

**RELATIVE PROFITABILITY BETWEEN EAST AFRICAN COMMUNITY
TRADING AND NON-TRADING SMALL AND MEDIUM AGRIBUSINESS
ENTERPRISES IN RWANDA**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
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ABSTRACT

The creation of customs Union in the East African Community (EAC) block was supposed to enhance and smoothen trade, enable traders to gain more profit from their business and encourage formal trade. However, Non-Tariff Barriers (NTBs) continue to exist and affect trade within the region. The aim of this study was to analyse relative profitability between EAC trading and Non-trading Rwanda Small and Medium Agribusiness Enterprises (SMAEs) and factors that influence the participation in the EAC cross border trade. Specifically, the present study aims at determining factors influencing SMAEs's decisions to participate in cross-border trade, to compare profits between EAC trading and non-trading SMAEs and to analyse the effect of NTBs and transport cost on profitability of SMAEs participating in EAC cross border trade. The results from binary logistic regression show that the decision to participate is significantly influenced by distance from the border, age of the firm, number of employees, management and ownership status of the firm and decision to start the business. Results from gross margin analysis show that gross margin per kilogram of beans, Irish potato, carrot and onion is greater when they are sold in the EAC market than gross margin per unit when those commodities are sold in the domestic market. In addition, results from T-test confirmed that there is significant difference between the gross margin for beans, Irish potato and onion for EAC trading when compared with non-trading. Results from multiple linear regression proved that the profit for EAC trading SMAEs is significantly affected by transport cost, clearing fees, customs charges and bribes. Therefore, EAC trading is more profitable than non-trading. However, high transport cost and Non-Tariff barriers affect the profitability of EAC trading enterprises. Furthermore, SMAEs should be confident to participate in the EAC trade and Rwanda Ministry of Trade and Industry should enhance strategies for supporting cross border export.

DECLARATION

I, Sabine Abewe Hategekimana, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own work done within the period of registration and that it has neither been submitted nor being concurrently submitted in any other institution.

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TABLE OF CONTENTS

ABSTRACT.....	ii
DECLARATION.....	iii
COPYRIGHT.....	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vii
LIST OF TABLES	xii
LIST OF FIGURES	xiv
LIST OF APPENDICES	xv
LIST OF ABBREVIATIONS	xvi
 CHAPTER ONE	 1
1.0 INTRODUCTION	1
1.1 Background Information	1
1.2 Problem Statement.....	2
1.3 Justification of the Study	4
1.4 Objectives of the Study	4
1.4.1 Overall objective	4
1.4.2 Specific objective	4
1.5 Hypotheses	5
1.6 Organization of the Dissertation.....	5

CHAPTER TWO	6
2.0 LITERATURE REVIEW	6
2.1 Concept of SMAEs Versus SMEs	6
2.2 Concept of Non-Tariff Barriers	7
2.3 Theoretical Framework	9
2.4 Regional Integration	9
2.4.1 Regional integration in Africa	10
2.4.2 Profit maximization	10
2.5 Factors Influencing the Decision to Participate in Export Market	11
2.5.1 Theory on participation in export market	11
2.5.2 Empirical studies on foreign market participation	12
2.6 Rwanda Cross Border Trade with EAC	12
2.7 Profitability of SMEs	13
2.8 Factors Influencing Profitability	14
2.9 Analytical Review	14
2.9.1 Discrete choice model	14
2.9.2 Gross margin of an enterprise	15
CHAPTER THREE	17
3.0 METHODOLOGY	17
3.1 Conceptual Framework	17
3.2 Analytical Framework	18
3.2.1 Binary logistic regression model	18
3.2.2 Specified model	19
3.2.3 Gross Margin analysis	20

3.2.4	Multiple linear regression analysis.....	20
3.3	Study Area.....	21
3.4	Research Design.....	23
3.4.1	Sampling.....	23
3.4.2	Sample size.....	23
3.4.3	Data collection.....	24
3.5	Data Analysis.....	24
CHAPTER FOUR.....		25
4.0	RESULTS AND DISCUSSION.....	25
4.1	Socio-economic Characteristics	25
4.1.1	Social characteristics	25
4.1.2	Economic characteristics.....	26
4.1.2.1	Alternative occupation and major activity	26
4.1.2.2	The reason for starting the business	27
4.1.2.3	The starting capital	28
4.1.2.4	Non participation of SMAEs in the EAC trade.....	29
4.2	Firm Characteristics.....	30
4.2.1	Firm age.....	30
4.2.2	Number of employees	31
4.2.3	Ownership status and Management of the firm	32
4.2.4	Annual turnover of SMAEs.....	32
4.3	Market Characteristics.....	33
4.3.1	Rwanda staple food and horticulture market characteristics.....	33
4.3.1.1	Domestic market.....	33
4.3.1.2	Regional market	34

4.3.2	Distribution and characteristics of SMAEs by products traded	35
4.3.2.1	Type of products traded.....	35
4.3.2.2	Source and buyers of agricultural products	36
4.3.2.3	Transportation and means of transport.....	37
4.3.2.4	Contract agreement.....	38
4.3.3	Flow of commodities considered	38
4.3.3.1	Flow of Irish potato	38
4.3.3.2	Flow of beans	40
4.4	Results of Binary Logistic Regression	42
4.5	Profitability of SMAEs.....	44
4.5.1	Gross margin for EAC trading and Non-trading SMAEs	44
4.5.2	Independent Sample t-tests Statistics	45
4.5.2.1	Comparison of gross margin for beans.....	45
4.5.2.2	Comparison of gross margin for irish potato.....	45
4.5.2.3	Comparison of gross margin for carrot	46
4.5.2.4	Comparison of gross margin for onion.....	46
4.6	Factors affecting Profitability of SMAEs.....	46
4.6.1	Transport cost.....	46
4.6.2	Non-tariff barriers	48
4.6.2.1	Export customs charges at Rwanda-Uganda border.....	48
4.6.2.2	Export customs charges at Rwanda-Burundi border.....	49
4.7	Results from Multiple Linear Regression (MLR)	49
4.8	Perception of Traders towards NTBs and Other Trade Barriers	51
4.8.1	Government and technical standards regulation, registration and license .	51
4.8.2	Transportation, Business environment and Competition	52
4.8.3	Customs charges and procedure	53

4.8.4	Police road block and weighbridge	53
4.8.5	Political barriers and corruption	54
CHAPTER FIVE		56
5.0	CONCLUSION AND RECOMMANDATIONS	56
5.1	Conclusion	56
5.2	Recommendations	57
REFERENCES.....		59
APPENDICES		68

LIST OF TABLES

Table 1:	SMEs definition	7
Table 2:	Rwanda export and import within EAC cross border countries	13
Table 3:	Analytical Framework.....	18
Table 4:	Variables description and expected sign.....	20
Table 5:	Variables to be used	21
Table 6:	Distribution of respondent by their social characteristics	26
Table 7:	Major activity.....	26
Table 8:	The reason for starting the business.....	28
Table 9:	Distribution of respondent by starting capital	29
Table 10:	Non-participation of SMAEs in the EAC trade	30
Table 11:	Awareness about EAC market opportunities	30
Table 12:	Distribution of firm age by SMAEs.....	31
Table 13:	Distribution Ownership status and Management of SMAEs.....	32
Table 14:	Distribution of respondent by annual turnover	33
Table 15:	List of major staples markets for EAC sub-region	35
Table 16:	Source of products traded by SMAEs.....	37
Table 17:	Means of transport used by SMAEs	37
Table 18:	Contract agreement	38
Table 19:	Binary logistic regression results	44
Table 20:	Gross margin analysis results.....	45
Table 21:	Two sample T-tests with equal variances results.....	46
Table 22:	Transport cost by commodity	47
Table 23:	Transport cost by Commodity and destination for EAC trading SMAEs.....	48

Table 24: Non-tariff barriers related cost.....	48
Table 25: Rwanda – Uganda Border charges.....	49
Table 26: Rwanda -Burundi border charges	49
Table 27: Multiple linear regression results.....	50
Table 28: Government and technical standards regulations, registration and license	52
Table 29: Transportation, Business environment, and Competition.....	52
Table 30: Customs offices charges, procedure, and police roadblock.....	54
Table 31: Political, languages, customs barriers and corruption.....	55

LIST OF FIGURES

Figure 1:	Conceptual framework (own conceptualization from theory).....	18
Figure 2:	Representation of the study area.....	22
Figure 3:	Distribution of respondent by alternative occupation.....	27
Figure 4:	Number of employees per SMAE	31
Figure 5:	Type of products traded by SMAEs	36
Figure 6:	Irish potato flow within and out of Rwanda	39
Figure 7:	Beans flow within and out of Rwanda.....	40
Figure 8:	Onion and carrot flow within and out of Rwanda	41

LIST OF APPENDICES

Appendix 1:	Government and technical standards regulations, registration and license	68
Appendix 2:	Illegal taxation, exchange rate and Informal trade.....	69
Appendix 3:	Transportation, Business environment and Competition.....	70
Appendix 4:	Customs offices charges and procedure and police road block	71
Appendix 5:	Political, languages, customs barriers and corruption	72
Appendix 6:	Other trade barriers	73
Appendix 7:	Questionnaire for Small and Medium Agribusiness Enterprises exporting to EAC countries	74
Appendix 8:	Questionnaire for SMAEs trading in the domestic market.....	78

LIST OF ABBREVIATIONS

AAA	African Agribusiness Academy
AERC	Africa Economic Research Consortium
AfDB	African Development Bank
CBT	Cross Border Trade
CIP	Crop Intensification Program
CMAAE	Collaborative Masters for Agriculture and Applied Economics
DRC	Democratic Republic of Congo
EAC	East African Community
EAT	Enabling Africa Trade
EDPRS	Economic Development for Poverty Reduction
GDP	Gross Domestic Product
MINAGRI	Ministry of Agriculture and Animal Resources
MINEAC	Ministry of East African Community
MINICOM	Ministry of Trade and Industry
MLR	Multiple Linear Regression
NAEB	National Agriculture Export Board
NTBs	Non-Tariff Barriers
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Square
PSTA	Strategic Plan for the Transformation of Agriculture
SMAEs	Small and Medium Agribusiness Enterprises
SMEs	Small and Medium Enterprises
WTO	World Trade Organization

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Small and Medium Enterprises (SMEs) play an important role in poverty alleviation (OSAA, 2008). They serve as the backbone of the economies of developing countries where they can contribute up to two-thirds of employment opportunities (WTO, 2013). Moreover, the entry of SMEs into export markets allows these entities to benefit from economies of scale and usually leads to increased innovation, productivity, capital formation and employment (Moore, 2005). Therefore, Customs union and other form of regional integration facilitate the entry of SMEs into foreign market (AfDB, 2010). The East African Community (EAC) is one of the four regional blocks in Africa; it represents an important market, which offers potential opportunities for trade expansion, growth and poverty reduction in member countries, if well integrated (AfDB, 2010).

Rwanda is part of the EAC countries and has a private sector led-economy. SMEs account for more than one million jobs in the country, which includes 123 572 operational companies of which 99% are SMEs (MINICOM, 2013). The SMEs in the country have contributed substantially in economic growth and poverty reduction in both rural and urban areas. The improvement is also largely driven by government agricultural development programs such as the Crop Intensification Program (CIP) and regional economic integration and cooperation. Agribusiness SMEs also play an important role in production, processing, and commercialization of agricultural products but their contribution can not be separated from that of agricultural sector in general in a country where the sector employs about 90% of the population, contribute about 36% of GDP and accounts for 70% of revenue from export (IPAR, 2012).

However, despite the positive economic outlook, substantial challenges remain. Rwanda is landlocked, with limited land availability, natural barriers to trade, and limited resources. The country has a considerable trade deficit. In 2011, exports were \$466 million while imports were \$1 776 million of which agriculture comprises 36.7% of exports, and 14.2% of imports (EAT, 2013). In addition, agricultural production remains mainly used for domestic consumption, although the share of marketed production has increased from 22% to 27% over the past five years. Crop Intensification Program (CIP) launched in 2007, focusing on six priority crops (maize, wheat, rice, Irish potatoes, beans, and cassava) increased production substantially (EAT, 2013). From 2008 to 2013, the average production ranged between 175 000 MT and 580 000 MT for maize, between 1.2 Million MT and 2.3 Million MT for Irish potato, between 300 000 MT and 440 000 MT for beans and 65 000 to 80 000 MT for wheat (MINAGRI, 2014). Its activities include among others developing agricultural marketing and stimulating private sector input and output markets. While production increase offer potential benefits of developing markets in Rwanda, PSTA (2013) recognized that under developed markets is a constraint to agricultural growth. To this end, the PSTA emphasizes improved market access and increased prices of Rwandan exports as essential components of future market development.

1.2 Problem Statement

The creation of customs Union in the EAC block was supposed to enhance and smoother trade, enable traders to gain more profit from their business and encourage formal trade. However, as reported by Masinjila (2009), traders on the borders have common belief that East Africa Protocol is in favour of “big traders” just like the old tax regime. The existence of Non Tariff Barriers (NTBs) increases the cost of doing business due to costs of transit, delay in transport and bribes (EABC, 2005). Moreover, poor management

of transport and high transport cost in the region are decisive obstacles to the development of regional trade (Pannhause, 2010). Despite those challenges, as reported by World Bank (2011), EAC cross border trade is the main source of revenue for SMAEs that are engaged in cross border trade but the profitability of those traders is not well documented.

