BUILDING DIGITAL FINANCE SOLUTIONS FOR

WOMEN E-COMMERCE ENTREPRENEURS:
A Demand-Side Exploration in Indonesia

March 2023
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Women's representation in Indonesia's MSMEs is disproportionately high compared to the limited attention gender receives in the e-commerce literature in Indonesia. A gender-lens approach would accelerate the growth of all economic sectors, including in e-commerce.

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Acknowledgments

Women's World Banking is grateful to the 1,104 respondents who took valuable time out of their schedules to participate in our surveys and interviews.

Executive Summary

Addressing the gender earning gap in e-commerce in Indonesia would result in USD 11 billion in annual revenue.

The Indonesian digital economy is expected to grow twice as fast as total GDP growth between now and 2030.[1,2] In Indonesia, e-commerce businesses contributed 63% to the digital economy total of USD 35 billion in 2022. Although MSMEs contributed a sizable amount to overall GDP, it is estimated that 24% (~17.5 million businesses) of Indonesia's MSMEs engage in e-commerce platforms.[3,4] Women-owned businesses represent 64% of all Indonesian MSMEs. Given the Indonesian government's push to achieve 30 million MSME businesses online by 2024, there is a strong need for more data on women e-commerce entrepreneurs. Women's representation in Indonesia's MSMEs is disproportionately high compared to the limited attention gender receives in the e-commerce literature in Indonesia. Women's World Banking's empirical research and practical experience underscore the lack of gender awareness in business practices and financial needs. This research seeks to close the gap by encouraging equal economic participation and contribution,

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1 Digital economy is defined as the network of economic activities, commercial transactions, and professional interactions that are enabled by information and communications technologies. In this report, digital economy refers to e-commerce, online travel, online food delivery and transportation, and media.
2 GDP is an abbreviation of Gross Domestic Product. It measures the monetary value of final goods and services that are produced in a country in a given period of time. It counts all of the output generated within the borders of a country.
3 MSMEs refers to Micro-, Small-, and Medium-Sized Enterprises. This report uses the term MSMEs (micro-, small-, and medium-sized enterprises) when describing a larger group or business segment.
4 Electronic commerce or e-commerce is the activity of electronically buying or selling products on online services or over the internet. Our e-commerce entrepreneur respondents refer to sellers who sell their retail products through e-commerce platforms such as Tokopedia, Bukalapak, Lazada, and Blibli. In general, e-commerce has six types of business models: Business to Government (B2G), Consumer to Government (C2G), Business to Business (B2B), Business to Consumer (B2C), Consumer to Business (C2B), and Consumer to Consumer (C2C). In the Indonesia context, the e-commerce platform simultaneously serves both B2C and C2C customers within the platform. Thus, all of our respondents serve either B2C or C2C customers, with the latter as a majority.

specifically within micro and ultra-micro businesses in Indonesia, the categories with the largest representation of women owners and leaders.[5] Indonesia cannot achieve its e-commerce goals without a focus on women-owned and women-led businesses.

This report uses original survey and qualitative interview data to highlight how women micro and ultra-micro entrepreneurs behave differently than men when using e-commerce platforms, and how their preferences differ. Gender differences in onboarding processes, self-perceived digital literacy, and financial capability drive the need for a unique approach to serving women. This evidence answers two important questions: How are women e-commerce entrepreneurs using e-commerce platforms to increase their economic engagement and business growth, and how might digital and financial services providers and policymakers in Indonesia drive women entrepreneurs' financial inclusion and economic empowerment through the platforms?

These gender differences occur alongside business performance differences between men and women—with clear opportunities for improving and stabilizing women's businesses and financial outcomes. Only 44% of women entrepreneurs successfully sustain their businesses up to 3-5 years, and even fewer can sustain their businesses for more than five years. This figure on business sustainability for women is lower than it is for men across all business phases. Our findings indicate that women e-commerce entrepreneurs earn 22% less than men with similar characteristics. Using this data, we find that an average of USD 11 billion in Gross Merchandise Value (GMV) is lost annually to the gender earning gap among micro and ultra-micro businesses in Indonesia.

Using a gender lens approach to synthesizing these findings, we propose several key recommendations to policy makers, e-commerce platforms, and financial services providers to follow when designing digital and financial services and/or products for women entrepreneurs:

- ✓ **Strengthen mentorship and sponsorship opportunities for women entrepreneurs.**

- ✓ **Increase the availability and use of gender-disaggregated data.**

- ✓ **Apply a gender lens when designing inclusive products and services.**

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5   A recent Women's World Banking report, "Economic Resilience and Digital Adoption among Ultra-Micro Entrepreneurs in Indonesia," highlights that 23% of Indonesian ultra-micro entrepreneurs are growth-oriented.

Introduction

In the last several years, COVID-19 lockdowns and social distancing norms drove an increase in digital economic and financial transactions both within Indonesia and around the world. In Indonesia, 8.5% of the population reports having made a digital merchant payment for the first time since the COVID-19 pandemic began (World Bank, 2021).[6]

The Central Bank of Indonesia[7] confirms that there has been an increase in e-commerce transactions, and that this increase is observed in terms of both total volume and value. Google[8] notes that Indonesia's overall digital economy of Gross Merchandise Value is expected to grow at 19% by 2025. Further, the digital economy is expected to grow twice as fast as GDP through 2030.[9] The expansion of digital payments, driving person-to-person transactions, online shopping, paying for utilities, and placing takeout orders, is increasingly inseparable from the growing volume of e-commerce transactions (Figure 1).

Currently, there are 64.2 million MSMEs[10] in Indonesia representing 96% of the labor force. Of these businesses, about two-third are women-owned. While not all of these are e-commerce businesses, a growing proportion are. Given COVID-19 lockdowns and related challenges to MSMEs, many entrepreneurs chose to take their businesses online. The Indonesian Ministry of Communication and Information Technology (ICT) estimates that 24% of MSMEs (~17.5 million MSMEs) have used e-commerce in marketing their products in 2021.[11] This growing sub-segment of Indonesian businesses represents an opportunity for financial services providers.

The International Monetary Fund notes that e-commerce platforms can boost economic development, supporting retail businesses and national economic growth alike.[12] In other regions, such as sub-Saharan Africa, the International Finance Corporation report finds that the e-commerce sector would increase by USD 15 billion by 2030 if women's online sales reached parity with men's.[13] In Indonesia, McKinsey[14] reports that before COVID-19-related business disruptions, women-owned small businesses accounted for 35% of online commerce revenue. Similarly, in a survey fielded during the pandemic, World Bank reports that only a third of businesses in Indonesia which engaged in the Lazada platform, one of the largest e-commerce platforms in Southeast Asia, are women-owned.[15]
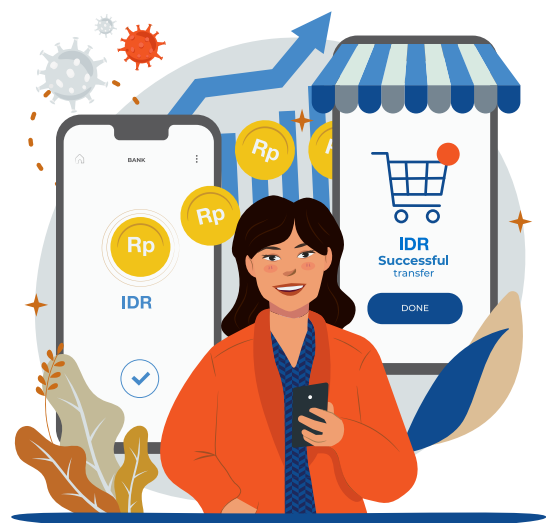
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6   The 2021 Global Findex survey shows that the percentage of adults who made a digital online merchant payment in Indonesia is still low compared to other countries such as Malaysia (44%), Singapore (57%) and Thailand (39%), where more than one-third of adults have made such a payment.

7   As published in Berita satu news regarding the Indonesian Central Bank' Board of Governors (RDG) meeting in April 2022.

8   Google, Temasek, and Bain & Company (2022).

9   Google, Temasek, and Bain & Company (2022), Bain & Company analysis of GDP data from IHS, Central Bank, and World Bank.

10   As mentioned in the Pusat Investasi Pemerintah presentation and Coordinating Ministry of Economic Affair website: Among the MSMEs segment, 18 million and 44 million of them are micro and ultra-micro businesses, respectively.

11   As published in The Ministry of ICT's news release, 2021.

12   Kinda, T (2019).

13   Porter Peschka, M., et al. (2021).

14   Das, K., et al (2018).

15   Wihardja, M. M. & Wibisana, P. S. (2021).

FIGURE 1. INDONESIA'S DIGITAL ECONOMY

22 % GROWTH in e-commerce transactions in 2022

USD 59 BILLION The value of **Indonesia's digital economy** in 2022

USD 95 BILLION The value of **Indonesia's e-commerce industry** by 2025

E-commerce is expected to be the main driver of growth, contributing **73 %** to the total digital economy of **USD 95–130 BILLION**

