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FIRM-LEVEL DETERMINANTS OF EXPORT PERFORMANCE IN EAST

AFRICAN COMMUNITY COUNTRIES

BY

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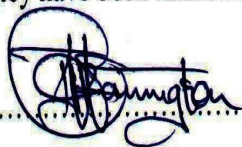
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DECLARATION

I, **Hannington Musimenta** do declare that this dissertation is my own work and has never

been submitted for any award in any University for any academic award. Where other works

are used, they have been acknowledged through appropriate citation.

Signature.......................................

Date......4/12/2018..............

APPROVAL

The undersigned certify that they have read this dissertation titled "Firm-Level Determinants of Export Performance in The East African Community Countries" in the process of guiding the author and thereby recommend it for submission to the Directorate of Research and Graduate Training of Makerere University in the partial fulfillment of the award of the degree of Master of Arts in Economics of Makerere University.

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Signed....................................

Date..........04 | 12 | 2018..........

DEDICATION

I dedicate this research thesis to my late dad Mr. John Turyareeba Rucema and my mum Mrs. Royda Turyareeba whose dreams I live, and Hon. Dr. Lawrence Bategeka who believed in me and shaped me to face the challenges of higher education.

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LIST OF ACRONYMS

BoT:	Bank of Tanzania
BRB:	Banque de la Republique du Burundi
CBK:	Central Bank of Kenya
DRC:	Democratic Republic of Congo
EAC:	East African Community
FTA:	Free Trade Agreement
GDP:	Growth Domestic Product
IMR:	Inverse Mills Ration
LDC's:	Low Developing Countries
MNE:	Multinational Enterprise
NBR:	National Bank of Rwanda
R&D:	Research and Development
UAE:	United Arab Emirates
UEPB:	Uganda Exports Promotion Board
UK:	United Kingdom
USA:	United State of America
USD:	United State Dollars
WBES:	World Enterprise Survey
WTO:	World Trade Organization

ABSTRACT

This study sets out to examine the firm-level determinants of export performance in the East African Community countries using World Bank Enterprise Survey data set for Uganda, Kenya and Tanzania (2013) Rwanda (2011) and Burundi (2014). The study employs the Heckman Two-stage model to explain the relationship between export performance and the firm level variables that range from firm characteristics to entrepreneurship characteristics and the business environment. In the model stage one is export propensity that is used for selection basing on whether the firm exports or not and stage two is export intensity that is used to measure export performance as the percentage of the firm's sales that are exported.

Our results from the Probit estimation in stage one indicate that firm age, firm size, foreign ownership, possession of IQC, location of a firm in the capital city, easy access to finance, formal training of the firm employees and manager's experiences increased the firm's participation in the export market however corruption, informal competition and tax obstacles reduce the possibility of firms participating in the export market. From stage two we establish that firm age, firm size, foreign ownership, location of a firm in the capital city and access to finance, increased the percentage of the firm's sales exported. On the other hand, tax obstacles, corruption and competition from the informal sector firms reduced it.

Our results therefore suggest that firms should acquire international quality certification, invest more in R&D, undertake extensive training of their workers, hire experienced managers, in addition government should Provide a conducive business environment to the firms engaged in exportation through reducing the tax obstacles, fighting corruption, availing cheap credit to the firms and formalization of firms in the informal sector.

Keywords; EAC countries**,** export propensity, export intensity, firm characteristic, entrepreneurship characteristics and business environment.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter introduces the background of the study. It comprises of the problem statement, research purpose and objectives. It also delves into the hypothesis that the study seeks to test, justification of the study and details on the organization of the study.

1.1 Background

Exports are of a paramount importance due to their contribution to the country's economic growth and development. Through exports, a country is able to improve its national competitiveness and better standards of living for its people. This is through access to a diversity of goods and services (Lages and Montgomery 2004). Exportation has increased tremendously in the recent past being driven by advanced technology and liberalization of trade and capital markets (WTO 2008).

However, the annual percentage growth rate of exports indicates that EAC exports have been fluctuating in the recent years. The average maximum was in 2008 at 26.03% and minimum at –5.5% in 2009 (See Figure 1). The average share of EAC exports on the world market has been on the decline. The member countries are highly dependent on a narrow range of primary commodities for foreign exchange earnings (World Bank 2017). The entire East African Community continues to have negative trade balances due to a lower level of exportation relative to importation.

Figure 1: Average Export Growth in East Africa
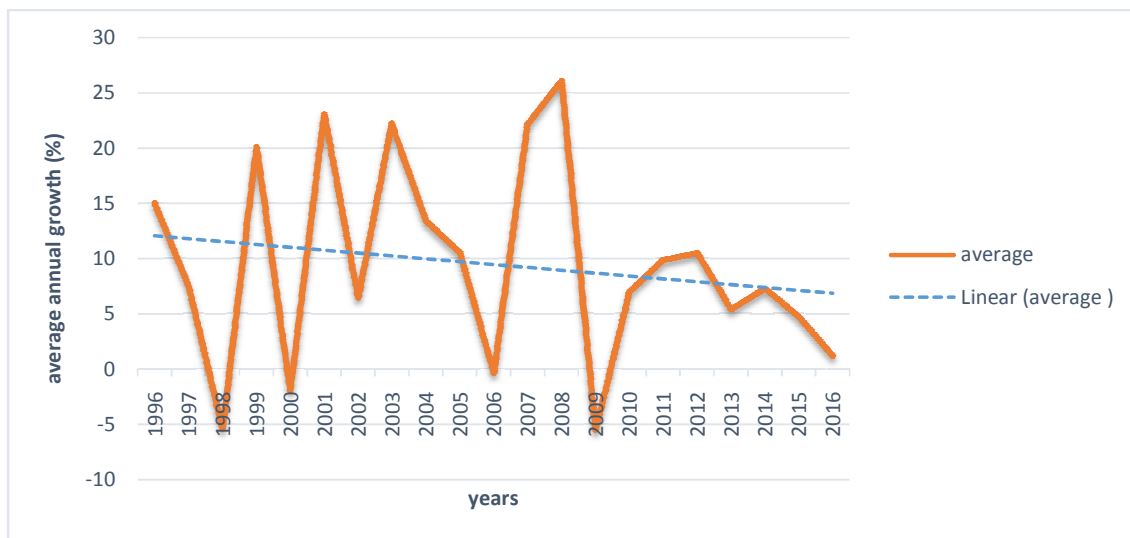
Source: *Computed using data from World Bank Development Indicators*

Uganda's Exports have been fluctuating from 2001 to date, reaching an all-time high of 2.9 USD billions in 2017 and a record low of 450 USD Million in 2001 (TRADE MAP, 2017). Uganda mostly exports agricultural products (80% of total exports) the most important being coffee (22% of total exports) followed by tea, cotton, tea, maize, sugar, copper, oil and fish. Uganda's main export partners are South Sudan, Kenya, DRC, Netherlands, Germany, South Africa and UAE. (UEPB 2017).

Rwanda's exports have been fluctuating and reached all-time maximum in 2014 at 653 USD Million and low at 51 USD million in 2003 (TRADEMAP, 2017). The trade is concentrated in a few export products like coffee, tea and minerals like niobium, tin and tungsten with the major export destinations being Kenya, Uganda, DRC, UAE, Switzerland and Burundi (NBR, 2017).

Tanzania's exports have been fluctuating with all-time high of 5.9 USD Billion in 2015 and low of 768 USD Millions in 2001(TRADEMAP,2017). The major exports are tobacco coffee ore slag and ash, pearls, precious metals and glass and glass ware, cotton with the major

destinations being Switzerland, India, South Africa, China, Kenya DRC, Vietnam, Japan Belgium Comoros among others (BOT 2017).

Burundi's exports have been fluctuating reaching an all-time of high of 242 USD Million in 2012 and a record low of 26 USD Million in 2002 (TRADEMAP,2017). The major exports being coffee, tea, mate and spice, pearls, precious stones, metals, coins, glassware, tobacco, ore, slag and ash. The major export destinations are DRC, Switzerland, UAE, Kenya, German, Belgium, Rwanda, Uganda, South Sudan, USA, Singapore among others (BRB, 2017).

Kenya's exports have been fluctuating over the years with an average of 4.5USD Billions from 2001 until 2017. They reached an all-time high of 6.2 USD Million in 2014 and a record low of 1.4USD Billions in 2002(TRADEMAP, 2017). The major exports were coffee, tea, mate and spice, live trees, plants, root tubers, cut flowers, tobacco, edible vegetables, salt, lime and cement. The main export destinations include Uganda, UK, Tanzania, Netherlands, USA, Pakistan, UAE, DRC, Somalia, Rwanda, and India among others (CBK, 2017).

This declining level of export performance has been attributed to policy induced factors like poor infrastructure, tariffs and trade facilitation among other protection tools (Rudaheranwa, 2007). This induced various policy interventions like enhancement of economic integration, heavy investment in infrastructure, signing bilateral trade agreements, formation of export promotion boards, provision of investment incentives in addition to the earlier policies of exchange rate liberalization. All these were aimed at increasing the export performance (Bbaale 2011).

