small firm DIARIES

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METHODOLOGY & PROCESS

An Introduction to the Small Firm Diaries

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Introduction

Many take it for granted that small businesses are the "engines" of employment, economic growth and development, and indeed the ILO has found that micro, small and medium enterprises (often lumped together as MSMEs) account for 70% of global employment.[1] Yet "MSME" is a large umbrella term that encompasses both informal micro entrepreneurs and professional businesses with more than 50 employees. How much do we understand about the different types of businesses that make up this group, especially at the smaller end of the spectrum and in poorer communities? What kinds of livelihoods do they provide for their owners, and what kinds of jobs do they create? What alternatives do owners and employees have: when they choose employment in a small firm, what options are they leaving aside? Looking at their business practices, are these businesses predominantly informal or are they registered with local authorities? Are they well-integrated into formal banking systems, and are they adopting digital financial tools? Or do they rely on informal means of managing money—like savings groups and loans from friends and family—and operate in cash?

The Small Firm Diaries is a global research initiative to better understand small firms in low-income neighborhoods of developing countries, especially the barriers to growth such firms face, through high frequency quantitative and qualitative data collection ("financial diaries"). In each country, a team of locally-hired field researchers visited a sample of about 100 small business owners weekly for a year, gathering data about financial flows and the decisions behind those flows. From 2021 to 2023, the project was active in 7 countries: Colombia, Nigeria, Uganda, Kenya, Ethiopia, Indonesia, and Fiji.

Our goal in this study was to inform policy and practice by a wide variety of actors: financial services providers, business support organizations, government policy makers, funders and other researchers can all use the data and findings of the Small Firm Diaries project to deeply understand and address challenges of small businesses in low-income communities.

The research methodology employed in this study builds upon and adapts methods used in previous financial diaries studies. By tracking cash flows and listening to small firm owners themselves, the Small Firm Diaries study offers insight into a segment of this population that has been little studied and less understood.

1 *Small matters – Global evidence on contributions to employment by the self-employed, micro enterprises and SMEs, ILO, 2019.*

DEFINING "SMALL" FIRMS

Discussions of small firms and their role in economies and financial services ecosystems are muddled by a lack of definitional consistency, particularly around the lower and upper bounds. For instance, in the microfinance community, "microenterprise" is used to describe the informal jobs that microfinance borrowers create for themselves, but many countries define "micro" as extending from these self-employment jobs up to firms with 10 employees. "Small" is even less well defined and is invariably grouped with "medium" (e.g. SME or "Small and Medium Enterprise").

Among Small Firm Diaries countries, official definitions of "micro" begin with 0 workers but extend up to 4 (Indonesia and Uganda), 5 (Ethiopia), or 10 (Kenya, Colombia, and Nigeria). Both Indonesia and Kenya set the lower threshold for workers in a "small" business at 5, but in Indonesia that category is capped at 20 workers whereas in Uganda it extends to firms more than twice as large as those considered small in Indonesia—up to 50 workers. In Kenya, Colombia, and Nigeria, meanwhile, the definition of "small" begins at 10 workers and goes up to 50. Complicating the matter further, the primary metric used to define these terms in many countries, including Indonesia and in Colombia, is not the number of workers, but annual turnover. When you consider that definitions of medium among Small Firm Diaries countries vary even more, it becomes clear that aggregate statistics conceal more than they reveal.

More important than a lack of consistency, though, is that where research and policy organizations have settled on common definitions, the breakpoints chosen don't correspond to the most salient differences among firms along the micro-small-medium spectrum. The IFC, the OECD, and several countries studied here all define microenterprises as businesses that employ from zero to 10 workers, which spans right through the first important breakpoint, that between non-employer firms and employer firms. "Small" is most consistently defined (by the ILO, the IFC, the OECD, and some country governments) as those businesses employing 10 to 49 workers, which encompasses firms on both sides of the second breakpoint: firms that have grown large enough to have professional managers (that is, employees whose primary responsibility is to manage other employees).

The definition of small firm used in this study includes only those firms that are large enough to employ at least one worker, but have not yet grown large enough to have professional managers on the team. We used 1 to 20 workers as our guideline during the sample selection, though the firms we found that met all eligibility criteria clustered towards the smaller side of that spectrum: the average firm in the global Small Firm Diaries sample had 2 to 3 workers at any given time.

