Photo: Ivan Mahardika | A small shop or "warung" owner doing a transaction in Cimahi, Bandung

Building Pathways to Support Micro, Small, and Medium Enterprise Growth

A Literature Review and Landscape Analysis

J-PAL SEA Innovation for MSME Development Initiative (IMDI)

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Introduction

Micro, small, and medium enterprises (MSMEs) have historically dominated Indonesia's economic landscape. Available in almost every street in the Indonesian archipelago, these enterprises vary from the traditional mom-and-pop shops known as *warungs,* street vendors, to medium-sized retail, automotive, and agribusiness firms. Collectively, around 65 million MSMEs act as the backbone of Indonesia's economy, contributing to 61 percent of Indonesia's the country's gross domestic product (GDP) and creating 97 percent of employment (Antara News 2022). More than 70 percent of these micro and small firms are led by women, signifying their crucial role in the MSME sector (BPS 2022).

MSMEs hold large potential in driving Indonesia's economic growth due to their large numbers, ability to absorb the workforce, and opportunities for employment for women. Recognizing the potential of MSMEs, the government of Indonesia (GoI) outlined several targets for MSME growth, such as increasing the number of people employed, production of value-added goods, and exports made through MSMEs with the hopes of escaping the middle-income trap (Republic of Indonesia 2020). Multiple programs follow these targets, as more than 20 government institutions have programs to empower MSMEs. Numerous non-governmental organizations (NGOs), private sectors, and development organizations also have programs targeted to MSMEs.

Despite the large number of programs, a central challenge remains on how they can be maximized to encourage MSMEs to grow. Existing research in low- and middle-income countries (LMICs) shows that common programs such as access to microcredit and general business training often do not yield positive business outcomes for microenterprises (e.g., McKenzie and Woodruff 2008; Fafchamps et al. 2014; Banerjee et al. 2019; Breza, Karlan, and Hou 2023). In most cases, only a small fraction of firms contribute disproportionately to employment growth (Henrekson and Johansson 2010). Furthermore, only experienced firms tend to benefit from microcredit access (Banerjee et al. 2019). While policymakers may be tempted to only focus on a small share of firms that can quickly scale their employment and generate positive spillovers to boost development, microenterprises dominate the landscape of MSMEs in Indonesia. Understanding how programs may have diverse outcomes for different scales of businesses calls for revisiting existing programs in Indonesia, their targeting methods, and the impact of such programs. Doing so would assist the government in allocating scarce resources to programs that will achieve the desired outcomes for MSME development.

The recent development of e-commerce, digital finance, and large infrastructure investment in Indonesia can potentially address the challenge of empowering MSMEs. However, there is limited evidence of how recent innovations, such as the digital onboarding of MSMEs, machine learning, digital loans, and logistics services geared toward MSMEs, influence their business outcomes. *J-PAL Southeast Asia is launching its* Innovation for MSME Development Initiative (IMDI) *to assist policymakers and firms working to solve the challenges that MSMEs face.* This initiative aims to (1) share existing knowledge and learnings on common interventions targeted to MSMEs and (2) inspire collaborations between policymakers, private sectors, and researchers to design future evidence-based policies.

This white paper will synthesize the growing evidence related to MSMEs, provide an overview of the Indonesian landscape, and identify potential research areas. Section 1 elaborates a global literature review on the impact of interventions to target growth-oriented firms, increase their capacity, and improve their market access. Section 2 lays out the MSME landscape in Indonesia, summarizing existing programs targeted to solve challenges faced by MSMEs. Last, Section 3 summarizes promising research topics and room for improvements to support evidence-based policymaking in Indonesia.

Section 1: Global Literature Review

This literature review synthesizes the evidence in the academic literature to better understand potential interventions to support MSMEs and highlight evidence gaps for future research. This section is structured to answer four important questions:

(1) How can we identify MSMEs with growth potential?

(2) What forms of financial intervention can better support MSMEs?

(3) What forms of capacity-building programs can empower MSMEs?

(4) How does digital and transportation infrastructure increase MSMEs' market access?

The review draws primarily from randomized evaluations and quasi-experimental impact evaluations to identify causal relationships between programs designed to empower MSMEs and their business outcomes. To identify studies, we conducted extensive keyword searches in leading economic journals, consulted bibliographies of relevant publications, and used J-PAL's internal knowledge databases with relevant outcomes.

1.1. Targeting firms with high-growth potential

MSMEs are an important source of growth and employment in LMICs, including Indonesia, and governments and private sector entities often seek to invest in them to unlock their potential. However, such investments do not always yield the expected positive effects, and studies have found heterogeneous returns (e.g., McKenzie et al. 2008; Fafchamps et al. 2014; Banerjee et al. 2015; Breza, Karlan, and Hou 2023). The differential impacts between high-potential entrepreneurs and those with less experience suggest that it may be more worthwhile to allocate more capital to a smaller set of productive businesses with growth potential.

To identify high-growth entrepreneurs, researchers have traditionally used surveys and economic models to explore the correlation between firm innovation and growth, such as firm size, firm owners' education, job history, and psychometric assessment (De Mel, McKenzie, and Woodruff 2013; Klinger, Khwaja, and del Carpio 2013). More recently, randomized evaluations and quasi-experimental studies point to promising innovations in identifying firms with high-growth potential using tools that could bring this effort to scale.

Scoring systems and credit models

Creating models can increase the efficiency of the loan approval process and monitoring costs, allowing financial institutions more time to assist new clients. However, the growing application of artificial intelligence (AI) in loan screening and monitoring is an underexplored area of research.

In high-income countries, credit score systems have been widely used to identify top-performing firms with a low probability of default. In LMICs, in the absence of reliable information on individuals' financial history, scoring models that incorporate quantitative (e.g., gender, age, number of years in business) and qualitative (e.g., business income stability as judged by field officers) information can increase the efficiency of the loan approval process.

Models using machine learning have been tested and found to be effective in screening high-performing firms. Paravisini and Schoar (2013) found that combining quantitative and qualitative measures to screen potential borrowers could reduce inefficiencies and loan officers' indecision. By comparing the trajectory of bank branches that applied the scoring model with control branches that didn't, the authors found that the probability of firms defaulting decreased by 12.6 percent, implying that the model led to better capital allocation. Bryan, Karlan, and Osman (2022) found that machine learning models using psychometric data from a large Egyptian microfinance institution can effectively identify high-performing firms. The study also found evidence that the model may perform better than human judgments when identifying high-performance loans.

The rapidly growing availability of personal and other data may enable innovations using machine learning and AI that increase the efficiency of the loan approval process and reduce the time spent monitoring clients. Nevertheless, AI's growing application in loan screening and monitoring is underexplored. Conducting pilot and rigorous evaluations in this area can improve bank management schemes and provide insights on targeting firms with high-growth potential.

Business plan competitions

While evaluations highlight the potential of competition in selecting firms with growth potential, their effectiveness will also depend on the competitiveness of participating firms and methods of selecting winners.

Business plan competitions are a popular tool for identifying fast-growing firms. These competitions aim to identify individuals with promising ideas to help them formalize those ideas through developing a detailed business plan and, ultimately, provide financing to the winners (McKenzie 2017). Recent randomized evaluations and quasi-experiments indicated that competition can effectively identify entrepreneurs with high-growth potential and stimulate business expansion, including new business and job creation (Klinger and Schundeln 2011; Fafchamps and Quinn 2015; McKenzie 2017).

However, questions remain about whether human judgment is the best method to identify high-growth entrepreneurs. One study suggested that combining scores from expert panels with surveys provides a stronger predictor of growth than each individual component. Fafchamps and Woodruff (2017) compared the effectiveness of expert panels versus surveys in identifying small firms with high potential for rapid growth. They found that surveys can better separate the contenders at the top of the distribution, while expert panels did better in filtering out firms at the bottom. Hence, a combined approach improved the growth prediction's overall accuracy.

The cost of conducting business competitions varies across different contexts. To increase participation, implementers may need to allocate the cost of advertisements through various channels, such as posters, radio, and social media, as shown in Fafchamps and Quinn (2015), or through national television networks and roadshows, as explored by McKenzie (2017). Fafchamps and Quinn (2015) also noted the practice of providing judges with USD 25 per session in the selection process. In the studies mentioned, the prize amounts awarded to winners varied, ranging from USD 1,000 to USD 50,000, which contributed to the differences in program costs.

The use of community information

Community information can provide valuable insights to identify entrepreneur peers with high-growth potential. However, whether it can be incorporated systematically in interventions at scale remains to be seen.

Community information can provide valuable insights to identify high-growth potential peers and represents a low-cost, decentralized approach. Hussam, Rigol, and Roth (2022) conducted a randomized evaluation in India to evaluate whether community members accurately predicted their peers' marginal returns to a USD 100 grant. In a sample of 1,345 entrepreneurs, the study found that the top third of entrepreneurs ranked by the community had marginal returns between 23 and 35 percent, almost three times higher than the average marginal return (11 percent per month). The researchers also learned that offering small monetary payments for accuracy and conducting reports in public settings improved the accuracy of their reports by reducing biases, such as favoring friends and family. This intervention was implemented in villages where numerous households owned businesses. However, scaling such interventions in settings where MSMEs are scattered and communities are less interconnected can create implementation challenges.

1.2. Interventions to increase firms' financial capacity

Many entrepreneurs have limited financial access to increase their productivity and growth. Based on the belief that capital will generate growth and high returns, interventions and evaluations on providing MSMEs access to credit have expanded over the years (De Mel, McKenzie, and Woodruff 2008). However, a large number of studies on microcredit finds a lack of a transformative effect on outcomes such as increasing overall income, business profit, and employment (Banerjee et al. 2015; Angelucci, Karlan, and Zinman 2015; Attanasio et al. 2015; Augsburg et al. 2015; Crépon et al. 2015). To examine the external validity of these findings, or to what extent these studies are valid across different contexts and settings, Meager (2019) compared seven randomized evaluations on access to microcredit. The author found that the effects of microfinance are small and uncertain and there is a large variation among micro businesses benefiting from the program.

The heterogeneous effect of microcredit

While to the average borrower the provision of microcredit has minimal impact on profit, some firms benefit more than others, for several reasons. First, returns to capital differ between female and male recipients. For example, Fiala (2018) found that in Uganda, male-operated enterprises experience higher profits compared to those led by women when provided with microcredit. While both men and women in the treatment group reported being able to access 50 percent more loans than those in the control group, male-led firms saw an increase in monthly income by as high as 54 percent, whereas none of the female-led enterprises experienced any profit increase.[1]

Second, several studies found that loans can generate larger impacts on businesses run by more experienced entrepreneurs. Banerjee et al. (2019) found that the positive effect of microcredit on business outcomes is driven largely by households who were already running businesses before being introduced to microcredit. Experienced entrepreneurs who received loans owned 35 percent more assets and earned 28 percent more profits than experienced entrepreneurs in the comparison group (who did not receive loans).

Most of these findings are based on evaluations regarding the traditional microcredit model characterized by group lending, high repayment frequencies, and high interest rates. Hence, the lack of impact among female and new entrepreneurs may be caused by the current microcredit delivery methods.

While microfinance has shown limited and varied impacts, researchers have explored how innovations to the microcredit model, and the recent development of digital financial services can optimize access to finance, particularly credit, for MSMEs.

[1] Several hypotheses can explain the differences in outcomes between male- and female-led firms. These include household dynamics, women being more likely to invest in non-business activities, or women's tendency to self-select into less profitable sectors due to the preference for flexibility (Fafchamps et al. 2014; Berge and Pires 2015; Fiala 2018; Berndhardt et al. 2019).

Modifying the traditional microcredit model

Providing grace periods or flexible repayment contracts are potential ways to modify the traditional microcredit model to increase firms' control over capital and improve business outcomes. Further exploratory research will help stakeholders understand these findings' generalizability to the Indonesian context.

Modifying the traditional microcredit model may be necessary to expand and increase the demand for microcredit among small-scale business owners. Traditional microcredit products are often characterized by high repayment frequency, biweekly or weekly payments, immediately after loan disbursement. While some borrowers may prefer this mechanism to promote discipline, the stringent requirements may also create barriers for small-scale businesses with irregular cash flows. By offering microcredit products with grace periods or flexible repayment options, firm owners can withstand negative shocks and invest in riskier, higher-return investments.

Four studies evaluated the impact of flexible loans (Aragón, Karaivanov, and Krishnaswamy 2020; Barboni and Agarwal 2023; Battaglia, Gulesci, and Madestam 2018; Brune, Giné, and Karlan 2024). In India, a flexible microcredit product that allowed borrowing and repayment at any time increased profits by 15 percent (Aragón, Karaivanov, and Krishnaswamy 2020). There was also suggestive evidence that the model did not lead to default, as bank officers noted that borrowers repaid their loans in full at the end of the lending cycle. A second study in India also found that allowing borrowers to defer payments at a time of their choosing increases monthly profit and sales (Barboni and Agarwal 2023). The likelihood of borrowers repaying the full loan earlier than scheduled increased by 33 percent after three years. However, Brune, Giné, and Karlan (2024) found that when flexible payment options were given to first-time borrowers, their default rates increased by 5 percent, with no changes in profit. Clients who opt for flexible schedules are likely those who face volatile sales or are more willing to take on business risks, such as investing in tools and machines. A similar model can be piloted by private financial and nonfinancial institutions that may have limited field officers but are looking to expand their market among micro and small enterprises.

Digital loans

Digital lending can widen financial access for MSMEs by simplifying the lending process and using digital footprints to screen loans. Early studies have shown mixed results, and conducting evaluations on digital loans is timely to inform their growth in Indonesia.

The digital lending sector is a growing and a relatively new market for Indonesia and many other LMICs. In Indonesia, digital loan products can be in the form of banks and financial technology (fintech) companies that offer digitized loans or companies that channel loans through peer-to-peer (P2P) lending. Digital loans offer the opportunity to widen financial access for MSMEs as they claim to solve several supply and demand constraints that come from conventional bank lending processes. Since services are conducted online, digital loans remove the lengthy application process, and, in some cases, they can ease repayment as it is connected to users' e-wallets or mobile savings accounts. Several fintech firms also remove collateral from digital loans and review eligibility using users' digital footprints, such as e-commerce transactions and internet use.

Two randomized evaluations on the digitization of microcredit show that the impact of digital loans on borrowers can vary depending on the design of the product and the context in which it is used. Among 3,000 female borrowers in Uganda, Riley (2022) found that women who received microfinance loans through their mobile money account had 15 percent higher business profits relative to a comparison group that received their loans as cash. The digitized loans also increased their total household income and consumption, and the results were greater for women who had reported experiencing pressure to share money with other household members. A study that evaluated digitizing group microfinance transactions in the Philippines found that removing the process of banks collecting cash during group meetings led to unintended consequences (Harigaya 2020). Introducing mobile banking resulted in a 20 percent decline in average daily balances and a 25 percent decline in the likelihood of weekly deposits over two years. The effect was even more significant for those living near transaction points: researchers observed a 30 percent decline in deposit frequency, a 28 percent decline in average daily savings, and increased exposure to transaction fees.

While digital lending is a valuable tool to widen financial access, there are also risks of costly debt cycles given that interest rates tend to be higher than conventional loan products (Dupas, Robinson, Brailovskaya 2022). Collaborations between banks, fintech companies, and researchers to measure the welfare impact of digital loans can provide valuable insights to inform upcoming innovations and regulations in this growing sector.

1.3. Building managerial capacities through training

Tailoring modules and additional support, such as mentoring and peer networks, are more effective in boosting firms' sales and profits than providing standard business training. There are opportunities to evaluate further how training can be designed to provide tailored approaches, for example, how self-paced learning and online mentoring translate to changes in business practices and outcomes.

Decades of research have found that standard business training, which focuses on basic bookkeeping and financial skills and typically occurs in a classroom setting, is largely ineffective at boosting firms' sales and profits. The performance is somewhat better when capacity-building programs tailor their contents based on program recipients and when they offer mentor or peer support (more details on each intervention impact and limitations is available in Appendix 1).

Specific modules have been tested and are found to be effective for certain size of firms. Providing rule of thumb or simplified best practices in financial management is particularly effective for micro and small firms (Arráiz, Bhanot, and Calero 2019; Beaman, Magruder, and Robinson 2014; Drexler et al. 2014; Dalton et al. 2020). Micro and small firms, including female-led businesses, also experience direct benefits from modules designed to create a proactive entrepreneurial mindset (Campos et al. 2017; Alibhai et al. 2019).

For micro and small firms working in clusters, such as a market or a designated place in the village, training programs aiming to increase business efficiency by improving production and ensuring the quality management of goods are more relevant. This type of training is more commonly known as the Kaizen technique.[2] Three randomized evaluations have been conducted on the impact of training Kaizen techniques, albeit with small samples, and found varying results. While Mano et al. (2012) and Higuchi, Mhede, and Sonobe (2019) found that the techniques increased revenues and profit in Ghana and Tanzania, respectively, in Vietnam, Higuchi, Nam, and Sonobe (2015) found that the technique improved business practices but had a less pronounced impact on sales and profit. For female-led businesses, adding modules to overcome gender barriers has also improved business practices and

[2] Kaizen is a Japanese management approach that focuses on continuous improvement for productivity and quality. The technique recognizes small changes over time that can create big impacts in the future (JICA 2023).

increased sales (McKenzie and Puerto 2021). More evidence based on larger samples is needed to ascertain its effectiveness.