In spite of the considerable government efforts to boost exportation, the level of exports in the EAC has continued to decline. This declining trend shows us that there is more to export performance than the macroeconomic interventions. Therefore, it is important to understand

the microeconomic environment in which firms operate, and how firm and entrepreneurship characteristics contribute towards export performance. This is consistent with Singh, (2009) who concludes that the determinants of export performance can be divided into macro and micro level determinants. The macro level determinants are concerned with the demand side. They aim at boosting demand for exports on the world market. The micro level determinants are aimed at boosting productivity considering the fact that firms in developing countries tend to be prone to constraints associated with operating in the global market (Adu-Gyamfi et al., 2013).

In the quest by the EAC firms to achieve global competitiveness, there is need to understand the factors that influence export propensity and intensity of firms in the region. There are several debates in the trade literature about the firm level determinants of export performance but with very sharp contrasts on the determinants of both export propensity and intensity especially in developed and emerging countries. For example, (Alves (2002), van Dijk (2002), Aitken, Hanson et al. (1997), Bernard and Jensen (2004), Alvarez and López (2005), Greenaway et al. (2007). Estrin et al (2008), Filatotchev et al. (2008) in their studies concluded that firm age, size, foreign ownership and manager's experience positively influence export propensity and intensity of firms.

In addition, Singh (2009), Gao et al (2010) and Yi et al (2015), Agnihotri and Bhattacharya (2015) also found similar results namely; research, advertising and development intensity.

However, Krammer et al (2017) found a significant relationship between political instability, high informal completion and high corruption. Other scholars like Kumar and Siddharthan (1994) Wagner, (1995), Wagner (2001) contrast the previous findings. They found an inverted relationship between size and export intensity. Alvarez and López, (2005), Ottaviano

and Martincus, (2011) found the relationship between age and export intensity negative and no relationship respectively.

These contradictions in literature coupled with the absence of a comprehensive study on the firm level determinants of export performance in the EAC countries make it viable to conduct a study in that line. This study is aimed at establishing the drivers of firm export propensity and intensity by all the firms in the region. This includes those in manufacturing, service and any other which contributes to export performance.

This study would thus bridge the gap that earlier research studies did not cover in their studies of the EAC region. For example, Niringiye et al (2010) only focused on export participation by manufacturing firms and Bbaale (2011) focused only factors that determine productivity and self-selection of manufacturing firms in Uganda

1.2 Problem Statement

Despite improvements in economic performance evidenced by growth in GDP of the member states of the EAC Countries in the past two decades, export performance has remained poor. It is still characterized by a small percentage of sales, negative trade balances, high rates of export revenue fluctuations and a continued dependence on a narrow range of commodities. The contribution of exports to the GDP of the countries in the region remains minimal at an average of 13% (WDI). The export share on the global market still remains lower than that of the other developing countries with similar income levels at an average of at 0.1% share of the global exports (TRADE MAP).

This poor export performance has persisted regardless of the collective government efforts of all the EAC member states to boost exports. A number of policies like trade liberalization, increased infrastructure, signing of Free Trade Agreements (FTAs), enhancing economic

integrations, signing bilateral trade agreements and formation of export promotion agencies were put in place but not much has changed.

This means that promoting rapid expansion of EAC exports to enhance international competitiveness requires more than just a good macroeconomic policy environment. Therefore, understanding firm level determinants of export performance and the microeconomic environment in which the exporting firms operate may thus play a cardinal role in enhancing export performance of the EAC countries. It is against this background that we attempt to analyze the firm-level determinants of export performance among the exporting firms in East African community countries.

1.3 Purpose and Objectives of the Study

General Objective of the Study

To investigate the firm level determinants of export performance among countries in the East African Community.

Specific Objectives

  i. To establish the relationship between firm specific characteristics and export performance in EAC countries.
 ii. To establish the relationship between entrepreneurship characteristics and export performance in EAC countries.
iii. To establish the relationship between business environment factors and export performance in EAC countries.

1.4 Hypothesis of the Study

The study seeks to test the following hypothesis

H1: Firm specific characteristics have no effect on export performance in EAC countries.

H2: Entrepreneurship characteristics have no effect on export performance in EAC countries.

H3: Business environment factors have no effect on export performance in in EAC countries.

1.5 Justification

Empirical studies have analyzed the factors that determine the exporting behavior of firms in many countries and regions across the globe which affect export supply. However detailed studies for firms located in the East Africa region remain scarce in the literature. Therefore, we seek to provide a robust microeconomic evidence about the firm level determinants of export performance. This is to help policymakers set appropriate export promotion policies in line with firm-level factors. This would boost productivity and hence increase exportation.

1.6 Scope of the study

Secondary data from World Bank Enterprise Survey (WBES) on Uganda, Kenya and Tanzania (2013), Rwanda (2011), and Burundi (2014) covering all the East African countries was used and covered around 2754 firms in EAC countries which are manufacturing and services sector firms. In the survey, Tanzania had the largest number of firms surveyed at 813 firms followed by Kenya, Uganda and Rwanda at 781,762 and 241 firms surveyed respectively and then Burundi had the lowest number of firms surveyed at 157.

1.7 Organization of the Study

The study is organized in five chapters. Chapter one presents the introduction of the study and consists of background of the study, problem statement, purpose and objectives of the study, hypothesis of the study, justification of the study, scope of the study and the organization of the study.

Chapter two discusses the empirical literature. Chapter three presents the methodology adopted for the study including the conceptual framework, econometric model specification, data source, variable description and estimation procedure. Chapter four presents the

empirical findings of the study and their discussion. Chapter five comprises of summary of the study conclusions and recommendations. This dissertation also contains reference and the list of appendices.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter discusses the existing literature on theories and concepts on the determinants of export performance. The review entails detailed review of theoretical and empirical literature on the firm level determinants of export performance and presents empirical findings from other studies. This serves as the basis for the development of the conceptual frame work and methodology of the study. It also contains the summary of literature and the research gap that the study intends to fill.

2.1 Theoretical Literature

Traditional trade theories like the Ricardian theory of comparative advantage and Heckscher-Ohlin model of comparative advantage assume homogeneous firms within an industry. These trade theories suggest factor intensities and technical innovations as the standard determinants of trade structure. However, factor intensity theories argue that factor-based advantages may be important if the firm has either a natural monopoly of a particular factor or is located in a particular region where a factor is plentiful.

According to the Heckscher-Ohlin model of comparative advantage, the focus is on the mapping from factor proportions to trade patterns. Following the comparative advantage model, firms producing commodities that make intensive use of the country's abundant factor should have a higher probability of being exporters than firms using a scarce factor intensively (Graner and Isakson (2002). Moving beyond the more traditional range of factors included in the trade models of labor and capital, different dimensions of human capital, organizational resources and natural resources are usually included in the recent models of trade.

Technical innovations reflected in the technology gap theory of trade suggested by Posner (1961) originally and formalized by Krugman (1979), equally with the product cycle theory of Hirsch (1965) and Vernon (1966) as they assign a crucial role to technological innovation in the structure of international trade. Technology-based models of export performance focus on firms' investments in implementing new technologies and development of new products and processes. This capability depends both on the internal strengths of the firm, having links with international firms and on the support available from the regional and national innovation system within which the firm is operating (Metcalfe, 1997). The presence of a research and development (R&D) function within a plant stimulates innovation through the type of technology push process envisaged in linear models of innovation.

Relatedly, a set of theoretical models by Dixit (1989) and Krugman (1989) suggests that low export propensity may be due to the sunk costs in entering the export market at the firm level. The underlying theory is that there are fixed costs of entering the export market that deter those firms operating below a threshold level of efficiency not to join. Their prospective profits from exporting fail to compensate for additional costs (Roberts and Tybout, 1997). Sunk costs may include; the cost of establishing distribution channels and modification of commodities to meet foreign tastes. These costs also vary with the skill of staff, firm age, firm size, ownership and structure of the firm (Graner and Isakson, 2002).

In addition, firm age also captures the extent of a firms learning experience (Graner and Isaksson, 2002). Considering the fact that technically inefficient producers are eliminated by market forces of demand and supply, the older firms tend to be more competitive in the world markets (Roberts and Tybout, 1997). The structure of ownership may also be important for the cost to access foreign markets, acquire information and access to marketing networks abroad (Berry, 1992). Similarly, foreign-owned firms may have better access to finance, making it easier to meet the fixed costs associated with entering the export market. The skill

intensity of operations captures the potential for technological activities such as research and development. Exporting may give the firm higher marketing costs and the larger the firm, the lower the average cost of exporting (Bigsten et al., 2004). Related to sunk costs, firm size may also serve as a proxy for the magnitude of the firm's resources that are important for the decision to enter into the international markets (Bernard and Jansen, 1999; Sterlacchini, 1999; Wagner, 1995).

