Small Enterprise, Big World: Internet and Export Performance in Indonesia

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Abstract

MSEs play an important role in the Indonesia economy with 94% of the workers, and responsible for about 43% of the country's GDP. Despite that, their associated share of exports amounted to just about 4.14% in 2019, which is considered an important part of the economic development. The current development of technology has provided new opportunities for MSEs to overcome the barriers to international trade. Thus, it can be argued that enhancing the online presence of MSEs will likely bring significant impact on economic growth and job creation through exports. Therefore, to improve the understanding of the association between online presence and MSE international and interprovincial export, the study uses the Indonesian 2019 Manufacturing Micro-Small Enterprise Survey and employs the Ordinary Least Square regression. This study finds: (1) internet presence is positively associated with international and out-of-province exports; (2) from internet usage, the transmission through selling products directly has a positive association with international and out-of-province exports, whereas marketing and buying inputs is positively associated with out-of-province exports. From these results, policymakers and managers can focus on practices to increase online presence of companies with a focus on demand side improvements of "Selling Products" and "Marketing".

Keywords: internet; micro-small enterprises; trade; Indonesia

1 Introduction

1.1 Global Context of MSEs

When looking at the economy of the region, MSEs in the Southeast of Asia are a key factor to analyze. As a matter of fact, according to the Asian Development Bank, they amount to just about 70 million firms, and employ more than half of the working population. In most Southeastern Asian countries MSEs make up the great majority of firms, 99.9% of Indonesian enterprises, 99.3% of Thailand's, 99.1% of Philippines', 96.3% of Malaysia's and 81.6% of Brunei's (Schaper, 2020), contributing on average for 40.5% of GDP and 19.2% of total exports (Tan, 2022). On top of this, in such developing countries, plenty of businesses operate informally, so their contributions and associated data are hard to fetch, suggesting that these numbers may actually be significantly higher. More specifically, according to the International Finance Corporation, roughly 77% of MSEs and medium-sized enterprises in developing countries – about 220 million units – are not recorded in official data.

Despite their huge share among all the firms in the country, these enterprises have historically failed to hold an analogous weight with respect to international trade. The reasons are varied, and can be grouped under the general obsolescence that characterizes them. As already mentioned, most of these firms are not even registered, and, even those which are, are extremely heterogeneous in capabilities and resources. In fact, this gap in skill,

very likely linked to the difficulty to access capital which will be discussed later on, between MSEs and large and foreign firms constitutes a great hindrance for entering the global value chain.

Of course, this widespread inefficiency translates into a huge unrealized potential for the economy, since a higher participation to the global value chain is typically associated to higher innovation, employment and productivity and, as an indirect result, to the overall wealth of the population (OECD, 2019). However, the current development of technology has provided an opportunity for MSEs through the internet. The growing global reach of the internet provides new opportunities for businesses to engage in international trade and has created new business models that bring users and information together. Online presence provides businesses opportunities to not only sell products abroad but use the Internet to advertise globally, avoiding the need to establish a physical presence in the country of export, something that requires considerable capital and is often not an option for MSEs. Thus, it can be argued that enhancing the online presence of MSEs will likely bring significant impact on economic growth and job creation.

1.2 Highlights on Indonesian MSEs

MSEs comprise of both Micro and Small Enterprises. According to the Indonesia Ministry of Investment, "MSEs are businesses owned by Indonesian citizens, both individuals and business entities, with a business capital of at most Rp 5 billion excluding land and buildings for business premises." (BKPM, 2021), the total asset value range, in Indonesian Rupees, for Micro enterprises is below IDR 50 million, whereas for Small enterprises it is between IDR 50 and 100 million (Indonesia Investments). According to the Indonesian National Development Planning Agency, Micro and Small-sized Enterprises (MSEs) give employment to around 94% of the workers, and make up for about 43% of the country's GDP. Despite the fact that about 99.9% of firms in Indonesia are classified as MSEs, according to the Ministry of Micro, Small, and Medium Enterprise and Cooperatives, their associated share of exports amounted to just about 4.14% in 2019.

Despite being present in many different sectors, about 80% of micro enterprises are either part of the primary sector (52.07% of the total), so to say agriculture, livestock farming, forestry and fisheries, or operate in the trade and hospitality – restaurants and hotels – industry (28.38% of the total). Regarding small (and medium, even though their number is extremely low, accounting for just 0.09% of the total firms) enterprises, their concentration is mostly in trade and hospitality (71.85% of the total), and manufacturing and processing (11.01% of the total).

One of the major problems for Indonesian businesses is the access to funding; this issue has gained recognition even from the government which, as a matter of fact, has recently introduced a lending requirement of 20% (set to increase to 30% in 2024) for banks towards MSMEs. Nevertheless, a study carried out by the ILO in 2019 has pointed out the main hindrances for these enterprises to access credit. According to their findings, on the macro/regulatory level, the presence of an excessively strict credit scoring system and lack of reliable credit information contribute to making lending a very burdensome and slow process, thus not favoring capital movements that would, supposedly, spark growth for MSEs.

On the supply side, the absence of up-to-date and fitting financial products, combined with lacking monitoring and data infrastructure, make financial lending institutions unattractive for firms which, on their end – the demand side – operate following a "family-like" type of philosophy, rather than an organized and efficient one, and can be

very hard to reach and educate about the potential opportunities that financial services unlock for them.
Aside from these financial constraints, as Tambunan (2019) points out, according to a survey conducted in 2015 by the NSMSI, MSEs' owners lamented the difficulty to implement good marketing strategies and managing to acquire raw materials. There may be several different causes for these issues: regarding marketing, the most probable are lack of money for actual implementation and tight price competition from other countries' imports, China in particular; regarding raw materials, the weakness of the local currency, prohibitive physical distance from the place of sale and market scarcity of the materials themselves are all reasons that can make securing these resources a lengthy and tricky task for businesses.

1.3 Problem Statement

The main goal of this paper is to assess the association of online presence of Micro-Small Enterprises (MSEs) of Indonesia to their participation in international trade. Our study contributes to the literature by analyzing the growing Indonesian market and focusing on micro and small enterprises that are still adapting to the internet.
We want to learn whether using the internet helps MSEs to increase their participation in the international market, taking into account that they are the most affected by barriers such as access to information, new markets, and lack of financing.
Thus, if there exists a significant barrier that can be overcome by the internet in the context of small Indonesian businesses, we can expect to find an association between online presence and export level, ceteris paribus.

2 Literature Review

2.1 Production Theory

Micro and small enterprises (MSEs) are less competitive in the export markets compared to larger ones due to lack of economies of scale in production and supply chains, high fixed and variable costs of sales and transportation systems, and resources. In terms of production function, MSEs possess less capital and labor. So, the best way for them to increase production under the same amount of resources is to boost productivity (A).
The internet is one of the things they can do. The effects of the Internet can be explained in the context of traditional economic growth theories, where direct investment into technology can substitute for capital and labor (Jorgenson 2001). For example, firms around the world have been using e-commerce platforms such as Amazon and Alibaba to expand their sales. Helpman, Melitz and Yeaple (2004) suggests that the opportunity for firms to pay lower fixed export costs by exporting indirectly via well-established e- commerce platforms. Thus, the access to the internet allows small firms to increase productivity and lower their costs.

2.2 Ricardo and Heterogenous Firm Theory

According to Ricardo's International Trade Theory, nations engage in international trade based on comparative advantage. Countries should export relatively more in sectors in which they are relatively more productive and less costly. As the usage of the internet lowers costs and raises productivity for MSEs, they become relatively

more competitive. The Internet is one of the very few tools that small businesses can use effectively to compete with their bigger rivals on the same grounds (Ramsey et al., 2003). Therefore, MSEs would participate more in the export market with the appearance of the internet.

Despite establishing a solid link between productivity and international trade engagement, Ricardo's Theory analyzes whole countries, rather than selected firms. In fact, one of its core assumptions is that firms are homogeneous and therefore have access to the same inputs, technology etc., which is something that does not match our database of heterogeneous firms. However, according to Melitz and Redding, by disaggregating trade data across different firms and analyzing new causal links between trade and welfare, it is possible to see a certain sensitivity of the economy with respect to trade costs. Hence, we decided to drop the homogenous firm assumption of the Ricardian model, and instead conduct our analysis on heterogeneous data.

