DETERMINANTS OF INFORMAL CROSS BORDER TRADE IN RWANDA

A Dissertation Submitted to the University of Rwanda, College of Business and Economics in Partial Fulfillment of the Requirements for the Award of a Master Degree of Science in Economics (Money and Banking Option)

SUBMITTED BY: VITAL HABINSHUTI
REG. NUMBER: 217302831

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DECLARATION

I hereby declare that this research entitled "***DETERMINANTS OF INFORMAL CROSS BORDER TRADE IN RWANDA*** is my original work and has never been submitted to any other institution of higher learning for any academic award.

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Signature   **Date**

Vital HABINSHUTI

Reg. No: 217302831

This thesis entitled **The Determinants of Informal Cross Border Trade in Rwanda**, written and submitted by **HABINSHUTI Vital** in partial fulfilment of the requirements for the degree of Master of Economics, is hereby accepted and approved.

Signature should be here_____

Dr. Edouard Musabanganji

Supervisor

_____

07/11/2018

_____   _____

Dr. Martin MUGENZI   **Dr. Fidèle MUTEMBEREZI**

Member of the Jury   Member of the Jury

_____   _____

07/11/2018   07/11/2018

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Dr. Charles RUHARA MULINDABIGWI

Director of Graduate Studies

_____

07/11/2018

DEDICATION

This work is dedicated to my family and friends,

fellow students and Lecturers of the University of Rwanda

and all those who assisted me during this research project.

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I wish to extend my heartfelt gratitude to my supervisor Dr. Edouard Musabanganji for the unfailing guidance, direction and advice during the course of the research. Your feedback was decisive to me for being able to improve my work. I cannot afford to blunder by not acknowledging the support accorded to me by our lecturers at the School of Economics. I end this acknowledgment by thanking my family and friends who have been there for me. I am grateful to all of you.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

BNR: National Bank of Rwanda

BOP: Balance of Payments

CEPGL: Communauté Economique des Etats des Pays des Grands Lacs

COMESA :   Common Market for Eastern and Southern Africa

CUP :   Cambridge University Press

DC :   District of Columbia

DRC: Democratic Republic of Congo

EAC: East African Community

ICBT: Informal Cross Border Trade

ID: Identity Card

IMF: International Monetary Fund

MINAGRI: Ministry of Agriculture

MINICOM: Ministry of Trade and Industry

NISR: National Institute of Statistics of Rwanda

OEDC: Organization of Economic cooperation and Development

RRA: Rwanda revenue Authority

RTA :   Regional Trade agreements

RWF: Rwandan Franc

STR :   Simplified Trade Regime

USD: United States Dollar

VIF: Variance Inflator Factor

ABSTRACT

This empirical study analyzes the determinants of Informal cross border trade in Rwanda. A binary logistic model was used to assess those determinants. It has found out that Informal cross border trade is influenced by both socio economic conditions (gender, age, level of education, ubudehe category, etc) and geographical conditions (proximity to the border, access to the road).

This study also looks at challenges faced by traders involved in informal cross border trade and provides policy recommendations that can help sort out those challenges. One of the main recommendations is to help traders involved in informal cross border trade by providing them with capacity building related to financial literacy and business management. It is also recommended that these traders should be facilitated to have access to financing (loans).

CHAPTER ONE: INTRODUCTION
1.1 General Introduction

Rwanda is a small and developing country based in East Africa with a population of around

11.5 million people. Subsistence farming dominates Rwanda's economy, employing 90 per

cent of the population and providing over 40 per cent of GDP.

Being a landlocked country 1,740 km from the Port of Mombasa and 1,480 km from Dar es

Salaam, Rwanda's transport costs represent as high as 40 per cent of export and import

values. Furthermore, there are additional costs to trade across Rwanda's Northern and Central

Corridors, which are avoidable. These non-tariff barriers (NTBs) include the weighbridges

and corruption found on the transport corridors. Bureaucracy at border-posts and at the ports

used by Rwandan traders are also a constraint bringing additional costs and delaying the

speed and turnover of trade MINICOM, (2010).