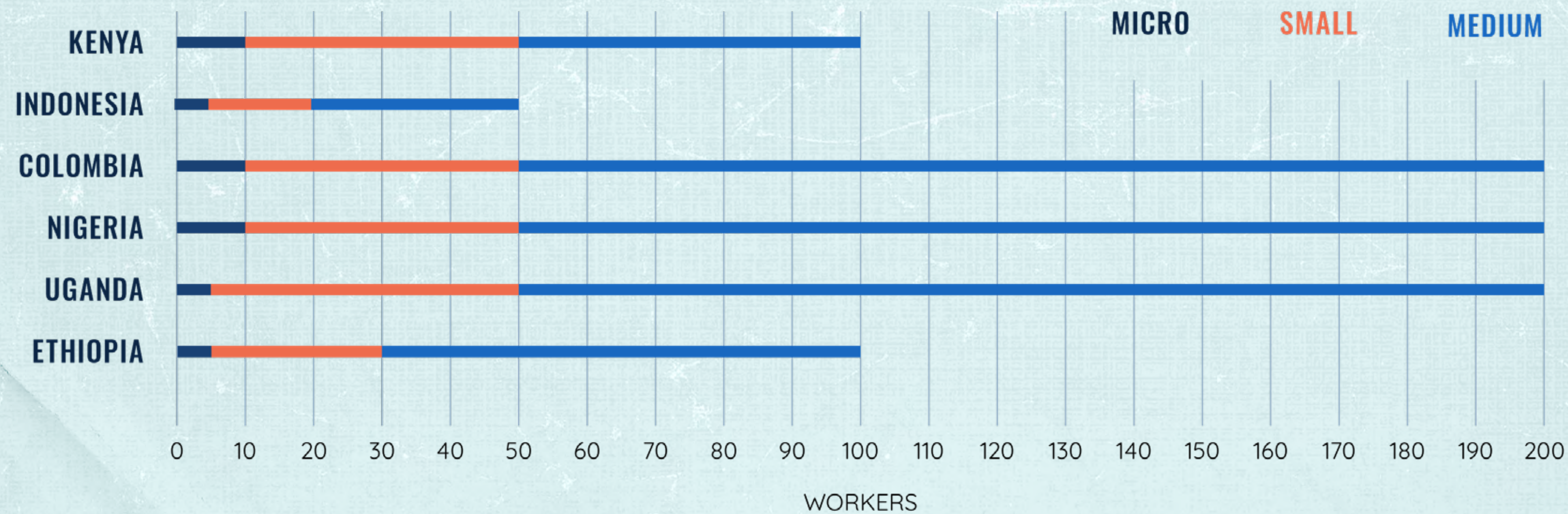


FIGURE 1

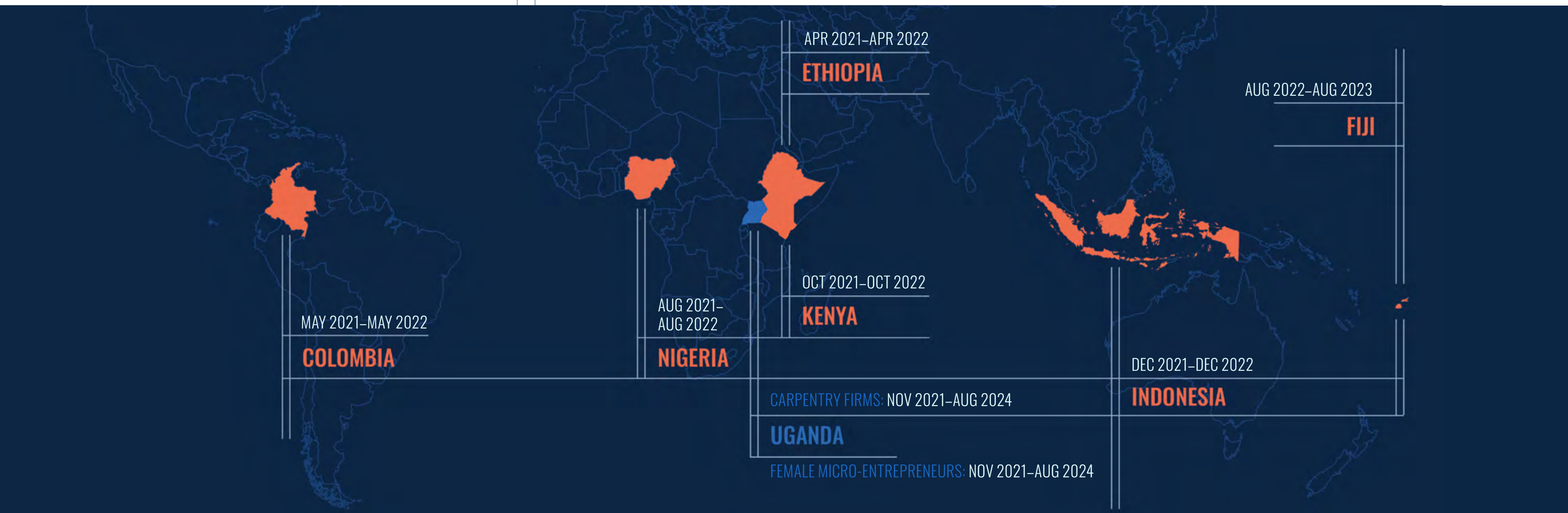
PROJECT LOCATIONS AND TIMELINES

From 2021 to 2023, the project was active in seven countries: Colombia, Nigeria, Uganda, Kenya, Ethiopia, Indonesia, and Fiji. We staggered dates for data collection as shown below, to ease the management burden of running multiple studies at once across the world.

A GLOBAL COLLABORATION

The Small Firm Diaries is a collaboration among field-leading researchers, data collection experts, and a network of government, academic, and financial services partners in seven countries. The study was led by the Financial Access Initiative (FAI) at NYU Wagner. To design and carry out the field research in 7 countries, we worked closely with Low-Income Financial Transformation (L-IFT) and Microfinance Opportunities (MFO), two organizations with deep experience in collecting financial diaries data.

Throughout the project, our funding partners[2] generously facilitated connections that brought the study into dialogue with local experts and policymakers.



In Uganda, however, there are large, intentional differences in study design, to enable us to answer additional questions about the potential impact of participating in diaries. We discuss the Uganda study in separate reports.

In Colombia, Nigeria, Kenya, Ethiopia, Indonesia, and Fiji the study methodology was designed to be the same (e.g. in duration, target sample size and sector composition, and the content of the surveys administered) so that samples could be compared across countries. The present brief takes the design of the study in these six countries as its main topic. There are some differences in design and execution among these six countries, often relating to the organizations we partnered with in each country.

2 The Mastercard Center for Inclusive Growth provided the first, catalytic support for the Small Firm Diaries project, and supported project staff at FAI and communications efforts across the global study. The Bill and Melinda Gates Foundation provided major staff support and funded field work in Nigeria, Uganda, and Indonesia. The Argidius Foundation provided funds for Uganda and Colombia, while FSD Kenya served as both research partner and funder of the Kenyan arm of the study. The project also received support from the Aspen Network of Development Entrepreneurs (ANDE) for the study in Colombia, and UNESCAP and Australian National University for Fiji.

The Financial Diaries Method

STRENGTHS AND APPLICATIONS OF FINANCIAL DIARIES COMPARED TO OTHER METHODS

- Aim: "insight and theory generation" rather than theory-testing
- Approach: Inductive, not deductive
- Look at the whole, not just particular parts
- Engage over time as firms navigate, face obstacles, strategize, fail, and rethink
- Listen, watch, probe, follow-up
- Track changing context and unmet needs
- Create narratives of individuals, firms, and specific moments
- Identify and articulate common themes, even if manifested very differently across different subjects and places
- Revisit basic questions, like: What does it mean to be an employee? Or, What are the boundaries of the firm?

Financial Diaries are not the right tool for—for instance—inference with large, representative samples, causal identification, analysis of heterogeneity, or regression adjustment. Nor can they go as deeply into understanding cultural meaning or analysis of community dynamics and other power dynamics, for which deep qualitative, ethnographic studies are better suited.

High frequency quantitative and qualitative data collection form the foundation of the Small Firm Diaries. In this study, researchers visited the same firms weekly over 12 months, spending time with firm owners and workers to gather detailed data about financial flows and the ways small firm owners run their business—how they manage their cash flows, workers, financial and physical assets, and their relationships with customers and suppliers.

With our sample of about 100 firms per country, the Small Firm Diaries occupies the space in between the high-level data of large, nationally-representative surveys and the focused data of individual business case studies. The diaries bring together high frequency quantitative data on firms' cash flows, which help illuminate actual trade-offs and financial decisions as they are made, with qualitative data on a range of topics that help researchers understand why firm owners make the decisions that they do.

The financial diaries approach as applied to small businesses has advantages over traditional economic surveys—features that help us untangle the mysteries of economic choices and fill in gaps in our knowledge about small firms. At a basic cognitive level, the frequency of the weekly interviews means that small firm owners are asked to remember their spending and income reaching back only seven days, not over weeks or months. In environments with little record-keeping and a lot of volatility, it's likely that the frequency and structure of the diaries methodology improves data quality.

The relationship created between field researchers and small business owners is another important part of the financial diaries methodology. As they get to know one another over the ups and downs of a full year they build trust, allowing researchers to ask—and respondents to reveal—deeper and more detailed information. The time span of the relationship also allows for asking follow-up questions to better understand the causes and consequences of decisions that business owners make.

Qualitative surveys on a variety of topics— asked to several individuals involved in the business, not just the owner—produce a well-rounded picture of the people involved in the business. Small Firm Diaries qualitative surveys provide an understanding of the history of the firm and the background of the entrepreneur, their approach to risk and their aspirations, their relationships with workers, suppliers, competitors, customers and household members, their attitudes toward technology, their approach to decision-making, and more.

At the same time, financial diaries are not without trade-offs, and new challenges emerged as we stretched the methods to apply them to this new population. Running diaries is labor- and time-intensive, so sample sizes are necessarily smaller than one-time surveys, and not nationally or locally representative. The process of recruiting businesses into the sample was time-consuming, as many business owners had negative perceptions of research because of past experience with studies that had never followed up or shared findings; others were not interested without a direct and tangible benefit in exchange for so much of their time. Trouble-shooting the application designed to collect the data; and staying vigilant to find errors in the code were pre-occupations of our data analysis team. Searching for meaning and focused insight in such a sea of data was another challenge: financial diaries are not tools to prove or disprove specific hypotheses but rather exploratory ventures that reveal insights through more complete portraits of participants' conditions and choices.

Like all research tools, financial diaries are well-suited to certain aims and approaches and less so to others.

FIGURE 2

CORE SMALL FIRM DIARIES OVERVIEW

40,248
HOURS OF INTERVIEWS

06 COUNTRIES	COLOMBIA	ETHIOPIA	NIGERIA	INDONESIA	KENYA	FIJI
75 FIELD TEAM MEMBERS	11	15	15	14	13	07
774 SMALL FIRMS	122	128	161	162	155	46
84% SURVEY COMPLETION	60%	73%	90%	99%	83%	99%

HISTORY OF FINANCIAL DIARIES

Small Firm Diaries builds upon the research methodology originally developed by Stuart Rutherford and David Hulme and employed by Rutherford in 2002 in Bangladesh, as a way to get a systematic view into the financial lives of households living in extreme poverty, most of whom were outside the formal banking system.

The idea was adapted by Orlanda Ruthven in both rural and urban India, and refined in 2005 by Daryl Collins for a study of 180 South African households. The book *Portfolios of the Poor: How the World's Poor Live on $2 a Day,* of which FAI founder Jonathan Morduch is a co-author, builds from these initial studies.

Other research organizations and scholars further developed the methodology across many countries and contexts, for instance: Microfinance Opportunities (MFO) has led or been involved in 25 diaries studies including the Garment Worker Diaries in Bangladesh; Low-Income Financial Transformation (L-IFT) is known for efforts to help communities learn from data collected through financial diaries research such as the Corner Shop Diaries and the Youth Livelihood Diaries, and for the development of a financial diaries data collection application, FINBIT; and FSD Kenya implemented diaries studies in many communities in Kenya.