Source: Temasek, Google, and Bain & Company (2021); Investree (2019).
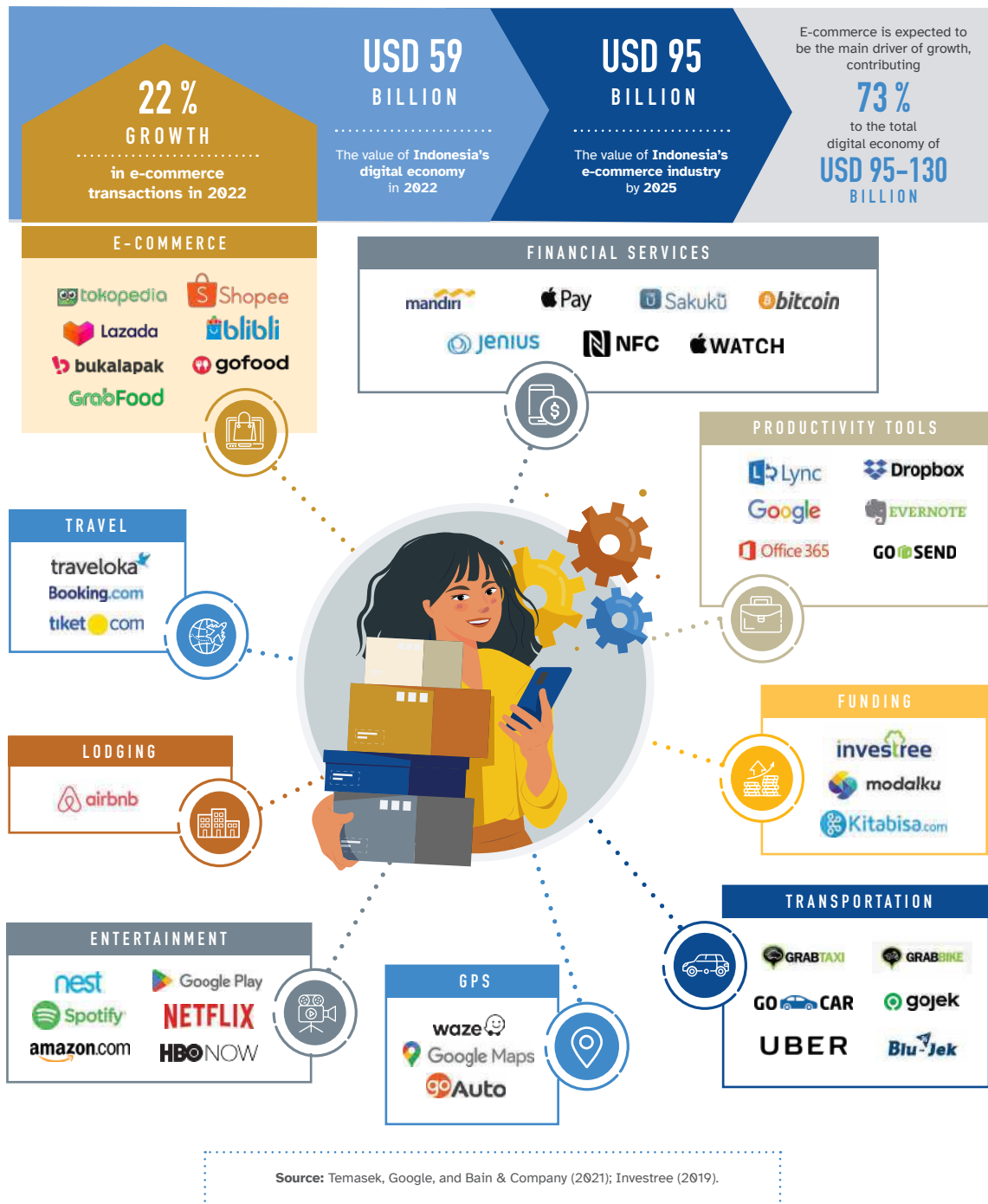
However, there is limited data available in the Indonesian market to direct the efforts of e-commerce platforms and financial services providers to build products which meet the business goals of women e-commerce entrepreneurs. This lack of gender intentionality may limit women's economic empowerment and create obstacles for greater inclusion of women e-commerce entrepreneurs.

Addressing this gender issue, Women's World Banking's research intends to answer two questions:

① How are women e-commerce entrepreneurs using e-commerce platforms to increase their economic engagement and business growth?

Strong evidence in response to this question will drive answers to the second question:

② How might digital and financial services providers and policymakers in Indonesia drive women entrepreneurs' financial inclusion and economic empowerment through e-commerce platforms?

As the Government of Indonesia aims to onboard 30 million MSMEs into digital commerce by 2024[16], there is a strong need for more data on women e-commerce entrepreneurs' needs and preferences. Women's high representation in Indonesia's ultra-micro, micro, and small business segments is disproportionate to the current lack of attention to gender in e-commerce. Therefore, the gender-based evidence from e-commerce users that is generated from this research seeks to encourage equal economic participation and contribution for women MSEs.[17]

Report Roadmap

Readers of this report may want to focus on different sections. The next section, on research findings, takes readers through a detailed gender-disaggregated market analysis of e-commerce entrepreneurs in Indonesia and offers both insights and explanations for the trends we see in the data. Following this section, Women's World Banking offers a set of actionable recommendations for policymakers, platforms, and financial services providers (Figure 2).

FIGURE 2. REPORT ROADMAP

This study included **1,104** respondents from Sumatra, Java, Sulawesi, Kalimantan, Bali, and Maluku islands.

We used mixed-method research to collect primary data from the respondents from May - June 2022.

The data collection was conducted in two phases:

① We fielded a quantitative survey with 1,054 e-commerce entrepreneurs in May 2022.

② We conducted in-depth interviews with 32 e-commerce entrepreneurs and 18 MSME business facilitators.

Further details of the research methodology are available in the appendix.

RESEARCH QUESTIONS

① How are women e-commerce entrepreneurs using e-commerce platforms to increase their economic engagement and business growth?

② How might digital and financial services providers and policymakers in Indonesia drive women entrepreneurs' financial inclusion and economic empowerment through e-commerce platforms?

RESEARCH FINDINGS

Characteristic differences impact retail e-commerce businesses in Indonesia

Gender differences in Indonesia's e-commerce businesses drive financial services and support needs

A Demographic and business diferencess

B A gendered look at platform onboarding processes

C Digital capability of women e-commerce entrepreneurs

D Financial capability and access among women e-commerce entrepreneurs

16   Coordinating Ministry for Economic Affairs (2022).
17   Throughout, we refer to micro and the growth-oriented subset group from ultra-micro when we describe the sample population. We use the term MSME (micro-, small-, and medium-sized enterprises) when we are describing a government initiative inclusive of this range of business sizes or a community effort to empower this larger group of entrepreneurs.

Research Findings

1. A portrait of e-commerce entrepreneurs

Demographic characteristics

Our data shows that entrepreneurs' participation in e-commerce is higher among those living in urban areas (53%), and most entrepreneurs are between 25 and 44 years old (73%). However, we find that women e-commerce entrepreneurs are two years younger on average (33 years vs. 35 years) when they first engage in an e-commerce platform. We also find that women are less likely than men to have completed tertiary education.[18] Table 1 below shows a more detailed socio-demographic picture of our sample of e-commerce entrepreneurs.

TABLE 1. RESPONDENT CHARACTERISTICS				
SOCIOECONOMIC STATUS	**80%** are married	**82%** own and manage day-to-day business operations		
INCOME GENERATION	**60%** Earn a monthly income less than IDR 10 million (~USD 642)	**40%** Earn a monthly income more than IDR 10 million (~USD 642)	**50%** Contribute to the household monthly income with their earnings	
BUSINESS CHARACTERISTICS	**52%** live in urban areas	**48%** live in semi urban areas		
PHONE ACCESS	**2%** have a feature phone	**89%** have a smartphone	**9%** have a smartphone and a feature phone	
EDUCATION	**0.3%** completed elementary school **2.4%** completed junior high school	**56.5%** completed senior high school	**12.5%** completed an undergraduate college education	**28.3%** completed graduate school
AGE GROUP	**11%** are age <24 **39%** are age 25-34	**37%** are age 35-44	**12%** are age 45-54	**1%** are age >55
E-COMMERCE RETAIL BUSINESS AGE	**20%** have been operating their business fewer than 3 years	**52%** have been operating their business 3-6 years	**19%** have been operating their business more than 6 years	
BUSINESS ACTIVITY	**72%** sell goods/services	**23%** make raw materials into finished goods then sell them	**5%** process raw materials into semi-finished goods and then sell them	

18   Our finding highlights that woman e-commerce entrepreneurs are 2% and 5% less likely than men to have earned either a diploma certificate or a bachelor's degree, respectively.

Business characteristics

The majority of the e-commerce businesses within our sample have been operating for 3-6 years, during which their owners have been involved in the day-to-day business activities.[19] The majority of our sample claim they are sole-owners (82%), while the remainder claim they are co-owners with at least one business partner (18%).[20]

E-commerce can boost job creation for paid workers. Nearly half of the sample (49.5%) has one or more paid employees. Of those entrepreneurs who have employees, 19% hire additional seasonal workers during holiday seasons.[21] E-commerce also provides labor opportunities for women workers, as 55% of women and 72% of men e-commerce entrepreneurs claim that more than half of their paid employees are women.[22] However, our study finds that women-owned businesses with higher monthly incomes (>10 IDR million) employ fewer employees than men-owned businesses with the same amount of monthly income (46% vs. 57%).

The most-cited products women entrepreneurs sell are fashion items[23] and food, while men's businesses sell a wider range of product types (Figure 3). Men are most likely to sell higher-economic-value goods such as electronic appliances, gadgets/wearable devices, health-related products, vehicle spare parts, and carpentry products. This finding—that women tend to cluster in a smaller range of business types compared to men—is consistent elsewhere in the world.[24]

Our findings show that women e-commerce entrepreneurs are slightly more likely than men to only have online stores (30% vs. 26%) and to use a greater number of e-commerce platforms than men (three vs. two platforms).

In terms of platform preferences, the women in our sample are more likely than men to engage in the Shopee and GoFood platforms, while the

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19   Our data on business age distribution reveals that women-owned e-commerce businesses are mostly in their first three years (59%), while men's
     e-commerce businesses are mostly in their third through sixth year (54%). Moreover, both married (87% women and 84% men) and unmarried (66% women
     and 69% women) samples claim to own and manage their day-to-day e-commerce businesses.
20   Respondents were asked, "How many retail online businesses do you currently own and manage by yourself (including this one)?"
21   Our data shows that 33% of women and 25% of men entrepreneurs have one paid worker, while 35% of women and 36% of men entrepreneurs have two
     paid workers.
22   Our crosstab analysis shows that entrepreneurs who have both online and offline retail businesses employ more women workers than those who only have
     online retail businesses.
23   Retail – includes accessories/ jewelry/ shoes/ beauty kits and apparel/ fashion.
24   The trends are similar among most countries in Europe (Eurostat, 2016).

