Export Intermediation, Institutional Quality, and Export Performance in Tanzania: A Catalyst for Agricultural Transformation

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ABSTRACT

This study analyses the role of intermediaries in Tanzania's agricultural exports intensive margins in international markets, using annualized firm level customs transactions data at the HS6-code product level, export mode and by city and destination country from 2010 to 2020. Together with gravity information, this study applies the panel gravity-PPML model that is estimated at the firm level serially.

The study reveals that foreign export intermediaries yield the strongest effect on the intensive margins of domestic direct agricultural exports. The results also suggest that the highest export spillover impact from foreign export intermediaries on the domestic direct exporters is the product-destination markets-specific pair. Considering the series of proxy variables for institutional quality of the destination markets, the study uncovers that export intermediaries are vital for increased domestic agricultural exports. The result further registers that the significance of export intermediaries increases as the institutional quality of the destination markets becomes weak, leading to increased domestic direct agricultural exports when intermediaries are operational. The same is recorded when the geographical distance increases. The first likely implication from the results is that export spillovers from foreign export intermediaries may be related to knowledge transfers and generated from the foreign firms where they originate. Another important implication is that export intermediaries are vital as their influence increases in domestic direct exports, especially to relatively complex and distantly located markets.

That is, in whatever characteristics of destination markets there are the intermediaries can contribute towards increased domestic agri-exports as they can handle contract issues. There is, therefore, a definite need chiefly to encourage export intermediaries, particularly foreign intermediaries to invest in agricultural exports and promote local firms through different measures, including extending export subsidies by the government to desirable domestic firms.

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CHAPTER 1: INTRODUCTION

1.1 Background

Agricultural exports offer several opportunities, including markets for products, learning and foreign currency reserves. As a catalyst for agriculture transformation, several factors are acknowledged to facilitate exports of agricultural products, including the presence of export intermediaries and institutional qualities. Here, export intermediaries are considered firms that assist producers or manufacturers to access foreign markets (Ahn et al., 2011). They can be agents, distributors, retailers, or wholesalers. While institutional quality reflects the quality of contract enforcement, property rights, security and the like, such as the predictability of the institutions of the trading countries (Levchenko, 2004). The fundamental question of whether the presence of export intermediaries and the institutional qualities of the destination countries affect intensive margins of local agricultural exports is still central. A strong incentive for investigating this fundamental question is the importance of firms' export performance in bolstering export-led economic growth in most emerging markets, Tanzania in particular. Yet, domestic agricultural exporters frequently find it difficult to reach foreign markets, largely due to markets' asymmetric information and the low competitiveness of firms (FAO, 2017 & URT, 2021), and other unobservable trade costs, such as contract enforcement issues. Policy makers have been searching for export facilitation strategies, including improved trade policies, as a catalyst for agriculture transformation and food security.

Trade networks and export intermediaries are often acknowledged as facilitating exports of goods, including agricultural products, as they are vested in foreign market information and experienced in contract issues in the destination countries. The idea is that intermediary firms are well-networked with international agents or other traders in foreign markets, such that they are more advantaged to tap into the trade opportunities available in the international export markets (Deardorff, 2001). That is with their networks, they can possibly easily handle contract issues in foreign markets, and they are aware of the characteristics of the destination countries, such as institutional qualities. As such, ownership type of the firms can also provide a clue on where the exporters direct their exports. In this stance, the origin of the export intermediary firm matters for trade with the impression that firms prefer exporting to where they are familiar with the destination market characteristics. Thus, it can be hypothesized that export mode is a de facto measure for trade flows, especially in destination markets where firms with less productivity and that are not familiar with the institutional qualities of the destination markets, find it difficult to penetrate those foreign markets.

But traders remain cognizant of the destination markets' characteristics, and institutional qualities affect exports (Nunn 2007, Kokko and Tingvall 2014), while the presence of export-oriented foreign companies integrates local firms with the global economy (UNCTAD, 2018). Here, the core argument is that domestic firms indirectly benefit from foreign firms' spillover effect via different channels, including demonstration and imitation effects (Blomström & Kokko, 1998; Görg & Greenaway, 2016; Greenaway, Sousa, & Wakelin, 2004; Narjoko, 2009). But empirical evidence on this argument has attested to controversial results. On one hand, some register positive spillover effects, while other studies find negative, insignificant evidence. Similarly, firms' performance may be affected by institutional qualities (IMF, 2003; Nunn, 2005). This discrepancy in results could be due to data structure, examined questions, estimation techniques, firm characteristics, or disparity in the capability of domestic firms in engrossing information spillovers and qualities of institutions in the destination markets.

Despite of the conflicting arguments, one can argue that exporting is done directly by producers, while the reality is that export intermediaries play a role. The theoretical drive to fortify this conception builds on the theory of international trade with an intermediary sector (Ahn, Khandelwal, & Wei, 2011), the theory of trade networks (Rauch & Watson, 2004), and the institutional theory. Nevertheless, the earlier posed central question is still much debated in trade literature. The underlying hypothesis is that the presence of foreign export intermediaries in the host economy presents plausible facilities for market information transfer through spillover mechanisms. Furthermore, foreign export intermediaries are aware of the qualities of the institutions in the destination countries. This reduces search and match costs. But there is relatively little evidence regarding this feature, and this mostly overlooks the context of emerging markets in Africa, especially Tanzania.

In response to the central question of this study, the present work is significant in the context of Tanzania's export performance. In contrast to previous studies on Tanzania, the present study delves into whether the presence of foreign intermediaries and institutional qualities affects domestic firms' export performance. Evaluation of the impact of institutional qualities and export spillover effects from foreign export intermediaries for a globalized country like Tanzania is decisively improving export-related policy and investment strategies, as a priority towards agriculture transformation and food security.

1.2 Statement of the Problem

Tanzania is notably recognised as an economy largely dependent upon agricultural exports, blessed with huge potential for the agribusiness sector. However, for some decades, the country has been experiencing low export performance in global markets. Consequently, the country has experienced a continuously, sizable trade deficit, registering minimal exports in foreign markets while having a high demand for imports. Although in recent years, since 2015, the gap between imports and exports

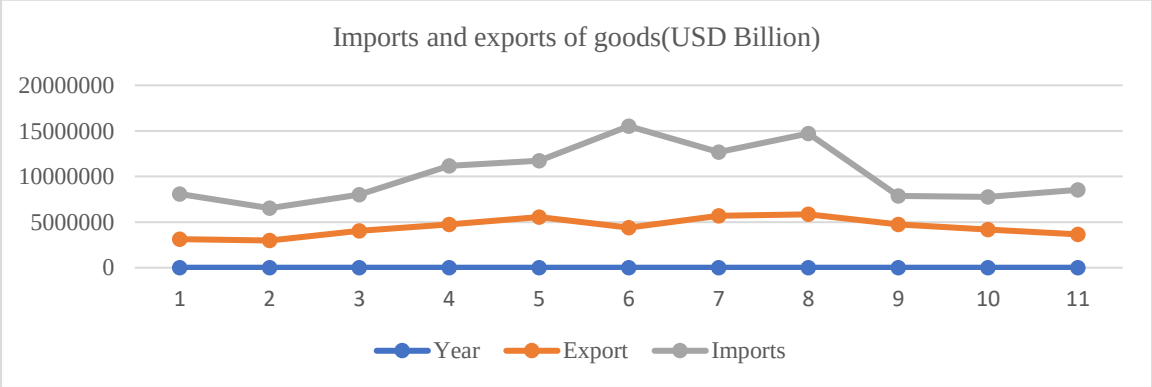
has narrowed, unlike the years before that, exports from Tanzania are still not significant to the extent that the balance of trade remains a challenge (URT, 2021) and WITS (2020), as presented in Figure 1. The specific causes of this inconsistent export status include market information asymmetry, high costs of conducting business, failure to meet international quality standards and low competitiveness (URT, 2021). These issues were probably attributed to the geographical distance of the destination markets from Tanzania, the limited capability of exporters or maybe domestic exporters' lack of trade networks with agents and other importers abroad, or their lack of awareness of contractual issues and sometimes destination market characteristics, such as institutions that present barriers for exporters. Taking an overview of these issues, local agricultural exporters may be adversely affected by increased transaction and institutional costs, since most of the firms are predominantly small and less efficient than larger ones and they find it difficult to reach foreign markets.

Attention to searching for evidence-based solutions to address these challenges is crucial, since the difficulties encountered by exporters might compromise their success as well as efforts in transforming agriculture towards achieving the goals of the National Development Vision 2025, especially those that emphasize attaining a robust and competitive economy. It may also prevent the attainment of the Third Five Years Development Plan (FYDPIII) focus, specifically in the trade and investment sector, which aims at realising enhanced competitiveness through export growth. In addition, it may compromise the achievement of SDG 2030, especially indicator 2.4.1, that stresses sustainable agriculture.

Up to now, several strategies have been introduced by the Government to promote exports. These include the establishment of a cash crop boards, adoption of trade liberalization policies in 1990, trade agreements, Special Economic Zones, and the Export Processing Zones Programme, among others. Apart from these efforts, other factors acclaimed to facilitate exports, such as export intermediaries (see Ahn et al., 2011 and Akerman, 2018). However, their empirical role is somewhat unexplored in Tanzania. It is apt therefore, to investigate the following specific research questions:

1) How does the presence of intermediaries impact domestic direct agricultural exports?
2) How do export spillovers from foreign export intermediary firms affect local firms' agricultural exports?
3) How does the volume of agricultural, direct exports vary with the standard trade determinants (distance and GDP) and the destination-specific measures of intermediated exports?

Figure 1: Trade Development (The Trade Balance)



Source: WITS[1], World Bank (2020)

1.3 Objectives of the Study

The general objective of this study is to assess the role of intermediaries in Tanzania's agricultural export-intensive margins in international markets.

Specifically, the study intends:

I. To analyse the effects of intermediaries on domestic, direct agricultural exports.
II. To evaluate the export spillover effect from foreign intermediaries to local firms' agricultural exports.
III. To examine the influence of destination markets on intermediate agricultural exports.

1.4 Significance of the Study

The unique significance of this study stems from its contributions to knowledge and policy. First, from a methodological consideration, this study takes the quantitative approach, using detailed firm-level customs transaction panel data on agricultural products at a 6-digits level with destination-specific, product-specific. and product-destination-specific pairs of exports from Tanzania, to uncover the impact of foreign presence and foreign export intermediaries on domestic firms' intensive margins of exports, in terms of export volumes. This has yet to be studied in the context of Tanzania. The second contribution centres on the theoretical feature. Using the same dataset, this study extends the application of the Institutional Theory and the Theory of International Trade with the intermediary sector and the Pseudo-Probit Maximum Likelihood (PPML), panel gravity model on Tanzania's exports from the agriculture sector. The sector is uniquely considered as it is the leading sector in the Tanzanian economy, employing more than 65% of the populace. Third, from a dataset consideration, the study combines both micro and macro-data that allow controlling for structural similarities between foreign export markets, as highlighted by (Creusen

[1] https://wits.worldbank.org/CountryProfile/en/TZA

& Lejour, 2011). Fourth, from institutional considerations, the study identifies the capacity of intermediary exporting firms to contain market asymmetric information, market selection challenges and contract problems. The assumption is that some can withstand the market challenges and institutions in the destination countries. The last novel aspect of this paper is the policy contribution to domestic firms' intensive margins of exports and their participation in the export markets. The findings from this research inform policy makers on how domestic exporters can be facilitated by improving the export performance of the country toward export-led economic development. The likely implication is that export intermediaries are very critical, especially for distant markets with weak functioning institutions.

