

Impact of Cross-Border Digital Transmissions on MSMEs in South Africa

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Executive Summary

This study delves into the profound impact of digital imports on Micro, Small, and Medium-sized Enterprises (MSMEs) in South Africa, particularly highlighting the positive influence of the World Trade Organization's (WTO) e-commerce moratorium. Utilizing the time-series data on South Africa's MSME macro indicators such as employment, productivity and size variables and digital product imports from OECD Input-Output tables, our data-driven approach precisely identifies the contribution of digital imports.

Employing econometric regression techniques, our analysis reveals that a 1% increase in digital imported inputs by MSMEs correlates with significant outcomes:

1. MSME employment rises by 0.18%
2. Number of MSMEs increases by 0.09%
3. Labour productivity, measured by MSME GDP per employee, rises by 0.77%
4. Employees per MSME (size based on employment) increase by 0.20%

Empirical evidence underscores the substantial positive effects of growing digital imports on MSMEs in South Africa, leading to enhanced labour productivity, increased employment, and expanded business numbers. These findings bear crucial implications for policymakers aiming to boost productivity and job creation in South Africa's extensive MSME sector. Notably, South Africa's significant GATS commitments in the Computer and Related Services (CRS) sector and digitally transmittable services caution against imposing duties given the risk of a WTO challenge.

¹ Authors thank Aditeya Das for his precious inputs on data sources for MSMEs in South Africa.

Introduction

Since 1998, WTO Members have maintained a moratorium on tariffs for international electronic transmissions (WTO E-Commerce Moratorium). This study explores the moratorium's impact on South Africa's emerging MSME sector, highlighting its crucial role in fostering e-commerce growth. Ceasing the moratorium and imposing import duties on digital goods and services would negatively affect the vast MSME sector in developing countries, including South Africa.

A study by the European Centre for International Political Economy (ECIPE) predicts substantial adverse effects on WTO member countries if the moratorium ends. Developing countries could face an annual GDP loss of around US\$4.5 billion, accompanied by job losses and reduced well-being. South Africa, with its growing e-commerce sector, could potentially lose US\$25 million in GDP per year, leading to the loss of 100,000 jobs. It's crucial to note that South Africa's GATS commitments in the Computer and Related Services (CRS) sector already prohibit import duties on digital services.

The data analysis presented in this paper underscores the substantial benefits South African MSMEs have gained from the current moratorium. Active engagement in the digital economy and heavy reliance on digital imports highlight the disproportionate negative impact that ending the WTO moratorium on electronic transmissions would have on South Africa's MSME sector. This includes economic losses, job cuts, and reduced well-being -- all factors that underscore the value of maintaining the moratorium.

Data Sources and Methodology

Data Sources

This study draws data on MSMEs from various sources, including 1) Small Enterprise Development Agency (SEDA) of South Africa² 2) OECD publications³, 3) IFC publications⁴ 4) UNCTAD (2023)⁵ 5) Finmark Trust (2021)⁶ and 6) Mashele (2023).⁷ Other datasets used include 1) OECD's Inter-Country Input-Output (ICIO) tables, and 2) World Development Indicators from the World Bank. The dataset encompasses a range of variables, such as MSME Employment, MSME Number of Enterprises, Digital Imports for MSMEs, MSME Labour Productivity, and size-related metrics like Employee per MSME. The analysis spans the years 2010 to 2020 at an aggregate level.

To determine digital imports for South Africa, OECD's ICIO data (OECD, 2022) is utilized. The classifications ZAF_J61 and ZAF_J62_63, representing Telecommunications and IT and Other Information Services, respectively, serve as proxies for all digital products in South Africa. Digital imports into different sectors are identified using rows ending with _61 or J62_63, with columns representing various sectors in South Africa. Rows from countries other than South Africa indicate digital imports into South Africa. The column summation provides total digital imports into different sectors, and the overall summation across sectors yields the country's total digital imports. The digital import share is calculated as a percentage of total value added in the economy. This share is then multiplied by Real MSME GDP to derive Digital Imports of MSMEs in the country. This process is repeated for each year, generating a time series of Digital Imports of MSMEs in South Africa. Additionally, South Africa's exports are inferred from rows starting with ZAF and

