have completed?	1. Less than primary 2. Primary 3. Lower secondary 4. Upper secondary 5. Certificate 6. Diploma 7. University degree 8. Higher than university degree 77. (Refused)
4	Marital status	1. Single 2. Married / Cohabitation 3. Separated 4. Divorced 5. Widowed 77. (Refused)
	Thinking about the past 12 months, I would like to ask you about the types of income sources your household has had. By household, we mean a group of family members that live in the same housing unit and share a meal at least once a day.	
5	In the last 12 months, did anyone in your household receive income from:	
a	Smallholder farming - crops	1. Yes 2. No 77. (Refused)
b	Smallholder farming - livestock	1. Yes 2. No 77. (Refused)
c	Self-employed business	1. Yes 2. No 77. (Refused)
d	Salaried employment	1. Yes 2. No 77. (Refused)
e	Casual wage employment	1. Yes 2. No 77. (Refused)
f	Pension payments	1. Yes 2. No 77. (Refused)
g	Family/friends assistance	1. Yes 2. No 77. (Refused)
h	Government transfers (i.e. social safety net)	1. Yes 2. No 77. (Refused)
i	Non-government transfers (i.e. NGOs, church)	1. Yes 2. No 77. (Refused)
j	Other (please specify)	1. Yes 2. No 77. (Refused)
6	Overall, which of the following best describes your household's income changes each month? [Read options]	1. Roughly the same each month 2. Roughly the same income most months, but some unsally low or high months during the year 3. Income often varies quite a bit from one month to the next 4. Income varies from season to season 99. (DK) 77. (Refused)
7	How easily can you predict the amount of income your household will get next time you expect to receive income? [Read options]	1. Very difficult 2. Somewhat difficult 3. Not difficult at all 99. (DK) 77. (Refused)

Appendix C - Technical Notes on Data Sources

A number of IPA projects included the financial health survey instrument as part of their project's surveys. This allowed us to collect additional information on respondents' financial situation. Differences in the data collection methods and survey instruments result in inconsistencies in the additional data collected for each site. A description of the host projects, variations in the financial health survey, and data limitations follows.

Country: Ghana	**Project title:** Yale/EGC-ISSER Socioeconomic Panel Survey	
Target population	**Population size**	**Sample size for Financial Health**
Nationally representative households	5,669 households	5,669 households
Study methodology	**Survey type**	**Data collection period**
Panel survey	In-person, Electronic	07/2018 - 11/2018
Principal Investigators		
Christopher Udry	Ernest Aryeetey	

Study description

This study is part of the large-scale, nation-wide panel survey in Ghana that will extend for at least 15 years. The team collects data of regionally representative samples in Ghana to provide a scientific framework for a wide range of potential studies of the medium- and long-term changes that are taking place during the process of development.

Data Limitations

Due to the length and content of the panel survey, the financial health instrument was modified to be included in the survey. These limitations included the following changes: the Access-to-Finance section did not ask about money transfer service usage and added an extra layer of conditionality for the access to credit of 1/20th of GNI from [credit providers] question, where those questions were only asked if the respondent used the credit provider. The Financial Behavior section did not ask about autonomy because a separate set of questions on household decision-making was asked. The Access-to-Funds section only asked about unexpected needs, not medical expenses or investment opportunities.

Covariates used in this report, including income, expenditures, and assets, were produced by the Global Poverty Research Lab (GPRL) at Northwestern University. Provisional data was provided to the IPA financial health project and is included in this survey, but the study team indicated that these are provisional values and may change as data analysis continues on the panel survey project.

Country: Philippines	**Project title:** ADB Graduation of the Ultra Poor Pilot

Target population	Population size	Sample size for Financial Health
Ultra-poor households living in Negros Occidental province	2,700 households	1,402 households
Study methodology	**Survey type**	**Data collection period**
Randomized evaluation	In-person, Electronic	06/2018 - 09/2018
Principal Investigators		
Nathanael Goldberg	Dean Karlan	

Study description

This project evaluates a pilot of the Graduation model, implemented by the Philippine government's Department of Labor and Employment (DOLE) and BRAC-USA. It provides poor families with grant assistance on individual and group livelihood ventures as well as life-skills coaching, a savings component, and health information.

Data Limitations

The Philippines project did not include questions in the Access-to-Finance section on money transfers services usage as questions in the project survey already asked about those concepts. In addition, the response options to the sources used to access 1/20th of GNI per capita were increased based on responses to this survey, and feedback from the Ghana panel survey.

The sample was randomized into three equal-sized groups to receive different values in the outcome section. Each treatment arm received either 1/20th of GNI per capita, a PPI-based daily individual consumption estimate, or a PPI-based monthly individual consumption amount.

Covariates used in the survey, including income, expenditures, and assets, were produced by IPA. These data reflect values measured as outcomes for the project and may not fully capture all consumption and assets owned by households.

Country: Uganda	Project title: Uganda Graduation Pilot in Kamwenge District	
Target population	**Population size**	**Sample size for Financial Health**
Households that are (i) in the Rwamwanja Refugee Settlement and (ii) in the surrounding host community	11,000 households	1,630 households: 786 in refugee settlement 844 in host community
Study methodology	**Survey type**	**Data collection period**
Randomized evaluation	In-person, Electronic	08/2018 - 11/2018

Principal Investigators

Lasse Brune	Nathanael Goldberg	Dean Karlan
Doug Parkerson	Chris Udry	

Study description

Researchers are working with IPA, AVSI Uganda, USAID, and Save the Children to conduct a randomized evaluation to compare the cost-effectiveness of different variations of graduation programming, consisting of an initial cash asset transfer, consumption support in the form of continuing cash transfers, the establishment of village-level savings groups, and ongoing coaching and support at the household level.

Data Limitations

This project uses the full financial health module. Some response options to sources of income and reasons why the respondent lacked a former account are not included in the survey as they were added in later surveys.

Covariates used in the survey, including income and expenditures, were produced by IPA. Provisional data on outcomes for the project were provided. These may not fully capture all expenditures and income received by the household. In addition, asset values were not produced; instead, counts of assets and land ownership were constructed for the provisional dataset. These asset indices were used in the stability selection, but are not reported as they are in units of standard deviations within the sample.

Country: Bangladesh	**Project title:** Migration G2G Bangladesh and Malaysia	
Target population	**Population size**	**Sample size for Financial Health**
People who applied to participate in the G2G migration program	3,600 households	954 households
Study methodology	**Survey type**	**Data collection period**
Quasi-experiment	In-person, Electronic	07/2018 - 11/2018
Principal Investigators		
Mushfiq Mobarak	Maheshwor Shrestha	

Study description

This project leverages the natural experiment setting of the government lottery within the G2G foreign labor migration program from Bangladesh to Malaysia. It aims to provide rigorous evidence on the impact of temporary international migration on the welfare of migrants and their families.

Data Limitations

The Financial Behavior section did not include the autonomy questions as similar questions were asked in the project survey. The Access-to-Funds and Background section did not ask about income sources and income predictability due to conceptual overlap with the project survey items. Some response options to sources of income and reasons why the respondent lacked a former account are not included in the survey as they were added in later surveys.

The Yale Research Initiative on Innovation and Scale (Y-RISE) team provided covariates used to create outcomes for the project. This included income, expenditure, and asset value, but because of concerns about the way that asset values were calculated, they are not displayed in this report. Partial summary stats are not reported. We dropped responses when the household could not provide information on migrant earnings. We also dropped observations that had fully missing asset, income, expenditure, and PPI modules.