CHAPTER 2: LITERATURE REVIEW

2.1 Theoretical Literature

The inclusion of a firm's export mode and institutional quality in international trade theories is recent. Previous theories, starting from the orthodox trade theories of Absolute Advantage (AA), Comparative Advantage (CA) and the Heckscher-Ohlin (H-O), through to the New Trade Theories by Melitz (2003), overlook the role of export mode and institutions in bilateral trade flows. They chiefly concentrate on the assumption that firms export directly, regardless of their size, productivity, product varieties, destination characteristics and the associated trade costs. Following the paucity in the literature on the institutional quality of the destination markets and export modes, such as intermediaries to the export performance of firms can be drawn from three strands of literature. The first strand centres on the theory of international trade with intermediaries (Ahn et al., 2011; Akerman, 2018; Felbermayr & Jung, 2011), mainly focusing on the theory by Ahn et al. (2011), that explains a firm's export performance by incorporating intermediation technology in the export process based on the Meltz' (2003) theory of heterogeneous firms.

The intermediation theory of international trade elucidates how a firm self-selects into a particular mode of exports, and how intermediaries influence a firm's intensive margin of exports as it lowers the specific fixed costs of exports by persuading exporters to utilise the economies of scale. The idea stems from the fact that not all firms can directly penetrate export markets, rather than depending on their ability in terms of productivity and other factors such as products, networks, and experience. Through intermediaries, less productive exporters can indirectly be linked to markets. The underlying assumptions by the Ahn *et al*. (2011) model include-imperfect market, firm heterogeneity, and consumer preferences as in Melitz (2003), and there are several asymmetric destination markets. The theory also conjectures that an exporter can switch from being an indirect to a direct exporter. In particular, the Theory of International Trade with intermediaries by (Ahn et al. (2011), complements the Theory of Trade Networks to underpin this study. The theory demonstrates how trade intermediary firms play a vital role in the producers' or domestic firms' intensive margin of exports, as it lowers the specific fixed costs of exports by persuading exporters to utilise economies of scale. The theory is well suited to linking domestic producers or exporters from developing economies such as Tanzania, to buyers in foreign markets, since they face imperfect information as one of the trade barriers.

The second strand draws from the role of networks in international trade, as proposed by Rauch & Watson (2004). The theory offers a useful account of the intensive margin of domestic firms' exports, as it rationalises how the supply of networks intermediation and imperfect information affect the expansion of trade relations. It stresses that trade

agents or actors, such as wholesalers with networks of foreign contacts, can either use their networks to support their exports or become intermediates and make their networks available for others to use. To some extent, when their networks and the returns from intermediation services increase, they can later become intermediaries and reduce search and matching costs for exporters. However, the theoretical acumen on the mechanism of how to export information from the international spills to the exporters in the exporting country is relatively low, compared to productivity spillover effects on firm internationalisation. The current study uses the definition suggested by Blomström & Kokko (1998), who consider export or market access spillover as benefits gained by domestic firms in the exporting economy from the presence of foreign-owned firms in exports. They can be transmitted to domestic firms through horizontal spillover (within similar industries), or vertical relationships with domestic firms as suppliers/producers (backward spillovers) or buyers (forward spillovers). Foreign firms use their networks to reduce information uncertainty and hence lower entry costs that may originate from search and matching. That is, export market information may spill to domestic exporting firms via foreign firms, and foreign intermediaries. However, in their framework, the institutional quality of the destination markets is not considered in explaining the intensive margins of exports.

The third strand is drawn from the Institutional Economics Theory. The new Institutional Economic Theory by North (1990) is however different from the Theory of International Trade with intermediaries. It is built on the Neoclassical Economic Theory. The theory explains that property rights are protected, contracts are enforced, and political authorities are restricted from interference with the choices made by economic entrepreneurs, i.e., market players. North's theory centres on any form of constraint that human beings devise to shape human interaction. In this sense, North (1990), considers institutions as a set of rules of the game in a society, or, more formally, the humanly devised constraints that structure political, economic, and social or human interactions. They consist of both formal (such as statutory law and property rights) and informal constraints (such as customs, code of conduct and traditions). Unlike the Neoclassical Economic Theory, North's Theory of Institutional Economics assumes that institutions change over time, albeit progressively, market failure, path dependency, competition, stable government and an important role for society or community to change institutions. In his theory, he identifies that individuals' choices change over time, while the information about the destination markets is asymmetric. Thus, the theory allows trading partners to resolve social problems and facilitate trade or any economic improvement by providing supportive institutions.

The last theoretical question in this study is how the institutional factors, export mode and other trade determinants, jointly explain the intensive margins of exports. The theoretical contributions addressing this question are very few. One exception is based on the trade gravity model developed by (Tinbergen, 1962 and Poyhonen, 1963), augmented by Anderson and Van WinCoop (2003), which complemented the new

Trade Theory of Intermediaries with an incorporated institutional factor. The Trade Gravity Theory predicts that bilateral trade flows are influenced by economic sizes and inversely proportional to trade costs. Among other factors, trade costs are a proxy for the geographical distance between two trading countries, adjacency, common currency, common language, and institutions as well as bilateral tariff barriers, where firms have a choice to decide the destination (Ejones, 2015). Thus, the gravity trade model within-firm heterogeneity facilitates explaining why larger countries trade more than smaller countries and the effects of trade costs between trading countries, and can be complemented with other theories (Baldwin, 2006; Baldwin and Taglioni, 2011).

Of all the theories reviewed here, the new Institutional Economic Theory and the trade theories with intermediation technology within the trade gravity model are recognised as the most suitable theories that provide the framework for discussion in this study. They were found to explain the facilitation of transactions and increased intensive margins of exports in international trade. In particular, the results of the study found that intermediaries facilitate small-scale firms that are characterised by low productivity and product excellence, reduce trade-related costs-informational restrictions; handling, distributions, and logistics; bureaucratic customs procedures, and financing, among others. Furthermore, with institutions of the destination countries, intermediaries provide a high impact on exports, especially in the long-distance markets and in export markets with weak institutions (such as those with high transaction costs associated with regulations and/or contract issues). Although the reviewed theories show their impact on explaining trade flows, no clear explanation is established on how intermediated exports, particularly agri-exports, vary with product and destination characteristics, such as institutional quality. In this regard, throughout this study, the above-mentioned theories however, complemented with other theories, provide the discussion framework, and offer the guide for empirical hypothesis tests.

2.2 Empirical Literature Review

The hypothesis that intermediated trade between countries plays a role in their intensive margin of trade has been tested in several studies (Ahn et al., 2011; Bernard & Tomasi, 2015; Fujii et al, 2017; Kamali, 2021), at different levels. However, the question of how the intermediated trade flows related to domestic direct exports vary with products and destination-specific characteristics in terms of institutional quality is still in its infancy. But the literature registers that whether foreign presence bolsters exports or not, the mode of export used by firms matters in determining the performance of firms. Firms export using different modes, including indirect export via export intermediaries. As in Spulber (1993), intermediaries in export, support transactions between buyers and sellers are such that they contribute to reducing the search and matching costs involved (Antràs & Costinot, 2011; Ma, 2006; Petropoulou, 2008; Solberg & News, 2002; Antras and Costinot, 2011 and Petropoulou, 2008), hence facilitate domestic producing firms to link up with foreign customers (Ma, 2006; Solberg & Nes, 2002). However, the role of export modes used by foreign exporters is

relatively neglected in the literature. But it is important to note that a firm chooses the export mode based on the costs and benefits (Bai et al., 2017), as well as the firm's capability in internationalisation. As in Ahn et al. (2011), a firm may opt to export either directly or indirectly or not to export based on the firm's productivity. While each export mode has a role to play, exporting indirectly through intermediary firms like wholesalers is acclaimed to facilitate small firms or firms which are not productive enough to reach foreign markets on their own (Ahn et al., 2011; Akerman, 2018; Daunfeldt, Engberg, Halvarsson, Kokko, & Tingvall, 2019). In a similar view, domestic exporting firms and/or non-productive firms need support from trade intermediaries like wholesale firms to reach destination markets (Felbermayr & Jung, 2011).

The relationship between the presence of foreign export intermediaries and local firms' export activities is narrowly investigated and the findings are controversial (see Abel-Koch, 2013; Ahn et al., 2011; Akerman, 2018; Daunfeldt et al., 2019). In this regard, a pioneering inquiry by Ahn et al. (2011), using Chinese firm-level transaction data from 2000 to 200,5 tested the hypothesis that firms will endogenously self-select their mode of export. Their analysis uncovers that most often, firms begin to export through intermediary firms and then later directly, and this was identified to positively affect firms' export decisions. Also, Italian firm-level data covering 2000 to 2007, shows that the presence of export intermediaries, such as wholesalers affects volumes of export of different products, particularly in destination markets with higher destination-specific fixed costs (Bernard et al., 2015). The foreign intermediary firm is one of the covariates that enable small and/or non-productive firms to indirectly access foreign markets and link up with other supply networks. Through export intermediaries, there may be a learning effect on indirect exporters, such that with time they are more likely to become direct exporters. However, while the role of export spillovers from foreign export intermediaries has to some extent been investigated in many countries, in Africa this is still negligible.

To-date, there have been no reliable empirical studies on the impact of foreign export intermediary firms on domestic firms' export performance in Tanzania. The effects of productivity from FDI through technology spillovers to local firms in Kenya, Tanzania and Zimbabwe have been investigated (Managi & Bwalya, 2010); the types of facilitating factors for FDI spillovers to domestic manufacturing firms in 78 low and middle-income countries, Tanzania included, have been explored (Farole & Winkler, 2012); using OLS the role of FDI in the mining sector's export capacity in Tanzania from 1989 to 2009, has been investigated (Rutaihwa & Simwela, 2012); channels of FDI spillovers effects using panel data from 2006 to 2014 for Congo Democratic Republic, Ghana, Kenya, Malawi, Senegal, Tanzania, Uganda and Zambia have been studied (Demena, 2016). Likewise, using OLS, the role of FDI on the economic growth of Tanzania across sectors is examined (Masanja, 2018); Spillover effects from heterogeneous foreign firms to domestic firms across 50 sectors in 122 developing countries, Tanzania included, have been evaluated (Reyes, 2017); linkages between multinational enterprises, specifically Huawei with Tanzania's domestic firms, have

been established (Rwehumbiza, 2021). All seven studies reviewed for Tanzania overlook the inclusion of export spillover from foreign export intermediary firms among the covariates that can rationalise firms' export performances. However, it is important to recognise the role of other firms' export determinants, such as institutions.

Since the theoretical works of Levchenko (2007), and Nunn (2007), the hypothesis that institutions affect trade flows has continued to gain importance in empirical trade literature. Levchenko (2007), using U.S. import data, classified by four-digit SIC industry and country of origin in 1998, uncover how incomplete contracts explain how institutional differences can create or divert trade flows. A related study (Nunn, 2007), identifies that contract enforcement has a greater role in influencing international trade than capital and employee skills. Using panel data in the gravity model Abreo et al. (2021), estimate the significance of institutional quality and institutional distance on the performance of Columbian exports from 2005 to 2018, for 136 countries. They find both institutional quality and the distance between Columbia and the trading partners exert a statistically significant effect on foreign sales. Institutional-specific effects are realised by the presence of regulatory quality and the rule of law on the performance of Columbian exports. From the findings, they recommend that for Columbia to boost exports it must improve its institutional quality. However, they only focus on exporting countries, ignoring institutional effects in the importing country, which appear to hamper imports from foreign countries.

In a related study, de Groot et al. (2005, 2004), using the extended gravity model, examine the effects of institutional factors, especially the quality of governance, rules and norms on trade pattern variations. The study finds between pairs of countries, institutional quality has a significant impact on trade volume as it promotes bilateral trade by 13%, on average. Furthermore, the study finds that better institutional quality for both importing and exporting countries contributes to an estimated increase of 30-44% in bilateral trade. Also, (Anderson & Marcouiller, 2002), investigated the role of institutional quality in 48 developing and developed countries in 1996 and revealed that institutional variables significantly influence the trade flow. In the same way, using firm-level data in a gravity approach, (Kuncic, 2013), examined the effects of institutions and institutional distances on total exports and export margins in Slovenia, and found a political institution to have negative effects on the intensive margins of exports.

