

THE ROLE OF GENDER IN MICRO AND SMALL ENTERPRISE BUSINESS DEVELOPMENT IN INDONESIA: A FIRM-LEVEL ANALYSIS

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EXECUTIVE SUMMARY

This study examines the role of gender in the dynamics of Indonesia's Micro and Small enterprises (MSEs). We acknowledge issues facing MSEs apply to most of the country's business population, regardless of gender. However, because MSEs are a critical channel for lower-income groups to escape poverty, we chose to focus on the important role of women in the sector, whether they are business owners or employees, the family's sole breadwinner or a contributor to the family income. Because micro-level studies and data on Indonesian MSEs, particularly those related to gender issues, is still very limited, this study will help fill the research gap on the impact of gender on Indonesia's MSE productivity and market reach.

This study employs survey data from the Small- and Micro-Industry (Industri Menengah dan Kecil, IMK) Database produced by the Indonesian Statistical Agency (BPS) in 2015. It uses both descriptive analysis tools and regression models to examine the relationship between productivity and export prevalence of MSEs in Indonesia. Through descriptive analysis, we examine how firms with female business owners differ from those owned by men. We also consider the gender makeup of employees in MSEs. Further, we enriched the gender-related analysis by examining how wage patterns differ across male and female workers, determining whether either the gender of the business owners or the gender composition of the firms' employees plays any role in creating wage disparities.

Descriptive analysis shows that female business owners are more prevalent in provinces farther from Indonesia's business epicenter (Java Island), and that their businesses tend to concentrate in labour-intensive sectors such as textiles, food, and apparel. Enterprises led by women also employ a higher percentage of female workers. We found that highly educated women are often employees, rather than business owners, possibly indicating that Indonesia's female labour force is risk averse when it comes to starting their own ventures.

Based on regression results, this paper illustrates that firms owned by women have lower productivity and profit margins and narrower marketing scopes compared to those owned by men. When it comes to workforce structure, however, we observe slightly different patterns. While a large number of employees in a firm is positively associated with broader marketing scope, it is negatively correlated with a firm's productivity and profitability. Likewise, firms with a higher percentage of female workers have a broader marketing scope. The positive association between total workers in a firm – along with the percentage of female workers in a firm – and marketing scope fits with previous studies suggesting export-oriented sectors in developing countries are more labour intensive.

We also obtained interesting findings in regard to the financial profile of firms. We found that a higher level of self-financing correlates with a firm's productivity measure but has the opposite effect on profitability and marketing scope. Firms receiving bank loans are more productive and have a broader marketing scope but are less profitable. Subsidized credit such as the Kredit Usaha Rakyat (KUR) program, however, appeared to have no significant effect on either the productivity, profitability, or marketing scope of a firm.

An underlying factor to these findings is the structural differences in the makeup of male-and female-led firms, which might disadvantage female-led enterprises. We find that women who head firms might be less interested in growing their business. Furthermore, while the average age of a firm does not differ widely across male and female-led firms, male-led firms have significantly more workers and a higher total of assets. Likewise, income earned by firms led by men is around four times higher than that of firms run by their female counterparts. This study finds that firms founded by female micro-entrepreneurs are necessity-driven as opposed to opportunity-driven ventures. While there are no statistics available to explain the underlying factors causing this result, these findings indicate their presence.

Acknowledging that different capacities and motivations between men and women entrepreneurs in Indonesia have an impact on the performance of MSEs, we propose the following points for further policy considerations and research:

- **Shift existing policies towards interventions that focus more on the skills development and capacity building of women in MSEs**, in addition to the traditional funding approach.
- **Strengthen policies and programs that provide market intelligence for women** to broaden their knowledge of market dynamics and help them grow their businesses. This will equip women with a clearer business sense and vision and help them progress.
- **Form business development services that target women in MSEs** to help them break into larger markets and improve competitiveness through business training and product development assistance. Empowered female entrepreneurs will run more agile businesses and achieve better outcomes.
- **Improved understanding of barriers specific to female entrepreneurs to better support business growth.** This might involve collecting family and relationship data for owners and employees such as marital and parental status, and whether they are their family's primary breadwinner. This fundamental information is needed to analyze the specific factors affecting gender gap in business performance, especially among MSEs. Armed with this information, it will be possible to formulate more effective policies to empower and grow MSEs and benefit the economic development of the entire country.

INTRODUCTION

In this study, we examine the role that gender plays in Indonesian micro and small enterprise (MSE) dynamics. The MSE business scene in Indonesia is characterized by a high degree of informality, often involving unpaid family workers and high percentages of other unpaid temporary workers. However, since MSEs are critical for lower-income groups to escape poverty, we acknowledge the important roles played by women who work in the MSE ecosystem in different capacities, such as business owners, employees, the family's sole breadwinner, and an earner of income alongside other family members.

In Indonesia, MSEs form the backbone of the country's economy, accounting for 99.3 per cent of total firms in Indonesia, and providing 62.5 per cent of total employment (BPS, 2015). The latest Indonesian Bureau of Statistics (Badan Pusat Statistik, BPS) survey on MSEs in 2015 reveals that the country was home to at least 3,385,851 micro and 283,022 small enterprises, employing more than 6 million and 2 million workers, respectively. Despite the voluminous workforce, only 11.7 per cent of the country's economic output and 10.5 per cent of total value-added goods came from MSEs (BPS, 2015), which underlies the government's need for effective policies to enhance the potential of these fledgling businesses.

As a part of Indonesia's commitment to help MSEs grow, the government established in 2001 the Ministry of Cooperative and SMEs. Despite the existence of this dedicated ministry, MSE-related initiatives are still scattered across various ministries and government bodies, undermining coordination. To further complicate matters, the authority to set the budgets and shape the implementation of MSE-related programs is divided across different levels of local governments, creating an additional layer of required intergovernmental cooperation.

The Indonesian government has long been trying to create stronger MSE development policies. Traditionally, financial support has been one of the most prominent interventions. For example, the well-known Kredit Usaha Rakyat (KUR) program has provided MSE entrepreneurs with credit guarantees and interest rate subsidies to start and grow their businesses since 2007. Another flagship financing-related program is Dana Bergulir or 'revolving fund' program, which has been distributing conditional soft loans to micro-entrepreneurs since late 2008. The program tries to motivate micro-entrepreneurs to develop greater business capacity by compelling them to develop detailed business plans. Both micro-financing programs have had their challenges. The KUR program has had difficulty reaching potential recipients, whereas the more popular Dana Bergulir scheme is amenable to creating debtors. Both programs are still arguably

underutilized, with KUR disbursements of credit at only 88 per cent of targets and less than 80 per cent of Dana Bergulir disbursements made in 2017.

Other common government initiatives related to MSE development revolve around export promotion activities and business maturing processes through training or incubation programs. However, they have not adequately considered the human capital involved in the existing businesses in Indonesia. Leveraging the capacity of Indonesian MSEs relies on strengthening a healthy and competitive entrepreneurial mindset through customized assistance programs needed by certain groups of society, such as female entrepreneurs.

Finally, micro-level data studies about Indonesian MSEs, particularly those probing gender-related issues, are limited and we hope this study will contribute to filling this research gap. We also hope that our policy recommendations will provide insights into gender-specific aspects that must be strengthened to promote MSE development.

LITERATURE REVIEW ON GENDER GAPS IN BUSINESS

There are many debates about the impact of gender on industries, mostly focusing on wage gaps. Becker (1971), and Black & Brainerd (2004) suggest that discrimination is driven by an employer with excessive market power, implying that the wage-gap relating to gender will be narrower in more competitive industries. Blau and Kahn (2000) argue, however, that gender gaps in qualifications, mainly women having less education and training, lead to a different labour market treatment and lower wages.

Scholars often cite trade liberalization as a solution to narrowing the income inequality. They argue that liberalization produces competition which forces companies to export and adopt higher levels of technology. This, in turn, enables women to upskill in order to participate in the same work and earn the same wage as men, particularly in low-skilled jobs, as seen in Mexico (Juhn et al., 2014), Morocco (Joeke, 1995; Fafchamps, 2009), Turkey (Ozler, 2000), Colombia (Ederington et al., 2009) and Bangladesh (Joeke, 1995). Meanwhile, there is evidence that trade liberalization actually widens the wage gap between men and women, as has been shown in the case of India (Menon and Rodgers, 2009), Korea and Taiwan (Berik, 2004).

Two competing theories account for the inequality in MSE performance between male and female entrepreneurs. The 'constraint-driven gap' perspective, argues that a mix of institutional and cultural barriers disadvantage women in accessing credit, forming business networks and dealing effectively with bureaucracy. Second, the 'preference-driven gap' perspective contends that male and female entrepreneurs differ in their business motivation, work flexibility and acceptance of risk (Bardasi et al., 2011).