In 2017, Rachel Schneider of CFSI[3], and Jonathan Morduch and Timothy Ogden of FAI published *The US Financial Diaries: How American Families Cope in a World of Uncertainty,* a year-long study of 235 low- and moderate-income families in the United States. The methodology continues to be used across the world, and has shed light on the lives of households in both poor and rich countries.

The Small Firm Diaries is the first large-scale project to apply the financial diaries methodology to small, non-retail businesses, and the first to also interview small firm workers, customers, and suppliers. Just as household diaries helped to reveal the complexity of the financial lives of families, near real-time cash flow tracking shows the complexity and volatility that characterize the lives of small firm owners in low-income communities.

3 *CFSI is now known as the Financial Health Network*

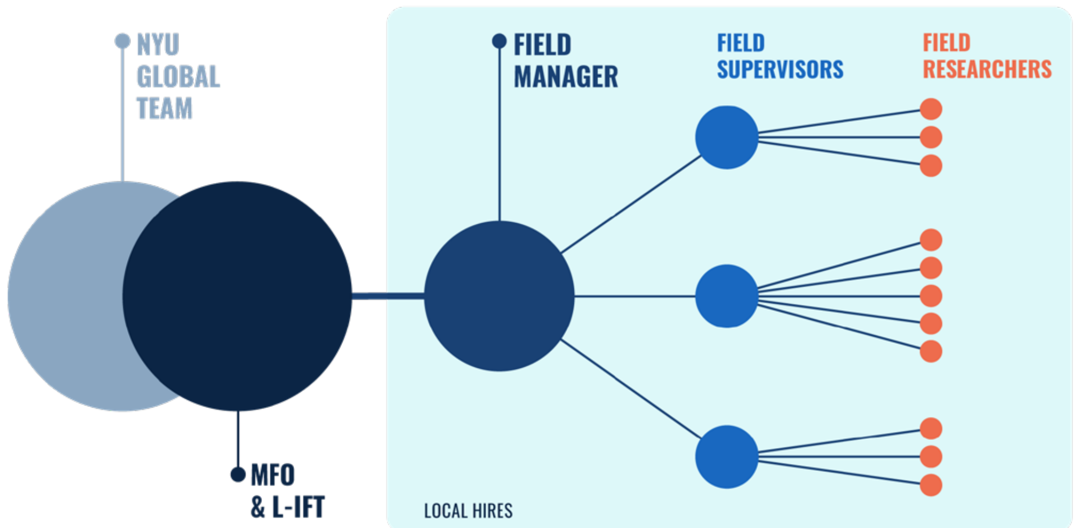
Field Operations

We worked with L-IFT, based in the Netherlands, and MFO, based in Boston, to carry out the Small Firm Diaries in seven countries. These organizations brought to the project extensive experience in designing and carrying out financial diaries studies in dozens of countries, and closely managed all aspects of in-country field operations, from field team recruitment, hiring, and management, to the day-to-day logistics of data collection, to data storage and initial cleaning. In Indonesia, labor laws require that a locally-registered organization be the employer of the Indonesian field team, so in addition to working with MSC Indonesia on local engagement (see section on Local Partner Engagement below), MSC hired, trained and oversaw the field team in partnership with L-IFT. In Kenya, MFO managed field operations with support from FSD Kenya.

FIELD TEAM COMPOSITION

Recruitment of the field research team preceded the recruitment of the sample population. Because of the diversity of research sites included in the Small Firm Diaries, it was important that the field research team in each location bring the cultural and linguistic fluency needed to communicate with the small firm owners. This led us to recruit and hire field researchers in each location, following this basic structure with some small variations for larger or smaller research sites.

FIGURE 3
FIELD TEAM STRUCTURE IN NIGERIA



In each country, the Small Firm Diaries recruited 1 field manager, 3 to 4 field supervisors (one per research site), and 9 to 11 field researchers. These numbers varied based on the target number of firms in each country and the assumption that each researcher could survey about 14 firms for the duration of the study, while a field supervisor could manage 4 to 5 field researchers (In Fiji, the sample size and consequently the field team was smaller than in other countries). Field supervisors also directly surveyed 1 to 3 firms, allowing them to draw on their own experiences scheduling interviews and administering Small Firm Diaries surveys to help troubleshoot problems among their team members.

To recruit in-country researchers, we advertised on job boards and social media, and asked local partners to recommend qualified researchers. We selected candidates based on research experience, language skills, a writing sample, the results of a written test evaluating interpersonal skills, and several rounds of interviews conducted by video conference.

The research team went through three initial rounds of training, covering the process for selecting firms for the sample, survey skills, and using the FINBIT software to collect and digitize study data. We had planned that for each session, researchers from all of the country's research sites would gather in one location along with the field manager, while the international research team including country manager and project lead from L-IFT or MFO and technology manager would participate virtually. We were able to carry out most training sessions in this way, but in some cases, due to Covid-19 precautions or security issues, we also had the in-country researchers participate virtually.

INCENTIVES

Incentives for field researchers—both monetary and motivational— were an important consideration in study design, as the quality of the data depended on the diligence and perseverance of the research team. In 2022 it became clear that the global spike in inflation was affecting the ability of field researchers to do their jobs, as for instance escalating gas prices meant researchers had to spend more out of pocket on the shared buses and motorcycles they relied upon to reach their weekly interviews. For research teams that were still active at the end of 2022 we were able to offer a stipend to offset some of these unforeseen costs. As part of the management and reporting structure we offered avenues for researchers to share ideas, vent frustrations, and receive acknowledgment for good work, through WhatsApp or Telegram groups and a private online researcher forum. Where logistically possible we also invited researchers to join in communications events where they could see how their data collection work contributed to the project's insights and recommendations, and meet people for professional development and future job opportunities.

LOCAL PARTNER ENGAGEMENT

Collaborating with local partner organizations was an intentional part of the Small Firm Diaries study design, to ensure that the findings were relevant for policy and product development in each country of the study. We had one or two primary partners in each country, and these organizations helped us to convene local advisory groups which included experts across academia, government, foundations, NGOs, and the private sector, both at the national level and in the cities and communities where our small firm owners lived and worked. (See the appendix for a list of local partners.)

We looked to the organizations in these local advisory groups to advise on site and sector selection, and to ensure that our survey questions were informed by local knowledge of the SME environment as well as relevant cultural and political dynamics. We shared the data and findings during the data collection phase with partners for input on any needed adjustment during field work and to better understand our emerging findings.

Just as the collaboration provided opportunities for FAI to gain knowledge of the SME environment in each country, it also enabled investment in capacity for local partners in areas of interest to them. For example, in various countries we held workshops on financial diaries methodology or data cleaning and analysis, and collaborated on data analysis, and co-created country-focused reports and briefs. Local partners worked with the research team to find ways for findings to be communicated and applied within new or existing programs, and served as networks for the dissemination of results and recommendations.

COLLABORATION WITH NIGERIA'S NATIONAL BUREAU OF STATISTICS

In Nigeria, the study benefited from collaboration with two in-country partners, the Lagos Business School and the National Bureau of Statistics. This latter partnership differed from our template for collaboration in other countries; in most places potential study participants needed assurance that their data would not be shared with any government body in case it brought an unwelcome visit from the tax authorities. In Nigeria, though, despite deep mistrust of most government institutions, the National Bureau of Statistics is seen by many as a competent and neutral actor. Particularly among many government-level policymakers, engagement with NBS is important to entering the policy discourse. NBS also had the advantage of having an office and trained staff in every region in Nigeria. At our research sites in Nigeria's largest city Lagos; Enugu, a mid-size city in the southeast; and in the northern city of Kaduna, field officers from the National Bureau of Statistics joined our research team training sessions to share ideas and exchange knowledge with the field team and the instructors from L-IFT. They attended data collection interviews with a subset of firms who had given consent to allow a third-party to observe the research, and shared their feedback on research procedures with the team. Our collaboration also included capacity building workshops for NBS on financial diaries data collection and data cleaning.