² These are the SEDA reports used in our study:

<http://www.seda.org.za/Publications/Publications/SMME%20Quarterly%202021%20Q1%20September.pdf>

[http://www.seda.org.za/Publications/Publications/SMME%20Quarterly%202022-Q3%20\(005\).pdf](http://www.seda.org.za/Publications/Publications/SMME%20Quarterly%202022-Q3%20(005).pdf)

<http://www.seda.org.za/Publications/Publications/The%20Small,%20Medium%20and%20Micro%20Enterprise%20Sector%20of%20South%20Africa%20Commissioned%20by%20Seda.pdf>

³ Here are some of the links used from the OECD:

<https://www.oecd-ilibrary.org/sites/4bada6a3-en/index.html?itemId=/content/component/4bada6a3-en>

https://www.oecd-ilibrary.org/industry-and-services/financing-smes-and-entrepreneurs-2018/south-africa_fin_sme_ent-2018-48-en

https://www.oecd-ilibrary.org/finance-and-investment/financing-smes-and-entrepreneurs-2020_061fe03d-en

https://www.oecd-ilibrary.org/finance-and-investment/financing-smes-and-entrepreneurs-2020_061fe03d-en

⁴ The following reports from the IFC were used: <https://www.ifc.org/content/dam/ifc/doc/mgrt/2019-01-msme-opportunity-south-africa.pdf>

<https://www.ifc.org/en/insights-reports/2019/msme-opportunity-south-africa>

⁵ Here is the link to this report: <https://unctad.org/publication/national-entrepreneurship-strategy-south-africa>

⁶ Here is the link to this report: [FS MSME 2020.pdf](FS%20MSME%202020.pdf) (finmark.org.za)

⁷ Here is the link to this article: [Supporting digital transformation through South Africa's SMEs \(blog.google\)](#)

columns indicating sectors of other countries, with the row summation representing total exports of South Africa.

Methodology

This study undertakes simple regression to assess the impact of MSME Digital Imports on different variables such as employment, productivity and size variables pertaining to MSMEs over the study period (2010-2020). The following econometric equations (numbered 1-4) are estimated at an aggregate level for the MSME sector of South Africa:

$$Employment_{it} = a_0 + a_1 * (Digital Imports_{it}) + a_2 * (GDP_{it}) + a_3 * (GDP per Employee_{it}) + e_{it} \quad \dots (1)$$

$$\begin{aligned} Number\ of\ Enterprises_{it} \\ = a_0 \\ + a_1 * (Digital\ Imports_{it}) + a_2 * (GDP_{it}) + a_3 * (GDP\ per\ Employee_{it}) \\ + a_4 * (Employee\ per\ MSME_{it}) + e_{it} \quad \dots (2) \end{aligned}$$

The productivity and size variables for the MSME sector in South Africa is analysed with the specification as in equations below:

$$\begin{aligned} GDP\ per\ Employee_{it} \\ = a_0 + a_1 * (Digital\ Imports_{it}) + a_2 * (GDP\ per\ MSME_{it}) + e_{it} \quad \dots (3) \end{aligned}$$

$$\begin{aligned} Employee\ per\ MSME_{it} \\ = a_0 + a_1 * (Digital\ Imports_{it}) + a_2 * (GDP\ per\ Employee_{it}) + a_3 \\ * (GDP\ per\ MSME_{it}) + e_{it} \quad \dots (4) \end{aligned}$$