In a recent survey by Global Entrepreneurship Monitor (GEM), Kelley, et al. (2016) captured motivational differences by studying the opportunity- and necessity-driven perspectives among women entrepreneurs. According to the GEM survey conducted in 65 countries (including Indonesia), 11 per cent of all productive-age women in East South Asia and the Asia Pacific were entrepreneurs, a proportion that is higher than in Europe and Central Asia (6 per cent), yet much lower than in Sub-Saharan Africa (26 per cent). However, across all geographic regions, women were 20 per cent more likely than men to cite "necessity" as their primary motivation for engaging in business. In addition, a 2013 World Bank study attributed the high number of necessity-driven businesswomen in Africa to the high costs of entry into the formal labour market, especially for women (Hellward-Driemeier, 2013).

The motivational differences between male and female entrepreneurs may contribute to the gender-gap in business performance observed worldwide. A 2012 study by the Organization for Economic Co-operation and Development (OECD) estimates that businesses owned by women earn 20-40 per cent less than those run by their male counterparts. Utilizing World Bank's Enterprise Analysis Unit data on informal firms in Argentina and Peru from 2010, Amin (2011) also found that female-owned firms tend to be less productive than those owned by males. Sabarwal and Terrell (2008), in a study of formal businesses in 26 transition economies, found that female-owned enterprises were significantly less profitable than male-owned businesses, attributing the gap to the relatively smaller size of female-owned firms. Robb and Wolken (2002) arrived at the same conclusion, and Chaganti and Parasuraman (1996) found that businesses run by women generated lower sales than men.

In order to address the difference in business performance between men and women, entrepreneurship programs for women have sought to incorporate their specific barriers and concerns into training. Their efforts, however, often have proven to be ineffective. The programs mostly target necessity-driven women entrepreneurs with lower motivation to grow the business (Valdivia, 2011); The programs fail to address institutional, cultural and preference-based constraints hampering the growth of businesses owned by women (Cirera and Qasim, 2014). Cirera and Qasim (2014) identified the components that could make the female entrepreneurship support programs successful which include; the selection of growth-oriented women participants, who are equipped with the capacity to use cognitive skills to make predictions (de Mel et al., 2010; Djankov et al., 2007; Fafchamps and Woodruff, 2014); cultivation of inter-personal skills, such as leadership and teamwork (Robb et al. 2014); mentoring services for women entrepreneurs and assistance in establishing personal networks; business consultancy services (Bruhn et al., 2012; Valdivia, 2011, Bloom et al., 2013); access to finance, (Karlan and Valdivia, 2011; Fafchamps et al., 2011; Klinger and Schundeln, 2011; Attanasio et al, 2011), and monitoring and evaluation of the support programs. Cirera and Qasim (2014) recommend conducting women-centered case studies, hiring qualified trainers to address gender constraint issues, and strengthening women's competencies and skills. Lastly, reforming legal institutions is important to encourage female participation in the formal economy as well as conducting of public campaigns to improve women's confidence in their ability to play a more significant role in the economy.

According to an International Finance Corporation (IFC) survey of 600 MSME entrepreneurs in Indonesia in 2016, Indonesian women entrepreneurs possess some distinct characteristics. First, contrary to popular belief, men are more engaged than women in supporting their spouses' businesses. While only 26 per cent of wives work in their husbands' businesses, 35 per cent of men were employed in their wives' enterprises. Second, men are more driven than women by career aspirations to grow their businesses. Third, there is no significant gap between male and female entrepreneurs when it comes to difficulties starting

and operating their businesses. Fourth, only 59 per cent of female entrepreneurs borrowed more than IDR 50 million (around CAD\$4,270) in contrast with 82 per cent of male entrepreneurs, attesting to a possible higher level of risk aversion among women entrepreneurs.

Cirera & Qasim (2014) and Arsana & Alibhai (2016) recommended a two-track solution for both 'necessity-driven' female entrepreneurs and 'growth-oriented' or 'opportunity-driven' female entrepreneurs in Indonesia. The first includes crossover facilitation, pilot mobile savings, female-targeted business development service provisions, and the adaptation of existing government interventions. The latter promotes tailored credit products, credit assistance, insurance facilitation, promotion of equity and angel investors, and selective business consulting supports. Strengthening MSE development requires specific initiatives that correctly target the groups needing support in Indonesian society.

DATA AND METHODOLOGY

It is possible that the primary obstacle preventing Indonesian MSEs from flourishing revolves around the level of capacity of the human capital involved in the businesses. The education of both business owners and employees is important when it comes to their ability to absorb information necessary for the business to grow, both organically or through specific government assistance programs and interventions. This is especially relevant when education patterns among male and female entrepreneurs differ and potentially help explain their difference in business performance. The existing availability and quality of physical infrastructure for education at the regional level in Indonesia helps determine the level of economic activity observed in the region, given the large gaps in regional development across the country.

Increasing productivity and international market outreach remain the main challenges in developing the capacity of MSEs in Indonesia. This study intends to address how firms and region-specific characteristics affect productivity and export prevalence patterns. Utilizing the Indonesian Micro and Small Industry Survey 2015 data from the Indonesian Central Bureau of Statistics (BPS) as our main information source, this study looks at factors, including the gender of the business owners, the proportion of women employees, the number of their working hours and their wages, to explain difference in firm productivity and market outreach behavior. A major caveat in this study is that although this is a firm-level and regional-level study, we consider only firms employing fewer than 20 workers because the Micro and Small Industry Survey data, compiled by the BPS, only covers firms of that size. The survey also enables us to obtain information about other more traditional firm dimensions, such as expenditure profiles and capital sources. Furthermore, the survey data enables us to measure the numbers of government interventions that might have taken place in the form of business partnerships or business development assistance offered to women entrepreneurs.

In the early 2000's, Indonesia embarked on a massive decentralization endeavor to address gaps in regional development outside of city centres. The study will control for regional difference in the analysis. Vast disparities in regional development have a profound impact on the economic patterns observed in the analysis, including a firm's productivity and export patterns. Indonesia has set different minimum wage levels for each province, so we integrated provincial minimum wages, a factor that affects labour cost benchmarks for firms in all provinces.

In this study, we use both descriptive analysis tools and regression models to examine the relationship between productivity and export prevalence

measures of Indonesian MSEs. Through descriptive analysis, we look at how firms with female business owners fare compared to those run by men and we consider employee gender composition. The study analyzes gender-related firm characteristics by examining how wage patterns differ across male and female workers to determine if the gender of the business owners or the gender composition of the employees explain those differences. We then examine differences between the firm's characteristics and productivity from a sectoral perspective by mapping sectoral differences in productivity against gender-related variables.

To examine how a firm's regional-specific characteristics affect business performance we use econometric analysis. The main hypothesis investigates whether the gender of a firm's owner or employees causes significant variations in productivity, profitability and marketing outreach.

The econometric model specifications to address these hypotheses are as follows:

$$\text{Productivity}_{i,j} = f(\text{Gender-related characteristics of the firm}_{i,j}, \text{Other characteristics of the firm}_{i,j}, \text{Regional characteristics}_{j}, \text{Sectoral characteristics}_{j}, \text{Market Outreach}_{i,j}) \dots\dots\dots (1)$$

$$\text{Profitability}_{i,j} = f(\text{Gender-related characteristics of the firm}_{i,j}, \text{Other characteristics of the firm}_{i,j}, \text{Regional characteristics}_{j}, \text{Sectoral characteristics}_{j}, \text{Market Outreach}_{i,j}) \dots\dots\dots (2)$$

$$\text{Market outreach}_{i,j} = f(\text{Gender-related characteristics of the firm}_{i,j}, \text{Other characteristics of the firm}_{i,j}, \text{Regional characteristics}_{j}, \text{Sectoral characteristics}_{j}) \dots\dots\dots (3)$$

There are three productivity measures used in this study:

1. Production value per labour: the ratio between output value in Indonesia Rupiah (IDR) and the number of workers in a firm.
2. Total Factor Productivity (TFP): the residual from the traditional Cobb-Douglas production function to assess unexplained factors that determine a firm's production value.
3. Profit Margin Ratio of a firm, used to for the profitability measure in this study, is calculated by dividing profit value of a firm (production value minus cost) with the firm's total production value.

The higher the value of any of these three measures the better the firm is performing. In this study, we do not only limit the market outreach measure to

exports, but also map the domestic outreach of its products. We introduce four levels of a firm's marketing scope which are: 1) those that only sell their products within the same municipality (kabupaten/kota); 2) those that sell their products to other kabupaten/kota within the same province; 3) those that sell to other provinces within the country; and, 4) those that export abroad.