Building a Sample

SAMPLE CRITERIA

COUNTRY AND RESEARCH SITE SELECTION

The countries where we conducted field work were selected in consultation with the project funders (the Mastercard Center for Inclusive Growth, the Bill & Melinda Gates Foundation, the Argidius Foundation, FSD Kenya, the Aspen Network of Development Entrepreneurs, and UNESCAP). The priorities of the funders are varied, but they all share a commitment to financial inclusion of poor communities, reducing poverty, and empowering women. While the countries vary considerably in per-capita income, poverty levels, policy environment, financial inclusion, and digital financial services ecosystem, many of the challenges faced by small firms employing, owned by, and serving the poor are shared. By including such diverse contexts the study illuminates shared challenges, and illustrates pathways to improved products and policies that better serve poor communities.

Financial diaries require frequent in-person visits to participants. To control the cost of field work, therefore, the study required selecting sites with a high geographic density of small firms—in other words, cities. Within each country, we worked with local partners to select 3 to 4 research sites that were reasonably representative of the diversity of the country and of policy interest and relevance to major actors in the country. While it is impossible to be truly representative (especially in countries as large and diverse as Nigeria and Indonesia), we did endeavor to ensure we were capturing geographical, ethnic, religious, cultural and economic diversity within the country. Once cities were selected, we worked with local partners, country managers, and other contacts to determine low-income neighborhoods where firms owned by, employing and/or serving poor households were likely to be located. Finally, we evaluated a set of operational considerations including the safety and security of local researchers and visiting researchers; ease of access to research sites; and the communications and technology infrastructure to manage the research team and the data.

FIRM SIZE

The study focuses on businesses one step up from the typical microenterprise. Seeking to stake out a clear category amidst the competing definitions for MSME and SMEs, this study defines "small firms" as businesses large enough to have hired workers, but generally not large enough to have hired professional managers (see "Defining 'Small' Firms" on page 4). We theorized that these firms would employ between 1 and 20 non-household workers[4] , and so included in our sample those firms that reported having this many workers in our initial census and intake process (though in our final sample, most firms fell on the smaller side of that spectrum). In building the sample we did not exclude firms based on any other measure of size such as estimates of annual revenue, profits, or assets.

GENDER BENCHMARKS

We set a target for our sample to be made up of 30% to 50% women-owned firms, and a floor of 20%, in order to ensure we would learn about the specific needs and challenges of women-led firms. We included firms that were co-owned by 2 or more people but only counted the firms as women-owned if all owners were female (i.e. a firm owned by a husband and wife is categorized in our data as "co-owned" but not included in analyses of "women-owned firms").

4 We designed the Diaries to allow firm owners to define who is an "employee" according to their perspective, rather than a more objective definition. We asked owners, at the time of our initial census how many "employees" they had, including casual workers, piece-rate workers, and part-time workers, though we specifically asked them to exclude people hired on a one-off basis to, for instance, deliver a product to a customer. Relatives were counted as employees as long as they were living outside the firm owner's household.

FIGURE 4
INDUSTRIES STUDIED

28%
LIGHT MANUFACTURING
CARPENTRY
SAWMILL
METALWORK
GARMENT PRODUCTION
LEATHERWORK

31%
AGRI-PROCESSING
MILLING
ANIMAL FEED PRODUCTION
FOOD PRODUCTION
FOOD PRESERVATION

41%
SERVICES
EDUCATION
PRINTING
VETERINARY SERVICES
HEALTH CLINICS
HOUSE CLEANING

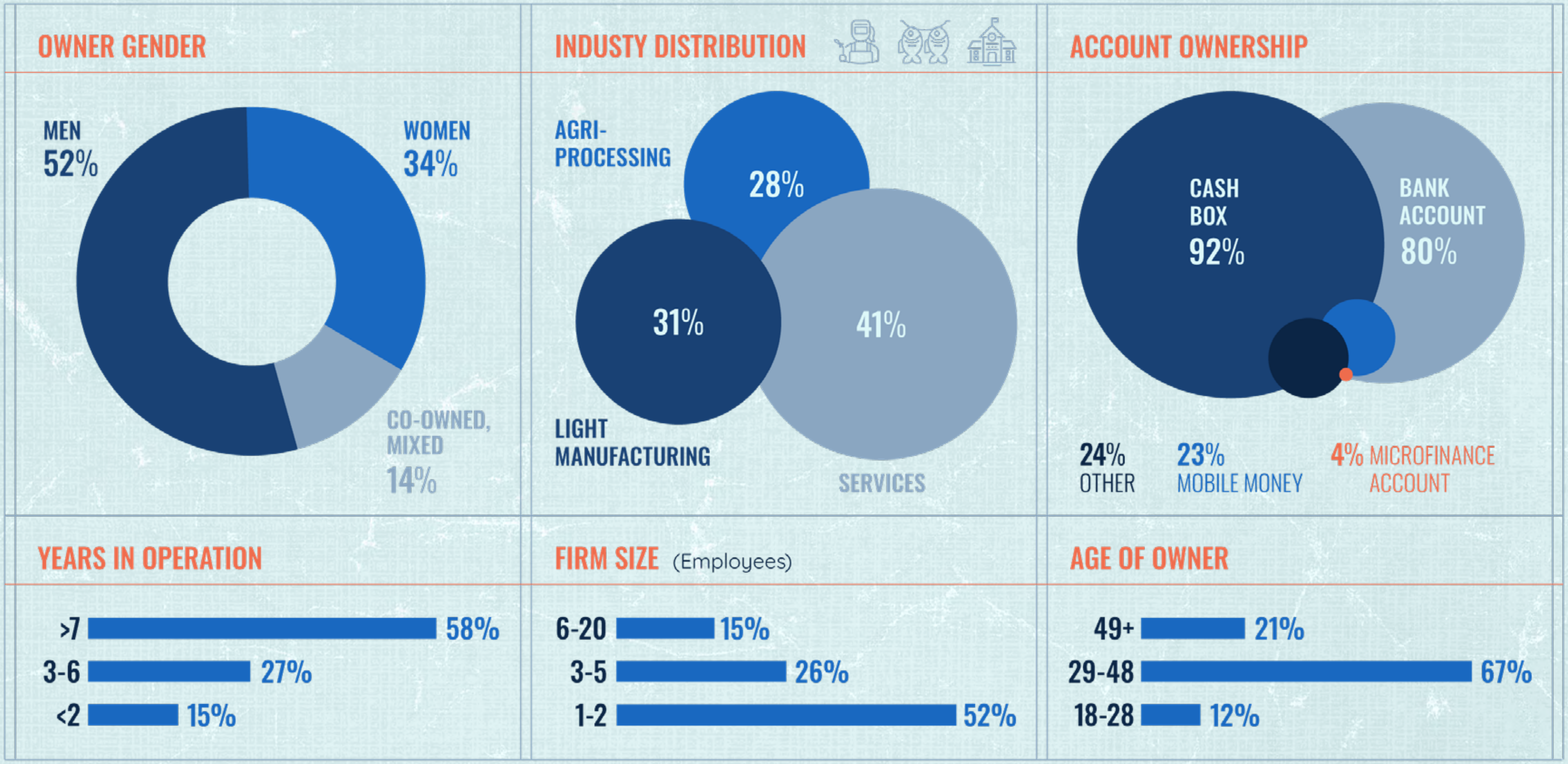
INDUSTRIES AND SECTORS WITH POTENTIAL FOR GROWTH, AND FOR FEMALE OWNERSHIP

The overarching aim of the Small Firm Diaries is to identify the barriers to growth for small firms, including women-led firms, that keep firm owners and/or their workers from rising out of poverty. We therefore chose to focus the project on industries, sectors, and sub-sectors in which significant growth by small firms (in employment, productivity, and profitability) is plausible.

Because of our preference for sectors with potential for growth, our primary focus was on firms engaged in small-scale manufacturing and agri-processing; and for this same reason we chose to exclude retail businesses. We hypothesized certain types of services do have growth potential, and found that including those firms could help us meet our targets for including women-led firms. (We did not evaluate whether individual firms had potential for growth before including them in the sample, only whether their main line of business was in one of the three sectors chosen).