According to EAC facts and figures (2013), Rwanda imports more than is exporting and its share in regional trade is low compared to other EAC countries. The development of cross-border and regional markets is one aspect of market development and provides a means of utilizing surpluses to boost exports and reduce poverty. Within this context, the Economic Development and Poverty Reduction Strategy (EDPRS, 2013-2018) also recognize needs for greater private sector participation and support to SMEs. However, despite efforts aimed at improving private sector participation in EAC trading ; the actual participation is still low (MINICOM, 2012) that is why the present study among other things aims at identifying the factors influencing SMAEs decision to participate in EAC cross border trade.

Jagwe *et al.* (2009) conducted a market survey on banana trade in Rwanda; Burundi and South Kivu province of the Democratic Republic of Congo. World Bank (2011) looked on opportunities and provided information on the potential for cross border trade between the DRC and Burundi, Rwanda and Uganda, to document the conditions and problems that traders face in crossing the borders. To complement what others have done, there is a need to document on relative profitability and factors that can influence the decision to participate in EAC trade. Thus, a comparative analysis of profitability of participant and non-participant Rwanda SMAEs in EAC cross border trade and factors, which influence the decision to participate in the export market.

1.3 Justification of the Study

For many years, research has been a key tool towards making informed decisions and formulation of sustainable policies. Therefore, this research is expected to fill the knowledge gap on factors influencing the decision to participate in the EAC cross border trade and propose measures on how to enhance SMAEs competitiveness and development. The study envisages coming up with recommendations for promotion of EAC cross border trade after providing information on relative profitability and perceptions of traders on rules and regulations that defines the trade regime in EAC.

1.4 Objectives of the Study

1.4.1 Overall objective

The overall objective of this study is to analyse relative profitability and factors that influence the participation in the EAC cross border trade between East Africa Community (EAC) trading and Non-trading Rwanda Small and Medium Agribusiness Enterprises (SMAEs).

1.4.2 Specific objective

- (i) To determine factors influencing SMAEs's decisions to participate in cross-border trade.
- (ii) To compare profits between EAC trading and non-trading SMAEs.
- (iii) To analyse the effect of non tariff barriers and transport cost on profitability of SMAEs participating in EAC cross border trade.

1.5 Hypotheses

- (i) SMAEs's characteristics do not influence the decision to participate in EAC cross border trade.
- (ii) There is no difference in profit between EAC trading and non-trading SMAEs.
- (iii) Non-tariff barriers and transport cost have no significant effect on SMAEs profitability.

1.6 Organization of the Dissertation

This dissertation is organized into five chapters. The first chapter provides the background to the study, the problem statement and its justification, research objectives and tested hypotheses. The second chapter reviews the theoretical and empirical literature. The third chapter provides the description of the study area and the methodology used to collect and analyse the data. The fourth chapter provides results and discussion while the last chapter provides conclusion and recommendations drawn from the study findings.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Concept of SMAEs Versus SMEs

According to Organisation for Economic Co-operation and Development (OECD, 2004), Small and medium-sized enterprises (SMEs) are a very heterogeneous group. Some are in agriculture sector (Agribusiness SMEs), others in artisanal, industrial, and other sectors of the economy. Statistical definition of SMEs varies by country and it is usually based on the number of employees, and value of sales and/or value of assets. A large number of countries define SME as a group, which is a mixture of the self-employed and “micro” enterprises, with less than 10 employees. The firms operate in very different markets (urban, rural, local, national, regional and international), are frequently prime source of new jobs, and play a crucial role in income generation (OECD, 2004).

Agribusiness includes everything that is required to bring food to consumers. It is a complex system beyond the farm, involving input provision, processing, transportation, and sale of finished products (Sufian, 2011). Therefore, Small and Medium Agribusiness Enterprises (SMAEs) are all SMEs involved in Agribusiness activities. SMAEs contribute significantly to the economy of developing countries although it is difficult to separate their contribution from that of agriculture sector in general. This study is focussing on SMEs engaged in transport and sale of agriculture commodities.

According to Rwanda SMEs policy (MINICOM, 2010), SMEs are defined basing on three conditions whereby two of these conditions should be met. It is important to clarify

that micro enterprises and registered cooperatives as well as small and medium enterprises are included in the definition of SMEs.

The present study adopted the definition of Rwanda Small and Medium Enterprises policy as indicated at Table 1. This definition of SMEs was adopted to facilitate the researcher during the selection of SMAEs in the study area.

Table 1: SMEs definition

Size of the enterprise	Net capital investments (Million Rwf)	Annual turnover (Million Rwf)	Number of employees
Micro Enterprises	Less than 0.5	Less than 0.3	1 to 3
Small Enterprises	0.5 to 15	0.3 to 12	4 to 30
Medium Enterprises	15 to 75	12 to 50	31 to 100
Large Enterprises	More than 75	More than 50	More than 100

Source: MINICOM, 2010

2.2 Concept of Non-Tariff Barriers

Beghin and Bureau (2001) quoted Hillman (1991) definition, that NTBs are all restrictions, other than traditional customs duties, which distort international trade. Precisely, it is “any governmental device or practice other than a tariff which directly impedes the entry of imports into a country and which discriminates against imports, but does not apply with equal force on domestic production or distribution.” EAC define NTBs as quantitative restrictions and specific limitation that act as obstacles to trade. Forms of NTBs according to EAC are: import policy barriers, standards, testing, and labelling and certification requirement, anti-dumping, counter availing measures, export subsidies, domestic support to name few.

According to Beghin and Bureau (2001), their classification by scope of the barrier, by regulatory goal, by legal discipline, by type of market restriction, product category, and

geographical region helps to identify differences in food safety and quality standards among countries that could have protectionist effects. However, in recent disputes dealing with food quality and safety issues, the term “NTB” is used mainly for isolating those trade restrictive measures that have as primary motive the protection of national producers. This approach implies that measures restricting trade incidentally while correcting market inefficiencies and addressing legitimate concerns (e.g. in the sense of the legitimate objectives of the Technical barriers to trade Agreement), would not be qualified as NTBs.

Krugman and Baldwin (1987) defined NTBs as measures that decrease the world global revenue, the authors argue that trade restricting regulations that have overall positive welfare effects should not be considered as NTBs. The idea of qualifying as protectionist a standard if it differs from the one that would be chosen by a world welfare maximizing social planner also relies on the same idea.

Berghin and Bureau (2001) and Fugazza (2013) suggest using cost-benefit criteria to define whether a regulation that affects trade has some legitimacy. On the other hand, Karaba and Kirsten (2012) reported that with all the trade distortions, which are applicable to trade, some are justifiable while others are not. When a distortion introduced explicitly to protect domestic industry by restricting import demand, then it is classified as non-tariff barrier (NTB). NTBs may include internal measures such as production subsidy and many other administrative measures.

In this study, the term NTBs has been defined as quantitative restrictions and specific limitation that act as obstacles to trade. The present study adopted the definition by EAC, because it is trade oriented and is in the context of EAC trade. Therefore, the study

focuses on administrative procedures at the border that hinder cross border trade and any other barrier that affect the profitability of SMAEs participating in EAC cross border trade and may discourage their participation such as existence of several weighbridge, several police blocks that delay transport and add to transport cost and clearing procedures.

2.3 Theoretical Framework

The theory underlying this study is the theory of the firm (profit maximization). Regional integration provides a good opportunity to SMAEs for achieving their main objective, which is profit maximization. Although, SMAEs are profit-maximizing entities, they also have a tendency to maximize their utility and do not always behave only as rational producer but also as consumers while making decision (Krugman and Baldwin, 1987).

2.4 Regional Integration

Regional Economic Integration can be defined as an agreement between groups of countries in a geographic region of reducing and ultimately removing tariff and non-tariff barriers and arrive at a free flow of goods, services, and factors of production between each other (Cole *et al.*, 1999). It is a process whereby the economic barriers between two or more economies are removed only among countries joining together. The degree of economic integration ranges from preferential trade arrangements to free trade areas, customs unions, common markets, and economic unions.

World Trade Organization (WTO) as an important vehicle for world trade expansion has recognized regional integration through Customs Union (CU). One of the objectives of Regional integration is to enhance trade flow between integrating countries by removing all trade barriers and improving market access. This is expected to benefit traders by

reducing trading cost in countries forming the CU. In addition to that, common market by enabling free movement of goods and people enhance the participation in the regional market.

2.4.1 Regional integration in Africa

Regional integration is vital for accelerating Africa's development and poverty reduction prospects (AfDB, 2010). The East African region has an area of 1.82 million km² and comprises about 26% of Africa's population, the region presented 16% of the combined GDP of Africa in 2009 and 22% of the continental landmass (AfDB, 2010). Thus, the region represents an important market that offers potential opportunities for trade expansion, growth and poverty reduction in member countries, if well integrated. The SADC roadmap and the EAC integration plan are good examples of Africa's integration history, reflecting the adoption of the linear integration model with ambitious targets.

2.4.2 Profit maximization

Approaches to model export market participation decision are usually formulated within a profit-maximizing framework (Krugman and Baldwin, 1987). The profit-maximizing framework predicts that a firm makes the decision to export if its expected revenues are greater than costs to be incurred. Besides the profit or expected gains, there are other factors such as trader's characteristics, firm characteristics, market characteristics or trade regime (tariff and NTBs) in place. Those factors can motivate or discourage one to participate in the export market.

2.5 Factors Influencing the Decision to Participate in Export Market

2.5.1 Theory on participation in export market

There is positive correlation between export and productivity or growth. According to Ricardo (2005), the decision to export should be presented as self-selection problem. Aw et al. (1998) argue that firms, which enter foreign markets, are usually more productive than their domestic peers, outward orientation would improve economic growth.

However, there is also simultaneity issue where firm decide to engage in the export market and to improve productivity. Firms make a conscious decision to invest in productivity enhancement with determination of becoming exporters or are subsequently induced to invest in productivity enhancement in order to maintain or increase their ability to export. If firms in developing countries increase their productivity with the international or regional markets in mind, then any policy that may affect their decision to engage in exports may simultaneously influence firm-level productivity as well. Examples of trade policies that impact a firm's decision about whether or not to produce for external markets include export-promotion policies and non-tariff barriers of other countries.

Moreover, Ellis and Pecotich (2001) studied the social context in which market exchange take place. The authors used data from SME exporters from different countries and reported that the decision to export is based on capacity, motive to go abroad, and awareness of a particular market opportunity in the foreign country.

2.5.2 Empirical studies on foreign market participation

Many studies have analysed factors that influence the decision to participate in the export market. For instance, Moore (2005) used a binary probit model to study an enterprise's decision to participate in the export market. The results showed that export decision is significantly influenced by size, age, previous export experience, ownership status, export subsidies, and market competition. Other results (Aw *et al.*, 2000) found that firm's characteristics, firm resource and market characteristics could influence the decision to participate. The Authors focused on relationship between production and decision to participate in the export market using data from manufacturing industry of Korea and Taiwan.

Furthermore, Aitken *et al.* (1997) analyzed the spillover effect associated with one firm's export activities and how presence of one firm in export market influence the entry of others using panel data on Mexico manufacturing. Mkuna (2014) analysed factors that can affect participation of SMAEs in EAC cross border trade using a binary logistic model and found that market information, price, distance, gender, experience, current capital, age and education are factors that significantly influence the decision to participate in EAC cross border trade.

2.6 Rwanda Cross Border Trade with EAC

Cross Border Trade (CBT) is trade in legitimately produced goods and services between neighbouring countries. Most often CBT refers to trade that takes place at the borders. For Rwanda, CBT refer to trade with Burundi, the Democratic Republic of Congo (DRC), Tanzania, and Uganda. CBT can be either formal or informal and it includes trade in agricultural produce, manufactured goods, and re-exports. An important part of Rwanda's CBT is informal meaning that it is done on small quantities and not recorded. This study

is focusing on formal cross border trade of agriculture products with EAC country members. For formal trade, CBT offers the best opportunity for new firms to enter the export market. As we mentioned earlier, when looking at intra-EAC trade, Rwanda share is mainly low. Also, according to data from MINEAC (table 2), Rwanda present a trade deficit.

Table 2: Rwanda export and import within EAC cross border countries

Country	July-Dec 2012	2013	Jan - June 2014
Quantity exported in KG			
Burundi	850 030	13 285 510	750 863
Tanzania	63 400	287 980	13 200
Uganda	901 680	1 636 546	451 440
Total	1 815 110	15 210 036	1 215 503
Quantity imported in KG			
Burundi	4 477 100	25 968 788	2 518 609
Tanzania	18 119 175	107 652 378	2 169 793
Uganda	79 815 357	590 892 886	12 033 217
Total	102 404 632	724 514 052	16 721 565

Source: MINEAC

2.7 Profitability of SMEs

Traditionally, economists have argued that more open economies grow more quickly. The main finding from empirical studied in this area Chung and Roberts (2000; 1998) and Aitken *et al.* (1997) is that firms that participate in the export market are more productive than their peers that trade in the domestic market. In market valuations, a number of studies have been conducted in the Agricultural sector. In the determination of the profitability of an enterprise, the common method involves a gross margin analysis in which variable costs of production are deducted from the total revenue Sulumbe *et al.* (2010), Tschering (2002) and Olayiwolaa (2008). In these studies, gross margins served as proxies for profitability.