In Equations 1 and 2 (in which the dependent variable is Productivity and Profitability, respectively) we use employ the Ordinary Least Square (OLS). However, because of the four-level nature of our Marketing Outreach variable in Equation 3, we use an Ordered Probit method of estimation. In all equations, the analysis controls for regional variation. Provincial minimum wage is one of the indicators for measuring regional disparities. The analysis uses provincial-level data for the regional variables, including gross domestic product (GDP), wages and unemployment, to better capture variation in regional development.

Other variables we use in this study include expenditure profile (what proportion of expenditure was spent on raw materials, utilities, transportation and logistics needs, loan interest payment), capital source (self-funded by the owners or borrowing), age of the firm, participation in government assistance programs, and business partnership engagement with other parties (e.g. being a member of cooperatives, partnering with bigger private companies).

MICRO AND SMALL ENTERPRISES IN INDONESIA: SNAPSHOT FROM THE IMK 2015 SURVEY

The BPS Indonesian Micro and Small Industry Survey 2015 dataset provides insight into Indonesia's MSE business ecosystem. Comprised of 58,285 surveyed firms across the country, the dataset covers only those in the manufacturing sector, excluding the agricultural and service sectors. Summary statistics are below:

Table 1. Indonesia's Micro and Small Enterprises: Descriptive Statistics from IMK 2015

	Number of firms	Mean Value	Std. Dev	Min. Value	Max. Value
Sectors (24 Sectors)	58,285				
Province (34 Provinces)	58,285				
Owner	58,285				
Men	31,906 (54.7%)				
Women	26,379 (45.3%)				
Owner's age	58,285	45.96	11.35	12	99
Firm age	58,285	13.33	10.91	0	115
Owner's education	58,285				
No formal education	11,076 (19%)				
Primary (Elementary school)	20,356 (34.9%)				
Secondary (High school)	24,907 (42.7%)				
Tertiary (Diploma and University)	1,946 (3.3%)				
Number of Workers	58,285	2.32	2.16	1	19
Production Workers	58,285	2.23	2.04	0	19
Other Workers	58,285	0.09	0.45	0	17
Revenue in a month (in IDR)	58,285	13.2M	54.3M	10,000	5.3B
Cost in a month (in IDR)	58,285	8.99M	45.8M	0	5.27B
Profit in a month (in IDR)	58,285	4.22M	15.1M	-6.98M	756M
Capital owned by survey time (in IDR)	58,285	61.8M	226M	0	15.4B

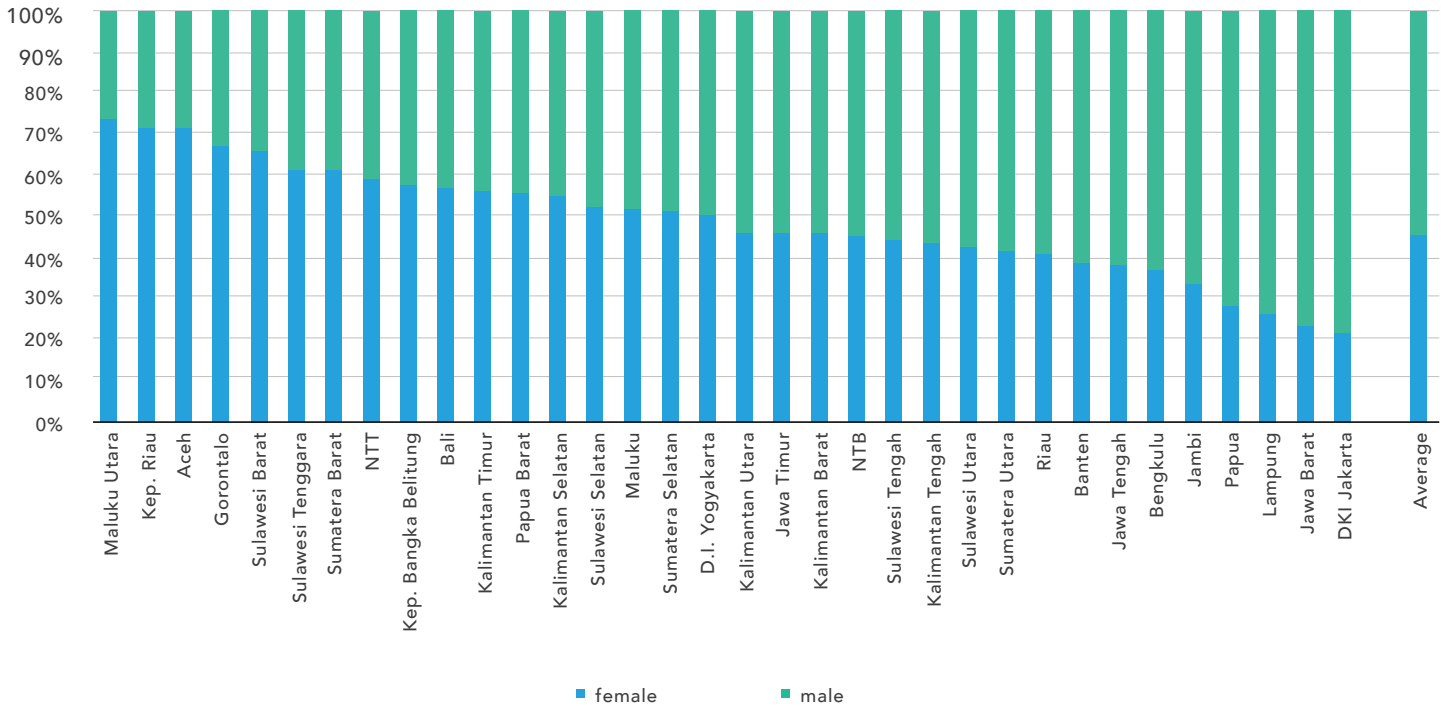
Note: B= Billion; M= Million
Source: IMK Survey 2015, authors' calculation

Our analysis of the dataset shows that male-led enterprises are more prevalent among MSEs in Indonesia, accounting for 55 per cent of the total number of MSEs (see Table 1). More than half of these men have no education beyond elementary school, showing a low level of formal education among male Indonesian business owners. The data shows that MSEs in Indonesia are generally led by middle-aged business people, which shows the importance of encouraging initiatives to promote youth entrepreneurship. The MSEs in the dataset are generally quite established, with 13 years of operation on average. Yet most of them have remained micro in size with only 2 employees per firm on average, including the owner.

There is a notable revenue disparity among MSEs in Indonesia in the dataset. While the mean average in a typical month of operation was an IDR 13.2 M IDR, the standard deviation was IDR 54.3 million. A similar finding is observed in monthly cost and profit (see Table 1). The number of employees was similar for MSEs, yet the amount of capital owned varied widely —the Mean Value for capital owned by a company was 62 M IDR, the Standard Deviation was 226 M IDR. These figures suggest that prominent business growth is still elusive for most MSEs.

When it comes to the gender of MSE owners by region, Figure 1 reveals interesting findings. Female micro-business owners are more prevalent in provinces that are farther away from the capital of Indonesia, DKI Jakarta, with Maluku Utara province having the highest proportion of female-led enterprises among provinces in the country. DKI Jakarta and Jawa Barat, which are considered economic powerhouses had the lowest proportion of female-led enterprises. In addition, five out of ten provinces with the highest proportion of female-led MSEs, Aceh, Sulawesi Tenggara, Sumatera Barat, Nusa Tenggara Timur (NTT), and Sulawesi Barat, were among the ten provinces with the highest rate of female-led households (BPS, 2015), placing female entrepreneurship against a background of economic necessity.