Results

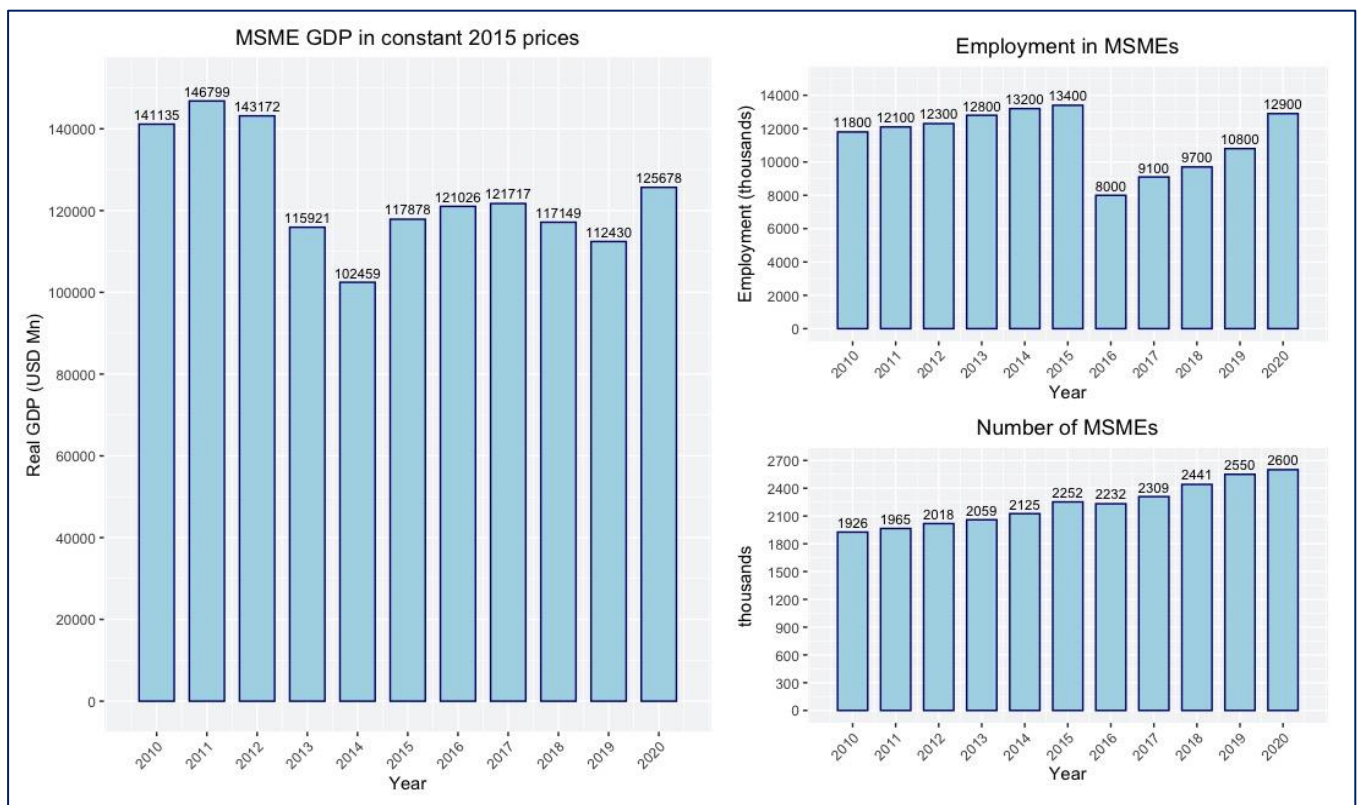
Data Analysis

Figure 1 provides an overview of key macroeconomic variables in South Africa's MSME sector, including MSME GDP, employment, and the number of MSMEs, spanning the period from 2010 to 2020. The trend of MSME GDP in South Africa exhibits fluctuating growth, with highest GDP recorded in the year 2011, as depicted in Fig. 1. Subsequently, GDP experienced a slowdown in 2013 and 2014, with growth momentum gradually picking up from 2015 onwards, increasing from USD 117.9 billion to USD 125.7 billion.

The most recent estimate indicates a total of 2.6 million MSMEs in 2020, reflecting a 2.8 percent compound annual growth rate compared to the 1.9 million firms estimated in 2010. This suggests a gradual growth trend in the MSME sector over the last decade.

Fig. 1 also illustrates that MSME employment in South Africa exhibited gradual growth from 2010 to 2015, followed by a slowdown during the period 2016-2019. Employment levels returned to normal in 2020. According to a World Bank and IFC (2018) report⁸, the majority of MSMEs in the formal sector are small enterprises, with a significant number of micro enterprises and a relatively small number of medium enterprises. The prevalence of micro and very small enterprises creating opportunities for self-employment, coupled with the limited capacity of medium to large enterprises to employ more people, could be a contributing factor to the observed low employment levels in the country's MSME sector.