A considerable part of Rwanda's trade is informal trade. Informal cross-border trade (ICBT)

encompasses all transactions of goods and services between two economies that are not

recorded in official customs records. ICBT is a source of revenue for those involved in it and

given its magnitude, it has been found that it has an important percentage in the total trade

between neighbouring countries.

Despite its importance, no research has been done so far to assess the determeninants of

Informal cross border trade in Rwanda. This study analyzed the determinants of the Informal

Cross border trade in Rwanda.

1.2 Background of the Study

Many countries in Africa registered a period of growth immediately after independence. After this initial period of growth, most economies in the region faltered before going into decline (Chung, 2010). Informal Cross-border trade is important for Rwanda for a number of social and economic reasons. Firstly, neighbouring countries are important export markets for both the formal and informal exports as they account for a sizable portion of Rwanda's total trade. in addition, informal trade is important from a poverty reduction and gender equality perspective. Similarly, the majority of products are basic commodities, so branding and information asymmetry are not important in consumer choices. There is also little variation in the quality of products carried by traders, as much of them arrive from the same source and traders have information on the differences in prices between the two markets and prices from wholesalers or producers MINICOM, (2012). All these factors make the channel for informal trade highly competitive and the numerous small market players make exerting market power almost impossible.

Due to the close proximity of the markets, trading occurs nearly "instantly", and transaction costs are similar in both markets. This research analyzed the determinants of ICBT traders, their main features of ICBT, traded products and issues faced by these traders in Rwanda.

1.3 Statement of the Problem

ICBT contributes to the eradication of poverty through the provision of employment and income. Ogutu and Echessah (1998).

The Government of Rwanda, through the Ministry of Trade and Industry, and Rwanda Revenue Authority, in a bid to promote cross border trade has continuously engaged national,

and regional stakeholders and established national cross-border trade coordination and monitoring committee which have significantly reduced the cross border trade challenges, especially Non-Tariff Barriers. It is important to note that ICBT is mainly practiced by the unemployed, small and medium enterprises and some large firms, and even formal workers desiring to supplement their salaries. This presents unique benefits to those engaging in such activities such as creation of employment.

But equally it also presents challenges of access to traveling documents, some misunderstanding with customs officials, lack of social security and inadequate knowledge of travel procedures. Due to the nature of this trade and the dearth of adequate legal framework, traders often involved in corruption through soliciting of bribes, harassment of women, sexual abuse and confiscation of goods.

This issue has largely been ignored in empirical analysis by previous researchers. Informal cross-border trade (ICBT) is a significant feature of regional trade and international mobility. But its overall character and significance is unknown. Sally Peberdy et al (2015). Hence, this study filled this research gap by analysing the key determinants of ICBT in Rwanda, the profile of the traders involved in ICBT, the challenges that they face, and their opinions on how challenges can be overcome.

1.4 Objectives of the Study

The main objective of this research was to examine the key determinants of Informal Cross Border Trade in Rwanda.

To achieve this objective, the specific objectives were to:

   i.   Assess the determinants influencing informal cross border trade in Rwanda;

ii.   Analyze the major challenges facing traders involved in infomal cross border trade; and

iii.   Proffer policy recommendations on promoting cross border trade between Rwanda and her neighbours.

1.5 Research Questions

The two basic research questions for the study are as follows:

1.   What are determinants of ICBT in Rwanda?

2.   What are the main challenges faced by the ICB traders?

1.6 Significance of the Study

This research is important to all stakeholders on informal cross border trade. The results of the study are of paramount importance to researchers, Rwandan policymakers (such as BNR, NISR, MINICOM, MINAGRI, RRA, and local authorities) and informal cross border traders.