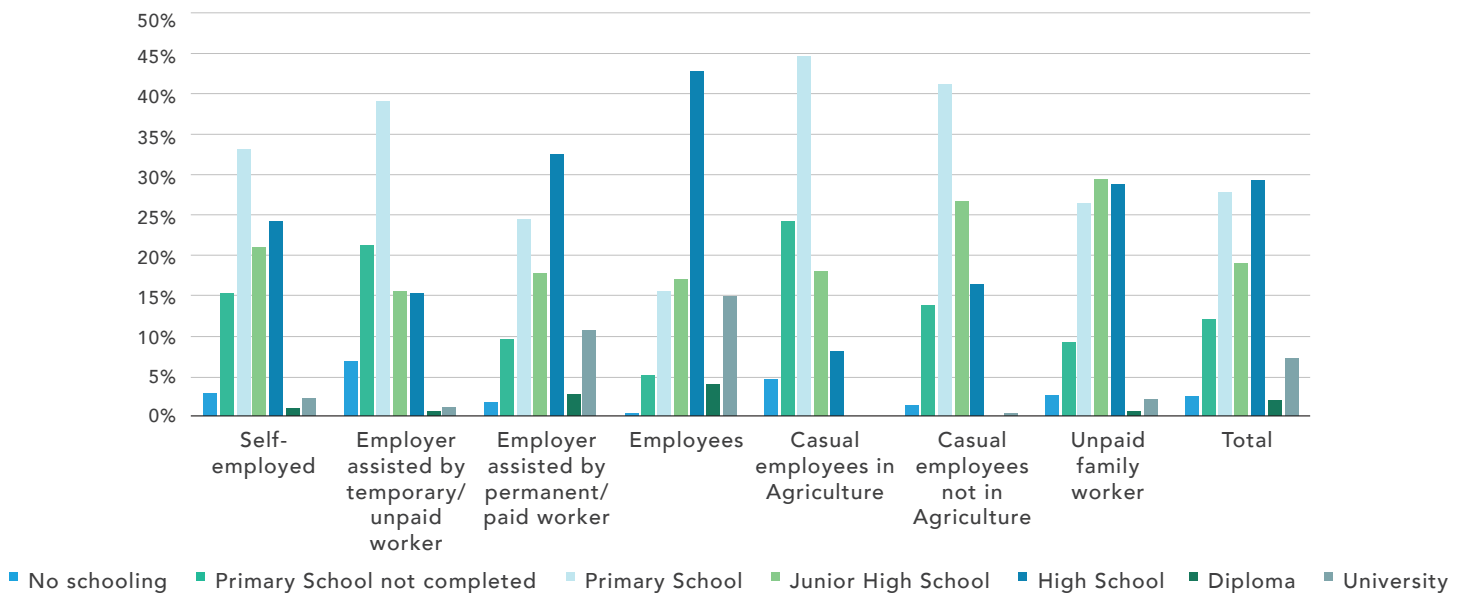
Figure 1. Gender proportion of micro and small business owners by province, 2015



Source: IMK Survey 2015, authors' calculation

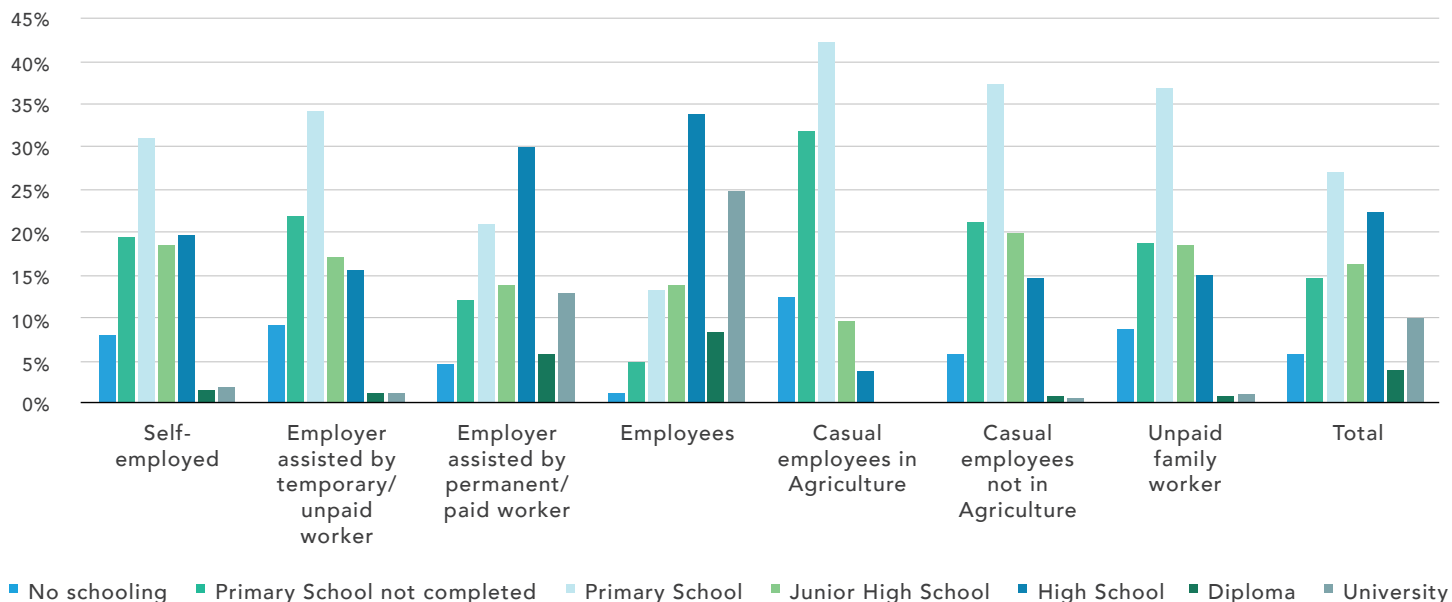
Using data on the education of both employers and employees in Indonesia, we can gain more insight on both male and female micro-enterprise leaders and workers. Figure 2 and Figure 3 capture the education background of Indonesian workers in 2015.

Figure 2. Male workers in Indonesia by level of education (2015)



Source: Badan Pusat Statistik (2015), authors' calculation.

Figure 3. Female workers in Indonesia by level of education (2015)

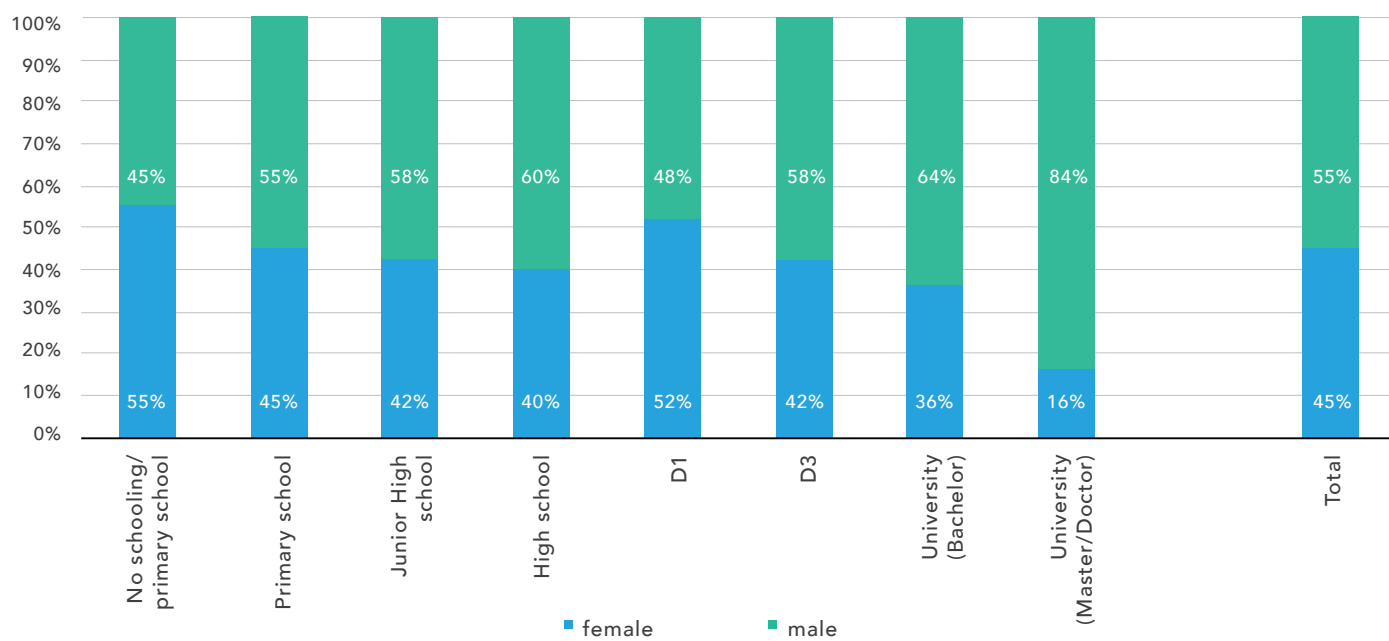


Source: Badan Pusat Statistik (2015), authors' calculation.

There is a visible pattern across different employment types that holds for both Indonesian male and female workers, suggesting that workers with a lower level of education tend to settle in less formal employment types or be self-employed. This pattern is exacerbated among female workers. Figure 2 and Figure 3 show female workers with a higher level of education are more likely to be either employees or employers in firms with paid workers, rather than work in less formal employment types, such as casual agricultural employment, unpaid family member, or self-employed. Overall, the MSE business ecosystem in Indonesia is mainly characterized by a high degree of informality, often involving unpaid family workers and a high number of other unpaid temporary workers.