FIGURE 3. SHARE OF E-COMMERCE BY PRODUCT TYPE AND GENDER

N=532 Women   N=522 Men
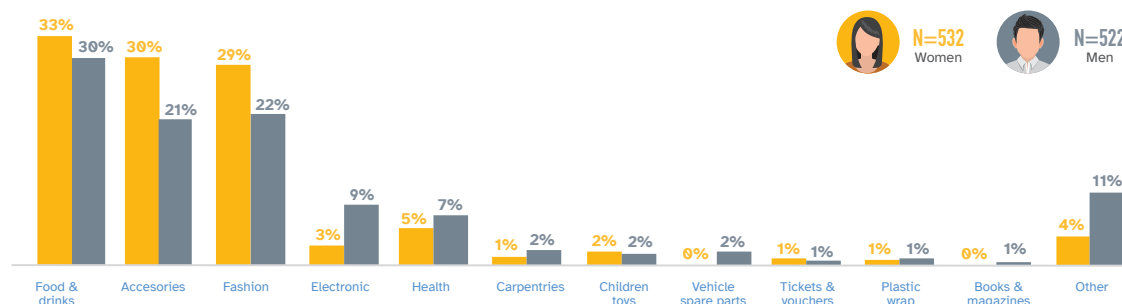
Source: Author. N= 1,054. Respondents were asked, *"Which of the following best categorizes your online business?"* Responses included *"selling foods and drinks; accessories/ jewelry/ shoes/ beauty kits; tickets, vouchers, SIM cards; electronic appliances/ gadgets/wearable devices; children's toys/ stationery/ party supplies; books/magazines; plastic wraps/packaging; apparel/ fashion; health-related items (drugs, vitamins, hygiene kits, medical, supplies, toiletries); vehicle spare parts; carpentry items (materials, machinery, paints) / kitchen sets/furniture; I only offer services (none of the above); other".*

FIGURE 4. SHARE OF E-COMMERCE PLATFORM ENGAGEMENT BY GENDER

N=532 Women   N=522 Men
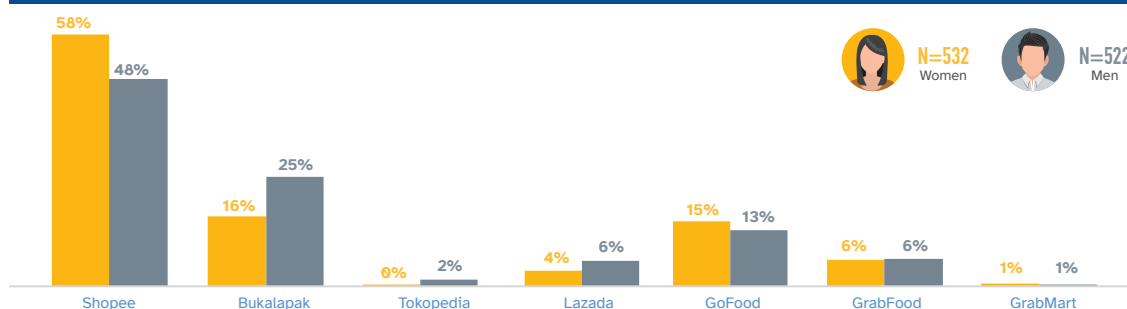
Source: Author. N= 1,054. Respondents were asked, *"Which of these e-commerce sites do you consider to be the main platforms in which you operate your e-commerce business?"*. Responses included *"Shopee, Tokopedia, Bukalapak, Lazada, Blibli, GoFood, GrabFood, GoMart, GrabMart, and none of these"*. Some of the responses are not shown in Figure 4 as there were no numbers involved.

men in our sample are more likely to engage in the Tokopedia and Lazada platforms (Figure 4). This preference may relate to the product types that men and women sell. Based on our secondary research, Shopee[25] and GoFood[26] are well-known as popular platforms for food and drinks, while Lazada[27] and Tokopedia[28] are known for selling electronic products, health-related items, and carpentry products.

A gendered look at platform onboarding processes

Entrepreneurs' onboarding journeys set a tone for their further use of e-commerce platforms. Our analysis attempts to understand retail e-commerce entrepreneurs' journey toward building an online business, especially the preferences for, barriers to, and opportunities for e-commerce platform engagement (Figure 5).

25 Mishra, K. (2022).
26 Antara News (2022).
27 Involve Asia (2021).
28 Rukmana, I.D. (2022).

FIGURE 5. GENDER-LENS ANALYSIS OF ENTREPRENEUR'S ONBOARDING JOURNEY WITH E-COMMERCE PLATFORMS

Planing phases	1 Motivation to conduct business online	2 Resources to identify	3 Channel planning	4 Level of usage
Definition	Why business owners choose to go online?	What support and resources business owners need to use e-commerce platforms?	How business owners make channel decisions to make online sales?	What keeps business owners engaged and active?
Women	✓ To earn money and/or to contribute to household expenses. ✓ Inability to work outside due to family care.	✓ Married women entrepreneurs expect to have their spouse's support when running the online business. However, maintaining life balance while running an e-commerce business from home is still a challenge for those with partners who work outside.	✓ **How and where to seek information:** Women entrepreneurs are more likely to seek information from their business communities and WhatsApp groups or from training sessions that they recently joined.[29] ✓ **What to seek:** Women entrepreneurs consider both subjective (customer reviews) and objective information.	✓ **Women are more likely to make recommendation-led decisions:** Women typically stay interconnected with fellow entrepreneurs when looking for validation about their decisions. They also consider safety, certainty, and trustworthiness when engaging in an e-commerce platform. When they find a safe community such as a women-friendly virtual space in the e-commerce platform, women seem to have less interest than men in exploring other new e-commerce platforms.
Similarities across gender	✓ **Of those who already have a physical store:** To win back the customers they lost due to COVID-19 social restrictions. ✓ **Of those who only have an online store:** To earn income but to start from small and manageable sales.	✓ Regardless of the family supports available for men and women, some entrepreneurs who need to manage production processes by themselves claim to intentionally shut down their e-commerce accounts when there is sudden increased demand coming in. ✓ This is partly due to their limited knowledge/experience in measuring their optimum production and/or selling capacity and resources before entering the e-commerce platform.	**Factors to consider before entrepreneurs decide which channel to use:** ✓ Clear and transparent fees applied for entrepreneurs. ✓ A seamless e-commerce platform onboarding process.	
Men	✓ To try a new selling method. ✓ To keep up with competitors who have transitioned to e-commerce. ✓ Loss/reduction in self/family income.	✓ Married men entrepreneurs seem to have the perception that men are expected to be the providers and decision-makers of the family with women supporting whenever necessary. Thus, they perceive that spousal technical support should be available by default.	✓ **How and where to seek:** Men entrepreneurs prefer to browse various digital resources, i.e., internet-based digital resources and materials available via social media spaces, rather than to seek advice or consult with other people. ✓ **What to seek:** Men entrepreneurs seem to favor objective information over subjective information for questions such as the level of promotion/campaign the platform can provide, or the most efficient and lean process for handling incoming payments.	✓ **Men are more likely to make cost/price-led decision:** Men are more likely to make cost/price-led decisions: Men consider the benefits received from the e-commerce engagements, thus being more price- and/or cost-conscious.

29   The women in our sample report asking for opinions or suggestions from their peers more than men do. This resonates with what McClelland argued: that women tend to seek approval from others, create nurturing relationships with others, and maintain interpersonal harmony (*McClelland, 1975*).

Women choose e-commerce platforms to expand and build their businesses, with flexibility as a valuable benefit

Among e-commerce entrepreneurs, business objectives drive engagement. Both women and men e-commerce entrepreneurs report that their motivation to go online is a desire to build their customer base (85%), improve marketing/sales efforts (77%), and increase revenue (76%), while at the same time reducing operational costs (35%) and fixed costs such as business premises (32%). There are few gender differences in these business-focused goals (Figure 6).

FIGURE 6. ENTREPRENEURS' MOTIVATIONS FOR USING E-COMMERCE PLATFORM

N=532 Women   N=522 Men

Motivation	Women	Men
To expand the customer base	85%	85%
To expand marketing/ sales efforts	77%	77%
To reduce investment/ fixed cost	32%	32%
To reduce operational costs	33%	36%
To increase revenue	75%	77%
Just to try something new	21%	22%
Other sellers use this platform	28%	30%
To support a social mission	10%	10%
I lost my previous permanent job	6%	7%
My owned/ family income was reduced	6%	8%
Lost of child/ familycare	6%	2%
Health situation or customer/ supplier request	3%	4%

Source: Author. N= 1,054. Respondents were asked, *"What motivated you to join/use the platform?"*. Responses included *"to expand the customer base; to expand marketing/sales efforts; to reduce investment/fixed cost (business premise, etc.); to reduce operational costs; to increase revenue; just to try something new; other sellers use this platform; to support a social mission; I lost my/family income from my/family's previous permanent job; my own/family income was reduced; loss of child/family care; my health situation; I don't want to, but my supplier requested it; I don't want to, but my customers requested it; other."*

In addition to these benefits, women are more likely than men to have the motivation to pursue these income and professional goals while also balancing family obligations.[30] In Indonesia, many women chose to stay home to focus on raising their children and managing their households. In fact, the gender labor gap in Indonesia is still high (82% men compared to 53% women participating in the labor force, as per August 2021). Women's World Banking covered the social norms and economic realities of this trend in its report "Women's Economic Empowerment and Financial Inclusion in Indonesia." As part of this research and our previously mentioned

research on ultra-micro entrepreneurs, we identify the high value mothers and wives place on family obligations.

Within in-depth interviews, we found that women are much more likely than men to cite childcare obligations as a reason to conduct business online, showing that women perceive e-commerce platforms to be woman-friendly, enabling them to stay productive while caring for their families. Many of the married women we interviewed also reported that they run businesses to help their husbands financially or only to earn an additional income.

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30 Women sampled were about three times as likely as men to say that household obligations are strong drivers of engaging in e-commerce as opposed to having a physical presence for their businesses.

> *Going online allows me to manage my business from home while taking care of the household and children, so it's more flexible. I prefer online business to work in an office.*
>
> A woman e-commerce entrepreneur
> Malang

> *Balinese women are still strongly bound by local tradition, such as prioritizing cultural ceremonies over running their business, especially if they do not have anyone to help them. Some women entrepreneurs eventually did not put their business idea into a realization due to these situations; they are already occupied with these ceremonies they need to participate in.*
>
> A woman MSME facilitator
> Bali

> *Initially, I started a business because there was a market prospect, then stopped when I had children, then continued again to help my husband pay the existing mortgage installments.*
>
> A woman e-commerce entrepreneur
> Bali

Women e-commerce entrepreneurs note that having digital channels for running their business does not necessarily eradicate issues around inventory management. Women entrepreneurs still cite supply chain problems with supplies being unavailable or expensive. In some areas inventory needs to be delivered from other regions.