With the three priority industries for the global study in mind, we moved on to select sectors and sub-sectors, which were in some cases country-specific. In each country, based on existing data and consultations with local partners, we generated lists of sectors and sub-sectors in which we were likely to find adequate numbers of businesses within a single research site. Where possible we tried to include similar sectors and subsectors across countries, so that we would include—for instance— carpenters, millers, and printers in each country's sample.

FIGURE 5
SMALL FIRMS BY THE NUMBERS



CENSUS AND INTAKE

To recruit firms, we sent the field team to each site to count and record the details of thousands of potentially eligible businesses. They noted the business sector, firm owner gender, number of workers, and level of interest in participating in the study, which allowed us to select among these characteristics for the initial list of firms. Then the field researchers returned to the selected firms to gather more information about the history of the firm, types of workers, and the firm ownership structure, and we used this data to select the final sample.

Field researchers were trained to use these two preliminary visits to check that firm owners understood the expectations of the study and had time to ask questions, resolve concerns, and fully consider their decision to join.

FIGURE 6

INTAKE FLOW FOR NIGERIA

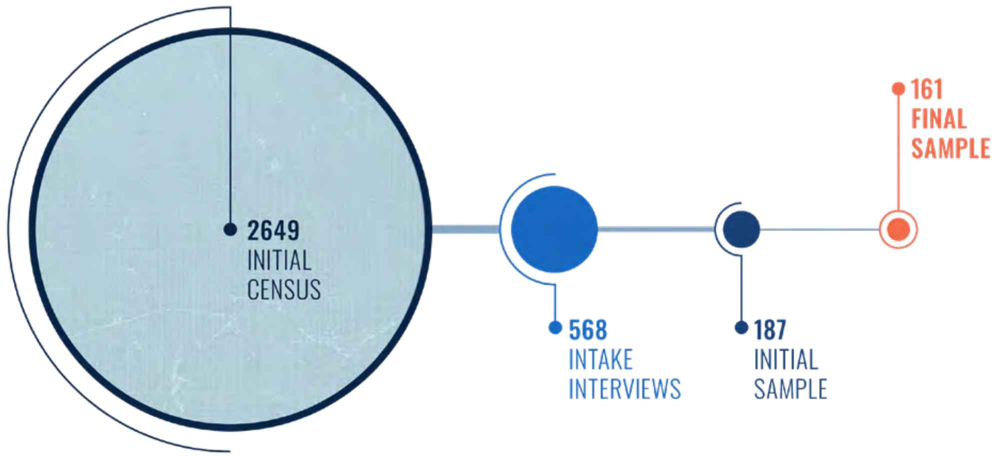
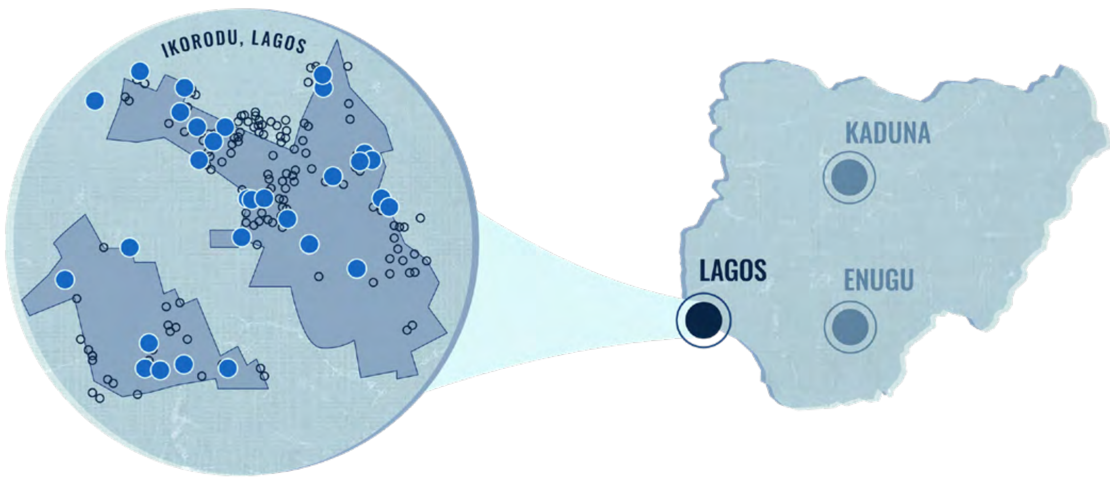


FIGURE 7

SMALL FIRM RECRUITMENT PROCESS

Shaded areas represent two zones in the exurb of Ikorodu, one among five areas where the research team identified concentrations of small firms in or just outside the sprawling city of Lagos, Nigeria.



INCENTIVES

Because we wanted to avoid having firm owners join the study primarily motivated by financial remuneration, we did not tell them in advance that they would be compensated in any way. To acknowledge the large time commitment and sharing of personal data, though, we did give firm owners a smartphone or tablet after several months of participating in the study, followed by monthly gifts of credit or airtime for the new device, and other small non-monetary gifts (such as a notebook for financial record-keeping, pens, and T-shirts) throughout the study. At the end of the data collection, firms were also given a personalized report showing summary statistics from the study so that firm owners could review their business based on the data they shared with us, and compare their data to others within the same country. They received a flash drive with a record of all of the data that they had personally provided the study over 12 months, and were offered some individual training on how to continue reporting their data on FINBIT beyond the study period, if they wished.

Some firm owners told us, during the course of the study, that they hoped that they would be offered a loan or other form of business assistance, as their experience or indirect knowledge of development programs run by foreigners had led them to expect such benefits, although field researchers were trained to explicitly tell participants that we were not connected with any entity that could provide loans or investment. Another frequently cited motivation was what the firm owners perceived that they were "invisible" to policy makers and financial services providers, and they hoped, by participating, to bring attention to the needs of small firms. On the other hand, many firm owners told us that they found joining the study a reward in itself, either because they enjoyed their weekly exchanges with field researchers, or because they felt their business management benefited from collecting data and answering our questions (see "Measuring the Impact of Diaries" on page 15 for more on the possible effects of diaries participation).

MEASURING THE IMPACT OF DIARIES

An important question in all financial diaries studies is the extent to which participating in a study which encourages participants to pay attention to the details of their financial transactions changes their financial behaviors. It's also possible that the diaries methodology could induce changes in other behaviors (long- and short-term planning, worker management, effort) simply due to the knowledge that a researcher is going to be observing.

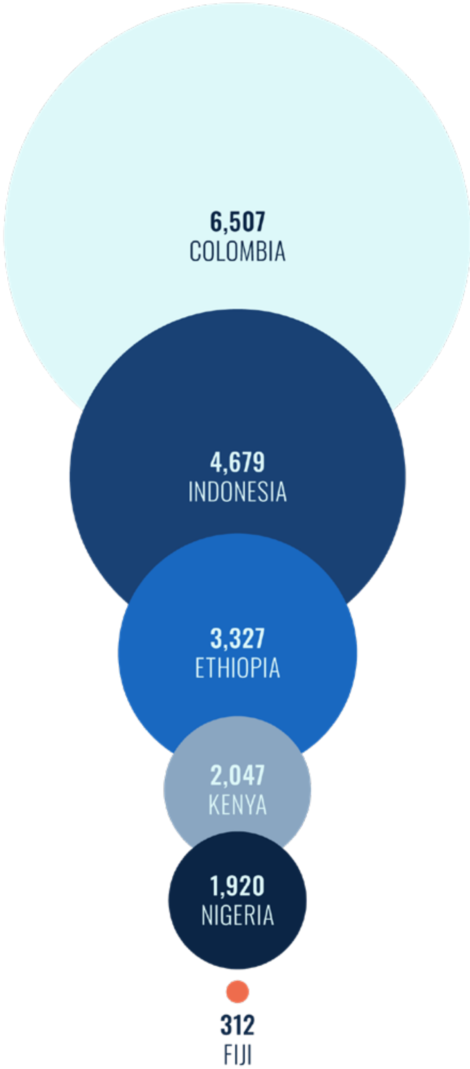
There is not solid evidence to confidently answer this question. Many studies in a variety of domains do find effects of attentional nudges (while others do not), but ultimately those effects tend to be small and short-lived. Evidence from business training program evaluations suggests that meaningful changes in firm owner behavior only happen with sustained focus to one area of a business's operations (e.g. marketing or finance); since the Small Firm Diaries asks about such a broad array of business practices it may disperse the attention that it asks firm owners to devote across too many topics to have an impact. Anecdotally, some participants tell us that participation changed their perspective and behaviors and others tell us participation did not have much of an effect. One firm owner in Barranquilla Colombia told us he agreed to participate in the study because he knew he needed to pay more attention to his finances and thought participating would "force" him to do so. Then he sheepishly showed us a folder where he put all of his receipts and notes and acknowledged that he never looked at them, and instead just handed them over to the field researcher to input in the FINBIT app.