2.3 Previous Empirical Studies

In general, studies have shown internet usage to be positively associated with firm export performances. Utilizing firm survey data, Ricci and Trionfetti (2012) find that firms that have better internet communication networks will have a higher probability to export by 15 percent.

Fernandes et al. (2019) utilizes firm-level manufacturing panel data and shows that internet penetration boosts firm exports in China in which the internet reduces trade costs and improves overall firm performance.

Internet technologies also enhance the firms' competitive advantage (Ellsworth & Ellsworth, 1997; Slade & Van Akkeren, 2001) as the firm is able to reduce export prices and trade costs (Shi, 2016 and Yadav, 2014).

According to Pria Rahmadani, Sorayanti Utami, and Iskandarsyah Majid (2020), their study indicates that internet marketing capabilities positively and significantly affect export availability information and export market growth. Caroline Freund and Diana Weinhold (2002) also found that a 10-percent increase in Internet penetration in a foreign country is associated with about a 1.7-percentage-point increase in export growth and a 1.1-percentage-point increase in import growth, which proves a positive relationship between Internet and export.

Moreover, Bianchi and Matthews (2015) and Rahmadani, Utami and Majid (2020) show that internet marketing capabilities positively and significantly affect export availability information, which in turn impacts the development of business network relationships and export market growth.

However, Yadav (2014) shows that positive association of internet with exports of firms may be subject to specific conditions, as the study only found the relationship in manufacturing firms but not in services. Therefore, this study would like to analyze whether the usage of the internet by SMEs is able to increase the percentage of exports for SMEs in Indonesia's manufacturing sector.

3 Data and Methodology

3.1 Data

Our study utilizes the Indonesian 2019 Manufacturing Micro-Small Enterprise Survey. The sample size is 90,295 enterprises in the manufacturing sector. However, due to missing data on the firm age, our analysis utilizes data of 89,926 enterprises (0.4% attrition). The data has been collected by Statistics Indonesia annually since 2011 which

provides nationally representative statistics. The survey is conducted to collect information on the development and growth of the micro-small manufacturing enterprises which is an indicator and material for industrial sector policies. The survey is limited to micro and small enterprises which are defined as enterprises with 1 to 19 workers (including the owner) that are in the manufacturing sector.

However, in our analysis, we utilize the micro and small enterprise definition based on yearly revenue (Indonesian Law No. 20/2008). Micro enterprises are defined as enterprises with yearly revenue up to IDR 300 million (approximately USD 19,532), whereas small enterprises are defined as enterprises with yearly revenue between IDR 300 million to IDR 2.5 billion (approximately USD 162,772).

The sample is collected using a stratified random sampling based on the enterprises' scale (micro and small) and sector which is based on the 2015 Indonesian Standard Industrial Classification (24 sectors) based on the Indonesia 2016 Economic Census. The survey collects data on the enterprises' business conducts (production value, distribution of production, number of workers, beginning year of enterprise operation), enterprise ownership characteristics, credits, hardships faced by the enterprises, and certification. However, there are several data that are not published for the public, such as provincial location and capital value of the firm.

3.2 Method and Model

To analyze the association of firm internet usage on the percentage of MSE's output export proportion, the model utilizes the Ordinary Least Square (OLS) regression. The analysis is done at the MSE level and focuses on the partial equilibrium of the supply side of exports by MSEs (our study does not take in account demand side variables).

The study adapts the model utilized in Dhanaraj and Beamish (2003), Voerman (2004), Ricci and Trionfetti (2012), Gashi, Hashi, and Pugh (2014), Manzanares (2019), Falentina et al. (2021). The study utilizes two dependent variables: (1) the proportion of the MSE's output that is exported to the international market (percentage) and (2) the proportion of the MSE's output that is exported to the interprovincial and international market (percentage). The usage of two dependent variables was to consider that most MSEs did not participate in international exports, whereas inter-provincial trade would be more likely for MSEs.

The independent variable of interest is a dummy variable whether the MSE utilizes the internet or not for business. We also control the effects for other variables that are associated with MSE export proportion including owner characteristics, MSE's inputs, and other MSE characteristics. Owner characteristics include the MSE owner's education level. The MSE's inputs include the MSE's scale, number of labor, capital, and credit recipient of MSEs. Whereas, other MSE characteristics include the MSE's age, partnership status, production certification, and MSE's sector (Detailed explanation of variables are in Table 1). Model 1 (Dependent variable: International Export) and Model 2 (Dependent variable: Interprovincial and International Export) are as follows:

$$
\begin{aligned}
FirmInterExportShare_i &= \propto_0 + \propto_1 FirmInternetPresense_i + \propto_2 OwnerLastEducation_i + \propto_3 FirmSize_i \\
&+ \propto_4 Labor_i + \propto_5 Laborsq_i + \propto_6 SectoralCapital_i + \propto_7 Credit_i + \propto_8 FirmAge_i \\
&+ \propto_9 Partnership_i + \propto_{10} Certification_i + \sum_{j=1}^{21} \propto_j MSESector_{ji} + e_i \ldots (1)
\end{aligned}
$$

$$FirmInterProvinceExportShare_i = \beta_0 + \beta_1 FirmInternetPresense_i + \beta_2 OwnerLastEducation_i + \beta_3 FirmSize_i + \beta_4 Labor_i + \beta_5 Laborsq_i + \beta_6 SectoralCapital_i + \beta_7 Credit_i + \beta_8 FirmAge_i + \beta_9 Partnership_i + \beta_{10} Certification_i + \sum_{j=1}^{21} \beta_j MSESector_{ji} + \varepsilon_i \ldots (2)$$

where, i = MSE number i, j = sector number j, e and ε are error terms. In this analysis, the study also separates the samples based on the firm size, micro enterprise and small enterprise (the model will exclude FirmSize variable). This would allow a deeper analysis on internet presence and MSE exports with consideration of the MSE's size. The results show whether there is a different association between internet presence and MSE exports on different MSE sizes.

To provide a further explanation on how internet presence is associated with MSEs' output international and provincial plus international export, the study further expands the model to incorporate the various usages of the internet by the firm. The MSE can utilize the internet for five usages including marketing, selling their product, buying input, borrowing for financial technologies, and finding information for business development. By breaking down the several usages of internet of MSEs, the study would like to elaborate further on the transmission of internet presence on MSE interprovincial and international export. The models utilize the two dependent variables and same control as the previous models. However, the internet presence variable is broken down into five dummy variables based on the usages of the internet. Model 3 (Dependent variable: International Export) and Model 4 (Dependent variable: Interprovincial and International Export) are as follows[1]:

$$FirmInterExportShare_i = \gamma_0 + \gamma_1 InternetMarketing_i + \gamma_2 InternetSellProduct_i + \gamma_3 InternetBuyInput_i + \gamma_4 InternetFintech_i + \gamma_5 InternetInformation_i + \gamma_6 OwnerLastEducation_i + \gamma_7 FirmSize_i + \gamma_8 Labor_i + \gamma_9 Laborsq_i + \gamma_{10} SectoralCapital_i + \gamma_{11} Credit_i + \gamma_{12} FirmAge_i + \gamma_{13} Partnership_i + \gamma_{14} Certification_i + \sum_{j=1}^{21} \gamma_j MSESector_{ji} + u_i \ldots (3)$$

$$FirmInterProvinceExportShare_i = \delta_0 + \delta_1 InternetMarketing_i + \delta_2 InternetSellProduct_i + \delta_3 InternetBuyInput_i + \delta_4 InternetFintech_i + \delta_5 InternetInformation_i + \delta_6 OwnerLastEducation_i + \delta_7 FirmSize_i + \delta_8 Labor_i + \delta_9 Laborsq_i + \delta_{10} SectoralCapital_i + \delta_{11} Credit_i + \delta_{12} FirmAge_i + \delta_{13} Partnership_i + \delta_{14} Certification_i + \sum_{j=1}^{21} \delta_j MSESector_{ji} + v_i \ldots (4)$$

where, i = MSE number i, j = sector number j, u and v are error terms.

[1] We also utilize a variable InternetUsages as an independent variable for robustness check which is a ratio of how many internet usages the MSE utilizes and the total number of internet usages from the questionnaire (5 usages), further explanation in Table 1. The variable does not significantly increase the R2.