Country: Afghanistan	Project title: Afghanistan Mobile Salary Payments	
Target population	**Population size**	**Sample size for Financial Health**
Teachers	6,190 individuals	622 individuals
Study methodology	**Survey type**	**Data collection period**
Randomized evaluation	In-person, Electronic	11/2018
Principal Investigators		
Joshua Blumenstock	Michael Callen	Tarek Ghani
Stefano Fiorin		

Study description

This study investigates the impact of Mobile Salary Payments—a system enabling teachers to receive their salaries directly via mobile money from the Ministry of Education—on reducing frequent delays and leakage of school teacher salaries in Afghanistan.

Data Limitations

This project delivered the full financial health instrument. The Access-to-Finance section did not ask about SACCOs due to lack of usage by the study population. Instead, the Access-to-Finance section asked about access to credit of 1/20th of GNI per capita from mobile money. Some response options to sources of income and reasons why the respondent lacked an account are not included in the survey as they were added later.

Data was provided by the study team. These data did not include outcomes such as income, assets, and expenditures, but did include household characteristics such as household size, as well as respondent demographic characteristics.

Country: Colombia	Project title: Measuring Global Financial Health in Colombia	
Target population	**Population size**	**Sample size for Financial Health**
MFI clients (Bancamía)	579 individuals	579 individuals
Study methodology	**Survey type**	**Data collection period**
Randomized evaluation	In-person, Electronic	01/2019 - 02/2019
Principal Investigators		
Lasse Brune	Dean Karlan	

Study description

BBVAMF and IPA tested response bias from existing borrowers with BBVAMF's largest MFI in Colombia, Bancamía, and examined if clients of Financial Service Providers (FSPs) may change their responses to appear more desirable when FSP staff are implementing the survey. If true, this would pose a challenge to the ability of FSPs to collect trustworthy data directly from clients.

Data Limitations

This project was designed to test bias using the full financial health instrument. Response options were added based on results from previous financial health surveys.

The sample was randomized into three equal groups, and each treatment arm was shown a different value of money in the Access-to-Funds question. Each treatment arm received either 1/20th of GNI per capita, a PPI-based biweekly household consumption estimate, or a PPI-based monthly household consumption amount. Results of the bias test are inconclusive due to implementation problems that affected the randomization.

This project did not collect respondent or household covariates such as income, expenditures, and assets. Administrative data on the borrowers was used to verify respondent age and gender.

Country: The Dominican Republic	Project title: Measuring Global Financial Health in the Dominican Republic	
Target population	**Population size**	**Sample size for Financial Health**
MFI clients (ADOPEM)	578 individuals	578 individuals
Study methodology	**Survey type**	**Data collection period**
Randomized evaluation	In-person, Electronic	01/2019 - 02/2019
Principal Investigators		

Lasse Brune	Dean Karlan	

Study description

BBVAMF and IPA tested response bias from existing borrowers with BBVAMF's largest MFI in the Dominican Republic, ADOPEM, and examined if clients of Financial Service Providers (FSPs) may change their responses to appear more desirable when FSP staff are implementing the survey. If true, this would pose challenge to the ability of FSPs to collect trustworthy data directly from clients.

Data Limitations

This project was designed to test bias using the full financial health instrument. Response options were added based on results from previous financial health surveys.

The sample was randomized into three equal groups, and each treatment arm was shown a different value of money in the Access-to-Funds question. Each treatment arm received either 1/20th of GNI per capita, a PPI-based biweekly household consumption estimate, or a PPI-based monthly household consumption amount. Results of the bias test are inconclusive due to implementation problems that affected the randomization.

This project did not collect respondent or household covariates such as income, expenditures, and assets. Administrative data on the borrowers was used to verify respondent age and gender.

Country: Peru	**Project title:** SBS Credit Score	
Target population	**Population size**	**Sample size for Financial Health**
Credit users with at least 1 debt and with a range of credit scores	500 individuals	442 individuals
Study methodology	**Survey type**	**Data collection period**
Randomized evaluation	Phone, Electronic	11/2018
Principal Investigators		
Dean Karlan		

Study description

Researchers partnered with *Superintendencia de Banca y Seguros del Perú* (SBS)—the Peruvian financial regulator—to conduct a randomized evaluation of the impact of a text message reminder program on the use of a free online credit report portal, as well as the impact on overall level of debt and credit scores. The SBS has created an online portal and a mobile app that allows consumers to obtain their credit report for the previous five years. Text messages were sent to borrowers with at least one outstanding debt in this registry. Half of borrowers in the sample were selected conditional on having checked their credit score at least once.

Data Limitations

The project survey had limited space. Therefore, only certain questions and modules were included. The Access-to-Finance section was not included. Ten questions in the Financial Behavior section were also excluded, including the autonomy, planning, and savings subsections. Borrowing was included due to the studied population. The Access-to-Funds section only asked about unexpected needs, and not medical expenses or investment opportunities.

The sample was randomized into three equal groups, and each treatment arm was shown a different value of money in the Access-to-Funds question. Each treatment arm received either 1/20th of GNI per capita, a PPI-based biweekly household consumption estimate, or a PPI-based monthly household consumption amount. Results of the bias test are inconclusive due to implementation problems that affected the randomization.

Covariates in the study were provided by SBS or collected as part of the study survey. These data included respondent characteristics such as age and gender. Information on income, expenditures, and assets were not included, but information on current outstanding debt was included.

Appendix D – Supplementary Tables

Table D1. Average Respondent Characteristics, by Site

Characteristic	Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Peru
Respondent Age	49.46	43.18	39.44	32.52	36.24	43.53	51.41	43.79	41.81
Respondent Female	0.41	0.85	0.95	0.95	0.20	0.29	0.68	0.80	0.52
Number of Household Members	3.37	5.83	4.73	4.63		4.17			
Respondent Education									
Less than Primary	0.31	0.01	0.34	0.63	0.00	*	0.13	0.13	0.03
Primary	0.15	0.56	0.59	0.29	0.00	*	0.37	0.44	0.00
Secondary	0.36	0.35	0.06	0.08	0.00	*	0.31	0.33	0.50
College or Graduate	0.11	0.09	0.01	0.01	1.00	*	0.19	0.10	0.38
Income Source									
Agriculture		0.17	0.71	0.61	0.28		0.05	0.05	0.13
Livestock		0.12	0.11	0.09	0.20		0.03	0.01	0.05
Self-employed		0.25	0.14	0.17	0.13		0.84	0.69	0.35
Salary		0.66	0.03	0.03	0.93		0.46	0.64	0.72
Wage		0.31	0.37	0.30	0.21		0.19	0.52	0.44
Pension		0.09	0.00	0.01	0.07		0.14	0.11	0.12
Social Assistance		0.23	0.06	0.03	0.18		0.08	0.34	0.03
Government Transfer		0.74	0.00	0.18	0.18		0.07	0.23	0.00
Non-government Transfer					0.01			0.02	0.05
Household Income, 30 days (PPP-adjusted USD)	143.40	453.46	59.69	159.17		*			
Household Consumption/Expenditure, 30 days (PPP-adjusted USD)	197.86	553.50	140.45	209.58		*			
Household Asset Value (PPP-adjusted USD)	3684.49	1411.16	*	*		*			
PPI: Probability below 200% of national poverty line	0.47	0.74	0.67	0.72	0.76	0.66	0.33	0.52	0.62
N	5655	1384	805	735	588	915	574	564	441

* Data received from the host project have outstanding data quality concerns or are not able to be reported in standardized units. They are not included in this table.