Yusuf et al. (2021), examined the impacts of institutional quality on bilateral trade flow between Malaysia and 25 selected African Organisation of Islamic Cooperation (OIC) member countries. Using the gravity model of trade and the Poisson Pseudo-Maximum Likelihood estimation method (PPML) technique for data spanning from 1985 through 2016, the study finds institutional quality variables: government effectiveness, regulatory quality, and political stability, hurt the bilateral trade flow in

the OIC countries in Africa. In the same vein, De Groot et al, (2004), examined the influence of institutional quality on bilateral trade flows in more than 100 countries in 1998. The findings maintain the hypothesis that institutional quality variation across destination countries is a vital element of informal trade impediment.

Employing structural gravity cross-sectional, Barbero et al. (2021), examines the effects of government quality on regional trade flows between 267 European regions in 2013. The results indicate that differences in regional government quality influence regional trade flow within the region, despite the impact varying with sector economic activity and the level of economic development. The study recommends the improvement of the less developed regions' institutional quality of the EU to promote interregional trade flows. Using the same approach Beverelli et al. (2018), uncover that country-specific institutional variables have a great impact on international trade. Similarly, Levchenko (2004), evaluates the relationship between institutional differences among countries in trade flows. Demonstrating within the Grossman-Hart-Moore framework of contract incompleteness, the study finds low trade gain in less developed countries. Thus, institutional differences are very important as among the determinants of trade flow between trade partners. However, an explanation of how the quality of institutions implies affecting trade, and specific effects on the intermediated exports has remained overlooked in the institutional and trade literature.

While assessment of the institutional quality impact on exports is currently gaining importance, some researchers have gone beyond the analysis by considering effects based on the export model, intermediary in particular. The motive behind this concern is the entry challenge in the destination markets. Peng & Ilinitch (1998), consider the significance of export intermediaries as an organisational form that links manufacturers to foreign markets. They propose that export intermediaries are aware of the foreign markets in terms of contract procedures, and negotiation. This experience fosters export intermediaries to largely serve distant and new markets that are not well known, and they are very prominent in exporting products that have higher commodity content. Thus, the more experienced and commodity-specialized export intermediaries perform better in the markets.

Nunn (2007) indicated that intermediaries in trade are especially important in countries with weak institutions. The idea is that the use of intermediaries is vital in export markets, especially with difficult entry procedures in terms of rules and regulations, governance and other issues related to contract and distance. Evidence shows that export intermediaries are characterised by their ability to solve contract problems, including rules and regulations, customs procedures and rules of origin (Daunfeldt et al., 2019). In their work using Swedish firm-level data, they found that wholesale exports grow larger as the institutional quality of the destination market diminishes. The study confirms the hypothesis that intermediaries are capable of handling contract challenges in the destination markets and exporting a larger variety of goods than

direct exporters. In a related study, Rauch, and Watson (2003), pointed out that well-performing institutions facilitate trade as they reduce search and contract costs, as well as reduce the sunk problem. Thus, export intermediaries are characterised by experience and networks, high productivity, the ability to handle contractual arrangements with institutions in the destination markets and are resilient to institutional changes across trading partners.

While assessing the role of export intermediaries, other authors have tested how intermediary exports vary from direct exports. For example, Bello et al. (1991), assessed how export intermediaries influence direct exporters. They find a positive relationship between the two categories of exporters if there exists a formal relationship. They further indicate that the presence of formalised relationships is only qualified when there is detailed responsibility and roles for each exporter in their categories. Also, Chintakananda et al. (2009), using a grounded theory method, find a significant difference between exports by producer and intermediary dyads resulting in the proposition of three stylised dyad types: competitive, cooperative and mismatched relationships. However, in their analysis, they suggest that these three forms of export producer-intermediary dyads are easily identified based on the pairs of how information sharing is carried out; the intensity of price negotiations; level of transaction costs; transaction costs and propensity to export directly. Conversely, the study also records that export transactions be introduced by either producers or intermediaries, with the assumption that quite often the producer is on the active side. Similarly, Daunfeldt et al. (2019), analysed the importance of wholesale firms as a supporter of exports for firms that have difficulties in exporting on their own. They find that wholesale firms support exports from firms that cannot export directly to the market. That is, intermediaries in form of wholesalers are competitive enough to access global markets and act as a door opener for distant and difficult markets that manufacturing exporters find difficult to penetrate.

Methodologically, several previous works deployed extended trade gravity models with the Pseud-Poisson Multinomial Likelihood (PPML), estimator rather than the Ordinary Least Square (OLS), estimator. Trade gravity with panel data has commonly been used in the literature (see Anderson & Marcouiller, 2002; Baltagi et al., 2014; Barbero et al.,2021; Daunfeldt et al., 2019; de Groot et al., 2004), as it accounts for endogeneity issues and other econometric problems per estimators. Here, the PPML estimation technique has been extensively accredited in the literature in handling the commonly identified econometric flaws in trade data: prevalence of zero trade observations which is the dependent variable of the model, and heteroskedasticity (see, Fally, 2015; Yotov, Piermartini, Monteiro, & Larch, 2016; Silva & Tenreyro, 2006). They further highlight that different from other estimators, the PPML estimator purges out heteroscedasticity, incorporates information available in the zero trade flows and its additive property warrants the similarity of gravity-fixed effects to their structural terms.

Literature on the institutional quality of the destination country on agricultural exports is relatively scarce in Tanzania. However, a few studies have attempted to model the impact of institutional quality of Tanzania as a domestic country, but overlooked its role in trade (see Byaro & Kinyondo, 2020; Fjeldstad et al., 2006). In particular, Byaro & Kinyondo (2020), establishes and compares the impacts of institutional quality on the Tanzanian economy. Using a Bayesian Markov Chain Monte Carlo (MCMC) to Tanzanian annual time series data for the period 2007-2016, the study finds institutional quality has a big impact on the economy. Another study by Fjeldstad et al. (2006), investigated the main constraints on the operations of micro-enterprises in Tanzania and found property rights, access to finance, taxation, corruption, infrastructure, institutional quality, and some other possible constraints. In particular, the study revealed that high tax rates, corruption, and regulation in the form of licenses and permits, are the main bottlenecks to micro-enterprises' business operations. All the available literature appears to concentrate on domestic institutional quality, overlooking the destination country characteristics on Tanzania's intermediated agri-exports.

Other determinants for export performance include firm export experience, as identified by (Alvarez & López, 2008; Chaney, 2011; Lawless, 2013); size and age of the exporter (Bekteshi, 2020; Hwang et al., 2015; Nazar & Saleem, 2011). Also, (Bernard & Jensen, 2004; Engel & Procher, 2012; Melitz & Ottaviano, 2008; Sheard, 2014; Van et al., 2016), emphasize that the productivity of the firm is vital for the firm to perform well in international exports. Other standard determinants are embraced in the gravity framework which include are market size captured as GDP, contiguity, common language, and distance.

Given all that has been mentioned in reviewed studies so far, one may suppose that the empirical relationship between export intermediaries, institutional quality (IQ) and exports are for developed countries, since they scantly appear in developing countries. The available literature on the impacts of IQ was found to concentrate on the trade of manufactured goods, overlooking other products such as agricultural products. Specifically, the relationship between institutional quality and intermediated agri-exports has not been tested in the context of developing economies, Tanzania in particular.

CHAPTER 3: METHODOLOGY

3.1 Empirical Strategy

Following the theoretical and empirical literature presented in the previous sections, the impact of export intermediary firms and institutional quality on Tanzania's exports is evaluated in three parts. First, the study establishes the link between the presence of intermediated agricultural exports and domestic, direct agricultural exports. Concentration is then twisted to the effects of export spillover from foreign export intermediaries on local firms' agricultural exports. The assumption is that the presence of foreign export intermediaries exerts effects on domestic firms. The possible explanation for this is that the agglomeration effect of the intermediaries demonstrates what is possible, which indicates if there are export spillover effects on the domestic firm's exports. Lastly, the study analyses how the intermediated agricultural exports vary with destination market characteristics' institutional quality.

All impacts are estimated using the PPML panel gravity model introduced by (Silva & Tenreyro, 2006). Unlike other approaches, this model handles the two key statistical flaws that were severely noticed in the previous works, which would lead to biased and inconsistent estimates: the OLS estimation parameter in the traditional gravity model and the treatment of zero trade flows. As in (Silva & Tenreyro, 2006), PPML avoids the Jensen inequality by permitting the inclusion of zero trade flows as well as estimating the parameters using the conditional maximum likelihood. Specifically, the dependent variable is estimated in levels while the independent variables can be either logarithmic or in levels. With this incorporation, PPML estimator handles model misspecifications and the heteroskedasticity problems since it deals with zero trade flows, thus offers consistent and minimal bias, unlike other estimators like OLS. However, prior to analysis, pre-estimations issues such as endogeneity, reverse causality, and the problem of omitted variables are corrected. Decision on the model selection is done based on the Hausman test for the panel regressions where the result shows the null hypothesis that the preferred model is random effects is rejected in favour of a fixed effects model at 1 percent level of significance, with a Chi-square value of 13.65 since the p-value is 0.01 which is less than 5 percent. Subsequently, three main equations are sequentially estimated using similar control variables but with different variables of interest and set of fixed effects. For result's robustness check, the study re-estimates the PPML estimator by excluding the observation that records zero exports observations. Using the same approach, the three research questions were analysed sequentially as follows:

3.1.1 Intermediary Exports and Domestic, Direct Agricultural Exports

The motivation of this part is to analyse the relationship between intermediary exports of agricultural products and domestic, direct agricultural exports. Such a relationship is based on the theoretical and empirical background presented in the previous chapter. As pointed out by (Jae Bin Ahn et al., 2011a; Akerman, 2018; Felbermayr &

Jung, 2011), based on Meltiz (2003), the most productive exporters access international markets directly, while firms with the intermediate or lower levels of productivity export indirectly through intermediaries. To model the relationship between intermediated exports and domestic direct exports, the PPM panel gravity model pioneered by Silva & Tenreyro (2006), is specified as outlined by Mnasri & Nechi (2019) and (Keogh, 2018) in the following form:

$$X^{d}_{fpd_t} = \exp[\alpha + \phi \ln F_{fpd_t} + \beta \ln y_{dt_t} + \varphi \ln dist + \psi_t + \delta_t + \lambda_{fpd}]\eta_{fpd_t} \quad (1)$$

Where X^{d}_{fpdt} denotes the export flows of agricultural products p from domestic firm f to destination country d at year t; y_{dt} represents the economic size (such as GDP) of the destination country; $dist$ distance between capital cities. ψ_t denotes intermediary presence in exports which include domestic and foreign intermediaries measured in three different forms that will be estimated sequentially. Three models are estimated to establish the impacts of intermediary presence on domestic exporting firms. The first model is a dummy that takes 1 if the intermediary and zero otherwise. The second, model considers some intermediaries; and lastly, will enter the gravity equation as a volume of intermediated exports by domestic firms; and the last model is considered as many intermediaries; F_{fpdt} as a set of firm characteristics: firm age, firm productivity, firm size and many products a firm exports; α, ϕ, and, β are unknown vector parameters; δ_t is the firm-year fixed effect that eliminates bias by controlling unobserved shared effects to all firms that change over time while λ_{fpd} is firm-product-destination fixed effects. It takes care of all the year-invariant characteristics explaining exports of products p from firm f to country d; $\eta_{fpdt} = e^{\xi_{fpdt}}$ is the composite error term with expectation $E(\eta_{fd} \mid F_{fpdt}, y_d, dist, \psi_t)$ assumed to be statistically independent of the regressors. Here, firm-year and destination-year fixed effects are controlled in all models, and as well as the standard error are clustered by the destination country.