3.3 Hypothesis Testing

From the models that have been explained above, the study would like to analyze four hypotheses in regards to how internet presence is associated with MSE manufacturing exports (international and interprovincial plus international). Our first two hypotheses scrutinizes a general association between internet presence and MSE exports, as follows:

Hypothesis 1 : Internet presence is associated with higher output proportion for international exports in Manufacturing MSEs ($H_0 : \alpha = 0; H_A : \alpha = 0$)

Hypothesis 2 : Internet presence is associated with higher output proportion for interprovincial and international exports in Manufacturing MSEs ($H_0 : \beta = 0; H_A : \beta = 0$)

The remaining two hypotheses are related to the usage of internet and MSE exports. Based on studies by Rahmadani et al. (2020) and Bianchi and Matthews (2015), marketing of products through the internet is one of the main transmissions on how firms are able to increase their export. Thus, the study focuses on marketing in the analysis. The hypotheses are as follows:

Hypothesis 3 : Internet usage for marketing is associated with higher output proportion for international exports in Manufacturing MSEs ($H_0 : \gamma = 0; H_A : \gamma = 0$)

Hypothesis 4 : Internet usage for marketing is associated with higher output proportion for interprovincial and international exports in Manufacturing MSEs ($H_0 : \delta = 0; H_A : \delta = 0$)

4 Results

4.1 Descriptive Statistics

Our dataset contains information about various company characteristics, including firm age, owner education, sector, labor, and online presence. After eliminating observations with missing data (369 enterprises), we use 89,926 observations for our analyses. Most of the data that we use is categorical, due to the characteristics and limitations of micro-small enterprise data. In regards to MSE exports, MSEs output that were exported were considerably low. On average, the output of MSEs that were exported to the international market was 0.28% of their output (See Table 2).

Furthermore, on average, the output of MSEs that were exported to the interprovincial and international market was 3.05% of their output. The main reason for the low average is mostly due to the low participation of MSEs in exporting interprovincial and internationally. MSEs that had output exported to the international market was 0.49%, whereas MSEs that had output exported to the interprovincial and international market was 5.99%. In terms of the internet presence of MSEs, most manufacturing MSES in Indonesia have not utilized the internet for their business in 2019 (15.22%). MSEs that did have internet presence would use the internet mostly for selling their products directly (7.38%), this is followed by using the internet for marketing (6.30%), information searching (4.75%), buying inputs (7.38%), and borrowing from fintechs (0.06%)

Pertaining to other characteristics, MSEs in the analysis were mostly micro enterprises (87.78%) and have owners with education below upper secondary (66.50%), did not have partnerships (92.00%) and also did not have product certification (94.45%). Even though our dataset focuses on enterprises with less than 20 workers, they employ 90% of total employees. The average number of workers employed by Indonesian MSEs is small, reflected by 2.24 on average. On the other hand, the average years of MSE on the business is more than 13 years, reflecting the experience. The MSEs also had difficulties accessing credit as only 8.62% of MSEs had credit in which this has been a mainstay problem for MSEs. The MSEs mostly came from the Food sector (23.54%), which is followed by the Wood product sector (13.22%) and Apparel sector (13.06%).

4.2 Model Diagnostics

After running the initial model, the study ran several model diagnostics to ensure the regression results' coefficient and standard error were unbiased. The model diagnostics include non-linearity check, multicollinearity, heteroscedasticity, and normality of residuals. The results in the later sections have taken into account the issues found from the model diagnostics.

4.2.1 Non-Linearity

To test for non-linearity (whether the model is misspecified due to not specifying non-linear independent variables), the study runs the Ramsey RESET test. A significant result in the Ramsey RESET test indicates that there may be non-linear independent variables that had not been included in the model which should be added. Initially, our model did not have the variable laborsq (the average number of labor in MSE squared). Table 3 provides the results of the Ramsey RESET test (without laborsq variable). In all four of the models, the Ramsey RESET test is significant, thus there is a need to add non-linear independent variables in the model. **Therefore, the final model adds the variable of the average number of labor squared (laborsq)**. The remaining two numerical variables (firm age and capital percentage) were found to be non-significant in all four models and were not utilized in the final model.

4.2.2 Multicollinearity

To test for multicollinearity (whether the independent variables have a linear relationship with other independent variables), the study runs the Variance Inflation Factor (VIF). A variable that scores a VIF above 10 indicates that the variable has a strong multicollinearity with other independent variables. Table 4 provides the results of the VIF. In all four of the models, the percentage of capital owned by MSE sector in 2015 variable has a VIF of 35.9. This is most likely due to the capital variable having the same value for each sector-j, thus having a linear correlation with the sectoral variables. This can be supported by several sectors such as Textile, Apparel, Other Manufacturing, etc. also having VIF above 10. Despite the multicollinearity issue, **the final model still has the capital variable** (do nothing) which is the best proxy available from the public data. This is due to capital being an important factor in the model (relating to the production function in the theoretical framework). Therefore, taking out the capital variable would cause omitted variable bias.

4.2.3 Heteroscedasticity

To test for heteroscedasticity (whether the variance of residuals are distributed the same or different for a given independent variable value), the study utilizes a graphical analysis and runs a Breusch-Pagan Test. Graphically, the residual variance decreases (disperses) as the number of labor increases (see Figure 2). The graph provides complementary information which must be tested through a statistical test. For the test, a significant result in the Breusch-Pagan test indicates that the residuals' variance are heteroscedastic for a given value of the independent variables, which causes the coefficient standard error to be unbiased. Table 5 provides the results of the Breusch-Pagan test. In all four of the models, the Breusch-Pagan test is significant, thus the residuals' variance are heteroscedastic. **Therefore, the regression results utilize the heteroskedastic robust-standard errors (HC3)** to take in account the heteroscedastic variance.

4.2.4 Normal Distribution of Residuals

To test for normality of residuals (whether the residuals are normally distributed), the study utilizes a q-normality graph. Shapiro-Wilk for normality were not utilized as the tests are good if sample size is below 2000. Moreover, with large samples, small deviations from normality may increase the likelihood of rejecting null hypothesis in statistical tests. Figure 3 provides the Q-Normality graph. In model 1 and 3, there are slight deviations from the normality line in the beginning and end of the distribution. Whereas, for model 2 and 4, there are larger deviations in the end of the distribution. Alternatively, the study had also done log transformation of the model. However, the distribution of the Q-normality graph deviated more from the Q-normality line (and the R2 decreased). Thus, the final model utilized is the linear model.

5 Results and Discussion

The regression results of our model are reported in Table 6. The coefficient that estimates our primary variable of interest, utilization of the Internet for business, is positive and significant for Micro and Small Enterprises. This is consistent with our hypothesis H1 that Micro and Small Enterprises who adopt the internet for business export more compared to those that don't. Breaking down by firm size, however, the relationship is both positive and significant only for small enterprises. We do not find strong evidence that adopting the internet benefits micro enterprises' export performance.

However, this result is likely owing to the fact that only 0.49% of the micro enterprises in our sample participate in international trade. This implies that even though the internet can help reduce the cost for export, micro enterprises are still not able to do business abroad. One factor that shows a positive and significant coefficient is the owner's last education. Those with higher education are more likely to participate in international trade. One explanation could be that more educated people may have better understanding of the international market and may have better strategies to penetrate the international market. Also, we found that MSEs who have product certificates are associated with higher export share, because there will be less non-tariff barriers for them, thus making it easier and more motivated to do exports.

But does the internet really have no impact on the business performance of micro enterprises? While Shi (2016)

and Yadav (2014) show that the internet improves the export of MSEs by reducing export prices and trade costs, this, on the other hand, implies that doing international business is usually too costly for smaller firms. This is especially true for micro enterprises who own even less resources than small enterprises. But what if we broaden the definition of export and include both international trade and out-of-province trade instead? We do this modification for two reasons. First, since Indonesia comprises more than 15,000 islands, shipping goods to other provinces is similar to doing international trade. Second, without language barriers, tariffs and other export-related costs, it would be more economically feasible for micro enterprises to sell goods to other provinces. Thus, it is reasonable to ask whether internet adoption improves out-of-province trades for micro enterprises.