Figure 1: MSME GDP, Employment, Number of Enterprises: 2010-2020



Furthermore, we analyse cross-border digital imports in South Africa's MSME sector over the same time period (2010-2020) in Fig. 2. Similar to MSME GDP, the trend of digital imports in the MSME sector exhibits fluctuating growth, with average digital imports in the sector totalling USD

⁸ *The Unseen Sector: A Report on the MSME Opportunity in South Africa (English)*. Washington, D.C.: World Bank Group.

74.4 billion over the period 2010-2020, as depicted in Figure 2. Regarding the share of digital imports in MSME GDP, it has consistently exceeded 50 per cent over the last decade, underscoring the pivotal role that digital imports play in influencing the performance of the country's MSME sector.

Figure 2: Cross-Border Digital Imports in MSME Sector: 2010-2020

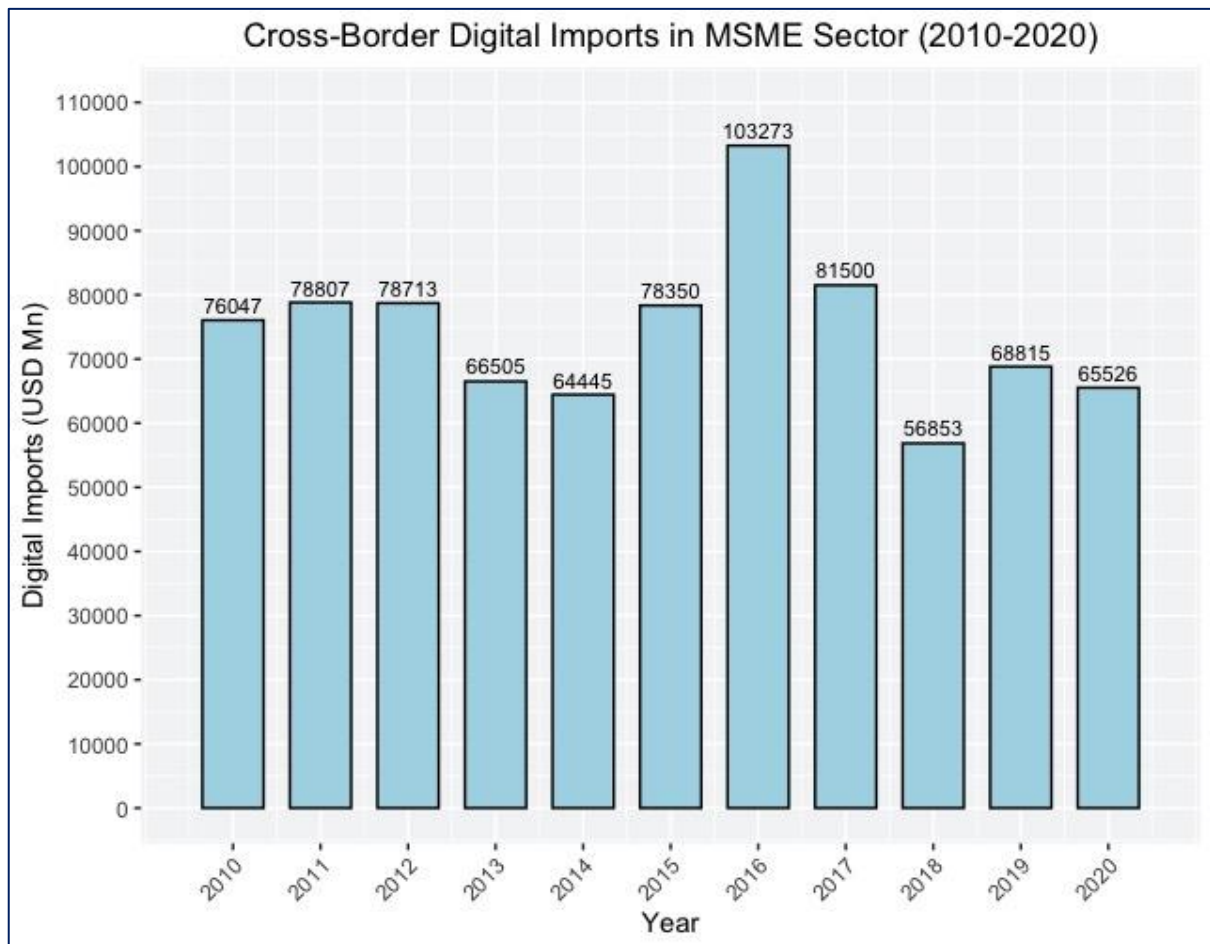
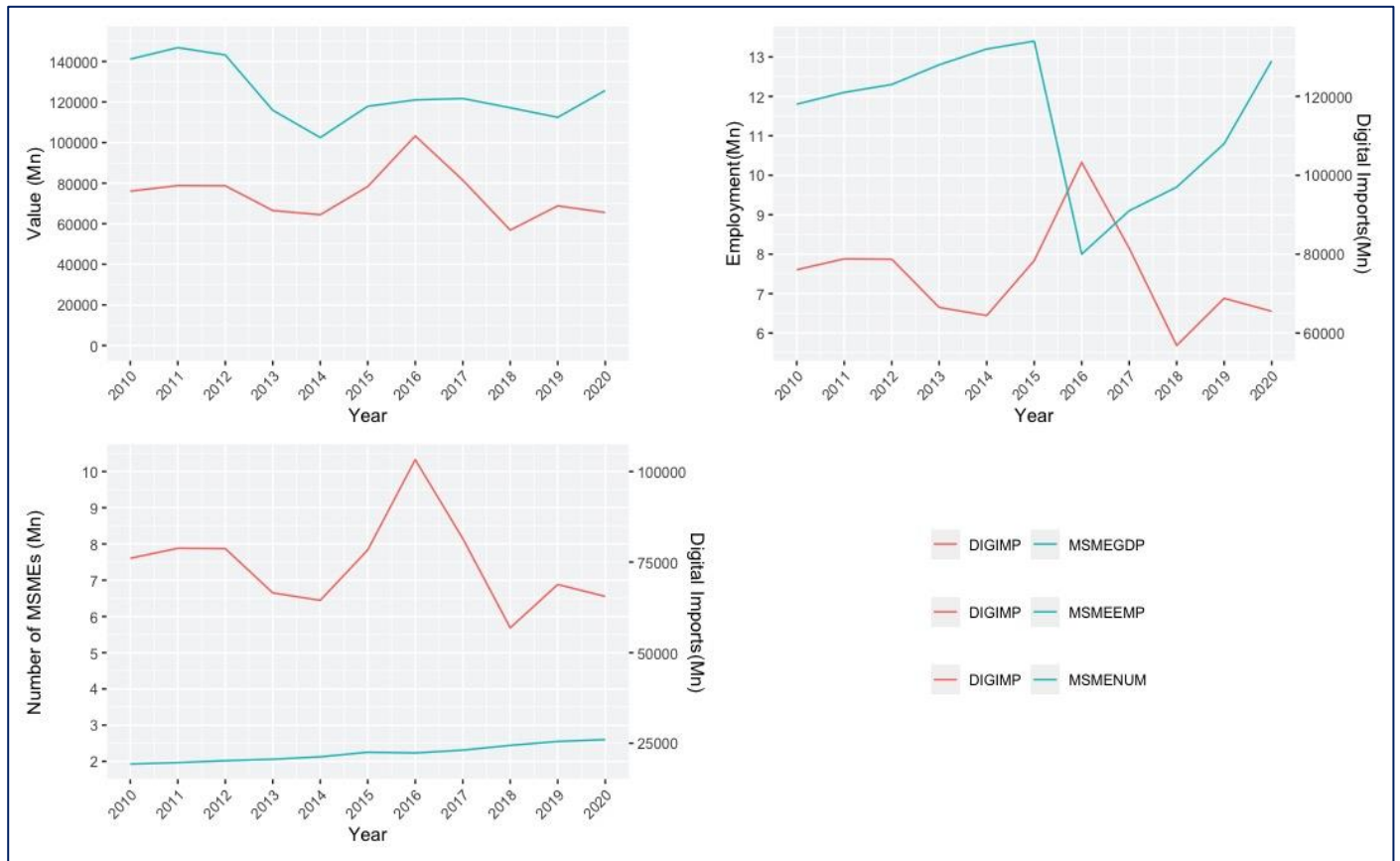


Figure 3 provide a comprehensive insight into the trajectory of digital imports with each macroeconomic variable (MSME GDP, Employment, and Number of Enterprises) at an aggregate level over the period spanning from 2010 to 2020. Analysing the pattern of the macro variables over time reveals that the key indicators (MSME GDP, Employment, and Number of MSMEs) move in tandem with MSME digital imports in the country, with occasional deviations. The overall alignment supports the notion that digital imports exhibit a moderate correlation with the macro-indicators of the MSMEs in the country.

