

Understanding Informality

Comprehensive Business-Level Data and Descriptive Findings

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WORLD BANK GROUP

Development Economics

Global Indicators Group

October 2022

Abstract

This paper introduces and provides a descriptive analysis of data from more than 15,000 detailed interviews of representative samples of informal businesses operating in 24 cities across seven countries, namely, India, Iraq, the Lao People's Democratic Republic, Mozambique, Somalia, Zambia, and Zimbabwe. The paper is a companion paper to a study that presents the methodological underpinnings of the informal business data collection. It is an innovative application of area-based adaptive cluster sampling, rendering a representative sample of these businesses. The paper presents salient

descriptive results of the data to motivate further research. The World Bank's Enterprise Analysis unit started collecting data from the informal sector using the adaptive cluster sampling method in 2017. The combined and standardized data show that informal businesses are small, young, mostly started out of necessity rather than as an opportunity for growth, largely detached from the rest of the economy, and with meager earnings. Few of the informal businesses have ever considered registering formally, with the majority perceiving no benefits from doing so.

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Keywords: informality; development; business; workers; performance

JEL Classifications: D20, D22, E24, J46, L20, O10, O17

¹ The authors are grateful for the comments provided by Norman Loayza, Jorge Rodriguez Meza, David Francis, and Joshua Wimpey, as well as the participants at the World Bank Global Indicators Group Seminar Series. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

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1. Introduction

The informal sector is a source of livelihood to millions of people around the world, by some estimates accounting for about a quarter of the GDP (Schneider, Buehn, and Montenegro, 2010) and around 70% of employment in the developing world (Loayza, 2018). Despite the size and importance of this sector, cross-regional comparable business-level data covering a wide range of topics around their operations are lacking. Since informal sector operations are generally not captured by official records, collecting data on the informal sector businesses, especially from representative samples, is challenging (ILO, 2013). The data on informal economic activity can be collected through two primary actors—the worker and the place of employment (i.e., business or firm). The former is often accomplished through household surveys, commonly the Labor Force Surveys (LFS); this is particularly suited to understand the 'intensive margin' of informality—i.e., unreported employment in otherwise formal sector businesses. The latter is often preferred for a detailed understanding of the workings of informal businesses, their production processes and experiences, the 'extensive margin' of informality.

To collect data directly from informal businesses, various survey methods have been implemented, with the corresponding data enabling insightful research into how informal businesses operate and generating development policies around them (see, e.g., Benjamin and Mbaye, 2012; LaPorta and Shleifer, 2014; Amin and Islam, 2015; Islam, 2019).² Aga et al. (2022), which this paper accompanies, examines the innovative application of the Adaptive Cluster Sampling (ACS) method (Thompson, 1990) to collecting data from informal businesses, rendering samples that are representative of the underlying population of informal businesses at the geographical area being covered.

This paper introduces the data collected across twenty-four cities in seven countries through the survey method examined in the companion paper (Aga et al., 2022) and provides a look into some of the descriptive findings from this combined and standardized data. The data from the Informal Sector Enterprise Surveys are made publicly available by the World Bank's Enterprise Analysis unit.³ Section 2 introduces the data, briefly outlining the survey method (i.e.,

² These methods include creating a random sample using the economic censuses that cover the informal sector (which is extremely rare), snowballing, a 1-2 method, and various simple area-based sampling methods.

³ Data can be downloaded from the Enterprise Surveys data portal: <https://login.enterprisesurveys.org/> and the city-level Informal Sector Enterprise Surveys indicators can be viewed or downloaded from the Informal Sector

ACS) and providing a detailed discussion of the questionnaire. In the process of data collection, businesses that operate without registration are considered to be informal. Throughout the paper, we refer to the unit of analysis as 'business' rather than 'firm' to avoid the legal connotation of the latter. Importantly, as noted above and discussed in detail in the companion paper, Aga et al. (2022), the samples of respondents of the Informal Sector Enterprise Surveys are representative of the underlying population of informal businesses at the city level. With proper weighting, which is well established in the literature and is applied in this paper, population estimates are unbiased.

Descriptive findings from the Informal Sector Enterprise Surveys data are enriched by comparing informal businesses with formally registered micro-enterprises (employing fewer than 5 employees) interviewed in some of the same countries and around the same time through the World Bank Micro-Enterprise Surveys. Section 3 presents these findings, organized as the following set of stylized facts across a wide range of topics and contributing to several branches of literature on informality:

(1) Owners of informal businesses are generally young, having started the business out of necessity rather than as an opportunity for growth, and less skilled than their formal counterparts (consistent with Maloney, 2004; La Porta and Shleifer, 2014, 2016). Representation of women among the owners varies considerably across cities, with women generally experiencing a sizeable productivity gap compared to male-owned informal businesses.

(2) A demographic analysis of informal businesses reveals that they are very small, largely one-person operated, younger than their formal counterparts, and mostly in the retail sector (consistent with Kanbur, 2017; La Porta and Shleifer, 2014).

(3) External finance is difficult to access for informal businesses, perhaps due to the very nature of informality (see, for instance, Koeda and Dabla-Noris, 2008), with widespread use of mobile money (consistent with Islam and Jolevski, 2019).

(4) Informal businesses frequently operate from within households, more so than their formal counterparts, with limited exposure to harassment or crime (in contrast with Francis, 2019; Dube and Casale, 2016), perhaps due to their choices of location and activities.

Enterprise Surveys page of the Enterprise Surveys website: <https://www.enterprisesurveys.org/en/informal-businesses>.

(5) Management practices are worse among informal businesses than their formal counterparts (consistent with Kanbur, 2017; Benhassine et al., 2018; Campos et al., 2018), with the components on record-keeping and planning appearing least prevalent.

(6) Analysis of business relations reveals limited integration of informal businesses into the rest of the economy (consistent with Lewis 1954; La Porta and Shleifer 2014; De Paula and Scheinkman 2007).

(7) Performance (as measured by sales per worker) of informal businesses is considerably worse than their formal counterparts (consistent with De Mel et al., 2008, 2009; Bardasi et al., 2011, La Porta and Shleifer 2014; Ulysea 2020; Aga et al., 2021).

(8) Analysis of the reasons behind operating informally suggests that informal businesses mostly perceive no benefits, only costs associated with registering, with very few ever considering formalization (consistent with Maloney, 2004; De Mel et al., 2013; Benhassine et al., 2018; Campos et al., 2018).

By presenting broadly comparable business-level data across multiple cities and countries based on representative samples at the city level and collected through a rigorous sampling method, this paper fills a large gap in data availability. The World Bank's Enterprise Analysis unit is continuing the implementation of the Informal Sector Enterprise Surveys in additional cities and countries, making both—information about ongoing projects and the resulting data—publicly available through its website.⁴ The ultimate purpose of the work of this unit is to enable and encourage further research into the informal sector, to better understand business environment characteristics and practices of a segment of the economy that remains largely unexplored.

2. The Data, Coverage, and Questionnaire

We use the combined data from the Informal Sector Enterprise Surveys conducted by the World Bank Enterprise Analysis Unit in twenty-four cities across seven countries in between 2017 and 2022. The countries and cities covered are: nine cities in India (Hyderabad, Jaipur, Kochi, Ludhiana, Mumbai, Sehore, Surat, Tezpur, and Varanasi), four cities in Iraq (Baghdad, Basra, Najaf, Sulaymaniyah), two cities in Lao PDR (Vientiane, Pakse), three cities in Mozambique (Nampula, Beira, Maputo), two cities in Somalia (Bosaso, Mogadishu), three cities in Zambia (Lusaka, Kitwe, Ndola), and one city in Zimbabwe (Harare). While multiple useful definitions of

⁴ <https://www.enterprisesurveys.org>.

informality exist in the literature (e.g., Ulyseas, 2018), the practicalities of data collection oblige a clear and workable definition of the population of interest. The surveys used in this analysis employ a definition of *legal* informality (World Bank, 2020), i.e., informal businesses are those that lack sufficient registration or licensing requirements to operate. This notably excludes activities that produce goods or render services that are deemed illegal, such as narcotics. The specific details of what registration entails, e.g., which government agencies, were adjusted to cater to each country's regulatory framework.⁵

2.1 Data Collection

The data was collected through face-to-face interviews of owners and managers following an application of the Adaptive Cluster Sampling (ACS) methodology (Thompson, 1990) to study informal businesses (for more details on the adaptation, see the companion paper Aga et al., 2022). Thus far, the study of the informal sector has primarily come from household surveys, notably Labor Force Surveys, where questions on employment and income from the informal sector are added. While this approach provides valuable information, these are not surveys of businesses, and at best, they are a second-best approach to study informal business activity. Other common approaches to collect information about informal businesses rely on building area-based frames, either using the household surveys, or extensive enumeration of economic activities, or a combination of the two. Depending on the details of implementation, these methods either do not necessarily result in representative samples of informal businesses or are prohibitively expensive to implement.

The ACS is a data collection methodology that provides representative estimates of the population of informal businesses, with the efficiency gain obtained through taking advantage of the feature that informal business activity is clustered in certain areas. This method is primarily applied to study populations whose individuals tend to cluster and are usually hard to reach (Turk and Borkowski 2005, Heckathorn 1997). For such populations, standard random sampling methods are likely to result in large variances of population estimates due to likely misses of many clusters (Seber and Thompson 1994). Businesses, including those in the informal sector, may cluster in certain areas for multiple reasons, such as input-output linkages, social networks, or

⁵ Appendix Table A1 lists specific definitions of informality used in each country during the respective Informal Sector Enterprise Survey implementation.

through general agglomeration effects (e.g., Audretsch and Feldman, 2004, Delgado, Porter, Stern 2014, Ketels 2017, Matano et al. 2020, Bernado and Patrick 2017, Thi Bich et al. 2017, Mukim 2011). Notably, the ACS methodology is applicable even if clustering is not distinctly prevalent, and it provides larger efficiency gains over other methodologies as clustering increases.

To study informal businesses, ACS is applied as follows. The geographic area of each covered city is divided into square blocks, each side 150 meters long. These blocks represent the primary sampling units. The methodology starts with a random selection of blocks, each of which is thoroughly enumerated. An enumerator canvasses the whole block and lists all informal businesses. Systematic listing captures information on the type of activity, physical location, and the number of workers, collected through an enumeration form. Refusals to the enumeration are recorded, and the corresponding information is captured by observation, including the data that could indicate whether the businesses are informal. Since businesses can operate within household premises, enumeration requires identifying informal business activities in all homes located in each block. The enumeration process is repeated adaptively, where blocks that surround the ones with more than a pre-defined number of informal businesses are enumerated (Salehi and Seber 1997).

In the process of enumeration, a sub-sample of informal businesses are randomly selected to conduct an interview. This interview lasts around 25 minutes and contains approximately 150 questions covering a wide range of topics related to business operations. The selection of businesses to interview is randomly assigned and pre-programmed in the software application used for data collection. Given that the whole process is random with known probabilities of selection for both the blocks and businesses within blocks to interview, ACS generates a representative sample of informal businesses in the respective city. In addition to efficiency gains in fieldwork, the sampling method provides greater precision in the population estimates as compared to alternative sampling methods such as non-adaptive area sampling.

2.2 Questionnaire Design to Survey Informal Businesses

Surveying informal businesses requires a well-developed instrument to be used for the interview. The questionnaire used in the Informal Sector Enterprise Surveys is a result of trial-and-error through implementation. The World Bank Enterprise Analysis unit has explored various approaches of surveying informal businesses around the world for several years. The process

involved consultations with statistical offices across several countries, evaluation of questionnaires that have previously been used to survey informal businesses, and application of the extensive experience of the team that implements the World Bank Enterprise Surveys (WBES) of formal firms. This trial-and-error learning process led to the following principles when designing the appropriate questionnaire.

Informal businesses should not be interviewed using questionnaires designed for registered businesses. The primary reason for this is that terminology and definitions used in such questionnaires reflect experiences of legal, registered entities, and may not be suited for informal businesses. Accounting and technical terms commonly used in formal business surveys, such as 'equity', 'income statement', or capacity utilization' must be avoided. It is important to recognize that informal businesses operate in ways that are fundamentally different from formal businesses. Therefore, not only the terms used in the questionnaire, but also concepts need to be adapted to ensure that pertinent measures are being collected. For example, when measuring labor inputs, it is important to capture non-remunerated labor or support from family, so survey questions must be worded accordingly and/or added.

The interviewees of the Informal Sector Enterprise Surveys tend to have lower levels of education than the typical respondent of a formal business survey, and some may even be unable to read or write. Consequently, direct yes/no questions are preferable, and commonly used aids for interviewing, such as 'show cards', should be avoided. The language used as well as the question structure should be simple, straightforward, and able to be read quickly. This means that questions must be formulated in ways that require little or no explanation. Questions that require great cognitive effort, such as those involving counterfactuals or vignettes scenarios, are avoided.

To maximize the effectiveness of the questionnaire, questions requiring mathematical computations or complex numerical responses should be minimized, and those requiring responses in percentages should be avoided. Importantly, since many informal businesses may not keep any written accounts of their activities, it is not advisable to have questions that use accounting terms or timeframes, such as 'fiscal year'. Questions that use annual time horizons are also not advisable as many informal businesses may have a short horizon. Instead, to minimize recall bias that is likely strong in the absence of written records, shorter periods of reference such as last month, are preferable. Shorter time periods, however, bring the need to introduce measures of seasonality.

Importantly, surveying a segment of the population that operates on the border of legality carries challenges with sensitivities. Non-response is not uncommon. To ensure the participation of respondents, it is important to go beyond convincing them that their responses will be anonymized. In particular, it is important to provide assurances that the information will not be used for prosecution. Questions should be formulated in ways that are the least invasive to respondents. Given these challenges of implementation, the team that implements the survey must be thoroughly trained to administer the questionnaire in the form of a conversation. This not only increases the participation of informal businesses in the survey, but also avoids respondent reticence. The need to approximate a conversation during the survey interview further emphasizes the importance of simplicity throughout the questionnaire.

2.3 Questionnaire Composition

The Informal Sector Enterprise Survey questionnaire was developed following the principles outlined above. It covers a range of socio-economic topics that not only provide a granular picture of informal businesses and their owners, but also discern salient patterns and features of a typical informal business. While the exact set of questions asked during interviews changes across countries, a core set of questions has been consistently asked, enabling cross-country analysis. In particular, informal businesses are asked about their origin—who started it, the source of initial funding, with questions probing whether or not it was out of the necessity for additional income. A sizeable part of the questionnaire is dedicated to exploring the background of the owners, age, gender, education, household environment, their experience with formal jobs, whether they immigrated from a different region/country, and other aspects of their life that provide information about owners' resources and opportunities as they relate to the informal business.

During the interview, informal businesses are asked questions about their operations in general, along with detailed questions about sales and employment (separating paid and unpaid workforce), collecting information for regular, the slowest, and the busiest months to account for the extent of seasonality that the informal businesses may face. The cost-benefit aspects of the location chosen by informal businesses are also explored. The experience of informal businesses with the physical infrastructure is probed through detailed questions about electrical outages or insufficient water supply incidents.

A large section of the questionnaire is dedicated to the topic of finance. This section asks about sources of financing for day-to-day operations, purchases of assets, and sources of financing of these purchases, along with multiple questions regarding access to credit. Questions about the use of financial services such as mobile money are also included. Data is also collected on fixed assets used by informal businesses (whether owned or not) along with costs and even profits from the business. These more delicate questions are placed towards the end of the interview following standard practices of questionnaire design.

A sizeable portion of the interview is devoted to the topic of informality itself. In particular, the questions examine potential reasons for the business to be in the informal sector, along with a battery of questions exploring potential costs and benefits of formalization as perceived by the owner or manager of the informal business.