To examine this, we conduct additional regressions on the relationship between internet adoption and out-of-province trade (interprovincial plus international trade). The results are reported in Table 7. The coefficient now becomes both positive and significant for micro and small enterprises. This gives evidence that the adoption of internet for business is related to higher international plus out-of-province exports share for both small and micro enterprises.

Furthermore, we analyze in-depth how the usage of the internet is associated with SME export performance[2]. We first examine the effect of internet usage for marketing on exporting, our primary variable of interest (Table 8). The study of Rahmadani et al. (2020) shows that internet marketing capability has a positive and significant effect on export availability information and export market growth. The coefficient that estimates the relationship between internet usage for marketing and international export is 0.0231, suggesting that using the internet for marketing positively impacts international export, but the impact is not statistically significant as the study mentioned.

Once we further examine the effect of internet usage for marketing by including interprovincial export, we obtained a positive and significant coefficient (1.431), which is consistent with our hypothesis H4 that internet usage for marketing is associated with higher output proportion for interprovincial and international exports in Manufacturing MSEs. For MSEs that have adopted the internet for selling products, the coefficient of international export (0.266) and the coefficient of both provincial and international export (2.885) are both positive and significant, revealing the prominent role of the internet in enhancing Manufacturing MSEs' product sales in non-local markets.

A striking difference emerges when estimating how using the internet to buy input affects export participation. In contrast to the significant negative relationship (-0.193) between using the internet to purchase input and international export, the regression reveals a significant positive relationship (1.498) once we included out-of-province trade. This result didn't confirm our previous prediction that buying input through the internet can increase MSEs' international export even though it does raise the involvement rate in out-of-province export.

When estimating the effect of applying the internet to borrow from Fintechs, we found a positive but insignificant impact on both international export only and provincial export plus international export. Both positive estimates imply that MSEs that use the internet to increase financing would participate more in trade. The regressions we run to estimate the relationship between using the internet to search for information and export participation

[2]We also run a robustness check changing the dummy variables of internet usage into a ratio (the number internet usages the MSE utilizes divided by the total number of internet usages possible (5)). The results are in line with the main results, in which the internet usage ratio is positively associated with export share of MSE (Table 9). However, the R2 remains low.

provide positive but insignificant results. It's not consistent with what we assume, but it still illustrates the benefit of using the internet to gain information. We believe internet development will help Manufacturing MSEs obtain more information and gain a greater share in exporting activity.

The results of this model answer the question of how emerging market enterprises can utilize online resources to increase their participation in international and out-of-province trade. Based on what the study found, using the internet for selling products was significantly associated positively with MSEs' participation in both international and out-of-province export. Whereas, using the internet for marketing and buying inputs was significantly associated positively with MSEs' participation in out-of-province export only. The empirical results prove the importance of the internet in increasing Manufacturing MSEs' participation in trade.

6 Conclusion

In this study, we are exploring the relationship between Online Presence of Micro and Small enterprises and their export performance. We found that there is a significant positive association between online presence and international and out-of-province export share for MSEs. Moreover, one of the interesting results was the insignificance of the online presence for micro enterprises in international trade, while the association was positively significant for small enterprises. The difference in regression results between small and micro enterprises may be resulted from the fact that doing international business is too costly for micro enterprises due to their limited resources. Therefore, the performance for inter-province trade is included in the analysis. Online presence helps MSEs gain access to out-of-province markets in which micro enterprises may gradually grow into small enterprises and will be able to afford the cost of international export by their scale. We also found that MSEs who have owners with high education and own product certificates are associated with a higher export share.

Furthermore, in regards to the transmission of internet usage, results imply that companies focusing on the demand side of "Selling products directly" can benefit from an online presence in both international and out-of-province export performance. Despite the expectations for the importance of "Marketing," "Selling Products directly" was the most associated form of usage with export performance. It points out the importance of accessible and safe platforms for trade with the development of e-commerce services. Whereas, "Marketing" and "Buying Inputs" was found positively significant only with out-of-province export's of MSEs.

Although our study provides an essential overview of internet usage and export share for Manufacturing MSEs in Indonesia, it has several limitations. First of all, panel data and time series being beyond the scope of this study limits the results to only cross-sectional variation. It causes only a small variation to be explained by the study, reflected by R-squared, and undermining possible causal links. The study also tried to use log transformations and non-linearity in the model but R2 did not change significantly (in the log transformation the R2 decreased). Secondly, another alternative to improve the models explanatory ability is by utilizing a Heckman two-step model. The model will initially regress a selection model for MSEs that export or not and then the second step would regress the value of the export share. Due to the low participation of exports, international and out-of-province, by MSEs the selection model will be an important specification. Finally, it's also important to note that the standard deviations of our coefficients are not very large, therefore, the economic meanings may be limited.