To get a better understanding of the effects of participating in the Small Firm Diaries (and hopefully to inform future diaries work), we designed an arm of the study to explicitly answer this question. Led by Emma Riley, we designed a randomized control trial to compare a control group who would be surveyed 3 times over a year (similar to the process in many studies with a baseline, midline and endline study), to two "treatment" groups. The first treatment group was visited weekly as in a traditional diaries methodology; the second group, in addition to the weekly visits, received a report detailing their responses from prior visits, along with comparisons to the rest of the sample. The study recruited a different sample than the rest of the Small Firm Diaries—600 women microenterprise owners—for several reasons. First, diaries data from these women-led microenterprises will be very useful to better understand differences between microenterprises that have been broadly studied in other (non-diaries) work and the small firms that we are studying elsewhere; second, we believe that these microenterprises are among the most likely to benefit from the attention and record-keeping interventions as they are relatively less likely to be using financial management practices and record-keeping. The Uganda study on the impact of participation in financial diaries began in August 2022 and continued through August 2023. Preliminary results indicate that diaries participation alone did not meaningfully change the business outcomes of participants. Full results will be published in an academic paper and in a separate brief in 2024.

Study Population

FIGURE 8

FIRM SIZE BY MONTHLY REVENUE



DESCRIPTION

The Small Firm Diaries population is made up of businesses operating in low-income, urban or peri-urban communities that reported having between 1 to 20 non-family member paid workers when we first met them. The average firm earned less than $3,132 PPP-adjusted USD in monthly revenue with significant variation between countries, as shown in Figure 8.

Most firm owners (81%) reported being the single owner of their business, and of those about 60% are owned by men. The remaining 19% of firms were owned by 2 or more people. Among firms with multiple owners, 77% included at least one woman owner.

Most of the firms in the global sample were in services (40%); followed by small scale manufacturing (30%); and agricultural product processors (30%) (see Figure 4 for a list of common sectors within each industry).

Firms skewed towards the smaller end of the eligible size range, with more than half of our businesses reporting just 1 or 2 paid workers at the start of the study. Most firms in the sample had at least a few years of experience in business when we met them, with the largest proportion (58%) in operation for more than 7 years. Correspondingly, firm owners were likely to be middle aged, with 67% of the owners in the sample between 29 and 49 years of age.[5]

The firms in the sample were largely "banked" by traditional definitions—80% across all countries reported having bank accounts they used for the business, and many used multiple formal financial tools. It was striking that even though these firms were specifically recruited from low-income neighborhoods and the study operated in countries where microfinance institutions are common, less than 10% reported having any relationship with an MFI. Cash played a large role for all firms—cash transactions made up 53% of the value of all recorded flows. Because of the vastly different contexts across study countries, it's difficult to summarize firms' use of digital financial services. For instance, Kenya has the highest penetration of "mobile money" (defined as digital transactions conducted through a mobile phone operator) in the world; in contrast, Colombian and Nigerian firms made use of non-cash bank transfers (sometimes using phones to do so) but mobile money had not had meaningful use in either country when the study was conducted.

5 It's worth noting that we don't know to what extent these trends are representative of all small firms, beyond the sectors or industries included in the study. Because we were not able to conduct complete censuses of small firms in the areas studied, we don't know if—for instance—firm owners in the retail sector, which we excluded, are younger or older than those in our sample.

Data Collection

QUANTITATIVE DATA

After a firm owner selected from the intake process gave their full informed consent to participate in the study, the field researcher set up their profile in FINBIT, the Android application created by L-IFT for collecting financial diaries data. This profile included information about income sources, accounts, assets, workers, and loans (see Appendix A for a full list of baseline data collected).

Then, each week for a full year, the researcher reached out to visit the firm in person, usually on the same day of the week, and collected the financial information that serves as the backbone of the financial diaries data: all income flows, expense flows (including payments to workers), loan payments, new loans taken or given, and amounts withdrawn or deposited from accounts. For each transaction, the field researchers also attempted to record the payment mechanism and accounts used (see Appendix A for a full list of financial data collected on a weekly basis). We provided firm owners with a blank notebook to track their transactions if they wished, and later we gave them access to a streamlined version of FINBIT for digital note taking, but in all cases the field researcher continued weekly cash flow data interviews.

Field researchers encouraged small firm owners to group together transactions of a similar type (for example all cash sales in a given week) in order to make the reporting and recording process less burdensome. For this reason, a single financial diaries entry might represent just one transaction, or several transactions. By the end of the study and after the data cleaning process was complete in Nigeria for instance, field researchers had collected 53,513 data points from 150 firms, averaging out to about 360 data points per firm, or a little less than one data point per day, which might itself represent dozens of transactions, purchases, or payments.

QUALITATIVE DATA

The Small Firm Diaries study collected qualitative data through: regularly administered qualitative surveys; "case studies," a set of deeper investigations involving follow-up interviews for a smaller subset of firms in the sample; and optional field reports filed by the field researchers. A final source of qualitative information came from interviews conducted by principal investigators and other senior members of the research team who visited firms in each country. These visits included unstructured interviews and follow-up on questions that emerged from the regular interviews and increased our understanding of the firms and firm owners.

QUALITATIVE SURVEYS

We administered qualitative surveys according to a schedule set at the beginning of data collection, and followed the same order in each country. We started with topics deemed less sensitive and saved surveys that required firm owners to think deeply and examine their personal beliefs for later in the study to benefit from the trust built over time between the researcher and the firm owner. The majority of the surveys on key research themes were given by the field researchers once or twice during the study, to the firm owners themselves. The main topics of each qualitative module are given here, with the full set of survey manuals included in the appendix. (Numbers included in the text correspond to tabs in the survey manuals document.)

1. **Record-keeping.** Firm owners' financial record-keeping and inventory management practices.
2. **Firm profile and history.** The history of the firm including the effects of Covid-19; where the firm owners do business, and how the firm owners are paid.
3. **Financial tools.** Actual and desired use of credit (including loans from suppliers and loans to customers and workers); barriers to accessing credit; savings practices; desired investments; Covid-19-related subsidies.
4. **Labor market survey.** Availability and quality of labor supply; the ability of find workers; how owners make decisions to hire and fire workers.
5. **Formalization.** Types of registrations and licenses obtained, why they have or do not have them, and how firm owners self-report the level of formality of their own business.
6. **Risk and risk management.** Risks and adverse events, which risks firm owners have faced, how they have dealt with those risks in the past, and how they plan to deal with them in the future; also insurance against risk.
7. **Competition**. How many and what type of competitors firm owners face; how they distinguish themselves from competitors; whether they associate or collaborate with firms similar to their own.
8. **Time use.** The researcher asks firm owners to recall their most recent full work day, and to recount all activities performed during that day, for how long, where and with whom they performed those activities.
9. **Aspirations and strategy.** Firm owners' vision for their business, barriers and challenges, and the indicators they use to measure success; also how they set prices, and hypothetical questions on alternative livelihood strategies (what they would do if they weren't running the business).
10. **Decision-making and planning.** How business decisions and plans are made, and with whom.
11. **Use of technology/ DFS.** What types of technology (including DFS) are used in the business, for what purposes, and why; also problems small firm owners have experienced with specific technologies and features.

