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Assessing the Impact of Trade Facilitation on Firms: Lessons from Zambia

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ABSTRACT

Trade facilitation has attracted a lot of interest and attention, particularly in light of the World Trade Organization's multilateral trading system. However, the implications of trade facilitation from a firm and Least Developing Country perspective have remained largely unexplored. This oversight is notable, as companies and corporations are typically the principal actors in international trade. This study thus aims to fill that gap by conducting a quantitative analysis that estimates the effects of trade facilitation on firms and businesses operating in Zambia. Arising from the analysis, the study's findings demonstrate that trade facilitation has a positive effect on businesses. In particular, targeted trade facilitation initiatives exert a more substantial impact on firm imports and exports than standard process improvements. It is therefore anticipated that these findings will encourage a more focused approach to trade facilitation, not only in Zambia but also in other countries with similar socioeconomic characteristics.

1. Introduction

Trade facilitation plays an important role in the economic growth of countries. In the simplest sense, trade facilitation entails the reduction of costs associated with the movement of goods across the border (Seck, 2016) by among other things the simplifying of procedures and processes (Persson, 2013) related to trade. Such processes include the automation of Customs procedures, implementation of one stop border posts, reduction of border agencies, implementation of trusted trader programs, enhancement of communication and technology for streamlined export and import process as well as easy availability of information on import and export procedures among others (Wilson, Mann, & Otsuki, 2005; Persson, 2013; Zaki, 2014). Trade facilitation has been an integral part of the multilateral trading system. At this level, trade facilitation has been recognized as being a critical factor relevant in the reduction of global trade costs (World Trade Organisation, 2015) due to the fact that it plays a critical role in reducing transaction costs arising from the interactions of businesses and border

agencies (Grainger & Morini, Disentangling cross-border interactions, 2019). Notably, costs arising from inefficient border processes have been found to have a cascading effect in the supply chain (Grainger et al., 2018) with the final consumer often absorbing these costs. Thus, scholars and researchers have endeavoured to study the importance of trade facilitation from both a theoretical and empirical perspective in order to encourage simplified trade processes.

A glimpse of existing literature however reveals negligible to no attempts to review the impact of trade facilitation on firms in Zambia. Thus, there are minimal reference materials available to policy makers, academics and other interested parties regarding the impact of trade facilitation in the country. This article therefore endeavours to delve into the subject by estimating the impact of trade facilitation on firms and businesses in Zambia in an attempt to provide meaningful information and useful for policy formulation. In particular, it considers the impact of trade facilitation on firm exports and imports as a measure of firm productivity and performance between 2006 and 2020. Undertaking this research is important as it will pave way for further research and conversations into the subject from the context of a Least Developing Country (LDC) perspective. Arising from this research, it is expected that there will be a more enhanced and efficient approach towards trade facilitation in the country. Further, other countries with similar social economic characteristics as Zambia will be able to pick lessons from the findings and accordingly enhance their implementation of trade facilitation.

The emphasis on LDCs is due to the fact that trade costs in LDCs have been found to be significantly higher than in other countries (OECD & World Trade Organization, 2015). For example, Busse et al. (2012) suggest that LDCs incur higher export and import costs of 43% and 54% respectively in comparison to other countries. These are relatively large costs and have a direct bearing on players in the supply chain. Further, LDCs are home to a large number of start-ups and Small and Medium-sized Enterprises (SMEs) which according to the World Bank (2019) "contribute up to 40% of national income in emerging economies" but do not export as much or participate in global value chains in comparison to SMEs in developed countries (World Trade Organization, 2022). Thus, this research will be of great value in enhancing the growth of such players in these economies as they play a crucial role in the global commerce ecosystem by exporting and importing goods and services.

1.1 History of Trade Facilitation in Zambia

Zambia became a member of the World Trade Organization in 1995 after having been a member of the preceding General Agreement on Tariffs and Trade (GATT) from 10th February 1982 (WTO, 2024). The significance of the aforementioned was premised on the need to eliminate barriers to trade and accordingly enhance the standards of living for citizens (Lloyd, 2001). Following the country's independence and prior to joining GATT, Zambia had initially pursued a capitalist economy with minimal participation of the state in the running of the economy (Mudenda, 2009). As a country endowed with vast deposits of copper, the country was one of the wealthiest Sub-Saharan countries in the early 1960s after attaining its independence in 1964 (Wulf, 1988). In this regard, Zambia was largely a pace setter for other African countries in the region at the time. However, its reliance on copper exports as well as its subsequent poor economic policies saw the country fall from being one of

the wealthiest in the region to one of the poorest.