The topic of business practices is also covered in the questionnaire, with the wording of the questions closely following the work of McKenzie and Woodruff (2017) and aligned broadly with studies on management practices among formal firms in developed economies (e.g., Bloom and Van Reenen 2007, 2010 and Bloom et al. 2013). The standard set of questions on management practices used in the study by McKenzie and Woodruff (2017) was adapted for simplified and less formal wording to be more accessible to the target respondents of the Informal Sector Enterprise Surveys. Further, the battery was also considerably shortened to accommodate the implementation of these questions together with the rest included in the Informal Sector Enterprise Surveys within the average of 25 minutes allotted to the entire interview. Principal components analysis was used to determine which of the questions to include from the original set developed by McKenzie and Woodruff (2017). In addition to the topic of management practices, the interview also covers informal businesses' relations with their suppliers and customers.

2.4 Construction of Databases

This paper combines the data collected under the methodology described in Section 2.1, using the questionnaire described in Section 2.3, across seven countries. The resulting database comprises 15,497 interviews from a randomly selected sub-sample of the total of over 70,000 informal businesses discovered through the survey methodology. Table 1 provides details of the survey implementation for each of the seven countries included.

In the process of putting this cross-country data together, special care was given to comparing the questionnaires used across the surveys and properly mapping variables to ensure compatibility. Only the questions that were worded the same way or with minor changes were put together. For example, informal businesses in Zimbabwe were asked, "In the last completed month, did this business or activity experience harassment by government officials or police?" In subsequent surveys, the reference period was changed from "in the last completed month" to "over the last three months." In such a scenario, responses from Zimbabwean businesses cannot be included among those from other countries, as the reference period of the question significantly changed for a meaningful comparison. If the response categories differed across the surveys, efforts were made to accurately map the categories into common groups. If this was not possible, the questions were treated as different and were not mapped together. While there is no common questionnaire available in the standard format, the data users can rely on the variable labels to get a general idea of the question and consult the documentation file (which includes the questionnaire) of the corresponding country-level survey for the exact wording of each question.

Along with the database that maps and combines raw cross-country survey data, we created a database with indicators. The indicators database simply transforms the raw database into a format that can be analyzed without further edits. In particular, responses such as "don't know" or "refusal" are marked in the database with special codes -9 and -8, respectively. The indicators database removes the special codes, turning them into missing. Furthermore, while the raw database uses codes 1 and 2 respectively to denote Yes and No responses, these are turned into 100 and 0 in the indicators database for easier analysis. For questions with multiple options, separate indicators are created to enable direct analysis. Most of these transformations and indicator definitions are self-explanatory.

The two databases – the raw data with the country-level questions mapped into a common set and the indicators data – is publicly available on the WBES data portal.⁶ The databases will be constantly maintained and updated with additional data as the World Bank's Enterprise Analysis unit completes additional surveys of informal businesses around the world.

⁶ As noted above, data can be downloaded from the Enterprise Surveys data portal: <https://login.enterprisesurveys.org/> and the city-level Informal Sector Enterprise Surveys indicators can be viewed or downloaded from the Informal Sector Enterprise Surveys page of the Enterprise Surveys website: <https://www.enterprisesurveys.org/en/informal-businesses>.

3. Summary of Key Findings

This section highlights some of the key characteristics of informal entrepreneurs and their businesses based on the data covering seven countries and twenty-four cities. Informal businesses differ from formal firms along several key dimensions, which we also explore for countries where the survey data is available covering formal firms of comparable size. In five of the countries included in the analysis (India, Mozambique, Somalia, Zambia, and Zimbabwe), surveys of micro-enterprises, (i.e., formally registered business with fewer than five employees) were also conducted roughly at the same time as the Informal Sector Enterprise Surveys.⁷ We use this data, where possible, to provide an overall comparison of informal businesses with micro-enterprises. Table 2 provides details and results of these simple comparisons across multiple dimensions. The analysis in this section is purely exploratory without aiming to uncover causal relations underlying the patterns that we highlight.

3.1 Characteristics of Informal Business Owners

We find that owners of informal businesses across the seven countries are on average in their late 30s and early 40s, with an overall median age of about 36 years.⁸ Only 3% of owners are over 60 years old. About half of the business owners are 35 years old or younger, ranging from 61% in Somalia to about 35% in India. There is no difference in age between female and male owners, with each averaging around 38 years of age, respectively. We find little age variation across the three groups of sectors covered by Informal Sector Enterprise Surveys; manufacturing businesses have the oldest owners (39.3 years on average), followed by retail (37.4) and other services (36.7).⁹ Interestingly, the owners of informal businesses are similar in age to their counterparts in the micro-enterprises, averaging 37.8 years compared to 35.4 years.

The skills of the owner play a critical role in the growth and survival of small businesses (Fairlie and Robb, 2007; Akoten et al., 2009; Nechter and Goldmark 2009). It is widely documented that informal business owners have lower level of skills than owners of formal firms (La Porta and Shleifer, 2016). The Informal Sector Enterprise Surveys collect information on the

⁷ While the survey for Iraq also covers micro-enterprises, data collection for the micro-enterprises survey has not been finalized at the time of this writing, and thus not used in the computation of subsequent formal sector comparisons.

⁸ In what follows, estimates at the city level are calculated using sampling weights. When aggregating across cities and countries, each country is weighted as one.

⁹ These differences are not statistically significant at conventional levels.

owner's level of education, the most common measure of skills. We divide owners into four categories of educational attainment: no formal education, completed primary, completed secondary, and completed college (including vocational and technical schools). About half the owners of informal businesses are high school graduates, ranging from about a quarter in Mozambique to over 90% in Zimbabwe. Figure 1 compares informal businesses with micro-enterprises in terms of the owners' education. While the two types of businesses have similar shares of owners with high school education (about half), they differ on both sides of the distribution of educational attainment. Over 10% of informal owners have not completed primary school, compared to under 5% of formal micro-enterprise owners.¹⁰ Furthermore, the proportion of informal owners who only have a primary school education is more than twice that of formal micro-enterprises. Forty-one percent of formal micro-enterprise owners have either a college or vocational degree, almost three times the percentage of informal business owners. This pattern is consistent with prior work finding the relative lack of education and training possessed by informal entrepreneurs (La Porta and Shleifer, 2014; La Porta and Shleifer, 2016), although we find the difference to be less dramatic. Informal business owners also have relatively limited experience in their respective industries, with just about 7 years, less than the 9-year average for formally registered micro-enterprises.

Representation of females in the informal sector varies considerably across countries. Women are the main owner of close to 40% of these businesses; ranging from only 6 percent in Iraq to 70 percent in Lao PDR.¹¹ This pattern contrasts with our sample of formally registered micro-enterprises, in which women make up an even smaller share (27%) of firm owners. In both informal and formal (micro) businesses, women are not equally represented by sector of activity, with female ownership being mostly in non-manufacturing sectors, though these differences are not statistically significant at the conventional levels.

Female-owned informal businesses also operate slightly longer each week than male-owned businesses (62 hours on average vs. 57 hours, Figure 2). These long working hours on the business are likely added to the household responsibilities traditionally expected of women in these countries. Perhaps because of the need to juggle family responsibility and work, or safety concerns,

¹⁰ All the differences between the informal businesses and micro-enterprises reported in Section 3 are statistically significant at the conventional levels, unless otherwise noted. Table 2 reports the corresponding t-tests.

¹¹ Female ownership information was not collected in the Zimbabwe survey.

female-owned informal businesses are more likely to be operated from within the household. The concentration of females into sectors with limited technology and economies of scale, such as retail, likely partly contributes to the differences in the performance of female vs. male-owned businesses (World Bank 2012; Essers et al., 2021).

Informal businesses constitute an important source of livelihood for their owners. In the existing literature, these businesses are often viewed as side activities run to supplement income from employment elsewhere. However, this does not appear to be the case in the Informal Sector Enterprise Survey data. Only about 12% of informal business owners have employment with a contract elsewhere, and about a third of them were unemployed before starting the business. In formal micro-enterprises, by contrast, 33% of owners currently work elsewhere while 13% were unemployed prior to starting or acquiring the business. About 66% of informal owners note that they started their businesses primarily because they could not find a better source of livelihood.¹² Aga et al. (2020) analyze the income of households and main owners that comes from informal business activities and shed light on the reliance on such sources in an economic crisis, such as the one induced by the coronavirus. Importantly, for about 70% of the informal businesses, the owners are the main income earners for their household, ranging from as high as 86% in Zimbabwe to 53% in Lao PDR. Female owners are much less likely to be the primary earners: 50% compared with 85% for male informal business owners. By comparison, 83% of formal micro-enterprises are owned by the household's primary income earner. The average informal business owner lives in a household with five members, ranging from an average of 4.6 in Zimbabwe to 6 in Zambia.

Informal Sector Enterprise Surveys also enable the study of the link between the informal sector and migration that has been extensively investigated (e.g., Harris and Todaro, 1970; Mazumdar, 1976; Banerjee, 1983; Elgina and Oyvatb, 2013). Informal businesses are often viewed in the literature as temporary means of subsistence for new rural migrants to the city as they seek employment in a modern sector of the economy. However, this view of the informal sector as a mere waypoint on the path to formal sector employment has conflicted with decades of persistently low rates of formalization despite rising urbanization (Kanbur, 2017). Informal Sector Enterprise

¹² Interestingly, about 72% of micro-enterprises were started by owners primarily due to the lack of adequate income from elsewhere. On the other hand, micro-enterprise owners are more likely than informal owners to have paid employment elsewhere. This contrasts sharply with the image of small businesses owners in developed countries who voluntarily quit their salaried jobs in the search of more independence and outlets for entrepreneurial self-expression (Watson et al, 1998).

Surveys ask the main owners of informal businesses for how long they have lived in the current city. We consider as migrants all owners who lived in the city less than their entire life. Using this definition, 28.3% of businesses are owned by migrants. Curiously, there are no differences between migrant and non-migrant-owned informal businesses in terms of the average age of businesses, or of their owners, or the number of employees, or sectoral distribution.

3.2 Characteristics of Informal Businesses

The uniqueness of the Informal Sector Enterprise Survey data used in this paper is the richness of information that they provide about informal businesses. The next sub-sections provide a descriptive overview of some of the key characteristics of informal businesses.

Demography

Figure 3 presents one of the most well-documented stylized facts about informal businesses: that they are very small (Kanbur, 2017; La Porta and Shleifer, 2014). The median informal business engages just two persons (including the owner/manager). Across the seven countries, 49% of the businesses are one-person operated, while another 31% engage two individuals.¹³ Only 4.6% of informal businesses have five or more people working in the business. Importantly, these businesses generally have even fewer paid employees, presumably because the workers are often the owners and their family members, hence the residual beneficiary of the profits. The average number of paid employees (including the owner/manager) is one, with some variation on the right tail as about 67% of the businesses have at least one paid employee. Informal businesses in the manufacturing sector tend to engage slightly more individuals than resellers and businesses in other service sectors. This difference is not statistically significant and is of a lesser magnitude than might be anticipated given the economies of scale inherent in the manufacturing sector (see Panel A of Figure 3). Close to half of those in reselling businesses, which include hawkers, those in open market areas, and small shops, are single-person businesses. A similar pattern is observed across countries, albeit with some minor variation (see Panel B of Figure 3). In all countries, an overwhelming majority of informal businesses have only one or two employees. Iraq is in the only country in the sample where 2-person informal businesses are more common than those run by a single person (35% and 31% respectively). In India and Mozambique, over

¹³ This is based on information about the number of people working in the business at the end of the month just prior to the interview, and includes paid or unpaid, full-time or part-time workers as well as owners and family members if they contribute to business operations.

59% of businesses are operated by a single person. Single-person businesses are also very common in Zambia and Zimbabwe (around 45% in both countries) whereas, in Lao PDR, single-person and two-person businesses have similar frequencies (both around 40%). This data suggests an informal economy composed of many simple one person-operated enterprises.

Table 3 reports descriptive statistics across multiple business characteristics. Here we only note two aspects: informal businesses are very young and predominantly in the retail sector. Informal businesses have been in operation for about five and a half years on average across the seven countries in the sample, with 28% having been in business for a year or less. Formally registered micro-enterprises are, on average, two and a half years older than informal businesses, a difference of over 45% (7.95 vs. 5.52 years). A majority of informal businesses (68% across the seven countries) are in the retail sector, including hawkers, those in markets, and small shops, 2 percentage points higher than formal micro-enterprises. Only 16% are in manufacturing and related sectors, mostly food processing, woodworking, and furniture production. The remaining 16% are in non-retail services such as hairdressing or cleaning. The relative prevalence of each sector tends to be similar both across and within countries. In all cities, a large share of informal businesses are concentrated in the retail sector (from 48% in Sehore, India to 86% in Kitwe, Zambia), with manufacturing and other services alternating in a distant second or third place.

Finance

Access to formal finance plays a pivotal role in firm survival and growth (Burgess and Pande, 2005; Kanbur, 2017). However, by operating in the shadow economy, informal businesses are likely cut off from the formal financial system as they lack the legal basis that may be necessary to access it directly. Consequently, informal businesses likely have to rely on informal sources of credit, or access finance through credits to individuals or households. Indeed, one of the often-touted benefits of formalization is that it improves access to formal credit, thus enabling businesses to seize growth opportunities. The Informal Sector Enterprise Surveys collect data on a variety of variables related to the informal sector's access to financial products. Overall, we find that, as expected, informal businesses are poorly integrated into the formal financial system, reliant mostly on the owner's personal funds and on informal sources of credit. Most businesses were started with the owner's own funds: over 95% in Lao PDR, 81% in India, 84% in Iraq, and close to three-quarters of businesses in Somalia, Mozambique, and Zambia. The next most common source of

start-up funding is informal sources of credit, such as friends or relatives, moneylenders, or others. Banks or microfinance institutions account for less than 2% of initial funding.

Only 12% of informal businesses have a loan or line of credit. Given that such formal sources of credit likely require business registration and are thus out of reach for informal businesses, these are most likely the owners' personal credit or informal sources of financing. Around 8% of informal businesses report having used a bank or microfinance institution for business purposes in the year prior to the interview (Figure 4). Surprisingly, these measures of access to credit do not appear to correlate with performance, measured by sales (and gross profit) per worker. Businesses in the third quartile of profits per worker are less likely to currently have a loan compared to those in the first or second quartiles.¹⁴ Similarly, those in the highest quartile in terms of profits per worker are no more likely than those in the third quartile to have used a bank or microfinance lender for financing their business operations in the past year. This rather counterintuitive pattern may be partly due to the fact that loans are granted to the business owners as personal credits rather than to businesses, thus weakening the link between the decision of the lending institution to grant the loan and the business' performance.

Informal business owners are also unlikely to have any bank account (either personal or business). Estimates of the share with such accounts range from under 6% in Lao PDR to 38% in India. Interestingly, the proportion of unbanked business owners shows considerable within-country variation. In Mozambique, for instance, almost a quarter of owners in Beira have bank accounts compared to only 2.5% in Nampula; in Somalia, owners in Mogadishu are twice as likely as those in Bosaso to have accounts; and in India, the estimate ranges from 6% in Ludhiana to as high as 72% in Hyderabad. Investigation of the reasons behind these large variations within countries is left for future research. Owners of formally registered micro-enterprises are twice as likely as those of informal business owners to use a bank account dedicated uniquely to their business and finance their day-to-day operations with funding from banks or microfinance institutions.