Women rely on social capital to overcome business challenges

In some areas,[31] social and cultural aspects such as religious ceremonies and rituals also add an unconscious yet observable barrier for women that keeps them from focusing on their business.[32] Moral obligation or cultural norms governing women's involvement in non-business-related events can also limit women's ability to grow their business.

> *I bought the skipjack tuna fish from someone who lives quite far away in Bitung and I sometimes need my husband or my son to pick it up. It is the only place where the fish comes in a great quality and price. If my supplier is having out of stock, I can't produce and sell any through my e-commerce account.*
>
> A woman e-commerce entrepreneur
> Manado

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31 Balinese people adhere to the notion that there should be peace between humans and God, humans and other humans, as well as between humans and the environment. This influences Balinese civilization in a variety of ways, including social, economic, and other aspects.

32 In Balinese society, women play the major role when it comes to offerings either on a daily basis or during ceremonies. A variety of ceremonies include wedding, the "tooth-filing", a cremation, Nyepi Day (Day of Silence) held in March every year; Galungan, held twice a year; Odalan (the celebration of a Bali temple anniversary); Saraswati and Pagerwesi (a self-introspection and reinforcement day) ceremonies, and many others.

Referring to the e-commerce onboarding journey (Figure 5), about two-thirds of women surveyed through qualitative in-depth interviews reported that they expect to have their spouse's, or if not, their family members' support in managing pick-ups from delivery services and reconciling finances (Figure 7).

FIGURE 7. THE ROLE OF SOCIAL SUPPORT FOR WOMEN E-COMMERCE ENTREPRENEURS		
REGULAR ACTIVITIES IN E-COMMERCE BUSINESS	**BUSINESS CONSTRAINTS**	**PERSONAL CONSTRAINTS**
RECEIVING ONLINE ORDERS	Women's online operating hours in e-commerce platforms are shorter than men's.	Work-life balance is still difficult for women entrepreneurs to achieve, especially when they are the sole caretaker for both their e-commerce business and their household.
MANAGING PICK UP FROM COURIER SERVICES	Limited mobility and safety issues impact women entrepreneurs: • Courier service offices in some areas, mostly in semi-urban places, are not distributed equally. To shorten the pick-up time length, a majority of women sampled tend to ask their spouse or children to drop the package in the nearest courier office. • No real-time tracker features available whenever women entrepreneurs are waiting for courier services to pick up their customer orders. This limits their mobility. • There are times when women are concerned about their safety if unknown people try to enter their house claiming to be assigned courier staff. Currently there is no option for women to select a gender preference for courier staff.	Some women entrepreneurs decide not to receive any orders and to manage the delivery at times when there are no family members around them.
RECEIVING CUSTOMERS PAYMENTS	• Transaction reports provided by e-commerce platforms vary from one to another, and not all are suited to what women entrepreneurs need. Of those who have received training on or conducted financial reconciliation practice, some claim to still copy and paste each transaction detail to suit the reconciliation template they prefer to use. • Some older women claim that they do not do financial reconciliation by themselves due to their limited eyesight or inability to make an inference from looking at a list of numbers. Hence, they will accept the transaction report provided by the e-commerce platform as is.	• Due to other domestic responsibilities, women entrepreneurs face difficulties in allocating extra hours to learn how to do financial reconciliation, particularly if the template provided by an e-commerce platform is different than the one they familiar with. • When copying transaction data from a template produced by the e-commerce platform to the template the entrepreneurs need, human error can happen. Thus, these women claim they prefer to have others, such as their spouse, help with the task.
FOLLOWING UP ON CUSTOMER FEEDBACK	Interaction with customers within an e-commerce platform is limited to answering customers' questions regarding the product features, and focuses much less on asking for customer feedback.	92% of women entrepreneurs[33] claim that more than half of their customers are women. Lack of history on platforms and a low volume of customer reviews have potential to harm women-owned businesses.

33 79% of men e-commerce entrepreneurs also claim that more than half of their customers are women.

Channel planning on e-commerce platforms

In addition to the detailed differences we find across men and women entrepreneurs, as pointed out in the e-commerce onboarding journey (Figure 5), the e-commerce platform women choose depends on the level of their awareness and knowledge of the available platforms, and most importantly, of the platforms' respective features.

Our interview results find that the features the women are not aware of, but need, include:

✓ Accessible and "easy to digest" information in the form of downloadable toolkits about topics such as how to build products/ stores; competitive advantage; defining the target market and expanding the customer base; creating sales plans; determining selling prices; identifying related costs such as admin fees, promotion costs, and taxes applied on the platform; and exercising financial planning and management.

✓ Clear step-by-step user guidance along with chatbot features or similar 24-hour assistance to help women merchants understand and fully utilize e-commerce merchant features.

✓ Guidance for women entrepreneurs on how to explore automated process features such as Search Engine Optimization (SEO) to help improve their products' visibility in e-commerce platforms, and guidance on how their products can automatically appear on the search result' top rows.

Our qualitative research finds that women who have engaged in any entrepreneurial training before joining the e-commerce platform are more motivated to learn new features in the e-commerce platform than those without such training.[34]

Level of e-commerce platform usage

In terms of time spent managing an e-commerce business, our survey results show that women spend more time compared to men managing inventory, tracking profit, and asking for feedback within the e-commerce platform.[35] Our data shows that women who sell electronic products tend to spend more time on financial reconciliation, while women who sell accessories or fashion spend more time reviewing and responding to feedback. The differences in time spent may be attributed to customer demand and the products' economic value.

In terms of expanding e-commerce into social media platforms, women-owned businesses are more likely than men-owned ones to utilize social media to promote their businesses and products (94% vs. 86%). Similar to our previous research on ultra-micro entrepreneurs, this research continues to find that Facebook, WhatsApp, and Instagram are still the most preferred social media platforms at 16%, 20%, and 22% of our total sample, respectively.[36] Nevertheless, there are also a few women entrepreneurs who have started using influencers' endorsements and promotions to help expand their customer base and boost their sales volume.

In terms of what women entrepreneurs require from an e-commerce platform, they need to have the access to express their perspectives and ideas as well as their concerns about certainty and trustworthiness. Being considered as partners of the e-commerce platform, and being heard when they voice their ideas or concerns, are important factors to them. In general, the women sampled are more likely than men to make business decisions based on suggestions from their social network. Meanwhile, men tend to be more price- and/or cost-conscious.

However, each woman entrepreneur has specific and distinct behaviors when it comes to conducting business online. Hence, behavioral economics approaches leveraging insights on women's unique

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34 This aligned with the existing study highlighting the value of entrepreneurship education in helping people recognize business opportunities (Rauth Bhardwaj, 2014).

35 Respondents were asked, "How much time do you usually spend each time you manage stock, track finance, and request feedback for your online business per month?". We compared the responses from those who answered more than 10 times. The result shows that women are on average 2-3% more likely than men to spend their time managing stocks, tracking finance, and requesting feedback from customers, respectively.

36 Meanwhile, the others use Tiktok, WeChat, and Youtube as their preferred social channels.

behaviors, needs, and preferences could help e-commerce platform providers to enhance their products, services, and delivery mechanisms to meet the needs of women entrepreneurs.[37] Such design can be used to increase engagement in the platform, increase profit for both the platform and the e-commerce business, and increase women's loyalty to the platform.

Digital capability of women e-commerce entrepreneurs

Internet-based devices are necessary to conduct e-commerce business. The majority of the women sampled report owning and using smartphones to

run their business. However, women are more likely to use their smartphones for multiple purposes—for business as well as family needs—compared with men (14% vs. 10%).[38]

To find out the extent of the gender gap in technology usage in the e-commerce entrepreneurs segment, we gave respondents a set of different descriptive scenarios to help measure their technological awareness and knowledge in using their smartphone or computer to manage their e-commerce business. We then generated an index of technology knowledge and awareness based on their responses to the scenarios (Table 2).[39]

TABLE 2. TECHNICAL AWARENESS AND KNOWLEDGE AMONG E-COMMERCE ENTREPRENEURS	
TECHNOLOGICAL AWARENESS	**TECHNOLOGICAL KNOWLEDGE**
"How important are e-commerce entrepreneurs device (smartphone/Laptop/PC) for…"	"How would e-commerce entrepreneurs rate their level of knowledge about …"
• Purchasing materials and managing inventory for their retail business.	• Navigating the search for data, information, and content according to their needs in the e-commerce platform.
• Promoting/marketing products/services for their business.	• Deciding what are the best keywords to use for online searches in an e-commerce platform.
• Receiving orders for products/services for their business.	• Data saving/storage of information and content in digital media files.
• Selling and delivering products/services for their business.	• Uploading, downloading, or saving files, and opening downloaded files.
• Managing finances - accepting and making payments and tracking transactions - for their business.	• Creating and frequently changing secure passwords with a combination of numbers, letters, and special characters.
• Purchasing materials and managing inventory for their retail business.	• Backing up their data using a memory card, hard disk, or cloud (e.g., OneDrive, Google Drive, or Dropbox).
	• Their own awareness of the threats (virus, malware) to their devices (handphone, computer).
	• Reporting abuse on an e-commerce platform if there are posts containing negative content or posts that are detrimental to them and/or their business.
	• Contacting the support center or e-commerce admin if there are complaints, transaction, and/or payment disputes in the e-commerce.
	• Taking free and/or paid courses on online learning platforms.

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37 UN Pulse Lab Jakarta released the Beyond Sticky Floors report, discussing how to overcome behavioral barriers to utilizing digital tools for women necessity business owners.

38 Our analysis shows that those who simultaneously use smartphones for business and family needs have a higher level of technology awareness and knowledge. Further, our data confirms that of those who use their smartphone for multiple purposes (business and family matters), their business income (as a business performance indicator) is not necessarily worse off than for those who have a separate smartphone to use exclusively for business purposes.