Note: This table reports the mean value of answers for respondents by site. All asset, income, and expenditure variables have 1% of the observations winsorized, high-end only. Bangladesh is not included because of concerns about data quality on respondent characteristics.

Table D2. Didn't Receive From or Send Money to Friend/Relative because...

Question	Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Peru
Has any formal account	38.90%	23.40%	16.10%	10.70%	42.80%	52.70%	81.20%	88.30%	
Doesn't have formal account due to…									
…because financial institutions are too far away	4.40%	35.50%	19.00%	10.40%	28.30%	0.10%	2.10%	1.40%	
…because financial services are too expensive	3.20%	45.40%	34.60%	23.10%	25.30%	0.20%	11.00%	2.10%	
…because you don't have the necessary documentation	2.70%	24.50%	10.50%	13.30%	13.70%	0.20%	1.20%	0.70%	
…because you don't trust financial institutions	5.20%	15.40%	8.40%	3.00%	16.20%	0.10%	4.40%	2.10%	
…because of religious reasons	0.10%	11.60%	1.70%	0.40%	11.30%	0.00%	0.00%	0.20%	
…because you don't have enough money to use financial institutions	51.40%	59.50%	71.50%	73.30%	5.30%	0.40%	10.80%	7.40%	
…because someone else in the family already has an account	0.60%	3.10%	1.40%	1.20%	7.70%	0.10%	2.60%	2.50%	
…because you cannot get an account	1.10%	20.20%							
…because you have no need for financial services at a formal institution	3.10%	21.20%	10.60%	9.80%	11.80%	0.20%	5.60%	2.80%	
…for any other reason	1.10%								
Has a formal account AND has automatic savings options		13.30%	16.40%	10.40%	27.90%	11.10%	15.80%	15.70%	
Has a formal account AND uses automatic savings		37.20%	76.20%	62.50%	69.60%	83.30%	48.70%	50.00%	
Has access to credit of 1/20th of GNI…									
…from any listed source	59.80%	32.80%	42.90%	47.00%	66.30%	77.90%	98.10%	99.60%	
…from a bank	49.40%	5.80%	8.40%	2.00%	26.50%	42.80%	72.40%	88.20%	
…from an MFI	2.10%	20.40%	5.70%	0.10%	24.70%	45.40%	96.50%	99.10%	
…from a SACCO	7.10%	11.20%	11.30%	7.40%		54.90%	58.50%	51.30%	
…from a money lender	0.50%	16.70%	32.80%	43.00%	49.40%	56.50%	63.10%	71.90%	
…from any source AND doesn't need a guarantor >=1 source	32.30%	17.40%	11.20%	19.80%	41.80%	53.20%	92.50%	80.90%	
…from any source AND doesn't need collateral >=1 source	51.10%	26.80%	17.90%	26.60%	44.40%	74.60%	84.30%	95.60%	
Knows what life insurance is	35.50%	57.40%	5.50%	6.40%	36.60%	31.30%	92.80%	90.00%	
Has life insurance	5.80%	18.80%	0.20%	0.30%	9.80%	5.80%	66.10%	62.00%	
Knows what health insurance is	97.80%	77.00%	4.60%	7.10%	42.10%	8.40%	89.10%	99.10%	
Has health insurance	65.60%	72.20%	0.20%	1.40%	5.30%	0.90%	83.80%	93.40%	
Received money from or sent money to a friend or relative…									
…in cash			19.10%	11.00%	23.00%	19.00%	14.70%	29.80%	
…via any formal source			26.50%	12.50%	28.00%	37.60%	41.00%	44.40%	
…via a formal institution			0.90%	0.70%	13.00%	8.00%	23.40%	32.00%	
…via a mobile phone			25.10%	11.20%	12.70%	34.60%	3.80%	2.80%	
…via a money transfer service			1.90%	2.70%	11.80%	2.00%	29.50%	22.70%	
Didn't receive from or send money to friend/relative because…									
…the service provider is too far away			20.00%	15.70%	42.20%	21.40%	18.20%	21.20%	
…the service provider is too expensive			37.10%	39.20%	46.20%	37.90%	27.30%	14.00%	
…you don't have the necessary documentation			11.40%	15.70%	27.70%	7.40%	0.00%	13.50%	
…you don't trust the service provider			2.90%	7.70%	30.80%	19.20%	30.00%	5.80%	
…you have no need for transfer services at a formal institution			20.00%	30.80%	28.80%	22.20%	50.00%	40.40%	
Has a formal account…									
…with a bank	32.70%								
…with an MFI	1.30%								
…with a SACCO	4.10%								
…with a credit co-op	1.70%								
…with a money lender	0.20%								
Has access to credit of 1/20th of GNI from a credit co-op	2.90%								
Has access to credit of 1/20th of GNI through mobile money					27.50%				
N	5655	1379	801	731	586	901	573	564	

Note: This table reports the percentage of respondents who agreed with each question. All percentages are averages conditional on the respondent receiving the first question in a question set. The Ghana survey used a different skip logic and all questions on credit possibility are conditional on having an account with the potential lender.

Table D3. Response Rates for the Financial Behavior Section Using the Agreement (Agree a lot - Not agree at all) Response Scale across Sites

Question	Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Peru
Spending over past year: somewhat or a lot less than income	31.90%	17.00%	21.80%	25.10%	31.60%	49.70%	54.80%	61.60%	
Set aside income for future: agree somewhat or a lot	71.60%	62.30%	33.80%	34.10%	73.90%	57.50%	56.40%	63.60%	
Ever borrowed*	81.30%	83.40%	97.90%	93.10%	97.20%	94.60%	98.40%	99.30%	100.00%
Good decisions whether to borrow: agree somewhat or a lot	92.80%	84.00%	91.30%	86.70%	83.60%	81.60%	88.70%	93.10%	33.30%
Bad decisions whether to borrow: agree somewhat or a lot	44.80%	70.80%	45.20%	51.00%	71.00%	68.10%	45.20%	41.60%	21.50%
Good decisions about amount: agree somewhat or a lot	89.70%	81.00%	81.60%	79.50%	68.80%	77.10%	90.00%	93.50%	63.60%
Bad decisions about amount: agree somewhat or a lot	20.30%	27.00%	31.30%	24.10%	50.00%	44.20%	20.90%	20.10%	23.00%
Repay full loans in time: agree somewhat or a lot	76.00%	87.60%	63.60%	60.90%	68.80%	70.80%	89.40%	95.60%	74.90%
Borrow to repay debt: agree somewhat or a lot	17.00%	35.90%	53.00%	38.30%	57.50%	50.60%	27.20%	28.30%	25.40%
Miss or delay bill payments: agree somewhat or a lot	51.30%	71.80%	59.00%	43.50%	55.00%	65.80%	27.10%	37.90%	37.40%
Plan for expenses 1 week out: agree somewhat or a lot	73.80%	90.50%	44.40%	44.70%	73.60%	77.50%	87.60%	93.20%	
Plan for expenses 1 month out: agree somewhat or a lot	62.00%	87.60%	40.70%	41.70%	75.30%	76.80%	84.60%	93.90%	
Plan for expenses 3 months out: agree somewhat or a lot	47.60%	78.50%	33.00%	28.20%	60.40%	60.90%	71.90%	79.30%	
Goal for next 12 months: agree somewhat or a lot	46.30%	62.60%	34.60%	30.60%	54.80%	49.30%	54.60%	68.10%	
Goal for next 5 year: agree somewhat or a lot	32.50%	57.00%	28.30%	21.80%	38.30%	39.00%	35.00%	43.50%	
Plan for finances in old age: agree somewhat or a lot	45.10%	72.00%	16.80%	8.80%	46.40%	46.20%	54.30%	60.70%	
Regret purchases on impulse: agree somewhat or a lot	44.10%	24.60%	28.50%	30.20%	54.30%	45.90%	21.60%	25.80%	21.00%
Decide small purchases on own: agree somewhat or a lot		79.00%	90.70%	80.30%	63.50%		95.10%	95.20%	
Decide large purchases on own: agree somewhat or a lot		79.50%	68.30%	61.70%	70.40%		92.40%	92.20%	
N	2847	704	376	331	288	451	303	292	