The increased use of mobile money for small business transactions across Africa over the past decade has led to decreased transaction costs and helped buffer against income shocks for poor households (Jack and Suri, 2013). Recent work has also shown a positive impact of mobile money use on the performance of businesses, particularly on investment (Islam et al., 2018). When

¹⁴ Quartiles are estimated separately for each country.

it comes to the digitalization of the informal sector, mobile money is the predominant avenue (Islam and Jolevski, 2019). We see widespread adoption of mobile money among informal businesses as well. Between 40% and 50% of informal businesses in India, Mozambique, Zambia, and Zimbabwe, and over 80% in Somalia report using mobile money in their current operations. In contrast, only 7% of enterprises in Iraq and less than 3% of informal businesses in Lao PDR use mobile money, as the currently prevalent M Money offered by Lao Telecom was not operational at the time of the survey. Data on the use of mobile money by formal micro-enterprises is available only for India, Zambia, and Somalia.¹⁵ Interestingly, micro-enterprises appear more likely than their informal counterparts to use mobile money in India and Zambia but less likely to do so in Somalia.¹⁶

Operations

The ability of informal business owners to set their own hours and work in a largely unregulated setting has been provided as a potential reason for the sector's persistence in the developing world (Maloney, 2004; Loayza and Rigolini, 2011). To investigate these rationales, the Informal Sector Enterprise Surveys first ask whether the business was started by its current owner. Those that did are then asked a battery of questions on potential reasons for starting an informal business. The vast majority of informal businesses (over 90%) were started by their current owner, which, interestingly is slightly less than formally registered micro-enterprises (95%), which are likely more transferable across owners due to their legal status. Female informal business owners are more likely to have started the businesses: 94% compared to 88% for men. The shares of informal businesses started by their current owner vary somewhat across cities, ranging from 56.2% in Varanasi (India) to 99.1% in Pakse (Lao PDR).

Table 4 presents descriptive statistics on the reasons for starting an informal business. While over 83% mention hours or location as a reason, the inability to find another source of income is also listed by 64% of owners. Importantly, over 89% of these owners listed the opportunity to develop a profitable business, with men and women equally likely to provide this reason. There is some cross-city variation, however: ranging from 70% in Nampula (Mozambique) to 100% in Sehore (India). For formal micro-enterprises, this variable was only collected in

¹⁵ Importantly, the question wording in the India survey was more general, referencing digital payments, rather than mobile money specifically.

¹⁶ This difference is not statistically significant in Zambia.

Zambia and Somalia; in both countries, there is no statistically significant difference between formal micro-enterprises and informal businesses in the likelihood of profitability being cited as a reason for starting operations.

Because of their legal status, informal businesses face unique challenges to their operations. Their legal precariousness makes them particularly vulnerable to extortion by government officials (Francis, 2019; Dube and Casale, 2016). Nevertheless, very few of the businesses (around 10%) report being harassed by authorities in the three months prior to the interview. Furthermore, only 13% report having paid bribes to remain in operation. These businesses may also be easy targets of crime (particularly theft) as perpetrators may view the owners as less likely to reach out to formal authorities given their informal status. They may also be more likely to operate in areas less visible or less frequented by law enforcement, potentially increasing their likelihood of victimization. However, this too is not borne out in the data; only 8% of businesses report experiencing losses due to theft or any criminal acts in the three months prior to the interview. The proportion of informal businesses that report any spending on security in the three months prior to the interview is rather low, ranging from 0% in Nampula (Mozambique) and Pakse (Lao PDR) to 15.8% in Ndola (Zambia), with a sizeable within-country variation which perhaps mirrors the overall prevalence of theft.

Part of the low exposure to harassment and theft by informal businesses could be that these businesses chose their location with these challenges in mind. Close to 33% of businesses operate within the owner's household, which is 5 percent more than for formally registered micro-enterprises. Importantly, this varies greatly by sector. A majority of manufacturing businesses, 54%, operate out of the owner's household compared to 30% and 23% for resellers and other service providers, respectively. The relatively large proportion of manufacturing businesses out of a household may be indicative of small-scale activities such as handicrafts, baking, and the processing of dry fruits and other foods. Owners operating out of the household were asked questions about potential reasons for their decision to do so. Table 5 presents the descriptive statistics based on their responses. Lower costs, ease of management of work along family responsibilities, and safety for customers are most frequently cited reasons behind operating out of the household premises (all above 80%), while lower risk of being identified by tax authorities is interestingly lower at under 42%.

Management Practices

The existing empirical literature on informality has yet to focus on management practices as a driver of firm performance. This line of research may be important since in the context of formal firms, better management practices are associated with higher firm productivity (Bloom and Van Reenen, 2007, 2010). The limited studies that focus on small businesses in developing countries also show that business practices play an important role in the growth and survival of these businesses (McKenzie and Woodruff, 2017). Higher productivity, in turn, is viewed for informal businesses as a prerequisite for being able to compete with existing firms in the formal sector. Indeed, a lack of managerial skills has been recognized as a potential bottleneck in the slow transition to formality observed in many developing countries (La Porta and Shleifer, 2014). Recent work suggests a role for governments and development agencies in this regard: training informal business owners in management skills as part of broader education campaigns on the benefits of formally registering (Kanbur, 2017; Benhassine et al., 2018; Campos et al., 2018).

An entire section of the Informal Sector Enterprise Surveys is dedicated to questions about basic management practices. As noted in Section 2.3, the battery of questions was adapted and shortened from the original set developed for smaller businesses by McKenzie and Woodruff (2017). Table 6 provides descriptive statistics of the full set of questions included in the Informal Sector Enterprise Survey on this topic. Eleven out of 13 questions take binary Yes/No responses and are coded as one if the business engages in the corresponding practice and zero otherwise. The question on inventory management allows four options, of which the options other than frequently are coded as 100, and the rest as zero. The question on comparison of the achieved sales with target allows four options, of which monthly or more often is coded as 100 and the rest as zero, including when the business does not have a target for sales.

The data from the full set of 13 questions can be organized into four indices: one overall management practices index and three sub-groups: marketing, planning, and record-keeping. The management practices index for each business i is constructed as follows:

$$MP_i = \frac{\sum_{j=1}^{13} p_{ij}}{13} \times 100 \quad \in [0,100] \quad (1)$$

where $p_{ij} \in \{0,100\}$ is practice j by business i , averaged over all 13 components and scaled from 0 and 100. The marketing index is measured similarly but only using the first six questions given in Table 6, related with some simple marketing activities and also negotiation of a lower price from

suppliers. The planning index too is calculated similarly, using the total of five questions, from 7 through 11 in Table 6, related to inventory or budget management and targets for the following year. Finally, and similarly, the record-keeping index uses the last two questions in Table 6 (12 and 13) on keeping written records and preparing basic financial statements annually.

Informal businesses score relatively low for most business practices, as shown in Figure 6, which compares informal businesses with formally registered micro-enterprises. The overall management practices index averages at 26 out of 100 for informal businesses, compared with 44 for micro-enterprises. Each of the three sub-groups compares similarly, with informal businesses coming closest to micro-enterprises on the aspects of marketing (36 vs. 54 for informal and micro-enterprises, respectively) and falling behind furthest on record-keeping (16 vs. 37). This pattern is among many that point to informal businesses finding record-keeping to be a particularly challenging aspect of managing their operations.

Figure 7 displays averages of the four composite management practices indices for informal businesses by country, showing considerable heterogeneity. For most measures, informal businesses in Somalia are, on average, the best managed in our sample. This is consistent with another pattern discussed below, suggesting the better relative performance of informal businesses in Somalia. This figure also shows that the marketing practices sub-group—capturing basic market research, usage of special offers, and simple negotiations with suppliers—is the most widely used sub-group of the management practices index across countries. In particular, this sub-group makes up the highest score of the three sub-groups in all countries except Lao PDR. Across all cities, the marketing sub-group receives an average score of 36.1 out of the possible 100, compared to 18.7 for planning and 16.4 for record-keeping.

In most countries, except India and Iraq, record-keeping appears to be the least practiced of all sub-groups. One of the two questions constituting this sub-group simply asks if the business keeps written records. Only around 20% of informal businesses do so, exactly in line with the 20% reported for informal businesses in Benin by Benhassine et al. (2018), but much lower than the 46% reported for a sample of Malawian informal businesses by Campos et al. (2018). Interestingly, the second of two components of the record-keeping index—whether businesses prepare a profit and loss statement at least once a year—is somewhat more prevalent, with an average of 25.4% of businesses doing so, though with a large variation from 6.7% in Lao PDR to 41.4% in Iraq.

When looking at the 13 components constituting the management practices index separately, it appears that record-keeping is not the only practice that informal businesses do not take up. These items involve planning for the subsequent year, namely, (i) making a budget of the costs that the business is likely to face next year, (ii) creating a target for sales over the next year, and (iii) comparing sales to targets, with only 3.8% of informal businesses doing the latter. These components are consistently among the least prevalent of the five planning practices of informal businesses both at the level of cities and when averaging by countries. Only three of the 13 components in the management practices index involve a longer-term horizon such as subsequent years, and all three are consistently among the least prevalent. This pattern suggests that informal businesses may not have longer-term horizons, perhaps due to uncertainties that they may be facing.

The management practices index and its constituting parts (sub-groups and questions) vary considerably within countries across cities (data not shown). For instance, in Somalia, informal businesses in Mogadishu are five times more likely to keep written records (question number 13 in Table 6) than in Bosaso. These differences do not appear correlated with city size; Kitwe and Ndola of Zambia are roughly the same sizes, yet with a widely diverging incidence of keeping written records, (3.1% and 20.1%, respectively). Similarly, Beira is the smallest of the three Mozambican cities in the sample, yet its informal businesses are the most likely to keep written records.

Does the positive correlation between firms' management practices and their productivity observed in the literature for formal firms carry over to the informal sector? While a detailed investigation of this matter is beyond the scope of this paper, panel A of Figure 8 provides suggestive evidence that this finding holds in our data. Businesses in each country are grouped into above- and below-median productivity measured by log sales per worker. In every country, businesses above the median productivity on average score statistically significantly higher on the overall management practices index. In particular, businesses with above-median sales per worker average 31.6 out of 100 on the management practices index, compared to 23.2 for businesses below the median. Importantly, this figure is only suggestive of the association between management practices and productivity for informal businesses. Establishing the causal relationship between these variables is left for future research.

An important stylized fact from the existing research on informality is that the education of owners and managers explains a considerable proportion of the variation in outcomes of businesses (La Porta and Shleifer, 2008, 2014). Our data enables inspection of this relationship. Panel B of Figure 8 divides informal businesses from each country into one of three possible levels of schooling completed by the owner: no formal education (including those with partial but incomplete primary schooling), those that completed primary (high school graduates), and those that completed secondary education or college. Within every country, the management practices index is higher for businesses whose owner's education is higher.¹⁷ On average, the informal businesses whose owners have secondary education or a college degree scored 32.7 out of 100 on the management practices index, compared with 23.7 for businesses owned by those completing only primary education and 18.4 for businesses whose owners have lower educational attainment. As with the link to productivity, establishing a causal relation between the owner's education and management practices is left for future research.

Business Relations

Data on the relations of informal businesses with their customers and suppliers can help researchers and policy makers better understand the extent to which these businesses are integrated into their local markets. One of the simple but important questions included in the Informal Sector Enterprise Surveys in some countries (namely, Lao PDR, Mozambique, Somalia and Zambia) on these topics is whether the business supplies products or provides services to other businesses. Around 13.6% of businesses are integrated into value chains in this rather narrow understanding, varying from 7% in Mozambique and Lao PDR to 20% in Somalia. By comparison, more than 52% of formally registered micro-enterprises sell to other businesses.¹⁸

While within-country variation in informal businesses supplying to other businesses is low in some countries (namely, Lao PDR and Zambia), cross-city variation within Mozambique and Somalia is considerable. For example, in Maputo (Mozambique), 18% of informal businesses supply or provide services to other businesses, compared with below 1% in Beira (Mozambique); and the rates in Mogadishu and Bosaso (both in Somalia) are 21% and 6%, respectively. To

¹⁷ The difference in management practices between owners without any formal education and those with only a primary school education is statistically significant at conventional levels only in India and Iraq. The difference in practices between college and high school graduates is not statistically significant for Iraq, Lao PDR, and Mozambique.

¹⁸ Although the estimated average percentage of informal businesses selling to other businesses is lower than that of formally registered micro enterprises, the difference is not significant at conventional levels, as shown in Table 2.

understand if there is heterogeneity among informal businesses in terms of supplying to other businesses, we checked whether it correlates with productivity or owners' education. Informal businesses that have a higher than the median level of sales per worker are equally likely as those below the median to supply to other businesses, suggesting a limited association with productivity. In contrast, owner's education does have some predictive power. In particular, the owners with a college degree are more than twice as likely as those without a degree to supply products or provide services to other businesses (31% vs. 12%).

Not only is the share of informal businesses that supply to other businesses very low, but the size or frequency of such transactions appears to be small. Informal businesses in Somalia and Zambia were also asked whether their main customers are individuals or businesses, and 96% and 94%, respectively, responded that their main customers are individuals with little variation within countries. By comparison, the same measures for formal micro-enterprises in Somalia and Zambia are 85% and 91%, respectively, with the difference between the two types of businesses in Somalia being statistically significant. These patterns of informal businesses mainly transacting with individuals, with a very low share selling to other businesses, are consistent with a bleak picture of informal businesses being largely isolated from supply chains with little opportunities to tap into for growth (e.g., La Porta and Shleifer, 2014).

Developing business relations with customers is likely crucial for informal businesses, regardless of the types of customers they have. This is because the lack of formal registration may limit their ability to ensure that the transactions made with customers or suppliers are enforced by parties outside of the transaction itself, including courts or other institutions. Informal businesses are thus more vulnerable in terms of both being able to convince the customers that their side of the transaction will be fulfilled and ensuring that customers fulfill their side of the transaction as well (e.g., pay as much as agreed and on time). To investigate informal businesses' relations with their customers, the Informal Sector Enterprise Surveys ask whether the businesses' typical customer is someone known as a repeated customer, someone known personally, or someone unfamiliar. Figure 9 shows the shares of businesses' typical customers in each country (panel A) and sector (panel B). Except for Mozambique, the least common type of customer for each country is someone unfamiliar, suggesting that impersonal market exchanges comprise a minority of business transactions for informal businesses in these countries.

Customer type varies greatly with the sector in which informal businesses operate. The sectoral breakdown of typical customer types given in Panel B of Figure 9 offers a rather interesting pattern. Manufacturing businesses are most heavily reliant on personal connections, with more than half of all businesses in this sector reporting such connections with their typical customer. Unfamiliar contacts comprise the typical customer for less than 1 in 6 informal manufacturing businesses. In contrast, less than a third of retail businesses report personal connections with their typical customers, with 1 in 4 reporting the typical customers to be unfamiliar. This stark pattern is consistent with the potential explanation that institutional settings, particularly mechanisms of fulfilling agreements, shape informal businesses' customer base. The manufacturing sector is particularly prone to contract enforcement challenges such as the hold-up problem (e.g., Nunn, 2007). For example, for manufacturing to begin, customers may need to issue advance payments, and manufacturers need to be able to get paid in the event of disputes after the product is finished. In contrast, retail businesses, e.g., resellers in market stalls, or businesses in other services sectors, such as personal transportation or hairdressing, are less complicated in terms of ensuring that agreements are fulfilled since the provision of the service and payment can occur almost simultaneously. The increased risk that transacting parties may renege on agreements in the manufacturing sector likely contributes to considerably higher reliance on personal connections in this sector than in retail or other services.

Suppliers to the informal businesses are also very likely to be informal. Informal Sector Enterprise Surveys also enable a look at the upstream integration of the informal businesses within their local markets. In particular, businesses in Somalia and Zambia were asked whether their main suppliers are themselves, individuals, businesses, or others. Figure 10 displays data for five cities where this question was implemented. The most common suppliers to informal businesses are individuals, with a large variation across cities—from 43.5% in Lusaka (Zambia) to 88.5% in Mogadishu (Somalia). While the legal status of suppliers is not measured, it is conceivable that a large proportion of individuals that supply to informal businesses operate informal businesses themselves. This pattern again points to the informal sector being largely isolated from formal business activity. This picture is further supplemented by the shares of informal businesses that report themselves as their own main supplier, varying from 4.3% in Mogadishu (Somalia) to 21.7% in Ndola (Zambia). Indeed, such an extreme and likely inefficient level of self-reliance is almost

never encountered in formal micro-enterprises, with only 1.2% and 0.4% resorting to it in Zambia and Somalia, respectively.