39 In producing the index, we used the polychoric PCA. This method reduces the number of variables in a dataset to a smaller number of dimensions or components. Yet the main benefit of employing the polychoric PCA method is that it can better handle non-continuous variables. Therefore, it achieves more accurate estimates of coefficients compared to conventional PCA (see Kolenikov and Angeles, 2004).

Women's awareness in using their internet devices, such as smartphones and laptops, is not significantly different from that of men (23% vs. 24%).[40] However, the proportion of women who scored themselves as knowledgeable in utilizing technology is still lower than men (54% vs. 43%).

We further detail the differences in digital capability based on socioeconomic factors. The data shows that women who sell retail accessories, jewelry, shoes, or beauty kits have a higher level of awareness and knowledge compared to other women sampled. Meanwhile, women with higher awareness and knowledge are still surpassed by the awareness levels of men who are highly educated, own a business with high turnover, have smartphones, and are older.

Our analysis further finds that having digital awareness combined with robust knowledge not only increases intentionality of platform selection but also improves business performance in the medium and long term, but not in the short term. Therefore, building the digital capability and self-confidence of women entrepreneurs to use available services and features should be considered and measured as one full digital journey instead of as a one-time intervention and evaluation program.

Financial capability and access among women e-commerce entrepreneurs

According to Women's World Banking, having the information, skills, and attitudes necessary to actively use digital financial services constitutes having financial capability. Our research examines how e-commerce entrepreneurs perceive their own financial capability by asking them to rate themselves in response to a series of seven financial scenarios pertaining to their capacities to save, manage funding for present and future business goals, deal with emergencies, and access formal credit. In our study, we asked business owners to rate their perceived financial capabilities on a scale of 1 to 5 for each of seven scenarios where 1 represents "not confident" and 5 represents "confident" (Figure 8).

Our research finds that women's overall confidence in their financial capabilities is rather low compared to men's.[41] The women in the sample exhibit a perceived capability below the mean total score for each specific indicator, such as the ability to accumulate savings and realize financial goals. The self rating of women who use most of their income on family expenses are lower compared to those who do not use all of their income on family.

FIGURE 8. FINANCIAL CAPABILITY INDEX OF E-COMMERCE ENTREPRENEURS BY GENDER

N=532 Women   N=522 Men

	Able to accumulate savings	Realize own financial goal	Start/realize own business plan	Have access to enough funding to achieve business goals	Have enough cash to cover business shortfall in times of emergency	Have access to affordable, timely credit from formal financial institutions	Have enough business insurance in times of emergency
Women	3,02	3,01	3,03	3,00	2,83	2,64	2,00
Men	3,09	3,07	3,07	3,04	2,89	2,83	2,29

Source: Author. N= 1,054. Respondents were asked, *"How confident are you that you are able to accumulate savings, realize own financial goal, start/ realize own business plan, have access to enough funding, have access to affordable and timely credit"*. Responses included *"not confident at all, somewhat confident, confident, very confident."* The responses varied from 1 to 5, where 1 represents "not confident" and 5 represents "confident". The numbers represent the average self-scores for women and men e-commerce entrepreneurs in each financial scenario.

40 As much as 24% vs. 23% for smartphones and 30% for laptops.

41 Similarly, a recent study from George Washington University found women are less financially literate then men — but that gap is partly due to confidence rather than ability. In European countries, one third of women entrepreneurs reported that they had limited understanding, skills, and experience in managing business (Halabisky, 2018).

Our research further explores women's self-perceived capability in:

ACCUMULATING SAVINGS

Respondents who save money using e-commerce accounts or e-wallet accounts are dominated mainly by business owners who have been in the e-commerce business for 1-2 years, earn at least IDR 5-10 million (~USD 321-642) per month, and are aged 25-34. Further, we find that among e-commerce entrepreneurs, those who have the highest proportion of women customers are more likely to save their money in an e-wallet rather than in a bank, or to save in cash.

Our sample cohort indicates potential of e-wallets to increase inclusivity, especially by targeting untapped groups of women such as those who are aged over 35, running new businesses (under one year), or earning an income of less than IDR 5 million (~USD 321) per month. Our analysis also identified that the use of e-wallets is still dominated by those who exclusively own online stores, suggesting the need to promote e-wallets to women e-commerce entrepreneurs who have offline stores.

Although we have not made any causal analysis on whether engaging in e-commerce drives women's access to formal bank accounts or vice versa, we found that women are more likely than men to use most of the e-wallet products such as OVO, GoPay, LinkAja, DANA, i.Saku, and Shopeepay.

In addition, use of e-wallets may also be dependent on the features they have or peer recommendations. The five reasons women choose a financial product are that it is user-friendly, easy to register, affordably priced, has relevant features they can use for supporting their business, and most of their buyers use the same e-wallet. However, as the women sampled are more likely to be discovery-oriented users, while men are more likely to have a quick and effortless process, e-wallet providers should have a gender-lens strategy in defining these five main reasons to help build better and more accessible e-wallet solutions for women. For example, women will take note of how well the customer service and complaint resolution mechanisms work when they face payment issues while using their e-wallets.

HAVING ENOUGH INSURANCE OR CASH AVAILABILITY DURING AN EMERGENCY

The women in the sample are more likely to doubt that they have enough support or coverage for when difficult times arise. Around 27% of women e-commerce entrepreneurs do not own business insurance, compared to 20% of men. In addition, women e-commerce entrepreneurs who work in children's toys, fashion, and plastic wraps are more likely to have business insurance compared to men. Interestingly, the ownership of business insurance is dominated by younger women e-commerce entrepreneurs (15-24 years old). Meanwhile, those e-commerce entrepreneurs who have not accessed any insurance to cover their businesses perceive that insurance claims require a lengthy process which is not suitable for their business needs, despite their awareness of business risks.

HAVING FINANCING ACCESS

Our analysis shows that women e-commerce entrepreneurs have various alternative funding sources for their business, but the challenge lies both in awareness and in knowing how to fully utilize the available financing schemes for entrepreneurs.

The women in our sample are more likely to finance their businesses using savings and to borrow from their social networks (spouses, family, and friends). The limited awareness about the potential of external financing available from formal financial services can hinder women e-commerce entrepreneurs from growing, innovating, improving human capital, and developing new products (Figure 9). On the other hand, men seem to have more access to formal financial institutions offering big loans. This study highlights potential directions for the design of credit facilities that offer higher benefits and use a more inclusive approach than those offered by informal loan services. It is also relevant to develop a credit system that differs among different groups of women.

FIGURE 9. E-COMMERCE ENTREPRENEURS' ACCESS TO FINANCE BY GENDER AND ANNUAL BUSINESS REVENUE

Legend: Up to < IDR 5 million | IDR 5 - 10 million | > IDR 10 million
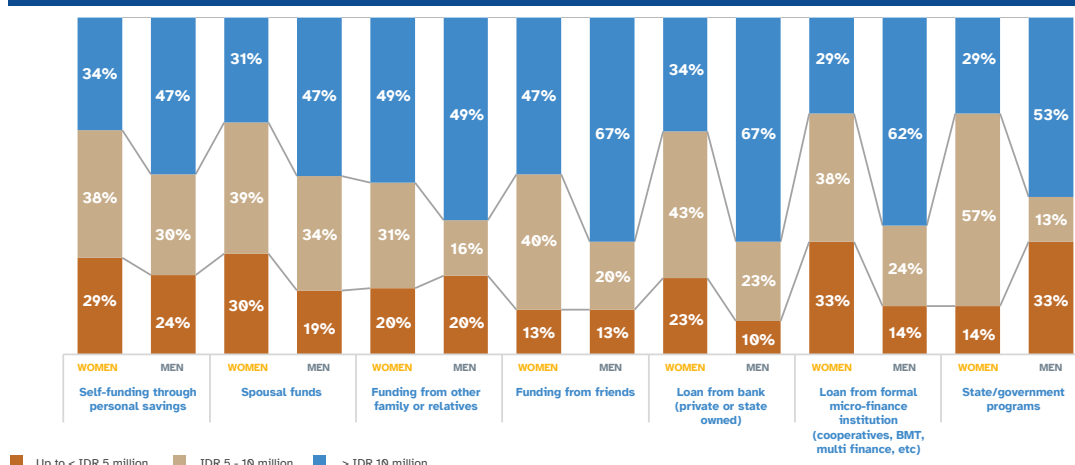
Source: Author. N= 1,054. Respondents were asked, *"What types of financing have you used to fund your retail business until now?"* Responses included *"self-funding through personal savings, spousal funds, funding from other family or relatives, funding from friends, loan from a bank (private or state-owned), loan from a formal micro-finance institution (cooperatives, BMT, multi finance, etc.), state/government programs"*. The responses then cross tabbed with following question: *"In an average month, how much do you contribute to the household monthly income with your earnings?"* We divided the responses into three categories: up to <IDR 5 million (~USD 321), IDR 5 million (~USD 321) – 10 million (~USD 642) , >IDR 10 million (~USD 642).

2. E-commerce business' trajectories and financial structures

Women-owned business engagement on platforms

Based on our in-depth interviews, we mapped three phases of e-commerce business growth. These phases include exploration, starting-up, and sustaining. We then derived a gender disaggregated sample from our quantitative dataset to find out women entrepreneurs' longevity across time.

The phases represent:

✓ **EXPLORATION PHASE**
Business that has an average business lifespan of less than three years.

✓ **STARTING-UP PHASE**
Business that has an average business lifespan of three to five years.

✓ **SUSTAINING PHASE**
Business that has an average business lifespan of more than five years.

Women are far more likely than men to explore an e-commerce business (Figure 10). However, once the business is established, there are far fewer women than men operating in the **sustaining** phase of an e-commerce business. Only 44% of women entrepreneurs successfully reach the **starting-up** phase, and even fewer Indonesian women can sustain their businesses to operate for more than five years (23% vs. 31%).

This data shows both the potential and the challenges facing women e-commerce entrepreneurs in Indonesia. The main challenge, however, is ensuring that these businesses can continue to grow. Thus, a critical step is to design capacity-building interventions specifically for women e-commerce entrepreneurs who are currently at the starting-up and the sustaining business levels, in order to support their e-commerce business growth.

