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The Value of Cross-border Digital Transmissions to MSMEs in Indonesia: Implications for Participation in the WTO E-commerce Moratorium

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The Value of Cross-border Digital Transmissions to MSMEs in Indonesia: Implications for Participation in the WTO E-commerce Moratorium

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List of abbreviations

ADB	Asian Development Bank
GTAP	Global Trade Analysis Project
ICIO	Inter-Country Input Output
ICT	Information and Communication Technology
IMF	International Monetary Fund
MSME	Micro, Small and Medium Enterprises
NAICS	North American Industry Classification System
NICDET	Non-Imposition of Customs Duties on Electronic Transmissions
NSSO	National Sample Survey Organization
OECD	Organization for Economic Development
SME	Small and Medium Enterprises
WTO	World Trade Organization

Executive Summary

This study analyzes how imported digital transmissions contribute to the growth of Indonesian micro, small, and medium enterprises (MSMEs)¹. Experiencing a significant structural shift over the last decade, Indonesian MSMEs are increasingly engaged in services. The services sector is rapidly being digitalized on a global basis, and the same holds true in Indonesia. Accordingly, this study highlights the benefits of the World Trade Organization's (WTO) e-commerce moratorium to Indonesian MSMEs and the Indonesian economy as a whole. Two-thirds of Indonesian MSME output

Two-thirds of Indonesian INSINE output is now in the services sector, which is also the sector that is digitalizing most rapidly. Indonesian MSMEs total digital imports quadrupled over the period 2010-2021, led by wholesale and retail services, followed by "other services". While much more modest, and starting from a very low base, digital imports by manufacturing MSMEs are growing fastest. By the end of the decade, nevertheless, the overwhelming bulk of MSME digital imports were destined for the wholesale and retail sector.

Based on a comprehensive literature review, including recent empirical work involving definitions of digital transmissions, we collected aggregate sector-level time series data for MSMEs using available sources such as Asian Development Bank (ADB) and Input-Output (I-O) tables coupled with data on imports of digital transmissions from the Organization for Economic Development (OECD). This helped us to pinpoint the contribution of digital imports in particular, including in individual sectors of the economy.

Econometric regression analysis was undertaken to assess the impact of imported digital transmissions on aggregate gross domestic product (GDP), employment, productivity, as well as numbers and size of Indonesian MSMEs over time.

Based on data from 2010-2021, the empirical results suggest that digital imports by MSMEs are positively correlated with all investigated aspects of MSME performance, both at aggregate and individual sectoral levels. The econometric panel data regressions suggest, at the aggregate level, that for every 1 per cent increase in imported digital inputs by MSMEs:

- MSME GDP (production output) increases by 0.96 per cent
- MSME Employment increases by 0.42 per cent
- The number of MSMEs increases by 0.54 per cent
- Labor productivity (defined as MSME GDP per employee) increases by 0.95 per cent
- Employees per MSME (enterprise size measured by employment) increases by 0.13 per cent
- GDP per MSME (enterprise size based on output) increases by 0.39 percent

These numbers show clearly that use of intermediate digital imports was associated with enhanced production output from MSMEs, higher labor productivity, and an increase in the number of people they employed. Increases in digital imports were also correlated with increases in MSME numbers and with firms attaining a more economically competitive/ relatively bigger scale, as measured both by employees and output.

Our findings that digital imports promote job creation in MSMEs by boosting their production, employment, and firm numbers, while also increase productivity and scale effects, suggest that at the aggregate level there is no trade-off between the volume of digital imports and the total number of people employed in the MSME economy. Our correlations at the individual sub-sector level suggest this finding holds true for many of the services sectors, especially for the high employing wholesale and retail sector.

Furthermore, an increase in productivity also implies a reduction in inefficiencies, including in terms of energy and other input use, providing a positive sustainability angle to the contribution of digital imports by MSMEs.