7 References

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8 Figures and Tables

Figure 1: Theoretical Framework of Study

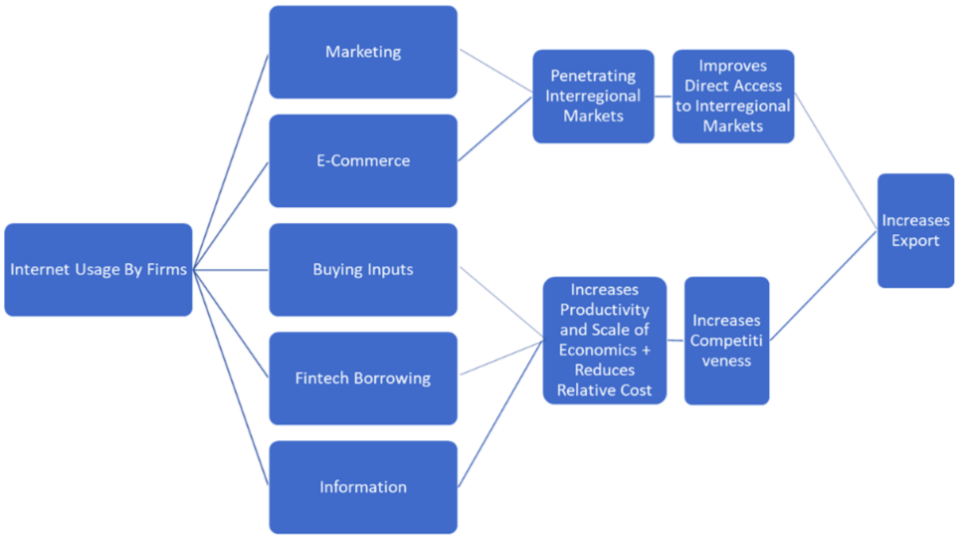

Figure 2: Scatterplot of Residuals and Labor

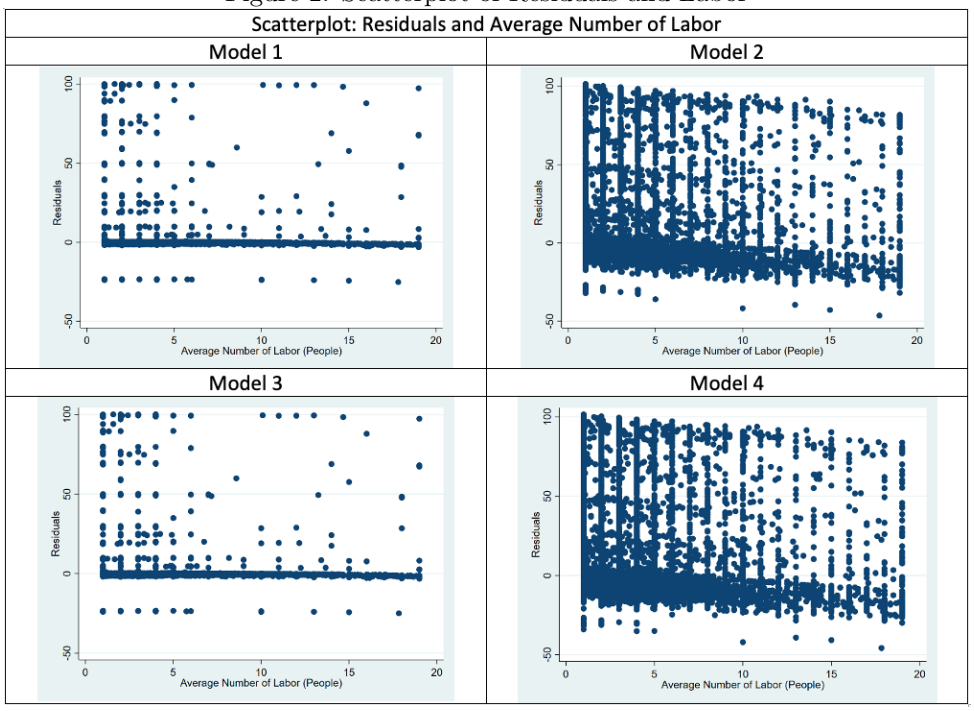

Figure 3: Q-Normality Graph

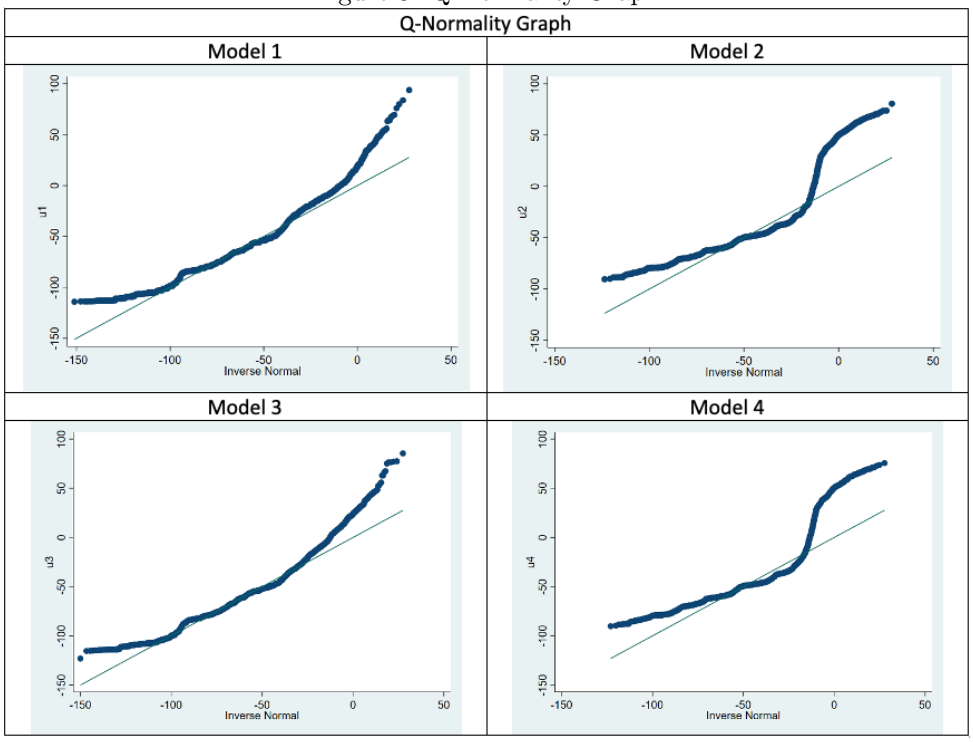

Table 1: Description of the Variables In Model

Variable	Description
Dependent Variable	
FirmInterExportShare	The percentage of MSE firm's output that is exported to international market (Percentage)
FirmInterProvinceExportShare	The percentage of MSE firm's output that is exported to inter-provincial and international market (Percentage)
Main Independent Variable	
FirmInternetUsage	Dummy Variable, 1 = The MSE utilizes the internet for their business, 0 = The MSE does not utilize the internet for their business.
InternetMarketing	Dummy Variable, 1 = The MSE utilizes the internet for marketing, 0 = Others
InternetSellProduct	Dummy Variable, 1 = The MSE utilizes the internet for directly selling their products, 0 = Others
InternetBuyInput	Dummy Variable, 1 = The MSE utilizes the internet for buying input, 0 = Others
InternetFintech	Dummy Variable, 1 = The MSE utilizes the internet for accessing credit from financial technologies, 0 = Others
InternetInformation	Dummy Variable, 1 = The MSE utilizes the internet for finding information, 0 = Others
InternetUsages	(ONLY FOR ROBUSTNESS CHECK) The ratio of how many internet usages the MSE utilizes and the total number of internet usages from the questionnaire (5 usages) (Percentage). For example, if the MSE utilizes internet for marketing and selling their products, the value of the variable will be 40%
Owner Characteristics	
OwnerLastEducation	Dummy Variable, 1 = The MSE owner finished upper secondary school or above, 0 = The MSE owner finished lower secondary school or below.
MSE's Inputs	
Labor	Average number of labor working in MSE, including owner (People)
Laborsq	Average number of labor working in MSE, including owner squared (People Squared)
SectoralCapital	Percentage of Capital Owned in Sector-j in 2015 (Percentage). Note: This was the closest proxy variable for MSE capital as the individual MSE capital was not available for public.
Credit	Dummy Variable, 1 = The MSE has a credit, 0 = The MSE does not have credit
Other MSE Characteristics	
FirmAge	The number of years the firm has been operational (Years)
Partnership	Dummy Variable, 1 = The MSE has a partnership with Government/Company/NGO, 0 = The MSE does not have a partnership
Certification	Dummy Variable, 1 = The MSE national or international production certification, 0 = The MSE does not have production certification
MSESector	A vector consisting of 21 Dummy variables (The data divides MSEs into 23 sectors due to the sectoral capital one sector was omitted), 1 = The MSE main product is in sector-j, 0 = The MSE main product is in other sectors.

Table 2: Descriptive Statistics of Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
International Export (%)	89,926	0.275	4.781	0	100
Provincial and International Export (%)	89,926	3.053	14.702	0	100
Revenue-Based MSME Categorization (1 = Small; 0 = Micro)	89,926	0.123	0.328	0	1
MSE utilizes Internet for Business (1 = Yes; = No)	89,926	0.152	0.359	0	1
MSE Uses Internet for Marketing (1 = Yes; 0 = No)	89,926	0.063	0.243	0	1
MSE Uses Internet for Selling Products (1 = Yes; 0 = No)	89,926	0.074	0.261	0	1
MSE Uses Internet for Buying Input (1 = Yes; 0 = No)	89,926	0.031	0.173	0	1
MSE Uses Internet for Borrowing from Fintechs (1 = Yes; 0 = No)	89,926	0.001	0.025	0	1
MSE Uses Internet for Information Searching (1 = Yes; 0 = No)	89,926	0.048	0.213	0	1
Owner Last Education (1 = Upper Secondary or Higher; 0 = Lower Secondary or Lower)	89,926	0.335	0.472	0	1
Average Number of Workers (People)	89,926	2.241	2.044	1	19
Average Number of Workers (People Squared)	89,926	9.197	27.327	1	361
Percentage of Assets Owned by MSE Sector in 2015 (%)	89,926	15.003	15.730	0.01254	42.4255
MSE Has Credit (1 = Yes; 0 = No)	89,926	0.086	0.281	0	1
Number of Years MSE Has Operated (Years)	89,926	13.163	11.051	0	119
MSE has Partnership (1 = Yes; 0 = No)	89,926	0.080	0.271	0	1
MSE has Product Certification (1 = Yes; 0 = No)	89,926	0.055	0.229	0	1
MSE is in Food Sector (1 = True; 0 = False)	89,926	0.235	0.424	0	1
MSE is in Beverage Sector (1 = True; 0 = False)	89,926	0.047	0.211	0	1
MSE is in Tobacco Processing Sector (1 = True; 0 = False)	89,926	0.026	0.159	0	1
MSE is in Textile Sector (1 = True; 0 = False)	89,926	0.073	0.260	0	1
MSE is in Apparel Sector (1 = True; 0 = False)	89,926	0.131	0.337	0	1
MSE is in Leather Product Sector (1 = True; 0 = False)	89,926	0.020	0.141	0	1
MSE is in Wood Product Sector (1 = True; 0 = False)	89,926	0.132	0.339	0	1
MSE is in Paper Product Sector (1 = True; 0 = False)	89,926	0.004	0.064	0	1
MSE is in Recording Media Sector (1 = True; 0 = False)	89,926	0.021	0.143	0	1
MSE is in Chemical Product Sector (1 = True; 0 = False)	89,926	0.013	0.114	0	1
MSE is in Pharmaceutical Product Sector (1 = True; 0 = False)	89,926	0.006	0.075	0	1
MSE is in Rubber Product Sector (1 = True; 0 = False)	89,926	0.007	0.084	0	1
MSE is in Non-Metal Product Sector (1 = True; 0 = False)	89,926	0.094	0.291	0	1
MSE is in Basic Metal Product Sector (1 = True; 0 = False)	89,926	0.003	0.052	0	1
MSE is in Metal Product Sector (1 = True; 0 = False)	89,926	0.061	0.240	0	1
MSE is in Computer, Electronic, and Optical Product Sector (1 = True; 0 = False)	89,926	0.001	0.022	0	1
MSE is in Electrical Equipment Sector (1 = True; 0 = False)	89,926	0.001	0.028	0	1
MSE is in Other Machines Sector (1 = True; 0 = False)	89,926	0.002	0.041	0	1
MSE is in Motorized Vehicles Sector (1 = True; 0 = False)	89,926	0.002	0.045	0	1
MSE is in Other Transport Sector (1 = True; 0 = False)	89,926	0.009	0.092	0	1
MSE is in Furniture Sector (1 = True; 0 = False)	89,926	0.051	0.221	0	1
MSE is in Other Manufacturing Sector (1 = True; 0 = False)	89,926	0.059	0.236	0	1
MSE is in Repair and Installation for Machines and Equipment Sector (1 = True; 0 = False)	89,926	0.004	0.063	0	1