Firms that are relatively more productive may self-select into the export market because they expect the future returns to be greater than the entry costs (Clerides et al. (1998), Bbaale (2011). Both the learning by exporting and the self-selection arguments predict that exporting firms are more technically efficient than non-exporters.

In conclusion, we note that the new trade models following the seminal work of Krugman (1980) assign explicit role to the firm characteristics. This is mainly because actual production takes place at the firm level and that's where trade decisions are made. Many empirical studies have been conducted across the globe to shade more light on the above notion as discussed below.

2.2 Empirical Literature

There is a growing body of empirical literature focused on analyzing export performance at the firm level using a variety of techniques and data sets. This empirical work has been reviewed extensively by Madsen (1987), Aaby and Slater (1989), Zou and Stan (1998), and Sousa and Alserhan (2002), Sousa, C. M., Martinez-López, F. J., & Coelho, F. (2008). For our study we present the empirical literature that guided our study

Empirical literature like Tookey (1964), Hirsch (1971), and Sarathy (1985) defines Export intensity as the proportion of firms' total sales that are exported. Export propensity is defined as the probability of the firm to participate in the export market or not. Export propensity is

therefore used in our selection model and export intensity is used as a dependent variable to measure Export performance in our study. These measures have been used by Krammer et al. (2018), Zhao and Zou (2002), Gao et al. (2010) have used the same measure of export performance in BRICS, and China respectively

Using plant level data of manufacturing firms' census in Colombia 1981 to 1989, Roberts and Tybout (1997), examined factors influencing the export decision of a firm. They developed a dynamic model of the export decision by a profit maximizing firm and tested for the presence and magnitude of sunk costs. They found out that sunk costs are a large and significant source of export persistence. They also observed that heterogeneity across plants plays a significant role in the probability of exporting by a firm. In addition, plant characteristics like plant size, plant age, and the structure of ownership are positively related to the propensity to export in their study.

In agreement, Aitken et al (1997) using annual data of 2113 Mexican manufacturing plants between 1986 to 1990 found out that plant size, wages, and ownership especially foreign ownership are positively related to the decision to export in a static frame work. They also examined the role of geographic and sectorial spillover on exporting by plants in Mexico and found out that the presence of multinational exporters in the same industry and state increases the probability of exporting by Mexican firms.

Also Alves (2007) in his study of Chilean manufacturing plants, emphasized the factors determining export performance as productivity, firm size, and human capital. He also added that foreign technical likeness and foreign capital participation increases export performance. This is in line with the earlier study by van Dijk (2002) in his study of Indonesian companies. Dijk used a unique database covering all manufacturing firms active in 1995 using both TOBIT and Papke and Woolridge models (PW) where he examined factors that influence

export behavior. He concluded that the relative size of the firm, foreign ownership and age are key factors in export promotion across all firms.

In addition, Redding and Venables (2004) using data on the value of bilateral trade flows for 101 countries during the period 1970–1997 estimated bilateral trade costs using gravity model. They found out that export performance is an internal component related to supply capacity. Internal geography and institutional quality played a significant role in explaining the observed differential in export performance between countries given exporting involves higher entry costs than selling to the domestic market. Therefore, firms need to acquire information about foreign markets, customize products to fit local tastes and set up distribution networks. In relation, Das et al. (2007) estimate that for Colombian exporters, average entry costs range from 344,000 to 430,000 U.S. dollars for a new firm.

Bernard and Jensen (1995) examined the role of labor composition in determining the propensity to export of manufacturing firms in the United States. They found out that firms that have higher ratios of non-production workers have higher propensity to export. In relation to Bernard and Jensen (2004), using a panel of U.S. manufacturing plants found similar results. However, those effects disappeared when using a fixed effect model. They also argued that firms with better quality of labor are expected to produce output with higher value-to-weight ratio and hence, would be more inclined to enter the export market.

Bernard et al. (2006), using a panel of 13,550 U.S. manufacturing plants also concludes that manufacturing firms in developed countries, which are both more skill and capital intensive have a higher propensity to export. This argument is in accordance with the neo-classical trade theory where firms in developed countries would export products that are consistent with the comparative advantage of developed countries. However, Alvarez and Lopez (2005) found that exporting firms in Chile are also characterized by higher levels of skill-intensity in

production compared to non-exporters. This contradicts the comparative advantage of Chile which is relatively abundant in unskilled labor. Therefore, it can be noted that firms with higher ratios of non-production workers are arguably expected to have better managerial and organizational assets which can facilitate the entry into foreign markets.

Relatedly human capital is by proxy. This is mainly dependent on the share of skilled employees or expenditures on training. Wagner (2001) and Wakelin (1998) found human capital to be positively related to exports for samples of German and British companies, while Willmore (1992) and Ramstetter (1999) find negative signs for large samples of Brazilian and Indonesian firms. However, this contradicts the neo-technology theory which predicts that human capital has a positive impact on exports. This is because skills are positively related to the technological capabilities of the firm. Furthermore, highly educated people have certain abilities, such as speaking foreign languages that ease communication with foreign clientele.

With regards to ownership, Multinational enterprises (MNE) are expected to export more than locally owned firms because they enjoy certain benefits not available to locally owned firms. Ramstetter (1999) describes two mechanisms of how this works. First, through access to superior production technology and management know-how which increases efficiency of production. Secondly, MNEs possess sophisticated international marketing networks that facilitate exporting. They also have more information about foreign markets. They normally have stronger business relationships with firms located in foreign countries, particularly those belonging to the same multinational corporation. They also use their multinational distribution networks which facilitate their exporting activities. It also underlines positive implications of foreign ownership for exporting activities of manufacturing firms Aitken et al. (1997), Bernard and Jensen, (2004) in Mexican firms, Alvarez and López, (2005) among Chilean firms, Greenaway et al. (2007) among the UK manufacturing firms.

Regarding the relation between firm size and export performance, Bonaccorsi, (1992) in a study on size and export behavior of Italian companies found that firm size was positively associated with propensity to export and negatively associated with export intensity. An inverted U-shaped relationship between size and export propensity was also found by Wagner, (1995). In a study of 1755, Canadian firms Amesse and Zaccour (1987) concluded that the size-related elasticity of exports is greater than one, but varies widely across different industrial sectors. Similar results were established by Schlegelmilch & Crook (1988) using a sample of British mechanical engineering companies.

Furthermore, exporting firms have been found to be of larger size than non-exporters by Roberts and Tybout, (1997), Bernard and Jensen, (2004), Alvarez and López, (2005), Bernard et al. (2007). It should be noted that firm size proxies for productivity since firms with lower marginal costs are likely to experience faster growth and it also captures economies of scale which promote exporting activities, Bernard and Jensen, (2004), Ottaviano and Martincus, (2011). However, this contradicts with an inverted U-shaped relation that has been found between size and export performance indicating that advantages of size only hold to a certain threshold point when coordination costs cause further expansion to be non-profitable (Wagner (2001).

In regards to innovations, Willmore (1992) and Wagner (2001) find a positive effect of R&D on exports for large pooled samples of Brazilian and German firms respectively whereas Lall (1981) finds R&D to be significantly negative for a sample of about 100 Indian engineering firms.

In a recent past comprehensive review of the literature on Small and Medium Enterprises exporting, innovation and growth, Love and Roper (2015) conclude that there is a strong positive association between innovation, exporting and firm performance. Similarly

innovation and exporting work jointly improve performance. They further emphasize that innovation without access to foreign markets does not seem to provide substantial performance benefits hence there is a strong element of interdependence in this process. Their findings were in line with Golovko and Valentini (2011) who examined whether innovation and exporting were complementary for sales growth in a study of Spanish firms. They concluded that they were complimentary.

However, a study by Lefebvre et al. (1998) finds R&D not significant at all for a number of specialized supplier firms. This is because other factors like economies of scale in production, export marketing, higher capacity for taking risks, better opportunities to raise financing and sufficient managerial, financial, R&D, and marketing resources have been pointed out as causes for a positive impact of size on export performance.

Few studies like Roberts and Tybout, (1997) have found a positive effect of a firm's age on the propensity to export. This is because experience helps firms overcome the difficulties and uncertainties of going international (Westhead et al (2001). This is consistent with the argument that older firms are more efficient and they stay the heat of competitive markets unlike their newer counterparts. Other studies did not find any statistical evidence Ottaviano and Martincus, (2011) or reported negative effects, Alvarez and López, (2005).

With regards to corruption, it has been defined as the abuse of entrusted power for private gains (Shleifer & Vishny (1993). It involves the payment, by firms, of bribes and or other favors to officials in order to solicit preferential access to resources, finance or information (Fredriksson & Svensson. (2003). However, the general consensus in the macroeconomic literature is that corruption hampers all economic activities through increased transaction costs. It also results into greater uncertainty and less transparency in markets (Cuervo-Cazurra (2016). However, others suggest that bribery may actually improve the firm's

competitive position (Martin et al. (2007). For an economy characterized by heavy bureaucracy, bribes may eliminate bureaucratic bottlenecks making it possible for firms to achieve their goals (Krammer (2012), Moen and Weill (2010).