The findings of increase in GDP, employment and labor productivity of MSMEs associated with an increase in digital imports reiterate the benefits of the WTO's e-commerce moratorium to Indonesian MSMEs and the Indonesian economy as a whole.

1. Background

In 1998 WTO members agreed to impose a moratorium on custom duties on electronic transmissions, and at every Ministerial Conference since have agreed to its extension. This continuing commitment to not impose customs duties on electronic transmissions has become a bedrock of the growth of the global digital economy and is a major force promoting the growth of MSMEs, including in developing countries. The moratorium has enabled a global business environment which continues to deliver a wealth of new opportunities for all players to leverage in a plethora of economically useful ways. At the last two WTO Ministerial Conferences, however, India, South Africa, and Indonesia, as well as a few other developing country members, began to raise concerns about potential customs revenue losses resulting from the moratorium owing to the advent of 3-D printing and a desire to have the freedom to impose import substitution policies in the digital context.

In response the WTO E commerce work program has engaged in productive discussions among WTO members on issues raised by these countries, as well as a broader discussion of the costs and benefits of ending the moratorium. These discussions led to extensive new economic analysis by the OECD, World Bank, International Monetary Fund (IMF). and academic studies, all providing strong evidence that the moratorium promotes developing country GDP growth and that the costs of ending the moratorium far outweigh any benefits - which would be marginal at best particularly with respect to revenue generation.

Historically, Indonesia has been supportive of extending the e-commerce moratorium on the basis that it will facilitate economic development. More recently, though, Indonesia and some other WTO members have expressed skepticism about the benefits of the moratorium for MSMEs. In a communication to the WTO in 2022, Indonesia noted "domestic retailers in developing countries hardly benefit from the free tax and duties scheme for the electronic transmission, given that the majority of business sectors in developing countries are Small and Medium-sized Enterprises (SMEs) who engage minimally in cross-border e-commerce."

Indonesia is a large and rapidly growing market with tremendous potential and, correctly positioned, can continue to reap tremendous advantages from the moratorium for its domestic economy and its MSMEs in particular. As the findings presented in this paper indicate, Indonesia's MSMEs are in fact benefiting from the moratorium as they have become more actively engaged in the digital economy over the last decade and now depend on digital imports and digital tools to grow and thrive. Our findings, moreover, show MSMEs in the retail services sector to be among those benefitting most from growth in digital imports.

Indonesian regulators have already been active in securing revenue in the digital space as a result of the 11 per cent value-added tax (VAT) on electronic transmissions that has been in place since 2020, along with a reporting requirement for digital transactions. The VAT is collected by the Directorate General of Taxes (Direktorat Jenderal Pajak or DJP in short), separate from the Customs office. According to a report in the Jakarta Post (Thomas 2022), USD163 million in VAT revenue was collected from electronic transactions in the first half of 2022 alone. It is notable that the recent IMF Report on the moratorium concludes that a VAT is a far more effective revenue raising mechanism than imposing customs duties, generating 150 per cent more revenue than imposing customs duties, and avoiding the risk of harms to MSMEs as well as the risk of potential retaliation (IMF 2023).

Despite its success in raising revenue through its existing VAT on electronic transmissions, Indonesia has taken a step towards imposing customs duties on electronic transmissions by establishing HS codes for five categories of enterprise software. These items, which the Indonesian government describes as "digital goods", include the following under Heading 99.01: Operating System Software (9901.10.00), Application Software (9901.20.00), Multimedia (9901.30.00), Supporting or Driver Data (9901.40.00), and Other Software and Digital Products (9901.90.00). Currently Indonesia imposes a most favored nation (MFN) tariff of zero per cent in these five categories. While Indonesian customs authorities have not indicated how import duties would be imposed on digital software imports, they have indicated they intend to proceed with imposition of duties at some point in the near term (World Trade Organization 2022).

Globally, there are concerns regarding Ministry of Finance Regulation No. 190/ PMK.04/2022 ("PMK 190") and the imposition of new customs obligations on imports of intangible goods, including digital tools, knowledge, and content that is transmitted electronically. Even with a zero tariff, compliance costs associated with Reg 190 are considered to be onerous for MSMEs.