Nevertheless, the empirical analysis of the presence of intermediaries was done sequentially by replacing the intermediary presence ψ_t variable measures. That is, by switching the intermediary variables-starting with the domestic intermediaries and then foreign intermediaries. If it appears intermediary firms compete with domestic exports, their presence would seemingly contribute to promoting an increase in domestic export volume in the foreign markets because of learning effects. In the analysis, the study considers other variables such as several products, firm size, firm age, GDP in the destination country and productivity as the control variable to control domestic exports. For unbiased results, this part of the analysis, model (1) incorporates firm-product and firm-year fixed effects, and the standard errors are clustered by the destination country. Controlling for firm-product fixed effect is vital for the firms involved in export intermediaries as it captures unobserved firm heterogeneity and product prices variation (Eaton, Kortum, & Kramarz, 2004).

3.1.2 Foreign Intermediaries Export Spillovers and the Intensive Margin of Local Direct Agricultural Exports

The second part of the analysis focuses on the relationship between domestic, direct agricultural exports and foreign intermediaries' export spillovers. It considers the role of information from the destination markets carried out by foreign intermediary firms on the domestic firms' exports. The study elucidates the question: of how a domestic firm decides to engage in exports and or increase their exports of products p from Tanzania to the destination country c a year t in the presence of foreign export intermediary firms, via wholesalers (as in Hu & Tan, 2016; Koenig et al., 2010; Mayneris & Poncet, 2015). Intermediary firms in the form of wholesalers provide export services by linking producers to foreign consumers through established networks and use their experience in solving contract frictions ((Daunfeldt et al., 2019). To rationalise the impact of export spillover effects from foreign intermediary firms on domestic export volumes, this study employs the panel PPML gravity-type model specified in the following form:

$$X^{d}_{fpd_t} = \exp[\alpha + \phi \ln F_{fpd_t} + \beta \ln y_{dt_t} + \mu \ln spill_t + \delta_t + \lambda_{fpd}]\eta_{fpd_t} \quad (2)$$

Where μ is the coefficient of the export spillover variables, $spill$ is a proxy export spillover variable that measures export intensity from Tanzania to foreign markets: destination-specific spillover, product-specific spillover, product-destination spillover, and general spillover; $\eta_{fpdt} = e^{\xi_{fpdt}}$ is the composite error term. λ_{fpd} is firm-product-destination fixed effects. Following Koenig et al. (2010), these effects are controlled to manage year-constant unobserved variables that can affect the probability of exporting. It takes care of all the year-invariant characteristics explaining exports of products p from firm f to country; δ_t represents year-fixed effects as it captures shared effects to all firms, products, and countries in the same year. Controlling this helps to prevent selection bias and remove the year-invariant confounding factors; ϕ is a vector of other covariates considered as control variables that include firm characteristics: firm size, firm age, firm productivity, and the number of products exported by a firm.

Consequently, endogeneity and reverse causality are some of the common econometric problems in trade data. However, in this study, they are not an issue of great concern because the use of the PPML panel gravity-type model proposed by Santos and Tenreyo (2006), together with lagging all the right-hand variables by one year as in Hu & Tan (2016), purge them out. The same approaches are used to placate potential simultaneity and reverse causality based on Greenaway & Kneller (2008).

3.1.3 Intermediated Agricultural Exports and Institutional Quality

In the last part of the analysis, the relationship between intermediated agricultural export share and the institutional quality of the destination markets is also investigated using the augmented structural gravity equation (Anderson & Van Wincoop, 2003; Chaney, 2008; and Arkollakis *et al*., 2008). This is carried out by adding an institutional variable IQ_j to the gravity model together with the geographical distance $\ln d_j$ considered as the available determinant of trade barriers. The study hypothesizes that institutional quality variable IQ affects trade flows between trading partners (i.e., $X_{ij,t} = f(IQ, d, \tau, \varphi)$. But, intermediaries with their highest productivity level, trade experience and networks in solving contractual issues in the destination markets contribute to increasing exports (Czinkota et al., 2014; Daunfeldt et al., 2019). At the same time, costs associated with search and contracts reduce with sound institutions (Rauch & Watson, 2003). The study also conjectures that the impact of weak institutions is also bolstered by the geographical distance d_j of which institutional quality plays a role for distant markets (Daunfeldt et al., 2019). This means institutional quality and distance between trading countries are important for trade. Following the augment by (Daunfeldt et al., 2019), this hierarchical relationship is estimated by adding an interaction term between IQ_j and $\ln d_j$ (i.e., *(IQ*ln(d_{ot})*) in the equation for the reason that both variables are related and the effect of each predictor (i.e, IQ_j and $\ln d_j$) on intermediated agri-exports share is independent of other explanatory variables in the specified model. To analyse this relationship equation (1) is modified into structural panel gravity (ratio type) as in (Daunfeldt et al., 2019; Eaton & Kortum, 2002)with the PPML estimator specified as:

$$X_{ij,t} = \exp[\alpha_{i,j} + \delta_t + \beta_1 IQ_{j,t} + \beta_2 \ln dis_{j,t} + \beta_3 IQ * \ln dis_{j,t} + \lambda_{ij,t}\theta] + \varepsilon_{ij,t} \quad (3)$$

Where $X_{ij,t} = \left(\frac{x_{\text{int}}}{x_{tot}}\right)_{ij,t}$ is intermediated agri-exports share to total exports; $IQ_{j,t}$ and $\ln dis_j$ are the independent variables of interest added to the trade gravity equation. $IQ_{j,t}$ proxies the destination-specific measures of an importer in terms of rule of law, regulatory quality, and governance effectiveness; dis_j is the geographical distance (log) between capital cities at a time t. Geographical distance is recognised as one of the most important standard determinants of bilateral trade flows between trading partners, and it embraces other distance-related features like a common language, cultural difference, contiguity (common border) and religion (J. Chen, Sousa, & He, 2016; Kwok & Tadesse, 2006; Monteiro, Moreira, & Sousa, 2013; Srivastava & Green, 1986). Other distance-related variables that appear to explain the bilateral trade flows apart from distance include contract costs, transport, information search, and control costs (Kokko & Tingvall, 2014; Rauch & Watson, 2003). The hypothesis is that geographical distance affects exports, especially in weak institutions. That is, to identify this kind of nested effect, the interaction term $IQ_{j,t} \ln dis_j$ is added to the regression.

$\lambda_{ij,t}$ is the set of control variables characterising direct exporters such as total sector exports (log) of the direct exporting firms i at the time t and the GDP (log) for the country j at a time t. Two sets of fixed effects are fitted in estimating equation (3) however sequentially. To estimate the effect $IQ_{j,t}$ only country and year fixed are used, while the firm-country fixed effect, as well as the year-fixed effect ( ), are used for robustness check. When estimating $IQ_{j,t}$ in presence of geographical distance, only firm and year-fixed effects are used. It is important to note that, the estimated coefficients of the institutional variables produce the following signs: $\beta_1 > 0$, implies that higher institutional quality-government efficiency, rule of law and regulatory quality of the destination countries facilitate importers from Tanzania to have high share of agricultural exports in the markets. $\beta_2, \beta_3 < 0$, suggests that differences in institutional distance negatively affect trade, meaning that geographical and institutional differences profoundly determine transaction costs.

In particular, the estimations are managed sequentially where the first one tests the hypothesis of institutional quality effects on trade and the last follows which centres on the geographical distance. The aim of estimating one institutional quality is to avoid the problem of correlation that might occur between the measures. To capture the institutional quality of the destination countries, three different measures are employed: government effectiveness, rule of law and regulatory quality. Thus, a measure that displays a higher score gives a better institution for increased intermediated agri-exports. All sets of variables used in the analysis are summarized in Table 1.

Table 1: Variables' Names and Description

Variable	*Definition and measurement*	*Expected sign(a priori)*
Firm characteristics variables		
Firm age (log)	*The number of years a firm has been operating since its establishment.*	*+/-*
Firm age square(log)	*The square of the number of years a firm has since its establishment*	*+/-*
Firm size(log)	*The number of employees in a firm is a proxy for the size of the firm. Bernard and Jensen (2001) point out that, firm-size is a proxy for several effects including costs such that firms of large size may incur less than average or marginal costs in entering foreign markets. With this implication, firm size could positively affect the volume of exports (Franco and Sasidharan, 2010).*	*+*

Firm's export productivity (log)	*export productivity is used as a proxy for firm productivity. It is calculated as the export value per number of employees.*	+
Number of products per destination	*The number of products per destination is limited to a 6-digits product level. This captures the characteristics of the products under study.*	+/-
Destination characteristics		
GDP of the destination country (log)	*Gross Domestic Product of the destination market. It is a proxy of market size, Measured in USD*	+/-
Distance (log)	*Distance between Dar es Salaam (the Capital city of Tanzania) to the capital cities of the destination countries, measured in kilometres*	-
Trade characteristics		
Vol. of domestic intermediated products to the same destination(log)	*Quantity of agricultural products exported by domestic intermediary firms, measured in tons (i.e., 1000 kilograms)*	+
Domestic intermediaries	*These are domestically owned intermediary firms, measured as a dummy variable that takes a value of 1 if a firm is local and does intermediary services, and takes zero otherwise*	+
Nr.domestic intermediaries	*Number of domestic intermediary firms exporting products to a similar location*	
Foreign intermediaries(dummy)	*These are foreign-owned wholesale firms, measured as a dummy variable that takes a value of 1 if a firm is foreign-owned and does intermediary services, and takes zero otherwise*	+
Vol. of products by foreign direct exporters	*Quantity of products exported by foreign direct exporters (foreign producers), measured in tons (i.e., 1000 kilograms)*	+
Nr. foreign intermediary products (log)	*Number of foreign intermediary agricultural products exported by intermediary firms*	+
Vol. of foreign intermediary exports in the sector from the same location(log)	*Quantity of foreign intermediated agricultural products exported by foreign intermediary firms in the sector from the same location, measured in tons (i.e., 1000 kilograms)*	+
Spillover variables		
General spillover	*The number of foreign export intermediaries in the area exporting all products to all destinations in a year*	+

Destination spillover	*The number of foreign export intermediaries in the area exporting to the same destination country as the domestically owned firms in Tanzania, as deployed in the work of Harasztosi (2016) and Koenig et al. (2010)*	+
Prod destination spillover	*The number of other foreign export intermediaries clustered in the same area exporting the same product to the same destination*	+
Product spillover	*The number of foreign export intermediaries in the area exporting the same product*	+
Institutional qualities	*Indicators for control of governance effectiveness, rule of law, and regulatory quality leading to transaction facilitation*	
Governance efficiency (ge)	*The index was developed to measure and capture the quality of policy implementation and the credibility of government commitment to it etc.*	+
Rule of law (rle)	*An index that captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence*	+
Regulatory authority quality(rqe)	*An index that captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development*	+

3.2 Data and Descriptive Statistics

3.2.1 Data

The data used in this study is annualised, customs transaction, firm-level panel data retrieved from different sources for the period 2010 to 2020. The study covers a sample of 3,137 agricultural exporting firms collected from the Tanzania Revenue Authority (TRA), with export of 67 % (2,102) intermediary firms and 33% (1,035) direct exporters as summarized in Table 2. Specifically, the local intermediaries are about 66% (1387) of the total intermediary firms, while the remaining are foreign intermediaries. Also, about 59% (611) of the sampled firms constitute domestic, direct exporters and the remaining 41% (424) of the total direct exporters are foreign firms. Information on the agricultural products exported by each firm is identified at the HS-6-digit (Harmonized Commodity Description and Coding System) product level. The study combined micro-level data at the firm level as well as macro-level data on Gross Domestic Product (GDP) variable from World Development Indicators (WDI) and the data on geographical distances between capitals and other gravity dummies, such as contiguity, common language and colonial relationship, using data from the Centre d'Etudes Prospectives et d'Informations Internationales CEPII (www.cepii.fr) kilometers (i.e., great circle weighted distance). As in (Kokko & Tingvall, 2014), three variables are used to measure the role of institutional quality of the destination market as the specific measures for imports: Government Efficiency (GE), Rule of Law (RL) and Regulatory Quality (RQ). The indexes on institutional quality are retrieved from the World Bank's World Governance Indicators (WGI) database (Kaufmann et al., 2009, 2011). In terms of the agricultural products exported to a given destination, intermediated exports are more diversified compared to those of direct exporters.