2.8 Factors Influencing Profitability

According to the reviewed literature, there are two methods that are commonly used to identify factors influencing profitability. According to Olayiwoola (2008) and Bagamba (1998), the first method involves regressing the observed yield on a set of hypothesized explanatory variables. The second method involves regressing the computed gross margin on a set of hypothesized variables (Salumbe *et al.*, 2010). There are many factors that can influence profitability in agriculture such as: price of the output, government price policies, firm location, distance to market to name few (Rearden *et al.*, 1997). However, based on empirical studies in international and regional trade NTBs Mkuna (2014); Karugia (2009) and transport costs are among factors that affect profitability of traders.

2.9 Analytical Review

2.9.1 Discrete choice model

Discrete choice examines situations in which the potential outcomes are discrete, such that the optimum is not characterized by standard first order conditions. In this case discrete choice analysis examines “which one”. The choice must meet three requirements; exhaustive, mutually exclusive and finite.

Discrete choice models are econometric techniques that focus on the analysis of the behaviour of decision making unit that face a finite set of alternative choices. Such models attempt to relate the conditional probability of a particular choice to various attributes of the alternatives, which are specific to each decision making unit, as well as the characteristics of the decision makers (Judge *et al.*, 1985).

Techniques such as logistic regression and probit regression can be used for empirical analysis. The choice behaviour of individuals with only two alternatives can be examined

using a dichotomous dependent variable as in the case of binary choice models. There are different ways to approach such models. Models relying on the linear random utility assumption are based on an individual decision maker maximizing his/her expected utility derived from the choice. The model is used to examine the choice of trade outlet among other EAC market or domestic market by SMAE.

2.9.2 Gross margin of an enterprise

There are various measures of profitability of the enterprises, which are Gross Margin (GM), Return on Investment, Benefit-Cost Ratio, Internal Rate of Return, and Marketing Margin (MM) (Turuka, 2000). Kotler and Armstrong (2006) discovered that to date there is no adequate measurement of profitability available in the marketing sector. Their results for marketing executives and professionals showed that 68% of marketing executives have difficulties in measuring profitability on investment. However, the GM is an important measure of resource efficiency in Small and Medium Enterprises (SMEs). GM is a gross return minus the total variable expenses, which can be expressed in normal value, ratios or as a percentage of return (Debertin, 2012).

Furthermore, Debertin (2012) identified some problems of using GM as a measure of profitability, which are failure to deduct the opportunity costs for the money invested in the enterprises. Ponte (2002), cited by Kadigi (2012) noted that the technique has several disadvantages including failure to account for the variation of fixed costs, and failure to make allowances of costs for depreciation and obsolescence of fixed assets. However, Phiri (1991) reported that GM is still the most satisfactory measure of resource efficiency for Small and Medium Enterprises (SME). It gives a good indication of the financial health of enterprises and shows deep insight into traders' management efficiency of the

enterprises” (Hammod, 2001). Thus, without adequate GM received by traders, their ability to pay operating costs and hence their businesses sustainability is jeopardized (Hammod, 2001).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Conceptual Framework

According to figure 1, independent variables such as individual characteristics, market characteristics and firm characteristics might influence the decision to participate in trade among SMAEs. In addition to affecting SMAEs decision to participate or not in the EAC trading, these characteristics have a direct effect on SMAEs profitability. This decision will have an impact on the level of profitability of SMAEs because of price of output. On the other hand, profitability of SMAEs will be negatively influenced by NTBs and transport cost. SMAEs decision to participate in the EAC market may also be influenced by NTBs and transport cost.

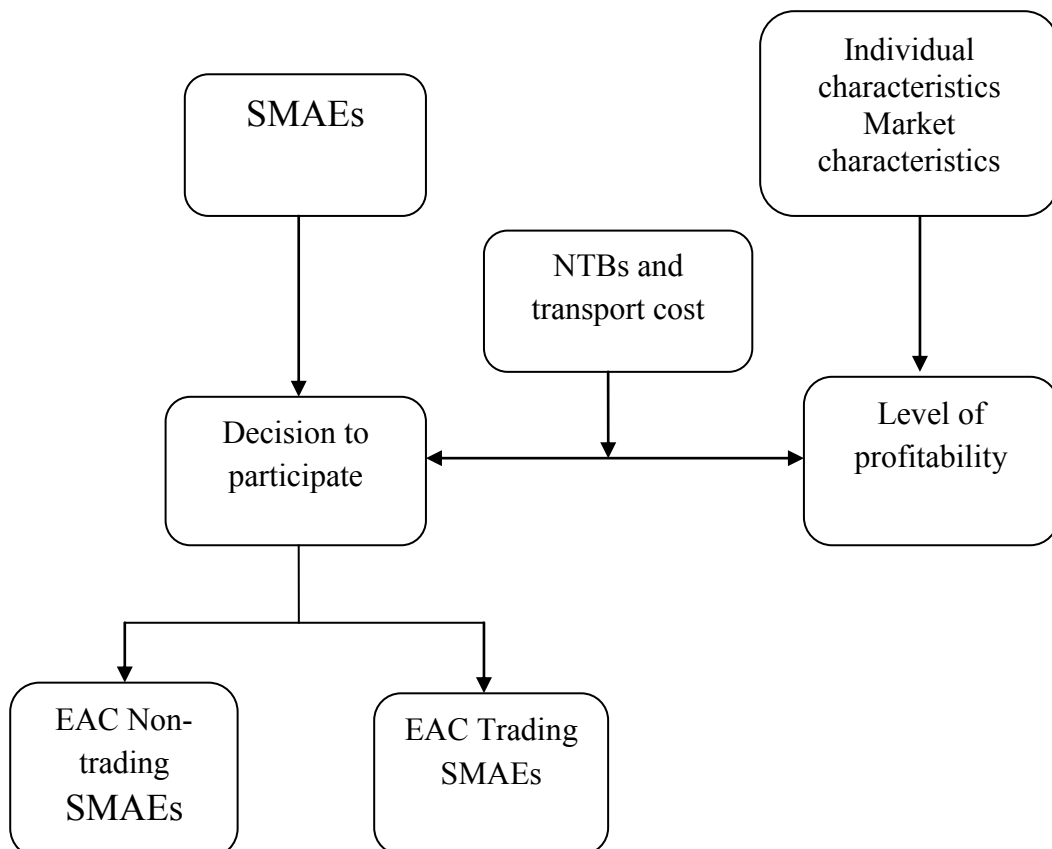


Figure 1: Conceptual framework

3.2 Analytical Framework

The analytical framework used by the present study is summarized in Table 3.

Table 3: Analytical Framework

No	Objectives	Hypotheses	Model	Test Statistic
1.	To determine factors influencing SMAEs's decisions to participate in EAC cross border trade	SMAEs's characteristics do not influence the decision to participate in EAC cross border trade	Binary regression analysis	F-test
2.	To compare profit between EAC trading and non-trading in Rwanda	There is no difference in profit between EAC trading and non-trading SMAEs	Gross Margin	t-test
3.	To analyze the effect of NTBs and transport cost on profitability	Non tariff barriers and transport cost do not have significant effect on SMAEs profitability	Linear regression analysis	

3.2.1 Binary logistic regression model

Binary Logistic Regression (BLR) model allows for analysis of different individual characteristics confronted with two choices (Greene, 1993; Hill *et al.*, 2008). It estimates the probability of individual i choosing an activity j or particularly EAC trading and EAC Non- trading (selling in the domestic market) in this case, given a set of explanatory variables. This model has been chosen because it allows analysing data where participants are faced with two choices. Subsequently, to analyze factors that have a probability of influencing EAC trading and non-trading SMAEs this method has been used.

3.2.2 Specified model

Given our two choices categories $j=0$ and 1 , 0 = non-trading (selling in the domestic market), 1 = EAC trading. The BLM assigns probability P_{ij} to events characterized as i^{th} category. The probability with which a trader i having a set of specific features chooses one of the trading options j is given by the following equation:

$$\text{Ln} \left[\frac{P(y_i=1)}{P(y_i=0)} \right] = \tilde{X}'_i \tilde{\beta}_k = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_6 x_{i6} + \varepsilon_i \quad [1]$$

Where $j=0, 1$ and $X_i=X_1, X_2 \dots X_7$ being explanatory variables as described in equation 1, $K=0, 1, 2 \dots 6$; that is $\beta_0, \beta_1, \beta_2 \dots \beta_7$, as parameters to be estimated.

The expected sign of the explanatory variables for the logit model (Table 4) implies that; if the sign is positive, the explanatory variable under consideration increases the likelihood of a SMAE to participate in the EAC cross border trade. Distance from the location of the enterprise to the nearest border is expected to decrease likelihood of a SMAE to participate because firm location impact on the decision to export due to the increase in cost as the distance increases.

Number of employees of SMAEs is one of criteria used to measure the size of the enterprise. Therefore, the increase of number of employees is expected to increase likelihood of a SMAE to participate in the EAC cross border trade. Management of the firm is measured as one if the firm has structured management and zero otherwise. In this study, structured management means that a firm has at least a manager and an accountant. Thus, management is expected to increase the likelihood of participation in the EAC cross border trade. Experience in agricultural trade activities is expected to increase likelihood

of a SMAE, participate in the EAC cross border trade due to the ability of experienced traders and to handle challenges in foreign market. Also, Corporate Ownership and gaining more income as the reason for starting the business are likely to increase likelihood of participating in the foreign market.

Table 4: Variables description and expected sign

Variables		Description	Expected sign
X_2	Distance	Distance from the border in km	–
X_3	Experience	Business experience in years	+
X_4	ownership status	1 if corporate and 0 if sole owner	+
X_5	Management	1 if Management and 0 otherwise	+
X_6	Reason for starting	1 if getting more income, 0 otherwise	+
X_7	Employees	Number of employees	+

3.2.3 Gross Margin analysis

To determine the market value of SMAEs, a gross margin analysis was conducted. Gross margin analysis consists of measuring the difference between revenue and cost incurred to gain that revenue (total revenue minus total variable cost). It is one of different methods that can be used to assess profitability of a firm engaged in an economic activity and the means for selecting farm plans.

$$GM = TR - TVC \quad [2]$$

Where; GM = Gross margin, TR= Total revenue and TVC=Total variable costs

3.2.4 Multiple linear regression analysis

To determine the effect of NTBs and transport costs on profitability, a multiple linear regression model has been used based on the hypothesized variables *i.e.* regressing the observed gross margin per unit for each SMAE on NTBs and transport costs.

Specified Model

The model was specified based on Ordinary Least Squares assumptions:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i \quad [3]$$

Where the dependent variable Y is gross margin (per unit of quantity sold) of SMAEs and independent X_i variables are specified in Table 5.

Table 5: Variables to be used

Variables	Expected sign
β_0 A constant	
X_1 Clearing agent fees in Rwf	—
X_2 Charges and fees at the border in Rwf	—
X_3 Transport cost per trip (hiring a truck) in Rwf	—
X_4 Bribes to police officers at road block per trip (in Rwf)	—

3.3 Study Area

The study collected data on trade within Rwanda and between Rwanda and three of its four cross border neighbouring countries: Burundi in the south, Uganda at the north and Tanzania in the East. The assessment focused on two staple crops (beans and Irish potatoes) and two vegetables (carrot and onion) that are among the more exported crops from Rwanda. About 16 districts in four provinces of Rwanda were visited during this study as presented in Figure 2.

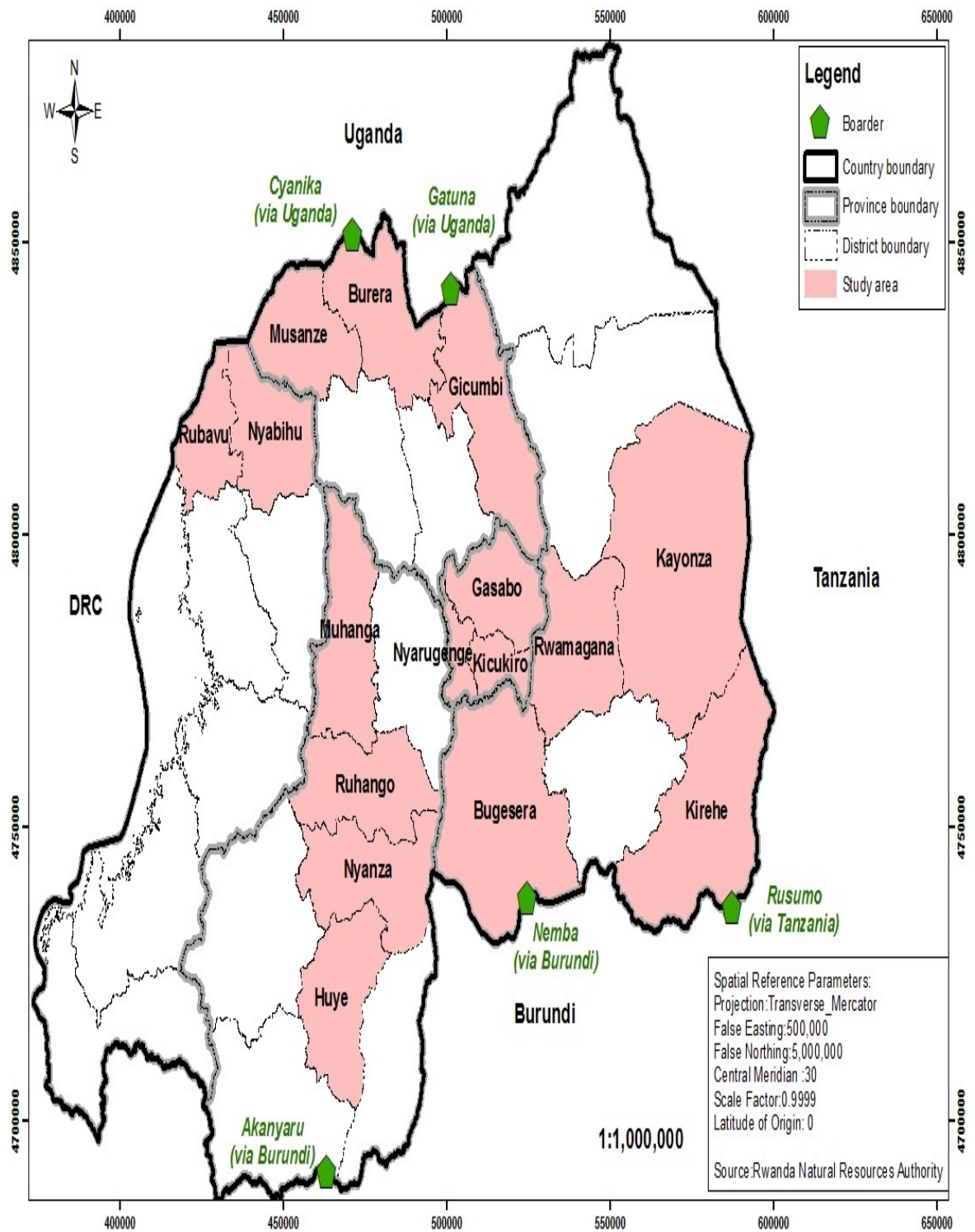


Figure 2: Representation of the study area

3.4 Research Design

A cross sectional design was used for this study. Data were collected at a single point in time but also some historical data about the origin of the firm were also collected. The factors influencing the first decision to export were also collected. The population of this study is SMAEs involved in trade of beans, Irish potato, carrot and onions based in Rwanda.