Importantly, Figure 10 also suggests that the second most common type of main supplier to informal business is other businesses, reaching as much as 34.8% of businesses in Lusaka (Zambia). While a proportion of these other businesses may also be informal, such a relatively high share of informal businesses getting supplies from other businesses may offer an encouraging sign that informal businesses may have some integration to at least the partially formal market. However, the same share in other cities is lower, with only 7.0% in Mogadishu (Somalia).

Overall, the patterns from the data seem to suggest that informal businesses are only somewhat integrated into their local, formal markets, if at all, and their relations appear to be limited to personal interactions or to other informal businesses. Informal businesses seem to operate largely within a sphere of their own, buying supplies from other informal businesses and individuals—economic actors who most likely do not have access to the most efficient means of production. This is consistent with the findings of La Porta and Shleifer (2014), and echoes the work of De Paula and Scheinkman (2007), who find a strong overlap in the registration status of businesses and that of both their suppliers and customers. The patterns depict an informal economy largely detached from formal supply chains, very much in the spirit of Lewis's (1954) dual sector model. Our data do provide important suggestive evidence of at least some heterogeneity across informal businesses, pointing to a more hopeful image. In particular, informal businesses with highly educated owners seem to be more closely integrated within their local, formal markets than those with less-educated owners. We leave it to future research to use the richness of the database to explore other aspects of this heterogeneity and to understand the growth implications of informal business relations with their customers and suppliers.

Performance

Informal businesses operate almost all year round and on a full-time basis, although making meager earnings. Averaging across the seven countries, informal businesses operate for an average of 11.6 months a year and on a full-time basis (over 57 hours a week).

The median monthly sales per worker (in nominal current, USD) is \$130.5, ranging from \$33 for Mozambique to \$225 for Zimbabwe (Figure 11). Since many informal businesses are engaged in low margin activities, such as retail, profits are a useful measure of productivity as well. In line with previous work on informal and micro-enterprises in developing countries (De

Mel et al., 2008, 2009; Bardasi et al., 2011), there is a sizeable profitability gap (as measured by profits per worker) between male and female-owned businesses (with female-owned businesses earning approximately 45% less in monthly profits per worker than their male-owned counterparts). A similar pattern emerges when productivity is measured by sales per worker; female-owned businesses earn on average 266 USD per worker per month,¹⁹ 72% of the level for male-owned businesses.²⁰ In five of the countries where both the Informal Sector Enterprise Surveys and micro-enterprise surveys are available, informal businesses are much less productive than micro-enterprises. Importantly, the size of this gap differs by country: in Zimbabwe, the average sales per worker for informal businesses is just a tenth of the corresponding value for micro-enterprises, while in Somalia, it is about 60%. Figure 12 plots the kernel densities of the log of sales per worker for informal and micro-enterprises. In Zambia and Somalia, there appears to be considerable overlap in the productivity of these two types of businesses. In contrast, in Zimbabwe, the majority of micro-enterprises earn more per worker than the top decile of informal businesses. The reasons for these relative differences between countries are left for future research. Overall, these results are consistent with previous studies that documented that informal businesses are less productive than their formal counterparts (La Porta and Shleifer 2014; Ulyssea 2020; Aga et al., 2021).

Figure 13 provides a more formal test of the equality of the distributions of sales per worker of informal businesses and formal micro-enterprises.²¹ This figure presents the (unconditional) cumulative distribution function (CDF) of sales per worker for informal businesses and formal micro-enterprises. The thick horizontal line along the horizontal axis highlights the values of sales per worker where the two distributions are statistically significantly different from each other (using the familywise error rate, FWER, at 5%). In Zimbabwe, the equality of the two distributions is rejected across almost all values of sales per worker, confirming what we alluded to based on the kernel density plot given on Figure 12. Similarly, the two distributions are significantly different across considerable ranges of values of sales per worker in India, Mozambique and

¹⁹ Male-female differences in sales per worker, though large, are statistically insignificant.

²⁰ A large body of research seeks to explain these differences. One of the potential explanations is that businesses owned by women in developing countries are more likely to be credit-constrained (Rose, 2000; Fletcher, 2009). Though we are unable to directly address this hypothesis with the descriptive statistics presented here, female owned businesses are just as likely to have an existing loan for the business as male owned businesses (9.95% compared to 8.05%).

²¹ We use the *distcomp* command in Stata which provides a test that allows to check for equality of two distributions, thus enabling to test for a restricted form of the first order stochastic dominance (see Kaplan 2019).

Zambia, suggesting a restricted first-order stochastic dominance. In Somalia, however, the two distributions largely overlap suggesting that Somali micro-enterprises and informal businesses are similar to each other in terms of productivity measured by sales per worker. A more systematic analysis of the productivity gap between informal businesses and their registered counterparts is left for future research.

An alternative indicator of business performance accounting for the level of utilization of all factors of production is provided by the business profits. Figure 14 presents a self-reported measure of the profitability of informal businesses in five of the seven countries.²² About half of informal businesses (averaged across the seven countries) report earning a profit in the month prior to the interview. The median profits per worker are quite meager, ranging from only 16 USD in Mozambique to 206 USD in Iraq. There are notable variations across informal businesses in terms of profits per worker. In particular, as noted above, female-owned businesses earn 45% lower profits per worker than their male-owned counterparts. Such low profitability per worker coupled with the finding that most informal businesses have fewer than three workers indicates that many informal businesses are struggling to eke out a liveable income.

3.3 Why are these Businesses not Formally Registered?

A frequent prediction that the informal economy would be absorbed by the formal sector as economies grow and create well-paying jobs (Lewis, 1954; Harris and Todaro, 1970; Rauch, 1991) has largely failed to materialize. In many developing economies, the size of the informal sector has not declined despite decades of economic growth (Kanbur, 2017). Studies evaluating the impact of various interventions to formalize informal businesses reveal that these interventions were largely unsuccessful (Bruhn and McKenzie, 2014; Grimm and Paffhausen, 2015; Jessen and Kluge, 2019; Floridi et al., 2020). Four broad views stand out on the capabilities and promise of informal entrepreneurs, each with different policy implications (La Porta and Shleifer, 2014).

One of these is the latent entrepreneurship view (or the exclusion view) popularized by de Soto (1989), which portrays the informal sector as a reservoir of potential entrepreneurship stifled by inefficient and cumbersome regulations. A second view is a dualistic view which considers informal businesses as inherently unproductive, owned and operated mainly as a means of subsistence by individuals who would gladly accept employment elsewhere (La Porta and Shleifer,

²² Data on profitability was not collected in Zimbabwe.

2014). A third and more pessimistic view considers informal businesses as parasites engaged in unfair competition with formal businesses that pay tax and abide by regulations (Farrell, 2004). Finally, a more nuanced view argues that informality is a rational decision where businesses choose to stay informal when the perceived benefits of formally registering are outweighed by costs such as paying taxes, registration fees, and meeting regulatory requirements (Maloney, 2004; Perry et al., 2007; Ulysea, 2020; Kanbur, 2017).

Informal Sector Enterprise Surveys ask respondents questions about some of the reasons why businesses chose to remain informal and the perceptions about any potential benefits from formally registering. This may provide useful information for policy makers to understand the potential barriers faced by these businesses to formalize. Figure 15 shows the reasons given (not mutually exclusive), for each country. In Somalia, Mozambique, and Lao PDR, the lack of any perceived benefit from formally registering is the most common reason cited, for Iraq it is taxes, and in Zambia and Zimbabwe, it is lack of information and the time and fees required respectively.

In three of the surveys (Lao PDR, Somalia, and Zambia), an additional question asks owners to choose the main reason, out of seven possible options, for not registering. Figure 16 displays the relative importance of each reason per sampled city. The results largely support the view that businesses decide to remain informal due to the perception that formalizing imposes additional costs and confers few, if any, benefits. By far, the two most common main reasons cited for not registering were: first, no perceived benefit, and second, the fees and time associated with formalizing. Each option was chosen by around 30% of businesses. Costs associated with registering, along with taxes and meetings or inspections with government officials were reported as the main reason for 12% and 3% of businesses, respectively. Overall, the primary reasons for not registering appear to be related to either a lack of benefit or the presence of additional costs for over 75% of businesses. On the other hand, a lack of information does not appear to be the driving force behind a reluctance to formalize, cited by less than 13% of businesses as their main reason for not registering. This is consistent with findings from studies based on field experiments that show limited formalization following the presentation of information pertaining to the registration process (De Mel et al., 2013; Benhassine et al., 2018; Campos et al., 2018). It is therefore unsurprising that under 15% of businesses report having considered formally registering their businesses in the three years prior to the Informal Sector Enterprise Survey interview.

The main reason for not registering stated by each business varies greatly between cities in the same country. For example, in Lao PDR, less than 6% of businesses in Pakse report time and fees as the primary reason compared to around 32% in Vientiane. In Zambia, 35% of businesses in Ndola claim that a lack of information about the registration process is the primary reason for not formalizing, whereas this figure is only 10% in Kitwe. Taken together, these findings suggest that the institutions and constraints influencing the motivations of businesses about formalization tend to be city- or region-specific. This is not altogether surprising given that the authorities usually tasked with ensuring compliance with licensing and registration tend to operate at the municipal or provincial level (Bruhn and McKenzie, 2014).

4. Conclusions

This paper introduces and provides a descriptive analysis of business-level survey data of informal businesses in twenty-four cities across seven countries (India, Iraq, Lao PDR, Mozambique, Somalia, Zambia, and Zimbabwe) collected since 2017. The surveys were conducted through face-to-face interviews of owners and managers of informal businesses following the ACS methodology adapted to study this segment of the population. This methodology is examined in much detail in the companion paper Aga et al. (2022). The ACS is a data collection methodology that efficiently provides representative estimates of the population indicators for informal businesses. Importantly, this survey methodology also enables estimating the overall size of the informal sector. While such analysis is beyond the scope of this paper, we note that studies using the data analyzed in this paper show that in Mozambique, for example, informal businesses outnumber formal ones by a factor of 8:1 (Jolevski and Aga, 2019).

The introduction of this cross-city, cross-country business-level database of informal businesses is one of the contributions of this paper. The data combines surveys that cover a wide range of topics through interviews that are administered to a representative sample of informal businesses rendered through the enumeration process (for more details, see the companion paper Aga et al., 2022). Two databases are prepared and made publicly available through the website of the World Bank's Enterprise Analysis unit: one combining raw data where question-wording and response categories have been carefully compared and mapped across surveys and standardized, if possible; and another, the indicators database transforming raw data into a set of indicators that aggregate the results in an easily analyzable format.

The second contribution of this paper is the descriptive analysis of a wide range of topics covered in this cross-city comparable data. This analysis has two main purposes. First, many general patterns found in our data match the existing knowledge about how the informal sector operates, thus providing validation of the database itself. Second, we have highlighted features of the informal sector and patterns in the data that warrant further research, which can be conducted using this data, potentially supplemented with other data sources. Importantly, the World Bank's Enterprise Analysis unit continues collecting similar data in other cities and countries, making such analysis possible with increasingly wider coverage.

An initial analysis of the data from the seven countries yields the following stylized observations. Informal businesses operate almost all year round and on a full-time basis but make meager earnings. Informal businesses are generally very small and young, started out of necessity rather than as an opportunity for growth, typically operating in the retail sector, often from the owner's household premises, and are frequently owned by women, who experience a sizeable productivity gap compared to businesses owned by men. Even within the small scale at which informal businesses operate, they considerably under-perform formally registered micro-enterprises, consistent with the existing literature (La Porta and Shleifer 2014), with the data suggesting an interesting and sizeable cross-country variation.

The informal sector appears to be poorly integrated into the formal financial sector (as expected due to their lack of registration and thus lack of access to formal financial products) as well as formal supply chains. The data on management practices suggests a considerable gap between informal businesses and the formally registered micro-enterprises, especially in terms of record-keeping. The aspects of management practices related to planning for the subsequent year appear among the most challenging for informal businesses, suggestive of uncertainties that they may face, preventing them from adopting longer-term horizons.

The data suggest that operating informally does not seem to be associated with high chances of harassment, bribery, or crime; neither does it seem to provide a flexible work schedule, suggesting that perhaps the costs and benefits of informality are not well understood in the existing literature. We find that most businesses choose to remain unregistered not because of a lack of information (as suggested by some policy makers) but rather due to the additional costs and insufficient perceived benefits associated with formalizing.

The combined and standardized data introduced in this paper is expected to keep growing as the World Bank's Enterprise Analysis unit is implementing similar surveys of informal businesses in an increasing number of cities and countries, making the data publicly available upon completion of each project. While most of the patterns we report in this paper are consistent with the existing literature, much remains to be further investigated to fully understand the industry dynamics of informal businesses and the underlying causes behind their lack of formalization. The main purpose of data collection efforts on informal businesses by the World Bank's Enterprise Analysis unit, and two companion papers, Aga et al. (2022) and this paper, is to enable and encourage this timely and much-needed further research through these cross-country business-level databases of informal businesses, which will eventually contribute to the development of economies through understanding and implementing ways of enabling businesses to escape what appears to be a rather dismal state of informality. In particular, the questions that are critical to understanding the informal sector and can be examined with these databases include, among many more: (1) what are the underlying factors that keep businesses informal, (2) what are the determinants of the differences in performance between formal and informal firms, and (3) what are the spillover effects between the formal and informal sectors.

References

- Aga, G., Francis, D., Jolevski, F., Rodriguez Meza, J., and Wimpey, J. (2022). “Surveying Informal Businesses: Methodology and Applications”. Forthcoming
- Aga, G., Campos, F., Conconi, A., Davies, E. and Geginat, C. (2021) “Informal Firms in Mozambique.”, *Policy Research Working Paper #9712* World Bank, Washington, DC.
- Aga, G., Jolevski, F., and Muzi, S. (2020). “Insights from Enterprise Surveys: Including the Informal Economy in Policy Responses to COVID-19.” *Let’s Talk Development*. The World Bank.
- Akoten, J. E ., Sonobe , T., and Otsuka , K. (2009) “The growth process of informal enterprises in Sub-Saharan Africa: a case study of a metalworking cluster in Nairobi” *Small Business Economics*, 36:323–335
- Amin, M. and Islam, A. (2015). “Are Large Informal Firms More Productive than the Small Informal Firms? Evidence from Firm-Level Surveys in Africa.” *World Development*, 74, pp. 374-385.
- Ashraf, N. (2009). “Spousal Control And Intra-Household Decision Making: An Experimental Study In The Philippines.” *American Economic Review*, 99(4), 1245-77.
- Audretsch D. B., Feldman M. P. (2004). “Knowledge Spillovers and the Geography of Innovation.”, in J. Vernon Henderson and Jacques-François Thisse (eds.) *Handbook of Regional and Urban Economics*, Elsevier, Chapter 61, Volume 4: pp 2713-2739
- Banerjee, A., Duflo, E., Glennerster, R., and Kinnan, C. (2015). “The Miracle of Microfinance? Evidence from a Randomized Evaluation.” *American Economic Journal: Applied Economics*, 7(1), 22-53.
- Bannerjee, A. (2013). “Microcredit under the Microscope: What have we Learned in the Past Two Decades, and What do We Need to Know?” *Annual Review of Economics*, 5, 487–519
- Banerjee, B. (1983). “The Role of the Informal Sector in the Migration Process: A Test of Probabilistic Migration Models and Labour Market Segmentation for India.” *Oxford Economic Papers*, 35(3), 399-422.
- Bardasi, E., Sabarwal, S., and Terrell, K. (2011). “How do Female Entrepreneurs Perform? Evidence from three Developing Regions.” *Small Business Economics*, 37(4), 417.
- Benhassine, N., McKenzie, D., Pouliquen, V., and Santini, M. (2018). “Does inducing informal firms to formalize make sense? Experimental evidence from Benin.” *Journal of Public Economics*, 157, 1-14.
- Benjamin, N. C. and Mbaye, A. A. (2012). “Informality and Productivity in West Africa.” *Review of Development Economics*, 16: 664-680.