Matched samples of exporters by export mode

	Firm category		
Export mode	Domestic	Foreign	All exporters
Direct	611	424	1035
Intermediaries	1387	715	2,102
Total	1,998	1,139	3,137

Source: Own Calculation

3.2.2 Descriptive Statistics and Correlation Analysis

Table 1 provides descriptive statistics for the regression variables of the sampled dataset spanning from 2010 to 2020 that includes 1,602 observations of agricultural export flows. The uppermost panel echoes firm characteristics. In particular, foreign intermediary firms employ more workers than domestic, direct firms. On average, over the study period, the results register that foreign intermediary firms employed about 88 workers, while domestic direct exporters employ about 65 workers. This implies that foreign firms have created more employment opportunities than their local counterparts, since they have more experience and higher production capacity. In the same panel, foreign intermediary firms record an average age of 15 years, which is higher than domestic, direct exporting firms that appear to have 14 years. This indicates that although the age gap between firm categories is relatively small, foreign intermediaries have more experience in internationalisation than domestic, direct exporting firms and may be more informed about the markets. The uppermost panel further shows that on average, each firm exports to one destination in a year. However, those with adequate capacity export to a maximum of 8 destinations and each firm exports one agricultural product, on average, with a maximum of 9 products per destination in a year.

Table 2: Descriptive Statistics of the Regression Variables

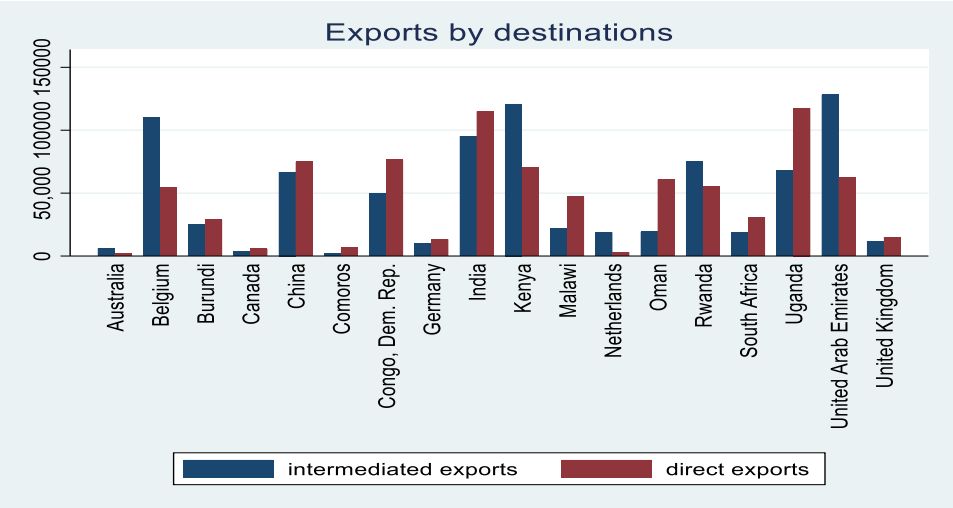
Variables	Observation	Mean	Std. var	Min	Max
Firm Characteristics					
Size of foreign intermediaries	3710	88.038	369.164	1	5500
Size of domestic direct firms	3133	64.687	250.237	1	4000
Age of foreign intermediaries	3710	15.031	11.585	1	75
Age-domestic firms	7072	14.315	11.071	1	79
Nr. destination per firm	16102	1.09	.424	1	8
Nr. prod- per firm per destn	16102	1.164	.674	1	9
Trade characteristics					
Intermediated exports	16102	5635118.5	12657417	0	91790016

Direct exports	5320	77934.988	509917.83	0	17000000
Intermediated export share	16088	.671	.272	0	1
Domestic direct exports	16102	41281.109	372312.51	0	17000000
Direct export share	16102	.306	.083	.185	.428
Nr. direct exported products	16102	19.603	14.489	0	54
Nr. intermediated products	16102	35.349	29.844	0	115
Total exports	16102	7993543.7	14964583	0	99423848
Country characteristics					
Government efficiency	16102	.154	1.014	-2.2	2.335
Regulatory quality	16102	.103	.96	-2.322	2.261
Rule of law	16102	.07	1.003	-2.423	2.13
GDP (log)	16102	26.28	2.485	20.627	30.319
Distance(log)	16102	8.045	1.051	6.317	9.612
Spillover Characteristics					
Product specific spillover	**16102**	**274.618**	**268.022**	**1**	**754**
Destination spillover	16102	274.618	268.022	1	754
Product spillover	16102	4.906	7.785	1	52
Prod destination spillover	16102	18.708	49.019	0	327

Table 1 further summarizes the information on the trade characteristics of the exporters as indicated in the second panel. It indicates that of the total agricultural products exported to a particular destination, 30 percent of the share of exports is accounted for by intermediaries, which are higher than the share of exports by the direct exporters. Moreover, intermediary firms export a larger number of agricultural products than direct exporters. This difference shows that most of the intermediary firms are more heterogeneous and tend to export a larger number of products than direct exporters and they are large in terms of agricultural exports, as can also be seen in Figures 2 and 3. On average, 35 percent of agricultural products are exported by intermediary firms compared to nearly 20 agricultural products exported directly by domestic, direct exporting firms. The most striking implication to emerge from the data as presented in the figures is that more producers in Tanzania export indirectly via intermediaries. Figures 2 and 3 are consistent with the hypothesis that some producers fail to penetrate international markets, especially those that are distantly located, and instead they use intermediaries. The figures also show that in a few countries such as Uganda, Malawi, India, and China, among others, the share of intermediated exports appears to be less than the exports by domestic firms. This is consistent with the idea that direct exporters tend to be larger in terms of export volumes, while intermediaries export a larger share than domestic direct exporters. That is perhaps due to differences in export productivity, trade networks and

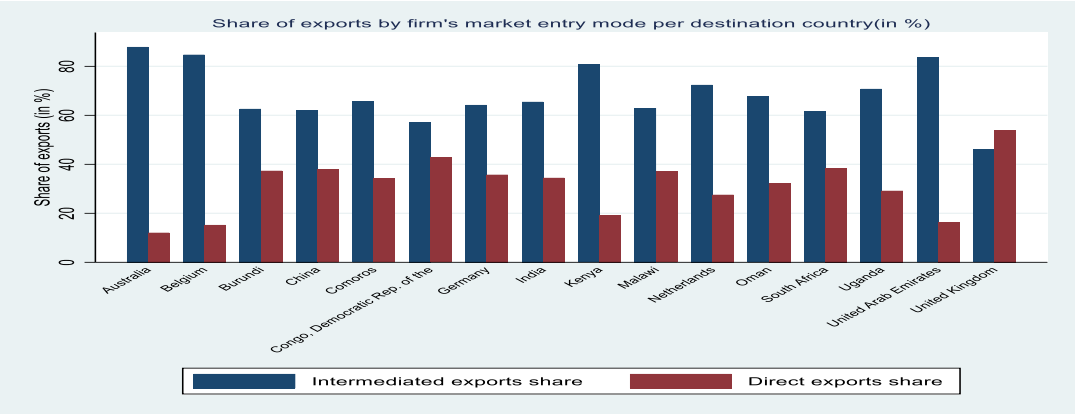
accessibility of market information, where intermediaries are possibly highly vested. Thus, intermediary firms export more than domestic direct exporters to relatively distant destination markets.

Figure 1: Role of intermediaries for aggregate exports



Source: Own computation based on Tanzania Revenue Authority data (2020)

Figure 2: Share of exports by firm's export entry mode



Source: Own Computation Based on Tanzania Revenue Authority Data (2020)

Focusing on the destination country characteristics, on average among all institutional quality measures, government efficiency registers 15.4 percent, which is the largest score followed by regulatory quality with a 10.3 percent score. This provides an alert that most of the institutions in the destination countries where Tanzanian agricultural firms export their products are somewhat better in terms of institutional quality measures. It is important to note that all the institutional quality measures are positive, indicating that institution quality levels of some of the destination markets are better and more supportive. Therefore, this observation seems to be consistent with the

hypothesis that exports vary with the institutional quality of the destination markets, such that weak institutions restrict trade while better institutions favour imports.

Table 3: Matrix of Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Government efficiency	1.000												
(2) Rule of law	0.952	1.000											
(3) Regulatory quality	0.949	0.966	1.000										
(4) Firm age	0.148	0.158	0.168	1.000									
(5) Firm size	0.001	0.001	0.004	0.120	1.000								
(6) productivity	0.013	0.001	-0.005	-0.005	-0.024	1.000							
(7) GDP of the destination country	0.259	0.081	0.077	0.034	-0.011	0.039	1.000						
(8) Distance between capital cities	0.691	0.610	0.575	0.077	-0.003	0.042	0.623	1.000					

Table 2 presents the relationship between independent variables that have been used in this study. A higher correlation of the independent variables would lead to multicollinearity problems that would produce biased results, since instead of predicting dependent variables, independent variables with high collinearity could predict each other. Ratner (2009) asserts that there is a multicollinearity problem if the correlation index of the variable exceeds the 0.75 threshold. The findings in Table 2 reveal some of all indices obtained are below the index of 0.75, except for the index of government efficiency (gee), rule of law (rule), and regulatory authority (rue), implying that there is a multicollinearity problem in the institutional quality variables. To purge this challenge, the estimation of the institutional quality impact was handled separately, instead of combing them into one model.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 Export Intermediaries and the Intensive Margin of Domestic, Direct Exports

In this section, the results from estimating the model (1), where the relationship between export intermediaries and domestic direct exports is analysed. The hypothesis is that intermediated exports play a role in the intensive margin of domestic exports. This suggests that intermediaries are vested with market information and have established networks that favour them to penetrate global markets, unlike direct exporters, especially domestic firms. The relationship is established between the intensive margin of domestic exports and both domestic and foreign intermediaries. The empirical results are also presented according to the specific category of intermediaries. Table 3 summarizes the empirical effects of domestic intermediaries on domestic, direct exports. The results in all columns record a significant and positive coefficient of all domestic intermediary variables-dummy domestic intermediary, number of domestic intermediaries and volume of domestic intermediated agricultural exports. The signs of the estimated coefficients are as expected.

Table 4: Domestic Intermediaries and Domestic Direct Exports. Dependent Variable: Domestic, Direct Exports

Variables	**(1)**	**(2)**	**(3)**
Nr.products per firm	0.0152	0.0150	0.0130
	(0.0134)	(0.0131)	(0.00798)
Firm size(log)	0.723***	0.725***	0.541***
	(0.0855)	(0.101)	(0.0617)
Labour productivity(log)	0.545***	0.538***	0.369***
	(0.0511)	(0.0596)	(0.0443)
Firm Age (log)	-34.48**	-35.00***	-2.314
	(14.05)	(11.73)	(2.304)
Firm Age square(log)	20.13**	20.42***	1.749
	(8.109)	(6.812)	(1.463)
Distance(log)	1.286	0.659	10.91
	(8.664)	(6.221)	(10.50)
GDP (log)	-2.923	-3.031**	-1.543**
	(1.844)	(1.224)	(0.701)
Domestic intermediaries(lag)	0.958**		
	(0.383)		
Nr.domestic intermediaries(lag)		0.139***	
		(0.0492)	
Vol. of domestic intermediated products(log)			0.495***
			(0.0515)

Constant	60.57	47.34	-41.71
	(54.37)	(47.22)	(65.74)
Observations	2,197	2,195	3,070
R-squared	0.970	0.969	0.976
Firm product destination fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Considering the presence of domestic intermediaries in general proxied by a dummy variable, the study finds an estimated coefficient of 0.96 percent presented in column 1. This suggests that the volume of exports by domestic, direct exporters is increasing with the increased presence of domestic intermediaries in general. Likewise, column 2 presents significant and positive results at a 1 percent significant level when the analysis uses the number of domestic intermediaries as a proxy for domestic intermediary firms instead of a dummy variable. The results indicate that a 1 percent increase in the number of domestic intermediaries leads to a 0.14 percent increase in domestic, direct exports. Results in column 3 also indicate that an increase in the volume of domestic intermediated products led to an increase in domestic, direct exports by 0.46 percent. Interestingly, the results are consistent with Ahn et al (2011), hypothesis that intermediaries that facilitate exports are not in direct competition with direct exporters. That is, they may not cause crowd out direct exporters (Daunfeldt et al. 2019).