2. Literature review

2.1 Impact of tariffs on economic growth

Historical studies on Indonesia might shed some light on how imports have impacted Indonesia. Studies have found a positive impact of imports on economic growth (Piazolo 1996; Marwah and Tavakoli 2004). Increase in tariffs can have a negative impact (Mahadevan, Nugroho and Amir 2017) while reductions can have a positive impact on the economy (Amiti and Konings 2007).

Makiyama and Narayanan (2019) analyzed the impact of potential tariffs on digital transmissions in a number of different economies (India, Indonesia, South Africa, and China) should the WTO moratorium on electronic transmissions expire, using the Global Trade Analysis Project (GTAP) modelling framework.ⁱⁱ Services sectors generally considered to be part of the digitized economy and involving electronic transmissions include:

- Online retailing services (e.g., online intermediation)
- Internet publishing, web search portals, directories, and information services
- Motion picture and video industries and sound recordings (online portion only)
- Software and programming
- Data hosting, system services, and data transfers
- Advertising North American Industry Classification System (NAICS) 541800 can also be subject to tariffs.

The study mapped these sectors to GTAP sectors and shocked the model for a change in digital tariffs. The study finds that Indonesia's overall GDP is expected to decrease with a loss in most other macroeconomic variables such as investment, employment, and welfare. This was found to be the case when there was unilateral or bilateral imposition of tariffs.

2.2 Impact of digitization on MSMEs, including access to GVCs

The trade-related problems faced by SMEs may or may not be similar to larger enterprises. The WTO's World Trade Report of 2016 (World Trade Organization 2016) states that problems in areas such as Information and Communication Technology (ICT) security and data protection, among others, pose relatively more serious challenges to SMEs in all countries to participate in global value chains (GVCs).

A report by the ADB and Islamic development bank (2019) shows that between 2000 and 2017 there has been a decrease in both forward and backward linkages, where output of industry is sold in the former while in the latter the industry purchases its inputs to produce its output, with participation in the former being greater than the latter in both the years. Most of the imports into Indonesia were intermediate inputs into domestic production indicating a weaker external forward link..

Participation of SMEs in GVCs is facilitated to a large extent, even more so than for large firms, by a presence on the web, with country ICT infrastructure also playing a significant role (Lanz et al. 2018). López González and Sorescu (2019), in an OECD paper on trade facilitation for SMEs, find that advance rulings impact the export propensity of firms, implying that their foreign inputs play a significant role in the production process and engagement in GVCs. One can deduce that this finding on foreign inputs covers digital imports as well as physical imports.

Miroudot (2019) observed that digital channels have significantly facilitated countries with specific industry strengths to effectively tap into foreign markets. In this GVC context, the imposition of import tariffs in digitized sectors could have unintended consequences, including in terms of affecting other associated digital services. As online delivery of services increases, levying duties on a digital product might impact other related bundled services. This is likely to be more visible in outsourced sectors dominated by SMEs.

A survey-based Indonesia Services Dialogue study (2021-2022) shed light on the contribution of MSMEs to the Indonesian economy, and provided an understanding of the extent and level of dependence of MSMEs on digital goods and service suppliers, as well as the positive impact of digital use on MSME business outcomes.

Narayanan et al. (2023) undertook a study focused on the impact of digital imports on MSMEs in India. Data from different sources such as the Indian' National Sample Survey Organization (NSSO) sample survey and census of MSMEs were used in conjunction with Inter-Country Input Output (ICIO)data. Digital imports were found to have a positive influence on many different macroeconomic variables including Gross Value Added, Employment and Productivity of MSMEs when analyzed at economy-wide aggregate level.