*Ever borrowed is a yes/no question that is implicitly defined based on skip patterns in the survey if the respondent reports never borrowing. The percentage that reports borrowing is given here.

Note: This table reports the response rates for each variable. Spend less than income excludes large purchases made.

Table D4. Response Rates for the Financial Behavior Section Using the Frequency (Always - Never) Response Scale for Each Site

Question	Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Peru
Spending over past year: somewhat or a lot less than income	30.80%	22.50%	17.70%	22.50%	29.80%	47.60%	64.00%	58.10%	
Set aside income for future: always or very often	29.00%	23.20%	11.40%	8.20%	34.90%	12.00%	31.70%	29.00%	
Ever borrowed*	81.80%	82.70%	97.70%	95.30%	98.00%	95.90%	98.90%	100.00%	100.00%
Good decisions whether to borrow: always or very often	64.10%	62.30%	59.40%	52.50%	45.40%	18.00%	77.40%	72.00%	2.60%
Bad decisions whether to borrow: always or very often	2.70%	18.40%	16.00%	10.90%	43.60%	9.20%	18.60%	14.20%	4.10%
Good decisions about amount: always or very often	63.10%	43.80%	56.10%	47.00%	44.50%	20.40%	81.10%	77.70%	29.50%
Bad decisions about amount: always or very often	2.40%	6.70%	9.50%	6.00%	26.50%	4.40%	2.30%	2.60%	7.10%
Repay full loans in time: always or very often	48.40%	57.80%	33.90%	35.20%	49.80%	31.10%	90.20%	84.80%	55.30%
Borrow to repay debt: always or very often	1.80%	24.20%	13.60%	6.80%	26.00%	8.30%	6.80%	3.00%	4.20%
Miss or delay bill payments: always or very often	8.70%	13.70%	32.50%	19.40%	29.20%	9.80%	5.20%	5.60%	2.60%
N	2706	680	429	404	295	462	267	267	

*Ever borrowed is a yes/no question that is implicitly defined based on skip patterns in the survey if the respondent reports never borrowing. The percentage that reports borrowing is given here.

Note: This table reports the response rates to each variable. Spend less than income excludes large purchases made.

Table D5. Possibility (1 - Not at All Possible to 4 - Very Possible) to Access 1/20th of GNI due to an Unexpected Need by PPI Likelihood Bin & Income Predictability Across Sites

Ease of Income Prediction

Philippines

P(below poverty line)	Very easy	Somewhat easy	Somewhat difficult	Very difficult	N
0-20%		0.43	0.30	0.43	31
20-40%		0.20	0.53	0.38	90
40-60%	0.20	0.29	0.42	0.30	175
60-80%	0.29	0.54	0.36	0.23	436
80-100%	0.56	0.57	0.43	0.26	651
N	21	135	522	705	1383

Uganda (Host)

P(below poverty line)	Very easy	Somewhat easy	Somewhat difficult	Very difficult	N
0-20%	0.50	0.00	0.54	0.17	36
20-40%	1.00	0.33	0.23	0.12	46
40-60%	0.00	0.23	0.31	0.24	141
60-80%	0.50	0.33	0.23	0.11	229
80-100%	0.57	0.25	0.17	0.11	343
N	17	76	160	542	795

Uganda (Refugee)

P(below poverty line)	Very easy	Somewhat easy	Somewhat difficult	Very difficult	N
0-20%	0.00		0.00	0.13	15
20-40%	0.00	0.25	0.25	0.44	19
40-60%	0.00	0.27	0.21	0.10	107
60-80%	0.38	0.11	0.13	0.11	175
80-100%	0.00	0.22	0.15	0.10	361
N	24	74	143	436	677

Afghanistan

P(below poverty line)	Very easy	Somewhat easy	Somewhat difficult	Very difficult	N
0-20%	0.60	0.00	0.40	0.00	14
20-40%	0.33	0.64	0.39	0.43	46
40-60%	0.67	1.00	0.65	0.50	41
60-80%	0.91	0.73	0.63	0.55	142
80-100%	0.72	0.74	0.58	0.50	345
N	43	77	279	189	588

Colombia

P(below poverty line)	Very easy	Somewhat easy	Somewhat difficult	Very difficult	N
0-20%	0.77	0.75	0.71	0.77	238
20-40%	0.78	0.74	0.68	0.80	133
40-60%	0.67	0.71	0.78	0.56	89
60-80%	0.82	0.68	0.61	0.63	75
80-100%	1.00	0.75	0.67	0.75	33
N	85	235	195	53	568

Dominican Republic

P(below poverty line)	Very easy	Somewhat easy	Somewhat difficult	Very difficult	N
0-20%	0.50	1.00	1.00	1.00	15
20-40%	0.91	0.88	0.80	0.77	137
40-60%	0.91	0.85	0.80	0.77	206
60-80%	0.79	0.76	0.80	0.63	160
80-100%	0.80	0.60	0.44	0.71	31
N	110	196	173	70	549

Peru

P(below poverty line)	Very easy	Somewhat easy	Somewhat difficult	Very difficult	N
0-20%	0.60	0.80	0.33	0.75	22
20-40%	0.62	0.35	0.33	0.50	50
40-60%	0.62	0.48	0.42	0.19	103
60-80%	0.47	0.44	0.32	0.06	107
80-100%	0.25	0.34	0.15	0.05	118
N	69	144	105	82	400

Note: P(below poverty line) is the likelihood that a respondent's household has a consumption level per capita that is below 200% of the applicable national poverty line.

Table D6. Scoring by Site using All (Unexpected Need, Medical Expense, and Investment Opportunity) Access-to-Funds Questions

Score	Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Peru
Mean	4.40	2.53	2.75	2.44	4.13	5.72	6.12	6.09	3.75
Standard Deviation	2.33	1.68	1.80	1.57	1.85	1.92	1.65	1.46	2.23
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10th Percentile	1.00	1.00	1.00	1.00	1.00	3.00	4.00	4.00	1.00
25th Percentile	2.50	1.00	1.00	1.00	3.00	5.00	5.00	5.50	1.00
50th Percentile	4.50	2.00	2.50	2.00	4.50	6.00	6.50	6.50	3.50
75th Percentile	6.00	4.00	4.00	3.50	5.00	7.00	7.50	7.00	5.50
90th Percentile	8.00	5.00	5.50	5.00	6.00	8.00	8.00	8.00	7.00
Maximum	8.00	8.00	8.00	7.00	8.00	8.00	8.00	8.00	8.00
N	5655	590	805	735	588	915	192	564	136

Note: Scoring is constructed by taking a simple average of responses to the sum of the responses to the "possible" and "difficult" questions, after they are oriented so an increase is positive.