Table 3: Ramsey RESET Test Results (without laborsq)

Model No.	Ramsey RESET F-Statistic	P-Value
1	235.64	0.000
2	193.74	0.000
3	264.48	0.000
4	204.00	0.000

Table 4: VIF Table

Variable	**Model 1 and 2**	**Model 3 and 4**
	VIF	**VIF**
MSE utilizes Internet for Business	1.2	
MSE Uses Internet for Marketing		1.2
MSE Uses Internet for Selling Products		1.27
MSE Uses Internet for Buying Input		1.19
MSE Uses Internet for Borrowing from Fintechs		1.01
MSE Uses Internet for Information Searching		1.11
Owner Last Education	1.19	1.19
Revenue-Based MSME Categorization	1.54	1.54
Average Number of Workers	7.72	7.72
Average Number of Workers	6.31	6.31
Percentage of Capital Owned by MSE Sector in 2015	35.94	35.95
MSE Has Credit	1.07	1.07
Number of Years MSE Has Operated	1.09	1.09
MSE has Partnership	1.04	1.04
MSE has Product Certification	1.05	1.05
MSE is in Beverage Sector	11.73	11.73
MSE is in Tobacco Processing Sector	7.24	7.24
MSE is in Textile Sector	17.28	17.29
MSE is in Apparel Sector	14.96	14.96
MSE is in Leather Product Sector	5.65	5.65
MSE is in Wood Product Sector	17.95	17.95
MSE is in Paper Product Sector	2.03	2.03
MSE is in Recording Media Sector	5.77	5.78
MSE is in Chemical Product Sector	4.23	4.23
MSE is in Pharmaceutical Product Sector	2.42	2.42
MSE is in Rubber Product Sector	2.75	2.75
MSE is in Non-Metal Product Sector	14.21	14.21
MSE is in Basic Metal Product Sector	1.69	1.69
MSE is in Metal Product Sector	11.99	11.99
MSE is in Computer, Electronic, and Optical Product Sector	1.13	1.13
MSE is in Electrical Equipment Sector	1.2	1.2
MSE is in Other Machines Sector	1.43	1.43
MSE is in Motorized Vehicles Sector	1.52	1.52
MSE is in Other Transport Sector	3.15	3.15
MSE is in Furniture Sector	10.12	10.12
MSE is in Other Manufacturing Sector	13.67	13.67

Table 5: Breusch-Pagan Heteroscedasticity Test Results

Model No.	**Breusch-Pagan Chi2-Statistic**	**P-Value**
1	279,477.87	0.000
2	50,875.32	0.000
3	280,287.46	0.000
4	51,384.8	0.000

Table 6 - Share of international export by Micro and Small Enterprises and the utilization of Internet, controlling for business owner's characteristics

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
	All Sample	All Sample	Micro Enterprise	Small Enterprise
VARIABLES	International Export (%)	International Export (%)	International Export (%)	International Export (%)
MSE utilizes Internet for Business (1 = Yes; = No)	0.169***	0.101*	0.0613	0.222**
	(0.0474)	(0.0527)	(0.0608)	(0.104)
Owner Last Education (1 = Upper Secondary or Higher; 0 = Lower Secondary or Lower)		0.0820**	0.0783*	0.151*
		(0.0372)	(0.0413)	(0.0851)
Enterprise Size Based on Revenue (1 = Small; 0 = Micro)		-0.0523		
		(0.0475)		
Average Number of Workers (People)		-0.0551**	-0.0253	-0.0668
		(0.0257)	(0.0234)	(0.0568)
Average Number of Workers Squared (People Squared)		0.00670***	0.00175	0.00847**
		(0.00241)	(0.00143)	(0.00416)
Percentage of Assets Owned by MSE Sector in 2015 (%)		0.00170***	0.00135***	0.00512**
		(0.000435)	(0.000437)	(0.00218)
MSE Has Credit (1 = Yes; 0 = No)		0.0587	0.0906	0.0154
		(0.0608)	(0.0735)	(0.107)
Number of Years MSE Has Operated (Years)		-0.00169	-0.00203	-0.000288
		(0.00161)	(0.00175)	(0.00396)
MSE has Partnership (1 = Yes; 0 = No)		0.143*	0.118	0.186
		(0.0792)	(0.0905)	(0.165)
MSE has Product Certification (1 = Yes; 0 = No)		0.361***	0.415***	0.127
		(0.106)	(0.128)	(0.175)
MSE is in Beverage Sector (1 = True; 0 = False)		0.0602	0.0443	0.0370
		(0.0572)	(0.0600)	(0.0689)
MSE is in Tobacco Processing Sector (1 = True; 0 = False)		0.00554	0.0884**	0.0298
		(0.0403)	(0.0375)	(0.0757)
MSE is in Textile Sector (1 = True; 0 = False)		0.728***	0.720***	0.848**
		(0.0954)	(0.0980)	(0.393)
MSE is in Apparel Sector (1 = True; 0 = False)		0.148***	0.143***	0.235
		(0.0355)	(0.0356)	(0.170)
MSE is in Leather Product Sector (1 = True; 0 = False)		0.207**	0.174**	0.361
		(0.0876)	(0.0867)	(0.261)
MSE is in Wood Product Sector (1 = True; 0 = False)		0.424***	0.452***	0.178*
		(0.0545)	(0.0596)	(0.101)
MSE is in Paper Product Sector (1 = True; 0 = False)		-0.0552***	-0.0420*	-0.207**
		(0.0210)	(0.0242)	(0.0973)

MSE is in Recording Media Sector (1 = True; 0 = False)		-0.0649*	-0.0630**	-0.0723
		(0.0332)	(0.0293)	(0.0941)
MSE is in Chemical Product Sector (1 = True; 0 = False)		1.342***	1.386***	0.940
		(0.323)	(0.350)	(0.775)
MSE is in Pharmaceutical Product Sector (1 = True; 0 = False)		0.0884	0.0991*	-0.0558
		(0.0557)	(0.0598)	(0.0741)
MSE is in Rubber Product Sector (1 = True; 0 = False)		0.00693	0.0338	-0.0880
		(0.0224)	(0.0245)	(0.0660)
MSE is in Non-Metal Product Sector (1 = True; 0 = False)		0.125***	0.113***	0.187
		(0.0338)	(0.0353)	(0.114)
MSE is in Basic Metal Product Sector (1 = True; 0 = False)		0.0391*	0.0304	0.124*
		(0.0226)	(0.0234)	(0.0699)
MSE is in Metal Product Sector (1 = True; 0 = False)		0.121***	0.1000**	0.200*
		(0.0406)	(0.0427)	(0.109)
MSE is in Computer, Electronic, and Optical Product Sector (1 = True; 0 = False)		-0.0376	-0.0418	0.0787
		(0.0284)	(0.0307)	(0.0895)
MSE is in Electrical Equipment Sector (1 = True; 0 = False)		23.56***	28.09***	-0.355
		(5.152)	(5.955)	(0.228)
MSE is in Other Machines Sector (1 = True; 0 = False)		0.00641	-0.00838	0.0392
		(0.0709)	(0.0214)	(0.155)
MSE is in Motorized Vehicles Sector (1 = True; 0 = False)		0.236	0.329	0.210
		(0.198)	(0.321)	(0.229)
MSE is in Other Transport Sector (1 = True; 0 = False)		0.307*	0.415	0.145**
		(0.186)	(0.267)	(0.0714)
MSE is in Furniture Sector (1 = True; 0 = False)		0.168***	0.0350	0.529***
		(0.0517)	(0.0318)	(0.180)
MSE is in Other Manufacturing Sector (1 = True; 0 = False)		1.071***	1.065***	1.155***
		(0.127)	(0.133)	(0.412)
Constant	0.249***	-0.00359	-0.0201	-0.192
	(0.0170)	(0.0495)	(0.0497)	(0.201)
Observations	89,926	89,926	78,882	11,044
R-squared	0.000	0.023	0.029	0.011
F	12.75	9.624	8.657	1.799
r2	0.000162	0.0233	0.0290	0.0113
r2_a	0.000151	0.0229	0.0287	0.00860