Figure 3: MSME Digital Imports Versus MSME GDP, Employment and Number of MSMEs: 2010-2020



Simple Linear Regressions

The variables in the data have been normalized to ensure the consistency of the estimates in the model, utilizing R software for model execution. The results of the linear regression models (equations 1-4) are presented in the following tables. Table 1 demonstrates that digital imports are significant at a 5% level, at a minimum, in all the linear regression models specified in equations 1-3. The positive coefficient of digital imports across all regression models signifies that an increase in digital imports for the country corresponds to an increase in the macro-indicators (Employment and Number of MSME Enterprises) of the MSME sector in the economy. In simpler terms, a 1 per cent increase in MSME digital imports results in a 0.18 per cent increase in MSME Employment and a 0.09 per cent increase in the Number of Enterprises.

Table 1: Regressions Determining MSMEs' Employment & No. of Enterprises

	MSME Employment		MSME Number of Enterprises	
	Coeff.	p-value	Coeff.	p-value
Intercept	0.91	0.000***	1.74	0.000***
MSME Employment				
Number of MSMEs				
Digital Imports	0.18	0.01*	0.09	0.066 .
MSME GDP	0.76	0.000***	0.70	0.000***
GDP Per Employee	-1.13	0.000***	-1.01	0.000***
Employee Per MSME			-0.96	0.000***
GDP Per MSME				
Adj. R Square	0.99		0.99	

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

Digital imports positively impact labour productivity, and this relationship is statistically significant, as demonstrated by Table 2. A 1 percent increase in digital imports is associated with an approximately 0.77 per cent increase in GDP per employee (labour productivity). Additionally, digital imports have a positive and statistically significant impact on Employees per MSME. A 1 percent increase in digital imports corresponds to an approximately 0.20 per cent increase in Employees per MSME. The positive and significant intercept term in equations 1-4 suggests the presence of additional variables influencing the relationship.

Table 2: Regressions Determining Labour Productivity and Size Variables

	MSME GDP Per Employee (Labour Productivity)		Employee Per MSME (Size Based on Employment)	
	Coeff.	p-value	Coeff.	p-value
Intercept	0.11	0.692	0.822	0.000***
Employee per MSME				
MSME GDP Per Employee			-1.15	0.000***
Digital Imports	0.77	0.049 *	0.20	0.069 .
MSME Employment				
GDP Per MSME	0.09	0.737	0.943	0.000***

Adj. R Square	0.32	0.98
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Conclusion

In the dynamic landscape of global trade, digital commerce has become a pivotal force driving the growth of the South African economy. This transformation aligns with the widespread proliferation of various digital products and services globally. Within South Africa's dynamic business ecosystem, small enterprises have adeptly embraced this digital revolution, integrating imported digital services like e-commerce platforms and social media applications into their core strategies.

Our comprehensive study reveals a positive, statistically significant impact of digital imports on the performance of MSMEs in South Africa. This positive influence spans various aspects, including employment, size, and productivity metrics of MSMEs. This underscores the catalytic role of digital imports in enhancing efficiency and facilitating the growth of MSMEs. For policymakers, this finding holds significant implications.

It is crucial for policymakers to carefully assess the ramifications of imposing import duties on digital services, particularly in areas where they have existing GATS commitments. Our quantitative analysis, supported by econometric regression techniques, clearly demonstrates that levying duties on digital imports could have adverse consequences for South Africa's MSMEs. Hence, a nuanced and strategic approach is essential when formulating policies related to digital trade – one that safeguards domestic interests while recognizing the pivotal role of digital imports in bolstering the overall competitiveness and sustainability of South Africa's MSME sector.