From the late 1960s to 1991, the country adopted a strategy of nationalizing all major industries in the economy. The government took over the running of private firms including those that were active in the import and export market with the notion of accelerating economic diversification, industrialization and retainment of profits from exports (Mudenda, 2009). However, the poor economic strategy pursued by the country coupled with the decline of copper prices and rise in oil prices in the 1970s had adverse effects for the country's economy. Accordingly, the country begun to face steady economic decline thus resulting in a gradual and continuous drop in the country's per capita gross domestic product (WTO, 2024). Further, the country's annual export and import percentage growth begun to decline signifying the country's diminishing participation in the foreign market as depicted in Figure 1.

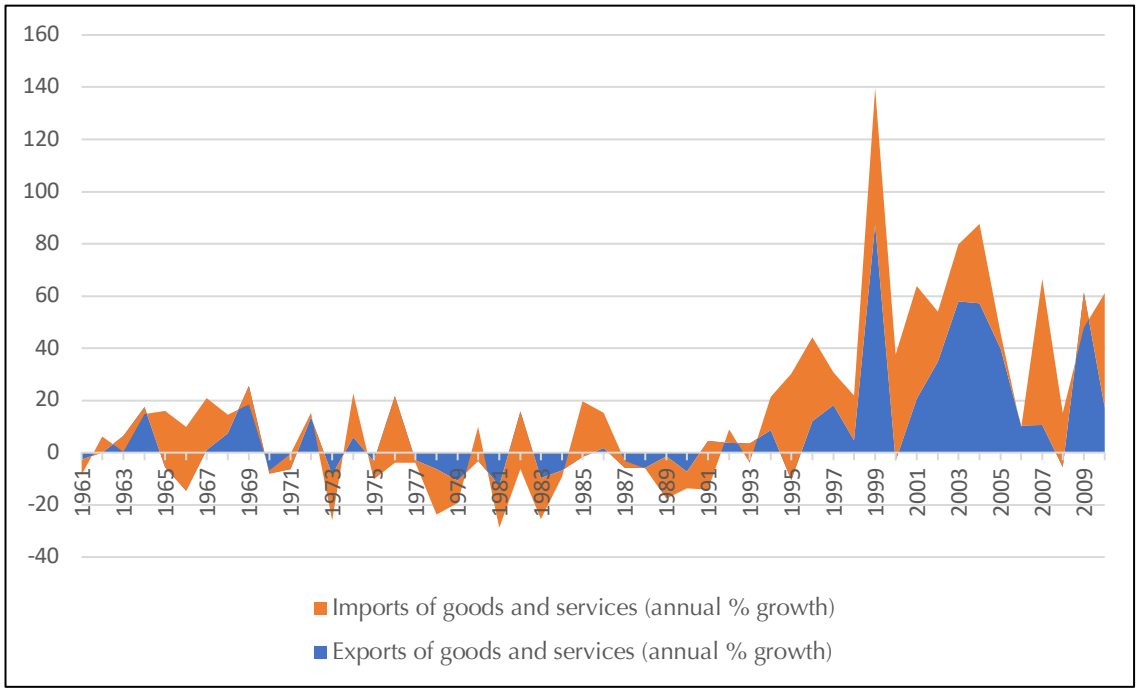

Figure 1: Annual Export and Import Percentage Growth. Derived from the World Bank national accounts data and the Organisation for Economic Co-operation and Development (OECD) National Accounts data files.

The eventual turn in Zambia's misfortunes begun after the country returned to multi-party politics in 1991. The change saw the implementation of various economic reforms including the return to capitalism and the adoption of an economic recovery program under the hands of the International Monetary Fund and the World Bank. These programs included the privatization of state-owned enterprises and the liberalization of prices for commodities (OECD, 2003). The country consequently saw a rise in private businesses and ventures thus creating the need for simplified trade processes. Zambia therefore begun implementing various programs aimed at improving trade flows such as the implementation of a compliance program called the Customs Accredited Clients Program (CACP) in 2008 which was amongst the earliest in the region (Polner, 2012). Other initiatives included the modernization of border infrastructure including the electronic processing of imports and exports

as well as the implementation of an electronic trade portal (Siame, 2019). The country also enacted legislation aimed at easing the flow of trade such as the Border Management Act (Government of Zambia, 2018) and set up a National Trade Facilitation Committee with the aim of overseeing the implementation of trade facilitation initiatives in the country (UN, 2019).