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 7 - Share of international plus out-of-province export by Micro and Small Enterprises and the utilization of Internet, controlling for business owner's characteristics

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
	All Sample	All Sample	Micro Enterprise	Small Enterprise
VARIABLES	Provincial + International Export (%)	Provincial + International Export (%)	Provincial + International Export (%)	Provincial + International Export (%)
MSE utilizes Internet for Business (1 = Yes; = No)	3.751***	2.229***	1.839***	3.346***
	(0.171)	(0.176)	(0.175)	(0.510)
Owner Last Education (1 = Upper Secondary or Higher; 0 = Lower Secondary or Lower)		-0.652***	-0.680***	-0.364
		(0.110)	(0.105)	(0.439)
Enterprise Size Based on Revenue (1 = Small; 0 = Micro)		2.441***		
		(0.224)		
Average Number of Workers (People)		0.799***	0.777***	1.144***
		(0.0900)	(0.0814)	(0.229)
Average Number of Workers Squared (People Squared)		0.000551	-0.0210***	-0.0143
		(0.00744)	(0.00650)	(0.0144)
Percentage of Assets Owned by MSE Sector in 2015 (%)		0.00347	0.00773**	-0.0367
		(0.00939)	(0.00345)	(0.0782)
MSE Has Credit (1 = Yes; 0 = No)		0.586***	0.531**	0.922*
		(0.209)	(0.209)	(0.510)
Number of Years MSE Has Operated (Years)		0.00219	-0.00568	0.0425**
		(0.00440)	(0.00432)	(0.0212)
MSE has Partnership (1 = Yes; 0 = No)		3.033***	2.912***	2.889***
		(0.267)	(0.284)	(0.684)
MSE has Product Certification (1 = Yes; 0 = No)		0.686***	0.485**	0.972
		(0.248)	(0.233)	(0.743)
MSE is in Beverage Sector (1 = True; 0 = False)		-0.300	-0.0495	-4.274
		(0.390)	(0.158)	(3.271)
MSE is in Tobacco Processing Sector (1 = True; 0 = False)		-3.549***	-1.888***	-6.811**
		(0.428)	(0.233)	(3.253)
MSE is in Textile Sector (1 = True; 0 = False)		4.458***	4.579***	2.943
		(0.451)	(0.275)	(3.426)
MSE is in Apparel Sector (1 = True; 0 = False)		2.498***	2.156***	6.349**
		(0.311)	(0.167)	(2.468)
MSE is in Leather Product Sector (1 = True; 0 = False)		9.542***	9.767***	8.126**
		(0.756)	(0.731)	(3.505)
MSE is in Wood Product Sector (1 = True; 0 = False)		1.773***	2.124***	-1.258
		(0.327)	(0.169)	(2.547)

MSE is in Paper Product Sector (1 = True; 0 = False)		4.075***	4.475***	0.448
		(1.072)	(1.005)	(5.202)
MSE is in Recording Media Sector (1 = True; 0 = False)		-1.526***	-0.0967	-5.671*
		(0.432)	(0.252)	(3.168)
MSE is in Chemical Product Sector (1 = True; 0 = False)		3.551***	2.811***	9.577**
		(0.669)	(0.514)	(4.365)
MSE is in Pharmaceutical Product Sector (1 = True; 0 = False)		3.746***	2.440***	20.73***
		(0.813)	(0.564)	(6.995)
MSE is in Rubber Product Sector (1 = True; 0 = False)		4.836***	5.324***	1.956
		(0.871)	(0.811)	(3.989)
MSE is in Non-Metal Product Sector (1 = True; 0 = False)		0.287	0.836***	-2.728
		(0.334)	(0.169)	(2.601)
MSE is in Basic Metal Product Sector (1 = True; 0 = False)		12.12***	1.601**	42.88***
		(1.941)	(0.801)	(6.521)
MSE is in Metal Product Sector (1 = True; 0 = False)		1.890***	2.051***	1.053
		(0.395)	(0.228)	(2.907)
MSE is in Computer, Electronic, and Optical Product Sector (1 = True; 0 = False)		5.767*	4.540	8.978
		(3.042)	(3.427)	(7.250)
MSE is in Electrical Equipment Sector (1 = True; 0 = False)		27.98***	30.70***	12.95
		(5.331)	(5.953)	(11.84)
MSE is in Other Machines Sector (1 = True; 0 = False)		4.385**	1.664	6.170
		(1.869)	(1.513)	(4.761)
MSE is in Motorized Vehicles Sector (1 = True; 0 = False)		4.604***	3.427**	4.899
		(1.627)	(1.591)	(4.307)
MSE is in Other Transport Sector (1 = True; 0 = False)		3.627***	2.255***	6.160*
		(0.767)	(0.563)	(3.716)
MSE is in Furniture Sector (1 = True; 0 = False)		0.532	0.951***	-0.955
		(0.384)	(0.210)	(2.850)
MSE is in Other Manufacturing Sector (1 = True; 0 = False)		6.667***	6.291***	11.41***
		(0.489)	(0.341)	(3.496)
Constant	2.482***	-1.303***	-1.129***	-0.0813
	(0.0496)	(0.419)	(0.196)	(3.364)
Observations	89,926	89,926	78,882	11,044
R-squared	0.008	0.061	0.038	0.102

F	483.5	85.37	58.45	27.46
r2	0.00840	0.0607	0.0376	0.102
r2_a	0.00839	0.0603	0.0372	0.0994

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 8 - Share of international plus out-of-province export by Micro and Small Enterprises and the utilization of Internet for different purposes, controlling for business owner's characteristics

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
	All Sample	All Sample	All Sample	All Sample
VARIABLES	International Export (%)	International Export (%)	Provincial + International Export (%)	Provincial + International Export (%)
MSE Uses Internet for Marketing (1 = Yes; 0 = No)	0.0799	0.0231	2.156***	1.431***
	(0.0720)	(0.0753)	(0.270)	(0.266)
MSE Uses Internet for Selling Products (1 = Yes; 0 = No)	0.327***	0.266***	3.604***	2.885***
	(0.0800)	(0.0816)	(0.270)	(0.261)
MSE Uses Internet for Buying Input (1 = Yes; 0 = No)	-0.150	-0.193*	3.034***	1.498***
	(0.0987)	(0.101)	(0.446)	(0.428)
MSE Uses Internet for Borrowing from Fintechs (1 = Yes; 0 = No)	0.356	0.386	3.649	2.015
	(0.497)	(0.499)	(3.202)	(2.936)
MSE Uses Internet for Information Searching (1 = Yes; 0 = No)	0.0781	0.0545	1.575***	0.463
	(0.0846)	(0.0909)	(0.290)	(0.293)
Owner Last Education (1 = Upper Secondary or Higher; 0 = Lower Secondary or Lower)		0.0783**		-0.698***
		(0.0375)		(0.110)
Enterprise Size Based on Revenue (1 = Small; 0 = Micro)		-0.0490		2.428***
		(0.0478)		(0.224)
Average Number of Workers (People)		-0.0556**		0.779***
		(0.0256)		(0.0898)
Average Number of Workers Squared (People Squared)		0.00672***		0.00113
		(0.00241)		(0.00741)
Percentage of Assets Owned by MSE Sector in 2015 (%)		0.00147***		0.00149
		(0.000444)		(0.00949)
MSE Has Credit (1 = Yes; 0 = No)		0.0569		0.529**
		(0.0610)		(0.209)
Number of Years MSE Has Operated (Years)		-0.00159		0.00304
		(0.00161)		(0.00439)
MSE has Partnership (1 = Yes; 0 = No)		0.141*		2.946***
		(0.0794)		(0.267)
MSE has Product Certification (1 = Yes; 0 = No)		0.359***		0.654***
		(0.106)		(0.248)
MSE is in Beverage Sector (1 = True; 0 = False)		0.0587		-0.327
		(0.0572)		(0.395)
MSE is in Tobacco Processing Sector (1 = True; 0 = False)		0.00189		-3.531***
		(0.0404)		(0.432)
MSE is in Textile Sector (1 = True; 0 = False)		0.720***		4.329***
		(0.0957)		(0.455)
MSE is in Apparel Sector (1 = True; 0 = False)		0.148***		2.553***
		(0.0354)		(0.314)
MSE is in Leather Product Sector (1 = True; 0 = False)		0.203**		9.519***
		(0.0877)		(0.758)
MSE is in Wood Product Sector (1 = True; 0 = False)		0.420***		1.733***