While providing consultation can create positive outcomes for large firms (Bloom et al. 2020; Lacovone, Maloney, and McKenzie 2019) and has been found ineffective in boosting sales for MSMEs (Karlan, Knight, and Udry 2015; Bruhn, Karlan, and Schoar 2018), providing knowledge through mentors and peers are found to be effective regardless of business size. Financial constraints and uncertainty about the potential benefits of adopting consultant recommendations are common reasons cited for the low demand for consulting services among MSMEs, even when the government subsidizes them (Bruhn, Karlan, and Schoar 2018). For female entrepreneurs, inviting their peers and having past training participants become mentors help increase women's business activities and improve their business outcomes. Field et al. (2016) found that when women invited their peers to training programs, they shared financial resources through the network, improved information sharing, and gained higher confidence due to peer support. Furthermore, having past training participants act as mentors encourages them to implement and reflect on their own business practices (Bakhtiar, Bastian, and Goldstein 2022). Meeting between peers can improve information sharing and encourage partnering between firms, irrespective of firm size. In a randomized evaluation involving owner-managers of small and medium enterprises in China, Cai and Szeidl (2018) found that meetings among peers increased sales by 10.3 percent, and the average profits were USD 36,000 higher than in comparison groups.

These evaluations suggest that there is no one-size-fits-all program and it is best to tailor programs based on the different needs and managerial challenges of MSMEs. There is a growing body of work on how online-based learning can be a low-cost intervention tailored to different MSMEs' needs. For example, Jin and Sun (2022) evaluated online learning platforms integrated within e-commerce platforms (see below), and an ongoing study under the Innovation Growth Lab is evaluating the impact of online mentoring on entrepreneurial performance.

1.4. Improving firms' market access

Firms' ability to access a broader customer base and better suppliers, known as market access, is among the most important factors shaping business location and expansion decisions (Alstadt, Weisbrod, and Culter 2012). Improvements in market access can be achieved through physical infrastructure and other interventions, including digital technologies. Indonesia, in particular, has a great need for an efficient and resilient transportation sector. The question then arises: how can market access—especially for MSMEs—be improved in the country?

First, it is important to understand the state of logistics and the existing challenges faced by firms in Indonesia. The Logistics Performance Index (LPI), published by the World Bank, measures the six most important indicators in assessing the performance of a country's logistics and transportation sector. According to the 2023 LPI, Indonesia ranks 61 out of 160 countries in terms of its performance in trade logistics, 15 places lower than its ranking in 2018 (World Bank 2018, 2023). Therefore, the Indonesian government faces several challenges in improving the logistics sector's performance to align with neighboring Singapore and Malaysia, ranked 1st and 26th, respectively. In addition to transportation improvements, the rapid development of digital technology, such as e-commerce, has the potential to enhance Indonesian firms' productivity.

E-commerce

More research is needed to investigate the local factors that shape the distribution of benefits gained through e-commerce. By conducting impact evaluations, policymakers and e-commerce platforms can test potential innovations that support MSMEs' ability to thrive and grow in these platforms.

While reaching a broader customer base and more varied suppliers will benefit firms, they often face significant costs in accessing large markets. For example, large upfront investments are needed when setting up local branch stores and warehouses or covering shipping costs to transport goods from the production location. Additionally, smaller and more remote cities have access to fewer varieties of goods at higher prices (Feenstra, Xu, and Antoniades 2020). Recent evidence suggests that adopting digital technology by transitioning traditional business models into e-commerce could help firms reduce intercity trade costs, particularly for a large, decentralized nation such as Indonesia.

E-commerce platform data such as sales data, level of intercity trade, and user-seller matched search and browser data can provide useful insights on who benefits from e-commerce. A study using sales and purchasing data from China's largest e-commerce platform found that e-commerce increased intercity trade, with the increase being larger for smaller cities (Fan et al. 2018). The increase of domestic sales increased welfare gains by 1.6 percent. Specifically, smaller cities experienced larger increases in nominal wage, and consumers benefited from having a variety of goods that were not previously available in the market. The findings suggest promising results of how e-commerce can reduce inequality between regions and increase real wages.

Building on the work by Fan et al. (2018), one randomized evaluation examined the impact of installing terminals[3] in central village locations to reduce last-mile logistics and transactional barriers (Couture et al. 2021). The study found no significant gains or losses in the production and income for the local economy, suggesting that the terminals were not used often by villagers to conduct online trade. The welfare gains of providing e-commerce terminals were driven by the reduction in the cost of living for retail consumption, and the positive effect was only seen in 15 percent of rural households who were richer, younger, and living in remote markets, on average. At the village level, the number and total weight of out-shipments increased smoothly over two years. However, these impacts were only pronounced in villages that lacked preexisting delivery services. This suggests that the program design and the manner in which new programs are introduced to beneficiaries play a crucial role in determining the outcomes.

When MSMEs are properly introduced to e-commerce platforms and their features, entrepreneurs are more likely to experience higher sales and revenue. Jin and Sun (2022) leveraged user-seller matched search and browsing data to evaluate the impact of online training[4] to onboard MSMEs to e-commerce platforms. The authors found that access to training programs integrated into e-commerce platforms focusing on practical online business operation and marketing skills increased new sellers' revenue by 1.7 percent. Treated sellers earned higher revenues since they attracted 1.3 percent more visitors to their

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[3] In these terminals, villagers can pay after receiving their products or get paid upon picking up their shipments cash.

[4] To conduct the online business training program, the authors worked with an e-commerce platform to implement an online business program. The training teaches generic best practices, the materials are organized as a sequence of tasks (tutorials, Q&A, forums, and webinars), and each task tackles specific challenges to increase the practicality of applying the materials. In the training, the platform uses administrative data to dynamically match sellers with the most appropriate tasks based on sellers' performance and actions. To measure the program's impact, the researchers randomized the access to these training programs among new sellers.

site. After receiving training, sellers became more engaged in marketing and improved customer services as they adopted supplementary services such as AI assistants to handle customer inquiries.

With the fast-paced growth of e-commerce in LMICs, more evaluations are needed. Impact evaluations provide the opportunity to pilot and test complementary interventions that can support MSMEs and consumers in rural areas to benefit from e-commerce. One of the main challenges in expanding market access is the high logistics cost. Due to the small production volumes, capital, and use of fewer resources, MSMEs incur higher production and shipping costs. The recent growth of logistic providers in Indonesia provides potential solutions to aggregate and consolidate the needs of MSMEs to increase their efficiency. Services such as providing bulk shipping rates, warehouse and storage solutions, and technology infrastructure to assist inventories are currently available, yet little is known about their impact in the Indonesian context. Collaborations between government, private sectors, and researchers could uncover how the future expansion of domestic trade can be better supported.

The role of infrastructure and transportation

Investment in transportation infrastructure can promote economic growth and improve household welfare. However, little is known about its impact on firms' business outcomes.

One of the challenges in Indonesia's logistics or transportation sector is the high logistics cost. The World Bank (2018) reported that Indonesia has the highest logistics cost in ASEAN, with a total logistics cost of almost 24 percent of the Indonesian GDP. Analysis by the World Bank (2015) further revealed that logistics costs in Indonesia are largely driven by the time required to organize logistics and for goods to reach their destination (e.g., transit, loading, and unloading). These time costs can account for up to 18 percent of the goods' value. In the same study, an additional survey conducted on Indonesian manufacturers found that transport and container-handling costs constitute 40 percent of the total logistics cost of manufacturers. Furthermore, in the trucking industry, Olken and Barron (2009) found many illegal levies collections throughout the trip, which also increased the total shipping cost.

Investment in the transportation sector or in transport infrastructure has been considered a key factor in promoting economic growth (Donaldson 2018; Fogel 1962). While both personal mobility and freight logistics contribute to this growth, the latter requires more evidence to fully understand its impact. Studies suggest that the benefits of transportation infrastructure development may depend on a country's distribution of economic activities, potentially leading to unequal benefits across different regions (Hayakawa et al. 2021; Baum-Snow et al. 2020). A well-functioning transportation sector not only reduces commuting time and prevents unnecessary costs (e.g., long transit or dwelling time in ports) but also mitigates economic loss (e.g., when delivering food products), leading to local economic growth. For example, quasi-experiment studies on China's High-Speed Railway found that the new infrastructure positively impacted the intercity flow of passengers by 10 percent and employment by 7 percent (Lin 2017). Additionally, every 1 percent improvement to market access for prefecture-level cities led to a 0.123 percent national increase in real income (Zou, Chen, and Xiong 2018).

In Indonesia, Gertler et al. (2022) found that every 10 percent increase in road quality led to a 3 percent increase in per capita consumption in a district. These welfare gains were found to be driven by workers shifting their occupation out of informal employment into higher-wage manufacturing jobs. In the specific context of improving logistics, Amin et al. (2021) investigated the impact of local ports' performance and maritime logistics on the small island economy in East Indonesia. The study found that low port efficiency could disrupt the distribution of goods between islands, resulting in higher logistics costs. Additionally, high maritime logistics costs (e.g., loading and unloading tariffs, sea freight costs) harmed the island's economy in terms of the gross regional domestic product (GRDP) per capita.

Most studies in the area of transportation of goods focus on aggregate outcomes, such as economic growth and total regional trade (Donaldson 2018; Amin et al. 2021). However, they do not focus as much on micro or individual-level outcomes, such as income, employment, and welfare, which are outcomes that have been studied in the area of transportation of people (Branstetter and Li 2022; Brough, Freedman, and Phillips 2022; Allen and Arkolakis 2019). These physical infrastructural constraints are likely to profoundly shape the productivity of Indonesian MSMEs in different parts of the country. The extent to which innovative policies in the transportation sector can act as a lever of MSME-led local economic growth remains an important area of research.

Section 2: The MSME Landscape in Indonesia

To better connect global evidence and the Indonesian context, this section's analysis focuses on financial access, capacity-building programs, and market access.

For each of the three topics, we summarize policy priorities, describe challenges and opportunities faced by entrepreneurs and programs, and identify innovations and potential ways that research can support evidence-based policy in this sector.

2.1 Context and background

Defining MSMEs

Based on Government Regulation No. 7/2021, the GoI categorizes MSMEs based on assets or their annual sales turnover (see table 1). While this definition is useful for facilitating tax-related purposes, collecting data, determining targets for program recipients, and conducting statistical analysis, its application can be difficult when MSMEs do not keep detailed financial reports and often mix business with household finances. The National Statistics Agency (Badan Pusat Statistik, BPS) and the World Bank Enterprise Survey (WBES) define MSMEs based on the total number of employees. Micro firms have less than 5 employees, small firms have 5–19, and medium-sized firms have 20–99.

Table 1. MSME categories based on Government Regulation No. 7/2021

Category	Assets	Annual sales results
Microenterprises	< IDR 1 billion	< IDR 2 billion
Small enterprises	IDR 1–5 billion	IDR 2–15 billion
Medium enterprises	IDR 5–10 billion	IDR 15–50 billion
Large enterprises	> IDR 10 billion	> IDR 50 billion

Note: Business capital does not include land and buildings for business premises.

Government stakeholders

The Ministry of Cooperatives and SMEs (KemenkopUKM), the Ministry of National Development and Planning (Bappenas), and the Coordinating Ministry for Economic Affairs (Kemenko Perekonomian) are charged with coordinating programs related to MSMEs. According to Bappenas, 29 government agencies, including the KemenkopUKM, own programs targeted at MSMEs (TNP2K 2021). Most of these programs aim to improve the financial and managerial capacity of MSMEs to grow.

Kemenko Perekonomian initiates and mediates between programs initiated by different ministries, specifically when there are similar or conflicting programs between ministries (Database Peraturan 2015). It also has a specific role in monitoring the implementation of the People's Business Credit (KUR). The Bappenas directorate for MSMEs is responsible for coordinating related government ministries to achieve national targets and coordinate the initiation of new programs. KemenkopUKM is responsible for setting regulations and leading the coordination of MSME-related policy implementation under President Regulation No. 96/2020. Under the National Medium Term Development Plan (RPJMN 2020–2024) and Government Regulation No.7/2021, the ministry's role will extend to coordinating the creation and management of a single MSME database.

The MSME database

The creation of a single MSME database is eagerly awaited by multiple ministries since it will be able to inform program strategies and program targeting, as well as monitor and evaluate the growth of MSMEs in Indonesia. As of 2023, many government ministries collect and maintain their own database of MSMEs, which can lead to overlapping program participants and inefficiencies in program implementation. As previously mentioned, the KemenkopUKM is leading the creation of a single MSME database. The initial data has been developed through a census survey conducted by BPS and collects MSMEs' identity (e.g., by name and location), their basic characteristics, and variables that can be used to measure business outcomes (e.g., number of productions, sales, profits). Since 2022, the survey has collected data on 13.4 million MSMEs. It will continue until 2024, with the aim of eventually reaching 64 million MSMEs (Antara News 2024).

To update the data, KemenkopUKM plans to conduct annual surveys and integrate data collected by KemenkopUKM agencies at regional levels (Saptowalyono 2021). While there are plans and ambitions to also integrate the database with databases collected by other ministries, its implementation is still being discussed (TNP2K 2021). To access the single MSME database once it is available, government ministries and researchers would need to submit their requests to KemenkopUKM.

Overarching government priorities related to MSMEs

The GoI has mandated improving the competitiveness of MSMEs and strengthening entrepreneurship, MSMEs, and cooperatives (Republic of Indonesia 2020). Specifically, it aims to encourage MSME growth and increase their capacity and production of value-added goods through creating ease-of-doing-business initiatives, expanding market access, accelerating financing, increasing human resource capacity, and strengthening cross-sectoral coordination (see table 2).

Table 2. GoI strategies related to MSMEs under RPJMN 2020–2024

Strategies	
Ease-of-doing business initiatives	• Structure databases and simplify regulations to empower MSMEs
Expand market access	• Support MSMEs with a provision of export-oriented financial incentives • Develop an export-oriented marketplace, including those that can be used by MSMEs and technology start-ups to supply products and services to the international market to increase exports
Accelerate financing	• Increase financing schemes for entrepreneurs and MSMEs, including start-up capital, and assistance in accessing credit/financing
Increase business capacity	• Increase the capacity of cooperative administrators and managers, facilitating groups for cooperatives, developing the reach and scope of cooperative businesses, and developing cooperative innovation • Increase business opportunities by providing entrepreneurship training to young entrepreneurs (including youth and women as well as victims of violence and criminal acts of trafficking in persons, students, and persons with disabilities), hosting business incubations, strengthening the capacity of business services, developing small and medium industrial centers, and providing fiscal incentives
Strengthen cross-sectoral coordination	• Increase business linkages among MSMEs and expand business partnerships among MSMEs and large businesses

2.2 Access to finance

In Indonesia, many MSMEs face challenges in accessing financial capital for their business growth. To address this challenge, the GoI has prioritized providing broad access to financing to MSME players through policies and programs. These government programs can be divided into financial grants and widening credit access to MSMEs. Financial grants, which come in the form of either social assistance or are given as competition prizes for new entrepreneurs, are specifically targeted and have a limited number of recipients as part of the program design. In terms of credit access, various programs exist with different conditions to increase accessibility for MSMEs.

To incentivize financial institutions to increase credit access to MSMEs, the Central Bank of Indonesia (BI) has released regulations that obligate financial institutions to have 30 percent of their credit share allocated for MSMEs and/or cooperatives by 2024 (BI Regulation No. 23/13/PBI/2021). One way financial institutions can achieve this target is through delivering one of the government's largest and oldest programs, KUR. This subsection aims to deeply understand the financial capital support available to MSMEs and to explore the barriers to expanding access to finance.

Financial grants

The main challenge of providing financial grants is ensuring that aid targets the right entrepreneurs who have the potential to grow. Without proper selection criteria and verifications, grants can easily be misallocated.

The government offers grants without repayment conditions to support vulnerable groups or to a selected group of MSMEs that have been screened through competition (see table 3). One of the main challenges of delivering grants is identifying the right recipients. The Ministry of Social Affairs

(Kemensos) has access to social welfare data that covers the poorest 40 percent of the population (from the Data Terpadu Kesejahteraan Sosial, DTKS), however there is currently no single database that covers all MSMEs in Indonesia. Kemensos uses the DTKS to determine recipients of its Joint Business Program (KUBE), a one-time cash grant for the poor to incentivize starting a business and earning additional income. Despite its ability to identify the poor, the DTKS still lacks the ability to identify entrepreneurs' potential to grow. Internal monitoring results from Kemensos find that only 35 percent of firms that have been formed through KUBE between 2015 and 2018 have continued to survive (Pahlevi 2019).

Table 3. Examples of financial grants delivered by GoI

Program	General description	Program recipients	Selection criteria
Cash assistance for micro enterprises (BPUM) during COVID-19 *Ministry of Cooperatives and MSME*	From 2020 to 2022, the program disbursed between ~USD 39 and USD 157	Micro	• Not receiving KUR • Have national ID and documents authorizing business • Not civil servants, police/military, or staff of State-Owned Enterprises (SOEs)
Joint business program (KUBE) *Ministry of Social Affairs*	Cash grants for the poor, especially beneficiaries of conditional cash transfers to increase income	Micro	• A group consisting of 5 to 20 households • Have a bank account on behalf of the group • Register through the Ministry of Social Affairs
Start-up capital for new entrepreneurs *Ministry of Cooperative and MSME*	Competition providing up to ~USD 789 grant for new businesses	Micro, small	• Have been trained by KemenkopUKM • Business has run between 6 months and 3 years • Have an active tax ID
Assistance for young entrepreneurs and entrepreneur centers *Ministry of Youth and Sports*	Competition providing initial grants up to USD 987 for entrepreneurs	Micro, small	• Entrepreneurs are between the age of 16–30 • Owns a business for the past two years (proven by financial reports)

*Note that the USD to Indonesian rupiah conversion rate used in this table is USD 1 = IDR 15.200.