2. Data and Methodology

2.1 Study Variables

Dependent Variables

It has been suggested that finding a suitable measure for firm performance is difficult and often subjective due to the various factors that can influence the variable chosen (Herciu & Șerban, 2018). However, certain variables such as exports and imports as measured by their value and volume may be suitable. The choice of utilizing exports is premised on the fact that they are a representation of the economic activities being performed by firms in a country. Secondly, given that many firms are part of global value chains, imports into the country may also be a good representation of inputs into production. Therefore, for purposes of this research, annual exports and imports sourced from the Zambia Data Portal (Zambia Statistics Agency, 2024) for the period 2006 to 2020 are considered as suitable dependent variables for the respective equations (1) and (2). Notably, researchers such as Iwanow and Kirkpatrick (2007) as well as Portugal-Perez & Wilson (2012) among others have similarly used imports or exports in their research.

Independent Variables

Independent variables are drawn from existing World Bank statistics and include factors that are expected to influence the movement of goods across the border. Specifically, the variables considered are the time to export and import as well as the costs to import and export through four predefined stages including document preparation, inland transportation and handling, Customs clearance and inspections and port handling (World Bank, 2024). The time is recorded in hours while the costs are calculated in US dollars and include all fees charged by government agencies. Lastly, the existing compliance program (CACP) introduced in Zambia in 2008 is included as an independent variable as it represents a targeted initiative by the country to accord simplified Customs processes and procedures to traders (Peterson, 2017).

2.2 Data Analysis

Ordinary Least Square (OLS) regressions are utilised in the analysis as they are expected to provide the best linear predictors which are as close to the actual outcome as possible (Verbeek, 2017) and easy to interpret (Fan, Li, & Hong, 2019). The latter is important for purposes of providing meaningful and useful policy recommendations. In this regard, equations (1) and (2) depict the proposed relationship between the suggested dependent and independent variables.

$$TVex_i = \beta_0 + \beta_1 * Tex_i + \beta_2 * Cex_i + \beta_3 * TF_i + e_i \quad (1)$$

$$TVim_i = \beta_0 + \beta_1 * Tim_i + \beta_2 * Cim_i + \beta_3 * TF_i + e_i \quad (2)$$

Where;

$TVex_i = Exports\ (In\ Zambian\ Kwacha)$

$TVim_i = Imports\ (In\ Zambian\ Kwacha)$

$Tex_i = Time\ to\ Export\ (In\ hours)$

$Tim_i = Time\ to\ Import\ (In\ hours)$

$Cex_i = Cost\ to\ Export\ (in\ US\ Dollars)$

$Cim_i = Cost\ to\ Import\ (in\ US\ Dollars)$

$TF_i = Compliance\ program\ offered\ by\ customs\ (CACP\ Dummy)$

Given the differences in the units of measure for export and import values and costs to import or export expressed in Zambian Kwacha and US Dollars respectively, the log of export and import values is undertaken in order to arrive at the log – linear equations detailed in equation (3) and (4).

$$LNex_i = \beta_0 + \beta_1 * Tex_i + \beta_2 * Cex_i + \beta_3 * TF_i + e_i \quad (3)$$

$$LNim_i = \beta_0 + \beta_1 * Tim_i + \beta_2 * Cim_i + \beta_3 * TF_i + e_i \quad (4)$$

3. Results

3.1 The Impact of Trade Facilitation on Firm Exports

Regressing the log of exports on time to export in hours, the cost to export in US dollars and membership to the compliance program (CACP) reveals a statistically significant relationship between the log of exports, time to export and the compliance program as shown in table 1. In particular, the results reveal an inverse relationship between the time to export and the log of exports and a positive relationship between the compliance program and the log of exports. The results suggest that a one hour increase in the time to export goods from Zambia would result in a 0.2% decrease in firm exports. On the other hand, a one hour decrease in the time to export would result in a 0.2% increase in firm exports.