Turning now to the results of foreign intermediaries' effects on domestic, direct exports. With similar fixed effects, Table 4 indicates that all results are significant, and the signs are as expected. Specifically, column 1 presents the results when a dummy variable is used to indicate the presence of foreign intermediaries. Columns 2 and 3 present the results when the emergence of foreign intermediaries and agricultural exports is proxied by several volumes of foreign intermediated exports and the number of foreign intermediaries, respectively. Starting with the estimated coefficient of the foreign intermediaries as a dummy variable presented in column 1, the results indicate that the estimated coefficient of 1.63 percent is significant at 1 percent. This implies that an increase in the emergence of foreign intermediaries led to an increase in domestic, direct exports by 1.63 percent. Likewise, column 3 affects in terms of the number of foreign intermediaries. The results register that a unit increase in domestic, direct exports is attributed to 0.16 percent by an increased number of foreign intermediaries. Likewise, the effects of foreign intermediaries in terms of the volume of exports on domestic, direct exports is significant at 1 percent.

The results in column 2 display that domestic, direct exports are contributed by the presence of foreign intermediated exports by 0.3 percent. These results are consistent with the hypothesis that the presence of export-oriented, foreign firms positively influences the domestic exports in the host economy. The results are also dependable on the idea that some omitted variables influence both foreign and domestic exporters at the same time. Thus, the results seem to accord with other research which found

foreign firms positively influence domestic firms' export activities ((B. Aitken, Hanson, & Harrison, 1997; B. J. Aitken & Harrison, 1999; Blomström & Kokko, 1998; Blomström et al., 2000; Chunlai Chen, Sheng, & Findlay, 2013; Görg & Greenaway, 2003, 2016; Greenaway et al., 2004; Narjoko, 2009; Sun, 2010; UNCTAD, 2018) (Greenaway et al., 2004; Gorg and Greenaway, 2007; Aitken et al., 1997). And it could be argued that the positive results are due to positive externalities generated by local firms in the form of knowledge transfer by foreign firms from the destination markets.

Table 5: Foreign Export Intermediaries and Domestic Direct Exports. Dependent Variable: Domestic, Direct Exports

Variables	(1)	(2)	(3)
Nr.products per firm	0.0177*	0.0182	0.0149
	(0.0107)	(0.0125)	(0.0131)
Firm size(log)	0.636***	0.630***	0.725***
	(0.0781)	(0.0868)	(0.101)
Labour productivity(log)	0.491***	0.486***	0.538***
	(0.0439)	(0.0493)	(0.0596)
Firm Age (log)	-31.51**	-31.81***	-35.08***
	(14.94)	(11.63)	(11.72)
Firm Age square(log)	18.33**	18.50***	20.46***
	(8.610)	(6.738)	(6.810)
Distance(log)	-2.696	-2.034	0.669
	(7.911)	(6.253)	(6.217)
GDP (log)	-2.252	-2.243*	-3.037**
	(1.822)	(1.228)	(1.223)
Foreign intermediaries(lag)	1.629***		
	(0.315)		
Vol.for intermediated products(log)		0.127***	
		(0.0320)	
Nr. foreign intermediaries(lag)			0.162**
			(0.0682)
Constant	79.71	73.38*	66.99
	(50.03)	(44.21)	(46.46)
Observations	2,197	2,197	2,197
R-squared	0.970	0.970	0.969
Firm product destination fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Comparing all the results from the estimated coefficients of the export intermediaries presented in Tables 3 and 4, the emergence of foreign intermediaries in Tanzania's agricultural exports indicated in terms of the dummy variables, has had a big impact. It influences the increase of domestic firms to increase larger amounts of export volumes of about 0.67 percent as an extra to that contributed by domestic

intermediaries. The possible explanation for these results may be due to the positive information externalities and imitation effects exerted by the presence of export-oriented foreign, multinational firms. These results corroborate the ideas of (Jae Bin Ahn et al., 2011a; Akerman, 2018; Felbermayr & Jung, 2011), who suggested that the trade intermediary sector is vital for domestic firms or non-exporters to penetrate foreign markets indirectly, leading to increased domestic firms' export participation and other export activities. Hence, it could conceivably be hypothesized that information spillover from international markets may be generated from where export-oriented foreign firms originate to local firms in the host economy, Tanzania in particular.

4.2 Foreign Intermediaries Export Spillover and the Intensive Margin of Local Direct Agricultural Exports

To evaluate the impact of export spillover from foreign, export intermediary firms emanating in the destination markets on domestic, direct exporting firms' intensive margin, columns 1 to 3 of Table 5 present the estimated regression results. This study is characterised by firms that export to at least one destination market, thereby the maximum export destinations are about 32 countries. In handling the estimations, firm-product-destination fixed effects and destination-year fixed effects are controlled for each regression model. The empirical results from estimating the model in equation 2 are provided in columns 1 to 3 of Table 4. Columns (1), (2) and (3) present estimated domestic firms' export volumes concerning the product specifications, product destination and destination-specific spillover variables. The analysis started with examining the impact of product-specific spillover, followed by product destination-specific and finally destination-specific spillover. In the second hypothesis, it was found that all the signs of the export spillover, which are variables of interest are as expected. Interestingly, the results in this table are that the estimated coefficients of all export spillover variables are positive and statistically significant at the 5 percent level. This suggests that there exist information externalities from the destination markets and/or knowledge transfers from foreign, export intermediary firms. Such information may be consumers' tastes and preferences. The likely implication is that the presence of positive information externalities may facilitate lowering export costs to domestic firms. The finding corroborates the conception of Krautheim's (2012), claims that export spillover works, in which proximity to other exporters is assumed to reduce the fixed export cost due to the endogenous formation of informational networks between exporting firms.

Column 3 of Table 5 illustrates the results of the impacts of destination-specific spillover on firms' intensive margins of exports. The results show that a 1 percent increase in the number of foreign, agricultural export intermediaries in the city exporting to similar destinations enhances domestic, direct export by 0.17 percent. Similar trends were revealed when the relationship between product-specific spillover and domestic, direct agricultural exports was examined. The results in column 1 of

Table 5 indicate that a 1 percent increase in the number of foreign agricultural export intermediary firms exporting similar products, promotes an increase in domestic, direct exports by about 0.23 percent. Finally, the impact of export spillover from the number of foreign, agricultural export intermediary firms exporting the same products from the same city to the same destinations, is notably higher than the rest. Column 2 of Table 5 elucidates that a 1 percent increase in the number of foreign, agricultural export intermediary firms from a similar city and exporting the same products to similar destinations, enhances an increase of domestic, direct agricultural exports by 1.9 percent in the host economy, Tanzania in particular.

Comparing all the export spillover effects presented in Table 5, the spillover effects originate from the same destination introduced in the host country by foreign, agricultural export intermediary firms exporting similar products from a similar location to the same destination, is the largest of all. The single most striking observation to emerge from this comparison of the estimated coefficients in columns 1, 2 and 3 is thus, export spillover from foreign, export intermediaries are related to knowledge transfers through export-related information externalities and imitation that have an impact on exports to the specific destination markets from which the foreign firms originate. These results are consistent with those of other findings (Choquette & Meinen, 2015; Hu & Tan, 2016; Koenig et al., 2010; Mayneris & Poncet, 2015), who uncovered that export spillover impacts are magnified and robust when they are product destination-specific, rather than when it is either product or destination-specific alone and when that is in general. Furthermore, these results seem to corroborate other researches which suggest that positive externalities exerted by foreign exporters significantly influence domestic firms' intensive margins of exports (Aitken et al., 1997; Benli, 2016; Blomström & Kokko, 1998; C. Chen, Sheng, & Findlay, 2013; Ciani & Imbruno, 2017; Greenaway & Kneller, 2007; Kokko, Zejan, & Tansini, 2001.; Mayneris & Poncet, 2015).

Table 6: Foreign, Export Intermediaries and Intensive Margins of Domestic, Direct Exports. Dependent Variable: Domestic Direct Exports

Variables	(1)	(2)	(3)
Nr.products per firm	0.0226*	0.0224*	0.0228*
	(0.0135)	(0.0128)	(0.0136)
Firm size(log)	0.608***	0.593***	0.610***
	(0.0685)	(0.0689)	(0.0677)
Labor productivity(log)	0.446***	0.440***	0.446***
	(0.0401)	(0.0409)	(0.0400)
Firm Age (log)	-0.0653	-0.0465	-0.0667
	(0.0472)	(0.0495)	(0.0462)
Firm Age square(log)	0.750***	0.719***	0.750***
	(0.220)	(0.216)	(0.220)
Distance(log)	6.652	6.312	6.618
	(19.01)	(19.96)	(18.93)
GDP (log)	-2.292	-1.991	-2.310

	(1.664)	(1.647)	(1.664)
Product-specific spillover (log)	0.228**		
	(0.114)		
Product destination-specific spillover(log)		1.897**	
		(0.934)	
Destination-specific spillover (log)			0.170*
			(0.0949)
Constant	8.385	-4.215	9.175
	(116.1)	(121.7)	(115.7)
Observations	3,122	3,122	3,122
R-squared	0.940	0.942	0.940
FPD_FE	YES	YES	YES
Year_FE	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

It is also important to note that the estimates for the control variable were involved in examining the export performance of domestic firms in the host economy. Specifically, the number of products, firm size, labour productivity and square of firm age are all positive and significant. The likely implication is that all these factors are among the determinants influencing the performance of domestic, direct agricultural exports in foreign markets, as they increase domestic, direct agricultural exports. Conversely, the standard trade determinant- geographical distance and the economic size (GDP), show zero relationship as they are all not statistically significant.

Taken together, the results in this section suggest that the intensive margins of domestic, direct agricultural exports may be motivated by the knowledge transfer-specific spillovers introduced by foreign, export intermediary firms from specific destination markets. Specifically, the robust export spillover effects for the domestic firms' intensive margins of exports in Tanzania seem to be from the number of product-destination pairs exported by foreign firms from the same city. An implication of this is the possibility that the realised highest positive information externalities exerted from the higher number of product-destination pairs exported by foreign export intermediary firms have a huge impact on local exports to the specific destination markets, from which the foreign firms originate. For a similar conception, product-specific export spillovers appear to be relatively larger than destination-specific export spillovers. The idea here is that foreign export intermediaries, especially those who export similar products from similar cities to the same destination markets, are vested with foreign distribution networks and knowledge about foreign markets, hence they enjoy reduced search and match costs of entry. Despite these promising results, questions remain whether indirect exporters can later transit to direct exporters and how indirect export raises the likelihood that the firm will continue to direct exports, the overall results are subject to a sensitivity check which is presented later in the same section.