For researcher, the study helped uncover critical areas of informal cross border trade that were not explored by other researchers and the outcome of this study served as a baseline for future research;

For the policy makers (government institutions), the outcome of the study could facilitate the formulation of efficient strategies and approaches to make the ICBT more beneficial for the country and the traders; and

Finally, **for traders** the results revealed their current status and the type of support they need.

1.7 Scope of the Study

This study focused only on informal cross border trade determinants between Rwanda and its neighbours (Burundi, Uganda, Tanzania and DRC). Primary data collected in 2018 were used.

1.8 Limitation of the Study

Although the study has reached its aim, there are some limitations that are beyond control:

Time: Due to limited time, I was able to interview as many people as I had wished in the primary data collection.

Finance: Due to limited financial resources, I was not able to reach as many crossing points as I had wished.

However, the findings in this study formed an encyclopedia on informal trade determinants in Rwanda since it is the first empirical analysis on the said subject.

1.9 Organization of the study

This thesis is divided into five chapters. **Chapter one** consists of general introduction, background of the study, statement of the problem, research objectives, research questions, and purpose of study. This chapter looks at the background which gives the motivational part of the research and introduces information about a research problem under study which brings out the spectrum of what the study intends to address, objectives and research questions that will be responded to at the end of the study. **Chapter two** covers the literature review of Informal Cross border trade theories. It provides key terms and concepts as framework of the study. **Chapter three** covers the research methodology used in the study which includes data collection techniques and tools used in data collection. **Chapter four** contains the research

findings, tables, and interpretation of the results in a suitable context. **Chapter five** presents a

summary of the findings, conlusions and recommendations for policymakers.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter has two sections. Section one presents a review of the literature or studies done on the topic under study, which relates to the determinants of informal cross border trade. It will provide contributions of other authors on the topic under investigation. The second section studies the critical review and gap analysis of literature.

2.2 Conceptual Framework

According to Lipsey (1970), international trade allows a country to escape from its own resource limitations, both natural and human, and concentrate its growth effort in areas in which it has a genuine advantage. The goods can pass from one country to another through either the informal or the formal route. Formal trade is a process of exchange consisting of 'proper' or normal transactions, which are institutionally regulated, in the formal sector. RISPER AWITI A. ORERO (2008).

There is no universal definition of Informal Cross Border Trade. In some countries they call it shuttle trade, in others they call it small scale cross border trade while in others it is simply called informal Cross border trade. Despite different terminologies, it is generally referred to trade that is not recorded with customs because the goods imported or exported are below the customs threshold. Given the fact that most of the consignments are of relatively small size (few kilograms, few liters, etc), the mostly used means of transportation is foot or bicycle. People who live near countries' borders are more likely to be involved in this type of trade because it is easier for them to access the other side of the border product market.

Further, acknowledging the commercial importance of the informal sector in providing goods and services to less established states (Titeca ,2009, 2012; Little ,2005, 2007) allows for the

mapping of links and nodes in this critical support system, and thus, a more holistic view of the region's trading system and dynamics Niti Bhan ,2016.

In the case of Rwanda, border communities (people living in sectors located on the border with neighbouring countries) are allowed to cross the border without the use of passports or other standard travel documents. They just show their national IDs to the immigration officials and are given a token that allows them to cross the border and spend less than 24 hours on the other side of the border. In addition to this, people living near the border are likely to have close social relations (through marriage, same language, etc) with people living on the other side of the border. This gives them an advantage because it helps them know the market opportunities that are available on the other side of the border. The dominant identities that define community and influence social and economic behaviour at the border region are multiple and interwoven; some overbearing, others unique to specific groups (RISPER AWITI A. ORERO, 2008). The notion of shared information, essentially an informal social and economic data bank, provides the link to the second category of social identity. These are social associations formed by being ' located' within the neighbourhood or the trading community (RISPER AWITI A. ORERO, 2008).