Table 1: Log Linear Regression on Exports

log_exp	Coef.	Std. Err.	t-value	p-value	[95% Co	Interval]	Sig
TimetoExportHrs	-0.002	0.001	-2.02	0.068	-0.004	0.000	*
CosttoExportUSD	0.000	0.000	1.34	0.208	-0.000	0.001	

CACP	1.067	0.518	2.06	0.064	-0.073	2.207	*
Constant	24.292	0.570	42.59	0.000	23.038	25.548	***
R^2		0.612			Number of obs		15.000
F-test		5.773			Prob > F		0.013

Notes: **** p<.01, ** p<.05, * p<.1*

With regards to the compliance program, the results reveal a positive relationship which reaffirms theoretical expectation that the introduction of trade facilitation programs will positively impact firm exports. The probable reasons for such a large effect on the log of exports could be on account of the fact that the compliance program offered by Customs in Zambia accords several trade facilitation benefits to compliant traders which has a higher impact than ordinary process improvements such as modernization. Details of some of the individual benefits offered on the program are outline in Table 2.

Table 2: Benefits accorded to CACP members by Customs

Benefit	**Description**
Release of shipments with minimum scrutiny	Customs does not undertake physical inspection of exports or imports at the border when the consignments are entering or leaving the Zambia
Preferential treatment and clearance at the border	Consignments belonging to firms on the program are given preferential treatment and priority at the border thus minimising the time the physical goods stay at the border.
Differentiated graphic presentation/identifier of Customs declaration document	This identifier is meant to ensure that all steps in the Customs clearance process, including enforcement activities accord preferential treatment to consignments belonging to accredited firms.
Destination Inspections, at Inland Customs Office or at the Accredited Clients premises	Customs grants special release to consignments belonging to firms on the accreditation program if a physical inspection of goods is required. In this regard, the physical inspection is conducted at the firm's premises when the vessel is offloading the goods. The benefit of this step is that it eliminates the cost associated with unloading and loading of goods for purposes of physical inspection.
Client Relationship Managers and Focal Contact Persons at the border thus improving Customs services and accredited relations	This benefit provides the exporting or importing firm with a direct client relationship manager in Customs whose role is to build and maintain client business relationships with importing or exporting firms. The relationship managers are also expected to act as a direct link within Customs for purposes of addressing any concerns that might arise to the detriment of the firm.

Note: *Information compiled from the Zambia Revenue Authority* (2024)

3.2 The Impact of Trade Facilitation on Firm Imports

Regressing the log of imports on time to import in hours, the cost to import in US dollars and membership to the compliance program (CACP) reveals a statistically significant relationship between the dependent and independent variables as shown in table 3.

Table 3: Log Linear Regression on Imports

log_imp	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
TimetoImportHrs	-0.002	0.001	-3.10	0.010	-0.003	-0.001	**
CosttoImportUSD	0.000	0.000	1.93	0.080	0.000	0.000	*
CACP	1.083	0.443	2.45	0.033	0.1082	2.057	**
Constant	24.273	0.495	49.08	0.000	23.1845	25.361	***
R-squared		0.737	Number of obs			15	
F-test		10.283	Prob > F			0.002	

Notes:*** *p<.01,* ** *p<.05,* * *p<.1*

The results show an inverse relationship between the time to import and the positive relationship with the compliance program. In particular, a one hour decrease in the time to import will result in a 0.2% increase in firm imports and vice versa. Further, membership into the compliance program is expected to result in an increase in firm imports.

4. Discussion

From an empirical perspective, literature suggests that any effort to facilitate trade by simplifying all processes and procedures relating to interactions between traders and Customs authorities will result in the quicker movement of goods across the border and lower costs for firms (Shepherd, 2013; Carballo et al., 2014; Hoekman & Shepherd, 2015; Schramm, 2015; Fernandes et al., 2016; Hendy & Zaki, 2021). The results arising from this investigation suggest that the trade facilitation activities pursued in Zambia have positively impacted firms in the country by increasing their exports and imports. Apart from estimating the impact on imports and exports, the findings suggest that implementing targeted trade facilitation programs meant to give expedited clearing to compliant importers and exporters are likely to have a large impact on trade volumes. As observed in the estimation results, the existence of a compliance program would result in an increase of 108.26% and 106.74% on imports and exports respectively for accredited compliant firms. In addition to the huge trade volumes, the effects of such a program as suggested by Miled and Fiore (2014) are an improvement in the overall financial performance of accredited firms on account of lower trade costs and faster turnaround times.

Therefore, it can be deduced that the findings arising from this research reaffirm the suggestion that trade facilitation programs have a positive impact on any country's trade performance (Porto, Canuto, & Morini, 2015).