		(0.0543)		(0.329)
MSE is in Paper Product Sector (1 = True; 0 = False)		-0.0491**		4.082***
		(0.0220)		(1.074)
MSE is in Recording Media Sector (1 = True; 0 = False)		-0.0636*		-1.492***
		(0.0347)		(0.439)
MSE is in Chemical Product Sector (1 = True; 0 = False)		1.339***		3.492***
		(0.323)		(0.672)
MSE is in Pharmaceutical Product Sector (1 = True; 0 = False)		0.0719		3.531***
		(0.0564)		(0.808)
MSE is in Rubber Product Sector (1 = True; 0 = False)		0.00341		4.787***
		(0.0228)		(0.869)
MSE is in Non-Metal Product Sector (1 = True; 0 = False)		0.122***		0.255
		(0.0337)		(0.337)
MSE is in Basic Metal Product Sector (1 = True; 0 = False)		0.0371*		12.05***
		(0.0226)		(1.942)
MSE is in Metal Product Sector (1 = True; 0 = False)		0.117***		1.844***
		(0.0403)		(0.398)
MSE is in Computer, Electronic, and Optical Product Sector (1 = True; 0 = False)		-0.0585*		5.398*
		(0.0347)		(3.032)
MSE is in Electrical Equipment Sector (1 = True; 0 = False)		23.54***		27.84***
		(5.154)		(5.330)
MSE is in Other Machines Sector (1 = True; 0 = False)		0.0134		4.516**
		(0.0713)		(1.871)
MSE is in Motorized Vehicles Sector (1 = True; 0 = False)		0.233		4.527***
		(0.199)		(1.607)
MSE is in Other Transport Sector (1 = True; 0 = False)		0.301		3.557***
		(0.186)		(0.768)
MSE is in Furniture Sector (1 = True; 0 = False)		0.162***		0.470
		(0.0517)		(0.387)
MSE is in Other Manufacturing Sector (1 = True; 0 = False)		1.063***		6.539***
		(0.127)		(0.491)
Constant	0.247***	0.000823	2.480***	-1.221***
	(0.0168)	(0.0493)	(0.0496)	(0.422)
Observations	89,926	89,926	89,926	89,926
R-squared	0.000	0.023	0.012	0.063
F	4.465	8.579	99.87	76.89
r2	0.000366	0.0234	0.0119	0.0630
r2_a	0.000310	0.0231	0.0119	0.0626

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9 - Share of international/international plus out-of-province export by Micro and Small Enterprises and the Internet Usage Ratio, controlling for business owner's characteristics

(note: Internet Usage Ratio is the number internet usages the MSE utilizes divided by the total number of internet usages possible(5))

	(1)	(2)
	OLS	OLS
	All Sample	All Sample
VARIABLES	International Export (%)	Provincial + International Export (%)
Internet Usage Ratio (Percentage)	0.00366**	0.0879***
	(0.00175)	(0.00629)
Owner Last Education (1 = Upper Secondary or Higher; 0 = Lower Secondary or Lower)	0.0807**	-0.708***
	(0.0375)	(0.111)
Enterprise Size Based on Revenue (1 = Small; 0 = Micro)	-0.0530	2.409***
	(0.0478)	(0.224)
Average Number of Workers (People)	-0.0556**	0.782***
	(0.0256)	(0.0898)
Average Number of Workers Squared (People Squared)	0.00670***	0.000781
	(0.00241)	(0.00741)
Percentage of Assets Owned by MSE Sector in 2015 (%)	0.00170***	0.00358
	(0.000433)	(0.00945)
MSE Has Credit (1 = Yes; 0 = No)	0.0570	0.529**
	(0.0610)	(0.209)
Number of Years MSE Has Operated (Years)	-0.00167	0.00308
	(0.00161)	(0.00439)
MSE has Partnership (1 = Yes; 0 = No)	0.140*	2.942***
	(0.0794)	(0.268)
MSE has Product Certification (1 = Yes; 0 = No)	0.360***	0.657***
	(0.106)	(0.248)
MSE is in Beverage Sector (1 = True; 0 = False)	0.0608	-0.266
	(0.0572)	(0.393)
MSE is in Tobacco Processing Sector (1 = True; 0 = False)	0.00679	-3.493***
	(0.0400)	(0.430)
MSE is in Textile Sector (1 = True; 0 = False)	0.725***	4.384***
	(0.0955)	(0.453)
MSE is in Apparel Sector (1 = True; 0 = False)	0.148***	2.508***
	(0.0353)	(0.312)
MSE is in Leather Product Sector (1 = True; 0 = False)	0.207**	9.539***
	(0.0876)	(0.757)
MSE is in Wood Product Sector (1 = True; 0 = False)	0.423***	1.767***
	(0.0544)	(0.328)
MSE is in Paper Product Sector (1 = True; 0 = False)	-0.0529**	4.127***
	(0.0209)	(1.073)
MSE is in Recording Media Sector (1 = True; 0 = False)	-0.0703**	-1.722***
	(0.0331)	(0.434)

MSE is in Chemical Product Sector (1 = True; 0 = False)	1.341***	3.548***
	(0.323)	(0.671)
MSE is in Pharmaceutical Product Sector (1 = True; 0 = False)	0.0854	3.668***
	(0.0558)	(0.809)
MSE is in Rubber Product Sector (1 = True; 0 = False)	0.00697	4.840***
	(0.0224)	(0.869)
MSE is in Non-Metal Product Sector (1 = True; 0 = False)	0.125***	0.304
	(0.0335)	(0.335)
MSE is in Basic Metal Product Sector (1 = True; 0 = False)	0.0365*	12.08***
	(0.0220)	(1.943)
MSE is in Metal Product Sector (1 = True; 0 = False)	0.120***	1.868***
	(0.0405)	(0.396)
MSE is in Computer, Electronic, and Optical Product Sector (1 = True; 0 = False)	-0.0441	5.562*
	(0.0302)	(3.069)
MSE is in Electrical Equipment Sector (1 = True; 0 = False)	23.56***	27.95***
	(5.152)	(5.330)
MSE is in Other Machines Sector (1 = True; 0 = False)	0.00844	4.423**
	(0.0711)	(1.879)
MSE is in Motorized Vehicles Sector (1 = True; 0 = False)	0.234	4.541***
	(0.198)	(1.612)
MSE is in Other Transport Sector (1 = True; 0 = False)	0.306*	3.621***
	(0.186)	(0.768)
MSE is in Furniture Sector (1 = True; 0 = False)	0.167***	0.501
	(0.0516)	(0.386)
MSE is in Other Manufacturing Sector (1 = True; 0 = False)	1.068***	6.591***
	(0.127)	(0.490)
Constant	-0.00182	-1.273***
	(0.0493)	(0.421)
Observations	89,926	89,926
R-squared	0.023	0.062
F	9.643	86.11
r2	0.0233	0.0624
r2_a	0.0230	0.0620

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1