The fact that the border areas in two neighbor countries are often inhabited by people of the same ethnic origin or even same family members considerably facilitates not only ICBT but also deeper integration of communities across borders (Suffyan Koroma et al., 2017). It is also important to note that most of the people living near most of the borders live in rural areas, which means that they live on agriculture related activities. The informal cross border trade gives them an opportunity to gain an extra income that can help them move out of

poverty (Paul Brenton, Carmine Soprano, 2018). Income derived from small-scale trading activities is key to reduce poverty.

ICBT plays a vital role in poverty reduction, employment, and income opportunities (Kabira, 2006; Cagatay & Ozler, 1995). Informal cross border trade becomes a safety net for the unemployed in Africa, providing sources of income without formal education (Mijere, 2006). Muzvidziwa (2005) also reiterated that "informal cross border trade is not only a source of livelihood; it is also a source of employment. Tekere et al. (2002), in their study on informal crossborder trade between Zimbabwe on one hand and South Africa and Zambia on the other, concluded that ICBT provides an opportunity for a large number of unemployed people to earn an income considerably higher than the minimum salary in the formal sector.

 Mwaniki (1998) supported the view that several people in the region were shifting to the informal sector where they hope to earn a living and among such groups are the cross border traders who travel frequently to neighbouring countries to sell their products and return home with more goods for resale and some foreign currency. Mwaniki (1998) also noted that all the cross border traders interviewed managed to raise incomes that took their households out of poverty, as the incomes accruing to them were above the prevailing official poverty threshold. This explains why the traders are able to buy food for their households, pay school fees for their children and relatives, have some money to reinvest in the business and improve their welfare as found out by Ama and Mangadi (2013).

In trade, access to feeder roads is an important factor because it can help producers and traders transport their commodities and sell them to the market. People who have a relatively low level of education are unlikely to get formal jobs. They see informal cross border trade as

an opportunity for them to get some income. People with a higher level of education however, have opportunities of getting other jobs. In addition to this, if they are involved in business, they are highly likely to be involved in formal trade than informal trade. Based on the classification of economic classes in Rwanda, people who are in Ubudehe category 4 are highly unlikely to be involved in informal cross border trade because they have an income that can help them be involved in formal trade. People in Ubudehe category 1 are too poor to be involved in trade. This leaves people under ubudehe category 2 and 3 to be high likely involved in informal cross border trade.

Given the nature of products traded in informal cross border trade and the size of the capital involved, women are more likely to be involved in informal cross border trade. Jawando et al., (2012) notes that the push to earn incomes and sustain families due to poor formal employment opportunities are the main economic reasons for a majority of women's employment in informal cross border trade. In a study looking at ICBT from a gender perspective, Gaidzanwa (1997), quoted in Tekere et al. (2000) argues that the assumptions made about ICBT cannot be isolated from the gender views of the social world. They (women) contribute to food security, by trading in food products from areas of surplus to areas of deficit (Dejene, 2001).

Having another household member with an income can be a factor of being involved in informal cross border trade. This can be explained by the fact that one can be involved in different activities where the other is complementing him/her by generating income from informal cross border trade.

In terms of direction of trade, it is important to note that imports are dominated by manufactured goods imported from Uganda. Exports are dominated by agricultural products exported to DRC. The DRC is Rwanda's largest regional export market, with both formal and informal exports accounting for the majority of Rwanda's cross-border exports. The markets at Goma and Bukavu represent vast markets for Rwandan agriculture, with a combined regional population of over 1.8 million (USAID, 2013).

Informal trade accounts for over 95 percent of trade in livestock and up to 60 percent for staple grains (Ackello Ogutu and Echessah, 1997 ; Little, 2007).

This is due to the fact that the Eastern part of DRC has poor infrastructure which limits market access for DRC producers based in remote place. In addition to this, Eastern DRC is a war torn region where a lot of production activities have been negatively affected by the conflict. Before the Burundi crisis, Rwanda was importing a lot of fruits from Burundi. Rwanda was also exporting some high quantities of staple foods to Burundi, but this trend has been slowing down recently. It should also be noted that people import because they can not find the products on the local market or the product on local market is more expensive compared to the market across the border. For exports, people are exporting because they can generate more money on the other side of the border than on the local market.