Table D7. Ranking in Response Correlations in the Financial Behavior Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites

Item	Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Peru
	π max Ranking	π max Ranking	π max Ranking	π max Ranking	π max Ranking	π max Ranking	π max Ranking	π max Ranking	π max Ranking
1 Borrowed ever	13	6	18	14	7	11	12	16	
2 Repay full loans in time	10	8	9	2	8	8	8	7	1
3 Borrow to repay debt	8	5	8	8.00	10	9	18	2	7
4 Careful when deciding whether to borrow	13	7	16	12	9	10	15	8	6
5 Makes good decisions about how to borrow	13	15	11	4	3	13	16	9	1
6 Borrows for unnecessary purchases	13	17	16	16	12	10	7	16	1
7 Borrows more money than should	13	12	13	18	15	13	11	16	7
8 Set aside income for future	1	3	10	3	1	2	8	1	
9 Over the past year, spend less than income	6	14	12	15	2	3	2	3	
10 Miss or delay bill payments	9	17	1	16	17	6	6	10	4
11 Have plans for expenses 1 week out	1	19	6	7	6	1	19	10	
12 Have plans for expenses 1 month out	1	15	3	1	11	5	4	14	
13 Have plans for expenses 3 months out	5	2	7	9	17	6	10	6	
14 Has a financial goal for next 1 year	12	4	4	10	15	13	1	4	
15 Has a financial goal for next 5 years	11	1	14	5	12	11	16	5	
16 Has plans for finances for old age	1	11	1	6	17	13	5	13	
17 Buy things on impulse that later regret	7	9	15	11	4	4	3	16	4
18 Decide how to spend small amount of money on own		10	18	18	5		13	10	
19 Decide how to spend large amount of money on own		12	5	12	14		14	14	

Note: Ranking is based on the PI Max of the continuous variable described in the text.

Table D8. Question Variants in the Financial Behavior Section

Descriptive Text	Type	Survey Order*	Agree		Frequency	
			Present	Past	Present	Past
	Prompt		In this section, I am going to ask you about your behaviors.			
	Prompt		Many people borrow money from various sources, formal and informal financial institutions, friends, or family to meet their financial obligations. Furthermore, people often purchase goods and services on credit and defer the payment to a later time. Please think about all these borrowing experiences including money, goods, and services for the following questions.			
Repay full loans in time	Question	6	When you borrow money or make purchases on credit, you typically repay what you borrowed in the agreed-upon timeframe.	Over the last year, when you have borrowed money or made purchases on credit, you have typically repaid what you borrowed in the agreed-upon timeframe.	When you borrow money or make purchases on credit, you repay what you borrowed in the agreed-upon timeframe.	Over the last year, when you have borrowed money or made purchases on credit, you have repaid what you borrowed in the agreed-upon timeframe.
Borrow to repay debt	Question	7	You sometimes borrow money from other sources to repay existing debts.	Over the last year, you have sometimes borrowed money from other sources to repay existing debts.	You borrow money from other sources to repay existing debts.	Over the last year, you have borrowed money from other sources to repay existing debts.
Careful when deciding whether to borrow	Question	2	You are typically careful about deciding whether to borrow money or make purchases on credit.	Over the last year, you have been typically careful about deciding whether to borrow money or make purchases on credit.	You are careful about deciding whether to borrow money or make purchases on credit.	Over the last year, you have been careful about deciding whether to borrow money or make purchases on credit.
Make good decisions about how much to borrow	Question	4	You typically make good decisions about how much to borrow or purchase on credit.	Over the last year, you have typically made good decisions about how much to borrow or purchase on credit.	You make good decisions about how much to borrow or purchase on credit.	Over the last year, you have made good decisions about how much to borrow or purchase on credit.
Regret borrowing	Question	3	You sometimes borrow money or make purchases on credit, but on reflection you should have taken more time to think about whether to borrow.	Over the last year, you have sometimes borrowed money or made purchases on credit but on reflection you should have taken more time to think about whether to borrow.	You borrow money or make purchases on credit which is not a good idea on reflection.	Over the last year, you have borrowed money or make purchases on credit which is not a good idea on reflection.
Borrow more money than should	Question	5	You sometimes borrow more money or make more purchases on credit than you should.	Over the last year, you have sometimes borrowed more money or made more purchases on credit than you should.	You borrow more money or make more purchases on credit than you should.	Over the last year, you have borrowed more money or made more purchases on credit than you should.
	Prompt		There are many ways to save money. Some people open a savings bank or mobile money account. Some keep cash somewhere at home, hidden in a safe place, or with a friend or family member. Others buy things such as [common local examples of assets and in-kind savings people engage in; examples South-Asia: gold, East Africa: stored food] as a means of saving. Please think about all these ways of saving for the next question.			
Set aside income for future	Question	8	You typically save or set aside some of the income that you receive for the future.	Over the last year, you have typically saved or set aside some of the income that you received for the future.	You save or set aside some of the income that you receive for the future.	Over the last year, you have saved or set aside some of the income that you received for the future.
Over the past year, spend less than income	Question	1	Over the past year, how would you describe your household's income and spending? Did you generally spend much more than, a little more than, about the same as, a little less than, or much less than your income?			
Miss or delay bill payments	Question	15	You sometimes miss or delay a bill payment.	Over the last year, you have sometimes missed or delayed a bill payment.	You miss or delay a bill payment.	Over the last year, you have missed or delayed a bill payment.
	Prompt		Some people plan their income, expenses and savings to achieve their short-term and long-term goals.			
Have plans for expenses 1 week out	Question	9	You have plans for how you will pay for your expenses for the next 1 week.	Over the last year, you have typically had plans for how you would pay for your expenses for the following 1 week.	You have plans for how you will pay for your expenses for the next 1 week.	Over the last year, you have typically had plans for how you would pay for your expenses for the following 1 week.
Have plans for expenses 1 month out	Question	10	You have plans for how you will pay for your expenses for the next 1 month.	Over the last year, you have typically had plans for how you would pay for your expenses for the following 1 month.	You have plans for how you will pay for your expenses for the next 1 month.	Over the last year, you have typically had plans for how you would pay for your expenses for the following 1 month.
Have plans for expenses 3 months out	Question	11	You have plans for how you will pay for your expenses for the next 3 months.	Over the last year, you have typically had plans for how you would pay for your expenses for the following 3 months.	You have plans for how you will pay for your expenses for the next 3 months.	Over the last year, you have typically had plans for how you would pay for your expenses for the following 3 months.
Has a financial goal for next 1 year	Question	12	You have a financial goal to reach for the next 12 months.	Over the last year, you have typically had a financial goal to reach for the following 12 months.	You have a financial goal to reach for the next 12 months.	Over the last year, you have typically had a financial goal to reach for the following 12 months.
Has a financial goal for next 5 years	Question	13	You have a financial goal to reach for the next 5 years.	Over the last year, you have typically had a financial goal to reach for the following 5 years.	You have a financial goal to reach for the next 5 years.	Over the last year, you have typically had a financial goal to reach for the following 5 years.
Has plans for finances for old age	Question	14	You have plans for your finances for old age when you retire.	You have plans for your finances for old age when you retire.	You have plans for your finances for old age when you retire.	You have plans for your finances for old age when you retire.
	Prompt		Thinking about the recurring bill payments you have such as school fees, rent, water, electricity or fuel:			
Buy things on impulse that later regret	Question	16	You sometimes buy things that you later regret because you bought them on impulse.	Over the last year, you have sometimes bought things that you later regretted because you bought them on impulse.	You buy things that you later regret because you bought them on impulse.	Over the last year, you have bought things that you later regretted because you bought them on impulse.
Decide how to spend small amount of money on own	Question	17	If you have a small amount of money, such as [PPP adjusted $0.50] or [PPP adjusted $2.00], you can typically decide how to spend it on your own.	Over the last year, if you had a small amount of money, such as [PPP-adjusted $0.50] or [PPP-adjusted $2.00], you could typically decide how to spend it on your own.	If you have a small amount of money, such as [PPP-adjusted $0.50] or [PPP-adjusted $2.00], you can decide how to spend it on your own.	Over the last year, if you had a small amount of money, such as [PPP-adjusted $0.50] or [PPP-adjusted $2.00], you could decide how to spend it on your own.
Decide how to spend large amount of money on own	Question	18	When an expensive item [like a bicycle or a cow] is purchased by your household, your opinion is typically listened to in the decision of what to buy.	Over the last year, when an expensive item [like a bicycle or a cow] was purchased by your household, your opinion has typically been listened to in the decision of what to buy.	When an expensive item [like a bicycle or a cow] is purchased by your household, your opinion is listened to in the decision of what to buy.	Over the last year, when an expensive item [like a bicycle or a cow] was purchased by your household, your opinion has been listened to in the decision of what to buy.