12. **Attitudes to technology.** How the firm owners learn of new technologies, barriers to technology adoption, and how they view advances in technology for themselves and their communities.
13. **Gender.** Household finance and how household financial decisions are made, and by whom. Covers savings, borrowing, and investing. Covers household responsibility allocation for childcare, eldercare, cleaning, food shopping and cooking; business aspirations for sons vs daughters; and ideas about gender roles in society.
14. **Business practices.** Questions that measure business practices in marketing, stock-keeping, record-keeping, and financial planning. This survey is taken from David McKenzie & Christopher Woodruff, 2017, "Business Practices in Small Firms in Developing Countries," Management Science, vol 63(9), pages 2967-2981) and is comparable with surveys administered in Bangladesh, Chile, Ghana, Kenya, Mexico, Nigeria, Sri Lanka, and elsewhere.
15. **Manager skills.** Formal and informal training firm owners have received, how useful they consider them; what skills firm owners possess.

In addition to these thematic surveys, firm owners answered the **Special events survey** (16) every two weeks, which included questions about regular business activities the respondent they spent time on during the previous week, changes to workers (termination, hiring or salary negotiations); business shocks (e.g. received poor quality supplies, electricity outage), or non-business shocks (e.g. family health care issue, change in childcare responsibilities, strike or political protest). Only if the firm closed during the study did the field researcher implement the **Firm closure survey** (17A), which included questions about the reasons for closing and future livelihood options for the business owner and the **Firm closure follow-up survey** (17B) which attempted to track firm owners after the closure, but was difficult in most cases to implement. In the final week of data collection field researchers gave respondents the **End of study survey** (18), intended to capture behavioral changes due to the study (for example in record-keeping practices), and offered researchers the chance to pose clarifying questions related to the thematic modules, and questions to determine whether the period studied was typical or atypical for the business.

To round out the qualitative information centered on the firm owner, the field researchers themselves completed the **Observations survey** (19A) every week (after each quantitative interview). This survey covered questions on whether the business was found open or closed, whether customers were present, the physical state of the business, how busy workers and machines were, the mood of the firm owner, and the researcher's level of confidence that the data reported that week was complete and accurate. At the end of the study the field researchers filled out the **Assessment survey** (19B) which records their perspective on how complete, precise, and accurate the data from each firm is.

There was also a set of qualitative surveys administered to people who interact with the small firm owners in the course of doing business: workers, customers, and suppliers. In each case, the firm owner provided the referral. These included the **Employee qualitative survey** (20) with questions about all income sources to the worker's family, and the **Employee poverty probability survey** (21), each given to one worker per firm, selected by the firm owner. The Poverty Probability Index is a standard poverty measurement tool which computes the likelihood that the household is living below the poverty line based on simple questions about household spending and asset ownership. We also asked firm owners to put us in touch with one customer (usually someone present during one of the interviews, likely during a more relaxed moment of the day), and one supplier, whom we often had to contact by phone. **The Customer survey** (22) probed the customer's relationship with the small firm and with competitors; the customer's income, payment method and technology use and preferences, and home location, and the **Supplier survey** (23) posed questions about the supplier's business, the relationship between the supplier and the small firm, and payment terms offered.

CASE STUDIES AND GLOBAL TEAM VISITS

As a second source of qualitative data, the research team created detailed case studies for a small sub-sample (from 10 to 20 firms in each country). We waited until 8-10 months into the study to build this sub-sample, when researchers knew their subjects well and had time to judge whether their answers seemed correct, complete, and consistent over time.

To create the case study sub-sample, we asked field researchers to recommend their top 3 firms for high perceived levels of: i) trust established between field researcher and firm owner, ii) completeness of data, and iii) accuracy of the data. Based on these recommendations, the FAI team then selected from among them, seeking first to preserve variety in owner gender, firm sector, and research site, while also homing in on firms that illustrated emerging themes such as demonstrated interest in new technologies, or unusual models of collaboration with other firms.

For this short list of firms, the data analysis team summarized transaction data, employee payments, and qualitative survey data, and developed follow-up interview questions to close any gaps in the data and probe on emerging themes. Most of the follow-up interviews were conducted by field supervisors, with support from members of the global team from L-IFT, MFO, and FAI who visited the research sites towards the end of the data collection period.

PRIVATE DISCUSSION FORUM

The research team created a private, online forum (through a free, subscription-only Substack) for researchers to share ideas, stories, and observations not captured through other means such as the qualitative surveys. The forum gave field researchers a medium of self-expression and cross-country exchange, as field researchers in one country wrote about their own experiences, and read about those of their counterparts across countries and continents. Some researchers told us it was motivating to be able to exchange ideas with other researchers and shared dozens of stories and anecdotes, while others viewed it as extra work and contributed the minimum asked. The forum also gave members of the research team (at L-IFT, MFO and FAI) who did travel to visit the research sites in person a clearer picture of the small firm owners and their businesses as well as the daily triumphs and challenges of the field researchers as they carried out the hard work of data collection and navigated the turbulent lives and schedules of their research subjects.

Data Cleaning and Analysis

The data cleaning process for the Small Firm Diaries took place during and after data collection in each country, as outlined in the section below. As soon as field researchers began uploading data through the FINBIT app, we set up a data query and cleaning process to ensure that errors detected in data collection were likely to be caught, and could be fixed quickly.

DATA QUERIES

MANUAL DATA QUERIES (WEEKLY)

The country manager in charge of each field team began manually reviewing the data as soon as it came in, and convened weekly meetings with the field staff. This was the first opportunity to flag values that seemed unlikely, or to note if data had failed to sync.

DATA CHECK SURVEY (BIWEEKLY)

We created a data check survey to establish the meaning of null values in the data: whether 1) the interview had not taken place and therefore there was no data for that week, 2) the interview had taken place but the firm reported zero income or expenses during that week, or 3) the interview had taken place but something had gone wrong uploading the data and it needed to be retrieved and re-uploaded into the system.

AUTO QUERIES (BIWEEKLY)

Finally, around week 8 in each country we created a set of automated queries designed to run every two weeks to flag outlier values (defined as above three standard deviations from the mean for a given firm). For each outlier transaction value, country managers worked with field researchers to verify or correct the outlier value; usually field researchers were able to do this without going back to the firm.

All three of these types of queries resulted in either corrections or comments that explained apparent anomalies.

DATA CLEANING

Once the data collection period was complete, we launched a standardized cleaning process on the entire country-wide data set, re-using some of the tools developed during data collection, and adding some new steps.

Before beginning analysis of the data, we took some additional steps to create our final dataset. We removed firms that dropped out during the study; for those firms that remained in the sample, we removed unvalidated missing weeks of data; and we excluded the first 7 weeks of data for each firm (due to the high likelihood of errors as the owner and the field researcher got to know each other and the process). Finally, we made adjustments for inflation on a month-by-month basis.[6]

The team contemplated two additional cleaning steps that we ultimately did not use for the analysis in our final reports. We considered removing firms with completion rates of less than 75% for income, expense, and worker payments, and also winsorizing transactions at the 95th percentile of all transactions of that type, such as income, expense, or worker payments. Ultimately, through consultations with our Global Advisory Board, we decided outlier measurements contained useful information, and that it was more important to preserve the diversity of the firms in the sample than it was to control for outliers. To avoid bias towards the outliers when analyzing the data, we relied on medians rather than means to describe the sample.

6 *World Bank figures using USA Consumer Price Index (CPI) from July 2017 to January 2023.*

Methodological Challenges

The Small Firm Diaries study was born as an idea before Covid-19 emerged, gained funding under the gathering cloud of the pandemic, and went into planning mode as countries around the world were enforcing lockdowns and scrambling to mount a public health response. Fortunately we had the flexibility to delay the start of data collection by a few months where we needed to keep researchers and participants safe. For example in Indonesia we had originally planned to start data collection in summer 2021 but a wave of Covid infections caused us to wait until fall, after infections had subsided and after we were able to get newly-available vaccinations for the entire team.