2.2.1 Defining ICBT

Informal Cross-Border Trade (ICBT) has been defined in the literature in several ways. COMESA defines informal crossborder trade as a form of trade that is unrecorded in official statistics and is carried out by small businesses in the region. Jean-Guy, Afrika and Ajumbo (2012) pointed out that ICBT characteristically involves bypassing border posts, concealment

of goods, under-reporting, false classification, under-invoicing and other similar tricks. In addition to seeking to evade taxes or fees imposed by governments, traders also try to avoid administrative formalities in areas such as health, agriculture, security and immigration, which are perceived as costly, complex and time-consuming (Njiwa, 2013).

Lesser and Moisé-Leeman (2009) describe informal cross-border trade (ICBT) as involving legitimately produced goods and services, which escape the government regulatory framework, thereby avoiding certain tax and regulatory burdens ; hence fully or partly evading payment of duties and charges. ICBT is also referred to as parallel trade or smuggling (Kallungia, 2001). Little (2007) defines it as "a normal market response to cumbersome, time consuming export regulations and regional price distortions, and should be encouraged as a means to increase intraregional trade (and 'regionalization'), meet local demand that is not being met by national production and markets, and ensure regional food security".

Organization of Economic cooperation and Development (OECD) (2009) defines ICBT as "trade in legitimately produced goods and services, which escapes the regulatory framework set by the government, as such avoiding certain tax and regulatory burden".

Most of ICBT is bilateral in character, that is, traders tend to operate between their home country and one other country. Trading into a third country is comparatively rare. At the same time, the vast majority of traders crossing into a country with goods to sell are citizens of that country. ICBT by traders of other nationalities is uncommon (Sally Peberdy et al., 2015).

Table 1: Types of Informal Cross-Border Traders

Categories	Definition
A	Informal (unregistered) traders or firms operating entirely outside of the formal economy
B	Formal (registered) firms fully evading trade related regulations and duties (eg : avoiding official border crossing posts)
C	Formal (registered) firms partially evading trade related regulations and duties by resorting to illegal practices (eg : under invoicing)

Source: Jean Guy Afrika and Ajumbo (2012)

2.2.2 Determinants of ICBT in Africa

According to Jean-Guy, Afrika and Ajumbo (2012), a variety of factors are responsible for the proliferation of ICBT in Africa. The main determinants of Informal Cross Border Trade are:

Lack of trade facilitation: As formal trade requires a lot of documentation, people with a low level of income do not find it easy to get those documents and hence choose to be involved in informal cross border trade.

Inadequate border infrastructure: some borders do not have infrastructure that can facilitate small traders in their activities

Lack of adequate public and private transportation: Given the nature of traded products, they need to be sold as soon as possible otherwise they may get damaged. That is why some traders prefer to use direct means (foot, bicycles) to get them to the market immediately

Limited access to finance: Most of the ICBT traders have a small capital and do not have access to financing.

Limited market information: ICBT traders do not have enough market information and only rely on the neighbouring markets.

Corruption and Insecurity: As some customs and other government officials may require bribes, it has a negative impact and some trade decide to engage in informal cross border trade.

Low knowledge, education and business management skills: People involved in ICBT have a low level of education and have not had training on financial literacy and business management.

2.2.3 Challenges of measuring ICBT

Acacia Consultants (2005) summarize the main practical challenges related to implementations of informal trade monitoring. These are:

(1) Official border points tend to be located next to unofficial border routes hence substantial volumes of informal trade can easily go unrecorded.

(2) Some ICBT surveys also do not consider the unrecorded value or volume of trade caused by under-reporting or misclassification at official border points.

(3) There is a need to find the best time to monitor informal trade. Currently all agencies monitor ICBT between 6 am to 7 pm and hence do not account for night trading activities.

(4) This monitoring time especially when carried out all days in a week may lead to monitor fatigue, thus compromising the quality of data. The ideal monitoring period is actually all year round due to agricultural sector seasonality.