3.4.1 Sampling

The present study used mixed sampling methods to get required information. The first stage was to choose cross border point where, four out of 7 EAC cross border point were purposively selected. Those are GATUNA, RUSUMO and AKANYARU, three manned borders crossing from Rwanda to EAC countries and CYANIKA the second after Gatuna. After the border points, districts markets along the main roads from the selected border points to Kigali: Gicumbi (from Gatuna to Kigali), Kirehe, Kayonza, Rwamagana and Mulindi (from Rusumo to Kigali), Huye, Nyaza, Ruhango, Muhanga (from Akanyaru to Kigali) and Gicumbi (from Gatuna to Kigali). Then all central markets were included: Nyabugogo, Kimironko, Kicukiro, Kabuga and Musanze. At each mentioned point respondent were selected using cluster sampling method. SMAEs trading beans, Irish potatoes, carrots and onions in EAC and in the domestic market were interviewed.

3.4.2 Sample size

In the case of comparative analysis of subgroups such as an evaluation of program participants with non-participants, Sudman (1976) suggests that a minimum of 100 elements is needed for each major group or subgroup in the sample and for each minor subgroup, a sample of 20 to 50 elements is necessary. For this case is a comparative analysis between EAC trading and non-trading SMAEs, the targeted sample size was 200

but we managed to get 194 (166 EAC non-trading and 28 EAC trading) respondents which is enough according to Sudman (1976) and given time and funds constraint.

3.4.3 Data collection

Primary data were collected from owners of SMAEs using structured questionnaire. Data from key informants were collected using a checklist. Secondary data were collected from Ministries (Ministry of Trade and Industry and Ministry of East Africa Community), National Agriculture Export Board (NAEB), Trade Mark East Africa (TMEA) and Rwanda Revenue Authority (RRA) from its taxpayers and Customs office. Data collection took almost four weeks (from 9th of April to 5th of May 2015). During this period 194 SMAEs owners were interviewed. Out of 194 SMAEs interviewed, 28 were EAC trading and 166 were EAC Non-trading SMAEs.

3.5 Data Analysis

After data collection, the data were entered in SPSS version 20 and Excel then transferred to STATA. The data were analyzed using SPSS to get results of descriptive statistics involving frequency, percentages, mean, and standard deviation. Also, STATA was used for econometric analysis such as binary regression and MLR including also test statistic (t-test) to test the mean difference of gross margin.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Socio-economic Characteristics

4.1.1 Social characteristics

Out of 194 SMAEs interviewed by the study, 166 are EAC non-trading (selling in the domestic market) and 28 are EAC trading (participating in EAC cross border trade). The results in Table 6 show that EAC cross border trade is dominated by male traders at 85% while the domestic market female traders are 55%, these results are similar to World Bank (2011) results that male traders are more likely to participate in formal cross border trade than females. Results on education level show that SMAEs owners are educated, cross border trade is dominated by traders with secondary school education at (53%) followed by primary school level (21%) while domestic market is dominated by those of primary school level (48%) followed by secondary school (43%). This shows that most of SMAEs owners have obtained some level of education at least primary school education. However, educated traders are more likely to participate in EAC trading. This may be due to the fact that formal education has an implication on the ability to understand and interpret information. Thus, education levels affect market information interpretation and hence, market participation level (Jari, 2009).

Table 6: Distribution of respondent by their social characteristics (n=194)

Variable name		EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
		%	Freq	%	Freq
Age	20 to 30	11	3	11	18
	31 to 40	68	19	48	80
	41 to 50	21	6	27	45
	>50	0	0	14	23
Sex	Male	86	24	45	74
	Female	14	4	55	92
Education	None (0)	0	0	2	4
	Primary (6)	21	6	48	80
	Half Secondary (9)	11	3	4	6
	Secondary (12)	54	15	43	72
	University (15 +)	14	4	2	4

4.1.2 Economic characteristics

4.1.2.1 Alternative occupation and major activity

Some owners of SMAEs had other occupations apart from agribusiness enterprises but agribusiness was the main economic activity for cross border traders at 96% as well as domestic traders at 90% as shown in Table 7.

Table 7: Major activity for SMEs (n=194)

Variable name	Category	EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
		%	Freq	%	Freq
Major activity	Agribusiness	96	27	90	149
	Not Agribusiness	4	1	10	17

Out of 28 SMAEs owners participating in cross border trade, 36% were involved in another business and none was employed while out of 166 SMAEs trading locally, 67% had no other occupation, 25% were involved in farming activities and 2% were employed,

as it is shown in Fig. 3. A large number of EAC non-trading had no other occupation or business. This may also have an influence on their profitability.



Figure 3: Distribution of respondent by alternative occupation

4.1.2.2 The reason for starting the business

The aim of Agribusiness firm is to maximize profit based on the theory of the firm governing this study. However, those firms behave as consumers and aim to maximize their satisfaction. Therefore, this study believes also that there are other factors than profit influence the decision to participate in EAC cross border trade.

The reason for starting the agribusiness company is one of the factors that can influence the choice of trading outlet of SMAEs. The results show that most of EAC trading (93%) started the agribusiness to gain more income while the remaining 7% joined the agribusiness sector to get an occupation (Table 8). While for domestic market traders gaining more income as the main reason for starting the business was at 50% (Table 8). The motivation to participate in the EAC cross border trade may be due to the fact that, a trader is trying all possible opportunities available to gain more income.

However, this should not disagree with the fact that the aim of SMAEs is profit maximization. Moreover, starting the business to get an occupation may also have an impact on the level of capital investment to start the business.

Table 8: The reason for starting the business (n=194)

Variable name	Category	EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
		%	Freq	%	Freq
Reason for starting the business	Gain more income	93	26	50	83
	Get occupation	7	2	50	83

4.1.2.3 The starting capital

Results from Table 9 show that the starting capital was ranging from 300 thousand Rwf to 5 million Rwf for those in EAC cross border trade while is ranging from 50 thousand Rwf to 5 million Rwf with average capital of 690 thousand for those trading domestically only. About 67 (40%) of EAC non-trading SMAEs started the business with capital under 0.5 million, 74 (45%) started with capital from 0.5 to 1million Rwf, 24 (14%) started with capital up to 3 million Rwf and one (1%) of them started with capital of 5 million Rwf. For EAC trading SMAEs 15 (53%) started with capital from 0.5 to 1million Rwf, 10 (36%) stated with capital up to 3 million Rwf. Start up capital is one of factors that define the size of the enterprise. The size of the enterprise is among factors that may influence the decision to participate in the foreign market as discussed earlier. Also, results from this study show that lack of capital to expand the size of the business is the first challenge that hinder EAC non-trading SMAEs to participate in the foreign market.

SMAEs owners got the starting capital through credit and own saving. Results (Table 9) show that, most of those participating in cross border trade 61% got starting capital from

credit while those trading domestically, 53% got capital from own saving and 47% from credit. The results are similar to the results by Mkuna (2014) that showed that SMAEs trading locally are more likely to use their own saving instead of getting loans from financial institutions. The author argued that this may be due to the fact that SMAEs are not aware or not interested in loans from financial institutions.

Table 9: Distribution of respondent by starting capital (n=194)

Variable name		EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
		%	Freq	%	Freq
Starting capital (Million Rwf)	Under 0.5*	4	1	40	67
	0.5 to 1	53	15	45	74
	>1 to 3	36	10	14	24
	>3 to 5	7	2	1	1
Get starting capital	Own saving	39	11	53	88
	Credit	61	17	47	78
Where get credit	Bank/microfinance	57	16	23	39
	Friend/Relative	3	1	15	25
	Ikimina**	3	1	7	12
	(association)				

*0.5M means five hundred thousand, M is million and the currency is Rwandan francs.

** is a kind of association or can be a cooperative where members of the association/cooperative borrow money.

4.1.2.4 Non participation of SMAEs in the EAC trade

This study analysed the first decision or motivation behind non-participation of SMAEs in the cross border trade. The results from Table 10 show that the first challenge which hinder SMAEs was capital 91(55%) followed by security challenges 78(47%). These results explain that any policy or strategy that can improve the investment capital of SMAEs will also improve their participation. In addition, results show that SMAEs are concerned with security of their products in foreign countries and this is obvious because some insecurity problems (thief, hassle element) were reported. Lastly, results

demonstrate that there is a problem of information availability. These results are supported by the results (Table 11) that about a half of EAC non-trading SMAEs (49%) are not aware of market opportunities in the EAC market.

Table 10: Non-participation of SMAEs in the EAC trade (n=166)

Variable name	Categories	EAC non-trading	
		Freq	%
Decision to sell in the domestic market	Capital	91	55
	Security	78	47
	Business environment	70	42
	Market information	25	15

Table 11: Awareness about EAC market opportunities (n=166)

Variable name	Categories	EAC non-trading	
		Freq	%
Awareness	Yes	84	51
	No	82	49

4.2 Firm Characteristics

4.2.1 Firm age

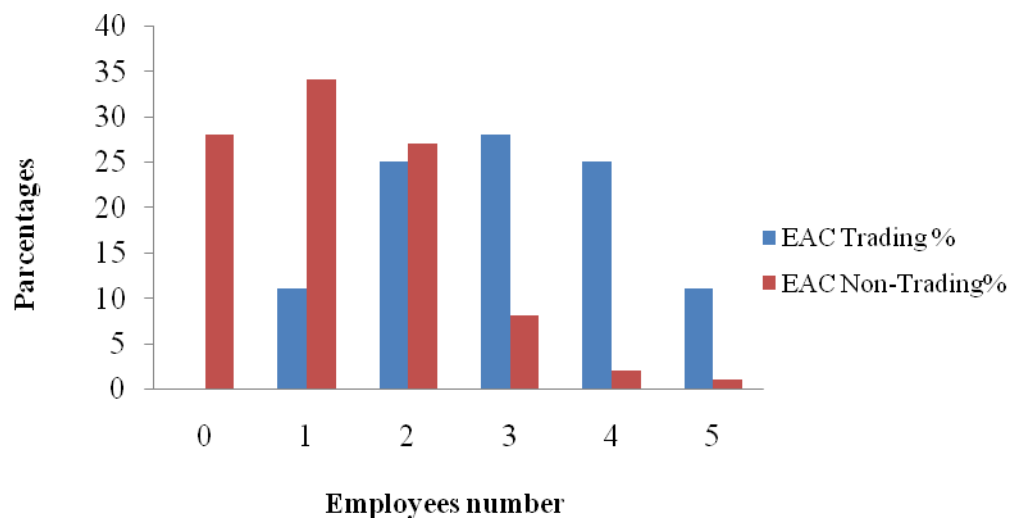
Firm age was considered in this study to show the experience of SMAEs in the agribusiness activity. For EAC trading 12(43%) of respondent, the age of the firm was ranging from one to 5 years and 13(46%) from six to 10 years of experience for EAC trading. While for those trading locally only, the experience of one to 5 years represented 67% of firms (Table 12). The mean age was 6 years of experience for EAC trade while and five for EAC non-trading. However, according to the literature (Mkuna, 2014; Moore, 2005; Aw, 2000) more experienced firms are the more likely to participate in the export market.

Table 12: Distribution of firm age by SMAEs (n=194)

Name of variable	Category	EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
		%	Freq	%	Freq
Firm age	1 to 5	43	12	67	111
	6 to 10	46	13	23	38
	>10	11	3	10	17

4.2.2 Number of employees

As discussed earlier, the number of employees of the firm is a criteria used to determine the size of the firm. Figure 4 shows that number of employees is ranging from one employee to five employees per firm for both EAC trading and non-trading SMAEs. For EAC trading firms, the mean is three employees while for EAC non-trading firms is one employee. EAC trading firm are more likely to have high number of employees than EAC non-trading. Thus, the number of employees is one of the factors that may have an influence on the decision making of the enterprise.