- Bernedo, Maria and Patrick, Carlianne (2017). “Agglomeration and Informality: Evidence from Peruvian Firms”. Andrew Young School of Policy Studies Research Paper Series No. 17-13
- Bloom, N., and Van Reenen, J. (2007). “Measuring and explaining management practices across firms and countries.” *Quarterly Journal of Economics*, 122(4), 1351-1408.
- Bloom, N., and Van Reenen, J. (2010). “Why Do Management Practices Differ Across Firms and Countries?” *Journal of Economic Perspectives*, 24(1), 203-24.
- Bloom, N., Brynjolfsson, E., Foster, L., Jarmin, R. S., Saporta Eksten, I., and Van Reenen, J. (2013). “Management in America.” US Census Bureau Center for Economic Studies Paper No. CES-WP-13-01.
- Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., & Roberts, J. (2013). “Does management matter? Evidence from India.” *The Quarterly Journal of Economics*, 128(1), 1-51.
- Bowering, Rebecca, Rachel Wigle, Tegan Padgett, Blair Adams, Dave Cote, and Yolanda F. Wiersma (2018). "Searching for rare species: A comparison of Floristic Habitat Sampling and Adaptive Cluster Sampling for detecting and estimating abundance." *Forest Ecology and Management* 407 (2018): 1-8.
- Bruhn, M. and McKenzie, D. (2014). “Entry Regulation and the Formalization of Microenterprises in Developing Countries”. *World Bank Research Observer*, 29(2): 186–201.
- Burgess, R., and Pande, R. (2005). “Can Rural Banks Reduce Poverty? Evidence from the Indian Social Banking Experiment.” *American Economic Review*, 95(3), 780–795.
- Campos, F., Goldstein, M., and McKenzie, D. (2018). “How Should the Government Bring Small Firms into the Formal System? Experimental Evidence from Malawi.” *Policy Research Working Paper #8601*. World Bank, Washington, DC.
- Cullen, Daniel W., and Bradley G. Stevens. “Application of Systematic Adaptive Cluster Sampling for the Assessment of Black Sea Bass *Centropristis Striata* Abundance.” *Fisheries science* 83(5): 671-682.
- De Mel, S., McKenzie, D., and Woodruff, C. (2008). “Returns to Capital in Micro-enterprises: Evidence from a Field Experiment.” *Quarterly Journal of Economics*, 123(4), 1329-1372.
- De Mel, S., McKenzie, D., and Woodruff, C. (2009). “Are Women more Credit Constrained? Experimental Evidence on Gender and Microenterprise Returns.” *American Economic Journal: Applied Economics*, 1(3), 1-32.
- De Mel, S., McKenzie, D., and Woodruff, C. (2013). “The Demand for, and Consequences of, Formalization among Informal Firms in Sri Lanka.” *American Economic Journal: Applied Economics*, 5(2), 122-50.

- De Soto, H. (1989). *The Other Path: The Invisible Revolution in the Third World*. Harper and Row publishers, New York,
- Delgado, Mercedes and Porter, Michael and Stern, Scott. (2014). “Defining Clusters of Related Industries.” Working paper series (National Bureau of Economic Research). 16. 10.1093/jeg/lbv017.
- Demsetz, H. (1988). “The Theory of the Firm Revisited.” *Journal of Law, Economics and Organization*, 4, 141.
- Dube, G., and Casale, D. (2016). “The Implementation of Informal Sector Taxation: Evidence From Selected African Countries.” *eJTR*, 14, 601.
- Duflo, E., and Udry, C. (2004). “Intrahousehold Resource Allocation in Cote d'Ivoire: Social Norms, Separate Accounts and Consumption Choices” *National Bureau of Economic Research Working Paper #10498*.
- Elgina, C. and Oyvatb, C. (2013) “Lurking in the cities: Urbanization and the informal economy”. *Structural Change and Economic Dynamics*, 27:36-47
- Essers, D., Megersa, K., and Sanfilippo, M. (2021). “The Productivity Gaps of Female-Owned Firms: Evidence from Ethiopian Census Data.” *Economic Development and Cultural Change*, 69(2), 000-000.
- Fairlie, R. W. and Robb, A. M. (2007). “Why Are Black-Owned Businesses Less Successful than White-Owned Businesses? The Role of Families, Inheritances, and Business Human Capital”, *Journal of Labor Economics*, 25 (2):289-323
- Fletschner, D. (2009). “Rural Women's Access to Credit: Market Imperfections and Intrahousehold Dynamics.” *World Development*, 37(3), 618-631.
- Francis, D. C. (2019). “Informality, Harassment, and Corruption: Evidence from Informal Enterprise Data from Harare, Zimbabwe”. *Policy Research Working Paper, #8918*. World Bank, Washington, D.C.
- Floridi, A., Demena, B. A., and Wagner, N. (2020). “Shedding Light on the Shadows of Informality: A meta-analysis of Formalization Interventions Targeted at Informal Firms.” *Labor Economics*, 67: 101925.
- Grimm, M. and Paffhausen, A. L. (2015). “Do Interventions Targeted at Microentrepreneurs and Small And Medium-Sized Firms Create Jobs? A Systematic Review of The Evidence for Low And Middle Income Countries”. *Labor Economics*, 32:67–85.
- Harris, John R. and Todaro, Michael P. (1970), “Migration, Unemployment and Development: A Two-Sector Analysis”, *American Economic Review*, 60 (1): 126–142
- Heckathorn, Douglas D. “Respondent-driven Sampling: A new Approach to the Study of Hidden Populations.” *Social problems* 44 (2): 174-199.

- ILO (2013) "Measuring informality: A Statistical Manual on the Informal Sector and Informal Employment", https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_222979.pdf
- Islam, A. (2019). "The Burden of Water Shortages on Informal Firms." *Land Economics*, 95(1): 91-107.
- Islam A. and Jolevski, F. (2019). "The Digital Disconnect of Informal Businesses." *Let's Talk Development*. The World Bank.
- Islam, A., Muzi, S., and Meza, J. L. R. (2018). "Does Mobile Money use Increase Firms' Investment? Evidence from Enterprise Surveys in Kenya, Uganda, and Tanzania." *Small Business Economics*, 51(3): 687-708.
- Jack, W., Ray, A., and Suri, T. (2013). "Transaction Networks: Evidence from Mobile Money in Kenya." *American Economic Review*, 103(3), 356-61.
- Jessen, J. and Kluve, J. (2019). "The Effectiveness of Interventions to Reduce Informality in Low and Middle Income Countries." *IZA Discussion Paper* No. 12487.
- Jolevski F. and Aga, G. (2019). "Shedding Light on the Informal Economy: A Different Methodology and New Data." *Let's Talk Development*. The World Bank.
- Kaczmarczyk, P. (2015) "Burden or Relief? Fiscal Impacts of Recent Ukrainian Migration to Poland." *IZA DP #877*
- Kanbur, R. (2017). "Informality: Causes, Consequences and Policy Responses." *Review of Development Economics*, 21 (4), 939-961
- Kaplan, David M. (2019). "distcomp: Comparing Distributions.", *Stata Journal* 19 (4):832-848.
- Karlan, D., and Zinman, J. (2011). "Microcredit in Theory and Practice: Using Randomized Credit Scoring for Impact Evaluation." *Science*, 332(6035): 1278-1284.
- Ketels, C. (2017) "Cluster Mapping as a Tool for Development." *Institute for Strategy and Competitiveness-Harvard Business School: Boston, MA, USA*
- Koeda, J. and Dabla-Noris, E. (2008) "Informality and Bank Credit : Evidence from Firm-Level Data", *IMF Working Paper* WP/08/94.
- La Porta, R., and Shleifer, A. (2008). "The Unofficial Economy and Economic Development." *National Bureau of Economic Research Working Paper* #14520.
- La Porta, R., and Shleifer, A. (2014). "Informality and development." *Journal of Economic Perspectives*, 28(3):109-26.
- La Porta, R., and Shleifer, A. (2016). "The Unofficial Economy in Africa", in Sebastian Edwards, Simon Johnson and David N. Weil (eds.) *African Successes, Government and Institutions*, National Bureau of Economic Research Conference Report Volume I. University of Chicago Press.

- Loayza, N. V., & Rigolini, J. (2011). "Informal employment: safety net or growth engine?" *World Development*, 39(9), 1503-1515.
- Loayza, N. (2018). "Informality: Why is it so Widespread and How Can it be Reduced?" *World Bank Research and Policy Briefs* #133110.
- Maloney, W. F. (2004). "Informality Revisited." *World Development*, 32(7):1159-1178.
- Matano, A, Obaco, M, Royuela, V. What drives the spatial wage premium in formal and informal labor markets? The case of Ecuador. *J Regional Sci.* 2020; 60: 823– 847
- Mazumdar, D. (1976). "The Urban Informal Sector." *World Development*, 4(8):655-679.
- McKenzie, D and Woodruff, C. (2017). "Business Practices in Small Firms in Developing Countries", *Management Science* 63(9): 2967-81.
- Mukim, Megha (2011) "Industry and The Urge To Cluster: A Study of The Informal Sector in India." SERC Discussion Papers (SERCDP0072). Spatial Economics Research Centre (SERC), London School of Economics and Political Sciences, London, UK.
- North, D. C. (1990). *Institutions, institutional change, and economic performance*. Cambridge university press.
- Nunn, N. (2007). "Relationship-specificity, Incomplete Contracts, and the Pattern of Trade." *Quarterly Journal of Economics*, 122(2): 569-600.
- Rose, E. (2000). "Gender Bias, Credit Constraints and Time Allocation in Rural India." *The Economic Journal*, 110(465):738-758.
- Salehi, M., G. Seber. 1997. "Two-Stage Adaptive Cluster Sampling". *Biometrics*, 53(3): 959–970.
- Schneider, F., Buehn, A. and Montenegro, C.E. (2010). "New Estimates for the Shadow Economies all over the World." *International Economic Journal*, 24(4):443-461.
- Seber, G. A. F., and Thompson, S. K. (1994). Environmental adaptive sampling. *Handbook of statistics*, Chapter 6, 12:201-220.
- Suri, T. (2017). "Mobile Money." *Annual Review of Economics*, 9:497-520.
- Thi Bich Tran and Hai Anh La (2018) Agglomeration Effects: Productivity of the Informal Sector in Vietnam, *The Journal of Development Studies*, 54:2, 292-311,
- Thompson, S. K. and Seber, G. A. F. (1996). *Adaptive Sampling*. New York: Wiley
- Thompson, S. K. (1990). "Adaptive Cluster Sampling." *Journal of the American Statistical Association* 85 (412): 1050-1059.
- Thompson, S. K. and Seber, G. A. F. (1994) "Detectability in conventional and adaptive sampling." *Biometrics* (1994): 712-724.

- Turk, P. and Borkowski, J. J. (2005). "A review of Adaptive Cluster Sampling: 1990–2003." *Environmental and Ecological Statistics* 12 (1): 55-94.
- Ulyssea, G. (2020). "Informality: Causes and Consequences for Development." *Annual Review of Economics*, 12:525-546.
- Ulyssea, G. 2018. "Firms, Informality, and Development: Theory and Evidence from Brazil." *American Economic Review*, 108 (8): 2015-47.
- World Bank. 2020. *Re-thinking the Approach to Informal Businesses: Typologies, Evidence and Future Exploration*. Washington, D.C.,

Tables

Table 1: Overview of Informal Sector Enterprise Survey data

Country	Fieldwork	City	Universe of blocks	Starting blocks	Total blocks enumerated	Informal business units enumerated	Interviews completed
India	Sept 2021 – Apr 2022	Hyderabad	29,308	1419	2,045	6,414	2,191
		Jaipur	17,569	1276	1,620	4,312	1,526
		Kochi	3,622	416	424	1,213	779
		Ludhiana	9,296	575	658	2,091	712
		Mumbai	16,177	1700	3,400	8,400	2,358
		Sehore	2,100	305	314	1032	536
		Surat	11,052	1314	1,854	6,334	1,427
		Tezpur	1,058	250	336	611	357
		Varanasi	4,113	311	352	1376	786
		TOTAL	94,295	7,566	11,003	31,783	10,672
Iraq	Sept 2021 – Apr 2022	Baghdad	30,524	1272	1,352	2,282	680
		Basrah	12,611	520	554	1,609	599
		Najaf	3,950	317	342	431	423
		Sulaymaniyah	6,024	470	760	871	294
		TOTAL	53,109	2,579	3,008	5,193	1,996
Lao PDR	Jan-Feb, 2019	Vientiane	14,013	171	937	2,197	273
		Pakse	3,386	98	385	1,153	88
		TOTAL	17,399	269	1,322	3,350	361
Mozambique	July-Dec, 2018	Beira	12,009	130	261	1,781	156
		Nampula	6,565	135	352	3,646	123
		Maputo	8,499	129	369	5,655	269
		TOTAL	27,073	394	982	11,082	548
Somalia	Oct-Dec, 2019	Mogadishu	9,246	262	482	6,192	322
		Bosaso	1,845	110	245	1,555	169
		TOTAL	11,091	372	727	7,747	491
Zambia	Aug. 2019-Feb, 2020	Lusaka	31,360	745	851	1,841	254
		Kitwe	5,995	254	578	3,776	367
		Ndola	8,094	328	503	2,389	293
		TOTAL	45,449	1,327	1,932	8,006	914
Zimbabwe	Apr-Jul, 2017	Harare		226	439	3,687	515
TOTAL				12,733	19,413	70,848	15,497

Table 2: Comparison of Informal Businesses with Formally Registered Micro-enterprises

Dependent variables	Informal	Constant	N
Main owner's age (years)	0.83 (0.77)	36.44 (0.42)	15,451
Business age (years)	-2.72*** (0.64)	5.54 (0.41)	16,760
Main owner has no schooling	0.13*** (0.03)	-0.03 (0.02)	16,722
Main owner finished primary school only	0.33*** (0.04)	0.07 (0.02)	16,722
Owner finished high school	-0.40*** (0.06)	0.91 (0.03)	16,722
Female owner	0.10* (0.05)	0.36 (0.05)	16,450
Main owner currently has work with contract	-0.20* (0.10)	0.49 (0.08)	15,713
Main owner's years of experience in this industry	-2.60*** (0.68)	7.68 (0.84)	16,652
Main owner is the primary income earner of HH	-0.11** (0.04)	0.73 (0.02)	15,290
Main owner has a separate bank account from HH	-0.22** (0.08)	0.49 (0.06)	16,030
Main owner has a separate bank account for the business	-0.34*** (0.09)	0.53 (0.07)	15,551
Use mobile money	-0.01 (0.08)	0.47 (0.08)	11,213
Current main owner started the business	-0.04** (0.02)	0.98 (0.02)	16,265
A reason for starting the business: profitability	0.06 (0.04)	0.84 (0.04)	13,628
Operates from within the household premises	0.20*** (0.03)	0.20 (0.07)	15,237
Management practices index (/13)	-17.28*** (5.53)	45.67 (3.15)	13,724
Marketing index (/6)	-13.42* (7.31)	55.30 (3.75)	14,320
Planning index (/5)	-16.82*** (4.66)	32.60 (2.62)	14,607
Record-keeping index (/2)	-26.31*** (8.65)	41.73 (5.59)	15,154
Sell to other businesses	-0.51*** (0.13)	0.78 (0.10)	3,488
Main customer is individual	-0.21 (0.15)	0.81 (0.07)	1,632
Main supplier is self	0.12** (0.04)	0.05 (0.02)	1,629
Log of sales per worker (USD)	-1.28*** (0.28)	5.10 (0.26)	11,237

Notes: Each row represents a separate regression with no controls. Data combines the Informal Sector Enterprise Surveys from twenty-four cities in seven countries (India, Iraq, Lao PDR, Mozambique, Somalia, Zambia, and Zimbabwe, total of 15,497 observations) with the Micro Enterprise Surveys data collected concurrently in sixteen cities in five countries (India, Mozambique, Somalia, Zambia, and Zimbabwe, total of 1,710 observations). In addition to the three cities where informal sampling was conducted in Mozambique, micro firms were sampled and surveyed in another four regions: Cabo Delgado, Manica, Tete, and Zambézia. In addition to Harare, in Zimbabwe, micro firms were sampled and surveyed in another three cities: Bulawayo, Gweru, and Mutare. Observations are weighted by rescaling the original sampling weights, so each country is weighted as one. Standard errors are clustered at the city-level. Significance levels: .01 - ***, .05 - **, .1 - *.