(5) In addition, which borders to monitor is much undefined. Monitoring all borders has financial implications, hence the need to have key representative borders. Further, monitoring surveys are done few weeks in a month and thus provide results which are unlikely to provide an accurate picture of informal trade.

(6) There are challenges related to methodological tools used in ICBT estimation. Direct observation, without any 'balance-weighing scale' to measure the volume of trade, is unlikely to provide accurate estimates of traded quantities.

(7) Other trade related issues include the selection of the prices used by border monitors, whether to use farm gate, wholesale or retail price and what the Cost, Insurance and Freight (CIF) and Free on Board (FOB) equivalent prices are. What exchange rate to monitor is also a challenge, official or local border hawking exchange rate?

(8) Overall, most researchers have measured ICBT by implementing once-off studies or snap shot surveys of specific borders between adjoining countries. These studies are not Africawide as this would rather be very time-consuming and costly. Limited funding in the region for compiling trade statistics implies restricted ability for ICBT monitoring (Acacia Consultants, 2005).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out the methodology that was used to achieve the objectives of the study. According to the Petit Larousse dictionary (1982), methodology is the systematic study by observation of the scientific practice, the basic principles and methods of research that it uses. The methodology includes the general approach of the study (research design), the population of interest, the sample, data collection instruments and the data analysis technique that were used.

3.2 Data Collection

For the purpose of this research and in order to achieve the objectives, primary data was collected.

The secondary data contributed toward the formation of background information, needed by both the researcher in order to build constructively the project and the reader to comprehend more thoroughly the survey outcome.

Primary data was collected in two ways:

- Firstly, a questionnaire survey was conducted with informal cross border traders in selected borders. This survey aimed at collecting information on the profile of the traders, the challenges that they face and the proposed solution.

- Secondly, interviews were carried out with local authorities, customs officials and members of the local authority around selected borders. The purpose of these interviews was to get their opinion on informal cross border trade (the challenges that they observe and what they think needs to be improved).

Primary data used were collected at four crossing points. These crossing points are Gatuna, Cyanika, Poids Lourds and Rusumo. The collected data helped in the modelling of determinants of informal cross border trade. In addition to primary data, secondary data were extracted from the Informal Cross Border Trade Survey database covering a six-year period (2012 to 2017). The following information was taken from that database: value of transactions; gender; occupation, mode of transport ; reasons for importing, reasons for exporting, source of funding of imports and challenges faced.

3.3 Population and Sampling Design

A population is a group of objects, items or persons from which samples are taken for measurement. Depelteau (2000) defines the population as being "a set of all individuals who have precise characteristics in relationship with the objectives". For our case, the population of interest was people involved in informal cross border Trade in Rwanda. Ideally one wants to study the entire population. However, usually it is impossible or unfeasible to do this and therefore one must settle for a sample.

According to Black and Champion (1976), sample is a portion of elements taken from a population, which is considered to be representative of the population. In order to collect primary data, the questionnaire survey technique was used. A sample is a finite part of a statistical population whose properties are studied to gain information about the whole. It is a set of respondents selected from larger population for purposes of survey.

According to De landsheere (1982), sampling is the fact of choosing a limited number of individuals, objects, events which the observation allows to draw conclusions applicable to the whole population from which the choice has been made.

According to Cochran (1977), practicability of statistical sampling techniques allows the researchers to estimate the possible number of subjects that can be included in the sample, the type of sampling technique, the duration of the study, the number of materials, ethical concerns, availability of the subjects/samples, the need for the study and the amount of workforce that the study demands.

For populations that are large, Cochran (1963) developed the Equation (1) to yield a representative sample for proportions.

$$n_0 = \frac{Z^2 pq}{e^2} \qquad\qquad (1)$$

Which is valid where n_o is the sample size, Z^2 is the abscissa of the normal curve that cuts off an area α at the tails (1 - α equals the desired confidence level, e.g., 95%) 1, e is the desired level of precision, p is the estimated proportion of an attribute that is present in the population, and q is 1-p.