**Figure 4: Number of employees per SMAE**

4.2.3 Ownership status and Management of the firm

Ownership status and management of a firm has an impact on the decision making of the enterprise. Corporate SMAEs are more likely to participate in cross border trade than sole owned enterprises because it is costly in terms of time. The results from Table 13 show that out of 166 EAC non-trading SMAEs, 154 (93%) are sole owned and 12 (7%) are corporate while for 28 EAC trading SMAEs, 18 (64%) are sole owned and 10 (36%) are corporate enterprises. Participation in the foreign market may need more management than trading in the local market that is why EAC trading SMAEs are more likely to have structured management than non-trading SMAEs. For SMAEs participating in EAC cross border trade, 9 (32%) had structured management and 19 (68%) remaining did not have structured management.

Table 13: Distribution Ownership status and Management of SMAEs (n=194)

Variable name	Category	EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
		%	Freq	%	Freq
Ownership status	Sole owner	64	18	93	154
	Corporate	36	10	7	12
Management of the firm	Yes	32	9	1	2
	No	68	19	99	164

4.2.4 Annual turnover of SMAEs

In this study, the annual turnover was estimated by calculating total sales of the enterprise per year. From Table 14 the annual turnover was divided in three categories used to define the type of enterprise according to SME Policy of Rwanda (2003) in line with the World Bank report of 2004. Results from the study show that 51 (31%) of EAC Non-trading SMAEs had a turnover estimated between 0.3 to 12 million Rwf, majority of them 89 (53%) had a turnover of 12 to 50 million Rwf and 26 (16%) had a turnover estimated

at more than 50 million Rwf, while for EAC trading SMAEs 4 (14%) had a turnover between 12 and 50 million Rwf, 24 (86) had a turnover of more than 50 million (Table 14). The average annual turnover was estimated at 149 500 million Rwf for EAC trading and 33 200 million for EAC non-trading SMAEs. EAC trading is more likely to be characterized by SMAEs having a higher annual turnover than non-trading because annual total sells of the enterprise (as another factor that define the size of the enterprise) has an impact on the participation in CBT.

Table 14: Distribution of respondent by annual turnover (n=194)

Variable name			EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
			%	Freq	%	Freq
Annual turnover Million Rwf	0.3 to 12		0	0	31	51
	12 to 50		14	4	53	89
	More than 50		86	24	16	26

4.3 Market Characteristics

4.3.1 Rwanda staple food and horticulture market characteristics

4.3.1.1 Domestic market

Results from the study show that domestic market is composed by primary markets/assembly centers, secondary markets and tertiary markets. Most of the rural and peri-urban marketing of agricultural products is carried out at small assembly or primary markets located within cells and sectors, characterized by heterogeneous products and low volumes. Nearly all the secondary markets are located near the district headquarters. Between the primary and secondary markets, transport is undertaken by local transport agents and/or rural traders. Wholesalers take out agricultural products (staples and fresh horticulture commodities) from the secondary markets and transport them to the central markets based in Kigali city, namely Nyabugogo, Kimisagara, Kicukiro and Kimironko.

There are six tertiary markets in Rwanda, which handle large volumes of both staples and five of them were visited during this study. While, four out of these are located within three districts of Kigali City, namely Nyarugenge (Nyabugogo & Kimisagara markets), Gasabo (Kimironko market), and Kicukiro (Kicukiro market), other two Gakenke (mainly for fruits and vegetables) and Ruhengeri markets are found in Northern province, within Gakenke and Musanze districts, respectively. These central markets besides providing retail services within the respective locations, they are supply centers catering for wholesalers within Kigali City and border, other provinces, as well as exporting to neighboring countries within the EAC and DRC. Also, most formal imports to Rwandan markets received from neighboring countries within the EAC pass through the central markets of Nyabugogo, Kimisagara and Kicukiro, which act as major supply centers for agricultural commodities. The products are distributed to secondary markets across all provinces where there are deficits, on the one hand, and some are exported to countries within EAC, which share borders with Rwanda and DRC.

4.3.1.2 Regional market

Formal trade transactions in staples within the EAC are governed by EAC common market protocol (2009), under Part C, article 6. And currently facilitated by simplified trade regime. Table 15 presents the list of the major regional markets for staple crops in EAC partner states. These results (Table 15) will complemented by the coming discussion on flow of commodities (4.3.3).

Table 15: List of major staples markets for EAC sub-region

Country	Commodity	Major Markets
Rwanda	Maize/Wheat/Beans/Irish potato	Musanze, Kigali
Kenya	Maize/Beans	Kitale, Nakuru, Nairobi, Mombasa, Kisumu, Eldoret, Busia
	Wheat	Kitale, Nakuru, Nairobi, Mombasa
Uganda	Maize/Wheat/Beans	Kampala
Tanzania	Maize	Dar es Salaam, Kibaigwa, Songea, Mbeya, Iringa, Arusha
	Beans	Dar es Salaam, Songea, Mbeya, Iringa, Arusha
	Wheat	Dar es Salaam, Songea, Mbeya, Iringa, Arusha, Bukoba

4.3.2 Distribution and characteristics of SMAEs by products traded

4.3.2.1 Type of products traded

This study focused the analysis on SMAEs trading beans, Irish potato, carrot and onion. The results in the Figure 5 show that the distribution of SMAEs according to products traded is almost the same for EAC trading and non-trading. Out of 166 interviewed SMAEs selling in the domestic market, 62(37%) were beans traders, 69(42%) were selling Irish potatoes, 10(15%) and 6(%) were onion and carrot traders respectively. For those involved in EAC trading out of 28 interviewed SMAEs, 9(36%) were selling beans, 14(46%) were selling Irish potatoes, 2(7%) and 3(11%) were carrot and onion traders respectively.

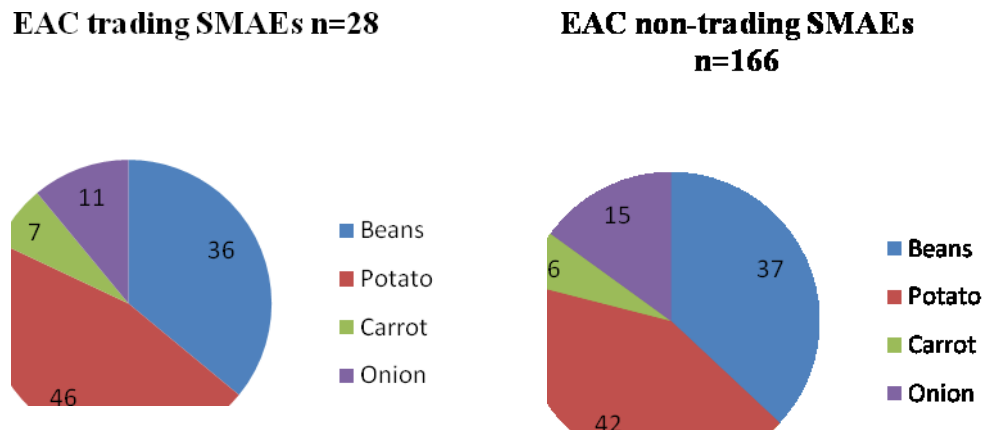


Figure 5: Type of products traded by SMAEs

4.3.2.2 Source and buyers of agricultural products

SMAEs purchase agricultural products from several sources such as direct from farmers, middlemen/brokers, assembly markets and from wholesalers. Results in Table 16 show that 86(52%) of SMAEs selling in the domestic market purchase agricultural goods direct from farmers followed by 75(45%) from wholesalers, 47(28%) from middlemen/brokers and 24(15%) from assembly markets. For SMAEs participating in the EAC cross border trade 11(39%) purchased agricultural goods from assembly markets, followed by 10(36%) directly from farmers and 7(25%) from wholesalers. The only difference is, for SMAEs trading in the EAC, they do not purchase from middlemen/brokers. Buyers of agricultural commodities are wholesalers, retailers, middlemen/brokers and consumers. But for EAC trading SMAEs were not selling to consumers while EAC non-trading SMAEs were not selling to middlemen/ brokers among SMAEs interviewed.

Table 16: Source of products traded by SMAEs (n=194)

Variable name	Sources	EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
		%	Freq	%	Freq
Buy products from	Farmers	36	10	52	86
	Assembly markets	39	11	15	24
	Whole sell markets	25	7	45	75
	Middleman traders	0	0	28	47
Sell products (to)	Whole sell markets	71	20	30	49
	Retailers	11	3	77	128
	Middleman traders	18	5	0	0
	Directly to consumers	0	0	62	103

4.3.2.3 Transportation and means of transport

The traders (SMAEs) or suppliers of those products did transportation of agricultural products from the place of purchase to the market. When that transport is done by traders, the transport cost is paid apart while it is included in the buying price when is done by suppliers of agricultural commodities. The means of transport were trucks, *camionette*, bicycles and bus. The results from Table 17 show that 23(82%) of SMAEs participating in cross border trade were using hired transport to carry the produce from the place of purchase to the market, the remaining 5 (18%) were using their own means of transport. For EAC non-trading SMAEs 106 (64%) were transporting products themselves while for the remaining 60 (36%) the transport was done by suppliers.

Table 17: Means of transport used by SMAEs (n=194)

Variable name	Categories	EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
		%	Freq	%	Freq
Transportation	Yes	18	5	36	60
	No	82	23	64	106
Means of transport	Truck	89	25	16	26
	<i>Camionette</i>	11	3	19	39
	Other	0	0	3	5

4.3.2.4 Contract agreement

Results from the study in Table 18 show that most (71%) of SMAEs engaged in EAC cross border trade were selling their products by contracts while for EAC non-trading SMAEs only 24% of them were selling on contracts. Among those selling on contracts, 35% were formal 36% informal contracts for EAC trading while for EAC non-trading show 6% and 17% these are for formal and informal contracts respectively. There is huge difference concerning selling by contract between EAC trading and non-trading firms. This may be due to the fact that most of trading activities in developing countries are based on trust between buyers and sellers, EAC trading present more risk and uncertainties than domestic market, this necessitates firms to sell on contract to minimize risk. In addition to that, EAC trading firms need to meet volume, time and sometimes quality of products to be able to comply with market requirement in regional markets.

Table 18: Contract agreement (n=194)

Variable name	Categories	EAC trading SMAEs n=28		EAC non-trading SMAEs n=166	
		%	Freq	%	Freq
Contract agreement	Yes	71	20	24	39
	No	29	8	76	127
Kind of contract	Formal	45	9	6	11
	Informal	55	11	17	28

4.3.3 Flow of commodities considered

4.3.3.1 Flow of Irish potato

Irish potatoes are produced mainly in the Northern and Western provinces of Rwanda. Where they are produced by smallholder farmers. Most often, Irish potatoes are bulked within Nyabugogo market, and exported to neighbouring countries within EAC partner states (Burundi, Uganda, and Tanzania) and DRC. While, there is direct procurement

from sources in Nyabihu, Rubavu and Gakenke districts to Burundi and Uganda through the Akanyaru and Cyanika border points, respectively, there is also a lot of informal cross-border supplies to eastern DR Congo through “*petite barrière*” and other unofficial routes along the Goma-Gisenyi border line. During off season, Irish potatoes are imported from Uganda to Kigali. The flow of irish potato is summarized in Figure 6.

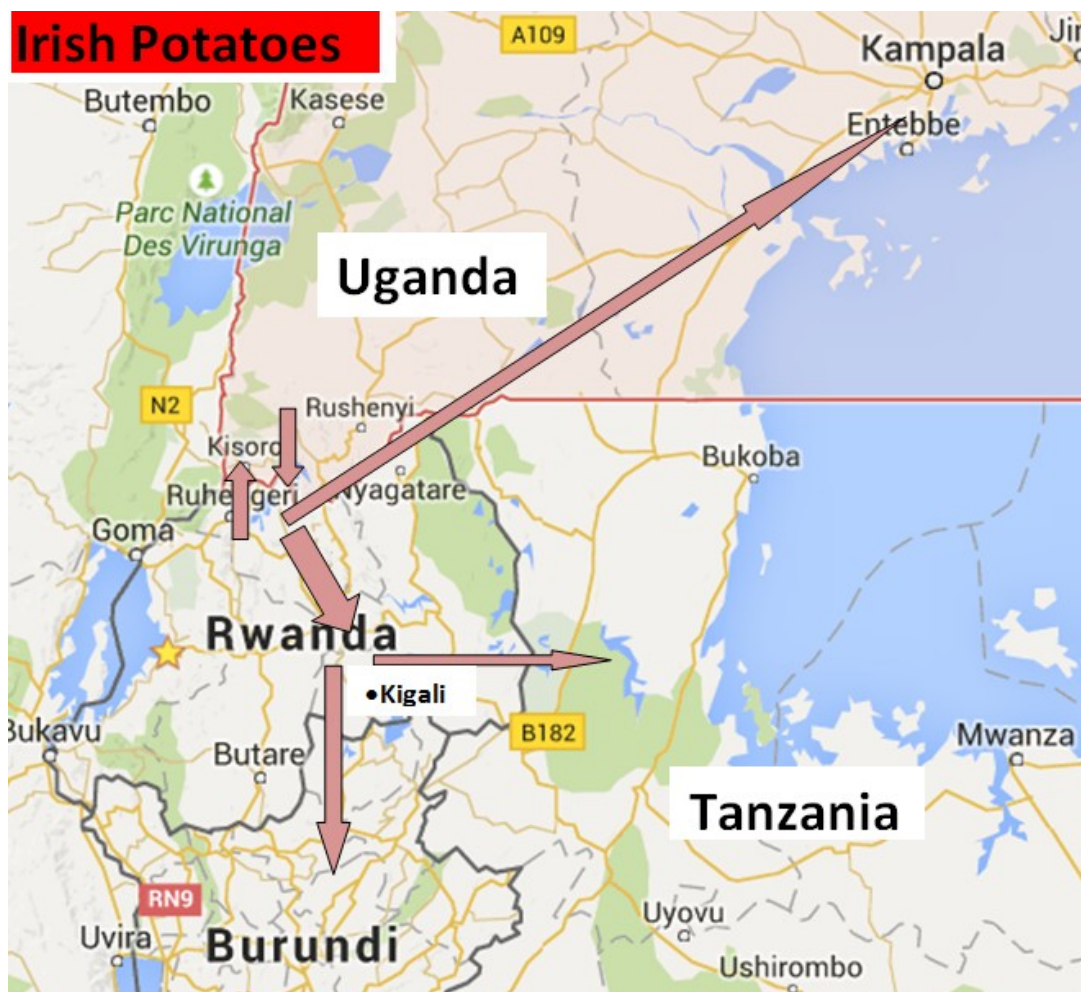


Figure 6: Irish potato flow within and out of Rwanda

4.3.3.2 Flow of beans

There is no specific chain for beans, sorghum and groundnut but their marketing is dependent on certain seasons. However, much of the groundnuts on the Rwandan market are imported from Tanzania. While Beans are produced in Rwanda and Uganda, Sorghum, sometimes is from Democratic Republic of Congo (DRC) depending on the season. Beans are produced in all provinces mainly for subsistence not for market however, during harvesting season, beans move from all provinces (North, South, East and West) to Kigali market, when there is surplus or high demand in neighbouring countries. Fig. 7 shows that beans are exported from Northern Province and Kigali to Uganda and Burundi and when there is shortage beans are imported from Uganda to Kigali, from there to other parts of the country.