Apart from revealing the impact of a targeted trade facilitation program on imports and exports, the findings also suggest that any activity such as simplified document and border processes, increased processing efficiency and similar improvements meant to reduce the time taken to clear goods would result in a 0.2% increase in firm exports and imports. Thus, in the absence of targeted initiatives such as compliance program, steps such as improving processing efficiency and modernization among others would result in faster import and export processing would positively impact imports and exports.

5. Significance of Findings and Recommendations

Overall, the foregoing findings are substantial in showing how trade facilitation can benefit LCDs and increase firm imports and exports thus spurring productivity and increased revenue and profits for firms and businesses (Bas & Strauss-Kahn, 2014). Further, lower export costs arising from trade facilitation are likely to promote export diversification in firms (Dennis & Shepherd, 2011) which is critical in an economy such as Zambia which has been heavily reliant on mineral exports. Furthermore, firms are likely to receive their inputs quicker and at a cheaper price resulting in an increase their efficiency, as well as the quality of inputs and outputs (Laajaj, Eslava, & Kinda, 2023). The cost savings realised by firms are likely to be passed on to consumers who are then expected to have higher disposable incomes and a wider variety of goods (Hoekman & Shepherd, 2015). Apart from cost savings, firms are also likely to see a faster turnaround times so as to ensure a constant supply of inputs and uninterrupted production. The expected results would be increased firm income (Miled & Fiore, 2014) as well as increased producer and consumer surplus (World Trade Organisation, 2015). However, unlike other studies which suggest that exports tend to respond more than imports on account of increased trade facilitation (Seck, 2016), the findings arising from this research suggest that Zambian firm imports will respond slightly more that exports especially in the presence of a targeted compliance program. The reasons for this could be due to the fact that the country is still largely dependent on mineral exports whose demand and international prices are affected by exogenous factors (Chipili, 2016) while still being heavily dependent on imports.

Consequently, the main takeaways arising from this research are premised on the overall effects that trade facilitation will have on costs and firm productivity, factors which are critical in support the growth of SMEs in LDCs such as Zambia. The second takeaway from this research is premised on the suggestion that targeted trade facilitation programs are likely to have a larger effect on firm imports and exports in comparison to non-targeted trade facilitation activities. While the latter are beneficial to trade as a whole, undertaking specific programs meant to target particular areas in a country such as Zambia is likely to provide a mechanism through which specific trade bottlenecks could be addressed. This however does not imply or warrant the deferment of other enhancements such as processing efficiency for targeted programs only, but rather that specific measures

should be prioritized even as other process improvements are undertaken. As such, it would be recommended that countries pursue and prioritise targeted trade facilitation programs in addition to implementing normal trade process improvements and enhancements.

Notably, while Customs takes the centre stage where trade facilitation is concerned, there is need for a harmonized approach towards trade facilitation. This aspect is particularly important as research has also suggested that poor coordination among government agencies has the ability to create serious bottlenecks in the import and export process (Stephen & DaSilva-Glasgow, 2023). Further, the World Bank's Performance Logistics indicators have also suggested that about two thirds of the delays that traders encounter at the border are on account of other government institutions with Customs being responsible for the remaining one third (McLinden, Fanta, Widdowson, & Doyle, 2011). Therefore, issues of poor coordination among agencies, duplication of processes and procedures as well as poor cooperation between traders and government agencies have been of serious concern in many countries across the developing and developed world (WTO, 2014). It is for this reason that the Trade Facilitation Agreement has recognized the role that other government agencies play in enhancing trade by specifically addressing matters of Border Agency Cooperation (Article 8 among others) (Kieck, 2020) wherein issues of coordinated activities, joint controls and aligned working hours and days have been recommended (WTO, 2018). Notwithstanding the foregoing, it has been found that internal border agency cooperation in Zambia remains relatively poor and well below the global average as shown in Figure 3.