Note: Question order varies by instrument in some cases, as do examples used for the autonomy questions. Some instruments such as the Ghana panel survey do not include the autonomy question or locate them in a different module. Income and spending use the lumpy consumption adjusted question (1B).

Table D9. Differences in Response by Question Variation

(1)	(2)	(3)	(4)		(5)	(6)	(7)	
		Agree				Frequency		
Variables (Increase is Good)	Present	Past	Difference	N	Present	Past	Difference	N
Careful when deciding whether to borrow	3.012***	2.878***	0.133***	5915	3.175***	2.939***	0.236***	5840
	[0.034]	[0.034]			[0.041]	[0.041]		
Borrows for unnecessary purchases	2.179***	2.179***	0.054	5873	3.589***	3.620***	-0.031	5818
	[0.033]	[0.033]			[0.042]	[0.042]		
Makes good decisions about how to borrow	2.922***	2.764***	0.158***	5849	3.103***	2.938***	0.165***	5790
	[0.034]	[0.035]			[0.041]	[0.041]		
Borrows more money than should	2.731***	2.574***	0.157***	5837	3.666***	3.577***	0.089***	5796
	[0.034]	[0.035]			[0.041]	[0.042]		
Repay full loans in time	2.590***	2.437***	0.153***	5818	2.821***	2.608***	0.214***	5759
	[0.033]	[0.034]			[0.039]	[0.040]		
Borrow to repay debt	1.262***	1.226***	0.036	5811	1.108***	1.223***	-0.115***	5768
	[0.024]	[0.024]			[0.022]	[0.023]		
Set aside income for future	2.986***	2.909***	0.077***	5732	2.962***	2.911***	0.051	5537
	[0.025]	[0.025]			[0.029]	[0.028]		
Miss or delay bill payments	2.646***	2.635***	0.011	5851	3.704***	3.716***	-0.013	5614
	[0.025]	[0.025]			[0.026]	[0.025]		
Buy things on impulse that later regret	2.781***	2.780***	0.001	5898	3.923***	3.978***	-0.055***	5714
	[0.024]	[0.025]			[0.022]	[0.022]		
Decide how to spend small amount of money on own	3.272***	3.179***	0.093**	2363	3.281***	3.236***	0.045	2406
	[0.045]	[0.045]			[0.059]	[0.059]		
Decide how to spend large amount of money on own	3.337***	3.150***	0.186***	2363	3.458***	3.278***	0.180***	2407
	[0.043]	[0.046]			[0.061]	[0.063]		
Have plans for expenses 1 week out	3.041***	3.047***	-0.006	11375				
	[0.018]	[0.017]						
Have plans for expenses 1 month out	2.749***	2.769***	-0.02	11388				
	[0.019]	[0.018]						
Have plans for expenses 3 months out	2.376***	2.392***	-0.015	11373				
	[0.019]	[0.019]						
Has a financial goal for next 1 year	2.363***	2.316***	0.048**	11365				
	[0.019]	[0.020]						
Has a financial goal for next 5 year	2.036***	1.945***	0.091***	11339				
	[0.019]	[0.019]						
Has plans for finances for old age	2.298***	2.244***	0.054**	11326				
	[0.020]	[0.020]						

Note: An increase in each variable represents positive financial behavior. Cells in (2), (3), (6) and (7) report coefficients on indicators for the past-present variations in a regression on the behavior question in (1). Cells in (4) and (8) report the difference and significance of a Wald test between the two previous columns. For all questions, an increase indicates positive financial behavior. *** p<0.01, ** p<0.05, * p<0.10

Table D10. Difference in ICW Index of Unexpected Expense Questions by Financial Behavior Section Question Variations