4.3 Export Intermediaries and Destination Markets Characteristics

The analysis of the impact of destination markets characteristics on export share also

relies on the PPML panel gravity equation (3). Three proxy variables are used to portray the institutional quality of the destination markets. These include Government Efficiency, the Rule of Law, and Regulatory Quality. As highlighted in (Nunn 2007, Kokko and Tingvall 2014, and Daunfeldt et al.2019), these variables are relevant for the exporting agent and reflect different aspects of institutional quality. The results are presented stage-wise, starting with the impact of institutional quality on total exports, followed by other exports (direct exports) share and lastly, the intermediated agricultural exports share. The purpose of estimating the effects of institutional quality on total exports as the first stage, is to uncover the possible difference that exists in exports without disaggregating between direct exported products and intermediated exports.

4.3.1 Total Exports and the Destination Market Characteristics

- ***Total Exports and Institutional Quality***

Focusing now on the results from the estimated model, Table 7 presents the results obtained from empirical analysis, where columns 1-3 indicate estimated variables against the dependent variables which are provided in the upper row of the table of results. All the institutional variables are statistically significant and have positive signs as expected. What stands out in column 2, rule of law is the highest of all institutional variables applied in this study. Controlling all other variables, a unit increase (improvement) in rule of law in the destination markets facilitates total exports by 1.2 percent. But the regulatory quality is the least of all, although it positively facilitates agricultural exports flow from Tanzania by 0.46 percent, implying that a unit increase in regulatory quality in the destination countries leads to increased agricultural exports by 0.46 percent. That is, most of the institutional quality at the destination markets is better and well-functioning to the extent of promoting the importation of agricultural products from Tanzania. This is consistent with the hypothesis that better (weak) institutional quality in the destination country facilitates (hampers) trade flow (de Groot et al., 2004; Yu, Beugelsdijk, & de Haan, 2015). Further analysis of the divergent effects of institutional quality on exports is carried out in the next sections by splitting the exports by mode of exports.

Table 7: Total Exports and Institutional Quality at the Destination Markets. Dependent Variable: Total Exports

Variables	(1)	(2)	(3)
Government efficiency	1.125***		
	(0.0650)		
Rule of law		1.273***	
		(0.0514)	
Regulatory quality			0.461***
			(0.0617)

Nr.products	0.00812***	0.00529***	0.00840***
	(0.000278)	(0.000311)	(0.000330)
GDP (log)	-0.248*	-0.173	0.468***
	(0.142)	(0.130)	(0.124)
Constant	16.91***	15.45***	2.843
	(3.048)	(2.793)	(2.742)
Observations	16,102	16,102	16,102
R-squared	0.831	0.831	0.810
Country_FE	YES	YES	YES
Year_FE	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- ***Total Exports, Distance and Institutional Quality at the Destination Market***

Shifting the motivation to the interaction between geographical distance and the institutional quality effects on total agricultural exports from Tanzania, Table 8 summarizes the results. All the estimated coefficients of the institutional qualities are statistically significant at 1 percent, however they register different signs. Column 1 indicates that regulatory quality indices have a negative sign, meaning that total agricultural exports are negatively affected by the differences in institutional quality at the destination markets. That is a unit increase in the regulatory quality difference between Tanzania and the importing trading partner country can be hampered by 17.92 percent. However, the remaining institutional qualities indicate that differences in institutional quality in terms of government efficiency and rule of law at the destination markets positively influence agricultural exports in Tanzania. Considering the interaction terms of institutional quality and geographical distance, the results are provided in columns 1-3 in Table 8, in the lower three rows. It shows that the long distance to the destination markets significantly restricts the total exports to the distantly located destination markets, as revealed in column 2, while column 1 indicates total exports are significantly and positively affected. This means that despite the distance from Tanzania to the destination markets, a unit change in institutional distance positively influences total agricultural exports from Tanzania by 2.14 percent, while the remaining variable displays zero relationship. On average, the changes in institutional distance adversely affect the total, although one of the institutional distance quality measures shows positive effects. Thus, with negative signs this implies that the distant markets have weaker institutions to the extent of making traders unaware of institutional procedures, including contract issues, and the need for more export mode alternatives is therefore warranted to facilitate more exports.

Table 8: Total Exports, Distance, and Institutional Quality at the Destination Market. Dependent Variable: Total Exports

VARIABLES	(1)	(2)	(3)
Regulatory quality	-17.92***		
	(2.058)		
Government efficiency		9.076***	
		(1.184)	
Rule of law			3.135***
			(1.085)
Reguqualt*lndistance	2.144***		
	(0.251)		
Gov.eff*lndistance		-0.915***	
		(0.137)	
Rule. law*lndistance			-0.0102
			(0.169)
Ln(distance)^2	3.119	0.737	-0.466
	(2.509)	(0.488)	(0.713)
Nr.products	0.00924***	0.00756***	0.00350***
	(0.00125)	(0.00121)	(0.00125)
GDP (log)	-0.122	-1.064***	-1.331***
	(0.346)	(0.384)	(0.463)
Constant	-52.89	23.28***	54.14***
	(48.41)	(3.040)	(6.324)
Observations	3,506	3,506	3,506
R-squared	0.915	0.918	0.928
Firm_FE	YES	YES	YES
Year_FE	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.3.2 Direct Exports and Destination Market Characteristics

- ***Direct Exports and Institutional Quality at the Destination Markets***

Table 9 provides the results on the effect of the institutional quality at the destination markets on the share of direct agricultural exports from Tanzania for the study period. The aim of splitting the exports by mode of export is to empirically identify the effects specific to the intensive margin of exports by mode of export the exporters use in accessing foreign markets. The results in Table 9 show that the estimated coefficients of the regulatory quality and rule of law variables presented in columns 2 and 3, are statistically significant and have a negative sign. A unit increase in regulatory quality and rule of law leads to -0.36 and -0.22 percent of other exports directly exported to the destination markets, respectively. This shows that both these variables adversely affect agricultural export flows to the destination markets. Thus, the institutional quality in terms of regulatory quality and rule of law is weak in the importing countries, leading to hampering imports from Tanzania. On the contrary, government efficiency at the destination markets registers zero effect on the share of direct agricultural

exports from Tanzania. This implies that institutional quality in terms of government efficiency in the destination country is not related to the intensive margin of direct agricultural export share.

Table 9: Direct Exports Share and Institutional Quality at the Destination Markets. Dependent Variables: Direct Exports

Variables	(1)	(2)	(3)
Government efficiency	-0.0877		
	(0.0622)		
Regulatory quality		-0.359***	
		(0.0586)	
Rule of law			-0.220***
			(0.0522)
GDP (log)	-0.235***	-0.218***	-0.201***
	(0.0512)	(0.0470)	(0.0458)
Prod.ratio(#direct/#intermed)	0.308***	0.301***	0.303***
	(0.0253)	(0.0254)	(0.0255)
Constant	5.662***	5.790***	4.551***
	(1.369)	(1.250)	(1.211)
Observations	16,038	16,038	16,038
R-squared	0.272	0.274	0.271
Country fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- ***Direct Exports, Distance, and Institutional Quality at the Destination Markets***

The effects of distance and institutional quality on the direct agricultural export share are established in two parts - direct and indirect effects. The direct effect is uncovered from a geographical distance, while the institutional quality effects with distance consideration are established by the interaction effect between distance and institutional quality. As in Daunfeldt et al. (2019), the interaction term added to the estimation reflects the contribution of distance to contractual problems. This depicts whether a longer distance between Tanzania and the importing countries can intensify contract issues. With this view, export mode matters in handling such a challenge in internationalisation (Akerman, 2018&Daunfeldt et al., 2019). The results presented in the upper three rows in columns 1-3 of Table 10 show that all the institutional qualities, without interaction with the distance are statistically significant at 1 percent, with a negative sign, except for government efficiency. The sign of the estimated coefficients for the regulatory quality and rule of law presented in columns 1 and 2 shows that institutional difference adversely affects the share of direct agricultural exports at the destination markets. The greater negative effect is identified in the distance between rule of law, suggesting that the difference between the trade agreements, security,

corporation and other trade law-related factors between Tanzania and the destination country trading partners, negatively affect the direct agricultural exports share.

Table 10: Direct Exports Share, Distance, and Institutional Quality. Dependent Variable: Direct Exports

Variables	(1)	(2)	(3)
Regulatory quality	-2.363***		
	(0.455)		
Rule of law		-2.834***	
		(0.322)	
Government efficiency			2.545***
			(0.479)
Reguqualt*lndistance	0.255***		
	(0.0538)		
Rule. law*lndistance		0.329***	
		(0.0390)	
Gov.eff*lndistance			-0.310***
			(0.0563)
Ln(distance)^2	0.135***	0.111***	0.161***
	(0.0429)	(0.0407)	(0.0437)
Product ratio(#direct/#intermed)	-0.0833***	-0.0865***	-0.0795***
	(0.0175)	(0.0176)	(0.0174)
lngdp_d	-0.0281	-0.0472	-0.0836**
	(0.0371)	(0.0352)	(0.0358)
Constant	-1.624**	-0.224	-0.916
	(0.756)	(0.684)	(0.815)
Observations	16,041	16,032	16,041
R-squared	0.365	0.365	0.364
Firm fixed effects	YES	YES	YES
Year_FE	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.3.3 Intermediary Exports and Destination Market Characteristics

- ***Intermediary Exports and Institutional Quality at the Destination Markets***

Turning now to the variables of interest for this study, Table 11 reports the regression results where each column indicates the effects of specific institutional quality measures. The regression results from columns 1-3 in Table 11 display that all measures of the institutional qualities of the destination markets have positive signs as expected and all are significant. All the institutional quality measures are significant at 1 percent, except the government efficiency measure, which is significant at 10 percent. Here, the connotation is that better and well-functioning institutions in the destination markets favour the volume of agricultural products from Tanzania. That is the better or improved institutional quality of the destination markets leads to a positive change in the intermediated agricultural export share from Tanzania. The likely implication is that better institutional quality in the destination market leads to a larger

share of agricultural exports from Tanzania. This means the institutional quality of the importing countries is better than the exporting country, Tanzania in particular. The results seem to support the findings in the work of (Yu et al., 2015).

Table 11: Intermediary Exports and Institutional Quality at the Destination Market. Dependent Variable: Intermediary's Share of Total Exports

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Government efficiency	0.0468*			0.0518*		
	(0.0284)			(0.0309)		
Regulatory quality		0.229***			0.268***	
		(0.0253)			(0.0280)	
Rule of law			0.0955***			0.0442
			(0.0271)			(0.0339)
GDP (log)	0.0947***	0.101***	0.0833***	0.137***	0.136***	0.146***
	(0.0238)	(0.0224)	(0.0225)	(0.0291)	(0.0282)	(0.0280)
Prod.ratio(#intermed/#direct/)	0.0460***	0.0443***	0.0457***	0.0310***	0.0299***	0.0307***
	(0.00594)	(0.00583)	(0.00589)	(0.00632)	(0.00622)	(0.00629)
Constant	-2.557***	-3.012***	-1.763***	-2.829***	-2.366***	-3.018***
	(0.628)	(0.610)	(0.554)	(0.618)	(0.598)	(0.597)
Observations	16,035	16,035	16,037	15,987	15,987	15,987
R-squared	0.256	0.259	0.257	0.351	0.354	0.351
Country fixed effects	YES	YES	YES			
Exporter-importer fixed effects				YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

More specifically, the results in columns 1 and 2 in Table 11 indicate that a unit increase in government efficiency and the rule of law in the destination markets lead to a 0.05 and 0.10 percent increase in intermediated agricultural exports share from Tanzania, respectively. However, of all the estimated coefficients of the institutional measures reported in Table 11, the regulatory quality records a bigger impact on the intermediated agricultural exports share than all other measures. It shows that an increase in regulatory quality in the destination country facilitates an increase in intermediated agricultural export shares from Tanzania. This suggests that regulatory quality, as a measure of institutions in the destination, is an important factor that boosts intermediated agricultural export shares in foreign markets, especially those that are difficult to enter. The results corroborate the findings by Akerman (2018), on the role of wholesalers in international trade. They are also consistent with Levechenko's (2007), argument which highlights that institutional difference is among the vital determinants of trade flows such that better institutional quality promotes trade flows, while weak institutions restrict trade.