2.3 Impact of the moratorium on government revenue and other economic variables

Despite substantial evidence of the value of digital imports to small business in developing countries, some have nonetheless continued to advocate for the imposition of tariffs. Banga (2019) argued that developing countries could generate more revenue through customs duties than developed countries. Her estimates, however, have subsequently been somewhat debated in the literature, as discussed in the studies below.

In contrast to Banga's approach, Andrenelli and López González (2019) drew attention to the economic and developmental benefits arising from imports of electronic transmissions. They drew the following conclusions:

- The ability to digitize goods translates into substantial reductions in transportation costs.
- Any decline in tariff revenue due to the elimination of tariffs on goods amenable to digitization would be counterbalanced by enhancements in consumer well-being.
- The utilization of foreign business services, increasingly deliverable through digital means, significantly bolsters export competitiveness.
- Concrete evidence at the firm level corroborates those digital technologies, like websites or digital delivery methods, empower businesses in developing countries, including SMEs, to become exporters.

Several additional factors warrant consideration when evaluating the significance of the moratorium:

- The adverse impact of tariffs on consumers.
- Digital delivery generally involves enhanced affordability and accessibility.
- The adoption of digital transactions serves as an effective deterrent against corruption.
- There also exists considerable technical ambiguity regarding governments' ability to establish

equitable regulations for levying custom duties on electronic transmissions.

Serafica, Quimba and Cuenca (2020) evaluated the impact of the moratorium for the Philippines. The moratorium was shown as resulting in 0.10 per cent and 0.65 per cent foregone customs revenues determined using different tariff rates. A negative impact can be witnessed on the whole economy on account of barriers to cross-border data flows, thus putting forward a strong case for continuation of the moratorium.

Andrenelli and López González (2023a, 2023b) address the issues around classification of electronic transmissions as goods or services, noting the ambiguity about products that can be delivered both electronically and embodied in physical format, such as films, video games, music, or software. The papers help clarify the application of the moratorium to content rather than just the "carrier medium".

The OECD authors also examine provisions in Regional Trade Agreements (RTAs) on "Non-Imposition of Customs Duties on Electronic Transmissions" (NICDET) clarifying that neither these provisions nor the Moratorium apply to internal non-discriminatory taxation nor cover regulation of electronic services delivery covered under GATS and in other separate provisions of RTAs. Over 100 countries at all levels of development have signed at least one NICDET provision in their trade agreements. This includes over 50 high-income countries, over 30 upper-middle-income countries, and more than 10 lower-middle-income countries.

A key aspect of this work is a review of the customs revenue implications of the moratorium, which argues against the fiscal policy case for abandoning the moratorium. The Andrenelli and López González analysis reveals that an average additional 0.68 per cent of total customs revenue or 0.1 per cent of total government revenue could be collected if the WTO moratorium is discontinued. However, this additional revenue could equally well be generated by a VAT or goods and services tax (GST). The macroeconomic effects of not renewing the moratorium include greater policy uncertainty, reductions in trade and higher tariffs, which can undermine domestic competitiveness and disproportionately impact lowincome countries and small firms.

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3. Data sources and methodology

Aggregate sector-level time series data for Indonesian MSMEs was compiled drawing on available data from sources such as ADB and I-O tables coupled with data on imports of digital transmissions from OECD. The ADB SME monitor has MSME data for the years 2010, 2011 and 2012. Indonesia's economic census of 2016, though it captures the composition of some sectors of the economy, fails to capture all the sectors, hence. the data for these missing sectors in 2016 have been extrapolated based on their data from the census carried out in previous years. They have been taken to be in proportion to the previous census adjusted for the the latest data with the assumption that there may be a slight structural change. The dataset is developed as an unbalanced panel data, without having to account for successive years.

The sectors present in the ADB SME monitor are: 1) Agriculture, forestry, and fisheries, 2) Manufacturing, 3) Transportation and communication, 4) Construction, 5) Wholesale and retail trade, 6) Other services and 7) Others.