Figure 7: Beans flow within and out of Rwanda

4.3.3.3 Flow of onion and carrot

As described in Fig. 8, most of vegetables are sold within the primary markets within the production hotspots of the districts of Rubavu (Bazileti market) and Musanze markets (Kariyeri) of Musanze districts. Also, there are inflows to Kigali's Kimironko and other markets from Southern province, either directly, or through Ruyenzi assembly market, along the Akanyaru-Kigali highway. Onion and carrot are normally transported from the potential zones of Northern and Western provinces mainly to the Nyabugogo market that in turn supplies to other deficient areas of the country, as well as a source of export to EAC partner states of Uganda, Burundi and Tanzania, and DRC.

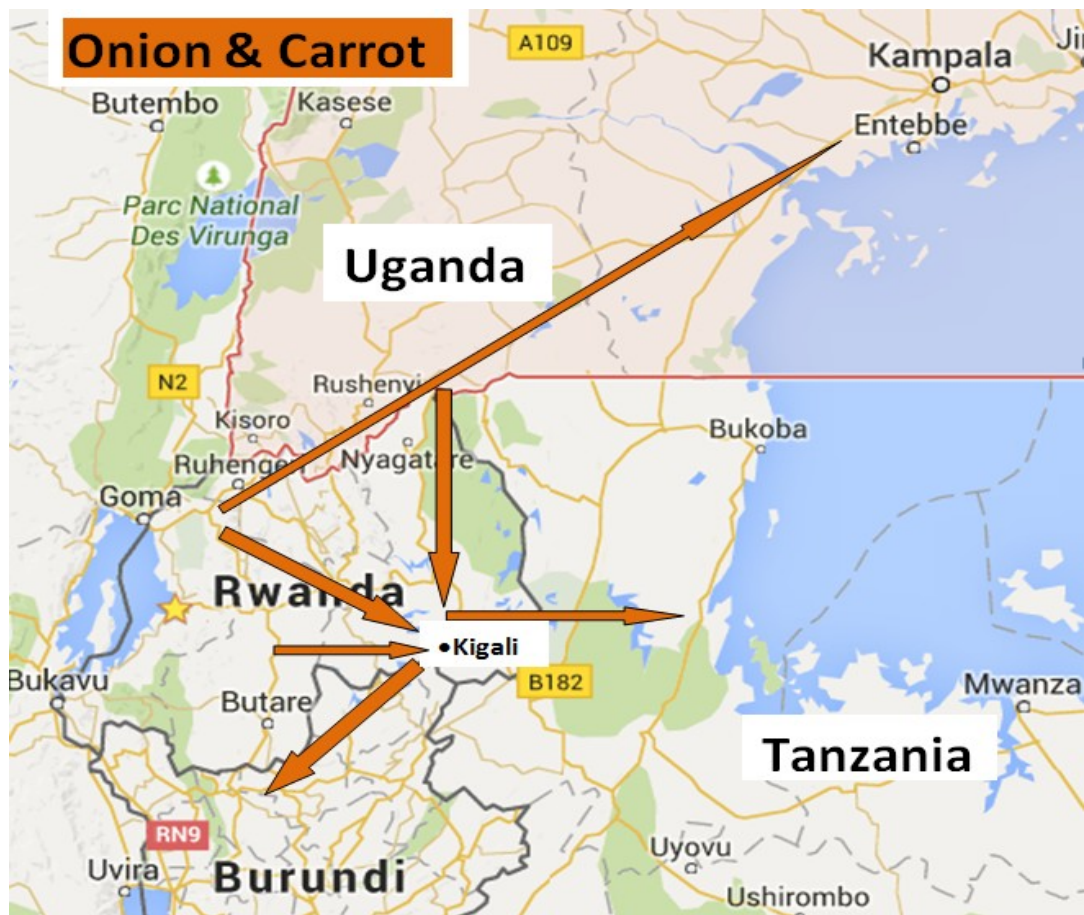


Figure 8: Onion and carrot flow within and out of Rwanda

4.4 Results of Binary Logistic Regression

The first objective of this study was to analyze the factors affecting participation of SMAEs in the EAC cross border trade. Thus, the hypothesis to be tested was that SMAEs characteristics do not influence the decision to participate in EAC cross border trade. The model was estimated using Maximum Likelihood after several application of the model using STATA software. The robust standard error was used instead of a normal standard error to correct the problem associated with heteroscedasticity. The results model summary shows that the number of observations in the model was 194. The Wald chi2 or likelihood ratio (LR) chi-square test was 110.94. This is the probability of obtaining the chi-square statistic given that the null hypothesis is correct. This implies the goodness of fit of the overall model as in an F-test. The p-value is compared with a critical value, that is, 0.05 or 0.01 to determine whether or not the overall model is statistically significant. In this case, the model is statistically significant because the p-value is less than 0.05. According to the above discussion, we have enough evidence to reject the null hypothesis that SMAEs characteristics do not influence the decision to participate in EAC cross border trade.

The variables which are significant in the model are distance from the border, experience, ownership status, management of the firm, reason for starting the business and number of employees at different levels of significance. The results in Table 19 show that distance from the border is significant at 0.01 (1%) with a log-odds ratio of 0.9744. It was expected that the shorter the distance from the location of the firm to the nearest border the higher the likelihood of participating in the (EAC) cross border trade. This implies that, when the distance decreases by one km, the log-odds of dependent variable that SMAE will participate in EAC cross border trade also increases by log-odd 0.9744 *ceteris paribus*. This is due to the fact that SMAEs located close to the border are more aware of

market opportunities even demand of the product in the neighbouring country and also location is associated with transport cost that decreases as one is located near the border. Experience of SMAEs is significant at 0.01 (1%) with the log-odds of 1.361. The results indicate that if the experience of a SMAE in trade of agricultural commodities increases by one year, the log-odds of dependent variable, that is, participation of Rwanda SMAEs in the EAC cross border is expected to increase at 1.361 keeping other things constant. This implies that the more SMAEs are experienced the higher the chances that these SMAEs will participate in EAC cross border trade. This is because experience gives them the access to different market conditions and ability to handle different situation including knowing the right time to buy and sell and where to sell which is confirming the results by Mkuna (2014). In addition, experience leads to awareness of the demand and supply of agricultural commodities and seasons because most of cross border trade is based on the seasonality of products than their comparative advantage.

Ownership status is significant at 0.05 (5%) with the log-odds of 16.451. As it was expected, a corporate ownership SMAEs is more likely to participate in the EAC cross border trade than sole owned SMAEs. This implies that if a corporate status, the log-odd ratio of dependent variable that SMAE will participate in EAC cross border trade also increases by 18.361 keeping other thing constant. The reason for stating the business is significant at 0.01 (1%) with the log-odds of 58.609. As it was expected, the reason for starting the business being to gain more income, the firm increases its likelihood of participating in the EAC cross border trade. This implies that, for SMAEs owners who started the business for gaining more income the log-odd ratio that SMAE will participate in EAC cross border trade increase by 47.737 keeping other thing constant. The number of employees of the firm is also significant at 0.01 (1%) with the log-odds of 6.030. As it was expected that the higher the number of employees of an enterprise, the higher the

likelihood of participating in the EAC cross border trade. This implies that if the number of employees increase by one unit the log-odds ratio of participating also increase by 6.030 keeping other things constant.

Table 19: Binary logistic regression results

Variables	Odds Ratio	Robust Std. Err.	z	P>z
Distance	0.9735354	0.0082539	-3.16	0.002***
Experience	1.366953	.1544198	2.77	0.006***
Ownership	16.45173	18.96395	2.43	0.015**
Management	20.65375	36.54926	1.71	0.087*
Reason	47.73768	70.91459	2.60	0.009***
Employees number	6.031277	2.784055	3.89	0.000***

***, **, * significant at 1%, 5%, 10%

Obsc =194, Wald chi2 (7) = 110.94, Prob > chi2=0.0000, Pseudo R2 = 0.6927, Log likelihood = -24.603527

4.5 Profitability of SMAEs

The second objective of this study was to compare profitability between EAC trading and Non-trading SMAEs.

4.5.1 Gross margin for EAC trading and Non-trading SMAEs

The present study analysed profitability of SMAEs participating in EAC cross border trade relative to those selling in the domestic market or EAC non-trading. The results from Table 20 show that gross margin per kilogram of beans, Irish potato, carrot and onion is greater when they are sold in the EAC market than the gross margin per unit when those commodities are sold in the domestic market.

Table 20: Gross margin analysis results (n=194)

Variable name	Commodity	EAC trading SMAEs n=28			EAC non-trading SMAEs n=166		
		Mean	Min	Max	Mean	Min	Max
Gross margin	Beans	77.82	44.30	99.90	18.62	5.00	53.80
	Irish potato	59.10	37	82.50	20.05	5.00	60.00
	Carrot	73.40	57.80	89.00	57.83	31	123
	Onion	176.03	159.10	189.50	68.63	23	143

4.5.2 Independent Sample t-tests Statistics

Independent sample t-test was used to test the hypothesis that there is no significant difference between profitability of EAC trading and non-trading SMAEs ($H_0: \text{diff}=0$). This test was done to test if the mean difference between EAC trading and non-trading is statistically significant. Results from t-test (Table 21) show that the gross margin for beans, Irish potato and onion is significantly different for those participating in the EAC cross border trade and non-participating.

4.5.2.1 Comparison of gross margin for beans

Based on two sample t-test with equal variance, results (Table 21) show that the t obtained is 12.612, with 69 degrees of freedom and p-value of 0.000 significant at least at the 0.01 level of significance. Therefore, we have enough confidence to concluded that the gross margin for beans between EAC trading and non-trading is statistically significant.

4.5.2.2 Comparison of gross margin for irish potato

Results (Table 21) show that based on two-sample t-test with equal variance, the t obtained is 8.405, with 81 degrees of freedom and p-value of 0.000 significant at the 0.01 level of significance. Therefore, we have enough evidence to concluded that the

gross margin per unit for irish potato between EAC trading and non-trading is statistically significant.

4.5.2.3 Comparison of gross margin for carrot

Based on two sample t-test with equal variance, results (Table 21) show that the t obtained is 0.803, with 10 degrees of freedom and p-value of 0.440 not significant at the 0.05 level of significance. Therefore, we do not have enough confidence to concluded that the gross margin for carrot between EAC trading and non-trading is statistically significant.

4.5.2.4 Comparison of gross margin for onion

Based on two sample t-test with equal variance, results (Table 21) show that the t obtained is 5.658, with 26 degrees of freedom and p-value of 0.000 significant at least at the 0.01 level of significance. Therefore, we have enough confidence at 99% to concluded that the gross margin per unit for onion between EAC trading and non-trading is statistically significant.

Table 21: Two sample t-tests with equal variances results

Gross margin	df	t	p value	S.E of diff	S.D of diff
Beans	69	12.612	0.000	59.20	4.693
Irish potato	81	8.405	0.000	39.04	4.645
Carrot	10	0.803	0.440	15.57	19.379
Onion	26	5.658	0.000	107.40	18.970

4.6 Factors affecting Profitability of SMAEs

4.6.1 Transport cost

The present study discussed previously that transportation of agricultural products from the place of purchase to the market was done by the traders (SMAEs) or suppliers of

those products. The transport cost calculated as reported in Table 22 and Table 23 is when the traders pay the transportation fees. In this case, the most common means of transport were trucks and *camionette*. The variation in transport cost were mainly based on means of transport, type of products and destination. The means of transport was based on quantity to be transported. In addition, factors like demand and supply of transport count.

Results from Table 23 show that it cost 50Rwf on average to transport one kilogram of Irish potato to Bujumbura while the cost is estimated at 28.9 Rwf to Kampala for the same quantity of Irish potato. When we consider the distance in kilometers, Kampala is far from Musanze (where Irish potatoes are sourced) compared to Bujumbura. It was expected that the high the distance the higher the cost. SMAEs interviewed reported that the transport cost to Uganda side is low due to the fact that the supply of transport is high compared to Burundi side.