Table 3: Descriptive Statistics

	N	Mean	S.E.
1. Age of business	15,119	5.52	0.17
2. Age of owner	15,222	37.84	0.36
3. Single owner (percent)	15,349	85.80	1.22
4. Size of owner's household	14,847	4.99	0.07
5. Business started / acquired by owner's own funds	14,661	81.31	1.02
6. Owner is primary income earner in household	15,093	70.47	1.33
7. Businesses owned by female	14,803	38.85	1.54
8. Hours per week in operation	13,756	57.55	0.82
9. Months per year in operation	13,070	11.57	0.04
10. Harassment from authorities last 3 months	13,360	10.43	1.09
11. Pay bribes to remain unregistered	13,087	13.25	1.03
12. Sector: manufacturing	15,497	16.14	1.54
13. Sector: re-selling	15,497	67.50	1.60
14. Sector: other services	15,497	16.36	1.04

Table 4: Reasons for Starting an Informal Business

	N	Mean	S.E.
Location / hours	13,412	82.72	1.50
Profitable	13,424	89.64	0.95
A secondary source of income	13,364	39.06	1.58
Unable to find another source of income	13,368	64.03	1.70

Table 5: Reasons for Operating Out of the Household

	N	Mean	S.E.
Costs less to run a business from home	2,630	87.58	1.58
Easier to manage family responsibilities along with work	2,633	89.30	1.50
No benefit working outside the household premises	2,610	59.57	3.13
Safe and secure for my customers	2,632	84.53	1.78
Minimizes the chance of being identified by tax authorities	2,593	41.88	3.18

Table 6: Questions About Management Practices

	N	Mean	S.E.
1. Visited competitor's business to see what products / services they have available	14,841	30.07	1.28
2. Asked existing customers if there are any other products the business should sell or produce	14,867	34.63	1.34
3. Talked with former customers to see why they stopped buying from the business	14,816	30.61	1.31
4. Used any special offer to attract customers	14,917	42.51	1.46
5. Asked suppliers which products are selling well	14,868	37.57	1.36
6. Negotiate with a supplier for a lower price	14,196	38.98	1.44
7. Does not run out of inventories frequently	14,564	95.59	0.47
8. Planned monthly budget	14,830	27.63	1.15
9. Sales target for next year	14,751	18.48	0.96
10. Compare achieved sales to targets at least monthly	14,716	3.80	0.51
11. Made budget for costs next year	14,739	18.38	0.96
12. Prepare a profit and loss statement at least once a year	14,804	25.37	1.16
13. Keep written records	14,851	20.12	0.99

Note: All corresponding questions except 7 and 10 take Yes/No responses. Outcomes 1-6 pertain to the last 3 months.

Table 7: Questions about Business Relations

	N	Mean	S.E.
1. Producing products or providing services to other businesses	1,761	14.77	1.39
2. Purchasing inputs or supplies under contract	13,386	15.19	0.98
3. Agreements with customers were frequently fulfilled without any problems, disputes, or delays	893	60.84	4.11
4. At least some problems, disputes or delays in fulfilling agreements with customers	893	17.92	2.36
5. Agreements with suppliers were frequently fulfilled without any problems, disputes, or delays	896	63.01	3.38
6. At least some problems, disputes or delays in fulfilling agreements with suppliers	896	20.54	2.53
7. Main customer: personal connections	2,302	33.51	2.30
8. Main customer: repeated customer	2,302	42.74	2.11
9. Main customer: someone unfamiliar	2,302	23.75	1.79
10. Main customer: businesses	1,405	4.23	0.88
11. Main customer: individuals	1,405	95.32	0.89
12. Main customer: other	1,405	0.45	0.14
13. Main supplier: businesses	1,401	19.22	1.84
14. Main supplier: individuals	1,401	67.40	2.10
15. Main supplier: others	1,401	0.97	0.39
16. Main supplier: self	1,401	12.41	1.43

Figures

Figure 1: Highest Completed Level of Schooling by Owner
Informal business owners are less educated than those in the formal sector

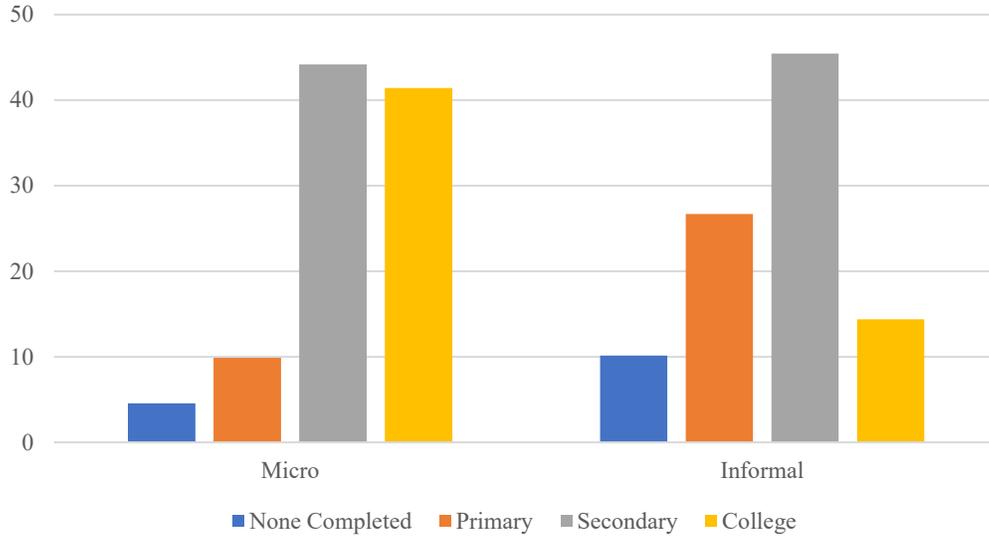


Figure 2: Variables by Gender of Owner
Female owned informal businesses are less profitable, open longer, more likely to operate from within the household, less engaged in manufacturing, and less likely to be the primary earners

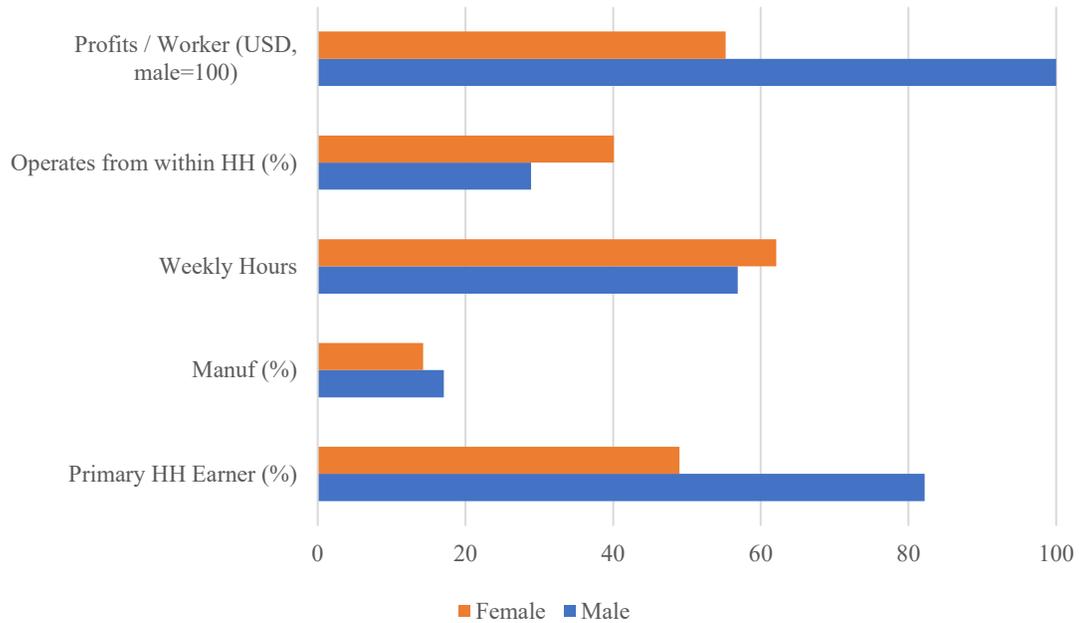


Figure 3: Size of Businesses by Sector and Country
Informal businesses are generally very small

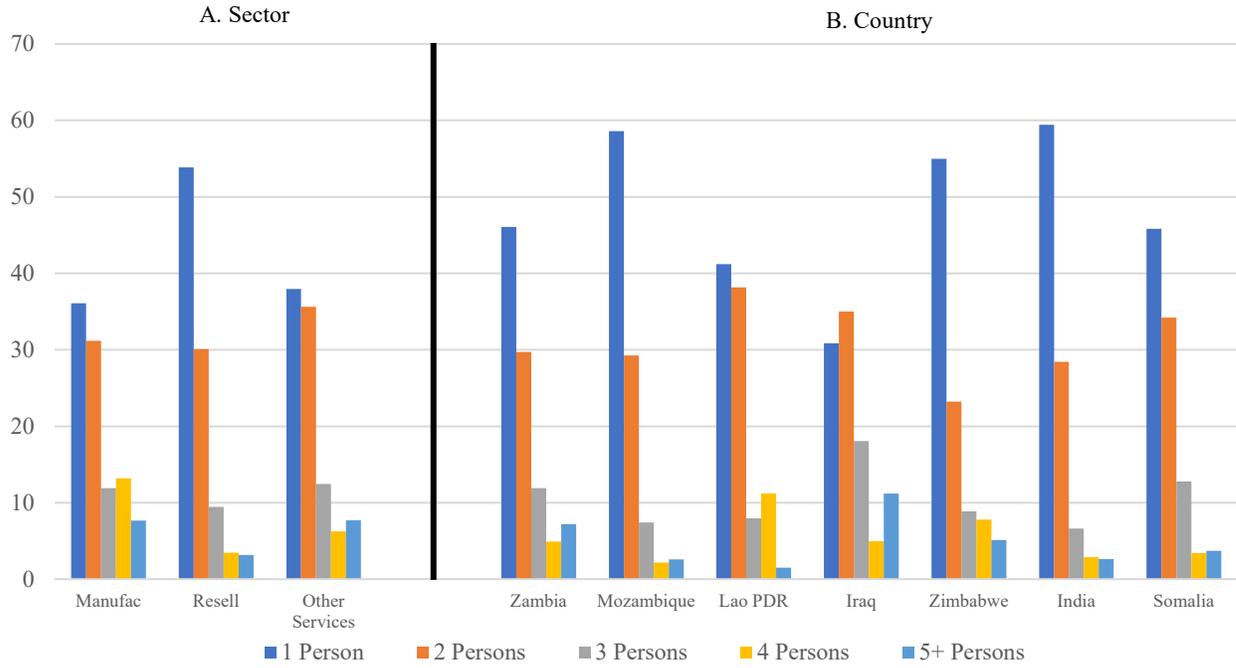


Figure 4: Access to Finance
In most countries, access to finance is limited for informal businesses, with common use of mobile money

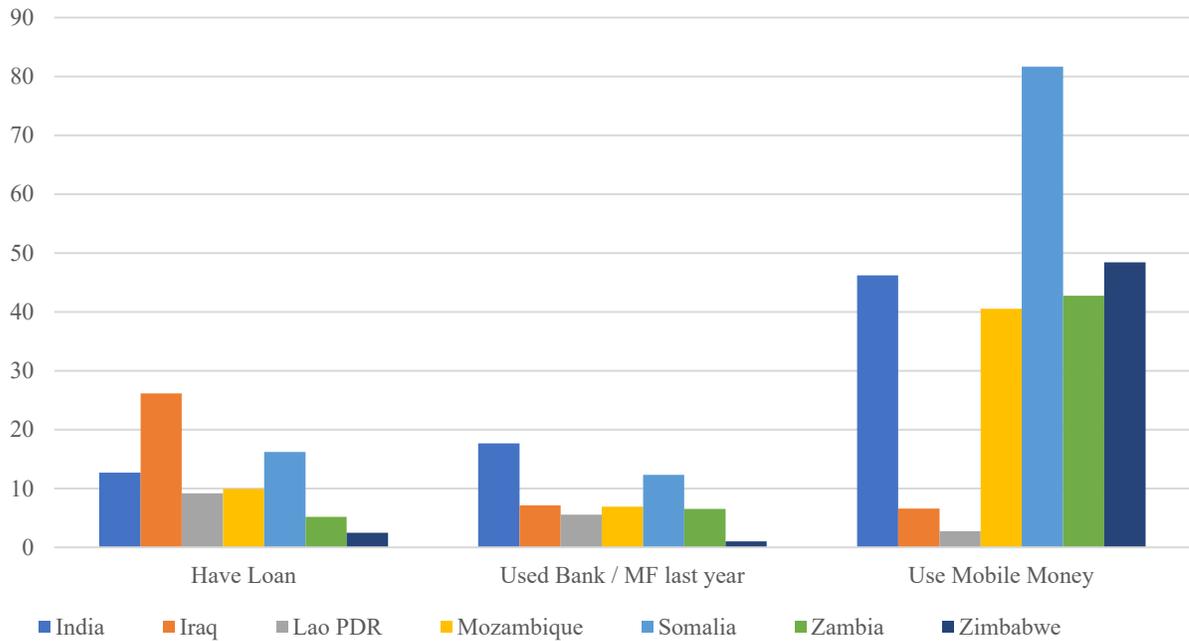


Figure 5: Demographic and Business Operation Variables (Micro vs Informal)
Across many dimensions, informal businesses are different from formally registered firms of a similar size

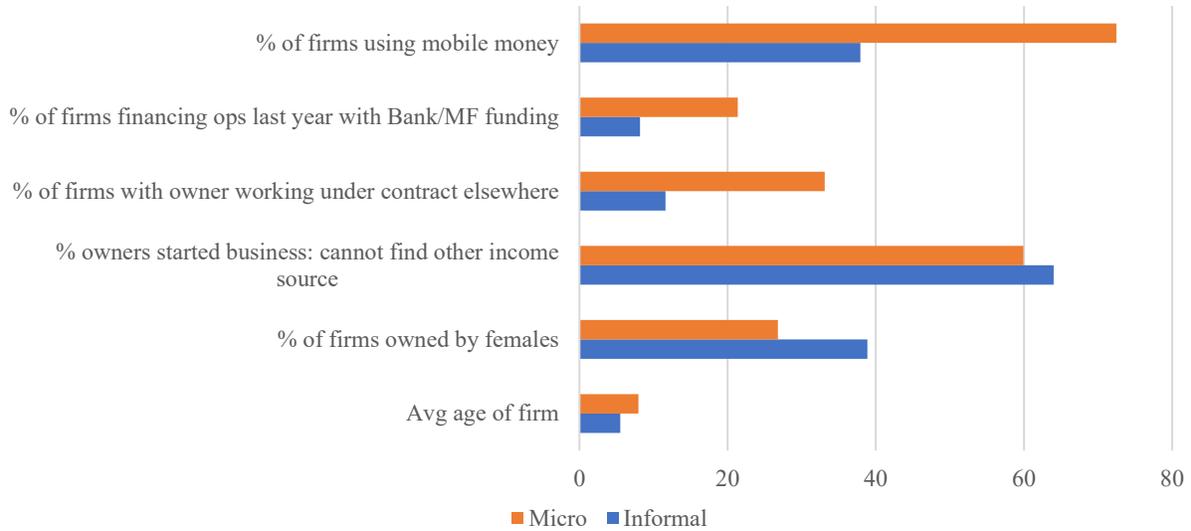


Figure 6: Management Practices Indices (Micro vs. Informal)
Informal businesses score lower in management practices indices than their formal counterparts