OECD's ICIO (OECD 2022) data is used to arrive at the digital imports for Indonesia. The classifications of IDN_J61 and IDN_J62_63, corresponding to Telecommunications and IT and Other information services, are taken as representatives for all digital products. The digital input into different sectors of Indonesia can be identified as input rows in the ICIO input output table that ends with _J61 or _J62_63 with columns being different sectors in Indonesia. Digital imports into Indonesia can be inferred to be any such row from a country other than Indonesia. The summation of a column will be the total digital imports into Indonesia. The total imports into different sectors are also calculated on similar lines. The exports of Indonesia can be inferred to be rows in the ICIO input output table starting with IDN_ with columns of other countries. The digital imports by MSMEs in each sector



are assumed to be proportional to the digital imports to the sector as a whole.ⁱⁱⁱ The methodology used is detailed in the appendix. The mapping between ICIO classification and sectors in the ADB SME monitor can be found in the appendix.

Following data collection, the econometric regression and correlation exercise was used to assess the impact of imported digital transmissions on the output, productivity, employment, and profits of MSMEs over time.

The Pearson correlation coefficient is used to measure linear correlation between a pair of variables. This study undertakes panel data regression (pooled, fixed and random) to understand the relationship between different variables. Panel data models can be either pooled, fixed, or random illustrating the assumptions behind each model (Colonescu 2016).

The macroeconomic models used in this study analyze the following relationships at a sector level as classified in the ADB SME monitor. The following econometric equations are estimated:

 $ln (GDP_{it}) = a_0 + a_1 * ln(Employment_{it}) + a_2 * ln(Number of Enterprises_{it})$ $+ a_3 * ln(Digital Imports_{it}) + e_{it}$

 $ln(Employment_{it}) = a_0 + a_1 * ln(Number of Enterprises_{it}) + a_2 * ln(Digital Imports_{it}) + e_{it}$

 $ln(Number of Enterprises_{it}) = a_0 + a_2 + ln(Digital Imports_{it}) + e_{it}$

MSME productivity and size in a sector is analyzed with the specification as in equations below:

 $In(GDP \text{ per MSME}_{it}) = a_0 + a_1^* In(Employee \text{ per MSME}_{it})$ $+ a_2^* In(Digital Imports \text{ per employee}_{it}) + e_{it}$

 $ln(Employee \ per \ MSME_{it}) = a_0 + a_1 * ln(GDP \ Per \ Employee_{it}) + a_2 * ln (Digital \ Imports \ per \ employee_{it}) + e_i$

 $ln(GDP \text{ per Employee}_{it}) = a_0 + a_1 * ln(Digital Imports \text{ per employee}_{it}) + e_{it}$

The study explores these relationships using different panel data regression models. F test and Hausman test are used to determine which among the models best describes the relationship. F test is used to determine the better among pooled and fixed effects models, while Hausman test is used to determine the better among fixed and random effects models (Constantin Colonescu, 2016). Models with significant coefficients are presented. R software has been used to run these models.

4. Results

4.1 Data analysis

Figures 1 to 13 in the appendix illustrate different aspects of MSMEs. The MSME contribution to production is more in the services sectors than in the merchandise sectors. The most growth in relative terms has been in wholesale and retail services along with manufacturing and "other services".

MSMEs' service sector contribution to GDP has increased over the years; wholesale and retail accounting for more in the later years with agriculture decreasing considerably. Also, the number of MSMEs in the services sector has increased over the years but agricultural sector still has more MSMEs than any other individual sector with wholesale and retail MSMEs coming in a very close second. Employment in the services sector has increased over the years and is close to that of other sectors combined.

Taken together, figures 1-7 suggest a broad positive correlation between digital imports by MSMEs and their performance in terms of GDP, enterprise numbers and employment. Summarizing across figures 1-8, a structural transformation has taken place over the decade, with MSMEs, shifting steadily towards the services sector.