Table 22: Transport cost by commodity (n=194)

Variable name	Commodity	EAC trading SMAEs n=28			EAC non-trading SMAEs n=166		
		Mean	Min	Max	Mean	Min	Max
Transport cost per kg (Rwf)	Beans	26.16	12	36.40	1.85	0	15
	Irish potato	27.23	10	55	3.19	0	23
	Carrot	37.50	35	40	13.93	0	24
	Onion	29.33	13	40	6.50	0	27.8

Table 23: Transport cost by Commodity and destination for EAC trading SMAEs

Destination	Commodity	Transport cost/kg (Rwf)		
		Mean	Min	Max
Bujumbura	Irish potato	50	45	55
Kirundo	Irish potato	28	28	28
Kabare	Irish potato	17	16	18
Katuna	Beans	12.25	12	12.5
Kampala	Beans	29.85	28	36.3
	Irish potato	27.6	21	38.6
	Carrot	37.5	35	40
	Onion	26.5	13	40
Kisoro	Irish potato	12.5	10	15
	Onion	35	35	35

4.6.2 Non-tariff barriers

Based on previous discussion, Non-tariff barriers (NTBs) are among factors that affect the profitability of SMAEs engaged in EAC cross border trade. The results from Table 24 show that on average the clearing fees is estimated at 1.5 Rwf per kg per trip, customs charges at 14.5 Rwf per kg per trip and police roads blocks may cost up to 2.04 Rwf per kg per trip when trading products from Rwanda to Uganda and Burundi.

Table 24: Non-tariff barriers related cost

Variable name	Cost per trip per kg in Rwf		
	Mean	Min	Max
Clearing fees	1.5	1	3.3
Customs charges	14.5	8	25
Police road blocks	2.04	0.5	3.12

4.6.2.1 Export customs charges at Rwanda-Uganda border

Customs charges and clearing fees on Rwandan side are summarized in Table 25. On the Ugandan side of the border, import duties are not charged when have a certificate of

Origin from EAC country and taxes of 14% referring to the value of the invoice. Required documents are invoice, declaration from Rwandese side and Certificate of Origin.

Table 25: Rwanda – Uganda Border charges

Rwanda side		RWF	
Charges in Rwf	Customs charges	10T	18,000
		5T	6,000
		DTI*	3000
	Clearing fees	Per consignment	10 -20(000)
	Taxes	No tax	0
Required documents	Invoice Tin number		

*: digital traders input

4.6.2.2 Export customs charges at Rwanda-Burundi border

At the Burundian side, import duty “*Droit d’entrée*” is free when one has a certificate of Origin from EAC country, Conception taxes and withholding tax are (14%) and (5%) respectively referring to the value of the invoice. Required documents at the Burundian customs office are invoice, declaration from Rwandese side and certificate of Origin.

Table 26: Rwanda -Burundi border charges

Rwanda side		RWF	
Charges in Rwf	Customs charges	Fuso (10T)	18,000
		Daihatsu (5T)	6,000
		DTI	3000
	Clearing fees	Per consignment	25 -30(000)
	Taxes	No tax	0
Required documents	Invoice Tin number		

4.7 Results from Multiple Linear Regression (MLR)

The third objective of the present study was to analyse the effect of NTBs and transport cost on SMAEs profitability. MLR was used to test the hypothesis that Non-tariff barriers

and transport costs have no significant effect on SMAEs profitability. The model was estimated using Ordinary Least Square (OLS) using STATA software. The level of significance used was 0.05 and variables, which are significant, are transport costs, clearing fees, customs charges and bribes. It was expected and it is true that gross margin and total variable costs have a negative relationship. However, for this case, results in Table 27 show that transport cost, clearing fees, customs charges and bribes present a positive sign. This is due to the positive correlation between costs and gross margin meaning that gross margin and costs were moving in the same direction.

This positive correlation is due to the fact that SMAEs having a higher gross margin do also have higher costs. There is also the fact that, SMAEs get high prices when they export their products. Therefore, the higher prices may mask the negative effect of costs they incurred to get the revenue. It is worth to clarify that even if results are showing positive signs, reducing those costs will increase even further the margin for EAC trading SMAEs. Therefore, it is plausible to argue that deliberate efforts are required to lower those costs in order to make the EAC trading more lucrative for SMAEs.

We understand that, it is not proper to regress GM against TVC, because what is on the left side would be the same as what is found on the right side of the model. For that reason, this study did not regress GM against TVC. We only included some component of TVC (clearing fees, transport cost, customs charges and bribes) which were not very significant. Variables like price of commodity (buying price), loading and unloading cost, storage cost and information cost were not included in the regression model. It is important to clarify that the buying price, a significant component of TVC was not included.

Table 27: Multiple linear regression results

Variables	Coef.	Std. Err.	t	P>t
Clearing fees	17.37563	7.654701	2.27	0.033
Transport cost	0.9305222	0.4507083	2.06	0.050
Customs charges	2.930168	1.064714	2.75	0.011
Bribes	17.75249	5.0872	3.49	0.002
Constant	-56.61868	23.98817	-2.36	0.027

4.8 Perception of Traders towards NTBs and Other Trade Barriers

The third objective analysed the effect of NTBs and transport cost on profitability. To sustain the results from the regression analysis, perceptions of traders toward NTBs and other trade barriers was analysed.

4.8.1 Government and technical standards regulation, registration and license

Results in Table 28 show that government regulations (82%), registration and licence (82%) and technical standards are not perceived as barriers. This means that they are not affecting their business. For technical standards and health regulations, traders reported that they are not required when they are exporting non-processed agriculture commodities to EAC. It may also be due to the fact that it is easy and not time consuming to register business in Rwanda.

Table 28: Government and technical standards regulations, registration and license

Variable name	Categories	EAC trading SMAEs (n=28)	
		Freq	%
Government regulations	Not an issue	2	7
	No barrier	21	75
	Seen as a barrier	3	11
	Serious barrier	2	7
Registration and license	Not an issue	4	14
	No barrier	19	68
	Seen as a barrier	5	18
Technical standards and health regulations	Not an issue	5	18
	No barrier	14	50
	Seen as a barrier	4	14
	Serious barrier	4	14

4.8.2 Transportation, Business environment and Competition

Table 29 show that transportation was reported (25%) as a barrier and (25%) as serious barrier, business environment (57%) was seen as barrier while competition from firms in the foreign market (43%) was seen as a serious barrier. This shows that it is not easy for them to trade across the border. As reported by some SMAEs owners, problems they were facing among others while are transport infrastructure and insecurity.

Table 29: Transportation, Business environment, and Competition (n=28)

Variable name	Categories	EAC trading SMAEs	
		Freq	%
Transportation	Not an issue	4	14
	No barrier	10	36
	Seen as a barrier	7	25
	Serious barrier	3	11
	Very serious barrier	4	14
Business environment in the targeting country	No barrier	7	25
	Seen as a barrier	16	57
	Serious barrier	5	18
	No barrier	5	18
Competition from firms in the foreign market	Seen as a barrier	11	39
	Serious barrier	7	25
	Very serious barrier	5	18

4.8.3 Customs charges and procedure

About (39%) of respondent perceive customs office charges as a barrier, while (22%) see it as a serious barrier for them. Moreover, results show that (39%) do not found customs charges as a barrier (Table 30). Customs procedures were not perceived as a barrier (29%), seen as a barrier (39%) and as a serious barrier by (32%) of respondent Table 30. This is due to the improvement made since the creation of EAC Customs Union. Currently the simplified trade regime that simplified immigration and customs procedures hence reduced the time spent at the border. However, further improvements are still need.

4.8.4 Police road block and weighbridge

Police road blocks were reported not a barrier by (25%) of respondents, also the results show that (32%) see it as a barrier and (11%) see it as serious barrier (Table 30). This shows that police roads blocks and their associated bribes are still affecting those participating in the EAC trade despite the creation the efforts towards free movement of goods and services. Most of traders (95%) reported that weighbridges are not a barrier for them. These results show that weighbridge may no longer be a barrier, because according to the report by EAC (2012) about the status of NTBs, several weighbridges were among reported NTBs affecting Rwanda traders.

Table 30: Customs offices charges, procedure, and police roadblock (n=28)

Variable name	Categories	EAC trading SMAEs	
		Freq	%
Customs offices charges	No barrier	11	39
	Seen as a barrier	11	39
	Serious barrier	5	18
	Very serious barrier	1	4
Customs procedure at the border	No barrier	8	29
	Seen as a barrier	11	39
	Serious barrier	6	21
	Very serious barrier	3	11
Police road blocks	Not an issue	2	7
	No barrier	5	18
	Seen as a barrier	9	32
	Serious barrier	9	32
	Very serious barrier	3	11
Weighbridge	Not an issue	14	50
	No barrier	13	45
	Seen as a barrier	1	3

4.8.5 Political barriers and corruption

According to the results in Table 31, (58%) of the traders were not affected by political barriers while (42%) were affected by political barriers. This is due to the political conflicts in the region, for example the time of data collection, there were a political conflict in Burundi and traders were affected because they could not access the market. Corruption was considered to be a problem by (11%) not an issue (14%) while 39% perceived it as a barrier, (11%) serious barrier and (25%) very serious barrier. These results show that there is still corruption in the EAC cross border trade.

Table 31: Political, languages, customs barriers and corruption (n=28)

Variable name	Categories	EAC trading SMAEs	
		Freq	%
Legal and political barriers	Not an issue	3	11
	No barrier	13	47
	Seen as a barrier	4	14
	Serious barrier	4	14
	Very serious barrier	4	14
Corruption	Not an issue	3	11
	No barrier	4	14
	Seen as a barrier	11	39
	Serious barrier	3	11
	Very serious barrier	7	25

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The aim of this study was to analyze the participation of SMAEs in the EAC cross border trade by determining factors that influence the decision to participate or not participate and assessing the profitability of Rwanda EAC trading SMAEs relative to non-trading SMAEs. Hence, it provides policy recommendations that would enhance the participation of SMAEs in the EAC cross border trade. The study focused on available data on Rwanda cross border trade and analyzed factors that may influence that participation such as SMAEs owner's and market characteristics. The study also focused on profitability and factors that would influence that profitability and analyze the existing Non-tariff barriers.

Factors affecting participation of SMAEs in the EAC cross border trade:

Results from the study using a logit regression model confirm that, distance from the border, experience, number of employees and reason for starting the business at 99% level of confidence, ownership status and management of the firm were significantly influencing the participation of Rwanda SMAEs in the EAC cross border trade at 95% and 90% respective level of confidence. EAC non-trading SMAEs reported that lack of capital, security, and business environment in neighbouring countries are major challenges that prevent them from participating.

Relative profitability between EAC trading and non-trading SMAEs:

Results from the present study prove that the gross margin for beans, irish potato and onion was significantly different for those participating in the EAC cross border trade and

for non-participating. They also show that profitability of EAC trading SMAEs is affected by high transport cost and existence of NTBs.

Effect of Non-Tariff Barriers and perception of traders towards trade barriers:

Results from Linear regression found that, transport costs, clearing fees, customs charges and bribes are significant affecting profitability. The level of significance used was 0.05. Moreover, EAC trading SMAEs reported that they are seriously affected by police road blocks and customs procedures at the border. Additionally, both EAC trading and non-trading are seriously affected by lack of capital to finance the expansion of their business.

Therefore, we have enough confidence to conclude that SMAEs characteristics and market characteristics has a significant effect on the decision to participate or not in the EAC trade. Also, EAC trading is more profitable than non-trading.

5.2 Recommendations

In review of the preceding discussion and conclusion, the study recommend as follows:

- i. Ministry of Trade and Industry and other stakeholders like NGOs and trade associations should enhance strategies for supporting cross border export and encourage SMEs participation in cross border trade by providing an adequate means for access to the available information about market opportunities in the EAC region.
- ii. SMAEs should be confident to participate in cross border trade because results prove that EAC cross border trade is profitable than non-trading although trading cost is still high due to the existence of NTBs.

- iii. EAC secretariat should enhance effort in the process of elimination of NTBs because according to the results from the present study, some NTBs like several police roads block persist.
- iv. To complement findings from this study and enhance SMAEs participation in cross border trade, further research should focus on enterprises that trade added value agricultural products. Also, further research should focus on import.