In addition to corruption, many developing economies have a large informal sector, which is more competitive compared to the formal sector. Competition is broadly defined as economic activities that are not recorded in the formal GDP statistics (London & Hart 2004). McCain & Bahl, (2017) show that informal competition is an important aspect of firms in LDC's economies firms due to its effect on new product development and human capital development. Schneider & Enster (2000) found the effect of the degree of competition from the informal sector on export performance is likely to be negative and considerable. This is because a large informal sector means a small number of firms on which tax can be levied. This increases the production cost reducing on the productivity which intern hampers export propensity hence poor performance in the export market.

Furthermore, Fisman and Svensson (2007), indicate that firms that encounter a higher tax rate face exportation challenges. This is because of the increased cost of production hence reducing the output. This in turn results into increased prices for commodities.

2.3 Summary of Literature and Research gap

Most of the studies reviewed above show absence of a comprehensive study that explains firm level determinants of export performance. Studies that have aimed at explaining the various factors that explain export performance like size yielded contradictory empirical results. Some studies have no relationship with others while to others it is negative. The majority of studies have revealed a positive relationship. The age of the firm leaves mixed results. Some studies find age to be positively related to export performance while others find it to be negative. Others do not find it significant at all.

The same trend happens with innovation, labor training and human capital, firm ownership and others. Therefore, the study seeks to provide a robust micro economic understanding of the firm level determinants of export performance in the EAC since there is limited knowledge on the firm level determinants of export performance for firms located in EAC countries. The available studies only focus on export participation (Niringiye et al. (2013) and factors explaining productivity and self-selection (Bbaale (2011). There are conflicting results in studies carried out in developed and emerging economies (Wagner 2001, Yi et al. (2015), Krammer et al, (2017).

CHAPTER THREE: METHODOLOGY

3.0 Introduction

In this chapter we describe the conceptual frame work adopted for the study, the econometric model used to examine the firm level determinants of export performance. The source of the data used for the study, the variables and the estimation procedure in the study.

3.1 Conceptual Frame Work

Basing on literature reviewed we developed a conceptual framework of export performance in two stages with stage one showing export propensity which is the decision of the firm to export and stage two showing export intensity that shows how successful a firm becomes in the export market after the decision evidenced by the proportion of the firms' total sales that are exported.

Aaby and Slater (1989), Zou et al (1998) revealed three common dimensions of factors that influence firms export performance as firm characteristics, entrepreneurship characteristics and business environment. They developed the strategic export model 1989 which focused on firm characteristics, entrepreneurship characteristics and business environment as the major determinants of export performance.

This model was improved by Chetty et al. (1993) who classified firm characteristics to include variables like firm size, age and ownership structure, R&D, quality certification, location of a firm, Entrepreneurship characteristics as defined by Thirkell et al (1998) included managers experience, formal training among others. Business environment characteristics on the other hand included access to finance, corruption, tax rates, and competition.

In this study we establish the relationship between export performance and firm level variables by adopting a two stage model that results into two depend variables of export propensity and export intensity to measure export performance. Export propensity measures the probability of the firm to enter the export market and export intensity captures the proportion of the firm total sales that is exported. These definitions have been used other scholars to measure export performance (Leonidou et al. (2002), Alvarez (2004), Estrin et al. (2008), Filatotchev et al. (2008), Singh (2009), Agnihotri and Bhattacharya (2015), Krammer et al. (2018).

In stage one of the study which is for selection of the firms that participate in export market, we focus on firm specific factors that influence the likelihood of a firm in EAC to becoming an exporter (export propensity). This is because the nature of firm characteristics, entrepreneurship characteristics and the business environment in which the firm operates influences the possibility of the firm participating in the export market (Witt &Lewin,2007; Cuervo-Cazurra, Narula & Un, 2015; Luiz, String fellow &Jefthas, 2017,). The business environment in developing countries often presents an obstacle to exportations by the firm. The firms that often survive the wrath of such environment to produce the level of output self-select and participate in the market. However, such an escape often does not guarantee success to the firm in the foreign markets abroad.

Therefore, this forms the basis for our conceptual frame work that in two stages with of on selections of whether a firm exports or not and on how successful a firm is in the export market and all are dependent on the firm characteristics the entrepreneurship characteristics and the business environments.

Figure 2: Conceptual framework of the firm level determinants of export performance
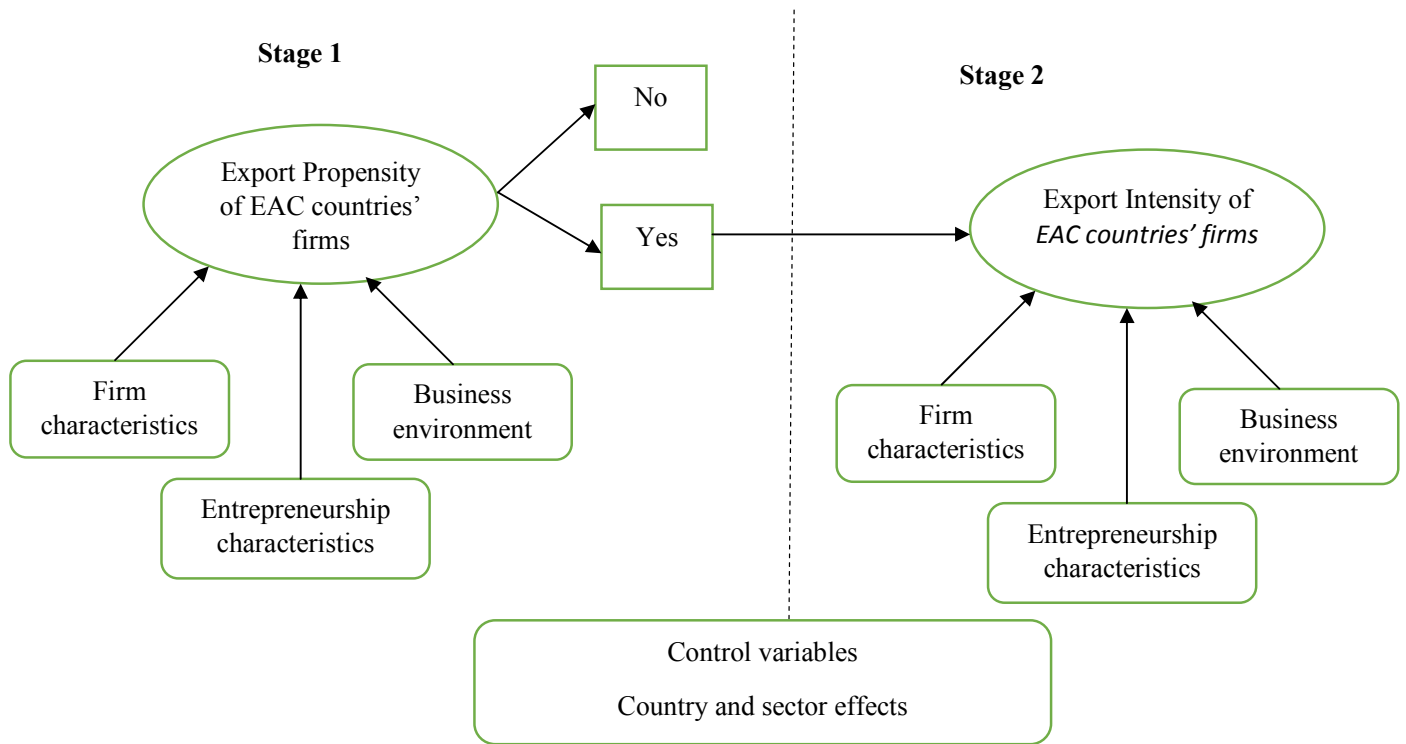
Source: Developed by the author on the basis of literature review

The conceptual framework as presented above shows the relationship between firm level determinants of export performance like firm specific characteristics, entrepreneurship characteristics and business environment factors with export propensity and export intensity of firms in the EAC countries of Uganda, Kenya, Tanzania, Rwanda and Burundi basing on the literature reviewed.

3.2 Empirical Strategy

From the conceptual framework above we adopted a two stage Heckman estimation procedure to estimate export performance. The use of the two stage Heckman helps us in eliminating the possibility of selection bias problem. The Heckman (1997) two stage model is used for our study because of its flexibility and accuracy. It accounts for sample selection bias and uses two different parameters for the main equations of export propensity and export intensity respectively.