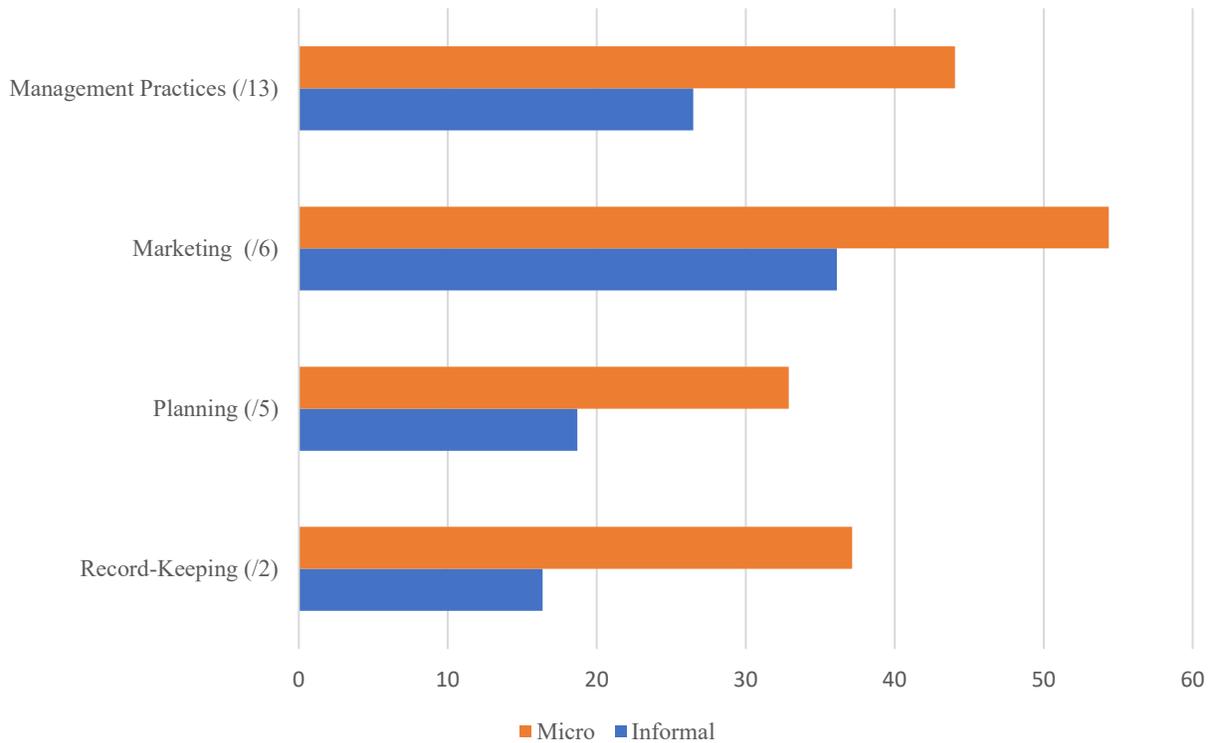


Figure 7: Management Practices Indices by Country

Management practices are heterogeneous, with record-keeping among the least practiced

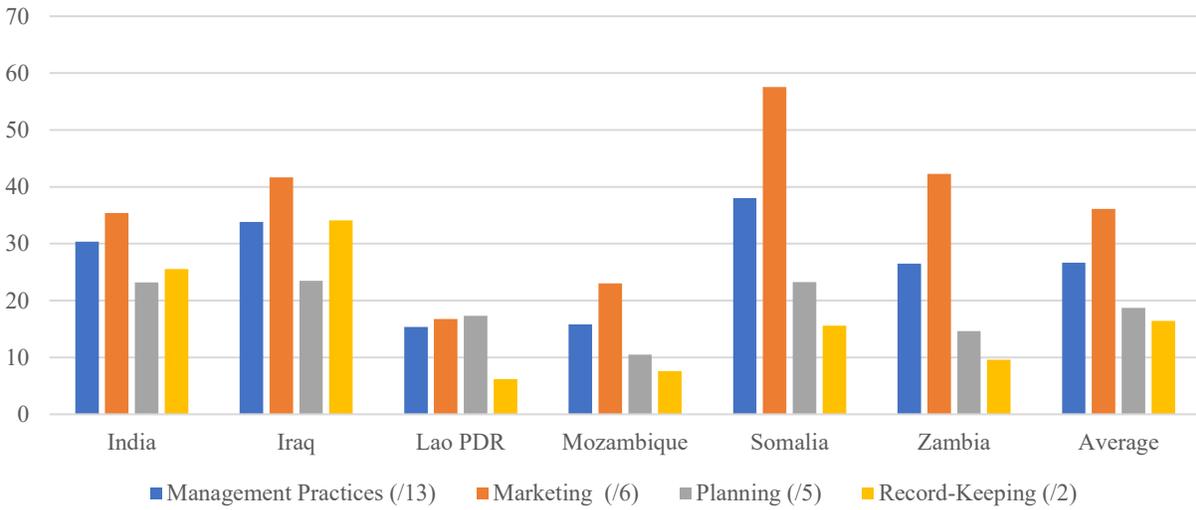


Figure 8: Management Practices by Productivity and by Schooling

Better managed businesses appear to be more productive, and to have more educated owners

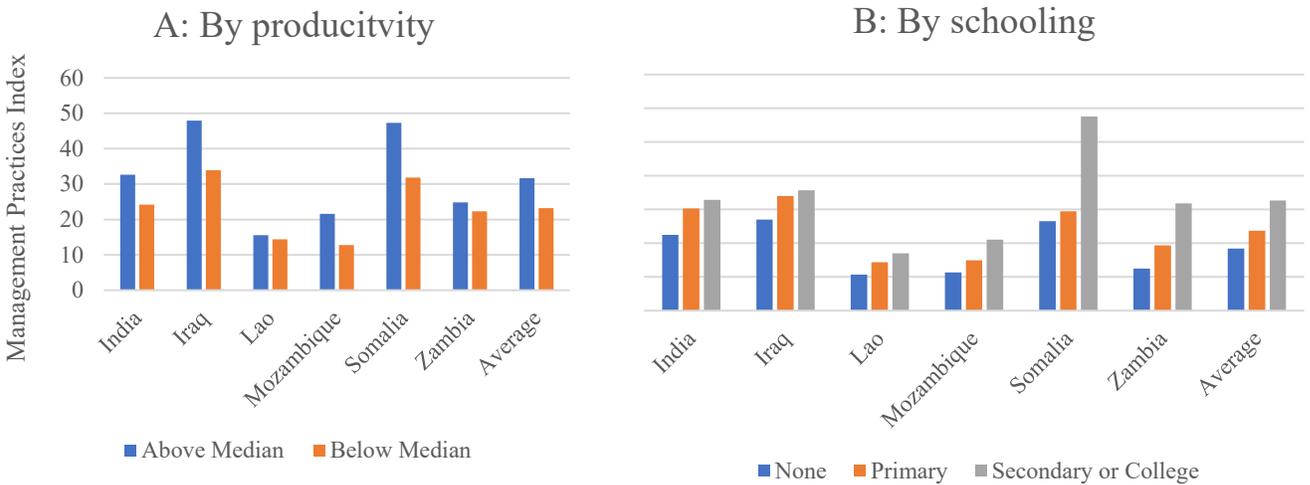


Figure 9: Relations with Typical Customers
Unfamiliar customers are among the least prevalent type of typical customers of informal businesses

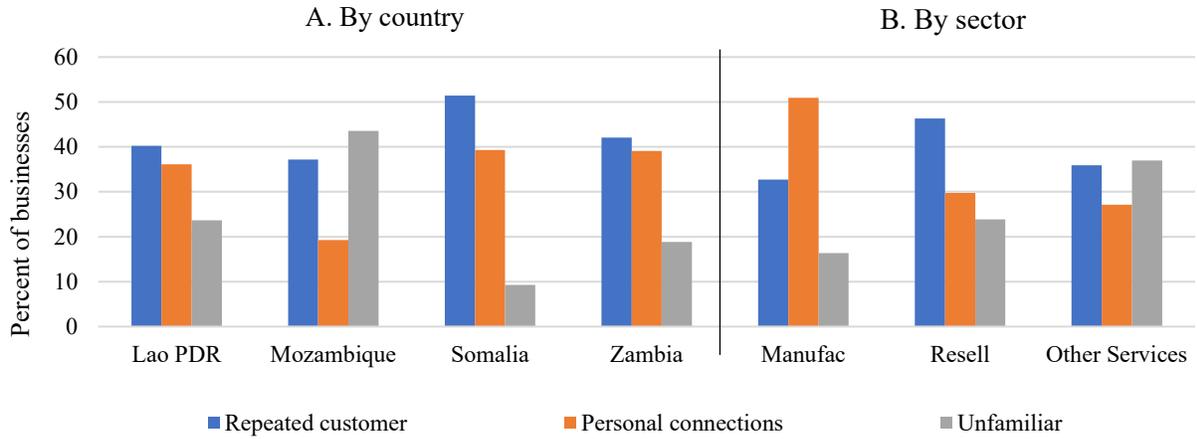


Figure 10: Types of Suppliers
The most common main suppliers to informal businesses are individuals, with heavy reliance on self as the main supplier

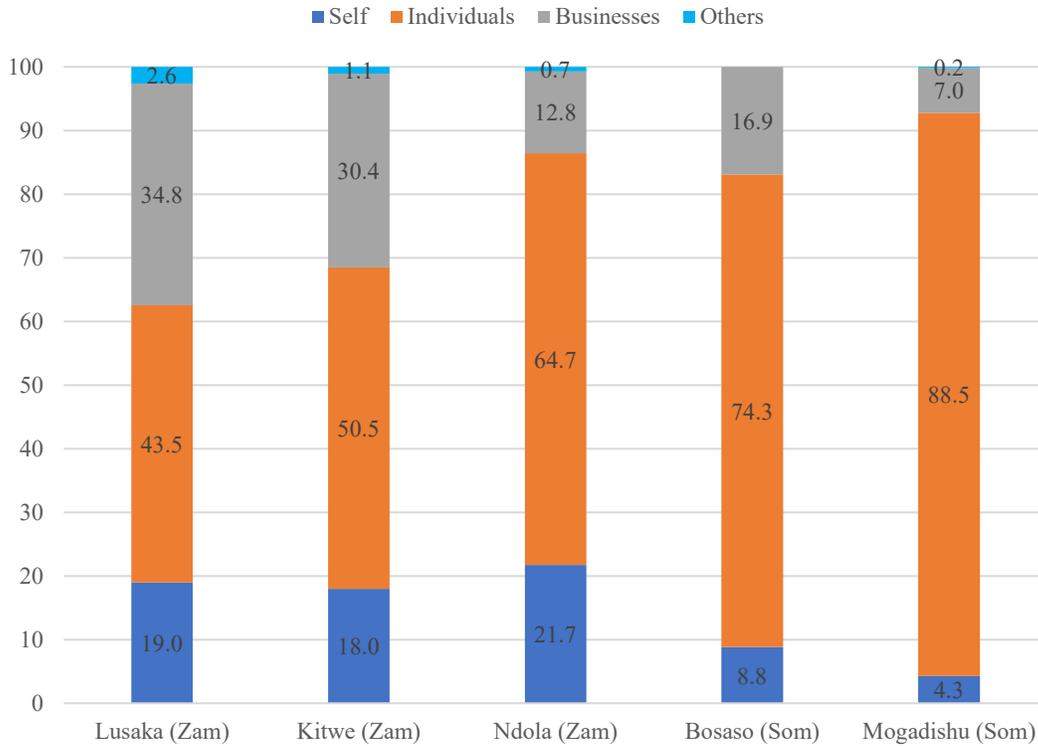


Figure 11: Median Sales per Worker (USD)
Informal businesses are far less productive than formal firms of a similar size

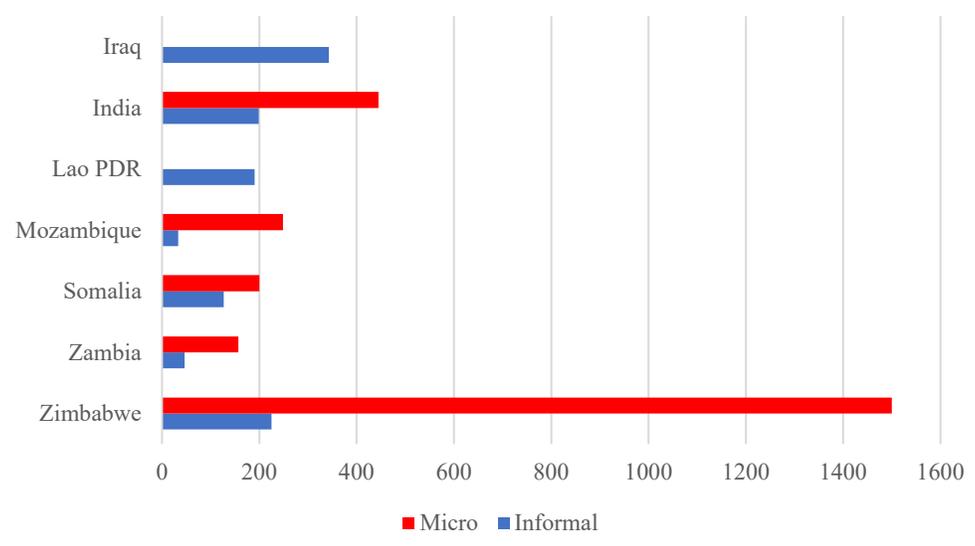


Figure 12: Distribution of Log Sales Per Worker (Informal vs Micro)
The overlap in productivity of informal businesses and their formal counterparts varies by country