During the height of the COVID-19 pandemic in 2020, the GoI allocated IDR 28.8 trillion (USD 1.8 billion) in cash assistance for microenterprises that were not receiving credit from banks. Firms could apply online, in person at district government offices, or be nominated by several appointed institutions at the central level.5 The Ministry of Finance (Kemenkeu) and the Indonesia Financial Service Authority (OJK) verified eligibility. However, a 2021 audit conducted by the Audit Board of Indonesia (BPK) found that IDR 1 trillion (~USD 64.2 million) of the funds were mistargeted, due to multiple

[5] SOEs, banks and financial institutions, cooperatives, and ministries can propose microenterprises based on their internal database. These proposed lists are combined by the KemenkopUKM before being verified and validated by Kemenkeu and the OJK. A monitoring report of the program implementation in 2020 by the National Team for the Acceleration of Poverty Reduction (TNP2K) can be found here (in English).

transfers to single national IDs, non-microenterprises receiving funds, and recipients already obtaining bank loans (Warta Pemeriksa 2021).

Business competitions are an alternative method of delivering grants to entrepreneurs with the potential to grow. While multiple studies suggest this method is effective in targeting firms with high-growth potential, the number of recipients is often small due to the nature of competition. To win, firms must have clear business plans or track records, so this method may provide benefits to those who are already better off.

Credit

While most government-backed credit programs target micro and small firms, a limited number of MSMEs receive loans from formal institutions due to both supply and demand constraints.

The government has introduced a range of credit and loan programs with the aim of widening access to finance for MSMEs (see Appendix 3, table 8). As previously mentioned, KUR stands out as one of the earliest and largest government-funded programs geared toward enhancing MSMEs' access to loans. In addition to KUR, the government also introduced financing programs that differ in terms of the target recipients, loan sizes, and additional support provided.

Established in 2007, the GoI has allocated IDR 450 trillion (USD 29 million) in 2023 for the KUR program and aims to target 1.76 million new debtors annually (Kemenko Perekonomian 2023). KUR provides a subsidized credit scheme for ultra-micro, micro, and small enterprises. Under the scheme, the government guarantees 70 percent of the total loan and subsidizes the monthly interest rate (Ika, Nurhidayat, and Mutawin 2016). As a result, MSMEs only have to pay loans with a 6 percent interest rate, which is lower than rates given by conventional bank loans or digital loans (Natalia 2022). Although, by regulation, entrepreneurs do not need to have collateral to access the program, in practice, some banks still require personal assets as collateral from clients, and the different practices between banks often confuse potential borrowers (Arini 2023).

In 2023, the GoI released changes to KUR regulations and implementation. First, ultra-micro firms only have to pay a 3 percent annual interest rate, previously 6 percent, with the aim to reduce their financial burden (Humas 2022). Second, there is now a limit on how many times micro and small businesses can apply for KUR, as an effort to incentivize firms to graduate and ensure efficiency in delivering the program. For example, first-time KUR applicants receive 6 percent interest rates, second-time KUR applicants receive 7 percent interest rates, third-time 8 percent, and fourth-time 9 percent (Rachman 2023). Only firms working in agriculture and fisheries can apply for the same kind of KUR four times, while firms working outside of those sectors can only apply up to two times. Third, banks face sanctions if they apply collateral requirements for loans below IDR 100 million.[6]

Unlike KUR, programs such as Ultra Micro Financing (UMi), Fostering a Prosperous Economic Family Program (PNM Mekaar), and Unit Service for Micro Capital (PNM Ulamm), as well as business loans managed by PT. Pegadaian, are specifically designed to target entrepreneurs without bank accounts and require recipients to receive some form of capacity-building program. Moreover, the government has also established credit programs to help businesses in a specific industry. For instance, in 2009 an agency was created under the Ministry of Marine Affairs and Fisheries (the KKP) to manage capital for

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[6] Based on Kemenko regulation (Permenko No.1/2023), entrepreneurs' businesses become the main collateral to gain loans, and additional collateral only applies for credit above IDR 100 million (USD 6,580).

marine and fisheries businesses (e.g., BLU LPMUKP). The agency provides loans and mentorship to any small, micro, and medium enterprises operating in the marine and fisheries industry.

Despite the availability of diverse financing programs by the government, the number of firms and entrepreneurs who can access and benefit from these programs are still limited. According to the BPS survey for micro and small enterprises, only 2.5 percent (109,102) of the total micro and small firms in Indonesia borrowed from banks in 2022 (BPS 2022). Various obstacles on both the supply and demand sides contribute to the limited distribution of credit, discussed below.

Supply-side constraints

1. The distribution of credit in Indonesia is skewed toward firms in Java.

Between 2018 and 2022, the proportion of credit for MSMEs ranged from 18 to 20 percent of the total credit that was disbursed by conventional, sharia, and regional banks (Yogatama 2023). In 2022, half of KUR loans (IDR 54.98 trillion) were mainly distributed on Java Island. Of these, 49 percent of the recipients were in Java, with the distribution being 36 percent in Central Java, 36 percent in East Java, and 28 percent in West Java (Ahdiat 2022). Furthermore, microcredit programs for women, such as UMi, predominantly reached recipients in Java, with only a limited portion reaching those in Kalimantan, Maluku, and Papua (Pusat Investasi Pemerintah 2021). Similarly, PNM's credit distribution is primarily focused on Java Island, as most of its branch offices are located there, while the program's presence in Bali, Maluku, and Papua is limited (PT PNM 2022). The limited supply of credit to smaller MSMEs, especially those outside of Java, may be due to the high concentration of MSMEs in Java and the varied ability of financial institutions to provide services beyond.

2. Financial institutions possess varying capacities and show a limited interest in lending to micro and small enterprises due to default risk.

While all banks must allocate 30 percent of their credit to MSMEs by 2024, their capacity and willingness to meet this target varies. The lack of financial information and collateral among MSMEs leads to a higher perception for banks when lending to micro and small businesses. Furthermore, since financial institutions must maintain their rate of nonperforming loans (NPL) at 5 percent (BI Regulation No. 15/2/PBI/2013), banks may not want to diversify their lending toward firms they deem risky and expensive to screen and monitor.

Innovative credit scoring (ICS), or the use of machine learning to perform credit assessment using a combination of psychometric and nontraditional personal data, is currently available to help in selecting high-performing loans. To date, around 19 ICS firms are operating in Indonesia. ICS firms use anonymized and consented data from multiple sources, such as utility payments, phone bills, social media use, online behavior, and e-commerce transactions data, to assess borrowers' creditworthiness.[7]

[7] For example, ICS platform iziData Indonesia uses mobile data (i.e., phone number registration, mobile activity, top-up history), social media data (i.e., phone number registered on WhatsApp, Telegram, Facebook, and a user's account details), and ID card data (i.e., how often a user's ID card is reviewed by a financial institution). CredoLab, on the other hand, uses mobile device data, digital footprints, and online behavioral patterns (i.e., number of applications installed/upgraded, number of contacts saved, number of photos, speed of typing, etc.) to assess credit risk.

However, not many financial service providers (FSPs) have tested or implemented such innovations and choose to rely on loan officers to screen and monitor a high number of firms.

Additionally, integrating available financial databases can ease FSPs' ability to gain information. Currently, banks send KUR recipient data to the Ministry of Finance, which is maintained within the Program Credit Information System (SIKP). Conversely, general credit data is sent to the OJK and stored in the Financial Information Service System (SLIK). If the two databases are integrated with national IDs, banks delivering KUR could, for example, confirm if applicants have previously received non-subsidized loans using SLIK. Similarly, banks offering conventional loans can check MSMEs' past performance if they have received KUR, allowing the Ministry of Finance to learn about issues related to both disbursement and targeting.

3. Many financial institutions have limited capacity to market credit programs to potential borrowers effectively.

Financial institutions have varying abilities to provide loans to MSMEs and market the existing credit programs. Due to factors of inadequate systems such as limited branch networks, time-consuming credit processes, and limited staff capacity, there is less time spent catering to new customers (International Labour Organization 2019). By lowering the cost and time spent on screening and monitoring borrowers, FSPs can potentially focus more on socializing available credit programs to new customers.

Demand-side constraints

1. The loans that banks offer do not meet MSMEs' financing needs in terms of size, interest rates, and procedures.

A study by TNP2K and the World Bank revealed that most MSMEs express a need for larger loan amounts than what is typically offered by banks, and view high interest rates, collateral requirements, and burdensome application processes as obstacles to accessing credit (Burger et al. 2015; World Bank 2016). Similarly, the 2022 BPS survey for micro and small enterprises found that a significant proportion of these businesses do not borrow from banks due to obstacles such as limited interest to borrow, lack of collateral, complex application procedures, and limited understanding of the credit application process. Inflexible and short time frames to repay credit also make it unappealing to borrow and result in a preference for self-financing or borrowing from friends and family. The recent changes in KUR regulations to remove collateral requirements and a reduction of the interest rates for microenterprises may increase the demand for loans, depending on the regulations' enforcement and dissemination.

2. Entrepreneurs have limited knowledge of the available financial products and their different requirements.

Based on commentary and feedback from stakeholders, many MSMEs lack awareness of the different credit options. A survey conducted in 2015 by TNP2K found that slightly over half of the respondents were informed about the existing credit programs but struggled to access information about eligibility and registration methods, while the remaining respondents did know about the available programs (Burger et al. 2015). In some cases, borrowers choose the first credit provider that approaches them even if it may not be the most suitable credit choice for their type of business and financing needs. For example, representatives from a P2P lending platform shared in an interview that some borrowers chose their platform because they were the first credit providers to reach out to them.

Misconceptions about the requirement to access credit can also prevent MSMEs from borrowing from formal institutions. For example, some MSMEs believe they need an official business license or fixed collateral to secure loans (Burger et al. 2015). In reality, many government-led credit programs allow businesses to substitute business registration with a letter of recognition from local governments, and several credit programs (e.g., KUR) and digital loans have removed the need to submit a fixed collateral.

3. The credit and loan products that banks offer do not account for the constraints that women-led enterprises face.

Female-led firms represent more than 70 percent of Indonesia's micro and small enterprises (BPS 2022). A small gender gap exists in account ownership, slightly favoring men, with strong societal norms around women managing household finances (Moorena et al. 2020). Despite having supportive spouses and equal decision-making in their households, based on our stakeholder engagements with female business associations such as the Muslim Entrepreneurs Association (IPEMI)8 and a 2016 survey conducted by the World Bank, women entrepreneurs still have limited access to assets that can secure loans (IPEMI 2023; World Bank 2016) Furthermore, a focus group discussion among female-led businesses operating in rural areas identified additional challenges due to cultural and societal norms. Women in rural areas experienced more difficulty in accessing government offices and services that were not close to their communities. They also faced discomfort when dealing with officials who were mostly men. By identifying key barriers faced by female-led firms and piloting interventions to reduce such barriers, both financial and nonfinancial institutions can play a role in unlocking the potential of female-led firms to grow and contribute to Indonesia's economic development.

Depending on its implementation and enforcement, the recent changes to KUR regulations have the potential to solve some of the challenges listed above. For example, the lower interest rates for microenterprises and the removal of collateral may increase entrepreneurs' demand to access credit from formal institutions. The recent regulation on KUR also mentions that FSPs can provide grace periods. Hence, there are opportunities to further understand how often grace periods are provided, how firms use funds during grace periods, and whether business outcomes have improved. Aside from opportunities to understand the impact of the new KUR regulations on MSMEs' access to credit, collaborations to conduct research can also be carried out directly with FSPs. For example, researchers can assist FSPs in building their technical capacity to use machine learning in screening and monitoring borrowers while evaluating the impact of such innovation.

The role of private sector and digital loans

The rise of digital loans provides a wider range of products for entrepreneurs, and these loans can be appealing due to ease of use and a fast approval process. However, many of these services have high interest rates and subject MSMEs to additional fees.

The private sector, particularly fintech start-ups, has introduced digital loans that aim to complement the government's offerings (examples of digital loan products in Indonesia are available in Appendix 4, table 9). Multiple business models for digital loans exist in Indonesia: banks and fintech companies offer digitized loan products, fintech companies channel loans through P2P lending, and collaboration between fintech companies and e-commerce platforms provides loans for digital merchants.

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[8] Muslim Entrepreneurs Association, interview by Aulia Larasati and Erysa Poetry from J-PAL SEA, 12 May 2023.

Companies offering digital loans promote their simplified application process due to online submission, the faster review process, ease of repayment, and no collateral requirements. Several of these start-ups have also identified innovative ways to assess the risk associated with lending credit to MSMEs, such as by using an algorithm to determine the likelihood of potential borrowers defaulting or by harnessing users' digital footprint (e.g., e-commerce transactions, frequency of phone credit top-ups).

While digital lending holds the potential to widen financial access, it also has limitations. Due to the use of mobile or online applications, entrepreneurs' digital literacy influences adoption. Borrowers are also subjected to additional fees and higher interest rates than conventional loan products. For example, borrowers may incur administrative or service fees when obtaining loans from fintech firms, and pay small fees when repaying their loans through online banks or payment services. Additionally, the annual interest rate of digital loan products can range from 10 to 24 percent.

Similar to conventional banks, financial providers that offer digital loans must maintain their rate of nonperforming loans (NPL) at 5 percent, as well as transparently display their rate of performing loans on their websites. For such reasons, digital loans often have high interest rates or are allocated selectively. As of 2021, 102 fintech companies offered digital lending services (OJK 2022). Currently, the OJK monitors digital lending performance through a centralized fintech lending database (Pusat data fintech lending, Pusdafil), managed by the Association for Fintech Lenders (AFPI). Like conventional banks, which must submit a database of their lenders through SLIK and can check the past loan performance of a potential borrower if they previously borrowed from other banks, fintech lending companies use Pusdafil for a similar purpose. Pusdafil assists in providing information about borrowers' history of fraud, late payments, and borrowing from multiple lending firms. While there are plans to integrate Pusdafil with other financial data repositories like SLIK, data collection and access are currently separated. Conventional banks can only submit their data and access SLIK, while fintech lenders can only submit to and access Pusdafil (PWC Indonesia 2019).

2.3 Capacity-building programs in Indonesia

The growth and success of MSMEs are crucial for individual entrepreneurs looking to expand their businesses. A study from South Africa has shown that motivation and managerial skills have a substantial impact on a business's success (Asah, Olufunso, and Rungani 2015). Similarly, in Indonesia, challenges in business management skills and innovation are significant obstacles for MSMEs, limiting their ability to compete with other businesses (Rizki 2022). Additionally, a survey revealed that human capital is a significant barrier to growth, with 32 percent of respondents citing it as a major barrier to MSME growth (APF Canada 2018).

Recognizing this, diverse stakeholders in Indonesia, including the government, NGOs, and the private sector, have introduced a wide array of programs aimed at enhancing capacity and promoting MSME development. However, despite the large variety of programs, the participation rates among MSMEs remains low. According to a survey by the BPS, only around 10 percent of micro and small enterprises had participated in any form of training between 2018 and 2019. With this backdrop, this section delves into the current capacity-building programs available to MSMEs, highlighting their key features and delivery methods. It also explores opportunities for enhancing the effectiveness of capacity-building initiatives.

Business training in Indonesia

While standard business training is common in Indonesia, there has been a rise in programs aiming to deliver training with specific modules combined with individualized support.

Capacity-building programs for MSMEs typically come in the form of standard business training, which consists of short courses to introduce specific introductory modules (e.g., bookkeeping, marketing, and providing financial skills) and are delivered in large classroom settings. With the emergence of the COVID-19 pandemic and the associated physical limitations, there has been a growing trend of running the training programs through online platforms (Irawan et al. 2022).

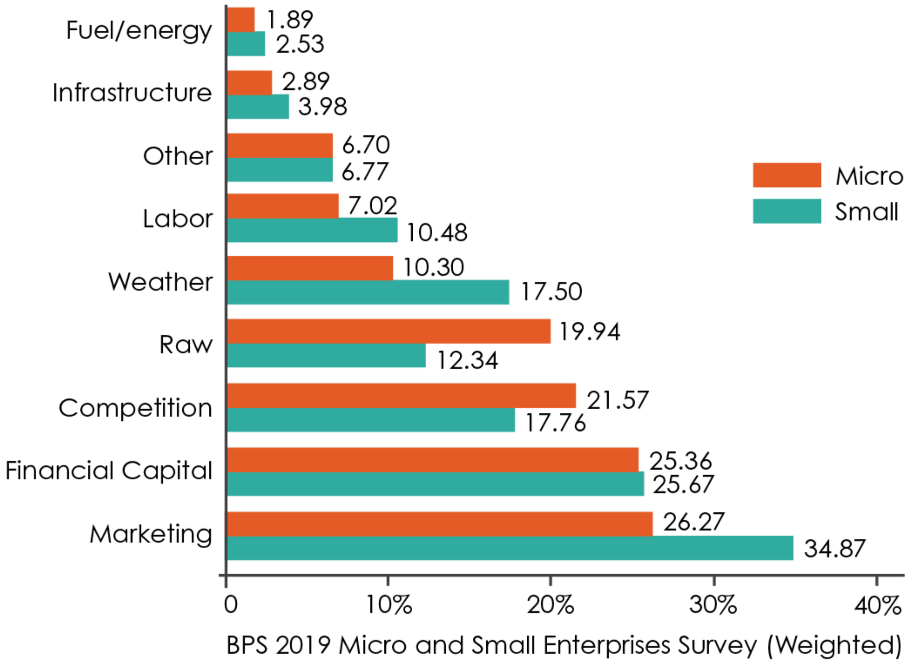
Currently, at least 21 capacity-building programs managed by government ministries are in operation, some of which are tied to financial capital (TNP2K and Lembaga Demografi 2021). This figure does not include the numerous one-off and ongoing training sessions provided by private sector entities, civil society organizations (CSOs), and business associations. Despite the large number of training sessions, only a small number of MSMEs have participated in any form of training (BPS 2022). Several potential reasons include opportunity costs, where time spent in training sessions means time away from managing one's business, lack of awareness about existing programs, or a perception among business owners that the training is not relevant to their needs.