In stage 1, we estimate the selection equation with our dependent variable as **export propensity** which is a binary taking on '1'for exporting firms and '0' otherwise. In model 1 we do a Probit estimation of export Propensity on firm characteristics, entrepreneurship characteristics and business environment characteristics. The firm specific characteristics in our model include firm age, firm size, ownership, International quality certificate, research and development, and location of a firm. The entrepreneurship characteristics in the model are formal training of the firms' employees and the managerial experience of the firm's manager and business environment characteristics like access to finance by the firm, corruption, competition from informal sector firms and tax rate are also considered as in model 1.

$$EP_{IC} = \alpha_0 + \alpha_1 firm + \alpha_2 entre + \alpha_3 buz + S_{IC} + R_{IC} + \varepsilon_1 \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots 1$$

In the second stage of our Heckman estimation, we use a linear regression to model export intensity which is our measure of export performance of the selected firms from stage 1. In model 2, we have export intensity (EI) as the dependent variable against independent variables of firm characteristics, entrepreneurship characteristics and business environment. This is done after truncating and eliminating all firms which do not export from the previous estimation. We also include the Inverse Mills Ratio (IMR) calculated from the estimation results of equation 1 as an independent variable to link the first stage and the second stage. The estimated value of the IMR is used to correct the selection bias (Heckman 1979) and if the IMR is significant then selection bias wouldn't be an issue in this model.

However, as a result of estimating the IMR from a non-linear Probit model, there are often possibilities of high correlation between dependent variable and the IMR in the absence of exclusion restrictions. This is evidenced by the existence of very high standard errors of

about 0.9 as in Myers (1988) and Myers and Talarico (1986) and the estimation is possible only with the exclusion of some variables in stage 2 of the estimation.

Similarly, Monte Carlo in his literature demonstrates that the Heckman suffers from inflated standard errors when the covariates in the selection and regression equations are identical (Puhani 2000). Therefore, the best solution to this problem is to incorporate a valid exclusion restriction that would reduce the correlation between the IMR and the dependent variable in stage 2 thus reducing Multicollinearity among predictors as well as the correlation between error terms (Bushway et al., 2007).

However due to data limitations there are no exclusion restrictions included our model 2 though they would improve the explanatory power of the variables in our study.

$$EI_{IC} = \beta_0 + \beta_1 firm + \beta_2 entre + \beta_3 buz + \beta_4 IMR + S_{IC} + R_{I\,\#\#} + \varepsilon_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.2$$

From the above equations 1 and 2 EP represents export propensity, EI shows export intensity, firm shows firm specific characteristics, entre shows entrepreneurship characteristics, buz shows business environment factors, IMR is the Inverse Mills Ratio, S is used to control for sector specific factors, R controls for the country variations and the $\alpha_i \ and \ \beta_i$ represents the coefficients and ε_i show the error terms respectively

3.3. Data Source and Variables

3.3.1. Data Source

 For our analysis of the firm level determinants of export performance in the EAC countries, we used firm level data for Uganda, Kenya, Tanzania, Burundi and Rwanda from the World Bank Enterprise survey (WBES) data set. The WBES collects firm level data worldwide that covers information about the country's business environment. This data is collected systematically using standardized surveys and stratified sampling technique to ensure

representative coverage of the country being studied. For the EAC countries, the data employed covers a period of 2013 for Uganda, Tanzania and Kenya; 2011 for Rwanda and 2 014 for Burundi. The reason for the difference in years for the countries considered is due to the different rounds that the WBES takes across the globe in data correction and the dataset was merged to form one dataset that the study used in the analysis.

3.3.2. Variables

The choice of variables considered in this research is guided by existing literature on firm level determinants of export performance as earlier discussed in literature and availability of data, their practical definition is in Table 3.1.

Table 3.1. Operation description of variables.

Variable name	Unit	Description
Dependent variable		
Export Propensity	Dummy	This is defined as whether the firm participates in exportation of goods and services or not and it takes on '1' if a firm is exporting and '0'otherwise
Export Intensity	Continuous	This is defined as a percentage of firm's sales that is exported and is generated as the percentage of sales that is exported directly through participating themselves in the market and indirectly by use of agents to sell their produce in the foreign market by all exporting firms in EAC countries.
Independent variables		
Firm characteristics		
Age	Continuous	This calculated as the difference between the year the survey was taken in each country and the year when the firm began its operations.
Size	Category	This is generated from the number of full time permanent employees and is categorized into small (below 20 employees), medium (20-99 employees) and large (more than 99 employees).
Ownership	Dummy	Measured as to whether the firm is owned by foreign individual taking on a value of '1' or domestically owned with a value of '0'.
IQC:	Dummy	Refers to whether a firm has an internationally-recognized quality certificate with values of '1' for firms with a quality certificate and '0' for those firms without the quality certificate.
R&D	Dummy	Defined as to whether the firm spent on R&D in the previous fiscal year taking on the value of '1' if the firm spent on R&D and '0' if the firm did not spend on R&D.
Location	Dummy	Defined as to whether the firm is located in the official capital city of the country, taking on a value of '1'if yes and '0' otherwise.
Entrepreneurship characteristics		
Formal training	Dummy	Takes on the value of '1' if the firm had formal training programs for its full time employees in the last fiscal years and '0' otherwise.
Managerial experience	Continuous	Defined as the number of years of experience of the firm's top manager
Business environment		
Access to finance	Dummy	Defined in the dataset as to whether a firm has access to finance in form of loans or credit taking on a value of '1' if the firm found any obstacles obtaining credit and '0' otherwise.
Corruption	Continuous	Defined as a percentage of total annual sales paid in informal payments to public official.
Competition	Dummy	Defined as whether firms face any competition from informal or unregistered firms. In the study, competition takes on a value of '1' if the firm faces competition and '0' otherwise.
Tax rate	Dummy	This relates to whether tax rate is an obstacle to firms and takes on the value of '1' for those without any obstacles and '0' for those firms that found any obstacles.
Control variables		
Sector	Dummy	Two sectors are considered in the study. That is; the manufacturing sector taking on the value of '1' and service sector which takes on the value of '0'.
Country	Category	Defined as the country category with Kenya taking on a value of '0' as reference category while'1'for Burundi, '2'for Uganda , '3' for Tanzania and '4'for Rwanda .

CHAPTER FOUR: STUDY FINDINGS AND DISCUSSION OF RESULTS

4.0 Introduction

This chapter presents the descriptive results and the empirical results from the econometric model used to estimate the firm level determinants of export performance in EAC countries.

4.1 Descriptive Results

Descriptive statistics for the variables considered in the study are provided in table 4.1 for all EAC countries and specific country descriptive statistics are found in appendices from 4 to 8. These enable us to understand the basic characteristics of the data to be used in the empirical econometric analysis.

Table 4. 1: Descriptive statistics

Variable	N	Mean	SD	Min	Max
Dependent variable					
Export Propensity(1=yes)	2754	0.305	0.421	0	1
Export Intensity (in %)	839	12.29	13.03	1	100
Independent variables					
Firm characteristics					
Age(in years)	2754	16.87	13.69	1	107
Size(1=small)	1550	0.563	0.496	0	1
(2=medium)	848	0.308	0.462	0	1
(3=large)	355	0.129	0.335	0	1
Firm ownership(1=foreign)	2754	0.115	0.320	0	1
R&D(1=yes)	2721	0.254	0.435	0	1
IQC (1=yes)	2585	0.216	0.412	0	1
Location (1=capital)	2754	0.389	0.488	0	1
Entrepreneurship characteristics					
Manager's experience(in years)	2754	14.77	9.269	1	57
Formal training (1=yes)	2721	0.366	0.482	0	1
Business environment					
Access finance (1=yes)	2565	0.331	0.460	0	1
Tax rate (1=obstacle)	2754	0.660	0.474	0	1
Corruption	2642	0.753	0.431	0	1
Competition(1=obstacle)	2579	0.676	0.468	0	1
Control variables					
Sector(1=service)	2754	0.583	0.493	0	1

From the sample of 2754 firms considered in the study, 30.5% of these firms export their output both directly and indirectly. The highest number of exporting firms are from Kenya at 40.3% followed by Tanzania, Uganda, Burundi and Rwanda at 34%, 25%, 17% and 12% respectively. Overall 12% of these firm's output is exported on average, of this 20%, 10%, 9%, 9% and 4 % are from Kenya, Uganda, Burundi, Tanzania and Rwanda respectively.

Regarding firm characteristics, on average firm age is at 17 years for EAC countries with the oldest at 107 years and youngest 1-year-old. Ugandan, Tanzanian and Burundian firms are on average of the same age at 15 years while Kenyan firms are the oldest at 22 years with the youngest from Rwanda at 11 years.

With regards to size, majority of the firms are small at 46% with Tanzania having the highest proportion of small firms at 33% followed by Uganda, Kenya, Rwanda and Burundi, at 31%, 23%, 7%, and 5% respectively. The large firms are only 20% with Kenya having the highest share at 45% and Burundi the least at only 3%.

While considering the ownership status, majority of the firms in EAC countries were domestically owned at 88% while 12% of the firms were owned by foreigners. Tanzania had the highest share of domestically owned firms 31% followed by Uganda and Kenya at 28% whereas Rwanda and Burundi account for 8% and 5% respectively.