Figure 4 shows that women with a higher degree or level of education are less likely to become MSE owners than men. This indicates that Indonesian women with a higher level of education usually do not seek ownership of MSEs.

Figure 4. Micro and small business owners, by gender and education (2015)

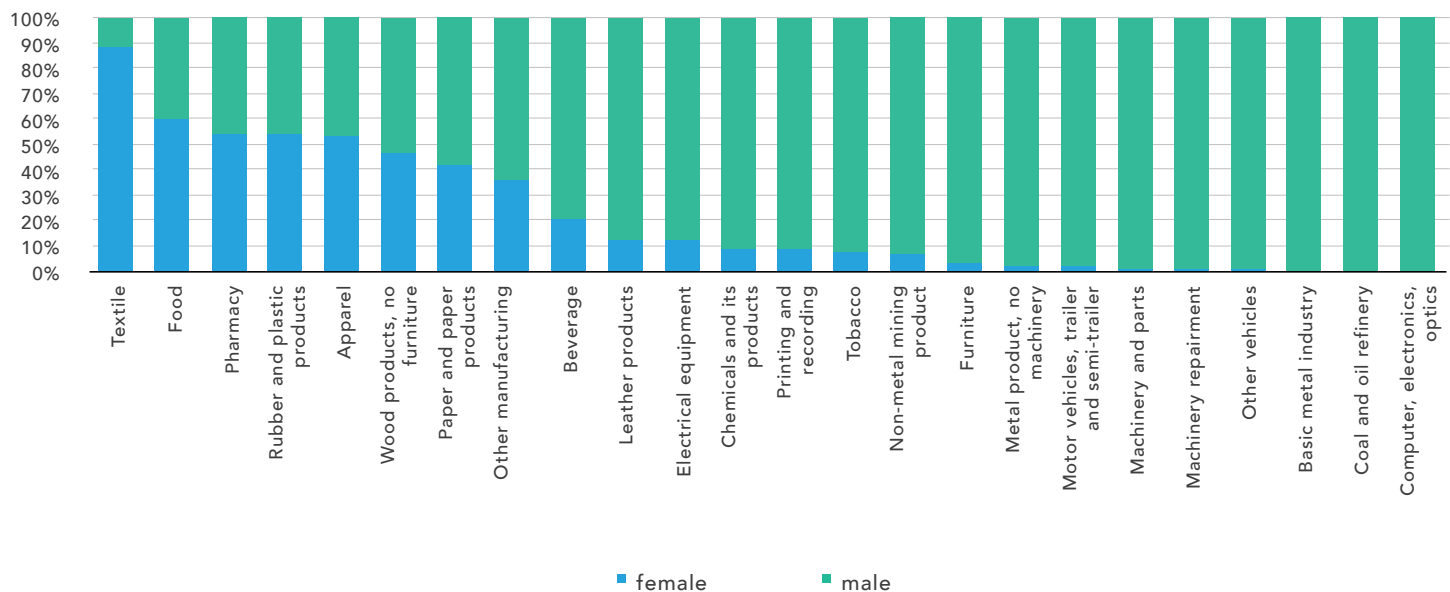


Source: IMK Survey 2015, authors' calculation

MICRO AND SMALL ENTERPRISES IN INDONESIA: A SECTORAL PERSPECTIVE

A distinct pattern emerges when we examine MSEs run by women across different industry sectors. As shown in Figure 5, labor-intensive sectors such as textiles, food, and apparel, are among the manufacturing sectors in which female-led MSEs dominate. In fact, almost 90 per cent of MSEs in the textile industry are led by women. More technology-oriented and capital-intensive sectors such as computer and electronics, coal & oil refinery, and machinery are dominated by male-led enterprises, with almost no presence of women. These findings are consistent with previous studies (e.g. Loscocco and Robinson, 1991), showing strong, gender-based sectoral concentrations among MSEs in Indonesia.

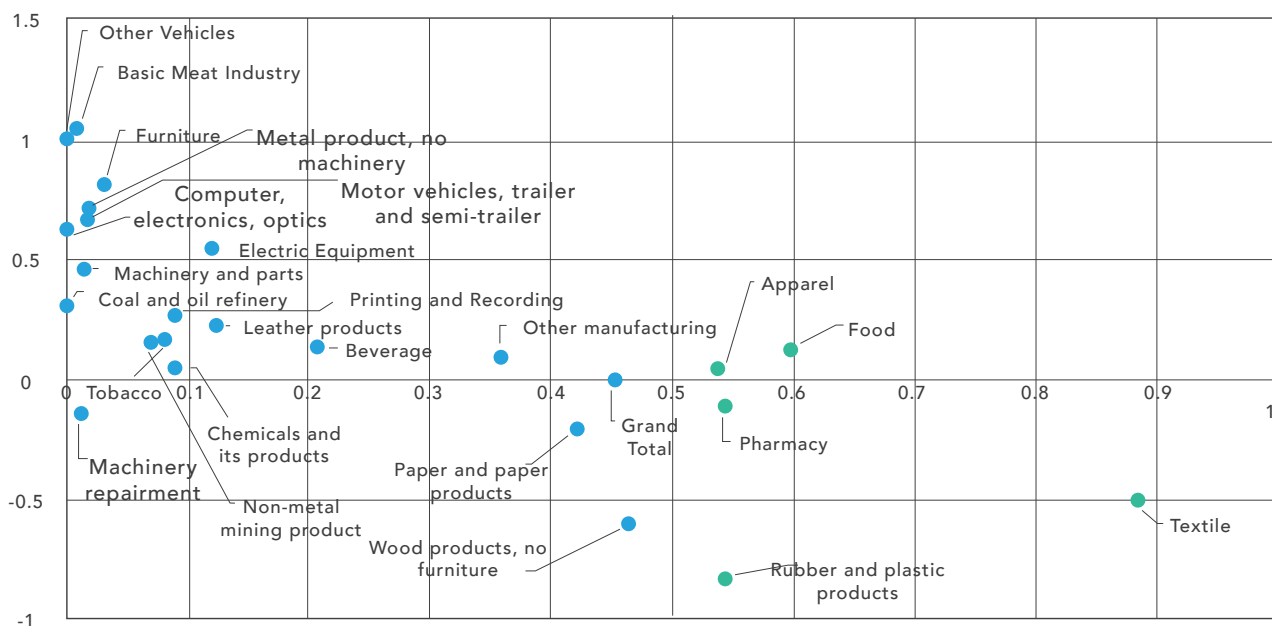
Figure 5. Gender proportion of micro and small business owners by sectors, 2015



Note: The sectors' classification is based on 2-digit Indonesian Standardized Employment Classification (KBLI), which is consistent with UN's International Standard Industrial Classification.

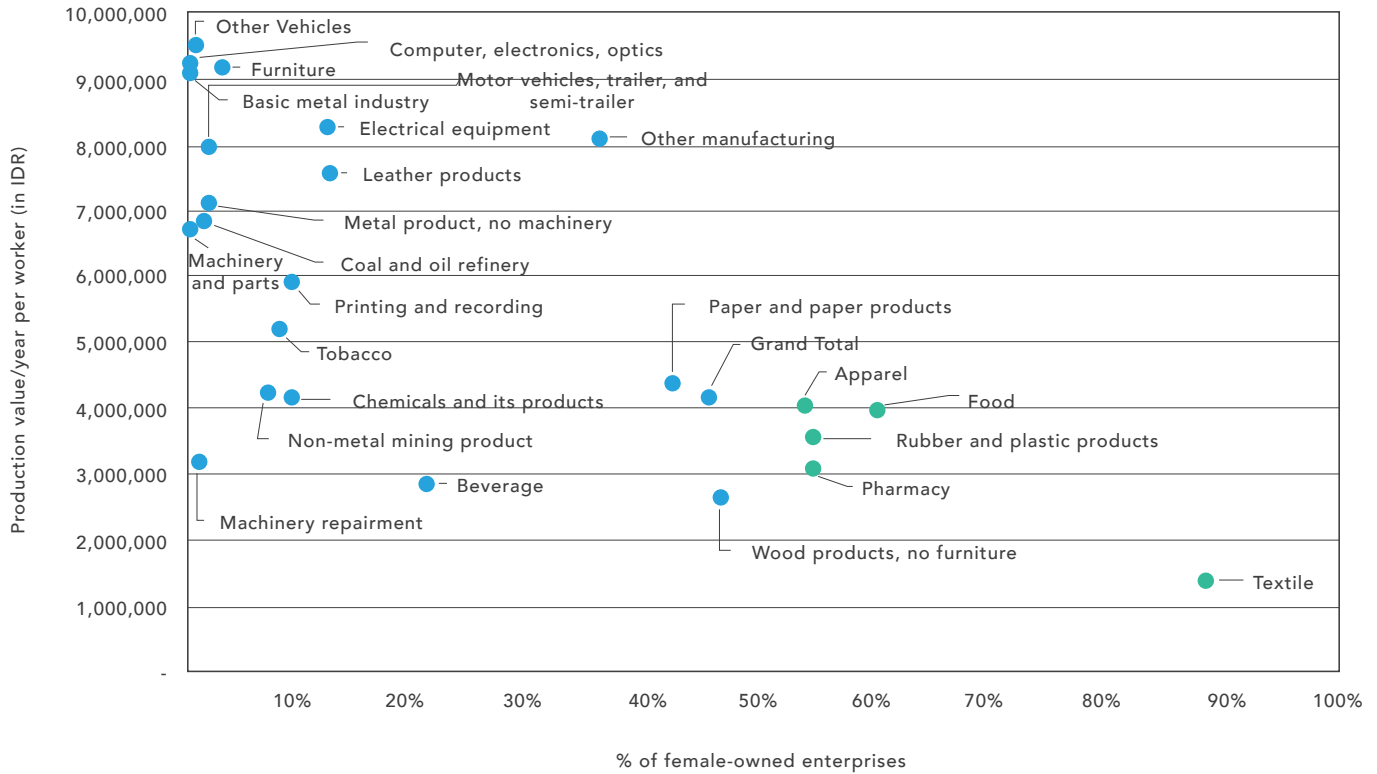
Source: IMK Survey 2015, authors' calculation