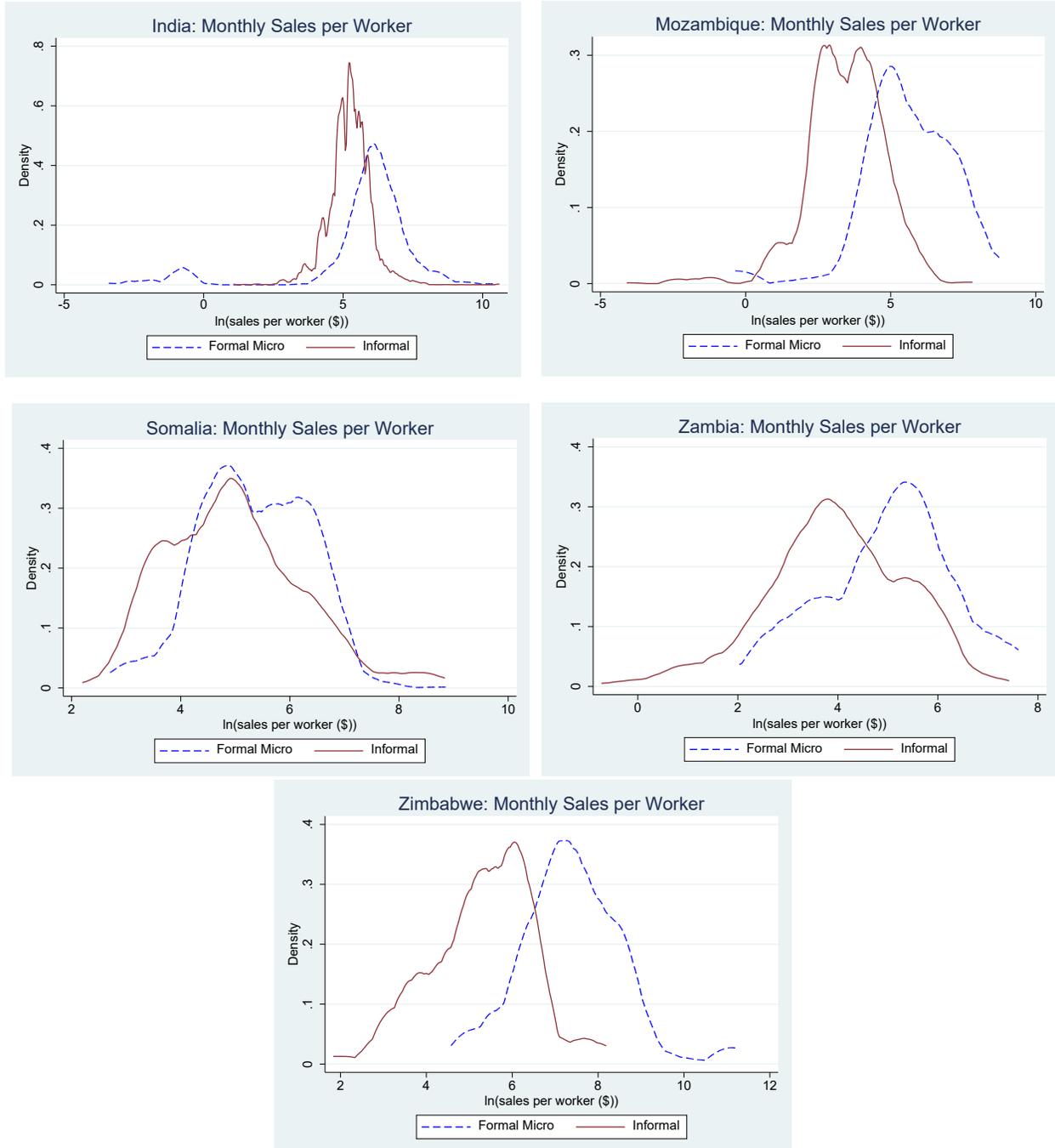


Figure 13: Testing for Equality of Distributions of Sales Per Worker (Informal vs Micro)
Comparison of distributions of sales per worker confirms underperformance of informal businesses relative to their formal counterparts

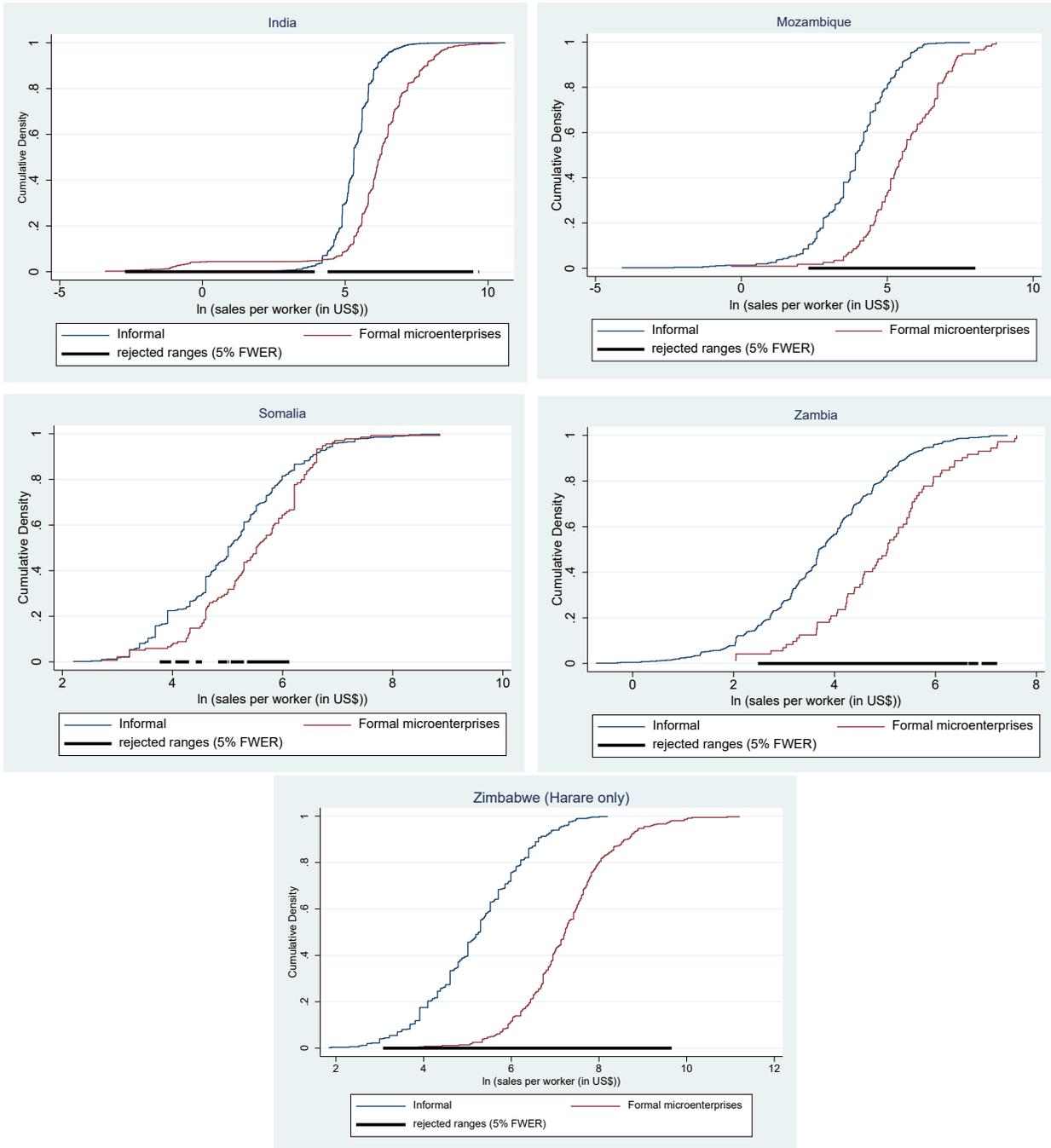


Figure 14: Profitability of Informal Businesses by Country
While roughly half of informal businesses appear profitable, the size of these profits are meagre

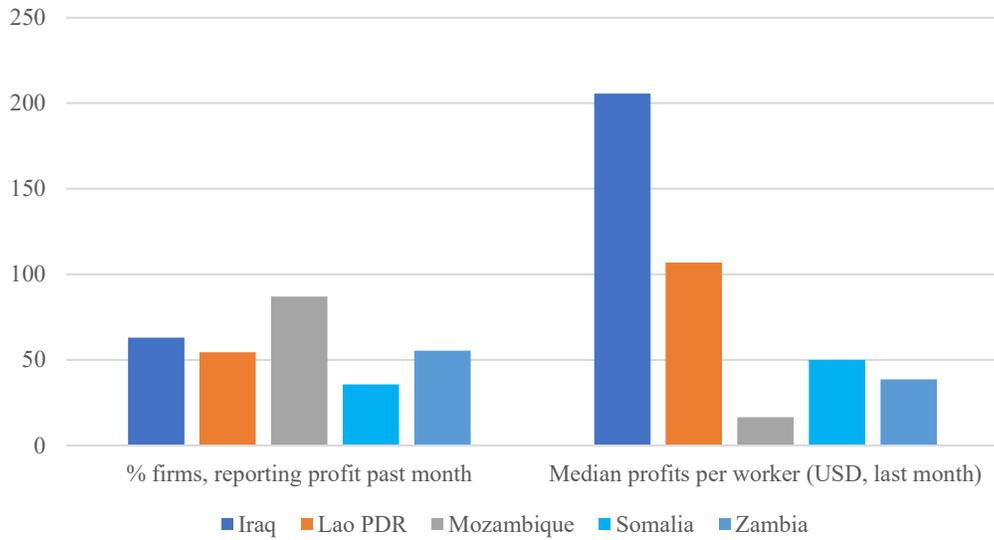


Figure 15: Reasons for Not Registering by Country
Businesses have multiple reasons for not formalizing, with considerable variation in relative frequencies across countries

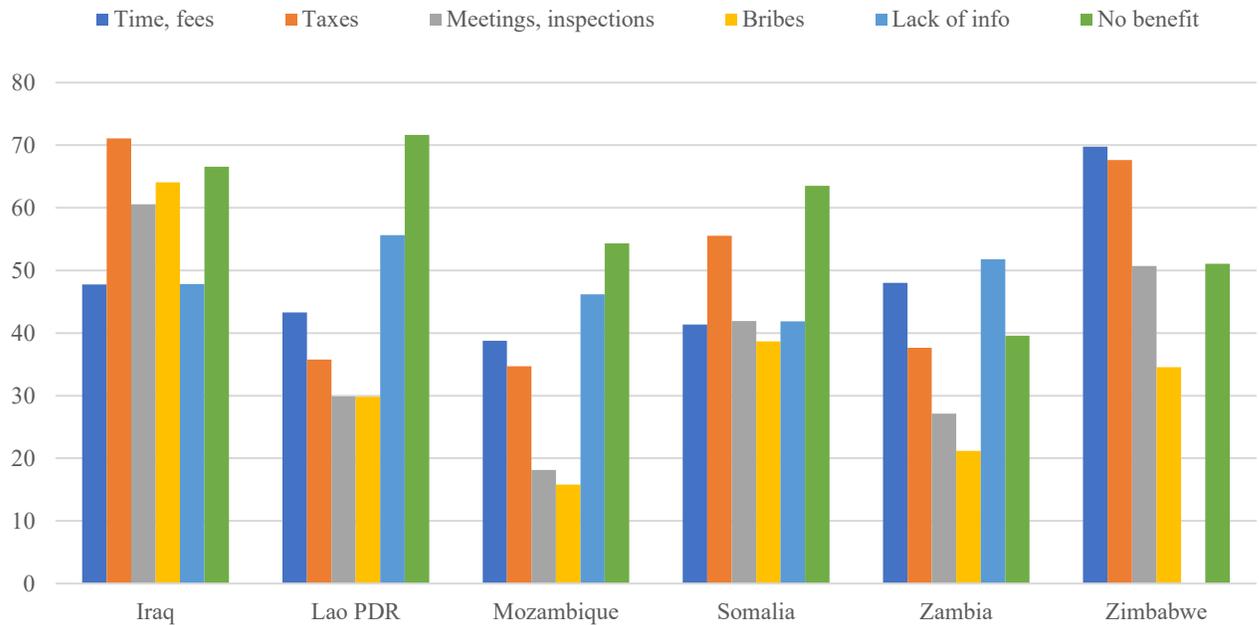
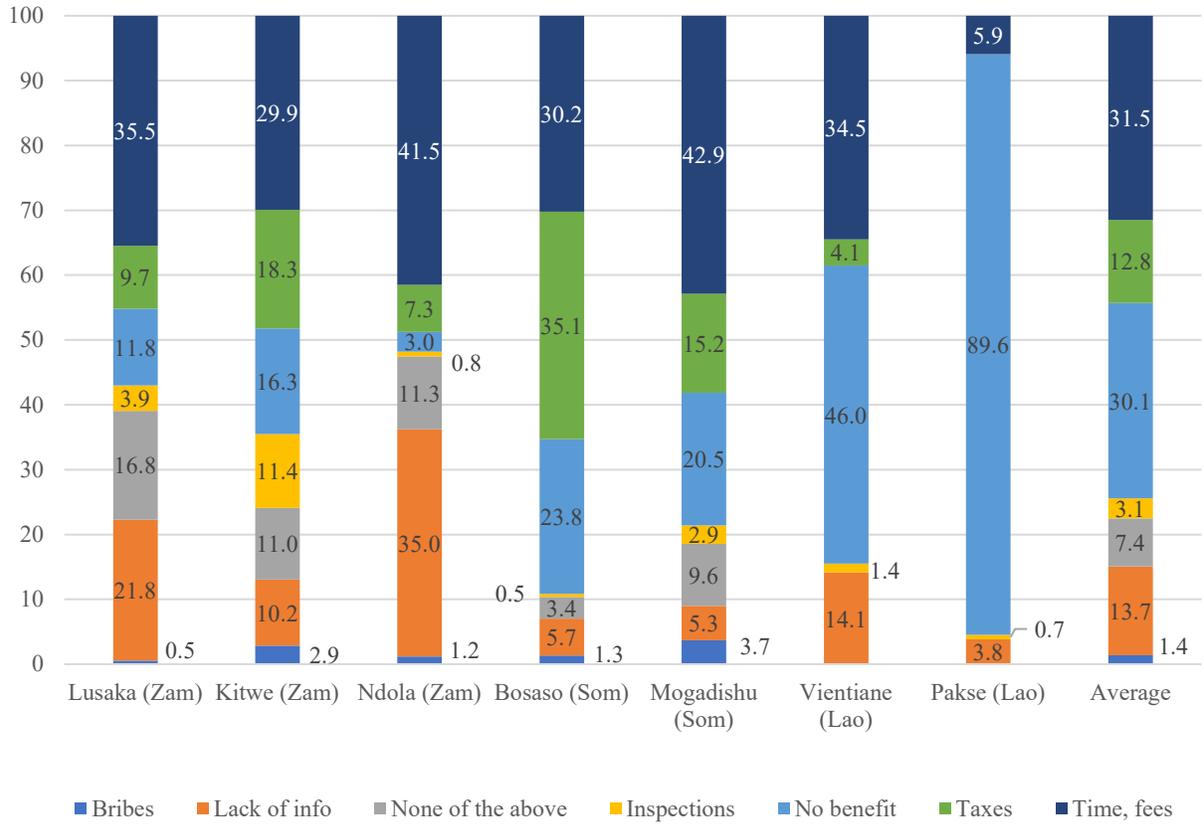


Figure 16: Main Reason Not Registered by City

The main reasons for not registering vary considerably across cities, with general pattern suggesting the lack of perceived benefits coupled with costs associated with formalizing



Appendix

Table A1: Definition of Informality Used During the Informal Sector Enterprise Survey Implementation by Country

Country	Definition
India	A business that lacks both of the following two items is considered informal: i) Business PAN (Permanent Account Number) card and ii) a Goods and Services Tax (GST) number.
Iraq	A business is considered informal if it is not currently registered with the Directorate of Companies Registration or (for firms in Kurdistan) the Kurdistan Region of Iraq.
Lao PDR	A business that lacks all the following three items is considered informal: i) registration with Department of Enterprise Registration (DERM) at the national (central) level; ii) registration with Department of Enterprise Registration (DERM) at the provincial level; and iii) registration with Department of Enterprise Registration (DERM) at the district level.
Mozambique	A business that lacks at least one of the following three items is considered informal: i) operating license (e.g., from municipality, or BAU); ii) business registration certificate (e.g., Conservatória Do Registo Das Entidades Legais Or Balcão De Atendimento Único (BAU)); and iii) taxpayer's identification number (or NUIT) in the name of the owner or business.
Somalia	A business that lacks both of the following two items is considered informal: i) Registration with the Ministry of Commerce; and ii) Registration with the respective Municipality.
Zambia	A business that falls under any of the following three categories is considered informal: i) registered with Zambia's Patents and Companies Registration Agency (PACRA) but no council permit and not registered with Zambia Revenue Authority (ZRA); ii) not registered with PACRA but has council permit; and iii) not registered with PACRA and no council permit.
Zimbabwe	A business that is not registered with Zimbabwe's Registrar of Companies.