In many countries, the pandemic seemed to have much less of an impact than we had feared. Our study was not designed to measure the effect of Covid-19, but we did ask firm owners about the pandemic and how lockdowns had affected their business. However, Covid-19 wasn't the only wild card causing disruptions to the field work. In several countries in the study, political unrest, strikes, and protests were more likely to be named by small firm owners as disruptions to their business during the year we interviewed them. Data collection in Ethiopia coincided with the outbreak of civil war between the central government and the northern Tigray region, though this was sufficiently far from our research sites that we were able to continue with few interruptions. Political unrest, strikes and protests affected Colombian small firm owners directly, resulting in days of firm closure, and at times prevented our research team from scheduling weekly visits. In two research sites in Nigeria—Kaduna and Enugu—we had to alter protocols slightly (for example allowing phone calls instead of in-person visits for a few weeks) because of security concerns and resulting stay-at-home orders there. Presidential elections were held during the study in Kenya and Fiji.

Based on our experience with some previous financial diaries, and because our study design required significant time and effort from participants, we expected firm attrition to be a major challenge. However, we found that, once enrolled, firms largely did not leave the study. This presented a different set of problems, increasing the workload for the field research team who continued to collect data from the large initial sample, and for the data analysis team who had to contend with a greater volume of transaction data to clean and analyze than anticipated. The wellbeing of the field research team was something we carefully monitored given the compounding stresses of Covid and local unrest, especially at the start of 2022 as the war in the Ukraine contributed to a global inflation spike and the cost of living in each of our study countries began to rise dramatically (field researchers reported unsustainable increases in the cost of diesel, public transport, and basic food items). These pressures led us to increase starting researcher salaries in several countries and to give cost of living bonuses to researchers in others.

Methodological Challenges, cont'd

Because ours was the first study to apply the financial diaries methodology to small firms, we had to adapt the FINBIT software from its original purpose of tracking household finances. While we made every effort to anticipate the financial situation of small firms, there remained a large element of discovery, and "learning while doing," especially in Ethiopia (which was the pilot country for the global study). As we learned more about firm owners' cash flows and finance portfolios, we refined questions and the app's functions, seeking to capture complexity while maintaining a necessarily standardized system. Like any new technology deployment—particularly one in a low-connectivity environment, using mobile devices of mixed quality—this process came with problems of design, functionality, and synchronization. In particular, syncing issues caused occasional problems leading to loss of data from particular interviews. We were able to reconstruct all of the data, by going back to paper records or in some cases to the respondents themselves. Asking respondents to recall detailed events from weeks or months before strains the bounds of human memory and most likely resulted in lower quality data for those interviews, a problem that typically plagues retrospective surveys, but the high frequency interviews of financial diaries can—for the most part—avoid.

Conclusion

CREDITS

The authors of this country data overview are Laura Freschi and Timothy Ogden.

The principal investigators for the Small Firm Diaries global project are Timothy Ogden and Jonathan Morduch.

The authors acknowledge the contributions of Rachael Eplee, Amrik Heyer, Michelle Kempis, David Pinedo De La Hoz, Guy Stuart, and Anne Marie van Swinderen in creating this report.

The Small Firm Diaries global project is led by the Financial Access Initiative (FAI) at NYU Wagner.

www.financialaccess.org

Field research was carried out by L-IFT and MFO.

www.l-ift.com

www.microfinanceopportunities.org

Funding for the global study was provided by the Mastercard Center for Inclusive Growth, the Bill & Melinda Gates Foundation and the Argidius Foundation.

www.mastercardcenter.org

www.gatesfoundation.org

www.argidius.com

With this brief we have tried to document the most important elements of our research design so that people reading Small Firm Diaries reports, findings, and recommendations will have a clear view into how the study was conceived, how the sample population was selected, and how the data was collected and cleaned. In doing so we have shared some—though certainly not all—of the key decisions and challenges we faced along the way. If you have questions not answered here, contact us at team@smallfirmdiaries.org.

The Small Firm Diaries project was large and ambitious, requiring coordination and cooperation amongst many organizations in seven quite different countries spanning timelines of over three years. Taking a set of methods and tools originally created to understand individuals and households and adapting them to see inside small firms required some experimentation and iteration. Of course, with a project like this we had to make compromises, and there are limitations to the data we were able to collect. In hindsight we can see some ways such projects could be improved.

Still, the Small Firm Diaries is already shaping conversations about small firms in many of the countries studied and within international organizations that fund, design, and implement policies and products that affect small firms, their owners and their workers. Small Firm Diaries data and recommendations are opening up new dialogues on the usefulness of the term "MSME" and more useful boundaries for policy analysis; on the nature of employment at small firms; and fresh ideas on how to help firm owners manage volatility through supply chain finance and liquidity lending. To date, the project has shared findings at 18 events in 6 countries, reaching over 2000 participants from major banks, government ministers, development agencies, and FinTechs. The Small Firm Diaries team shared results to inform strategy discussions at the Bill & Melinda Gates Foundation and the Argidius Foundation Investment Committee, as well as at African Microfinance Week, European Microfinance Week, EBRD's Women's Entrepreneurs Finance Initiative, and the Microfinance Center, all just in the second half of 2023.

And we are able to address some of the limitations of the study with some new work just beginning as we publish this brief—long-term panels following a sub-sample of firms in Kenya and Colombia, and new work with cross-border trading small firms in Tanzania. The long-term panels will allow us to collect an additional two years of longitudinal data on firm performance, test conclusions from the original data collection, probe on areas that merit more investigation, and identify long term patterns in business strategy decisions, credit usage, worker management and technology adoption.

The last several years of work have left us convinced that Small Firms are a distinct group—materially different from the microenterprises that have been the focus of microfinance, and from larger firms with professional management—that is critically important for development policy to understand and address. We believe there are important ways that policy can be tuned to support these firms and their workers with positive impact on reducing poverty and accelerating development. We look forward to continuing this research and collaborating with other researchers, policymakers and financial services providers.

ABOUT THE STUDY

The Small Firm Diaries is a global initiative to better understand small firms in low-income neighborhoods of developing countries. Visit smallfirmdiaries.org for more information and additional publications.

Appendices

A: FULL SET OF CASH FLOW AND SURVEY QUESTIONS - DOWNLOAD

B: GLOBAL ADVISORY BOARD

Starting in early 2021, we recruited a Global Advisory Board for the Small Firm Diaries project, which we convened about two times per year via video conference. These meetings were also attended by Small Firm Diaries leadership, academic partners, and representatives from our funding partners. Our goals in creating the board were to ensure that we were maximizing the comparative advantage of financial diaries, asking the most relevant questions, connecting our work to other research, thinking carefully about the data we gathered, and creating outputs that were useful to target audiences.

The board included a range of leading practitioners and researchers to provide diverse perspectives on current research and practices relating to small firms and their financial ecosystems. Global Advisory Board members have expertise that extends beyond a single country or geography and provided a cross-cutting perspective that encompasses multiple thematic areas relevant to the experience of small firm owners, customers, and suppliers.

BOARD MEMBERS

Paddy Carter, Director of Research and Policy, British International Investment

Tamara Cook, CEO, FSD-Kenya

Morgan Hardy, Professor of Economics, NYU Abu Dhabi

Leora Klapper, Lead Economist, World Bank and founder of the Global Findex

Minerva Kotei, Financial Sector Specialist, IFC and SME Finance Forum

David McKenzie, Lead Economist, Development Research Group, World Bank

Juan Navarette, Vice President of Business and Partnerships Development, Fundación Capital

David del Ser, Chairman and Chief Innovation Officer, BFA Global

Juan Carlos Thomas, Global Entrepreneurship Director, TechnoServe

Sandra Uwera, Global CEO, Fairtrade International

Chris Wheat, Managing Director · Co President, JPMorgan Chase Institute

C: PARTNER ORGANIZATIONS IN SMALL FIRM DIARIES COUNTRIES

Colombia: Universidad del Norte; Universidad Javeriana; Cámara de Comercio de Cali; Cámara de Comercio de Barranquilla; Cámara de Comercio de Bogotá; Departamento Nacional de Planeación; Asobancaria; Fundación Carvajal; Fundación Capital

Nigeria: National Bureau of Statistics; Lagos Business School Enterprise Development Centre

Uganda: FSD Uganda

Kenya: FSD Kenya

Ethiopia: FirstConsult

Indonesia: MSC Indonesia; Inke Maris; Coordinating Ministry for Economic Affairs; Ministry of Cooperatives and SMEs

Fiji: Development Policy Centre, Australian National University