Figure 6. Female-owned Enterprises (horizontal axis) and Sectoral TFP (vertical axis), 2015



Source: IMK Survey 2015, authors' calculation

Figure 7. Female-owned Enterprises (horizontal axis) and Sectoral Labour Productivity, 2015



Source: IMK Survey 2015, authors' calculation

Figure 6 and Figure 7 further demonstrate the relationships between female-owned MSEs and sectoral measures of Total Factor Productivity (TFP) and Sectoral Labour Productivity. Not only do female-led MSEs tend to be concentrated in certain industry sectors as indicated by Figure 5, but concentration is also related to productivity measures. Female-led MSEs in manufacturing sectors, such as textile, rubber & plastic products, and pharmaceuticals, tend to have lower productivity levels, both in terms of TFP and Labour Productivity.

GENDER GAP IN A FIRM'S PERFORMANCES: ESTIMATION RESULTS

The econometric analysis shows that male-led enterprises have better overall performance, compared to their female-led enterprises across all performance measurements examined in this study. Female-led enterprises are associated with lower productivity and profitability, and have narrower marketing outreach compared to male-led enterprises. This section discusses the highlights from the findings in this study while the full results can be found in Annex 1. Table 2 below summarizes the impact of a firm's characteristics on performance measures.

Table 2. Firm's characteristics' effect on productivity, profitability, and marketing scope

Variables	Total Factor Productivity		Production value per labor		Profit margin		Marketing Scope	
	Sign	Significant	Sign	Significant	Sign	Significant	Sign	Significant
Firm's age	-	No	-	No	+	**	+	**
Self-funded capital (% of total capital)	+	**	+	**	-	**	-	**
Working hour growth 2014-2015	-	**	-	**	+	*	+	No
Total remuneration for workers	+	**	+	**	-	**	+	**
% of remuneration that goes to female workers	-	**	-	**	+	**	+	No
Firm's asset (total)	-	**	+	**	-	**	+	**
% of female production workers to total workers	+	No	+	No	-	No	+	*
% of female workers to total workers	-	**	-	**	+	No	-	No
Total workers	-	**	-	**	-	**	+	**
Firm receiving subsidized credit	+	No	+	No	-	No	+	No
Firm receiving bank loan	+	**	+	**	-	**	+	**
Firm receiving government training	+	**	+	**	+	**	+	**
Firm receiving any training	-	**	-	**	-	No	+	No
Firm receiving government assistance	+	No	+	No	-	No	+	*

Variables	Total Factor Productivity		Production value per labor		Profit margin		Marketing Scope	
	Sign	Significant	Sign	Significant	Sign	Significant	Sign	Significant
Firm receiving any assistance	+	**	+	**	-	**	-	No
Firm markets product outside kabupaten/kota	+	**	+	**	-	No	NA	NA
Firm exports its products	+	**	+	**	+	No	NA	NA
Koperasi member	+	**	+	**	+	No	+	**
Joining partnership	+	No	+	No	+	**	+	**

Note: * = statistically significant at 90% confidence level; ** = statistically significant at 95% confidence level

As listed in Table 1 and Table 2, the findings are consistent with predicted results and the literature review. The analysis found that female-led enterprises had fewer employees overall and they worked shorter hours. These findings echo the results from a previous study on female-led informal firms in Argentina and Peru (i.e., Amin, 2011).

A slightly different pattern is observed when it comes to female production workers. Results show that a higher proportion of female production workers in a firm has no significant effect on either its productivity or profitability measures, but is positively associated with a broader marketing outreach. A 2015 International Labour Organization (ILO) study suggests that an increasing number of women in developing countries have been absorbed into export-oriented manufacturing sectors, which tend to be based on a female workforce (Otope, 2015). Moreover, Shepherd and Stone (2017) used the World Bank's Enterprise Survey data to show evidence that internationally-engaged firms in developing countries tend to employ a higher proportion of female workers. These results are in line with our findings which reveal that 86 out of 181 exporting firms in the IMK data from 2015 are in the food, textiles, and apparel sectors, which are heavily reliant on female-labour.

A firm's size in terms of employment also significantly affects overall performance. The total number of employees in a firm is positively associated with broader marketing outreach, but is negatively related to productivity and profitability. As this study deals with firms having fewer than 20 employees, including the owner(s), the small scale of a firm's operation might explain why having more workers is associated with lower productivity and profitability. A high number of employees can complicate a firm's operation and increase overall costs.

Several characteristics are significant in explaining a firm's productivity, profitability, and marketing scope - including capital structure and financing

profiles. A higher level of self-financing raises a firm's productivity but has the reverse effect on profitability and marketing outreach. Firms with a higher total of assets tend to have higher production value per employee and broader marketing outreach, but lower TFP and profit margin. Finally, firms that receive bank loans tend to have higher productivity and marketing outreach but are associated with lower profit margin. Subsidized credit such as the KUR program, however, is found to have no significant effect on either productivity, profitability, or marketing outreach of a firm.

When it comes to measurement of working conditions, increased working hours in a firm negatively impacts productivity but increases profit margin. The number of working hours, however, has no significant effect on a firm's marketing outreach. Moreover, remuneration for workers is also a significant performance indicator. Firms offering higher pay tend to be more productive and market their products more broadly, at the cost of lower profits. The cost of higher wages overcomes productivity benefits, possibly because these firms are so small. Interestingly, paying female employees more is associated with higher profitability, yet lower productivity. It has no significant effect on a firm's marketing outreach.

Other factors that affect a firm's performance measures external interventions. More than 95 per cent of firms surveyed in the IMK 2015 data have not received any external training and among those that have, 59.15 per cent of them received it from government agencies. Training conducted by government agencies has a positive effect on all performance indicators, whereas training provided by external parties has a negative effect on productivity, and it does not have any significant effect on either profitability or marketing outreach. Meanwhile, only 4.72 per cent of the surveyed firms have received any form of external assistance other than training (e.g. supports for financing, marketing, acquiring raw materials, etc.). Among those that received assistance, the majority (59.77 per cent) did not receive it from government agencies. Firms receiving government assistance tend to have lower profitability but broader marketing outreach, while firms receiving assistance from other parties tend to be associated with higher productivity and lower profitability.

Being a koperasi (Cooperative) member or joining a form of partnership with other parties affects a firm's performance. Being a koperasi member is associated with higher productivity and broader marketing outreach but has no effect on profitability. Meanwhile, joining a partnership shows no significant effect on productivity but is positively associated with higher profitability and broader marketing outreach. Lastly, younger and small firms tend to have lower profit margin and a narrower marketing outreach, but no significant differences in productivity are seen between old and new firms. More mature firms have better established business networks and their owners possess more business experience, advantages that younger firms do not yet have.

Table 3. Firm's owner characteristics' effect on productivity, profitability, and marketing scope

Variables	Total Factor Productivity		Production value per labor		Profit margin		Marketing Scope	
	Sign	Significant	Sign	Significant	Sign	Significant	Sign	Significant
Gender	+	**	+	**	+	No	+	**
Owner's age	-	**	-	**	-	**	-	**
College educated	+	*	+	*	+	No	+	**
Completed any formal education	+	**	+	**	+	No	+	**

Note: * = statistically significant at 90% confidence level; ** = statistically significant at 95% confidence level

When it comes to how a business owner's background impacts performance, male-led firms are observed to be more successful in all performance measures discussed in this study. However, other factors also play a part. As shown through the estimation results presented in Table 3, small firms led by younger owners tend to be more productive, profitable, and have broader marketing outreach compared to firms led by older owners. Furthermore, firms run by business owners with any degree of formal education are more productive and bolder in their marketing outreach. However, education levels have no effect on profitability. Business owners with college degrees are positively associated with productivity and broader marketing outreach, but not with profitability.