Digital import growth into the agricultural sector is minimal while that of wholesale and retail is high. Compared with the primary and secondary sectors taken together, the tertiary sector has grown to the point where it has only slightly fewer MSMEs, employs slightly more people, imports more digital content and generates 85 per cent more output. Digital imports, as can be inferred from the figures, seem to have a positive correlation with MSME performance as measured in different ways, including at sectoral levels, not just at a macro level.

Digital imports by MSMEs appear to have had a lesser impact on MSME output in the agricultural sector than in other sectors of the economy, at least during the later years of the study. Agricultural MSMEs have the lowest digital importto-output ratio, while MSMEs in the transport and communications sector have the highest imported digital intensity in their output. The figures also compare digital imports with different MSME parameters at the sectoral level.

4.2 Correlation Matrix: Analysis

At the whole-of-economy level, MSME digital imports are positively correlated with all the variables tested. The positive correlation is strongest for MSME GDP, followed by MSME employment, with a smaller positive correlation with the number of MSMEs, indicating some consolidation effects of digitalization on MSMEs i.e. more employees are present in an average MSME with an overall increase in MSME GDP. Among the derived variables (labour productivity and firm size), we observe strong positive correlations with respect to labour productivity and weaker positive correlations with the size of the enterprise as measured both by GDP and by employment. Employment in MSMEs is negatively correlated with labour productivity. This reinforces the observation that there is a size consolidation effect that happens with digital import usage by MSMEs.

Table 1: Correlation matrix between different variables Long-term student accommodation options

	MSME GDP	MSME Employment	No. of MSMEs	Labor Productivity	GDP/MSME	Employee/ MSME	Dig Imports by MSMEs
MSME GDP	1						
MSME Employment	0.6277	1					
No. of MSMEs	0.521	0.9748	1				
Labor Productivity	0.4416	-0.24742	-0.330	1			
GDP/MSME	0.2689	-0.2297	-0.393	0.626	1		
Employee/ MSME	-0.058	-0.199	-0.3278	0.0404	0.769	1	
Dig Imports by MSMEs	0.794	0.356	0.253	0.3399	0.222	0.0043	1

4.3 Panel Data Regressions

Our econometric regressions suggest that for every 1% increase in digital imported inputs by MSMEs:

- MSME GDP increases by 0.96%
- MSME employment increases by 0.42%
- Number of MSMEs increases by 0.54%
- Labor productivity as defined by MSME GDP per employee increases by 0.95%
- Employees per MSME (size measured by employment) increases by 0.13%
- GDP per enterprise (size measured by GDP) increases by 0.39%

In other words, the digital imports used by the MSMEs may boost production, employment and even the number of enterprises, while also boosting labor productivity as well as firm size as measured both by employment and by production. These are significant findings, because policy makers working on MSMEs often struggle to strike a balance between productivity, firm size, and job creation, whereas we find a synergy between these variables in the context of digital imports. Digital imports may create jobs in MSMEs, by boosting their output and number, while also increasing productivity and scale effects, thereby eliminating such a trade-off between productivity and employment i.e. an increase in productivity does not lead to lower employment.

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

The panel data regression results presented in Table 2 capture the aggregate variables. The best-fit panel regression model type varies in different specifications. MSME employment is found to be determined by number of MSMEs as well as digital imports. The number of enterprises is found to be determined by digital imports while the positive intercept term points to some other variables that can have an impact.

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '. 0.1 ' ' 1

Table 3 captures the regression results on the derived variables pertaining

to productivity and size. The fit, as determined by the Adjusted R square, is reasonable for most of the models. Digital imports per employee have a significant positive effect on the number of employees in a MSME. GDP per MSME is determined, to a significant extent, by the number of employees as well as digital imports per employee with both having a positive effect.