In addition, 61% of the firms in the EAC region are located in the official capital city of the country say Kampala, Nairobi, Kigali, Bujumbura and Dodoma. Considering the firms sampled, Uganda had the highest percentage with 35% of the firms in Kampala, followed by Kenya which had 32% of the firms in Nairobi, then Rwanda had 22% of the firms in Kigali and Burundi had 10% of the firms in Bujumbura.

From the sample, 22% of the firms in the region had an internationally recognized quality certificate with most of these firms being in Kenya at 38%. Burundi had the least proportion of firms with an internationally recognized quality certificate at 2%. Likewise, an overall fraction of 25% of firms had spent on R&D. In Kenya and Uganda 35% and 30% respectively had under took investment in R&D while in Tanzania, Rwanda and Burundi a proportion of 19%, 11% and 5% of firms had invested in R&D.

With regards to entrepreneurship characteristics, only 37% of firms in the region had offered formal training to their permanent or full time employees. Kenya had the majority at 34 %, Uganda 24%, Tanzania 23%, Rwanda 14% and Burundi 5% of firms reporting to have offered formal training to employees. Furthermore, the overall proportion of firms that had access to finance was 33%. Burundi had the smallest share at 4%, followed by Rwanda at 7%

then Tanzania at 21% with Uganda at 29% and Kenya had the highest number of firms with access to finance at 38%. In addition, the most experienced firm manager in the region had 57 years of experience and one year was the least experienced for the sample. The average experience of the firm manager was found to be 15 years. The most experienced managers were from Kenya with an average of 18years. Uganda, Rwanda and Tanzania had relatively the same experience at 13 years. The least experience was from Burundi at 12 years.

While considering the environment within which firms operate, 66% of firms reported tax rate to be an obstacle in their operations. Most of these firms were from Kenya at 33%, Uganda at 30% and Tanzania at 25%. In Rwanda, 10% of the firms reported tax rate as an obstacle while in Burundi this accounted for only 2%.

With regards to corruption, 75% of firms in the EAC region are reported to have spent a percentage of their sales on bribing public officials. Tanzania had the highest proportion of firms to have encountered corrupt public officials at 31% followed by Uganda at 30% and Kenya at 27%. In Burundi and Rwanda, the fraction of firms to have spent a share of their sales in bribes was only 6% and 5% respectively.

In addition, 68% of firms in the EAC region are reported to have faced competition from informal firms. Categorically, 36% of these firms were from Uganda, 28% from Tanzania, 25% from Kenya while 7% and 5% of the firms were from Rwanda and Burundi respectively.

Finally, we have control variables that capture both sector and country specific factors. From the table above it follows that 58.3 % of the firms in the study are in the service sector relative to 41.7% that are in the industrial sector. Country categories with Kenya as a reference category because its higher levels of GDP relative to Uganda, Tanzania, Rwanda and Burundi are described in appendices with country specific descriptive statistics

4.2 Pairwise Correlation

This is a measure of Multicollinearity and it explains the extent to which each variable is related to another variable. The results reveal the absence of Multicollinearity between variables since all the correlation coefficients in the current study are below the 0.8 standard measure as shown in the table in appendix 9.

4.3 Regression Results

The results of the regression analysis are presented in Tables 4.2 where model 1 show the results of the Probit estimation of export propensity where marginal effects are reported and model 2 show the results of a linear regression of export intensity on firm characteristics entrepreneurship characteristics and business environment with an addition of IMR

Table 4. 2: Regression Analysis for Export Propensity and Export Intensity

VARIABLES	Model 1(Export Propensity)	Model 2(Export 1ntensity)
Firm characteristics		
Firm age	0.008***	0.125*
	(0.002)	(0.072)
IQC	0.630***	0.060
	(0.079)	(0.235)
Firm Ownership	0.509***	0.112**
	(0.108)	(0.057)
Firm size (2=medium)	0.215***	0.068*
	(0.067)	(0.038)
Firm size (3=large)	0.671***	0.375***
	(0.098)	(0.060)
R&D	0.152**	0.147*
	(0.077)	(0.085)
Location	0.293***	0.464***
	(0.063)	(0.070)
Entrepreneurial characteristics		
Formal training	0.207***	-0.041
	(0.069)	(0.098)
Manager's experience	-0.006*	-0.089*
	(0.004)	(0.051)
Business characteristics		
Tax rate (1=obstacle)	0.043	-0.080
	(0.071)	(0.068)
Corruption	-0.020	-0.038
	(0.080)	(0.073)
Competition	-0.087	-0.136*
	(0.071)	(0.070)
Access to finance	-0.029	0.172**
	(0.064)	(0.078)
IMR		-6.812**
		(3.101)
Burundi	-0.545***	0.252
	(0.157)	(0.254)
Uganda	-0.362***	-0.088
	(0.089)	(0.161)
Rwanda	-1.035***	-0.353
	(0.159)	(0.413)
Tanzania	-0.142	-0.413***
	(0.094)	(0.103)
Sector dummy	-0.372***	0.110
	(0.066)	(0.155)
Constant	-0.373	4.071***
	(0.277)	(0.660)
Observations	2,051	498
R-squared		0.205

Note*; a) Standard errors in parentheses*
b) Marginal effects reported for model 1
*c) *** p<0.01, ** p<0.05, * p<0.1*

We begin by presenting the results from the Probit estimation of the first stage of our model. Export propensity as our dependent variable and the independent variables ranging from entrepreneurship characteristics to firm characteristics and to business environment factors (table 4.2).

From model 1, we start by examining the firm characteristics, we establish that age and size have positive and significant impacts on export propensity implying that older and larger firms have higher probability to engage in exporting just like the foreign owned firms. This is similar to firms that engage in R&D and are located in urban areas which results are in lines with Bernard et al (2007) and Alvarez, R. (2007).

With regards international quality certificate(IQC), firms that that possess international quality certificates are found to have higher probabilities of entering into the export market than those that do not have This is because commodities from such firms are considered to be of a higher standard and are easily accepted on the international market. Tsekouras et al (2002) found IQC to be significant in influencing the firm's export performance in his study of the Brazilian firms.

With regards to entrepreneurship characteristics, firms that do undertake formal training of their full time employees are found to have higher probability of exporting. This higher probability is due to the higher quality of output produced by trained highly skilled labor. This labor easily adopts to the use of more advanced technology as evidenced by (BY Aw, et al. (2007) in their study of the Taiwan firms and this gives the firm competitive advantage hence joining the export market.

In addition, Managers' experience is found to have a negative significant impact on export propensity. This means that more experienced managers have lower chances compared to young managers of entering the export market. This is due to the over ambitious nature of young managers who want to enter into the international market (Sala D & Yalcin, E. (2015)

and the desire to become domestic monopolies by experienced managers.

With regard to business environment factors, we establish that competition from the informal sector firms and corruption among the government official makes it difficult for firms to export. They often increase the cost of production hence making it uneconomical to enter the export market. The same happens when there are tax obstacles on export goods which scares away firms from participating in the export market.

Considering the results in the linear regression estimation of the second stage of the Heckman in model 2, Export Intensity is our dependent variable and is used to measure export performance with the independent variable being firm characteristics, entrepreneurship characteristics and business environment characteristics. We also include the Inverse Mills Ratio calculated from the Probit estimation of Export Propensity in stage 1 though its interpretation is done with caution as it would be more meaningful with exclusion restriction that are not present in our model as earlier described in the methodology.

From model 2 we start by examining firm specific characteristics and Firm age is found to be positively significant. This implied that for a one-year increase in firm age export intensity increases by 0.125 percentage points. This is because older firms are more experienced with international trade than the younger ones (Roberts and Tybout.1997, Lefebvre and Lefebvre.2001). Experience also helps firms to overcome the difficulties and uncertainties of going international (Westhead et al., 2001). Older firms are also more efficient because inefficient firms tend to exit competitive markets over time.

For firm-ownership, foreign-owned firms export a bigger percentage of their output than domestically owned firms and it's highly significant. Foreign owned export more than locally owned firms because they enjoy certain benefits not available to locally owned firms. They have access to superior production technology and management know-how which enables them to produce more efficiently. They also possess sophisticated international marketing

networks, which provides them with more information in turn facilitating more exports. This is evidenced by Ramstetter (1999) Aitken et al. (1997), Bernard and Jensen, (2004), Alvarez and López, (2005), Greenaway et al. (2007).

Regarding firm size, large and medium size firms perform better than small firms in the export market and these results are positively significant. This is because of the lower marginal costs that lead to faster growth, and also capturing economies of scale which promote exporting. This is in line with previous studies of Bernard and Jensen, (2004); Ottaviano and Martincus, (2011). However, the result contradicts with an inverted U-shaped relation that has been found between size and export performance. It indicates that advantages of size only hold to a certain threshold point when coordination costs cause further expansion to be non-profitable (Wagner, 2001).