According to Israel (1992) to illustrate, as we conduct a study of the characteristics of traders are involved in Informal Cross Border Trade. We assumed there was a large population but that we do not know the variability in the proportion that will adopt the practice; therefore, assume p=0.5 (maximum variability). Furthermore, suppose we desire a 95% confidence level and ±5% precision.

Using these assumptions, our resulting sample size is

$$n_0 = \frac{Z^2 pq}{e^2} = \frac{(1.96)^2 (.5)(.5)}{(0.5)^2} = 385 \text{ traders}$$

These 385 cross border informal trade were selected using simple random probability sampling technique. As Rescoe (1975) cites in Sakaran (2000), "sample sizes larger than 30

and less than 500 are appropriate for most research". Also interview survey technique was used.

3.4 Questionnaire Survey

Cohen (1989) defines a questionnaire as a self-report instrument used for gathering information about variables of interest to an investigation. The questionnaire consisted of of four parts. (see Appendix 1.1) The first part was designed to gather information about the social indicators of traders, the second part was designed to gather information about the economic indicators of traders; the third part assessed access to infrastructure while the fourth part assessed challenges faced by the traders, and the proposed solutions.

3.5 Interview Survey

"The skill of guiding the discussion back to the topic outlined when discussions are unfruitful while it has the disadvantages of being very costly time consuming and can introduce bias through desires of the respondent to please the interviewer" Aaker & Day (1990).

For the purpose of this project, semi-structured face to face interviews will be contacted involving two interest groups: traders and customs officials. The choice was based on researcher's knowledge about different educational levels among interviewees, their different lifestyles and ages, which make imperative an adaption in questions so that they ensure the comprehension by the interviewee i.e., repeat, or rephrase the question.

3.6 Econometric Model Specification

3.6.1 Variables Description

Given the nature of variables in this study, a logistic regression model was used to statistically measure the level of relationship between dependent variables and independents variables of Informal Cross Border Trade in Rwanda. Logistic regression measures the relationship

between the categorical dependent variable and one or more independent variables by estimating probabilities using a logistic function, which is the cumulative logistic distribution. Logistic regression can be binomial, ordinal or multinomial. Binomial or binary logistic regression deals with situations in which the observed outcome has only two possible types (dead vs. alive or win vs. loss).

In binary logistic regression, the outcome is usually coded as 0 or 1, as this leads to the most straightforward interpretation. If a particular observed outcome for the dependent variable is the noteworthy possible outcome (referred to as a success or a case) it is usually coded as 1 and the contrary outcome (referred to as a failure or a non case) as 0. Logistic regression is used to predict the odds of being a case based on the values of the independent variables (predictors). The odds are defined as the probability that a particular outcome is a case divided by the probability that it is a non-case (Cox and Snell, 1989). Like other forms of regression analysis, logistic regression makes use of one or more predictor variables that may be either continuous or categorical. Unlike ordinary linear regression, however, logistic regression is used for predicting binary dependent variables (treating the dependent variable as the outcome of a Bernoulli trial) rather than a continuous outcome.

As a predictive analysis, logistic regression model describes data and explains the relationship between one dependent variable and two or more in- dependent variables. In this analysis, the dependent variable is Participation in Informal Cross Border trade in Rwanda (takes 1 if Yes and 0 if No) and the independent variables are:

1. **Gender (male, female):** Being female increases the probability of being involved in informal cross border trade compared to male

2. **Age**: The older the person is, the less likely this person is going to be involved in informal cross border trade.

3. **Level of education (none, primary, Post-secondary, secondary and University**): The higher the level of education the lower the probability of being involved in informal cross border trade.

4. **Ubudehe category**: Being in categories 1 and 4 rules out people in those categories of being involved in informal cross border trade. However, people in categories 2 and 3 are highly likely to be involved in informal cross border trade.