J-PAL SEA has engaged with several private sector organizations, CSOs, and business associations that have recognized the importance of tailoring training modules to meet the diverse needs of MSMEs at different stages of growth. For instance, training providers such as the Women Pioneers of Indonesian MSMEs (UPRINTIS)9 highlighted that their past ultra-micro businesses training participants were primarily focused on immediate sales and income generation to sustain their livelihoods. Micro businesses, on the other hand, have financial resources but often struggle with product promotion and sales strategies. Small- to medium-sized enterprises have a growth-oriented mindset, established markets, and higher revenue, yet they encounter obstacles in areas such as packaging and business management. In other words, our partners believe that small- to medium-sized enterprises have shown business continuity but face challenges in product differentiation to effectively market their products and innovation. Additionally, stakeholders also highlight that small and midsize enterprises (SMEs) that have significant export potential often find difficulties in kick-starting and maintaining their export activities.

Based on the 2019 BPS survey on micro and small enterprises, both enterprises saw financial capital and marketing as their top two challenges (see figure 1). However, smaller enterprises (34 percent) face challenges in adopting marketing practices compared to microenterprises (26 percent). In addition to the top two challenges, microenterprises also face challenges in competing with other firms (21.6 percent) and accessing raw materials (19 percent). There are slight similarities between what training providers observe from their past training participants and survey data, where finance and marketing are the main challenges faced by micro and small enterprises.

[9] The Women Pioneers of Indonesian MSMEs, interview by Erysa Poetry and Maria Sarah from J-PAL SEA, 29 May 2023.

Figure 1. Challenges faced by micro and small enterprises in 2018 and 2019



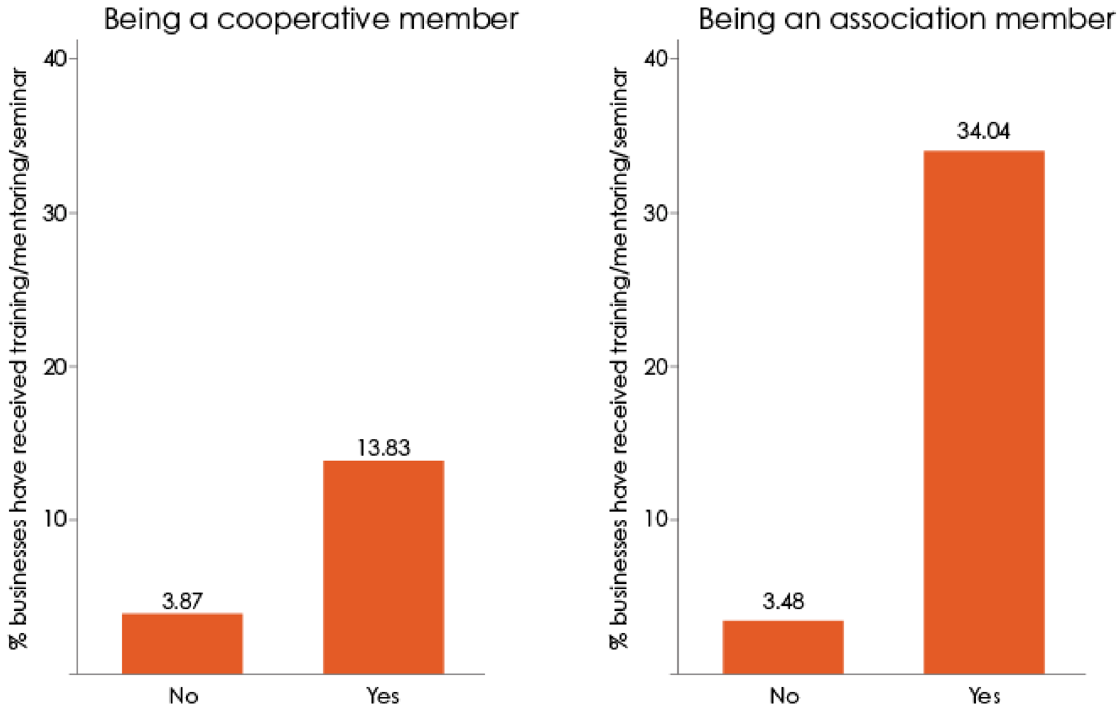
While stakeholder engagements and data provide a snapshot of challenges faced by MSMEs, only MSMEs themselves know what types of training garner their interest. Tailoring modules to the diverse challenges faced by potential training participants can increase the relevance and applicability of the training to directly align with their growth stage. To implement a tailored approach, conducting a baseline survey or self-assessment to gauge the interests and current capacities of MSMEs can be valuable in designing training modules and grouping participants by their needs. After determining the target groups or characters of entrepreneurs, collaborating with organizations that specialize in providing specific modules can further ensure the provision of customized training. In Appendix 2 we have identified several training programs, through stakeholder interviews and publicly available information, that tailor training content and provide individualized support for MSMEs.

Current limitations and potential improvements for capacity-building programs

Fostering knowledge exchange between training implementers, providing continuous support to entrepreneurs, and designing gender-responsive training are potential ways to improve current capacity-building programs.

While support for MSMEs through capacity building has been offered, there is room for improvement. In J-PAL SEA's stakeholder engagements, our partners shared several limitations of current capacity-building programs in Indonesia. These include content overlap, repetitive training for the same recipients due to limited data availability and lack of marketing, the short-term nature of the training, and the limited number of trainings that consider gender barriers and empower women.

Figure 2. Membership and probability to attend capacity-building programs



One way to enhance the impact of training programs is by encouraging knowledge exchange among stakeholders engaged in similar initiatives. This exchange involves sharing details about the training modules provided to the recipients and key insights and learnings from the training sessions. By facilitating knowledge sharing and sharing data about past training participants, future programs can minimize overlap and improve the quality of training programs. To reach a wider network of MSME training participants and provide additional support, governments can collaborate with, or connect MSMEs to, business associations or CSOs. Based on the survey data of the 2019 BPS survey on micro and small enterprises, members of cooperatives or associations are 14 percent and 34 percent more likely, respectively, to receive any form of capacity building support (figure 2). Yet, according to the same survey, only around 3.99 percent of MSMEs belong to such groups. This increased probability of receiving training may be due to better access to information about training opportunities for MSMEs, or to the direct provision of training by business associations or CSOs. Additionally, many of these organizations often provide peer support or counseling as further support.

Drawing from the experiences of NGOs that regularly conduct MSME training, such as Mercy Corps[10] and the Association for Food and Beverage Entrepreneurs (GAPMMI),[11] our interviewees said that conducting follow-ups with training participants is an effective way to maximize results despite having short sessions. These personalized follow-up approaches can be in the form of small nudges through phone calls, counseling, or complementary mentorship programs. Additionally, addressing limitations in the current training setting involves designing content that is directly relevant and applicable to

[10] In 2019, Mercy Corps launched Micromentor, an online learning platform that provides training modules and connects entrepreneurs with volunteer business mentors. Currently, the platforms are also used to connect mentors and mentees after in-person training programs to offer personalized support and counseling for MSMEs.

[11] After in-person training programs organized by GAPMMI, a group chat is created for former trainees. This platform facilitates organic interaction and fosters a collaborative culture with a light approach.

MSMEs' challenges. Incorporating real-life case studies and practical exercises in training can equip MSMEs with tools for implementing lessons effectively in their operations.

Providing shorter training sessions can also make training more accessible for women entrepreneurs. Since women entrepreneurs have multiple responsibilities and commitments, including caregiving and household duties, the timing of the training sessions should be carefully determined. Our interviewees highlighted that scheduling accommodative training sessions, such as during nonpeak business hours, or providing options for online or hybrid learning can overcome potential barriers and maximize participation. Additionally, offering shorter, intensive training sessions or breaking down the content into manageable modules can make the training more accessible for those with lower education backgrounds.

2.4 The role of e-commerce and infrastructure in supporting MSME growth

In recent years, digital connectivity and technologies have emerged to provide MSMEs access to a wider market and the opportunity to increase their productivity. E-commerce platforms reduce transaction costs and information asymmetry by providing a virtual interface to aggregate suppliers and consumers. There are also digital platforms that help MSMEs in various aspects, such as managing financial bookkeeping, facilitating trade between firms, digitizing payments, managing inventory, and supporting the delivery of goods.

In 2022, the digital economy contributed to 8 percent of Indonesia's GDP and is projected to continue to grow (Primantoro 2023). As part of the effort to support MSME growth and increase competitiveness, the GoI has set ambitious targets of digitizing at least 30 million MSMEs by 2024 and increasing the number of e-commerce transactions from IDR 170 trillion (USD 11 million) in 2018 to IDR 600 trillion by 2024 (USD 39 million) in its medium-term development plans. Achieving these targets necessitates a robust logistics network, as the efficient transport of goods is important for increasing the volume of domestic and cross-border e-commerce. A well-functioning road transportation system, encompassing roads, postal services, and ports, is essential for timely and reliable order delivery. This subsection discusses Indonesia's e-commerce landscape and its supporting infrastructure, along with challenges that may prevent MSMEs from reaching wider market access.

The growth of e-commerce in Indonesia

While e-commerce platforms provide a pathway for MSMEs to access a wider market, several micro and small enterprises may struggle to exploit the opportunities from digitization due to limited knowledge, capital, and high logistical costs.

Indonesia has recently experienced a rise in the use of e-commerce following the COVID-19 pandemic, with the sector's contribution to the country's trade increasing significantly from 2 percent in 2016 to 20 percent in 2020, the highest level ever recorded (Ridhwan et al. 2021). Several e-commerce players, such as Bukalapak, Blibli, Lazada, Shopee, and Tokopedia, facilitate business-to-consumer (B2C) transactions by displaying products and enabling digital payment and delivery. Additionally, social commerce is gaining traction, allowing for the purchase and sale of goods through social media and messaging platforms such as WhatsApp, Facebook, TikTok, and Instagram, with payments and deliveries managed separately. There are also business-to-business (B2B) commerce platforms that digitize the procurement process between MSMEs, large firms, and SOEs, such as Tanihub, Ralali, IndoTrading, Mbizmarket, and PaDi UMKM.

During the pandemic, many MSMEs faced a slowdown in demand, especially due to large-scale social distancing measures that closed down large shopping centers, and had to adapt by shifting to online market and sales. Among Bukalapak merchants surveyed during the pandemic, their online sales increased from 71 to 77 percent, and the share of merchants who fully transitioned exclusively to online sales increased by 7 percentage points (World Bank 2020). Additionally, Tokopedia increased its number of sellers from 7.2 million in January 2020 to 10 million in March 2021 (Tokopedia 2021).

While the online marketplace allows MSMEs to reduce upfront costs associated with entering new markets, they face additional challenges after they have been onboarded to e-commerce platforms. Despite the rise of B2C e-commerce during the pandemic, its sales and transactions are largely concentrated only in six provinces.12 The concentration of online sales in these provinces could be due to a combination of external factors such as higher internet penetration, especially in urban areas (BPS 2019), a more developed distribution network, and higher household expenditures within major cities (McKinsey 2018).

Internal capacity constraints can also limit MSMEs' ability to navigate the online marketplace. Several of these constraints include the following:

1. **Limited knowledge:** Digital literacy, marketing skills, improving product quality, customer services, inventory, and logistic distributions become a new necessity for MSMEs to thrive given the competition with large firms.
2. **Financial constraints:** Financial capacity may limit who can access e-commerce since only 67 percent of people in Indonesia own a cellphone and only 18 percent of Indonesian families have access to a laptop or computer (BPS 2022). Alternatively, MSMEs with access to technology may have limited capital to increase their production to fulfill the demand that comes from e-commerce platforms, improve the quality and branding of their products, or access paid services provided by e-commerce platforms.
3. **High logistical costs:** The cost of shipping creates a disadvantage for MSMEs located in remote areas, especially when their buyers or suppliers are in a different city and entrepreneurs ship products in small amounts rather than in bulk.

To address the knowledge constraints faced by MSMEs, several government ministries, the private sector, and CSOs have programs in place to increase digital technology adoption (see Appendix 2). The Ministry of Communication and Informatics holds a digital entrepreneurship academy, which provides on- and offline training in partnership with organizations such as Meta, Google, Tokopedia, Gojek, Grab, and Micromentor Indonesia. E-commerce platforms also have their own capacity-building programs that aim to onboard new merchants and provide additional services such as access to digital loans, warehouses, and connection to delivery services to alleviate constraints.

Since there may be a combination of factors that limit MSMEs' access to e-commerce and their ability to thrive, conducting studies to identify the characteristics of MSMEs that would benefit from e-commerce and its supporting services can be a relevant first step. There are also opportunities to evaluate the current programs in place to understand their effectiveness in improving MSME business outcomes. For example, randomized evaluations can dissect which combination of additional support

[12] Ridhwan et al. (2021) found that sales and purchases from 2018 to 2021 are concentrated in DKI Jakarta, West Java, East Java, North Sumatra, Central Java, and Banten. There was even a wide gap in sales between DKI Jakarta, the highest-ranking province (approximately IDR 12 trillion) in 2021, and West Java, the second-highest province (IDR 5 trillion).

and services is most helpful in boosting the sales and profits of MSMEs when joining e-commerce platforms.

Recent logistic and infrastructure development

A reliable and efficient logistics services and transportation infrastructure can assist MSMEs in reducing their cost of production and increasing their productivity.

One of the main challenges to widening MSMEs' market access, both in the domestic and international market, is high logistics costs. Logistics refers to the process of moving goods and services from where they are produced to where they are consumed (Ghiani, Laporte, and Musmanno 2004), including activities such as transportation, warehousing, and inventory management. An efficient and well-functioning logistics process can benefit businesses by reducing their total cost per product and helping businesses access new markets by easing the process of shipping products to customers in different locations. As mentioned by stakeholders in associations related to last-mile deliveries and supply chains, MSMEs face difficulties in increasing their productivity and reaching a wider market due to their economies of scale.[13] As they typically have smaller production volumes, limited capital, and fewer resources compared to larger businesses, they have greater difficulty reducing their per-unit costs. That is, the small scale of business and production makes it harder to negotiate prices with suppliers and increases the cost of delivering goods.

The growth of e-commerce has also led to an increase in logistics supply chain services, particularly logistic aggregators, to overcome the challenge of small-scale production. Logistic aggregators connect sellers, consumers, and distributors to delivery services. By consolidating resources, demand, or services, MSMEs can lower their cost of production. Most of these services are delivered through private companies with varying business models. However, there are efforts from the Ministry of Cooperative and MSME to offer similar aggregation services (see table 4).

Table 4. Examples of logistic aggregator services

Program, Stakeholder	General description	Target users	Services
Rumah Produksi Bersama (Factory sharing), *Ministry of Cooperatives and MSME*	A shared production space for micro and small firms that produce similar commodities and use similar technologies.	Business cooperative with micro and small-scale firms	• The cooperative managing the factory assists in securing the supply of natural resources and connection to off-takers. • Members of the cooperative can use the available machines in the factory to produce goods.
Friendly Logistics, JNE	SMEs can rent spaces in JNE warehouses and gain assistance in inventory management and delivery services.	Small and medium firms	• Assist in digital marketing, warehousing, order fulfillment, shipping management, and delivery.
Dilayani Tokopedia, smart	Tokopedia merchants can store their products in warehouses. Since 2021, the warehouses are	Sellers with official stores or sellers with	• Warehouse and fulfillment service: Sellers gain assistance from receiving, packaging, and sending orders.

[13] Supply Chain Indonesia, interview by Aulia Larasati, Maria Sarah, and Mochamad Thoriq Akbar from J-PAL SEA, 3 April 2023.

warehouse program *Tokopedia*	available in six cities with the highest transactions.	a Gold 1 reputation	• Buyers gain free shipping throughout Indonesia and are guaranteed to receive intercity delivery within 48 hours.
Shipper	Through the start-up, MSMEs can choose between several services depending on their needs and financial capacity.	E-commerce sellers	• Shipping service: The platform compares prices between parcel delivery companies and offers free pick-up service without a minimum fee. • Warehouse and fulfillment: Assists with inventory, packaging, and delivery. • Manage online shop: MSMEs can manage their multiple e-commerce accounts in one app provided by Shipper to manage orders and assist inventory management

Warehouses and assistance in managing inventory are particularly appealing for MSMEs that are progressing through stages of growth, that is, are slowly building their reputation in e-commerce platforms or are managing large orders. By using third-party logistics services, they can save on rental costs, receive assistance with managing inventory and online orders, and lower shipment expenses. The cost of services offered by private companies can vary based on the amount of product stored in the warehouse, on the squared area of space they rent, or on direct negotiations between these private companies and MSMEs.

While private logistics industries try to innovate and create fast, cheap delivery along with real-time tracking to deliver goods, the government plays a supporting role in improving connectivity in Indonesia. Take the development of the National Logistics Ecosystem (NLE) as an example, which was created to accelerate importing and exporting using digital technology. NLE is a digital platform where enterprises can submit all shipping documents, removing repetition and duplication from the shipping process. In addition, NLE assists in the payment process. Through the NLE, the Ministry of Finance aims to increase efficiency and reduce logistic costs from 23 percent of GDP to 17 percent (Office of Assistant to Deputy Cabinet Secretary for State Documents and Translation 2020).

Since being first inaugurated in 2014, President Joko Widodo has made infrastructure development a national priority, allocating around USD 450 billion for essential infrastructure upgrades. The investment has resulted in over 3,382 km of new highway roads, 782 km of new toll roads, 19 new seaports, and 10 new airports, among other infrastructural improvements (Business Indonesia). The availability of new infrastructure and a growing ecosystem in the logistics and transportation sectors provides key opportunities to understand how this sector influences Indonesia's economic activity, how they improve MSMEs' business outcomes, and how to best improve the country's logistic performance.

Section 3: Research Opportunities

As discussed in Sections 1 and 2, there are opportunities for collaboration between government, private sectors, CSOs, and researchers to create policy-relevant research. Below, we summarize a list of pathways to support the growth of MSMEs in Indonesia, with the country's policy priorities and development targets in mind. We also list research ideas that can help guide the development of innovations and programs along these pathways while making a meaningful contribution to the academic literature.