For Research and Development (R&D), firms that invest in R&D export more than firms that do not invest in research and development. This is because R&D increases the quality of output being produced by the firm and thus increasing exportation which result was equally established by Lefebvre et al, (1998) and Wagner (2001) in Germany.

With regards to location firms that are located in the official capital city of the EAC countries say Kampala, Nairobi, Kigali, Bujumbura and Dodoma export more than firms located in other areas of the country. This is because of easy access to information and well developed infrastructure that makes the cost of producing high quality products low. These results are in line with Niringiye et al. (2010) in East Africa who concluded that firms in Nairobi, Kigali, Dar es salaam, Kampala and Bujumbura export more than those located in the country side.

With regards to entrepreneurship characteristics we considered managers experience as formal training was insignificant, for managers' experience, we established that an extra year of experience obtained by a firm manager leads to a decrease in export intensity. However,

the results contradict literature that shows that managers with more experience in dealing with international trade export more than firms with whose managers have limited experience (Sala D. & Yalcin E.2015).

With regards to business environment factors we considered competition and access to finance as the tax rate and corruption are insignificant in our model.

For access to finance, it follows that firms that can easily access finance export a larger percentage of sales than those that do not have access to finance. This is because these firms have enough financial resources to meet expenses and costs associated with the exportation. This is in line with Wang, Y. (2016) who found access to finance to be the biggest obstacle to firm growth and export performance thus confirming our results.

With regards to competition, firms that face a lot of informal competition as an obstacle perform poorly than those which are not affected. This is because informal competition affects the technological development, human resource development practices, tax rate and avoidance strategies of the formal sector since the informal sector is very large very large in EAC countries (Gokalp et al 2017, McCann & Bahl 2017). A large informal sector also means there is a small number of firms on which taxes can be levied. In the long run, this reduces the provision of public goods by government. Firms in the formal sector get to bear the weight of the tax burden (Gerxhani, 2004). It also leads to less effectiveness of macroeconomic policies (Mara 2011).

The Inverse Mills Ratio (IMR) is highly statistically significant in all models which shows that the error terms in the first and the second stage of the regressions are correlated with each other. This thus supports our choice of the Heckman procedure. This helped in dealing with selection biases since the IMR is significant at 5%. However, the inclusion of the IMR often results in endogeneity especially when the explanatory variables in both stage 1 and 2

are similar. This has adverse consequences on model estimates but due to data limitations we failed to have exclusion restrictions.

Finally, we also included sectorial dummies and country categories to account for both country and sectorial heterogeneity of the different firms in East African Community countries and the coefficient of determination is sufficiently enough for a cross section study.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter summarizes the major findings and implication of the study. It draws conclusions on the findings of the study, presents the recommendations for management and policy makers to improve competitiveness of East African exporting firms and presents recommendations for future studies basing on limitations of this study.

5.1 Summary of the study

The study examined the firm level determinants of export performance in EAC countries and considered the firm level characteristics, entrepreneurship characteristics and business environment characteristics as the major determinants of export performance by firms which yielded a number of findings. The study also considered 2746 firms in the study 30% of which exported their output. The study used data from WBES and used Stata for analysis to get the descriptive statistics, correlation matrix and regression results on the firm level determinants of export performance in East Africa.

The examination of the relationship between firm specific characteristics, entrepreneurship characteristics and business environment characteristics and export performance made the study to establish the general purpose and specific objectives of the study. We developed three hypotheses of **H1**: Firm specific characteristics have no effect on export performance in EAC countries, **H2**: Entrepreneurship characteristics have no effect on export performance in EAC countries and **H3**: Business environment factors have no effect on export performance in EAC countries.

To test these hypothesis, we adopted a two stage Heckman model to empirically establish the relationship between firm characteristics and export performance. The model involved the use of two dependent variables of export propensity and export intensity in stage one and two

respectively. In stage one, we analyzed models 1 which presented the results of the Probit estimation of the firm level determinants of export propensity and we established that firm age, size, foreign ownership, possession of IQC, location of a firm in the capital, access to finance, formal training of the firm employees and manager's experiences increased the firms export propensity. However, this is equally reduced by corruption and competition from the informal sector firms and high taxes imposed on exports.

In stage 2, we estimated a linear regression to establish the relationship between firm characteristics and export intensity in models 2. We established that firm age, size, foreign ownership, location of a firm in the capital city and access to finance, increased the firms export intensity. On the other hand, tax obstacles, corruption and competition from the informal sector firms cripple export intensity.

5.2 Conclusion

This study builds on a number of previous studies that have been conducted on the determinants of export performance using a variety of predictor variables by being able to build a frame work of studying the firm level determinants of export performance in East African community countries. The study adopts a two stage Heckman that uses two dependent variables of export propensity in stage one for selection and export intensity in stage two for estimating intensity respectively. We posit that export propensity and export intensity are a result of an interplay between the firm specific characteristics, entrepreneurship characteristics and business environment factors. We use the World Bank Enterprise Survey data to capture these effects. We use a Probit estimation of the export propensity and pooled OLS on export intensity which made it possible for us to test the three hypothesis developed so as to achieve our study objectives.

5.3 Recommendations

The findings of the study have made a basis for the following recommendations to policy makers involved in exporting and for future research.

5.3.1 Recommendations to firms and Policy makers

The study provides the following recommendations for policy formulation based on the findings of the study

Policy makers should appreciate that export success goes beyond macroeconomic programs and policies but more importantly depend on firm characteristics entrepreneurship, characteristics and business environment factors. Therefore, they should concentrate on building the competencies of firms, capabilities of entrepreneurs, and improving the business environment where firms operate from through:

Providing a conducive business environment to the firms engaged in exportation through availing cheap credit to the firms and formalization of firms in the informal sector as this would increase on the volume of firm sales that are put on the external market.

The government should help and encourage firms to acquire international quality certification that would ease exportation. This would lead to higher levels of export performance and more investment in R&D that would lead to the production of high quality goods.

Firms should undertake extensive training of their workers to make them adaptable to the ever changing technology and production of goods that can be consumed in more advanced markets. Managers with high competence and ability to market the firm products in the global market should be equally hired by firms to boost their exports.

Finally, governments of the EAC Countries must improve their institutional environment at home to make it possible for firms to flourish both in the domestic and the foreign market.

5.3.2 Recommendations for further research

Basing on the various limitations of our study like selection bias, Endogeneity issues and limited data that made it difficult to use exclusion restrictions, there is need for further research in the understanding of the firms' export behavior and the following are the recommendations.

The cross section nature of our data set prevents us from controlling for other time variant variables that may affect the firms Export behavior but are not captured in the survey. Therefore, as more rounds of the World Bank Enterprise Survey (WBES) are conducted future studies may employ panel techniques to control for this unobserved heterogeneity.

We have made a great effort to control for selection bias issues by adopting the Heckman sample selection model and two stage estimation without exclusion restrictions. Future studies should use exclusion restrictions to verify our findings and see if the variables would behave differently in presence of exclusion restrictions.

We cannot also claim that our findings are free from causality issues. It's generally recognized that it's difficult to perfectly control for causality issues. Therefore, future research should adopt other methodologies like case study or survey method to verify our findings.

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APPENDICES

Appendix 1: Exports growth by country since 1996
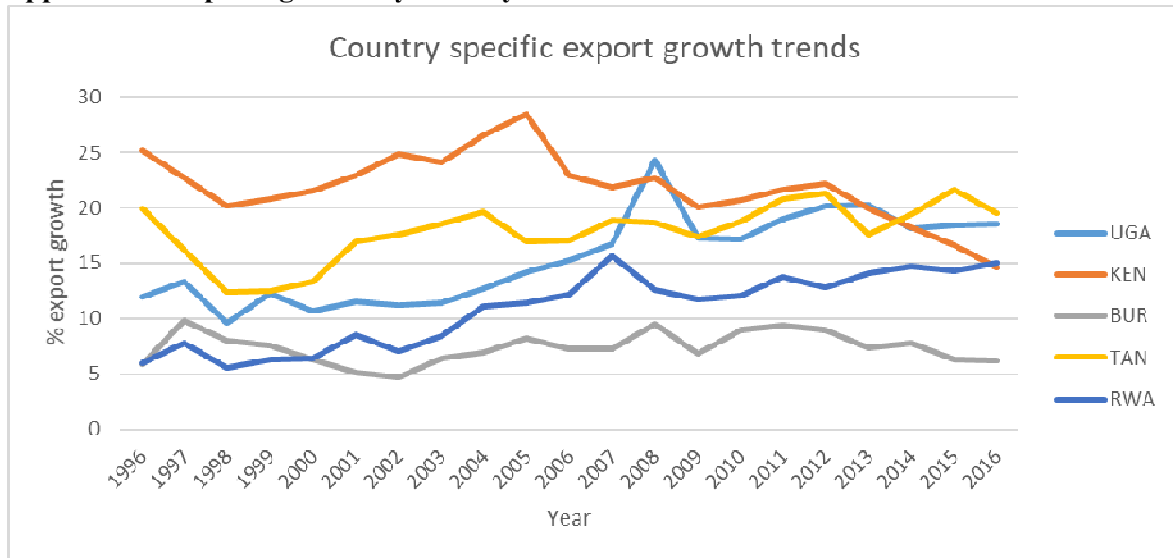
Appendix 2: Export of goods and services since 1996