The testing of additional variables offered interesting observations and results. Firms operating in regions with higher income per capita and income growth tend to be associated with higher productivity. Higher provincial minimum wage has a positive effect on firm productivity.

As the survey IMK survey from 2015 featured a question regarding the business obstacles companies faced in 2014, estimation models reveal how obstacles account for variation in firms' productivity, profitability, and marketing outreach. The lack of access to capital is the most frequently mentioned obstacle (31.72 per cent) yet firms that cited money as a problem were actually more productive than those that did not point to any obstacle. Even though many firms (25.26 per cent) did not mention any obstacles, those firms might simply lack the ability to analyze their business environment and identify obstacles. The estimation models show that regional and industry sector factors had significant effects on the firms' productivity, profitability, or marketing outreach.

PATTERNS IN THE RESULTS: MOTIVATIONAL FACTORS BEHIND THE GENDER GAP

The behavior, situation, and performance of female entrepreneurs differ from their male counterparts' in many ways. Unemployment, informality, and poverty have a stronger impact on female entrepreneurs than on male entrepreneurs (Otobe, 2015). Female entrepreneurs initially tend to have less business skills than men, which lowers the likelihood of survival of their MSE in their entrepreneurial journey (Le, 1999). Female entrepreneurs are often concentrated in less productive industry sectors, which further perpetuates their lack of representation as business leaders compared to men (Verheul, et.al. 2004). An OECD (2017) study conducted in Southeast Asia found that women continue to bear the main brunt of unpaid household tasks and childcare, suggesting efforts to foster entrepreneurship among women must start with policies that tackle the double burden of household duties and labour for essential income.

In general, there are strong indications that female-led MSEs tend to be less ambitious in their growth plans, and are content with remaining micro in size. While the average age of firms led by men and women don't widely differ¹, size does. In terms of total workers, male-led firms had almost four workers on average while female-led firms had fewer than three workers on average. Moreover, total assets of MSEs surveyed reveal a huge gap between firms led by men and women. On average, male-led firms had more than 83M IDR in total assets while female-led firms only had around 35M IDR in total assets. Likewise, income earned by the two groups differed significantly. Male-led firms earned more than 20M IDR on average, while female-led firms gained less than 5M IDR. While no statistics are currently available to investigate the underlying factors leading to these gender differences, these numbers suggest that women who run MSEs in Indonesia have different business motivations (family and necessity driven) than male entrepreneurs.

The difference in business motivation between genders cannot be used to generalize about the type of employment that women in Indonesia choose. As Figure 2 and Figure 3 indicate, educated Indonesians, both male and female, tend to be employed in formal sectors. The pattern is more prevalent among female workers with a higher level of education, 25 per cent of those who were formally employed were university graduates. For men, the comparative number was 15 per cent, respectively. This indicates that women at a higher level of education are generally more likely to seek formal employment than their male counterparts.

¹ The average firm's age of female-led and male-led firms are 13.75 and 13 years respectively.

These findings are in line with the characteristics of women in business observed in developed economies, such as the United States, where women have shifted into jobs they consider less stressful over time (Kaplan and Schullhofer-Wohl, 2018). Overall, female-led MSEs in Indonesia seem to have a lower level of education and business training, and entrepreneurship is out of necessity based on distance from major economic centres where formal employment opportunities are available.

Another interesting finding from the survey is that women-led MSEs in Indonesia are more likely to employ women rather than men in their businesses. Table 4 presents employment structure differences between female- and male-owned MSEs. The number of female employees in female-led firms are on average about three times higher than the number of male employees. On average, firms led by men tend to employ more men, but only by a ratio of 2.5. Moreover, while both groups are characterized by a high degree of informality, female-led firms are generally less likely to pay their workers, with only 13 per cent of them having at least 1 paid worker, compared to 44 per cent among male-led firms. This pattern suggests formal pay structures might not be a primary concern for women running MSEs in Indonesia, perhaps because most of them enter the business scene out of necessity.

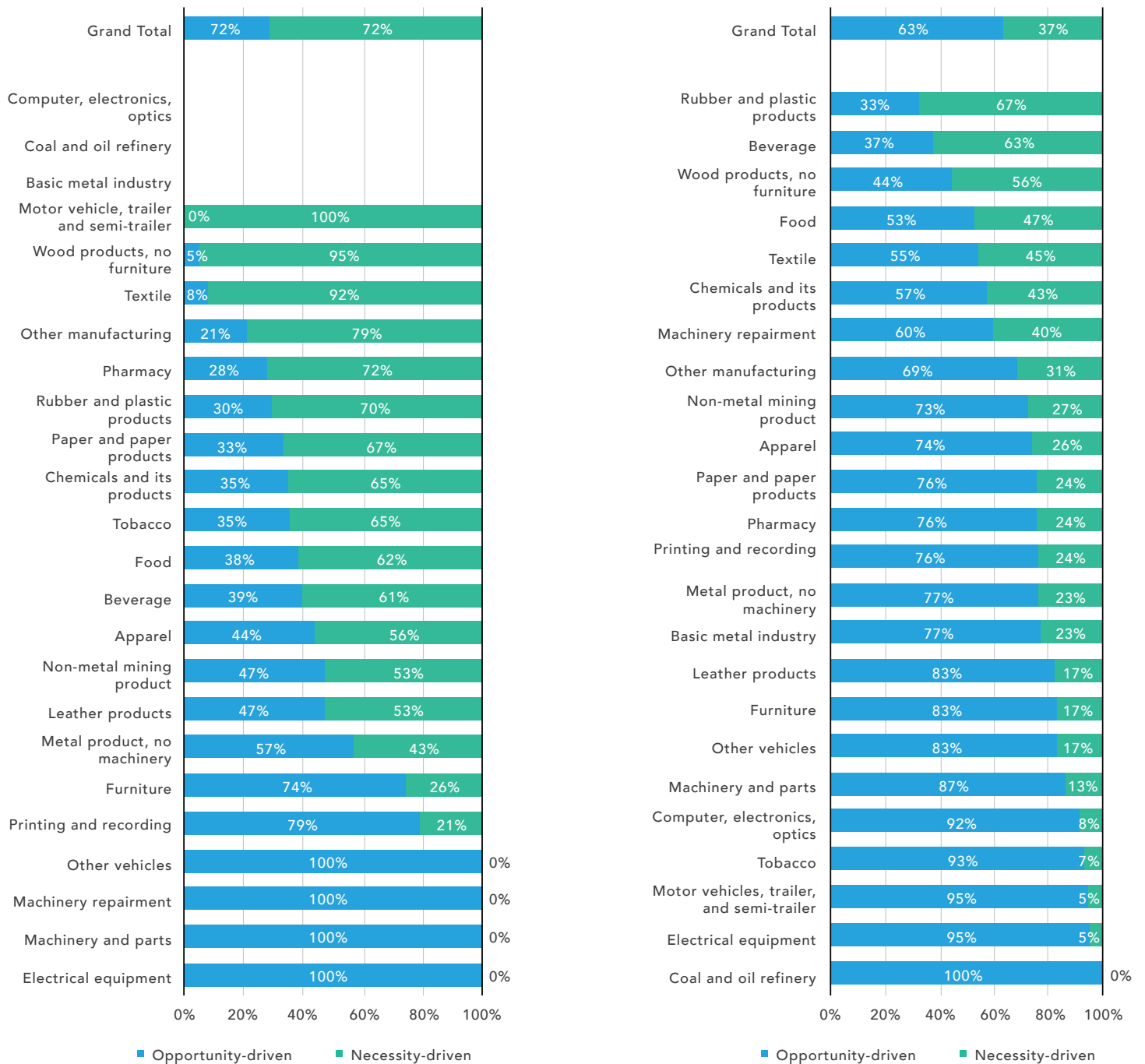
Table 4. Employment structure of female- and male- owned micro and small firms

Firms characteristics	Female-owned firm	Male-owned firm
Numbers of male workers (on average)	0.7	2.5
Numbers of female workers (on average)	2.1	1.0
Firms with at least 1 paid worker	13%	44%
Firms with at least 1 unpaid worker	99%	96%

Source: IMK Survey 2015, authors' calculation

When the study dug deeper into motivational factors influencing female-led firms, it found additional results by correlating a firm's profit value in a month with the provincial minimum wage. If the firm's profit is less than the provincial minimum wage, then we assume that the MSEs could not find a formal job at a minimum wage salary and were in business themselves out of necessity. If the firm's profit is higher than the perceived provincial minimum wage, then the MSEs are assumed to be opportunity-driven entrepreneurs. This might be a very strong assumption given very limited direct information that touched upon motivational factors behind the observed gender differences. For example, Figure 8 presents the different patterns observed between female-led and male-led micro and small enterprises in Indonesia.