3.1. Accelerating financing for entrepreneurs and MSMEs

Increasing financial access helps Indonesia in strengthening entrepreneurship and MSMEs. Since 2018, the ratio of credit allocated toward MSMEs has remained around 20 percent. While the national proportion of credit for micro and small firms has steadily increased over the years, not all banks have the same ability to comply with the target of allocating 30 percent of their credit toward MSMEs. Conducting evaluations on the impact of government policies, as well as innovations aimed to reduce supply and demand constraints, can inform potential pathways to increase financial access for micro and small enterprises.

1. Conducting pilot and rigorous evaluations in the growing application of AI and machine learning, which assists in improving bank management schemes, can provide insights into the effectiveness of such models. With evaluations, we can prevent the potential biases that machine learning models created to help screen loan applicants and increase efficiency in monitoring loans. By reducing loan officers' time to screen and monitor clients, loan officers can spend more time in providing support to existing clients or in attracting potential borrowers.

2. Despite its capability to reach under- and unbanked communities, there are concerns that using nontraditional personal data to determine a borrower's income distribution, personality, and behavior might exacerbate existing structural biases by disproportionately selecting specific types of entrepreneurs and excluding disadvantaged groups. Furthermore, there are also questions about the safety and security aspects of using nontraditional personal information. Conducting evaluations will allow us to better understand the type of measures that need to be taken to mitigate potential bias and data breaches, and the extent to which the use of alternative data can improve the livelihoods of microentrepreneurs.

3. While several programs such as KUR allow for flexibility in payments and grace periods, individual FSPs may have different requirements in providing these procedures. Further exploratory research will help stakeholders understand whether promoting and implementing such contracts can increase the demand for credit, especially among ultra-micro and micro firms. More importantly, such research can help clarify how providing flexible contracts can increase business outcomes.

4. There are several models of digital loans in Indonesia, and these models can target different types of users. As early studies have shown mixed results depending on the product's design, here we scope several questions that can potentially assist in informing the future design and regulations surrounding digital loans:

    - What types of MSMEs use digital loans, and can the platform identify high-potential small businesses? Does the platform differentially favor certain groups (e.g., male- versus female-owned businesses, economic class, geographical locations, educational background)?

- Does changing the method of loan payments for group loans, from in-person to mobile banking, change the behavior of group members?
- What is the impact of digital loans on firms' financial well-being; that is, what percentage of firms experience late payments and high additional fees? Can supporting interventions such as financial literacy increase the likelihood of securing digital loans and reduce the probability of late payments?

5. KemenkopUKM recently proposed plans to provide debt relief for micro and small enterprises with nonperforming loans (Koran Tempo 2023). As the implementation regulation and criteria for recipients is still being developed, conducting a pilot study on potential screening mechanisms before a national rollout can ensure that the policy targets the right recipients. Furthermore, if the debt relief program has a large number of potential recipients/applicants, there is a potential to evaluate the program's impact on business outcomes by comparing firms with similar characteristics to those that eventually receive debt relief.

6. One potential way to increase MSMEs' financial access, specifically credit, is to increase entrepreneurs' knowledge of available financial products and their different conditions. While NGOs and governments can provide information such as summaries and comparison of different borrowing options through easy-to-find channels such as digital trade and e-commerce platforms, no evaluations have been conducted on providing such low-cost intervention.

3.2. Building the capacity of MSMEs

There are many regular and one-off programs held in Indonesia aimed at increasing the number of new entrepreneurs and increasing the competitiveness of MSMEs. However, there are still knowledge gaps on the long-term effects of training, how to improve the cost-effectiveness of training, and how capacity-building programs can be designed to incentivize action or take-up in programs such as digitization, loans, and e-commerce support services.

1. While mentors and peers can support MSMEs' growth, firm owners' success would highly depend on the type of peers and what information is diffused through this interaction. To inform programs designed to provide individual support, research can assist in identifying how programs can effectively match firms with well-performing peers. Alternatively, research can also help in answering what forms of interaction occur between mentor and mentees, and how programs can build systems to ensure meaningful interaction between mentor and mentees that incentivize changes in business practices or take-up in certain programs.

2. One of the GoI's priorities from 2020 was onboarding MSMEs to the digital ecosystem and taking advantage of e-commerce platforms. Among others, the government aims to introduce some form of digital technology to 30 million MSMEs and 500 cooperatives by 2024. To evaluate related programs, it can be worthwhile to understand factors that limit digital adoption and what forms of capacity building can accelerate adoption, that is, introduction by successful peers, facilitators, or people with influence within the community.

3. As online learning and self-paced modules can be a cost-effective measure to deliver training, how can these programs be designed to accommodate the varying degrees of capability and different skills among firms? Furthermore, research can assist in informing what forms of nudges can be created to remove procrastination in implementing changes.

4. The revitalization of Integrated Business Service Centers (Pusat Layanan Usaha Terpadu, PLUT) is one of KemenkopUKM's priority programs. Through the program, the government hires consultants to provide business assistance in areas such as permit registration, certification, and technical support in topics such as marketing, promotion, and business incubation for MSMEs and cooperatives. While evidence suggests that providing consultation service may have limited impact on MSMEs (Karlan, Knight, and Udry 2015; Bruhn, Karlan and Schoar 2018), evaluating the services offered by PLUT can provide insights on its method of delivery and how it can effectively improve MSMEs business outcomes, especially to firms with growth potential.

5. Several programs led by CSOs and business associations in Indonesia contain modules to instill personal initiative or other soft skills to build new entrepreneurs and inspire growth among businesses that started out of necessity. Evaluation in this area can contribute to the literature on psychological determinants of success and shed light on the gender profit gap or how social norms affect female entrepreneurs' ambition. Furthermore, innovation and research on this topic can be particularly relevant when business loans use psychometric measures in screening borrowers.

6. We see an opportunity to evaluate alternative methods of increasing firms' managerial capacity beyond providing traditional businesses training. For example, the government can improve management and business capabilities by subsidizing direct hiring of individuals that specialize in marketing and financing functions or outsourcing such activities to a professional. A recent evaluation by Anderson and McKenzie (2022)—which compared providing business training, consulting services, and subsidizing insource as well as outsourcing of tasks among 753 small firms in Nigeria—found that both in- and outsourcing improved business practices and increased profits at a significantly higher level than providing training and do as well as consulting but at half the cost. Conducting a pilot study on how to support firms to effectively use the marketplace for business services similar to the study in Nigeria would be helpful in Indonesia's context. Further evaluations could also be done to reduce information and search frictions to help the market for business services function better.

3.3. Expanding market access through e-commerce and transportation infrastructures

The growth of e-commerce platforms, logistical services, and recent infrastructure developments have the potential to widen MSMEs' domestic market access. By conducting impact evaluations, the government and private sectors can work with researchers to test potential supporting mechanisms that facilitate MSMEs' use of services offered by e-commerce platforms and logistical services.

1. As an online platform, e-commerce harbors valuable administrative data such as accurate and objective measures of sales and purchase data at the firm level, avoiding social desirability or recall bias that comes from survey data. Using information such as anonymized purchases and sales from different cities can provide insights into the impact of e-commerce and also analyze the heterogeneity among different sizes of firms, different genders, and different geographical regions.

2. Investigating how capacity-building or encouragement designs can nudge firms to take up services that often accompany e-commerce platforms, such as advertisement, logistics, and analytical services, could be useful to understand how these additional services influence the business prospects of MSMEs.

3. While e-commerce can help increase the exposure of MSMEs, firms may also face new challenges such as high platform fees, discriminatory platform promotion, predatory pricing, or product plagiarism. More research is needed to understand the impact of e-commerce business strategy and algorithms on firms' performance and sustainability.

4. Curators (i.e., organizations, associations, or individuals whose focus is to identify firms with promising products and connect them to relevant markets) can help firms make initial sales and access a wider market. There is currently limited evidence on whether or not curation can lead to market expansion. Evaluation opportunity lies in understanding the business model of curator services, the eligibility of the curators themselves, and the indicators used for assessments.

5. High logistics costs pose a significant challenge for market expansion through e-commerce among Indonesian MSMEs. While there is a growing number of aggregator services that consolidate their logistic needs, little is known about the impact of these services. Evaluations provide the opportunity to pilot and test complementary interventions that can support MSMEs and consumers in rural areas to benefit from e-commerce and its logistical support expansion.

Conclusion

The growth of MSMEs is a key driver for Indonesia's economic development and job creation. While MSMEs currently contribute 61 percent of Indonesia's GDP, individual entrepreneurs continue to face a range of challenges that limit their ability to grow and thrive. These challenges include limited access to financing, weak digital infrastructure, and inadequate business skills and knowledge.

Through this white paper, we highlight potential pathways where collaboration between government, private sectors, CSOs, and researchers can play a part in supporting MSMEs' growth. First, collaboration can be valuable in evaluating the effectiveness of existing programs and policies aimed at supporting MSMEs. Many programs in place seek to provide training, financing, and other forms of support. However, the effectiveness of these programs is often unclear, and there is a need for more rigorous evaluation to understand which interventions are most effective in promoting the growth and development of MSMEs.

Second, collaboration can be particularly valuable in addressing the challenges that MSMEs face in accessing e-commerce platforms and logistics services. The growth of online marketplaces has created new opportunities for MSMEs to reach customers and expand their businesses. However, many lack the digital skills and infrastructure needed to effectively navigate these platforms. By working together, stakeholders can develop training programs and other interventions to help MSMEs overcome these barriers and take advantage of the benefits of e-commerce.

Third, collaboration can also be valuable in addressing gender barriers to MSME growth. Women entrepreneurs often face unique challenges, including limited access to financing and networks, that can limit their ability to start and grow successful businesses. By working together, stakeholders can develop targeted interventions to address these challenges and support the growth of women-led MSMEs.

In conclusion, collaboration is essential in creating evidence-informed approaches to promote the growth and development of MSMEs in Indonesia. By working together, stakeholders can leverage their respective strengths and expertise to develop and implement more effective policies and programs that support the growth of MSMEs.

Appendix 1. Detailed Review of Evidence on Business Training

Training modules

Many impact evaluations have found that standard business training has no or modest impact on firms' sales and profit (De Mel, McKenzie, and Woodruff 2014; Giné and Mansuri 2021; Anderson and McKenzie 2022). However, when capacity-building programs tailor their content based on program recipients, results toward sales and profitability are more promising (Beaman, Magruder, and Robinson 2014; Arráiz, Bhanot, and Calero 2019; McKenzie and Puerto 2021). Over the years, several training modules have been developed and tested to complement or substitute the standard business training. Listed below are findings from the different types of training and their audience.

Providing a rule of thumb: Simplified best practices in financial management are particularly effective in sustaining micro and small firms run by individuals with lower education levels. Substituting standard business training that may be too complex to be covered under short durations, rules of thumb can ease the application for microenterprises. Particularly on business outcomes, Arráiz, Bhanot, and Calero (2019) found that financial rules-of-thumb training for small enterprises in Ecuador increased daily profits sales and profit in the subsequent year by 7.3 and 8.2 percent, respectively. In Indonesia, Dalton et al. (2021) found that only providing a handbook that clarifies common misconceptions about business practices and offers practical tips for adoption to urban retailers in Jakarta was not enough to nudge change in business practices. The authors only saw positive changes in sales and profits when the handbook was supported with a movie screening of a documentary on successful peers who have implemented practices from the book or when the handbook was combined with counseling. The authors argued that combining training with follow-up actions gives retailers a nudge to overcome procrastination. Examples from their successful peers show that implementation is accessible and achievable, and counseling helps address individual doubts.

Psychological training: Modules aimed to develop a proactive entrepreneurial mindset targeting attitudes and aspirations show promising results for micro and small enterprises, including female-led businesses. Campos et al. (2017) compared personal initiative training with standard business training among small firms. They found that the personal initiative training led to a significant increase in business profits (a USD 60 increase in monthly profits, or 30 percent higher compared to standard training) in Togo over the following two-and-a-half years. Similarly, Alibhai et al. (2019) found that women entrepreneurs who received mindset-entrepreneurship curricula in Ethiopia had 30 percent higher profits and participants' mindset and psychological outlook improved when trainers were also business owners.

Kaizen techniques: Training programs aiming to increase business efficiency by improving production and ensuring quality management of goods are potentially relevant for micro and small firms working in clusters. Three evaluations on Kaizen techniques showed that the method led to improvements in business practice, although it had mixed results when it comes to business outcomes and its ability to reduce wasteful use of materials. Mano et al. (2012) found that the techniques increased gross profit among metalwork entrepreneurs in Ghana, and Higuchi, Mhede, and Sonobe (2019) discovered that it increased sales and revenue among handcrafters in Tanzania. In Vietnam, Higuchi, Nam, and Sonobe (2015) found that although the technique was successful in improving practices, it had little impact toward sales and profits among small and medium enterprises working in steelwork and knitwear garment clusters. Since the three studies had small sample sizes, more evaluations are needed to understand the impact of scaling such training in the Indonesian context and its impact on larger firms.

Gender training: Training programs specifically designed for female entrepreneurs have the potential to assist them in overcoming additional gender barriers to firm growth. The programs may include helping female-led firms enter different sectors, guidance on separating household and business tasks, and strategies for overcoming stereotypes and gender norms. Evaluations of the International Labour Organization (ILO) Gender Entrepreneurship Together (GET Ahead programs) found that the training increased business practices (Huis et al. 2019; McKenzie and Puerto 2021) and gender awareness (Huis et al. 2019). However, while a study in Kenya found significant improvements in profit and sales after three years (McKenzie and Puerto 2021), findings in Vietnam were less significant (Huis et al. 2019).

Method of providing individualized support

Mentoring: Pairing entrepreneurs with mentors can provide customized knowledge and serve as a method for sharing locally relevant business practices. In a study by Bakhtiar, Bastian, and Goldstein (2022), past training participants could themselves be mentors in the program, allowing them to pass information and tools learned from training to their mentees. The study found that compared to control group participants who did not have to mentor, female mentors were more likely to implement learnings from the training, such as having written business networks (49.5 percent) and attempting to negotiate with suppliers (27.4 percent). After three years, they experienced large impacts on business performance such as revenue and profits (62 and 80 percent higher compared to controlled groups). Additionally, to compare the effectiveness with classroom training, Lafortune, Riutort, and Tessada (2018) compared having role models attend one of the classes to share their testimony with providing personalized technical assistance through one-on-one visits. The authors found that both methods raised household incomes by about 15 percent compared to the control group.

Rather than being conducted only by fellow peers, mentoring can also be conducted by experts or NGOs. Personalized assistance through individual visits by an NGO in Chile had a stronger positive impact on individuals with higher education levels, specifically on the probability of having a business and registering it with tax authorities (Lafortune, Riutort, and Tessada 2018). In Indonesia, Buvinic et al. (2020) discovered that providing women with training and offering bank agents as mentors in East Java increased women's knowledge of branchless banking products and improved business practices. These intermediate impacts eventually led to a 15.2 percent increase in women's profits and increased their decision-making authority.

Connecting firms with peers: Modifying the implementation of capacity-building programs targeting female participants, such as asking women to invite their peers and being mentors or mentees, shows positive impacts. Field et al. (2016) found that when women invited their peers to training programs, they were more engaged in training, shared financial resources through their networks, improved information sharing, and gained higher confidence due to the support received from peers. Based on bank data, the authors discovered that women who were randomly assigned to bring their peers were 7 percentage points more likely to take out loans four months after the training, which reflects the familiarity with bank products or confidence that their loan application would be successful. Based on survey data, the authors also found those who attended with a friend had a higher household income (12 percent) and expenditures (16 percent) than those who did not. Despite the fact that women who attended with peers were more likely to report a higher volume of sales and take actions to increase revenue, the impact on revenue was no different to the control group (i.e., those who did not attend training).

Meetings between peers can also improve information sharing and encourage partnerships between firms. In a randomized evaluation involving owner-managers of small and medium enterprises in China, Cai and Szeidl (2018) found that meetings among peers increased sales by 10.3 percent, and the average profits were USD 36,000 higher than in control groups. The study also found large and persistent effects on innovations and management, channels from sharing business-relevant information, and partnering between firms that continued after scheduled meetings.

Consulting services: Consulting services can assist firms' efforts to improve their management practices by providing a diagnosis and tailored improvement plans. However, past evaluations have found that the effect of consulting on business outcomes seems to vary depending on the scale of businesses. For MSMEs, receiving free consulting services has limited outcomes on business outcomes. In Ghana, Karlan, Knight, and Udry (2015) randomized between providing cash grants, connecting firms with consulting firms, and the combination of the two interventions to microentrepreneurs. The authors found no treatment effects; instead, microentrepreneurs experienced lower profits and reverted to prior business practices. When a subsidized consulting service was tested on small and medium firms in Mexico, Bruhn, Karlan, and Schoar (2018) found that the program increased the number of employees by 50 percent after five years despite no significant impact on short-term sales and profits.

For large firms, consulting services resulted in more positive outcomes. A randomized evaluation conducted on large textile plants in India and auto-part firms in Colombia found a large and sustained impact of consulting services on management practices. For India, Bloom et al. (2020) found that consulting increased output per worker and reduced inventory levels and quality defect rates, amounting to an increase in profits of USD 325,000 per year per factory plant. In Colombia, Lacovone, Maloney, and McKenzie (2019) found that consulting increased employment (6–15 workers), sales (28–33 percent), and profits (5–26 percent) over a three-year period.

The cost of consulting varies depending on the type of consultants, their service's intensity, and the engagement length. Studies show that the unsubsidized cost of local consultants working one-on-one with small firms ranges from USD 11,856/firm for 208 hours (Bruhn, Karlan, and Schoar 2018) in Mexico to USD 30,000/firm for 500 hours in Colombia (Lacovone, Maloney, and McKenzie 2019). In contrast, consultation by an international consultant costs USD 250,000/firm for 781 hours in India (Bloom et al. 2013). Despite the high cost of consultants, the large, positive impact of intensive support toward high-growth large firms can recoup the initial cost of consulting, such as in the case of Bloom et al. (2020).