	MSME GDP		MSME En	nployment	MSME Number of Enterprises	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
Intercept					11.61	< 2.2e-16 ***
MSME Employment	-0.11	0.1362				
Number of MSMEs	0.10	0.2259	0.46	0.0002***		
Digital Imports	0.96	<2e-16 ***	0.42	2.027e-07 ***	0.54	< 2.2e-16 ***
Adj. R Square	0.94		0.80		0.73	
Best Model	Fixed Effects	6	Fixed Effects		Random Effects	

Table 2: Panel regressions determining MSME GDP, employment, no. of enterprises

Table 3: Panel regressions determining labor productivity and size variables

	MSME GDP per Employee (labor productivity)		Employee	per	MSME Number of Enterprises	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
Intercept					-6.27	0.0001 ***
Employee per MSME					3.07	3.589e-09 ***
MSME GDP Per Employee			-0.01	0.788362		
Digital Imports per employee	0.95	< 2.2e-16 ***	0.13	0.000765 ***	0.39	4.044e-06 ***
Adj. R Square	0.79		0.27		0.59	
Best Model	Fixed Effects		Fixed Effects		Random Effects	

5.Conclusion

Digital trade is an important determining factor in the performance of MSMEs in Indonesia. Against the backdrop of rapid global market expansion for a wide variety of digital services, Indonesia's small businesses have begun to integrate imported digital services, including e-commerce platforms and social media applications, into their business models. These digital imports have had a significant positive impact on the performance of Indonesia's MSMEs. The positive impact can be seen in terms of MSME output as well as MSME size and productivity variables, indicating that there are consolidation-related efficiency improvements being facilitated by scaling of MSMEs through digital imports. Policy

formulation will need to take note of these econometric findings. These findings suggest that any measures to curtail digital imports are likely to have significant negative impact on Indonesia's MSMEs.

Another message emerges from our empirical findings about wholesale and retail services MSMEs, which are the biggest importers of digital inputs to production and are making the fastest growing contribution to MSME output while simultaneously overtaking agriculture in terms of MSME employment. This suggests that the imposition of customs duties on digital imports could have a disproportionate impact on MSMEs in wholesale and retail compared with MSMEs in agriculture.



6. Some policy implications

Our quantitative findings, along with the multiplicity of economic factors identified in our review of the relevant empirical literature, collectively underscore the importance for policy makers, in any review of the moratorium, of **drawing on the local and global evidence base.** Hasty decision-making to abandon the moratorium and impose customs duties on electronic transmissions is highly likely to have counterproductive macro and micro-level economic impacts, including in Indonesia.

The influence of online services, including those originating off-shore and transmitted cross-border, extends to enhancing the competitiveness of local businesses. Across the globe, prosperous enterprises, regardless of size, rely on a mix of digital tools such as digital marketing, payment systems, IT services, accounting software, sales monitoring, inventory management, communication platforms, and data storage solutions. These tools collectively empower businesses to concentrate on their core activities. Consequently, any strategy aimed at digitally substituting imports could potentially hinder, rather than foster, the expansion of businesses in developing countries. Small businesses are especially dependent on seamless flows of electronic transmissions, both domestically and internationally, to bolster their competitiveness.

Policy makers also need to consider a number of other, non-economic benefits likely to flow from ongoing efforts to facilitate rather than hamper the digitalization of international trade.

It is clear that the moratorium has incentivised innovation and acted to facilitate a transition from tangible goods to digital alternatives. This shift to digital trade, exemplified by the ability to download or stream items like books, CDs, DVDs, and newspapers online, holds the potential to reduce environmentally taxing physical transportation, delivering significant reductions in fuel consumption and energy usage. Resulting declines in greenhouse gas emissions and waste production **align with sustainability goals.**

The moratorium also appears to play a pivotal role in advancing **social and equity objectives** by fostering broader accessibility and affordability of digital goods and services, particularly benefiting consumers and producers in developing countries as well as MSMEs and remote or other disadvantaged communities.

More generally, the moratorium's influence contributes to the **democratization of access to an array of digital products and services.** This inclusivity is of particular significance for populations in developing countries and for MSMEs, which might otherwise face hurdles in participating fully in the digital economy due to financial limitations. The moratorium's contribution to affordable cross-border finance cannot be underestimated. E-payments and digitally delivered banking and insurance solutions, for example, allow individuals and businesses to access financial services that might have been previously out of reach. By facilitating more accessible trade, the moratorium empowers remote and disadvantaged groups with the ability to engage in a broader range of economic, educational, health, entertainment, and financial opportunities.