The results remain robust as recorded in columns 4-6 in Table 11, concerning switching the specifications of the fixed effects to exporter-importer fixed effects. However, with a notable increase in the estimates, the results still indicate that a unit increase in regulatory quality would increase the intermediated agricultural exports share from Tanzania by 0.27 percent. The rest of the institutional measures remain with lower estimates as compared to the regulatory quality, albeit with a slightly adjusted estimate. However, the rule of law appears to have zero effect on the intermediary share of exports from Tanzania, as indicated in column 6, suggesting that the institutional quality of the destination countries and Tanzania in terms of government efficiency, are not related.

- ***Intermediary Exports, Distance, and Institutional Quality at the Destination Markets***

In the final part of the analysis, the estimated results include the influence of institutional quality and the role of export intermediaries on agricultural export share in distant markets. Table 12 provides results, whereas columns 1-3 summarize results for the analysis of institutional quality and share of exports, while columns 4-6 show results for sensitivity analysis. As earlier explained in the previous section, in this part effects of institutional variables, distance and the interaction between them are also reported, but the explanatory variable is intermediated exports. The results show that after introducing distance to the model, all the institutional quality variables presented in the upper three rows in columns 1-3 display positive signs, except the government efficiency variable and they are all significant at 1 percent. Interestingly, all the institutional distance variables resulting from the interaction variable of institutional quality and geographical distance record significant results at a 1 percent level, and all have negative signs. In particular, the results suggest that the longer the distance from Tanzania to the destination markets, the weaker the institutions in the importing countries. This may be due to the idea that in relatively distant destination markets, traders are less informed about the entry procedures, leading to increased contract issues. That is, the change in institutional quality increases as the distance to the destination markets increases and the impact of the institutional quality becomes negative and significant. The results are found to support the findings obtained from the work of Daunfeldt et al. (2018), which is also consistent with the hypothesis that export intermediaries may not only facilitate foreign export but also resolve trade contract issues in the destination markets.

Regarding the institutional distance captured in the interaction between institutional qualities and geographical distance, Table 12 indicates that all the variables are statistically significant at 1 percent and positive, except for the difference between government efficiency, which displays negative signs. Although the difference in government efficiency between importing countries and Tanzania restricts intermediated agricultural exports share, other institutional differences such as

regulations and the rule of law favour the exports. The results register those changes in the difference of institutional distance variables between origin and destination countries positively affect the share of intermediated agricultural exports. The greatest positive effect is shown in the distance between the rule of law variables, which suggests that the differences between corporations, trade agreements, regulation enforcement and other law-related issues between Tanzania and its trading partners positively influence the intermediated agricultural exports to share. Also, the negative effects of government efficiency between Tanzania and the trading partner countries displays a notable change in the exports as it restricts the share of intermediated agricultural exports in the foreign markets. Consequently, the results imply that a large distance adversely, directly affects Tanzania's intermediated agricultural exports, while institutional distance affects it indirectly.

Table 12: Intermediary Exports, Distance, and Institutional Quality at the Destination Markets. Dependent Variable: Intermediary's Share of Total Exports

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Regulatory quality	1.228***			-1.509***		
	(0.260)			(0.520)		
Rule of law		0.858***			-2.165***	
		(0.156)			(0.398)	
Goveffeciency			-2.087***			2.814***
			(0.247)			(0.586)
Reguqualt*lndistance	-0.127***			0.152**		
	(0.0322)			(0.0618)		
Rule. law*lndistance		-0.102***			0.243***	
		(0.0211)			(0.0487)	
Gov.eff*lndistance			-0.310***			-0.349***
			(0.0563)			(0.0693)
ln(distance)^2	-0.115***	-0.134***	-0.145***	0.109**	0.0791	0.135**
	(0.0331)	(0.0368)	(0.0366)	(0.0463)	(0.0496)	(0.0535)
Prod.ratio(#intermed/#direct/)	0.0559***	0.0573***	0.0555***	-0.0879***	-0.0897***	-0.0851***
	(0.00704)	(0.00695)	(0.00691)	(0.0199)	(0.0216)	(0.0214)
GDP (log)	0.0838**	0.0731**	0.118***	-0.0590	-0.0558	-0.0940**
	(0.0336)	(0.0350)	(0.0345)	(0.0385)	(0.0436)	(0.0439)
Constant	-1.507**	-0.132	-0.132	-0.136	-0.492	-0.190
	(0.696)	(0.784)	(0.784)	(0.753)	(1.215)	(1.373)
Observations	15,658	15,658	15,658	12,530	12,530	12,530
R-squared	0.346	0.348	0.348	0.413	0.413	0.414
Firm fixed effect	YES	YES	YES	YES	YES	YES
Year fixed	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

For sensitivity purposes, columns 4-6 and Table 12 present the results, whereas the zero export observations were omitted as applied in the OLS approach. As in (Glick & Rose, 2016; Larch, Wanner, & Zylkin, 2018), sensitivity is carried out for a robustness check of the PPML results. Since the estimation techniques for the gravity model are diverse and many have been proposed, including the PPML estimator (Silva & Tenreyo, 2006), the sensitivity of the findings is still being checked with different approaches

such as Tobit and the PPML estimator, with no-missing observation. This study follows the PPML technique with zero export observations included, excluding them leads to bias and inconsistency (Silva and Tenreyo, 2006). This is done by re-estimating the PPML with zero exports observation excluded where the results are presented in columns 4-6 and comparing it with the former specifications in columns 1 - 4 in the same table. The results show that in all cases, there is a noticeable disparity between parameter estimates. A relative decrease in the estimated coefficients except for the governance efficiency variable and its institutional difference, which have high estimated coefficients, but have a similar level of significance and signs. Since the PPML estimator becomes consistent only when the conditional mean is correctly specified, the inclusion of zero export observations does not affect its performance but rather reduces the subjectivity of being biased. Consequently, the coefficient estimates of the PPML estimator with zero export flows excluded are indeed lower than the PPML estimates with zero trade flows included as presented in Table 12. Hence, the conclusion that can be made from these precise differences in testing how agricultural export intermediaries and institutions affect intermediated agricultural exports share is that the estimates are robust.

CHAPTER 5: CONCLUSIONS AND STUDY IMPLICATIONS

5.1 Summary and Conclusions

Despite the notable position of the foreign presence and trade intermediaries visibly established in the literature, their empirical evidence on facilitating international, agricultural exports in the Tanzanian economy is somewhat missing. In response, the present study was designed to assess the role of foreign presence and export intermediaries on domestic, direct exporters in the Tanzania economy using customs transaction panel data at HS-6 digits, covering from 2010 to 2020. In the investigation, the role of intermediaries in export was looked at in terms of export volumes by intermediary firms, number of intermediary firms and construct variable (dummy) representing the presence of intermediaries. Specifically, the study's focus centred on three main aspects of the intensive margin of Tanzania's agricultural exports by domestic, direct exporters. It has analysed how the emergence of foreign firms and intermediary exports impacts direct, agricultural exports. The study further assessed how export spillovers from foreign export intermediary firms affect local firms' agricultural exports. Lastly, it has identified the link between the institutional quality of the destination markets and intensive margins of exports of agricultural products in Tanzania.

First, in exploring the empirical evidence on the role of foreign presence and export intermediaries in the Tanzanian economy, a series of empirical estimations using different techniques revealed different results. The analyses were carried out sequentially and econometric issues were handled before the estimations to avoid any sort of econometric challenges, such as endogeneity, heterogeneity, and correlation, and to maintain the specificity of the variable impacts. For instance, the present study analysed the effects of export intermediaries and foreign presence, and how the intensive margins of local, direct exports by deploying the panel gravity model with the PPML estimator. Results from this analysis show that intermediaries, particularly foreign export intermediaries, are statistically significant and positive. Similarly, the export spillover effects from foreign export intermediaries indicate that the agglomeration of foreign export intermediaries exporting similar products from the same city to the same destination generates the strongest positive export spillover impacts on the neighbouring domestic, direct agricultural exporting firms. This suggests that the highest export spillover impact from foreign export intermediary firms on domestic firms' exports is the product-destination markets-specific pair.

Finally, the study analysed how the intensive margin of intermediated agricultural exports varies with destination market characteristics proxied by distance and

institutional quality. Deploying the PPML panel gravity model, the results show that export intermediaries are vital for increased domestic agricultural exports. The result also registers that the significance of export intermediaries increases as the institutional quality of the destination markets becomes weak, leading to increased domestic, direct agricultural exports. Furthermore, the estimation results indicate that as geographical distance increases, so institutional quality grows leading to adversely affecting domestic, direct agricultural exports, unlike the foreign export intermediaries. The possible suggestion is that non-intermediated domestic exports are more sensitive to institutions, unlike intermediary exports.

5.2 Implications of the Findings

Several implications can be drawn from the present study based on the specific findings found from each question of the study. Considering the analysis of foreign presence and export spillover effects on domestic, direct exporters, the results suggest that the increased involvement of foreign firms – foreign intermediaries, especially those exporting similar products to similar destinations, yields the strongest influence on the domestic firms' intensive margins of exports. The results further suggest that the highest export spillover impact from foreign export intermediary firms on domestic direct firms' exports is the product-destination markets-specific pair. The likely implication is that export spillovers from foreign, export intermediaries may be related to knowledge transfers and generated from the foreign firms where they originate. Therefore, with favourable intermediaries share information about foreign markets in terms of product quality and other characteristics of consumer demand leading to more domestic firms getting aware, hence increasing their exports and product varieties.

Focusing on the role of export intermediaries, the overall results from this investigation favour the idea that export intermediaries facilitate firms, especially domestic firms, as they lessen the difficulty in accessing foreign markets. That is intermediaries situated in the international export as middlemen to ferry products of the less efficient firms that are not productive enough for exporting their products directly to international markets. From Tanzania's customs transaction data, the study found to corroborate this claim as the impact of export intermediaries appears to be significant. The possible implication from the results on the role of export intermediaries on the intensive margin of domestic, direct exports with varying destination market characteristics, is that export intermediaries are vital. That is, they facilitate domestic direct exports, especially to relatively complex and distantly located markets. The further implication to emerge from the results is that non-intermediated domestic exports are more sensitive to institutions, unlike intermediated exports as they tend to decline as institutions at the destination markets become weak.

5.3 Areas for Further Research

Despite its dataset limitation, this study offers some insights into domestic firms' export performance in case there exist foreign export intermediaries in the host

economy. In particular, an issue that this study failed to address was whether the export performance of domestic firms is product category-specific. Here, the foreign, export intermediary firms exporting multi-products of different categories, such as agro-processed or non-agro-processed, may have different impacts on the domestic firms' export performance, since consumers in the markets are believed to be driven by their taste and product preferences. Considerably more work will need to be done to address this issue. It will also be plausible to examine how indirect export raises the likelihood that the firm will transit and continue to direct exports.

Another promising area for further investigation is the position of foreign and intermediaries' presence in fostering domestic, agricultural products exports by locally owned firms, specifically value-added products. The focus could be on the differential effects on the intensive margins of processed and non-processed agricultural products as per exporters' origin. It would also be interesting to investigate the impact of institutional quality on the intensive margin of exports by combining a panel of sectors. The aim is to understand the comparative competitiveness at the sector level. Further research might explore how the changes of institutional factors in exporting fosters exports and on the aspect of intermediaries. Research can focus on how intermediaries can facilitate non-exporters to become exporters. This has been the case in the theoretical and empirical literature, which in Tanzania is somewhat missing.

Lastly, to ensure sustainability and the agricultural transformation is attained, the linkages between climate change and trade cannot be disentangled. Thus, further investigation on how climate change and trade are related is needed, and in particular the contextualization should focus on low carbon development pathways.

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