FIGURE 10. E-COMMERCE BUSINESS GROWTH PHASES
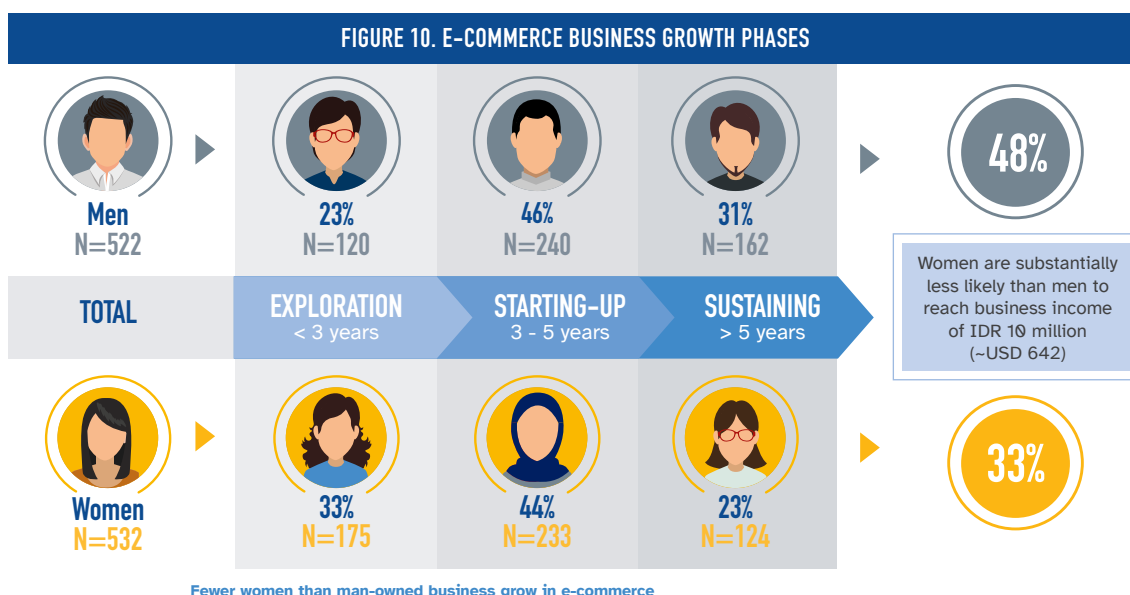
Fewer women than man-owned business grow in e-commerce

Source: Author. N= 1,000. Exploration business phase refers to a business that operates less than three years. Starting-up phase reflects a business that operates for 3-5 years, while the sustaining phase refers to a business that operates for more than five years. Data derived from our quantitative sample only. The total percentage in each gender group adds up to 100%.

Gender gap in e-commerce income

Our data shows that Indonesian women entrepreneurs are far less likely to reach a monthly income above IDR 10 million (~USD 642) than are men (32% vs. 48%). We then tried to see whether there is a gender earning gap among e-commerce merchants by employing a Propensity Score Matching approach (see Appendix B for a detailed methodology). We used the average monthly income and various socioeconomic factors from both women and men e-commerce merchants as a proxy for the gender earning gap. **Our findings indicate that women e-commerce entrepreneurs earn 22% less than men with similar characteristics**. (See Appendix B).

To estimate the impact of efforts to close the gender gap, our study identifies two potential scenarios by considering the existing pattern of Gross Merchandise Value (GMV) and the growth forecast of the e-commerce sector in Indonesia.[42] The first scenario is the status quo where the current gender gap remains unchanged, and the second scenario estimates the impact of closing the gender earning gap on GMV in the long term.

We found that without a change in the gender earning gap in the e-commerce sector, Indonesia's e-commerce is predicted to develop at a compound annual growth rate of 21%.[43] The current Indonesian market size of the e-commerce industry reached USD 59 billion in 2022, and this would mean that by 2032, the value of e-commerce in Indonesia could reach USD 169 billion. In this scenario, **women would contribute to the total predicted value of the e-commerce market at the rate of USD 74 billion in 2032, compared to USD 95 billion for men.**

However, addressing the structural imbalances between men and women in e-commerce would help achieve equality in earnings in that sector. Our findings show that gender equality in earnings would lead to even more of an increase in the market value. In the second scenario, by successfully eradicating unequal earning in ten years' time, **the e-commerce sector will grow by an additional USD 121 billion.** By contrast, **an average potential market loss of USD 11 billion will occur annually if the gender earning gap in the e-commerce sector is not addressed.**[44]

It is impossible to predict the future of e-commerce with 100% certainty. We are aware that our simplified calculation does not consider unpredictable local and global socioeconomic and regulatory changes. The results of our forecasting model, however, make it evident that **a gender-lens approach would accelerate the growth of the e-commerce sector. Failing to apply the gender lens would reduce the potential economic gains from this sector.**

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42 Gross Merchandise Value (GMV) is the total value of merchandise sold during a certain period through a customer-to-customer (C2C) based trading platform. We use YoY GMV growth data published by e-Conomy SEA and apply it for the same basic assumption, i.e., on the compound annual growth rate of Indonesia's GMV. As the basis for the data forecast, we adopt the similar methodology in Women and E-commerce in Africa report.

43 Compound Annual Growth Rate (CAGR) is the annualized average rate of revenue growth between two given years, assuming growth takes place at an exponentially compounded rate.

44 More details on our calculation about how the value of the e-commerce sector grows over time, and the potential economic impact of closing the gender earning gap, are available in the appendix.

Research Recommendations

Our findings show that women and men face different challenges and barriers when accessing e-commerce platforms, and the impact of these obstacles is women's reduced business longevity and lower income in the e-commerce sector, compared to men.

The findings also indicate that an average of USD 11 billion in Gross Merchandise Value (GMV) could be gained annually by addressing the gender earning gap. Thus, the findings highlight the importance of using a gender lens when designing digital and financial products and services for women entrepreneurs. The findings also emphasize the importance of applying attainable metrics to assess the success of such products or services, whether their purpose is to improve e-commerce entrepreneurs' productivity, competitiveness, or both.

The following ideas and summary tables offer recommendations for addressing the barriers faced by women entrepreneurs, creating the conditions for their financial inclusion and economic empowerment.

Strengthen mentorship and support for e-commerce business growth

Existing gender gaps will continue to increase as long as solutions are created without women entrepreneurs' active input, engagement, and leadership. To address this gap, women owners who are in their sustaining business phase could be engaged as e-commerce business mentors for their peers. We found that the women in our sample who have entrepreneurship training are more motivated to learn new features on e-commerce platforms than are women without such training.

Key recommendations for the government include:

✅ **Foster the adoption of initiatives from successful programs to provide mentors with essential tools and knowledge for running e-commerce businesses:** To prepare potential women mentors, the Indonesian government can foster the adoption of ideas from successful programs others have tested, such as creating a baby-friendly Campus for Moms program that can provide potential mentors with the essential tools and knowledge needed to run an e-commerce business.

Trainings may include: training on soft skills to build agency, their ability to define goals and realize them, and decision making. This can also cover consciousness-raising modules for women to understand gender norms and how they might overcome the norms by working with others and advocating for gender responsive system. These mentors can later be certified and receive national acknowledgement as professional business mentors. An accredited professional association or job training within an education institution should provide such certification. The list of professional business mentors then can be used as the primary reference for all who wish to engage business mentors in delivering government or private sector initiatives in strengthening MSEs.

✅ **Work with women mentors to develop training materials for MSEs:** In return for training and accreditation, women mentors would be required to be actively involved in developing training materials for MSEs, providing users' tips based on their own experiences in running their e-commerce businesses. Specific mentorship materials can be created to suit women in the more volatile starting-up phase. To tailor mentorship offerings to women's needs, in-depth interviews can be conducted prior to the program to ensure that the relationships among mentors and mentees remain productive based on their mutual need to grow, tackle challenges, and develop solutions.

TABLE 3. RECOMMENDATION AND INDICATORS TO STRENGTHEN MENTORSHIPS AND SUPPORT FOR E-COMMERCE BUSINESS GROWTH

KEY RECOMMENDATION		PERFORMANCE INDICATOR	GOAL		KEY STAKEHOLDERS		
			PRODUCTIVITY	COMPETITIVENESS	GOVERNMENT	E-COMMERCE PLATFORMS	FINANCIAL SERVICE PROVIDERS
STRENGTHEN MENTORSHIP AND SUPPORT FOR E-COMMERCE BUSINESS GROWTH	Foster the adoption of initiatives from successful programs to provide mentors with essential tools and knowledge for running e-commerce businesses	Number of women e-commerce entrepreneurs participating in the mentorship program	✓		✓	✓	
		Improved digital and business skills among women e-commerce entrepreneurs	✓	✓	✓	✓	
		Number of women e-commerce entrepreneurs graduating and receiving certification as professional business mentors	✓	✓	✓	✓	
		Establishing of a unified database of women mentors nationwide	✓	✓	✓	✓	
		Matching of women mentors and e-commerce business mentees	✓		✓	✓	
		Business performance of the participating women MSEs, i.e., increased sales, business stocks, and formal account balance	✓	✓	✓	✓	
	Work with women mentors to develop training materials for MSEs	Changes in women e-commerce entrepreneurs' business behaviors as a result of the training		✓	✓	✓	
		Impact of the training on women e-commerce entrepreneurs' knowledge, perceptions, attitudes, and self-confidence in achieving future business goals		✓	✓	✓	
		Digital capability and financial metrics of women e-commerce entrepreneurs as a result of using the training materials		✓	✓	✓	

Use gender-disaggregated data (GDD) to develop evidence-based and gendered-focused policy and strategy

Gender-disaggregated data is necessary to ensure policy and business strategies are meeting their targets for women e-commerce entrepreneurs. Such implementation can include the following activities:

- **Collect, analyze, and utilize GDD to design universal innovations in products and services accessible in e-commerce platforms and in embedded financial services.** Such innovations may include improved mechanisms for courier services and/or for financial reconciliation, making processes easy, quick, and seamless. The result will be to entice women e-commerce entrepreneurs to use embedded payment services in their e-commerce platforms, boosting e-commerce's total value and transactions in return.

- **Initiate evidence-based policy using gender-disaggregated data (GDD).** Data can be used as a tracking, monitoring, and evaluation tool by policymakers in government ministries and institutions with interests in MSEs and in e-commerce. The data can help in identifying factors that require improvement, especially given the majority of MSEs are women-owned business entities.