The educational and informational advantages of the moratorium are similarly considerable. Students and learners across the world can access diverse learning resources, enabling them to expand their knowledge horizons beyond what is locally available. Improved access to health information and services could have a far-reaching positive impact on public health outcomes. The entertainment and cultural spheres also benefit from the moratorium, as it facilitates the distribution of diverse creative content across borders. This enables cultural exchange and broadens the reach of artistic endeavours.

Digital imports are a means of technology transfer that more often than not, result in gains along multiple different economic parameters for MSMEs in Indonesia. They boost MSME output, employment, productivity and size, thereby benefitting MSMEs and the overall economy both in the short and long term. While growth in output and employment are important in the short term, enhancements in productivity and size will also shift up the supply curves of MSMEs in the future.

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8. Appendix

Mapping between ICIO input-output table and ADB SME sectors

IDN_D, IDN_E	ICIO Input Output Table
Agriculture, forestry, and fisheries	IDN_A01_02, IDN_A03
Manufacturing	IDN_B05_06, IDN_B07_08, IDN_B09, IDN_C10T12, IDN_C13T15, IDN_C16, IDN_C17_18, IDN_C19, IDN_C20, IDN_ C21, IDN_C22, IDN_C23, IDN_C24, IDN_C25, IDN_C26, IDN_C27, IDN_C28, IDN_C29, IDN_C30, IDN_C31T33
Transportation and communication	IDN_H49, IDN_H50, IDN_H51, IDN_H52, IDN_H53, IDN_J58T60, IDN_J61, IDN_J62_63
Construction	IDN_F
Wholesale and retail trade***	IDN_G
Other services	IDN_I, IDN_K, IDN_L, IDN_M, IDN_N, IDN_O, IDN_P, IDN_Q, IDN_R, IDN_S, IDN_T
Others	IDN_D, IDN_E

MSME Digital Imports into a sector/MSME GDP in the sector = Total Digital Imports into the sector/Total GDP of the sector)

In other words, we assume that the ratio of total digital services imports to total output in any given sector applies also in the MSME subset of the sector. We follow the approach developed by Narayanan et al 2023 for a similar study on India. This is the best possible proxy for digital services imports by MSMEs, given the lack of any alternative dataset harmonized over time.



Figure 1: MSMEs GDP, by sector., 2010-2021

















Figure 6: Employment in MSMEs, by sector, 2010-2021











Figure 9: Growth in MSMEs digital imports, by sector







Figure 11: Sectoral trends in MSME GDP and digital imports into MSMEs, 2010-2021

MSME GDP

Note: left vertical axis - MSME GDP, billion Rp; right vertical axis - MSME digital imports, billion Rp.



 Digital Imports



Figure 12: Sectoral trends in MSME digital imports and MSME employment, 2010-2021

Note: Left vertical axis - employment, in millions number of employed persons; right vertical axis - digital imports, billion Rp.



Figure 13: Sectoral trends in MSME digital imports and number of MSMEs, 2010-2021

- MSME GDP

Digital Imports

Note: Left vertical axis - number of MSMEs, in millions; right vertical axis - digital imports, billion Rp.



9. About the authors

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Endnotes

- i The methodology employed is similar to a recent study conducted for India (Narayanan et al 2023).
- ii GTAP is a multiregional, multisector, computable general equilibrium (CGE) model and can be used to assess supply-chain effects, macro-economic aspects, economy-wide equilibrium constraints, linkages between different sectors and countries, as well as emission and land-use effects of different commodities due to changes in policy, technology, or other external factors.
- iii Data on MSME digital imports by sector is not available. The sectoral breakdown of total digital imports is used as a proxy.



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