Question	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
	Coefficients							Differences							
Variables (Increase is Good)	Agree-Present (A-Pr)	Agree-Past (A-Pa)	Frequency-Present (F-Pr)	Frequency-Past (F-Pa)	p-value joint test of equality of (1)-(4)	(A) - (F)	(Pr) - (Pa)	(A-Pr) - (A-Pa)	(A-Pr) - (F-Pr)	(A-Pr) - (F-Pa)	(A-Pa) - (F-Pr)	(A-Pa) - (F-Pa)	(F-Pr) - (F-Pa)	N	R2
Careful when deciding whether to borrow	0.056*** [0.019]	0.082*** [0.020]	0.096*** [0.020]	0.095*** [0.019]	(0.041)	-0.027	-0.013	-0.026	-0.041	-0.04	-0.015	-0.014	0.001	11749	0.012
Borrows for unnecessary purchases	0.004 [0.019]	0.061*** [0.019]	0.025 [0.020]	0.043** [0.019]	(0.185)	-0.001	-0.038*	-0.057**	-0.02	-0.039	0.036	0.018	-0.019	11749	0.007
Makes good decisions about how to borrow	0.086*** [0.019]	0.097*** [0.020]	0.109*** [0.019]	0.121*** [0.019]	(0.605)	-0.023	-0.012	-0.011	-0.023	-0.035	-0.012	-0.023	-0.012	11749	0.016
Borrows more money than should	0.015 [0.019]	0.044** [0.020]	0.035* [0.020]	0.059*** [0.019]	(0.447)	-0.017	-0.027	-0.029	-0.019	-0.043	0.01	-0.014	-0.024	11749	0.007
Repay full loans in time	0.131*** [0.019]	0.137*** [0.020]	0.124*** [0.019]	0.139*** [0.019]	(0.944)	0.002	-0.011	-0.006	0.007	-0.008	0.013	-0.002	-0.015	11749	0.022
Borrow to repay debt	0.031 [0.019]	0.009 [0.019]	-0.008 [0.020]	0.019 [0.019]	(0.543)	0.015	-0.003	0.022	0.039	0.012	0.017	-0.01	-0.027	11749	0.005
Set aside income for future	0.318*** [0.018]	0.276*** [0.019]	0.292*** [0.019]	0.256*** [0.019]	(0.117)	0.023	0.039**	0.042	0.026	0.062**	-0.016	0.02	0.036	11749	0.083
Miss or delay bill payments	0.007 [0.019]	-0.02 [0.019]	0.061*** [0.020]	0.058*** [0.019]	(0.006)***	-	0.015	0.027	-0.054**	-0.051*	-	-	0.004	11749	0.013
Buy things on impulse that later regret	-0.079*** [0.019]	-0.088*** [0.020]	-0.022 [0.019]	-0.052*** [0.020]	(0.067)*	-0.046**	0.019	0.008	-0.057**	-0.027	-0.065**	-0.035	0.03	11749	0.013
Decide how to spend small amount of money on own	0.081** [0.032]	-0.001 [0.028]	0.127*** [0.030]	0.049* [0.029]	(0.016)**	-0.048	0.080***	0.082*	-0.046	0.032	-	-0.05	0.078*	11749	0.007
Decide how to spend large amount of money on own	0.062** [0.028]	0.062** [0.029]	0.126*** [0.029]	0.054* [0.029]	(0.271)	-0.028	0.036	0.000	-0.063	0.008	-0.064	0.008	0.072*	11749	0.007
Have plans for expenses 1 week out	0.273*** [0.014]	0.234*** [0.014]			(0.044)**			0.039**						11749	0.065
Have plans for expenses 1 month out	0.304*** [0.014]	0.238*** [0.014]			(0.001)***			0.067***						11749	0.075
Have plans for expenses 3 months out	0.291*** [0.013]	0.220*** [0.014]			(0.000)***			0.071***						11749	0.067
Has a financial goal for next 1 year	0.294*** [0.013]	0.232*** [0.014]			(0.001)***			0.062***						11749	0.071
Has a financial goal for next 5 years	0.246*** [0.013]	0.211*** [0.013]			(0.061)*			0.035*						11749	0.054
Has plans for finances for old age	0.284*** [0.013]	0.253*** [0.014]			(0.108)			0.031						11749	0.072

*Note: Each row displays the results of a regression of variation type * z-score of the questions (for each variation–see (1) to(4)) on an ICW index of all unexpected expense questions. An increase in each variable represents positive financial behavior. Columns (1)–(4) report the coefficient and standard error of the interaction between the indicator variable in the column header and the behavior question in the variables column. Cells in (5) report the p-value of a Wald test for joint equivalence from (1)–(4). Cells in (6)–(13) report the differences p-values of a Wald test between the columns. *** p<0.01, ** p<0.05, * p<0.10.*

Table D11. Ranking in Response Correlations in the Access Section to the ICW Index Access 1/20th of GNI for an Unexpected Need across Sites

	Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic
	π max Ranking	π max Ranking	π max Ranking	π max Ranking	π max Ranking	π max Ranking	π max Ranking	π max Ranking
1 Has any formal account	1	1	5	2	4	1	1	3
Doesn't have formal account due to....								
2 ...because financial institutions are too far away	1	20	25	21	24	22	29	8
3 ...because financial services are too expensive	13	22	10	12	21	26	4	13
4 ...because you don't have the necessary documentation	14	23	10	21	27	28	21	27
5 ...because you don't trust financial institutions	5	21	15	6	21	27	11	22
6 ...because of religious reasons	14	12	15	29	9			28
7 ...because you don't have enough money to use financial institutions	8	9	6	21	14	22	15	25
8 ...because someone else in the family already has an account	14	13	25	29	16	31	28	14
9 ...because you cannot get an account	14	8						
10 ...because you have no need for financial services at a formal institution	10	11	19	10	19	24	15	11
11 ...for any other reason	10							
12 Has a formal account AND has automatic savings options		6	18	17	13	12	8	9
13 Has a formal account AND uses automatic savings		6	25	18	16	15	19	11
Has access to credit of 1/20th of GNI...								
14 ...from any listed source	1	1	1	1	1	1	1	1
15 ...from a bank	6	13	4	9	11	1	5	9
16 ...from a MFI	14	15	3	32	20	25	25	6
17 ...from a SACCO	14	4	19	8		9	6	25
18 ...from a money lender	14	5	15	4	3	5	22	2
19 ...from any source AND doesn't need a guarantor >=1 source	9	17	12	5	21	1	19	16
20 ...from any source AND doesn't need collateral >=1 source	10	18	19	12	26	10	7	5
21 Knows what life insurance is	1	16	19	7	8	8	10	17
22 Has life insurance	14	19	25	15	20	14	15	21
23 Knows what health insurance is	14	3	19	19	10	6	13	18
24 Has health insurance	14	10	25	19	12	13	23	20
Received money from or sent money to a friend or relative...								
25 ...via any formal source			1	3	2	7	3	4
26 ...in cash			12	29	15	18	24	23
27 ...via a formal institution			14	28	18	19	12	15
28 ...via a mobile phone			7	14	4	17	9	23
29 ...via a money transfer service			9	21	7	21	14	7
Didn't receive from or send money to friend/relative because...								
30 ...the service provider is too far away			8	32	28	11	18	28
31 ...the service provider is too expensive			25	25	24	16	26	28
32 ...you don't have the necessary documentation			25	15	28	19	30	27
33 ...you don't trust the service provider			25	11	28	28	30	27
34 ...you have no need for transfer services at a formal institution			24	32	28	28	30	18
Has a formal account...	6							
35 ...with a bank	14							
36 ...with a MFI	14							
37 ...with a SACCO	14							
38 ...with a money lender	14							
39 ...with a credit co-op	14							
40 Has access to credit of 1/20th of GNI from a credit co-op								
41 Has access to a credit of 1/20th of GNI through mobile money					6			

Table D12: Change in R2 Associated with the Exclusion of One Item at a Time in Financial Behavior Section

		Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Across-sites median		
										Δ(Adj R²) [pp]	ΔR²/R²	rank(π_{max})
Overall R² [%]		30.8	22.9	44.3	42.5	53.9	38.9	46.1	46.4	43.4		
Overall Adj R² [%]		28.0	16.0	20.0	13.0	20.0	17.0	39.0	6.0	18.5		
Δ(Adj R²) [pp]												
Survey item	Category											
Repay full loans in time	[borrowing]	0.5	1.0	1.2	2.8	0.9	2.0	1.1	1.5	1.1	4.4	8.0
Borrow to repay debt	[borrowing]	0.5	1.6	1.1	2.2	1.0	1.0	1.0	1.3	1.1	3.5	8.0
Careful when deciding whether to borrow	[borrowing]	0.2	1.0	0.9	2.1	1.2	1.6	0.9	1.2	1.1	4.2	11.0
Makes good decisions about how to borrow	[borrowing]	0.2	0.9	1.1	0.9	1.1	2.3	1.4	1.0	1.0	3.5	12.0
Borrows for unnecessary purchases	[borrowing]	0.2	1.0	0.9	0.5	0.6	1.6	1.6	1.3	1.0	3.4	14.5
Borrows more money than should	[borrowing]	0.2	0.9	0.5	1.5	1.2	1.6	1.7	1.4	1.3	4.3	13.0
Set aside income for future	[saving]	3.2	0.9	2.3	2.1	3.2	1.7	2.5	2.3	2.3	7.5	2.5
Over the past year, spend less than income	[saving]	1.9	0.5	0.9	0.8	1.9	1.5	3.7	1.4	1.5	5.3	4.5
Miss or delay bill payments	[day to day]	1.2	0.6	0.7	2.2	1.5	1.9	1.6	2.9	1.5	4.5	9.5
Have plans for expenses 1 week out	[planning]	0.1	1.0	0.8	0.8	1.5	2.3	2.4	0.6	0.9	3.8	6.5
Have plans for expenses 1 month out	[planning]	0.3	0.4	0.6	1.7	1.1	2.0	1.3	0.4	0.9	2.6	4.5
Have plans for expenses 3 months out	[planning]	0.1	0.5	0.6	1.3	0.6	0.9	1.4	1.2	0.8	2.9	6.5
Has a financial goal for next 1 year	[goal]	0.2	0.9	0.6	0.6	0.3	0.9	1.8	0.3	0.6	2.1	7.0
Has a financial goal for next 5 years	[goal]	0.2	1.1	0.4	0.9	0.4	2.1	0.2	0.8	0.6	2.2	11.0
Has plans for finances for old age	[goal]	1.4	0.6	1.5	0.6	1.1	0.8	2.0	0.6	1.0	3.3	8.5
Buy things on impulse that later regret	[self-control]	0.7	0.3	0.7	0.8	1.8	1.0	2.7	1.6	0.9	3.1	8.0
Decide how to spend small amount of money on own	[autonomy]		0.7	1.2	1.9	2.5		1.9	1.3	1.6	4.9	11.5
Decide how to spend large amount of money on own	[autonomy]		1.1	1.8	1.1	1.4		1.1	2.1	1.2	4.8	13.0

Table D13: Change in R2 Associated with the Exclusion of One Item Category at a Time in Financial Behavior Section

	Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Across-sites median Δ(Adj R^2) [pp]
Δ(Adj R^2) [pp]									
Survey item category									
Borrowing	2.0	6.6	7.6	7.2	7.1	9.6	9.1	7.7	7.4
Savings	5.6	1.5	3.2	3.0	5.5	3.4	6.8	3.7	3.6
Day to day	1.2	0.6	0.7	0.7	1.5	1.9	1.6	2.9	1.4
Planning	1.5	2.2	2.2	2.1	4.0	5.7	5.2	1.9	2.2
Goal	2.4	2.7	3.4	3.2	1.7	3.5	5.1	1.5	3.0
Self control	0.7	0.3	0.7	0.6	1.8	1.0	2.7	1.6	0.9
Autonomy		1.9	3.1	2.9	3.9		3.4	3.4	3.2

Table D14. Change in R2 Associated with the Exclusion of One Item at a Time in Access-to-Finance Section

		Ghana	Philippines	Uganda (Host)	Uganda (Refugee)	Afghanistan	Bangladesh	Colombia	Dominican Republic	Across site median: $\Delta(R^2)$ [pp]
	Overall R^2 [%]	26.4	13.0	20.2	20.8	22.5	26.4	23.9	16.1	
1	Has any formal account	4.8	2.0	2.9	3.0	6.0	1.7	5.2	3.4	3.2
	Doesn't have formal account due to….									
2	…because financial institutions are too far away	0.1	0.4	0.3	0.1	0.2	0.0	0.3	0.4	0.2
3	…because financial services are too expensive	0.0	0.1	0.5	0.2	0.2	0.0	1.3	0.4	0.2
4	…because you don't have the necessary documentation	0.1	0.0	0.1	0.0	0.2	0.0	0.1	0.1	0.1
5	…because you don't trust financial institutions	0.2	0.4	0.0	1.3	0.4	0.0	0.3	0.0	0.3
6	…because of religious reasons	0.0	0.0	0.1	0.5	2.6			0.1	0.1
7	…because you don't have enough money to use financial institutions	0.2	0.2	0.2	0.0	0.7	0.9	1.5	0.2	0.2
8	…because someone else in the family already has an account	0.0	0.0	0.3	0.1	0.1	0.0	0.3	0.5	0.1
9	…because you cannot get an account	0.0	0.1	0.0	0.0					0.0
10	…because you have no need for financial services at a formal institution	0.0	0.6	0.3	0.3	0.8	0.0	1.0	0.3	0.3
11	…for any other reason	0.1								0.1
12	Has a formal account AND has automatic savings options		0.0	0.0	0.0	0.2	0.0	1.2	0.3	0.0
13	Has a formal account AND uses automatic savings		0.0	0.0	0.0	0.2	0.1	0.8	0.5	0.1
	Has access to credit of 1/20th of GNI…									
14	…from any listed source	1.7	7.4	8.0	9.8	7.5	17.8	10.0	6.7	7.8
15	…from a bank	0.4	0.0	0.2	0.6	0.3	0.7	1.9	0.4	0.4
16	…from a MFI	0.1	0.1	1.6	0.2	0.1	0.6	1.4	3.2	0.4
17	…from a SACCO	0.1	0.3	0.0	0.4		0.6	1.4	0.1	0.3
18	…from a money lender	0.0	0.2	0.1	1.2	0.3	1.7	0.4	1.2	0.3
19	…from any source AND doesn't need a guarantor >=1 source	0.1	0.3	0.1	0.3	0.0	1.6	0.0	0.3	0.2
20	…from any source AND doesn't need collateral >=1 source	0.0	0.8	0.0	0.5	1.0	0.5	0.4	1.0	0.5
21	Knows what life insurance is	0.0	0.0	0.1	0.9	0.3	0.5	0.7	0.3	0.3
22	Has life insurance	0.1	0.0	0.0	0.5	0.2	0.5	0.0	0.2	0.1
23	Knows what health insurance is	0.0	0.4	0.2	0.3	0.8	0.5	0.2	0.3	0.3
24	Has health insurance	0.1	0.3	0.1	0.3	0.3	0.1	0.0	0.0	0.1
	Received money from or sent money to a friend or relative…									
25	…via any formal source		3.3	2.7	5.6	2.2	3.3	3.1		3.2
26	…in cash		0.1	0.9	0.4	0.6	0.1	0.0		0.3
27	…via a formal institution		0.0	0.9	1.1	0.1	0.5	0.2		0.3
28	…via a mobile phone		0.1	0.2	0.4	0.1	0.0	0.2		0.1
29	…via a money transfer service		0.1	0.1	1.2	0.0	0.6	0.2		0.1
	Didn't receive from or send money to friend/relative because…									
30	…the service provider is too far away		0.3	0.0	0.1	0.0	0.2	0.0		0.1
31	…the service provider is too expensive		0.0	0.5	0.0	0.0	0.1	0.2		0.1
32	…you don't have the necessary documentation		0.0	0.1	0.2	0.2	0.0	0.2		0.1
33	…you don't trust the service provider		0.0	0.2	0.1	0.2	0.1	0.2		0.1
34	…you have no need for transfer services at a formal institution		0.2	0.2	0.0	0.2	0.1	0.7		0.2

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