- **Highlight women e-commerce entrepreneurs' success in helping build confidence in other women.** Government can nurture the e-commerce entrepreneurship ecosystem by creating business competitions for women e-commerce entrepreneurs and rewarding successful women business owners. The goal would be to identify role models among women e-commerce entrepreneurs and to overcome gender stereotypes in order to promote the idea that women can successfully start, grow, and sustain their businesses. Having role models can help give women peers more confidence in running their businesses and in testing new ideas.

TABLE 4. RECOMMENDATION AND INDICATORS IN USING GENDER DISAGGREGATED DATA (GDD)						
KEY RECOMMENDATION	**PERFORMANCE INDICATOR**	**GOAL**		**KEY STAKEHOLDERS**		
		PRODUCTIVITY	COMPETITIVENESS	GOVERNMENT	E-COMMERCE PLATFORMS	FINANCIAL SERVICE PROVIDERS
USE GENDER-DISAGGREGATED DATA TO DEVELOP EVIDENCE-BASED AND GENDERED-FOCUSED POLICY AND STRATEGY — Collect, analyze, and utilize GDD to design universal innovations in products and services that are accessible in e-commerce platforms and in embedded financial services	Map and analyze incoming complaints - about e-commerce and embedded financial services features - based on the originating e-commerce entrepreneurs' gender		✓		✓	✓
Initiate evidence-based policy using gender-disaggregated data	Map women's e-commerce business longevity and fragility across time	✓	✓	✓		
	Monitor the number of women e-commerce businesses that grow at the same rate as men's	✓	✓	✓		
	Map and analyze women e-commerce entrepreneurs' specific barriers to growing their business at every business stage		✓	✓		
Highlight women e-commerce entrepreneurs' success in helping to build confidence in other women	Establish e-commerce business competitions for women entrepreneurs		✓	✓	✓	
	Award a "women entrepreneur role model" title on a frequent basis, i.e. monthly, quarterly, or annually. The criteria may be determined based on financial and/or business performance		✓	✓	✓	
	Form a community of practice among women e-commerce entrepreneurs in each locality		✓	✓	✓	

Apply a gender lens approach to design of products and services

Our data shows that when e-commerce businesses operate at a loss, the only options available to entrepreneurs are using savings or borrowing from friends and family. Therefore, we identified several financing alternatives and innovative policies for e-commerce.

✓ **Explore the feasibility of using alternative credit initiatives such as revenue-based financing for e-commerce businesses.** E-commerce entrepreneurs need greater leverage or more funding options once their e-commerce businesses sustain a threshold minimum monthly income or achieve a threshold transaction value. As there is limited productive use of the pay-later services being offered by e-wallet providers, we assume there are still untapped opportunities for credit to empower MSEs' businesses. Financial services providers can explore alternative financing methods such as using invoice-based or purchase-order-based methodologies for evaluating creditworthiness. In such examples, women who are less likely to own formal collateralized assets can have more access to credit to help grow their online business. Financing sources can also be designed in a business-incentives format such as in the form of a gradual increased loan limit, or through longer installment schemes, depending on the value of transactions within a certain period. These direct benefits for e-commerce businesses can even be offered as additional features embedded in the e-commerce platform.

✓ **Expand financial products and services offerings to create more business opportunities for women.** Based on the fact that family care is the reason most often given for why women started their e-commerce business, additional financial products and services can be offered to all e-commerce entrepreneurs to support their family goals, such as offering savings programs not only for business needs but also for children's education, health, retirement, and business insurance. These can be seamlessly embedded in e-commerce platforms.

TABLE 5. RECOMMENDATION AND INDICATORS WHEN APPLY A GENDER LENS APPROACH							
KEY RECOMMENDATION		**PERFORMANCE INDICATOR**	**GOAL**		**KEY STAKEHOLDERS**		
			PRODUCTIVITY	COMPETITIVENESS	GOVERNMENT	E-COMMERCE PLATFORMS	FINANCIAL SERVICE PROVIDERS
APPLY GENDER-LENS TO DESIGN INCLUSIVE PRODUCTS AND SERVICES	Explore feasibility of using alternative credit initiatives such as revenue-based financing for sustained e-commerce business	Loan repayment aligns with women's business model	✓			✓	✓
		Proportion of women e-commerce entrepreneurs using the KUR (the People's Business Credit) program	✓	✓	✓		✓
	Expanding financial products and services offerings to create more business opportunities for women	Breadth of options or touchpoints for women to help advance their journeys, and provide more accessible financial products and services	✓	✓		✓	✓
		Number of women participating in digital financial capability development training		✓			✓

.

Appendix

A. Research Questions and Methodology

This research answers two main questions:

? **How are women e-commerce entrepreneurs using platforms to increase their economic engagement and business growth?**

? **How might digital and financial services providers and policymakers in Indonesia drive women entrepreneurs' financial inclusion and economic empowerment through e-commerce?**

The sample includes 1,104 men and women from urban and semi-urban areas in Sumatra, Java, Sulawesi, Kalimantan, Bali, and Maluku. These geographic areas were chosen because they are high market priorities for Indonesian fintech companies.[45]

We collected data in two phases:

✓ **Phase 1 (May 2022)**
We fielded a quantitative survey of 532 women and 522 men identified as retail e-commerce entrepreneurs. We specifically engaged those using the top five e-commerce platforms in Indonesia: Shopee, Tokopedia, Bukalapak, Lazada, and Blibli. We also included online retail entrepreneurs engaged in GoFood and GrabFood, the two platforms known as the biggest Online-to-Offline (O2O) e-commerce platforms. The sample was stratified based on geography and business size for adequate distribution of the sample across these relevant axes (see Figure 11).

✓ **Phase 2 (May-June 2022)**
We conducted in-depth interviews with 32 respondents, proportionately representing both women and men retail e-commerce entrepreneurs. As business mentoring is frequently included as part of the MSE capacity-building program, by either private or government institutions, we also interviewed 18 business facilitators or mentors serving urban and semi-urban areas in five districts: Bandung, Malang, Minahasa, Bali, and Bogor.

Using this collected data, we triangulated the analysis to understand gender differences in adoption and use of e-commerce and digital payment platforms. We then looked for trends in the behaviors, perceptions, motivations, and barriers experienced by these women and men online retailers in their utilization of e-commerce and digital payment platforms.

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45 Fintech Indonesia (2021).

46 O2O is a phrase used in digital marketing to describe systems enticing consumers within a digital environment to make purchases of goods or services from physical businesses.

47 The Indonesian Ministry of Cooperatives and MSMEs established five flagship programs, including capacity-building programs designed for cooperatives and MSMEs through the provision of business consultation, training, and assistance by business mentors/ facilitators.

FIGURE 11. RESEARCH SAMPLING FRAMEWORK
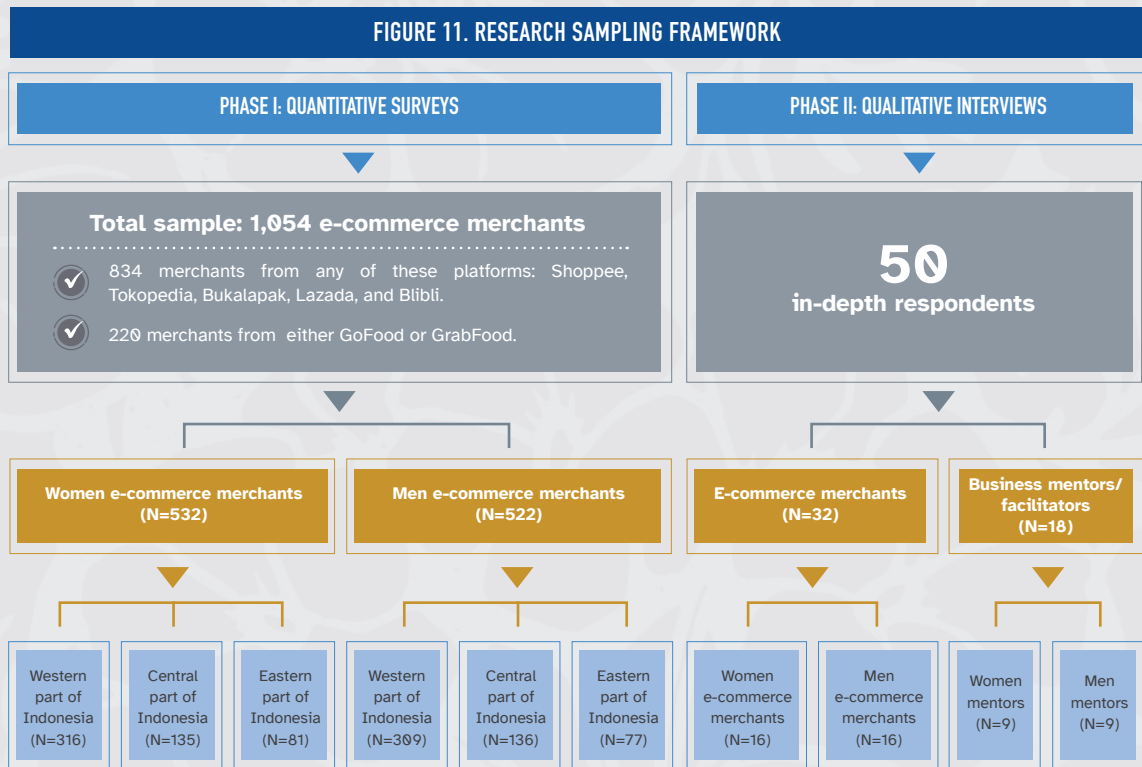
B. Propensity Score Matching (PSM) to Examine Inequality in Earnings Between Women and Men

TABLE 6. PROPENSITY SCORE MATCHING

	Average Treatment Effect (ATE)	
	Dependent variable: average monthly income	
	(1)	(2)
Nearest-neighbor (2)	-0.228*** (0.064)	-0.233*** (0.067)
Nearest-neighbor (5)	-0.216*** (0.059)	-0.229*** (0.060)
Kernel-based matching	-0.231*** (0.055)	-0.229*** (0.056)
Regional dummy – location	Yes	No
Basic control	Yes	Yes

Notes: Regional dummy – location (west/central/east) is included in specification 1. Figures in parentheses are standard errors. Regressors are not reported: age, length of business, length of e-commerce, education, marital status, number of businesses, smartphone ownership, technological knowledge, and urban or rural. *, **, and *** represent statistical significance at 10%, 5%, and 1%, respectively.