Business incubators for high-growth start-ups: Despite the increasing popularity of business accelerators and incubators for high-growth start-ups, knowledge about the effectiveness of such programs is still limited. A typical program includes a rigorous selection of entrepreneurs, for example, through business competitions, after which successful applicants receive some form of training and mentoring. Several accelerator programs also link firms with capital investments to expand businesses or products.

Few impact evaluations have been conducted on this sort of accelerator, showing that accelerator programs increased the probability of raising findings and survival. First, using a regression continuity design to explore the effect of Start-Up Chile, Gonzales-Uribe and Leatherbee (2018) found that applicants were 21 percent more likely to secure additional funding and entrepreneurship training helped companies double their employees within the first 4.75 years after entering accelerators. Second, Cusolito, Dautovic, and McKenzie (2020) randomly sorted 346 innovative SMEs into two groups in a five-country randomized experiment in the Western Balkans: a treatment group with an intensive program to develop financial plans, pitches, market strategy, master classes, etc., and a control group that received an inexpensive online basic investment readiness course. The authors found that the treatment had positive and significant impacts of 12–14 percentage points on the likelihood of obtaining external financing for firms that would otherwise have low likelihoods of getting such financing.

More evaluations are needed to unpack the different components of business accelerator programs to find a scalable and less costly method of delivering the program. The total cost of providing intensive capacity-building support in Cusolito, Dautovic, and McKenzie (2020) was USD 614,000, or USD 4,000 per active participant. Start-Up Chile provided USD 40,000 in grants to 100 selected participants and had a total program cost of USD 15 million annually (Gonzalez-Uribe 2015).

Appendix 2. Capacity-Building Programs in Indonesia

Table 5. Categorization of modules offered by capacity-building programs

Code	Modules	Goal	Examples of topics covered
D	Digitalization	Leverage the use of digital tools and technologies for business growth	Digital inventory optimization, digital bookkeeping
F	Finance	Strengthen participants' financial management skills and knowledge in financial key concepts	Budgeting, financial planning, cash flow management, and accessing funding options
P	Psychological	Address the importance of mindset and resilience in entrepreneurship	Leadership, self-awareness, motivation, and strategies to overcome challenges in doing business
S	Socialization of new regulations and programs	Inform and increase awareness of recent regulations and programs relevant to business growth	Compliance requirements, legal obligations/framework, financing scheme
M	Marketing	Equip participants with essential knowledge to promote their products or services	Market research, branding, advertising strategies, and customer relationship management
E	Expanding market access	Equip participants with strategies to reach new markets and expand customer base	Market export, logistics, distribution channel, online platforms, and strategic partnership
T	Technical skills	Enhance participants' proficiency in specific technical areas through hands-on training	Product development, manufacturing technique, logistics and warehouse management, and technology adoption
G	Gender awareness/ barriers	Address the challenge faced by women running businesses	Gender dynamics, biases, and strategies to overcome barriers within enterprises

Table 6. Different methods of delivering capacity-building programs

Symbol	Method of delivery	Description
●	Classroom setting	Capacity-building programs are conducted in a classroom setting, where participants gather for face-to-face sessions with a trainer giving lessons in training centers or designated venues. Since COVID-19, there has been a growing trend of conducting training in a classroom/group setting through online platforms.
○	Self-paced online training	Modules are prerecorded online, and participants can access the modules on their own time.
Δ	Mentoring	Mentoring programs involve pairing experienced business professionals with entrepreneurs to offer guidance, advice, and support.
▲	Peer support	Peer-support programs serve as a platform where a community of MSME owners can come together to share experiences, exchange knowledge, and offer mutual support.
■	Consulting	Consulting programs leverage the expertise of professional consultants or consulting firms to provide specialized advice and guidance to MSMEs. Consultants conduct thorough assessments and then offer recommendations and strategies to address the challenges.
□	Incubation	Incubation programs combine various approaches, including mentoring, consulting, training, and access to networks. They also offer a holistic ecosystem for MSMEs to nurture their growth from ideas to market entry and beyond.

Table 7. List of programs offered by various types of stakeholders based on training modules and delivery method

● Classroom setting ○ Self-paced online training Δ Mentoring ▲ Peer support ■ Consulting □ Incubation

D: Digitalization, **F:** Finance, **P:** Psychological, **S:** Socialization of new regulations and programs, **M:** Marketing, **E:** Expanding market access, **T:** Technical skills, **G:** Gender awareness/barriers

Stakeholder	Stakeholder name	Program name	Description	D	F	P	S	M	E	T	G
Government	Ministry of State-Owned Enterprise	Pasar Digital UMKM (PaDi UMKM)	Online digital marketplace to fulfill procurement needs of SOEs. MSMEs can join as suppliers/vendors for B2B offers from SOEs.						○		
	Ministry of Cooperatives and SMEs	Pusat Layanan Usaha Terpadu (PLUT)	Managed by the local governments to assist MSMEs mainly through offering counseling. Some PLUTs also offer one-off classroom training on specific topics.	■	■			■	■	■	
	Ministry of Communications and Informatics	Program Adopsi Teknologi Digital 4.0 "UMKM Level Up"	Digital training and business incubation to assist MSME in adopting digital technology to improve their business.	□ Δ							
		Digitalent, Digital Entrepreneurship Academy (DTS)	Program to improve the capabilities, skills, and competitiveness of MSMEs in the technology sector. Modules include basic entrepreneurship and e-commerce onboarding.			● Δ			● Δ		
	Ministry of Finance	Training Prosedur Ekspor oleh Bea Cukai	Program to inform and assist entrepreneurs on export procedures and to calculate export costing and pricing.				●		●		
		Kemenkeu Learning Center (KLC)	Online micro-training repository for MSMEs to learn about business strategy and existing regulations applicable to them.		○		○	○			
	Ministry of d Environment and Forestry	Kelompok Perhutanan Sosial	Access and assistance given for MSMEs to use protected forests to produce goods according to the existing requirements.							Δ	

● Classroom setting ○ Self-paced online training Δ Mentoring ▲ Peer support ■ Consulting □ Incubation

D: Digitalization, **F:** Finance, **P:** Psychological**, S:** Socialization of new regulations and programs, **M:** Marketing, **E:** Expanding markets, **T:** Technical skills, **G:** Gender awareness/barriers

Stakeholder	Stakeholder name	Program name	Description	D	F	P	S	M	E	T	G
Government	Ministry of Environment and Forestry	Kelompok Perhutanan Sosial	Assistance given for MSMEs to use protected forests to produce goods according to the existing requirements.							Δ	
	Ministry of Trade	Export Coaching Program	One-year program to assist MSMEs to export their goods through training and mentoring.						● Δ		
		Pelatihan Ekspor	One-off program to assist MSMEs in complying with administrative requirements to export their goods.				●		●		
	Ministry of Agriculture	Pelatihan Penguatan Pangan untuk UMKM	In-person training to improve MSMEs' productivity, combined with technical assistance to increase production and marketing.					● Δ	● Δ	● Δ	
Private	Krealogi	Krealogi App	Mobile application to assist in overseeing production, bookkeeping, and inventory management. Before introducing the app, the company offered in-person training and counseling to selected users.	● ■	● ■			● ■	● ■		
	Tokopedia	Regular and Intensive Training	Regular one-off training program to onboard SMEs to e-commerce platforms. The company also offers intensive training to help entrepreneurs build their business from scratch.	●				●	●		

● Classroom setting ○ Self-paced online training △ Mentoring ▲ Peer support ■ Consulting □ Incubation

D: Digitalization, **F:** Finance, **P:** Psychological, **S:** Socialization of new regulations and programs, **M:** Marketing, **E:** Expanding markets, **T:** Technical skills, **G:** Gender awareness/barriers

Stakeholder	Stakeholder name	Program name	Description	D	F	P	S	M	E	T	G
Private	Shopee	Kampus UMKM	Facility built to provide training, business coaching, access to finance, networking opportunities, and onboarding businesses to e-commerce platforms.	● △				● △	● △		
	Lazada	Lazada University	Interactive educational platform for new entrepreneurs to increase their knowledge and skills in e-commerce onboarding and digital marketing.	○	○			○	○		
	Grab	PowerUp the MSMEs	Program to equip MSMEs operating in tourism areas with English language skills and digital marketing.					●		●	
	Buku Warung	Juragan Bisnis Buku Warung	BukuWarung is an app built by a start-up to ease financial bookkeeping. One of the services it provides is a community platform to conduct online training and share business practices among users.	▲	● ▲						
	Meta	She Means Business	Program to equip young women entrepreneurs with financial and digital skills to widen their business. Meta also provides a forum for women to exchange experiences and expand their network.	● ▲	● ▲						● ▲

● Classroom setting ○ Self-paced online training Δ Mentoring ▲ Peer support ■ Consulting □ Incubation

D: Digitalization, **F:** Finance, **P:** Psychological, **S:** Socialization of new regulations and programs, **M:** Marketing, **E:** Expanding markets, **T:** Technical skills, **G:** Gender awareness/barriers

Stakeholder	Stakeholder name	Program name	Description	D	F	P	S	M	E	T	G
Civil Society Organization	IPEMI	Training dan Sosialisasi Sertifikasi Halal	Program to socialize about the halal certification regulation and to assist MSMEs in acquiring the halal label.				●				
		Kopi Darat dan Pembinaan Keluarga Sejahtera	One-off talk/seminar on becoming a successful entrepreneur from a religious point of view.			●					
	UPRINTIS	Eduprint Transfumi Roadshow	Program to assist MSMEs in acquiring integrated licensing or certification such as NIB, BPOM, HKI, SNI, and Halal.				●				
		Eduprintis Jelita Roadshow	Program to inform women entrepreneurs on market access, financing options, and protection of workers.				●				
		Kelas Perempuan Maju Digital	Training program to introduce digital services, potential ways for market expansion, and financial management.	●	●				●		
	Supply Chain Indonesia	Supply Chain, Logistics and Warehouse Management Training	Program to train employers in managing effective supply chain processes, logistics, and warehouse management. Sessions also discuss competencies needed to acquire professional certification.							●	
Association	GAPMMI	Indonesia Spice Up the World	Incubation program to assist MSMEs in exporting their products through product improvement and improved business strategies. The program also provides a forum for MSMEs to network.					□ Δ ▲	□ Δ ▲	□ Δ ▲	

● Classroom setting ○ Self-paced online training ∆ Mentoring ▲ Peer support ■ Consulting □ Incubation

D: Digitalization, **F:** Finance, **P:** Psychological**, S:** Socialization of new regulations and programs, **M:** Marketing, **E:** Expanding markets, **T:** Technical skills, **G:** Gender awareness/barriers

Stakeholder	Stakeholder name	Program name	Description	D	F	P	S	M	E	T	G
Association	ASPPUK	Gender-Based Training	One-off training program to improve MSMEs through digitization, market expansion, business legality, and technical assistance. The training also attempts to address gender-based challenges by discussing gender norms in entrepreneurship and training for husbands.	● ▲		● ▲	● ▲	● ▲	● ▲	● ▲	●
	MICRA	Studentpreneur Bootcamp	A one-year bootcamp program designed to establish a supportive ecosystem for nurturing student entrepreneurs, based on their own personal interests.			● ▲					

Appendix 3. Government-Supported Credit Programs in Indonesia

Table 8. Examples of government-led credit programs, delivered through SOEs

Program	Description	Program recipients	Selection criteria
KUR Super Micro	Subsidized credit scheme for working capital or investment targeting ultra-micro firms. **Loan amount:** IDR < 10 million **Interest rate:** 3% **Loan period:** Up to 3 years for working capital, up to 5 years for investment with a grace period determined by banks. Borrowers can pay all at once or in installments, based on agreement between banks and borrowers.	Ultra-micro firms	• Have not received KUR • Have not received commercial business loans (unsubsidized loans) • If younger than 6 months, must participate in training, be part of a business group, or have family members who run a business • Have document authorizing business (NIB/letter of recognition from district government) •
KUR Micro	Subsidized credit scheme for working capital or investment targeting micro firms. **Loan amount:** IDR 10 to 100 million **Interest rate:** 6% (and incrementally increase based for repeated borrowers) **Loan period:** Up to 3 years for working capital, up to 5 years for investment with grace period determined by banks	Micro firms	• Have not received commercial business loans (unsubsidized loans) • Have document authorizing business • Business has been running for at least 6 months • Have a tax ID if borrowing more than IDR 50 million
KUR Small	Subsidized credit scheme for working capital or investment targeting small firms. **Loan amount:** IDR 100–500 million **Interest rate:** 6% (and incrementally increase based on repeated borrowers) **Loan period:** Up to 4 years for working capital, 5 years for investment with a grace period determined by banks	Small firms	• Have not received commercial business loans (unsubsidized loans) • Have document authorizing business • Business has been running for at least 6 months • Firms are required to provide employees with social security programs •
KUR for Clusters	Subsidized credit scheme for working capital or investment for firms working in clusters. **Loan amount:** IDR 0–500 million **Interest rate:** 6% **Loan period:** Up to 4 years with grace period determined by banks	Micro, small, and medium firms working in clusters	• Have not received commercial business loans (unsubsidized loans) • Have document authorizing business • Business has been running for at least 6 months • For loans above IDR 100 million, must provide employees with social security programs
PNM Mekaar	Group loans 5 to 30 female members, where payment is conducted weekly to increase a culture of savings. **Group loan:** IDR 2–5 million for first-time borrowers. Repeated borrowers from	Female-led ultra-micro and micro businesses	• Targeting women-led businesses with a daily income of less than USD 1,99 or IDR 800.000 monthly income

	PNM Mekaar with good payment history can also access PNM Mekaar Plus, which offers higher loans amounting to IDR 15–25 million. **Interest rate:** 25% annually **Loan period:** Maximum of 50 weeks (1 year), with payment conducted weekly.		• Must be responsible for group members paying their loans and attending weekly training sessions • Business has been running for at least 6 months
PNM Ulamm	Individual credit scheme offered by PT. Penanaman Modal Nasional, which works similarly to conventional unsubsidized loans provided by banks. **Loan amount:** Up to IDR 300 million **Interest rate:** 19%–25% annually **Loan period:** Up to five years	Micro and small firms	• Entrepreneurs aged 21–65 years old • Fill out a loan application with attachments of spouses ID, family registry, letter recognizing business, a document copy of assets for collateral, copy of bank savings record • Business has been running for at least 1 year
UMi	Potential borrowers can apply for individual or group loans, which are given to individuals who do not have bank accounts and are not eligible for KUR. Loans are delivered through non-financial institutions. **Loan amount:** Up to IDR 10 million **Interest rate:** 2%–4% **Loan period:** Up to 1 year	Ultra-micro and micro firms	• Do not have ongoing loans with financial institutions or cooperatives • Have document authorizing business • Do not have bank accounts (unbankable)
BI LPMUKP	As part of a program under the Ministry of Maritime Affairs and Fisheries, the loan specifically targets fishermen and MSMEs working in fisheries and aquaculture. **Loan amount:** Up to IDR 1 billion **Interest rate:** 4% per year; service charge of 3% of the loan to cover the consultancy fee of a technical advisor given throughout the loan period **Loan period:** Up to 5 years; payment can be done every 1, 3, or 6 months	Micro, small, and medium firms working in fisheries or aquaculture	• Not receiving KUR or other forms of credit programs • Business is legally registered • In the process of application, potential borrowers will be assisted by LPMUKP staff to build a proposal that includes a business scheme • Business has been running for at least 1 year • An application form, business proposal, collateral document, financial plan, and reporting are submitted to be reviewed by LPMUKP
PT Pegadaian Business Credit	Loan that uses owned vehicles as collateral and does not require bank ownership. **Loan amount:** IDR 10–500 million **Interest rate:** Varies depending on loan period and installments **Loan period:** 1–3 years; with flexible payments options, borrowers can pay all at once or in installments	Micro, small, and medium firms	• Business has been running for at least 1 year • Car age < 25 years, motorcycle age < 15 years • Submit national ID, family register, and a document stating vehicle ownership • Have document authorizing business • Apply through PT. Pegadaian office or digital application • Borrowers will receive mentoring during the credit period

Appendix 4. Digital Loans in Indonesia

Table 9. Examples of digital loan products targeting MSMEs and are delivered through private sectors

Program, Institution	Description	Program recipients	Selection criteria
Modal Toko, *Tokopedia*	A collaboration between Tokopedia and Dhanapala to provide digital loans where sellers can conduct multiple transfers to their personal account up to the limit that they've received. **Loan amount:** IDR 2–500 million **Interest rate:** Between 2% and 3% per month, depending on risk assessments, and administrative fee of 3% **Loan period:** 6 months to 1 year	Tokopedia sellers	• Seller with a minimum silver reputation status (determined by reliability in shipping, finishing multiple orders, and consumer feedback) • Fill out an application form in the Tokopedia platform (e.g., verify national ID, family reference, employment information, bank accounts)
GoModal, *Gojek*	A collaboration between Findaya and Gojek to provide loans for partnering food merchants. Payments can be done through a virtual account or a daily automatic deduction from GoBiz app. **Interest rate:** Between 2% and 5% per month, depending on risk assessments, and an administrative fee of 3% **Loan period:** 1–12 months	GoFood partner	• Partners for a minimum of one month and uses the GoBiz app (an app specifically for Gojek-partnering merchants to manage orders, directly receive payments, and receive sales reports) • Borrowers have GoFood transactions for a minimum of 20 days per month •
Modal Kawan Mikro, *Modalku*	Digital loan without collateral but has digital and financial footprints. **Loan amount:** Up to IDR 250 million **Interest rate:** Starts at 2% per month or 24% per year. There is also a service fee of 3% and a value-added tax of 11% for every loan disbursed. **Loan period:** 1–12 months	Micro, small, medium firms	• MSMEs in e-commerce platforms or offline stores that use digital cashiers • Submit national ID, photo, bank transactions (past 4 months), tax ID, or business financial records from e-commerce/digital cashiers. • Businesses have run for a minimum of 6 months and with monthly earnings of a minimum of IDR 6 million • Located in Java, Batam, Makassar, Medan, Palembang, or Bali • Businesses are not resellers or drop shippers •
Pinjaman Kelompok, *Amartha*	P2P lending without collateral, which uses a microfinance model of delivering loans to groups and borrowers are required to attend a weekly training. **Loan amount:** IDR 3–10 million **Interest rate:** 10%–12 % per year **Loan period:** 3–12 months	Female entrepreneurs	• Women aged 18–58 years • Located in Central Java, West Java, East Java, Yogyakarta, or Banten • Willing to create a group of 15–25 people and attend weekly group meetings