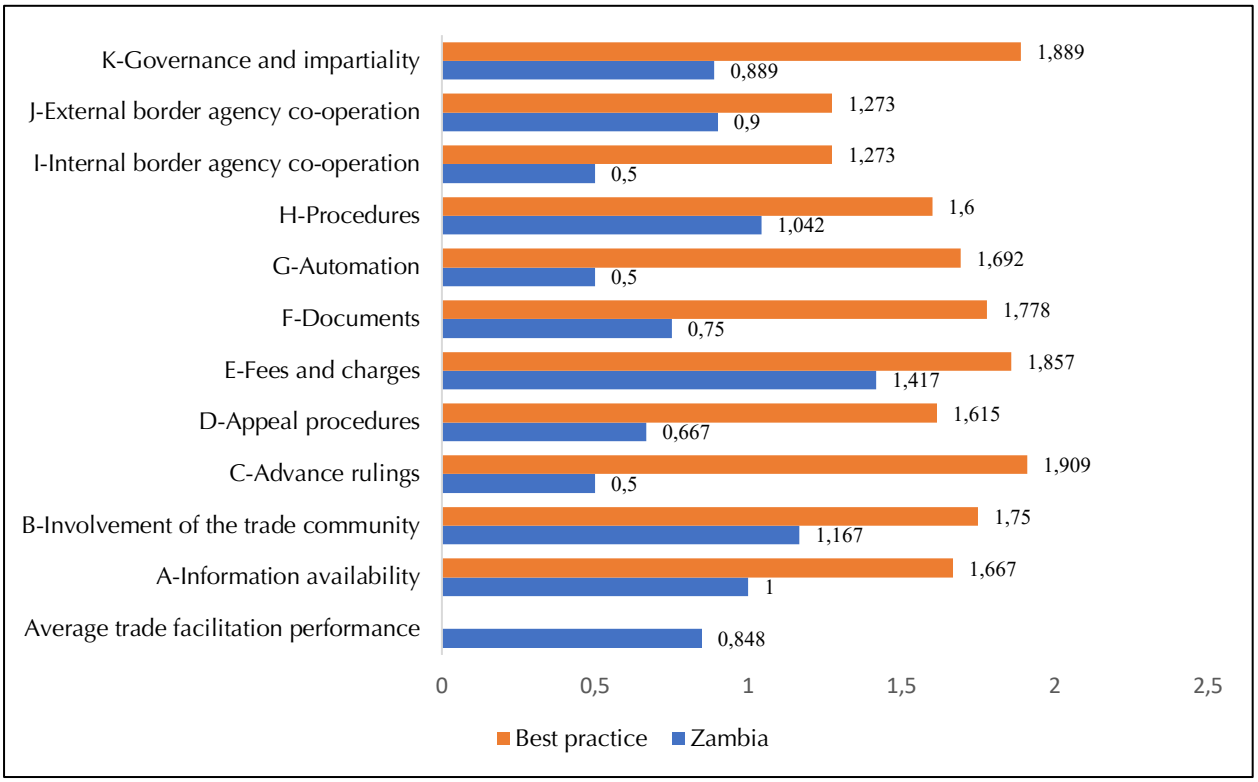

Figure 2: Zambia's trade facilitation performance derived from the OECD's Trade Facilitation Indicators for (2024)

Therefore, enhanced border agency co-operation is important because inefficient processes in other agencies may negate the gains received from Customs enhancements including the benefits accorded to compliant traders. In this regard, steps towards a harmonised approach would include:

- Other government agencies recognising Customs' compliant traders and according them expedited clearing.
- Other government agencies simplifying and reducing the number of required documents, permits and licenses.
- Avoiding the duplication of requirements by merging of inspections where several agencies have an interest. For example, consignments requiring inspection by both Customs and compulsory standards inspections would be conducted at the same time in order to avoid duplication of processes.
- Enhancing the use of risk management and Artificial Intelligence in all government agencies order to avoid inconveniencing low risk traders.

6. Conclusion

The aim of this study was to measure the impact of trade facilitation on firms and businesses domiciled in Zambia. In order to effectively address this objective, the study aimed to specifically estimate the overall impact of trade facilitation on firm exports and imports. Arising from the foregoing, the results found that trade facilitation positively impacts firm exports and imports in Zambia. In particular, the results found that targeted trade facilitation programs such as the country's Customs compliance program had led to a significant increase in firm exports and imports. Further, the results found that reductions in the time associated with importing and exporting had a positive effect on imports and exports. Assumptions drawn from the aforementioned findings are that firms participating in targeted trade facilitation programs were likely to be more productive due to the ability to receive imported inputs quicker and export their products faster. Furthermore, any efforts such as modernization of processes and increased processing efficiency that would result in less time spent at the border would positively affect trade.

Therefore, the country needs to continue with the current trade facilitation activities albeit with preference towards targeted programs. Further, there is need for a harmonised and co-ordinated approach towards trade facilitation as focusing on Customs processes alone is likely to limit its impact. The overall significance of the aforementioned findings is that LDCs need to pursue trade facilitation as a priority in order to encourage further firm productivity and economic activity especially that most are host to a large number of SMEs that are usually constrained on account of costs arising from inefficient trade processes.

Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article

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