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APPENDICES

Appendix 1: Government and technical standards regulations, registration and license

Variable name	Categories	EAC trading SMAEs	
		Freq	%
Government regulations	Not an issue	2	7
	No barrier	21	75
	Seen as a barrier	3	11
	Serious barrier	0	0
	Very serious barrier	2	7
Registration and license	Not an issue	4	14
	No barrier	19	68
	Seen as a barrier	5	18
	Serious barrier	0	0
	Very serious barrier	0	0
Technical standards and health regulations	Not an issue	5	18
	No barrier	14	50
	Seen as a barrier	4	14
	Serious barrier	4	14
	Very serious barrier	1	4

Appendix 2: Illegal taxation, exchange rate and Informal trade

Variable name	Categories	EAC trading SMAEs	
		Freq	%
Illegal taxation	Not an issue	18	64
	No barrier	3	11
	Seen as a barrier	2	7
	Serious barrier	5	18
	Very serious barrier	0	0
Currency exchange rate	Not an issue	0	0
	No barrier	7	25
	Seen as a barrier	6	28
	Serious barrier	10	36
	Very serious barrier	3	11
Informal trade	Not an issue	5	18
	No barrier	12	43
	Seen as a barrier	3	10
	Serious barrier	5	18
	Very serious barrier	3	10

Appendix 3: Transportation, Business environment and Competition

Variable name	Categories	EAC trading SMAEs	
		Freq	%
Transportation	Not an issue	4	14
	No barrier	10	36
	Seen as a barrier	7	25
	Serious barrier	3	11
	Very serious barrier	4	14
Business environment in the targeting country	Not an issue	0	0
	No barrier	7	25
	Seen as a barrier	16	57
	Serious barrier	5	18
	Very serious barrier	0	0
Competition from firms in the foreign market	Not an issue	0	0
	No barrier	5	18
	Seen as a barrier	11	39
	Serious barrier	7	25
	Very serious barrier	5	18

Appendix 4: Customs offices charges and procedure and police road block

Variable name	Categories	EAC trading SMAEs	
		Freq	%
Customs offices charges	Not an issue	0	0
	No barrier	11	39
	Seen as a barrier	11	39
	Serious barrier	5	18
	Very serious barrier	1	4
Customs procedure at the border	Not an issue	0	0
	No barrier	8	29
	Seen as a barrier	11	39
	Serious barrier	6	21
	Very serious barrier	3	11
Police road blocks	Not an issue	2	7
	No barrier	5	18
	Seen as a barrier	9	32
	Serious barrier	9	32
	Very serious barrier	3	11
Weighbridge	Not an issue	14	50
	No barrier	13	45
	Seen as a barrier	0	0
	Serious barrier	0	0
	Very serious barrier	1	3

Appendix 5: Political, languages, customs barriers and corruption

Variable name	Categories	EAC trading SMAEs	
		Freq	%
Legal and political barriers	Not an issue	3	11
	No barrier	13	47
	Seen as a barrier	4	14
	Serious barrier	4	14
	Very serious barrier	4	14
Corruption	Not an issue	3	11
	No barrier	4	14
	Seen as a barrier	11	39
	Serious barrier	3	11
	Very serious barrier	7	25
Languages and customs	Not an issue	1	4
	No barrier	17	61
	Seen as a barrier	10	36
	Serious barrier	0	0
	Very serious barrier	0	0
Culture	Not an issue	0	0
	No barrier	16	57
	Seen as a barrier	12	43
	Serious barrier	0	0
	Very serious barrier	0	0

Appendix 6: Other trade barriers

Variable name		Categories	EAC trading		EAC non-trading	
			SMAEs n=28		SMAEs n=166	
			%	Freq	%	Freq
Market access problem		Not an issue	0	0	5	3
		No barrier	12	43	55	33
		Seen as a barrier	13	46	60	36
		Serious barrier	3	11	29	18
		Very serious barrier	0	0	17	10
Informational barrier		Not an issue	0	0	0	0
		No barrier	13	46	112	68
		Seen as a barrier	9	32	40	24
		Serious barrier	6	22	10	6
		Very serious barrier	0	0	4	2
Demand of the product		Not an issue	0	0	0	0
		No barrier	20	71	88	53
		Seen as a barrier	3	11	60	36
		Serious barrier	5	18	15	9
		Very serious barrier	0	0	3	2
Lack of capital to finance expansion		Not an issue	0	0	0	0
		No barrier	1	3	14	8
		Seen as a barrier	2	7	41	25
		Serious barrier	17	61	65	39
		Very serious barrier	8	29	46	28
Transportation cost and duration		Not an issue	0	0	37	22
		No barrier	4	14	86	52
		Seen as a barrier	12	43	30	18
		Serious barrier	4	14	10	6
		Very serious barrier	8	29	3	2

Appendix 7: Questionnaire for Small and Medium Agribusiness Enterprises exporting to EAC countries

Date of the interview.....

1.0 BASIC INFORMATION

1.1	Social economic and demographic characteristics	
A01.	Province / District.....	A02. Sector.....
A03.	Location	.....
A04.	Age	.....years
A05.	Sex	1. Male[] 2. Female[]
A06.	Education	1=None [] 2=Primary [] 3=Secondary[] 4=University [] 5=Others (<i>Specify</i>).....
A07.	Other major activity is doing apart from being a trader in Agribusiness	1=None[] 3=Employed[] 2=Farming or livestock [] 4=Business [] 5= Other.....
A08.	Major activity	.....
A09.	Ownership status of the firm	1= Sole owner[] 2= Corporate [] 3=Cooperative/Association[]
A10.	Management of the firm	1= The company has a strong management and accounting 2= The company has just a basic management system
A11.	Number of employee	.....
A12.	Reason for starting the business	1= Gain more income [] 2= Occupation []
A13.	How long have you been in this business?	..... Years
A14.	First decision/motivation for starting exporting in EAC	1= felt to have a productivity advantage 2=decided to invest in productivity
A15.	How get the information about market opportunity in EAC	1=from a friend [] 2=Relative [] 3=Other(<i>specify</i>)
A16.	Mode of entry in EAC cross border trade	1=friend 2=Relative 3=Own initiative
A17.	How long have you been in EAC cross border trade (Time of entry)	..... Years
A18.	What was your starting capital?	.....Amount
A19.	What is your annual turnover?	.....Amount
A20.	How did you get the starting capital?	1=Own saving [] 2=not own saving[]
A21.	If not own saving where did you obtain the capital?	1=Microfinance [] 2=Friend[] 3=relative[] 4=Money lender [] 5= Others.....
A22.	Are you a member of any trade association?	1=Yes [] 2=No[]
A23.	Do you use to get market information?	1=Yes[] 2=No[]
A24.	Source of information on price and quantity to export?	1=Direct visit to market [] 2=Fellow traders [] 3= Official media 4=Others (<i>Specify</i>)

2.0 FIRM AND COMMODITY CHARACTERISTICS

A25.	What products do you deal with?	1=Beans 2=Irish potatoes 3=vegetables 4=Others (<i>Specify</i>)
A26.	From whom do you buy the products?	1=Direct from farmers[] 2=Assembly markets[] 3=Middlemen[], 4=Wholesales[] 5=Others (<i>Specify</i>)
A27.	Which country in EAC do you sell your products?	1=Uganda[] 2=Tanzania [] 3=Burundi [] 4= Kenya []
A28.	Which border do you use/prefer and why?	1= Gatuna[] 2= Cyanika[] 3= Akanyaru[] 4=Nemba [] 5= Rusumo []
A29.	At which market in the country mentioned do you sell your products?	
A30.	To whom do you sell?	1=whole sellers[] 2=Retailers [] 3= Direct to consumers[]
A31.	Do you transport the products with your own mean of transport?	1=Yes[] 2=No[]
A32.	Which means of transport do you use?	1=Truck[] 2= Camionette [] 3=Other (<i>Specify</i>).....
A33.	Do you make clearing on your own?	1=Yes[] 2=No []
A34.	If No, who make clearing for you?	1=Clearing agent, 2=Others (<i>Specify</i>)

3.0 MARKETING COSTS

Trade related costs

	Type of operation	Types of product			
		Beans	Irish potato	Vegetables	
A35	Quantity purchased (kg)				
A36	Buying price (Rwf)				
A37	Labor costs to pack & unload				
A38	Transport costs/hiring truck				
A39	Clearing agent fees				
A40	Information costs				
A41	Stock				
A42	Packaging cost				
A43	Taxes				
A44	Others (<i>Specify</i>)				

Non -Tariff Barriers related costs

		Beans	Irish potato	Vegetables	
A45	Registration, license fees				
A46	Charges and fees at the border				
A47	Customs offices charges				
A48	Police officers at road blocks (how much bribe per trip)				
A49	Weighbridge charges				
A50	Loss of business opportunities due to delay at the border (how many sales or agreement cancelled due to barriers)				
A51	Quantity wasted (kg) due to delay at the border				
A52	Cost of time lost (hours) per trip to designated country due to barriers				
A53	Unexpected fees without prior information				
A54	Others				

4.0 SALES TO EAC COUNTRIES

	Type of operation	Type of product			
		Beans	Irish potato	Vegetables	
A55	Quantity sold (kg)				
A56	Selling price (Rwf)				

5.0 IN CASE OF CONTRACT

A57 Do you have any contract agreement with buyer of products? 1=Yes[] 2No []	A58 If yes indicate the kind of agreement 1= formal contract 2=Informal contract
A59 What does the contract specify? 1=Price 2=Quantity 3=Time	

6.0 PERCEPTION OF TRADERS TOWARDS TRADE BARRIERS

6.1 Non-tariff barriers

	Barriers	Not an issue	No barrier	Not seen as a barrier	Barrier	Very serious barrier
A60	Governmental regulations					
A61	Registration and license					
A62	Certification					
A63	Technical standards and health regulations					
A64	Customs offices charges					
A65	Customs procedure at the border					
A66	Police road blocks					
A67	Weighbridge					
A68	Transportation					
A69	Informal trade					
A70	Illegal taxation					

6.2 Other possible barriers

	Other Barriers	Not an issue	No barrier	Not seen as a barrier	Barrier	Very serious barrier
A71	Market access problem					
A72	Informational barrier					
A73	Legal and political barriers					
A74	Languages and customs					
A75	Culture					
A76	Demand of the product					
A77	Competition from firms in the foreign market					
A78	Lack of capital to finance expansion					
A79	Business environment in the targeting country					
A80	Corruption					
A81	Currency exchange rate					
A82	Transportation cost and duration					

Appendix 8: Questionnaire for SMAEs trading in the domestic market

Date of interview

7.0 BASIC INFORMATION

1.1	Social economic and demographic characteristics	
A01.	Province/District.....	A02. Sector.....
A03.	Location	.....
A04.	Age	.....years
A05.	Sex	1. Male 2. Female
A06.	Education	1=None [] 2=Primary [] 3=Secondary[] 4=University [] 5=Others (<i>Specify</i>).....
A07.	Other major activity is doing apart from being a trader in Agribusiness	1=None[] 3=Employed[] 2=Farming or livestock [] 4=Business [] 5= Other.....
A08.	Major occupation	.....
A09.	Ownership status of the firm	1= Sole owner [] 2= Corporate [] 3=Cooperative/Association[]
A10.	Management of the firm	1= The company has a strong management and accounting 2= The company has just a basic management system
A11.	Number of employees	.....
A12.	Reason for starting the business	1= Gain more income [] 2= Occupation[]
A13.	First decision/motivation for trading in the domestic market	.....
A14.	What was your starting capital?	.....Amount
A15.	What is your turnover?	.....Amount
A16.	How do you enhance your productivity/Invest in productivity enhancement?	.....
A17.	How did you get the starting capital?	1=Own saving [] 2=not own saving[]
A18.	If not own saving where did you obtain the capital?	1=Microfinance [] 2=Friend[] relative[] 3=Money lender []

		4= Others.....
A19.	How long have you been in this business?	.....Years
A20.	Have you ever trade in EAC countries?	1=Yes[] 2=No[]
A21.	If Yes, why have you stopped?	
A22.	Are you a member of any trade association?	1=Yes [] 2=No[]
A23.	Do you use to get market information?	1=Yes[] 2=No[]
A24.	How do you use to get that information?	1=Direct visit to market[] 2=Fellow traders [] 3=Media [] 4=Others (Specify).....
A25.	Have you get the information about market opportunity in EAC	1=Yes 2=No
A26.	If Yes, from whom?	1=A friend 2=Relative 3=Other(<i>specify</i>)

8.0 COMMODITY CHARACTERISTICS [A 27- A 33]

A27.	What products do you deal with?	1=Beans[] 2=Irish potatoes [] 3=vegetables[] 5=Others []
A28.	From whom do you buy the products?	1=Direct from farmers[] 2=Assembly markets[] 3=Middlemen[] 4=Wholesales[] 5=Others (Specify).....
A29.	In which region do you sell your products?	.....
A30.	The name of the market in the region?	.....
A31.	To whom do you sell?	1=whole sellers[] 2=Retailers[] 3= Direct to consumers[]
A32.	Do you transport the products with your own mean of transport?	1=Yes [] 2=No[]
A33.	Which means of transport do you use?	1=Truck[] 2= Camionette [] 2=Other (Specify)

9.0 MARKETING COSTS

Trade related costs

	Type of operation	Types of product		
		Beans	Irish potato	Vegetables
A34	Quantity purchased (kg)			
A35	Buying price (Rwf)			
A36	Labor costs to pack & unload			
A37	Transport costs/hiring truck			
A38	Information costs			
A39	Stock			
A40	Others (Specify)			

4.0 SALES TO EAC COUNTRIES

	Type of operation	Type of product			
		Beans	Irish potato	Vegetables	
A41	Quantity sold(kg)				
A42	Selling price(Rwf)				

5.0 IN CASE OF CONTRACT

A43 Do you have any contract agreement with buyer of products? 1=Yes[] 2=No[]	A44 If yes indicate the kind of agreement 1= formal contract 2=Informal contract
A45 What does the contract specify? 1=Price 2=Quantity[Yes] 3=Time	Formal

6.0 PERCEPTION OF TRADERS TOWARDS TRADE BARRIERS

	Barriers	Not an issue	No barrier	Not seen as a barrier	Barrier	Serious barrier
A46	Registration					
A47	Market access problem					
A48	Informational barrier					
A49	legal and political barriers					
A50	Demand of the product					
A51	Competition from firms in the foreign market					
A52	Lack of capital to finance expansion					
A53	Corruption					
A54	Transportation cost and duration					
A55	Security problems					