Inspired by the PSM approach developed by Rosenbaum and Rubin (1983), we use the Propensity Score Matching technique to examine the gender earning gap among e-commerce merchants in Indonesia. PSM leverages experimental designs using a simple matching procedure and a fully non-parametric method.

With PSM, women's and men's e-commerce merchant groups are matched based on their socioeconomic background. This approach allows us to match women e-commerce merchants with identical men e-commerce merchants corresponding to their unique characteristics such as age, location, marital status, etc. By looking for matched merchants with similar backgrounds, PSM helps us to address sample selection bias concerns.

Furthermore, we use Average Treatment Effect (ATE) as the main parameter that captures the gender earning gap among the women (treated group) and men e-commerce merchants (control group). At the first stage, the probit model is used to estimate propensity score by regressing the binary variable of gender of e-commerce merchants upon some control variables. Following Rosenbaum and Rubin (1983), propensity score can be described as

$$p(T) = Pr(T=1|X) = E(T=0|X)$$

where $p(T)$ represents the propensity to be placed into the group of women e-commerce merchants, T captures whether a subject is a women's e-commerce merchant $(T=1)$ or a men's e-commerce merchant $(T=0)$, and X refers to a vector of control variables.

Choosing the control variables is important, and a general rule is to include variables that are thought to influence the treatment status and outcome indicators. In this study, control variables consist of general socioeconomic background characteristics such as age, length of business, length of e-commerce, education, marital status, number of businesses, smartphone ownership, technological knowledge, urban or rural, and location (west/central/east).

At the second stage, the PSM approach estimates a statistical comparison group of women e-commerce merchants that have an identical background to men e-commerce merchants. There are numerous techniques for calculating this. In this study, we use and compare the results of the nearest-neighbor matching and kernel-based matching. Using the nearest-neighbor matching, every treated women's e-commerce merchant is matched with untreated men's e-commerce merchants. Therefore, the gender earning gap is computed as the average change in the income level among each pair of matched observations. Nevertheless, the nearest-neighbor matching may

have limitations for not meeting the *common support* assumption where units are compared only if they are sufficiently close to each other. For this reason, as part of the robustness check and to solve potential biases due to a few observations from the untreated group that are used to estimate the counterfactual outcome of a treated group, we also use kernel-based matching in which the gender gap is estimated based on the weighted average of all individuals in the untreated group.

It is also important to note that the distributional coverage of propensity scores for the matching method needs to be balanced among women and men, in which identical propensity scores come from the same observed control variables, also known as overlap assumption. The propensity score distribution of the treated and control groups is plotted in Figure 12, where 532 women merchants are classified as treated and 522 men are control. The common support is met, as there are no individuals that the model fails to match. Table 4 shows a comparison of the standardized mean differences before and after matching, demonstrating that matching on the propensity score significantly reduces imbalances in the distribution of the control variables for every respondent. The standardized biases become substantially smaller after matching, indicating that the required balancing property was established when controlling various factors. Overall, the overlap assumption for this PSM technique has been met, and the matching is of good quality.

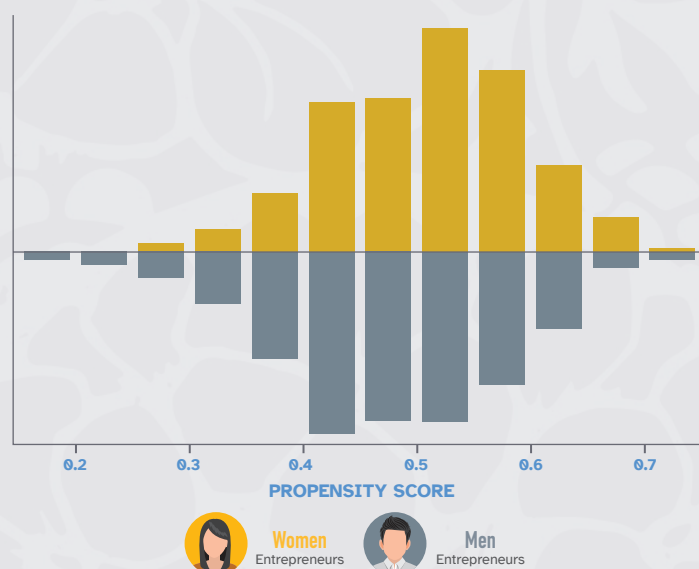## FIGURE 12. DISTRIBUTION OF PROPENSITY SCORE BY GENDER

TABLE 7. DIFFERENCES ACROSS GENDER BEFORE AND AFTER MATCHING

VARIABLES	BEFORE MATCHING			AFTER MATCHING		
	MEAN		% BIAS	MEAN		% BIAS
	TREATMENT	CONTROL		TREATMENT	CONTROL	
Observations	532	522		532	522	
Age	2.45	2.59	-15.2	2.45	2.42	3.5
Marital status	0.03	0.02	1.9	0.03	0.03	-0.5
Education level	3.61	3.71	-11.4	3.61	3.63	-2.3
Urban	0.53	0.50	4.9	0.53	0.50	5.3
Location	0.59	0.59	0.4	0.59	0.60	-2.9
Length of business	4.34	5.17	-21.5	4.34	4.10	6.4
Length of e-commerce	2.31	2.76	-28.3	2.31	2.31	-0.1
Number of businesses	1.12	1.10	4.6	1.12	1.13	-1.5
Smartphone ownership	0.91	0.87	14.2	0.91	0.92	-4
Technological knowledge	0.43	0.54	-20.2	0.43	0.46	-6

Notes: The table reports the balancing properties of variables estimated in the propensity score matching when using two nearest-neighbor matching. Variables include age (15-24 y.o, 25-34 y.o, 35-44 y.o, 45-54 y.o, 55-64 y.o, >65 y.o), marital status (1 if single and 0 otherwise), education level (no education – did not finish first grade/never attended school, elementary school, junior high school, senior high school, diploma certificate, graduate and postgraduate), urban (1 for merchants who live in urban areas and 0 otherwise), location (1 for living in the western area), length of business (in years), length of e-commerce (in years), number of businesses, smartphone ownership (1 for owning smartphones and 0 otherwise), technological knowledge (1 for higher technological knowledge and 0 otherwise).

C. Gender Earning Gap Methodology

1 We estimated future growth in e-commerce in Indonesia using the historical trajectory of Indonesia's Gross Merchandise Value (GMV).

TABLE 8. GROWTH FORECAST IN E-COMMERCE (2021–2032)		
YEAR	BASELINE GMV (IN BILLION USD)	FORECAST GMV (IN BILLION USD)
2021	48	
2022	59	
2025	N/A	92
2032	N/A	169

2 We calculated the potential market value loss if the gender earning gap were to remain constant, comparing historical and projected future GMV.
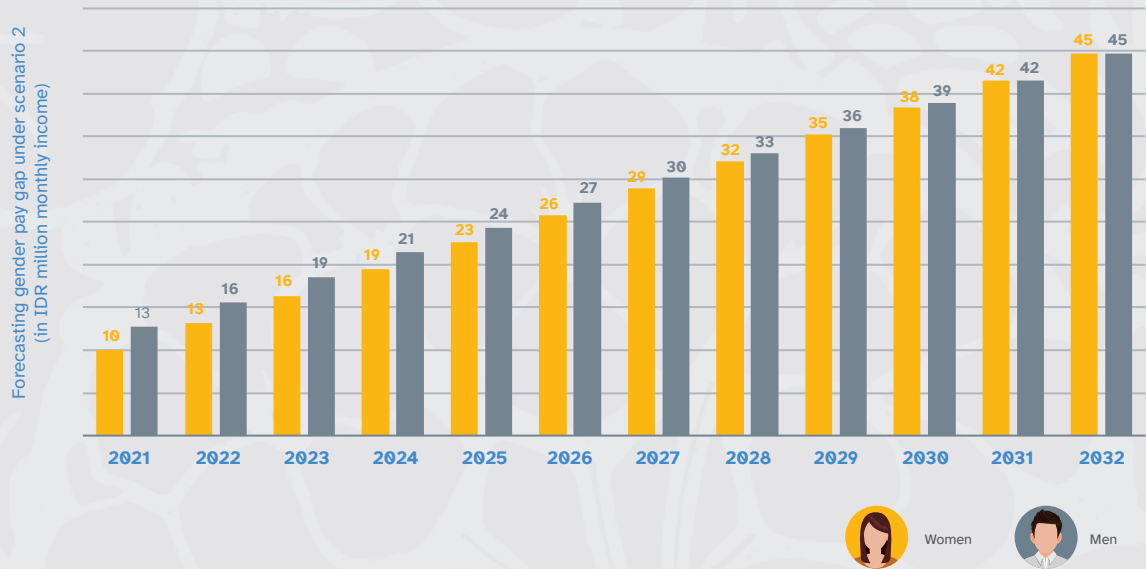
TABLE 9. GENDER EARNING GAP IN E-COMMERCE (2022–2032)		
FINDING "POTENTIAL" GMV UNDER SCENARIO 2 (IN BILION USD)		
YEAR	BASELINE GMV	FORECAST GMV
2022	59	61
2023	70	74
2024	81	86
2025	92	99
2026	103	112
2027	114	125
2028	125	138
2029	136	151
2030	147	163
2031	158	176
2032	169	189
TOTAL	**1254**	**1375**

Between year 2022-2032 (b-a):

☑ **Total potential GMV loss: ~ USD 121 billion**   ☑ **Annual potential GMV loss: ~ USD 11 billion**

3 We visualized additional possible revenue possible in e-commerce if the gender gap is closed over time, holding all other variables constant.

FIGURE 13. GENDER PAY FORECAST OVER TIME WITH INTERVENTION (2021–2032)

Forecasting gender pay gap under scenario 2 (in IDR million monthly income)

Year	Women	Men
2021	10	13
2022	13	16
2023	16	19
2024	19	21
2025	23	24
2026	26	27
2027	29	30
2028	32	33
2029	35	36
2030	38	39
2031	42	42
2032	45	45

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