Appendix 3: List of countries in the sample

	Country	Year of the survey	Frequency	Percentage
1	Uganda	2013	762	27.59
2	Kenya	2013	781	28.57
3	Tanzania	2013	813	29.44
4	Rwanda	2011	241	8.73
5	Burundi	2014	157	5.68

Appendix 4: Descriptive statistics for Kenya

Variable	N	Mean	SD	Min	Max
Dependent variable					
Export propensity(1=yes)	781	0.374	0.484	0	1
Export intensity (%)	781	28.37	17.86	1	100
Independent variables					
Firm characteristics					
Firm age(years)	781	22.76	17.78	1	107
Size (2=medium)	781	0.342	0.475	0	1
(3=large)	781	0.204	0.403	0	1
Ownership (1=foreign)	781	0.0883	0.284	0	1
R&D (1=yes)	773	0.309	0.462	0	1
IQC(1=yes)	734	0.708	0.455	0	1
Location(1=capital city)	781	0.553	0.497	0	1
Entrepreneurship characteristics					
Managers experience(years)	781	18.32	10.72	1	57
Formal training(1=yes)	775	0.434	0.496	0	1
Business environment characteristics					
Tax rate(1=obstacle)	781	0.777	0.416	0	1
Corruption	769	0.711	0.453	0	1
Competition(1=obstacle)	749	0.573	0.495	0	1
Access to finance(1=yes)	742	0.609	0.488	0	1
Control variable					
Sector dummy(1=service)	781	0.519	0.500	0	1

Appendix5: Descriptive statistics for Burundi

Variable	N	Mean	SD	Min	Max
Dependent variable					
Export propensity(1=yes)	157	0.172	0.379	0	1
Export intensity (%))	157	33.54	8.615	10	100
Independent variables					
Firm characteristics					
Firm age(years)	157	15.08	13.73	1	87
Size (2=medium)	157	0.408	0.493	0	1
(3=large)	157	0.0764	0.267	0	1
Ownership (1=foreign)	157	0.146	0.355	0	1
R&D (1=yes)	157	0.223	0.418	0	1
IQC(1=yes)	152	0.934	0.249	0	1
Location(1=capital city)	157	0.293	0.457	0	1
Entrepreneurship characteristics					
Managers experience(years)	157	12.76	9.431	1	46
Formal training(1=yes)	157	0.312	0.465	0	1
Business environment characteristics					
Tax rate(1=obstacle)	157	0.274	0.447	0	1
Corruption	154	0.818	0.387	0	1
Competition(1=obstacle)	141	0.582	0.495	0	1
Access to finance(1=yes)	156	0.378	0.487	0	1
Control variable					
Sector dummy(1=service)	157	0.624	0.486	0	1

Appendix 6: Descriptive statistics for Tanzania

Variable	N	Mean	SD	Min	Max
Dependent variable					
Export propensity(1=yes)	813	0.161	0.368	0	1
Export propensity (1=yes)	813	27.86	6.764	2	95
Independent variables					
Firm characteristics					
Firm age(years)	813	15.35	10.78	1	96
Size (2=medium)	813	0.269	0.444	0	1
(3=large)	813	0.0984	0.298	0	1
Ownership (1=foreign)	813	0.0947	0.293	0	1
R&D (1=yes)	803	0.167	0.373	0	1
IQC(1=yes)	776	0.778	0.416	0	1
Location(1=capital city)					
Entrepreneurship characteristics					
Managers experience(years)	813	13.18	7.748	1	50
Formal training(1=yes)	793	0.295	0.456	0	1
Business environment characteristics					
Tax rate(1=obstacle)	813	0.555	0.497	0	1
Corruption	729	0.859	0.349	0	1
Competition(1=obstacle)	760	0.645	0.479	0	1
Access to finance(1=yes)	752	0.814	0.390	0	1
Control variable					
Sector dummy(1=service)	813	0.609	0.488	0	1

Appendix 7: Descriptive statistics for Rwanda

Variable	N	Mean	SD	Min	Max
Dependent variable					
Export propensity(1=yes)	241	0.108	0.311	0	1
Export intensity (%)	241	11.66	12.14	2	100
Independent variables					
Firm characteristics					
Firm age(years)	241	11.23	9.881	1	52
Size (2=medium)	241	0.373	0.485	0	1
(3=large)	241	0.154	0.361	0	1
Ownership (1=foreign)	241	0.178	0.384	0	1
R&D (1=yes)	240	0.308	0.463	0	1
IQC(1=yes)	226	0.863	0.345	0	1
Location(1=capital city)	241	0.0373	0.190	0	1
Entrepreneurship characteristics					
Managers experience(years)	241	13.34	8.793	1	42
Formal training(1=yes)	241	0.577	0.495	0	1
Business environment characteristics					
Tax rate(1=obstacle)	241	0.743	0.438	0	1
Corruption	235	0.421	0.495	0	1
Competition(1=obstacle)	220	0.541	0.499	0	1
Access to finance(1=yes)	231	0.511	0.501	0	1
Control variable					
Sector dummy(1=service)	241	0.689	0.464	0	1

Appendix 8: Descriptive statistics for Uganda

Variable	N	Mean	SD	Min	Max
Dependent variable					
Export propensity(1=yes)	762	0.210	0.408	0	1
Export intensity (%)	762	20.79	8.178	2	100
Independent variables					
Firm characteristics					
Firm age(years)	762	14.60	10.29	1	86
Size (2=medium)	762	0.274	0.446	0	1
(3=large)	762	0.0866	0.281	0	1
Ownership (1=foreign)	762	0.139	0.346	0	1
R&D (1=yes)	748	0.279	0.449	0	1
IQC(1=yes)	697	0.811	0.392	0	1
Location(1=capital city)	762	0.503	0.500	0	1
Entrepreneurship characteristics					
Managers experience(years)	762	13.68	8.245	1	41
Formal training(1=yes)	755	0.317	0.465	0	1
Business environment characteristics					
Tax rate(1=obstacle)	762	0.706	0.456	0	1
Corruption	755	0.784	0.412	0	1
Competition(1=obstacle)	709	0.879	0.327	0	1
Access to finance(1=yes)	684	0.792	0.406	0	1
Control variable					
Sector dummy(1=service)	762	0.580	0.494	0	1

Appendix 9: Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Export propensity	1																
2	Export intensity	0.23*	1															
3	Firm age	0.09*	0.23*	1														
4	Size(medium)	0.01	0.07*	0.06*	1													
5	Size(large)	0.09*	0.30*	0.27*	-0.27*	1												
6	Ownership structure	0.01	0.11*	0.05*	0.06*	0.15*	1											
7	R&D	0.02	0.18*	0.13*	0.06*	0.23*	0.08*	1										
8	IQC	-0.13*	-0.30*	-0.22*	-0.06*	-0.36*	-0.20*	-0.21*	1									
9	Managers experience	0.03	0.10*	0.43*	0.06*	0.16*	-0.00	0.06*	-0.11*	1								
10	Formal training	-0.06*	0.03	0.01	0.00	-0.01	-0.03	0.02	0.01	-0.01	1							
11	Location	0.01	0.15*	0.10*	0.06*	0.21*	0.10*	0.31*	-0.25*	0.06*	0.01	1						
12	Tax rate	0.21*	-0.01	0.04*	-0.06*	-0.10*	-0.09*	-0.11*	-0.01	-0.04	-0.06*	-0.11*	1					
13	Corruption	0.05*	-0.02	0.01	-0.02	-0.03	-0.08*	-0.02	0.03	0.01	-0.22*	-0.04	0.13*	1				
14	Competition	-0.06*	-0.09*	-0.06*	-0.06*	-0.10*	-0.04	-0.01	0.08*	0.04*	-0.03	0.02	-0.06*	0.07*	1			
15	Access to finance	-0.01	-0.14*	-0.13*	-0.12*	-0.16*	0.01	-0.19*	0.13*	-0.10*	-0.01	-0.15*	0.12*	0.03	0.04*	1		
16	Country	0.20*	0.03	0.10*	0.05*	0.08*	-0.05*	-0.04	-0.04*	0.07*	-0.06*	0.06*	0.14*	-0.05*	-0.27*	-0.13*	1	
17	Sector dummy	-0.05*	-0.23*	-0.22*	-0.06*	-0.19*	-0.04*	-0.08*	0.13*	-0.14*	0.07*	-0.04*	-0.00	-0.08*	0.08*	0.11*	0.01	1