			• Receive approval from husband/male guardian who has active income • Homeownership will be confirmed by field staff • Do not have more than 2 active loans
Online merchant financing, *Akseleran*	P2P lending that provides capital loans without collateral for online merchants. **Loan amount:** IDR 5 million to 2 billion. **Interest rate:** 10%–15% per year and an administrative fee of 5% per year **Loan period:** 1–12 months, paid monthly	Online merchants	• Cash flow is enough to pay loans • Active merchant in a digital marketplace with transaction records • National ID or deed of establishment for the business • Tax ID, business registration • Financial transactions from digital marketplace • Loans above IDR 250 million must submit bank records and financial reports for the past year
Invoice financing/ receivable financing/ inventory financing, *Akseleran*	Akseleran provides a marketplace where lenders can meet borrowers (P2P lending) who seek working capital to cover for unpaid invoices, need finance to cover a contract, or need to stock inventory. **Loan amount:** IDR 75 million to 2 billion **Interest rate:** 14%–30% per year, with an admin fee of 4.5%–6% per year **Loan period:** 6 months for invoice financing and up to 1 year for receivable/inventory financing. The principal is paid at the end, but interest rate is paid monthly.	Small and medium firms	• Cash flow is enough to pay loans • National ID or deed of establishment for the business • Financial report for the past year • Bank transaction record for the past 3 months • Tax ID and business registry

Abbreviations

Acronym	Indonesia	English
AFPI	Asosiasi Fintech Pendanaan Bersama Indonesia	Association for Fintech Lenders
AI		Artificial intelligence
Bappenas	Kementerian Perencanaan Pembangunan Nasional	The Ministry of National Development and Planning
BI	Bank Indonesia	Central Bank of Indonesia
BLU LPMUKP	Badan Layanan Umum Lembaga Pengelola Modal Usaha Kementerian Kelautan dan Perikanan	Fisheries Business Capital Management Institute
BPK	Badan Pemeriksa Keuangan	Audit Board of Indonesia
BPS	Badan Pusat Statistik	National Statistics Bureau
BPUM	Bantuan Presiden Usaha Mikro	Presidential assistance for micro enterprise
DTKS	Data Terpadu Kesejahteraan Sosial	Social welfare data
Fintech		Financial technology
FSP		Financial service providers
GAPMMI	Gabungan Pengusaha Makanan dan Minuman Indonesia	Association for Food and Beverage Entrepreneurs
GDP		Gross domestic product
GRDP		Gross regional domestic product
Kemendag	Kementerian Dalam Negeri	Ministry of Home Affairs
Kemenkeu	Kementerian Keuangan	Ministry of Finance
Kemenko Perekonomian	Kementerian Koordinator Bidang Perekonomian	Coordinating Ministry for Economic Affairs
KemenkopUKM	Kementrian Koperasi, Usaha Kecil dan Menengah	Ministry of Cooperatives, Small and Medium Enterprises
Kemensos	Kementerian Sosial	Ministry of Social Affairs
KKP	Kementerian Kelautan dan Perikanan	Ministry of Marine Affairs and Fisheries
KUBE	Joint Business Program	Kelompok Usaha Bersama
KUR	Kredit Usaha Rakyat	People's Business Credit
LMICs		Low- and middle-income countries
LPI		Logistics Performance Index
MSMEs		Micro, small, and medium enterprises
NGO		Nongovernment organization
NLE		National Logistics Ecosystem
NPL		Nonperforming loans
OJK	Otoritas Jasa Keuangan	Financial Services Authority

P2P		Peer-to-peer
PNM Mekaar	Permodalan Nasional Madani Membina Ekonomi Keluarga Sejahtera	Prosperous Economic Family Program
PNM Ulamm	Permodalan Nasional Madani Unit Layanan Modal Mikro	Unit Service for Micro Capital
Pusdafil	Pusat data fintech lending	Central Fintech Lending Data
RE	Evaluasi Acak	Randomized evaluation
RPJMN	Rencana Pembangunan Jangka Menengah Nasional	National Medium Term Plan
SIKP	Sistem Informasi Kredit Program	Credit Program Information System
SLIK	Sistem Layanan Informasi Keuangan	Financial Information Service System
SOE		State-Owned Enterprise
TNP2K	Tim Nasional Percepatan Penanggulangan Kemiskinan	National Team for the Acceleration of Poverty Reduction
UMi	Pembiayaan Ultra Mikro	Ultra Micro Financing
WBES		World Bank Enterprise Survey

References

Ahdiat, Adi. "Ini 5 Provinsi Penerima KUR Terbesar Sampai Oktober 2022." Katadata Media Network, October 25, 2022. https://databoks.katadata.co.id/datapublish/2022/10/25/ini-5-provinsi-penerima-kur-terbesar-sampai-oktober-2022.

Alibhai, Salman, Niklas Buehren, Michael Frese, Markus Goldstein, Sreelakshmi Papineni, and Kathrin Wolf. "Full Esteem Ahead? Mindset-Oriented Business Training in Ethiopia." Working Paper, August 2019.

Allen, Treb, and Costas Arkolakis. "The Welfare Effects of Transportation Infrastructure Improvements." NBER Working Paper #25487, January 2019.

Alstadt, Brian, Glen Weisbrod, and Derek Culter. 2012. "Relationship of Transportation Access and Connectivity to Local Economic Outcomes: Statistical Analysis." *Journal of the Transportation Research Board*. https://doi.org/10.3141/2297-19.

Amin, Chairullah, Heti Mulyati, Eva Anggraini, and Tridoyo Kusumastanto. 2021. "Impact of Maritime Logistics on Archipelagic Economic Development in Eastern Indonesia." *Asian Journal of Shipping and Logistics* 37, no. 2. https://doi.org/10.1016/j.ajsl.2021.01.004.

Anderson, Stephen J., and David McKenzie. 2022. "Improving Business Practices and the Boundary of the Entrepreneur: A Randomized Experiment Comparing Training, Consulting, Insourcing, and Outsourcing." *Journal of Political Economy* 130, no. 1. https://doi.org/10.1086/717044.

Angelucci, Manuela, Dean Karlan, and Jonathan Zinman. 2015. "Microcredit Impacts: Evidence from a Randomized Microcredit Program Placement Experiment by Compartamos Banco." *American Economic Journal: Applied Economics* 7, no. 1: 151–182.

Antara News. 2022. "Indonesia Strives to Expand Coverage of Digitalization of MSMEs." September 16, 2022. https://en.antaranews.com/news/250089/indonesia-strives-to-expand-coverage-of-digitalization-of-msmes.

Antara News. 2024. "Ministry continues to collect cooperative, MSME data." March 16, 2024. https://en.antaranews.com/news/309318/ministry-continues-to-collect-cooperative-msme-data

APF Canada. 2018. "2018 Survey of Entrepreneurs and MSMEs in Indonesia: Building the Capacity of MSME through Human Capital." https://apfcanada-msme.ca/2018-survey-of-entrepreneurs-and-msmes-in-indonesia-building-the-capacity-of-msmes-through-human-capital/.

Aragón, Fernando, Alexander Karaivanov, and Karuna Krishnaswamy. 2020. "Credit Lines in Microcredit: Short-Term Evidence from a Randomized Controlled Trial in India." *Journal of Development Economics* 146 (September): 102497. https://doi.org/10.1016/j.jdeveco.2020.102497.

Arini, Shafira C. 2023. "Banyak Bank Minta Jaminan KUR ke UMKM, Kemenkop Tak Segan Kasih Sanksi Ini." Detik Finance, October 3, 2023. https://finance.detik.com/moneter/d-6963238/banyak-bank-minta-jaminan-kur-ke-umkm-kemenkop-tak-segan-kasih-sanksi-ini.

Arráiz, Irani, Syon P. Bhanot, and Carla Calero. "Less Is More: Experimental Evidence on Heuristics-Based Business Training in Ecuador." Working Paper, July 2019.

Asah, Francis, Olawale Olufunso, and Ellen Rungani. 2015. "The Impact of Motivations, Personal Values, and Management Skills on the Performance of SMEs in South Africa." *African Journal of Economic and Management Studies: Bingley* 6, no. 3. doi: 10.1108/AJEMS-01-2013-0009.

Attanasio, Orazio, Britta Augsburg, Ralph De Haas, Emla Fitzsimons, and Heike Harmgart. 2015. "The Impacts of Microfinance: Evidence from Joint-Liability Lending in Mongolia." *American Economic Journal: Applied Economics* 7, no. 1: 90–122.

Augsburg, Britta, Ralph De Haas, Heike Harmgart, and Costas Meghir. 2015. "The Impacts of Microcredit: Evidence from Bosnia and Herzegovina." *American Economic Journal: Applied Economics* 7, no. 1: 183–203.

Badan Pusat Statistik (BPS). 2022. "Profil Industri Mikro dan Kecil 2022." https://www.bps.go.id/id/publication/2023/10/27/c1f1e0126c61890fdf03d74c/profil-industri-mikro-dan-kecil-2022.html.

Bakhtiar, M. Mehrab, Gautam Bastian, and Markus Goldstein. 2022. "Business Training and Mentoring: Experimental Evidence from Women-Owned Microenterprise in Ethiopia." *Economic Development and Cultural Change* 71, no. 1. https://doi.org/10.1086/714592.

Banerjee, Abhijit, Emily Breza, Esther Duflo, and Cynthia Kinnan. "Can Microfinance Unlock Poverty Traps for Some Entrepreneurs?" NBER Working Paper #26346, October 2019.

Banerjee, Abhijit, Esther Duflo, Rachel Glennerster, and Cynthia Kinnan. 2015. "The Miracle of Microfinance? Evidence from a Randomized Evaluation." *American Economic Journal: Applied Economics 7*, no. 1: 22–53.

Barboni, Giorgia, and Parul Agarwal. "How Do Flexible Microfinance Contracts Improve Repayment Rates and Business Outcomes? Experimental Evidence from India." Working Paper, February 2023.

Battaglia, Marianna, Selim Gulesci, and Andreas Madestam. "Repayment Flexibility and Risk Taking: Experimental Evidence from Credit Contracts." Working Paper, November 2018.

Baum-Snow, Nathaniel, Loren Brandt, J. Vernon Henderson, Matthew A. Turner, and Qinghua Zhang. 2020. "Does investment in national highways help or hurt hinterland city growth?" *Journal of Development Economics*. https://doi.org/10.1016/j.jue.2018.05.001

Beaman, Lori, Jeremy Magruder, and Jonathan Robinson. 2014. "Minding Small Change among Small Firms in Kenya." *Journal of Development Economics*. https://doi.org/10.1016/j.jdeveco.2013.12.010.

Berge, Lars Ivar Oppedal, Armando Jose Garcia Pires. "Gender, Social Norms, and Entrepreneurship." SNF Working Paper No 05/15, 2015.

Bernhardt, Arielle, Erica Field, Rohini Pande, and Natalia Rigol. 2019. "Household Matters: Revisiting the Returns to Capital among Female Microentrepreneurs." *AER Insights* 1, no. 2: 141–160. https://doi.org/10.1257/aeri.20180444.

Bloom, Nicholas, Benn Eifert, Aprajit Mahajan, David McKenzie, and John Roberts. 2013. "Does Management Matter? Evidence from India." *Quarterly Journal of Economics* 128, no. 1: 1–51. https://doi.org/10.1093/qje/qjs044.

Bloom, Nicholas, Aprajit Mahajan, David McKenzie, and John Roberts. 2020. "Do Management Interventions Last? Evidence from India." *American Economic Journal: Applied Economics* 12, no. 2: 198–219.

Branstetter, Lee G., and Beibei Li. "Using New Transportation Options to Drive Low-Income Citizens to Greater Success." NBER Working Paper, 2022.

Breza, Emily, Dean Karlan and Michael Hou. 2023. "Microcredit: impacts and promising innovations." https://www.povertyactionlab.org/policy-insight/microcredit-impacts-and-promising-innovations?lang=id.

Brough, Rebecca, Matthew Freedman, and David C. Phillips. "Eliminating Fares to Expand Opportunities: Experimental Evidence on the Impacts of Free Public Transportation on Economic Disparities." NBER Working Paper, 2022.

Bruhn, Miriam, Dean Karlan, and Antoinette Schoar. 2010. "What Capital Is Missing in Developing Countries?" *American Economic Review* 100, no. 2: 629–633.

Bruhn, Miriam, Dean Karlan, and Antoinette Schoar. 2018. "The Impact of Consulting Services on Small and Medium Enterprise: Evidence from Randomized Evaluations in Mexico." *Journal of Political Economy* 126, no. 2: 635–687. doi: 10.1086/696154.

Brune, Lasse, Xavier Giné, and Dean Karlan. "Give Me a Pass: Flexible Credit for Entrepreneurs in Colombia." NBER Working Paper #30634, November 2024.

Bryan, Gharad, Dean Karlan, and Adam Osman. "Big Loans to Small Business: Predicting Winners and Losers in an Entrepreneurial Lending Experiment." Working Paper, November 2022.

Burger, Nicholas E., Charina Chazali, Arya Gaduh, Alexander D. Rothenberg, Indrasari Tjandraningsih, and Sarah Weilant. *Reforming Policies for Small and Medium Enterprises in Indonesia.* Santa Monica, CA: RAND Corporation, 2015.

Buvinic, Mayra, Hillary C. Johnson, Elizaveta Perova, and Firman Witoelar. "Can Boosting Savings and Skills Support Female Business Owners in Indonesia? Evidence from A Randomized Controlled Trial." Working Paper, March 2020.

Cai, Jing, and Adam Szeidl. 2018. "Interfirm Relationships and Business Performance." *Quarterly Journal of Economics* 133, no. 3: 1229–1282. https://doi.org/10.1093/qje/qjx049.

Campos, Francisco, Michael Frese, Markus Goldstein, Leonardo Iacovone, Hillary C. Johnson, David McKenzie, and Mona Mesmann. 2017. "Teaching Personal Initiative Beats Traditional Training in Boosting Small Business in West Africa." *Science* 357: 1287–1290. doi: 10.1126/science.aan5329.

Couture, Victor, Benjamin Faber, Yizhen Gu, and Lizhi Liu. 2021. "Connecting the Countryside via E-Commerce: Evidence from China." *American Economic Review: Insights* 3, no. 1: 35–50. doi: 10.1257/aeri.20190382.

Crépon, Bruno, Florencia Devoto, Esther Duflo, and William Parienté. 2015. "Estimating the Impact of Microcredit on Those Who Take It Up: Evidence from a Randomized Experiment in Morocco." *American Economic Journal: Applied Economics* 7, no. 1: 123–150. doi: 10.1257/app.20130535.

Cusolito, Ana P., Ernest Dautovic, and David McKenzie. 2021. "Can Government Intervention Make Firms More Investment-Ready? A Randomized Experiment in the Western Balkans." *Review of Economics and Statistics* 103, no. 3: 428–442. https://doi.org/10.1162/rest_a_00882.

Dalton, Patricio S., Burak Uras, Julius Rüschenphöhler, and Bilal Zia. 2021. "Curating Local Knowledge: Experimental Evidence from Small Retailers in Indonesia." *Journal of the European Economic Association*: 1–36. http://dx.doi.org/10.2139/ssrn.3383456.

Database Peraturan. 2015. "President Regulation No. 8/2015." https://peraturan.bpk.go.id/Details/41728/perpres-no-8-tahun-2015.

De Mel, Suresh, David McKenzie, and Christopher Woodruff. 2008. "Returns to Capital in Microenterprises: Evidence from a Field Experiment." *Quarterly Journal of Economics*: 1329–1372.

De Mel, Suresh, David McKenzie, and Christopher Woodruff. "Innovative Firms or Innovative Owners? Determinants of Innovation in Micro, Small, and Medium Enterprises." Working Paper, June 2013.

De Mel, Suresh, David McKenzie, and Christopher Woodruff. 2014. "Business Training and Female Enterprise Start-Up, Growth, and Dynamics: Experimental Evidence from Sri Lanka." *Journal of Development Economics*: 199–210. https://doi.org/10.1016/j.jdeveco.2013.09.005.

Deny, Septian. 2019. "RI Butuh Investasi Infrastruktur USD 4297 Miliar Pada 2020–2024." Liputan 6, July 3, 2019. https://www.liputan6.com/bisnis/read/4003494/ri-butuh-investasi-infrastruktur-usd-4297-miliar-pada-2020-2024.

Donaldson, David. 2018. "Railroads of the Raj: Estimating the Impact of Transportation Infrastructure." *American Economic Review* 108, no. 4-5: 899–934.

Drexler, Alejandro, Greg Fischer, and Antoinette Schoar. 2014. "Keeping It Simple: Financial Literacy and Rules of Thumb." *American Economic Journal* 6, no. 2: 1–31.