Figure 8. Firms profit vs provincial minimum wage between female-led firms (left) and male-led firms (right), 2015



Source: IMK Survey 2015, authors' calculation

A striking difference between female-led and male-led MSEs emerges from Figure 8. 72% of female MSE owners are necessity-driven, whereas only 37% of men owners were necessity driven. These necessity-driven women entrepreneurs are concentrated in manufacturing sectors, such as textiles and pharmaceuticals. It is interesting to note that male-led MSEs tend to be mostly opportunity-driven regardless of sector. This pattern suggests that male MSE owners are successful in making a profit, while women are less able to do so in their business ventures. All of the patterns point to a gender gap between men and women in overall MSE performance, with women having less education and training but a larger household burden than men it becomes more difficult for women to be opportunity-driven in their business growth plans.

MOVING FORWARD: POLICY RECOMMENDATIONS

As shown in the previous sections, male MSE owners in Indonesia are overall more successful than their female counterparts in growing their businesses. The study explored the various factors that affect variation in the degree of success among female and male entrepreneurs.

Different responsibilities that female entrepreneurs potentially hold outside work, particularly those associated with family, might adversely affect their ability to grow their business in different ways than for male entrepreneurs. The linkage between family role and inability to work longer hours is likely one of the most important determinants of a woman's entrepreneurial decisions (Parker, 2009). Household responsibilities that largely are completed by women in Indonesia, make women less likely to participate in the formal labour market (Cowling and Taylor, 2001), and potentially hinders their performance at work. A comparative study of the United Kingdom and the United States shows that motherhood had substantial effect on employment, as women perceive a higher opportunity cost of working (Kuziemko, et.al., 2018). Arguably, this observed pattern has impact on the income inequality between men and women (Cook, et.al., 2018). As the study demonstrates, the situation of Indonesian women and the barriers they face in building or growing a business are similar to those that women face in developed countries.

Even though some women in Indonesia may have become entrepreneurs out of a drive for success, the overwhelming majority of women have done it out of necessity, especially when it comes to MSEs. Many women entrepreneurs find themselves in a situation where they either need to get additional income for their families or are the breadwinners in their family – and there is a lack of formal jobs in their region that would provide stable income. Under these circumstances, running their own business becomes a viable choice. This pattern of necessity-driven entry into business—rather than opportunity-driven engagement in business accounts for the observed performance gap and difference in firm characteristics between women- and men-led MSEs.

Acknowledging and understanding the differences between male and female entrepreneurs, especially among MSEs, is a necessary step for thinking about ways to help empower women entrepreneurs. This study's findings regarding women's lack of success-driven motivation to start a business venture has important policy implications. Therefore, this study proposes the following recommendations:

- **Shift existing policies to government interventions that focus more on business skills development and capacity building for women in MSEs** in addition to traditional funding approaches. Find ways to tackle the fundamental differences and barriers female MSE owners face in the pursuit of running a successful business.
- **Strengthen government policies and programs that provide market intelligence for women in MSEs** to broaden their knowledge about market dynamics of the sectors they are operating in and how the market could advantage their business growth. This will further equip them with a clearer business sense and vision, which is key for motivating women to grow their businesses.
- **Develop business development services that target women in MSEs** to provide comprehensive business assistance to break into larger markets and improve competitiveness through business training and product development assistance. Empowered female entrepreneurs can be expected to achieve higher business performance with improved business agility and capacity. Promoting the use of business associations and women's entrepreneurial networks will assist in this overall growth as well.
- **Improve the understanding of barriers specific to women entrepreneurs in order to better support their business growth.** This might involve collecting family and relationship data of both employers and employees in MSEs such as marital status, parenting status, and whether they are the breadwinner in the family or not. This is fundamental information needed to better study the variables causing the gender gap in business performance, especially among MSEs.
- **Incorporate childcare services into business models and government policies that support women-led MSEs.** By reducing the double-burden faced by women entrepreneurs and women-led MSEs, it creates an opportunity for business growth and entrance into the formal economy.

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ANNEX 1. ESTIMATION RESULTS

Variables	Total Factor Productivity		Production value per labor		Profit margin		Marketing Scope	
	Sign	Significant	Sign	Significant	Sign	Significant	Sign	Significant
Firm's age	-	No	-	No	+	**	+	**
Self-funded capital (% of total capital)	+	**	+	**	-	**	-	**
Working hour growth 2014-2015	-	**	-	**	+	*	+	No
Total remuneration for workers	+	**	+	**	-	**	+	**
% of remuneration that goes to female workers	-	**	-	**	+	**	+	No
Firm's asset (total)	-	**	+	**	-	**	+	**
% of female production workers to total workers	+	No	+	No	-	No	+	*
% of female workers to total workers	-	**	-	**	+	No	-	No
Total workers	-	**	-	**	-	**	+	**
Firm receiving subsidized credit	+	No	+	No	-	No	+	No
Firm receiving bank loan	+	**	+	**	-	**	+	**
Firm receiving government training	+	**	+	**	+	**	+	**
Firm receiving any training	-	**	-	**	-	No	+	No
Firm receiving government assistance	+	No	+	No	-	No	+	*
Firm receiving any assistance	+	**	+	**	-	**	-	No
Firm markets product outside kabupaten/kota	+	**	+	**	-	No	NA	NA
Firm exports its products	+	**	+	**	+	No	NA	NA
Koperasi member	+	**	+	**	+	No	+	**
Joining partnership	+	No	+	No	+	**	+	**
Gender	+	**	+	**	+	No	+	**
Owner's age	-	**	-	**	-	**	-	**

Variables	Total Factor Productivity		Production value per labor		Profit margin		Marketing Scope	
	Sign	Significant	Sign	Significant	Sign	Significant	Sign	Significant
College educated	+	*	+	*	+	No	+	**
Completed any formal education	+	**	+	**	+	No	+	**
Provincial Measures 2015								
GDP Growth	+	**	+	**	+	**	+	No
GDP per capita	+	**	+	**	-	**	-	**
GDP (constant price)	-	**	-	**	+	No	-	**
Minimum wage	+	**	+	**	+	No	+	**
Minimum wage growth	-	No	-	No	-	**	-	**
Unemployment rate	+	**	+	**	+	**	-	**
Sectoral production growth 2014-2015	+	**	+	**	-	**	-	**
Obstacles identification - compared to no obstacle								
raw material	-	**	-	**	-	**	+	**
marketing	+	**	+	**	-	**	+	**
capital	+	**	+	**	-	**	+	No
energy/fuel	-	No	-	No	-	**	-	**
transportation	+	**	+	**	-	*	+	**
labor skill	+	*	+	*	-	**	+	**
labor wage	-	**	-	**	-	**	+	No
others	-	**	-	**	-	No	-	No
Region dummies - compared to 'Jawa'								
Sumatera	+	**	+	**	+	**	-	**
Bali and Nusa Tenggara	-	No	-	No	-	No	-	**
Kalimantan	-	No	-	No	+	**	-	**
Sulawesi	-	**	-	**	+	**	-	**
Maluku	+	**	+	**	+	**	-	**
Papua	+	**	+	**	+	**	-	**

Variables	Total Factor Productivity		Production value per labor		Profit margin		Marketing Scope	
	Sign	Significant	Sign	Significant	Sign	Significant	Sign	Significant
Manufacturing sector - compared to 'Food' sector								
Beverage	-	**	-	**	+	**	+	**
Tobacco	+	**	+	**	+	**	-	**
Textile	-	**	-	**	+	**	+	**
Apparel	-	**	-	**	+	**	+	**
Leather products	+	**	+	**	+	**	+	**
Wood products, no furniture	-	**	-	**	-	**	-	**
Printing and recording	-	**	-	**	+	**	+	**
Rubber and plastic products	-	**	-	**	-	**	-	**
Non-metal mining product	+	**	+	**	-	**	-	**
Metal product, no machinery	+	**	+	**	-	**	-	**
Furniture	+	**	+	**	+	**	+	**
R-squared	0.2810		0.461		0.3431		0.1228	
Number of Jobs	52,126		52,143		52,149		52,149	

Note: * = statistically significant at 90% confidence level; ** = statistically significant at 95% confidence level.