Dupas, Pascaline, Jonathan Robinson, and Valentina Brailovskaya. "The impact of digital credit in low-income countries" Center for Economic and Policy Research, March 8, 2022. https://cepr.org/voxeu/columns/impact-digital-credit-low-income-countries

Fafchamps, Marcel, and Simon Quinn. "Aspire." NBER Working Paper #w21084, April 2015.

Fafchamps, Marcel, and Christopher Woodruff. 2017. "Identifying Gazelles: Expert Panels vs. Surveys as a Means to Identify Firms with Rapid Growth Potential." *World Bank Economic Review* 31, no. 3. https://doi.org/10.1093/wber/lhw026.

Fafchamps, Marcel, David McKenzie, Simon Quinn, and Christopher Woodruff. 2014. "Microenterprise Growth and the Flypaper Effect: Evidence from a Randomized Experiment in Ghana. *Journal of Development Economics* 106: 211–226. https://doi.org/10.1016/j.jdeveco.2013.09.010.

Fan, Jingting, Lixin Tang, Weiming Zhu, and Ben Zou. 2018. "The Alibaba Effect: Spatial Consumption Inequality and the Welfare Gains from E-Commerce." *Journal of International Economics* 114: 203–220. https://doi.org/10.1016/j.jinteco.2018.07.002.

Feenstra, Robert C., Mingzhi Xu, and Alexis Antoniades. 2020. "What Is the Price of Tea in China? Goods Prices and Availability in Chinese Cities." *The Economic Journal* 130, no. 632: 2438–2467. https://doi.org/10.1093/ej/ueaa066.

Fiala, Nathan. 2008. "Returns to Microcredit, Cash Grants and Training for Male and Female Microentrepreneurs in Uganda." *World Development* 105, no. C: 189–200. doi: 10.1016/j.worlddev.2017.12.027.

Field, Erica, Seema Jayachandran, Rohini Pande, and Natalia Rigol. 2016. "Friendship at Work: Can Peer Effects Catalyze Female Entrepreneurship?" *American Economic Journal* 8, no. 2: 125–153. doi: 10.1257/pol.20140215.

Fogel, Robert W. 1962. "A Quantitative Approach to the Study of Railroads in American Economic Growth: A Report of Some Preliminary Findings." *Journal of Economic History* 22, no. 2: 163–197.

Gertler, Paul, Marco Gonzalez-Navarro, Tadeja Gracner, and Alexander D. Rothenberg. "Road Maintenance and Local Economic Development: Evidence from Indonesia's Highways." NBER Working Paper #30454, September 2022.

Giné, Xavier and Ghazala Mansuri. 2021. "Money or Management? A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan." Economic Development and Cultural Change, 70(1). Doi: https://doi.org/10.1086/707502.

Harigaya, Tomoko "Effects of Digitization on Financial Behaviors: Experimental Evidence from Philippines." Working Paper, September 2020.

Hayakawa, Kazunobu, Hans R.A. Koster, Takatoshi Tabuchi, and Jacques-Francois Thisse. "High-Speed Rail and the Spatial Distribution of Economic Activity: Evidence from Japan's Shinkansen." Working Paper, 2021.

Henrekson, Magnus, and Dan Johansson. 2010. "Gazelles as Job Creators: A Survey and Interpretation of the Evidence." *Small Business Economics* 35, no. 1: 227–244. https://doi.org/10.1007/s11187-009-9172-z.

Higuchi, Yuki, Vu H. Nam, and Tetsushi Sonobe. 2015. "Sustained Impacts of Kaizen Training." *Journal of Economic Behavior and Organization* 120: 189–206. https://doi.org/10.1016/j.jebo.2015.10.009.

Higuchi, Yuki, Edwin P. Mhede, and Tetsushi Sonobe. 2019. "Short- and Medium-Run Impacts of Management Training: An Experiment in Tanzania." *World Development*: 220–236. https://doi.org/10.1016/j.worlddev.2018.10.002.

Huis, Marloes, Robert Lensink, Nhung Vu, and Nina Hansen. 2019. "Impact of the Gender and Entrepreneurship Together Ahead (GET Ahead) Training on Empowerment of Female Microfinance Borrowers in Northern Vietnam." *World Development* 120: 46–61. https://doi.org/10.1016/j.worlddev.2019.04.001.

Humas, Oleh. 2022. Pemerintah Turunkan Bunga KUR Super Mikro Jadi 3 Persen. Sekretariat Kabinet Republik Indonesia. https://setkab.go.id/pemerintah-turunkan-bunga-kur-super-mikro-jadi-3-persen/.

Hussam, Reshmaan, Natalia Rigol, and Benjamin N. Roth. 2022. "Targeting High-Ability Entrepreneurs Using Community Information: Mechanism Design in the Field." *American Economic Review* 112, no. 3: 861–898. doi: 10.1257/aer.20200751.

Ika, Syahrir, R. Nurhidayat, and Mutawin. 2016. "Indonesian Way untuk Mensejahterakan Rakyat Indonesia." Kementerian Keuangan. https://fiskal.kemenkeu.go.id/files/berita-kajian/file/KURIndonesianWayUntukMensejahterakanRakyatIndonesia.pdf.

International Labour Organization. 2019. "Financing Small Businesses in Indonesia: Challenges and Opportunities." https://www.ilo.org/publications/financing-small-businesses-indonesia-challenges-and-opportunities

Irawan, Enjang P., Suwandi Sumartias, Soeganda Priyatna, and Agus Rahmat. 2022. "A Review on Digitalization of CSR during the COVID-19 Pandemic in Indonesia: Opportunities and Challenges." *Social Sciences* 11, no. 2: 72. https://doi.org/10.3390/socsci11020072.

JICA. 2023. "Strategy for Africa Kaizen Initiative (AKI)." https://www.jica.go.jp/english/activities/issues/private_sec/__icsFiles/afieldfile/2023/12/15/no4_aki.pdf.

Jin, Yizhoi, and Xhengyun Sun. "AI Training for Online Entrepreneurs: An Experiment with Two Million New Sellers on an E-Commerce Platform." Working Paper, August 2022.

Ghiani, Gianpaolo, Gilbert Laporte, and Roberto Musmanno. *Introduction to Logistics Systems Planning and Control*. Hoboken, NJ: John Wiley and Sons, 2004.

Gonzalez-Uribe, Juanita. 2015. "The Case of Start-Up Chile: A Pioneering Program to Attract Talent and Promote Entrepreneurship." https://scioteca.caf.com/handle/123456789/966.

Gonzalez-Uribe, Juanita, and Michael Leatherbee. 2018. "The Effects of Business Accelerators on Venture Performance: Evidence from Start-Up Chile." *Review of Financial Studies* 31, no. 4: 1566–1603. https://doi.org/10.1093/rfs/hhx103.

Karlan, Dean, Ryan Knight, and Christopher Udry. 2015. "Consulting and Capital Experiments with Microenterprise Tailors in Ghana." *Journal of Economic Behavior and Organization* 118: 281–302. https://doi.org/10.1016/j.jebo.2015.04.005.

Kementerian Koordinator Perekonomian (Kemenko Perekonomian). 2023. "Super Gen Creation Mendukung Generasi Muda Mengembangkan Usaha Bersama Kredit Usaha Rakyat." https://www.ekon.go.id/publikasi/detail/5039/super-gen-creation-mendukung-generasi-muda-mengembangkan-usaha-bersama-kredit-usaha-rakyat.

Klinger, Bailey, and Matthias Schündeln. 2011. "Can Entrepreneurial Activity Be Taught? Quasi-Experimental Evidence from Central America." *World Development* 39, no. 9: 1592–1610. https://doi.org/10.1016/j.worlddev.2011.04.021.

Klinger, Bailey, Asim I. Khwaja, and Carlos del Carpio. *Enterprising Psychometrics and Poverty Reduction*. New York: Springer, 2023.

Lacovone, Leonardo, William Maloney, and David McKenzie. "Improving Management with Individual and Group-Based Consulting: Results from a Randomized Experiment in Colombia." Working Paper, 2019.

Lafortune, Jeanne, Julio Riutort, and Jose Tessada. 2018. "Role Models or Individual Consulting: The Impact of Personalizing Micro-Entrepreneurship Training." *American Economic Journal: Applied Economics* 10, no. 4: 222–245. doi: 10.1257/app.20170077.

Lin, Yatang. 2017. "Travel Costs and Urban Specialization Patterns: Evidence from China's High Speed Railway System." *Journal of Urban Economics* 98: 98–123. https://doi.org/10.1016/j.jue.2016.11.002.

Lu, Haiyan, Pengjun Zhao, Haiyu Hu, Liangen Zeng, Kai S. Wu, and Di Lv. 2022. "Transport Infrastructure and Urban-Rural Income Disparity: A Municipal-Level Analysis in China." *Journal of Transport Geography* 99. https://doi.org/10.1016/j.jtrangeo.2022.103292.

Mano, Yukichi, Alhassan Iddrisu, Yutaka Yoshino, and Tetsushi Sonobe. 2012. "How Can Micro and Small Enterprises in Sub-Saharan Africa Become More Productive? The Impacts of Experimental Basic Managerial Training." *World Development* 40, no. 3: 468–468. 10.1016/j.worlddev.2011.09.013.

McKenzie, David. 2017. "Identifying and Spurring High-Growth Entrepreneurship: Experimental Evidence from a Business Plan Competition." *American Economic Review* 107, no. 8: 2278–2307. doi: 10.1257/aer.20151404.

McKenzie, David, and Puerto, Susana. 2021. "Growing Markets through Business Training for Female Entrepreneurs: a Market-Level Randomized Experiment in Kenya." *American Economic Journal: Applied Economics* 13, no. 2 (April): 297–332.

McKenzie, David, and Christoher Woodruff. 2008. "Experimental Evidence on Returns to Capital and Access to Finance in Mexico." *World Bank Economic Review* 22, no. 3: 257–482. doi: 10.1093/wber/lhn017.

McKenzie, David, and Christoher Woodruff. 2014. "What Are We Learning from Business Training and Entrepreneurship Evaluations around the Developing World?" *Finance and Financial Sector Development* 29, no. 1: 48–82. https://doi.org/10.1093/wbro/lkt007.

McKenzie, David, and Christoher Woodruff. 2016. "Business Practices in Small Firms in Developing Countries." *Management Science*. https://doi.org/10.1287/mnsc.2016.2492.

McKinsey. 2018. "Indonesia's Online E-Commerce Journey." https://www.mckinsey.com/spContent/digital_archipelago/index.html.

Meager, Rachel. 2019. "Understanding the Average Impact of Microcredit Expansions: A Bayesian Hierarchical Analysis of Seven Randomized Experiments." *American Economic Journal: Applied Economics* 11, no. 1. doi: 10.1257/app.20170299.

Moorena, Lolita, Mikaela Rabb, Aliyyah Rusdinar, Simone Schaner, Caroline Tangoren and Natalie Theys. 2020. "Towards Inclusive Digital Finance in Indonesia: A Literature Review and Landscape Analysis." https://www.povertyactionlab.org/review-paper/towards-inclusive-digital-finance-indonesia-inclusive-financial-innovation-initiative.

Natalia, Michelle. "Bunga KUR 6 Persen Setengahnya Disubsidi Pemerintah" IDX Channel, January 18, 2022. https://www.idxchannel.com/economics/bunga-kur-6-persen-setengahnya-disubsidi-pemerintah.

Office of Assistant to Deputy Cabinet Secretary for State Documents and Translation. 2020. "President Jokowi Launches Productive Presidential Aid for 12 Million Micro Enterprises." Cabinet Secretariat of the Republic of Indonesia, August 24, 2020. https://setkab.go.id/en/president-jokowi-launches-productive-presidential-aid-for-12-million-micro-enterprises/.

Olken, Benjamin A., and Patrick Barron. 2009. "The Simple Economics of Extortion: Evidence from Trucking in Aceh." *Journal of Political Economy* 117, no. 3: 417–452. https://doi.org/10.1086/599707.

Otoritas Jasa Keuangan (OJK). 2021. "Penyelenggara Fintech Lending Terdaftar dan Berizin di OJK per 17 November 2021." https://ojk.go.id/id/kanal/iknb/financial-technology/Pages/Penyelenggara-Fintech-Lending-Terdaftar-dan-Berizin-di-OJK-per-17-November-2021.aspx.

Pahlevi, Reza. "Kemensos Gandeng Para Peneliti dan Kampus Evaluasi Program KUBE." Liputan 6, October 12, 2019. https://www.liputan6.com/news/read/4084824/kemensos-gandeng-para-peneliti-dan-kampus-evaluasi-program-kube.

Paravisini, Daniel, and Antoinette Schoar. "The Incentive Effect of Scores: Randomized Evidence from Credit Committees." NBER Working Paper #19303, August 2013.

Primantoro, Agustinus Y. "Digital Transformation Requires Aspects of Infrastructure, HR and Security." Kompas, June 19, 2023. https://www.kompas.id/baca/english/2023/06/19/en-transformasi-digital-mensyaratkan-aspek-infrastruktur-sdm-dan-keamanan.

PT Permodalan Nasional Madani (PNM). 2022. *Annual Report 2022*. https://www.pnm.co.id/uploads/attachments/annual_report/file/63/Laporan_Tahunan_2022_Annual_Report_-_PT_Permodalan_Nasional_Madani__LR_.pdf.

Pusat Investasi Pemerintah. 2021. *Annual Report 2021*. https://pip.kemenkeu.go.id/data-pip/files/document/8/527a600b42689297584020574a851544.pdf.

PWC Indonesia. 2019. "Indonesia Fintech Lending: Driving Economic Growth through Financial Inclusion." https://www.pwc.com/id/en/fintech/PwC_FintechLendingThoughtLeadership_ExecutiveSummary.pdf.

Rachman, Arrijal. "Nah, Ini Beda KUR Mikro, KUR Super, KUR Super Mikro, & KUR Khusus." CNBC Indonesia, September 5, 2023. https://www.cnbcindonesia.com/news/20230905073720-4-469200/nah-ini-beda-kur-mikro-kur-super-mikro-kur-khusus.

Republic of Indonesia. 2020. "National Medium-Term Development Plan for 2020–2024." https://perpustakaan.bappenas.go.id/e-library/file_upload/koleksi/migrasi-data-publikasi/file/RP_RKP/Narasi-RPJMN-2020-2024-versi-Bahasa-Inggris.pdf.

Ridhwan, Masagus M., Asep Suryahadi, Jahen F. Rezki, and Immanuel S. Pekerti. "The Labor Market Impact of COVID-19 and the Role of E-Commerce Development: Evidence from Indonesia." Working Paper, October 2021.

Riley, Emma. "Resisting Social Pressure in the Household Using Mobile Money: Experimental Evidence on Microenterprise Investment in Uganda." Working Paper, March 2022.

Rizki, Kiki 2022. "How Digitalisation Is Accelerating the Growth of MSMEs in Indonesia." World Economic Forum. https://www.weforum.org/agenda/2022/05/digitalization-growth-indonesia-msmes/.

Saptowalyono, Cyprianus A. "Basis Data Tunggal UMKM Jadi Prioritas Pemerintah." Kompas, February 23, 2021.

Koran Tempo. 2021. "Penyaluran Kredit UMKM di Bawah Target." https://koran.tempo.co/read/ekonomi-dan-bisnis/462536/ketika-penyaluran-kredit-umkm-di-bawah-target.

TNP2K. 2021. "Sistem Informasi Data Tunggal UMKM: Usulan Peta Jalan Pengembangan Basis Data UMKM." https://www.tnp2k.go.id/download/91142658. Buku_Sistem Informasi Data Tunggal UMKM (Usulan Peta Jalan Pengembangan Basis Data UMKM).pdf.

TNP2K and Lembaga Demografi. 2021. "Pemetaan Program Pemberdayaan Usaha Mikro, Kecil, dan Menengah (UMKM)" https://www.tnp2k.go.id/download/62816Buku_Pemetaan Program Pemberdayaan Usaha Mikro, Kecil, dan Menengah (UMKM).pdf.

Tokopedia. 2021. "Tokopedia Reveals Business Trend and Opportunities in 2021 That MSME Must Know." https://tokopedia.link/zJDzzmcP9Hb.

Warta Pemeriksa. 2021. "Perbaiki Akurasi Penyaluran BPUM." https://wartapemeriksa.bpk.go.id/?p=28198.

Weisbrod, Glen, Jenna Goldberg, and Parry Frank. 2021. "Measuring the Regional Economic Impact of Transportation Access Improvements in the Context of a Large Metropolitan Region." *Transportation Research Record* 2675, no. 9: 417–427. https://doi.org/10.1177/03611981211002520.

World Bank. *Improving Indonesia's Freight Logistics System: A Plan of Action*. Washington, DC: World Bank, 2015. https://documents1.worldbank.org/curated/en/617051540584814484/pdf/WP-PUBLIC-2015-WBG-Improving-Freight-Logistics.pdf.

World Bank. *Women Entrepreneurs in Indonesia: A Pathway to Increasing Shared Prosperity*. Washington, DC: World Bank, 2016. http://hdl.handle.net/10986/24751.

World Bank. 2018. "Logistics Performance Index 2018." https://lpi.worldbank.org/2018.

World Bank. 2023. "Logistics Performance Index 2023." https://lpi.worldbank.org/international/global.

World Bank. 2020. "COVID-19 Indonesia Observatory: Impacts on Digital Merchants: Insights from the Bukalapak-WB Survey." https://thedocs.worldbank.org/en/doc/216311610628162433-0070022021/original/IndonesiaCOVIDBukalapakSurvey.pdf.

Yogatama, Benediktus K. 2023. "Penyaluran Kredit UMKM Terus Dipacu." Kompas, February 19, 2023. https://www.kompas.id/baca/ekonomi/2023/02/19/genjot-porsi-kredit-umkm-capai-target-30-persen-pada-2024.

Zou, Wei, Liangheng Chen, and Junke Xiong. "High-Speed Railway, Market Access and Economic Growth." Working Paper, July 2018.