5. **Having another source of income**: Having another source of income decreases the probability of being involved in informal cross border trade. Merz and Wolff (1993) said that an individual's decision to take multiple jobs can be affected by insufficient income they receive from the first job or a greater benefit opportunity they receive in the second job.

6. **Having another member of household who earns a regular income**: Having a household member involved who earns a regular income can be a factor of being involved in informal cross border trade as these persons can help each other to generate income for the household.

7. **Distance from home to a well maintained road (tarmac or laterite**): The closer the person lives near the road, the higher the probability of being involved in trade as he will be able to supply his produce to the market.

8. **Distance from home to the nearest border**: The closer the person is to the border, the high likely he is to be involved in informal cross border trade. In terms of the limits of trading areas, the cross-border traders are only allowed to do business within a 30 km range from the border area (Awang et al., 2013).

3.6.2 Logistic Regression Model

Logistic regression is the appropriate regression analysis to conduct when the dependent variable is dichotomous (binary). Like all regression analyses, the logistic regression is a predictive analysis. Logistic regression is used to describe data and to explain the relationship between one dependent binary variable and one or more metric (interval or ratio scale) independent variables. Also attempts to model the relationship between two variables by testing a logistic equation to observed data.

According to Cox and Snell (1989), one variable is considered to be an explanatory variable, and the other is considered to be a dependent variable. For example, a modeler might want to relate the weights of individuals to their heights using a linear regression model. Mathematically logistic regression estimates a multiple linear regression function defined as:

$$Logit = \log\left(\frac{p(y=1)}{1-(p=1)}\right) = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + ... + \beta_p x_m \tag{2}$$

For i = 1; 2…n

When selecting the model for the logistic regression analysis another important consideration is the model t. Instead, a chi-square test is used to indicate how well the logistic regression model fits the data. When using the logistic distribution, we need to make an algebraic conversion to arrive at our usual linear regression equation (which we have written as):

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + ... + \beta_p x_P + \varepsilon_{ij} \tag{3}$$

CHAPTER FOUR:DATA PRESENTATION AND INTERPRETATIONS

4.1   Introduction

This chapter presents the descriptive statistics and empirical analysis of the study and discusses them in line with the objectives and the hypothesis outlined in chapter one. To assess the magnitude of Informal Cross Border Trade in Rwanda, descriptive statistics were used.

For the objective of examining determinants of Informal Cross Border Trade in Rwanda, a binary logistic model was adopted. This analysis was preceeded by several diagnostic tests.

4.2   Key Statistical Facts of Cross Border Trade in Rwanda

This section presents the evolution of Informal Cross Border Trade between Rwanda and her neighbours (in USD value) between 2012 and 2017. For comparison purposes, it also shows the evolution of Formal Trade (in USD value) between the same period. This section all presents the social economic indicators of ICBT traders.

In 2017, Table 4.1 shows that informal exports stood at USD 98.4 million indicating a decline of USD 23.55 million as compared to 2016. Besides, there was a progressive increase of exports from 2012 till 2016 amounting USD 93.71 million to USD 121.96 million respectively. While Imports consistently increased to USD 30.52 million in 2016, there was a fall to USD 23.29 million in 2017 hence a trade balance of USD 75.12 million as compared to USD 91.44 million in 2016.

Table 2: Informal Cross Border Trade Values in USD million from 2012 to 2017

Flow/Period	2012	2013	2014	2015	2016	2017
Export	93.71	108.60	107.47	108.36	121.96	98.41
Import	22.64	17.45	19.23	21.75	30.52	23.29
Total Trade	116.35	126.05	126.7	130.11	152.48	121.7
Trade Balance	71.07	91.15	88.24	88.61	91.44	75.12

Source : NISR (2018)

On the otherhand, Table 2 shows Rwanda's annual formal external trade values for goods in USD million from 2012 to 2017. Exports was USD 474.66 million less as compared to USD 2208.82 million for Imports in 2017, providing a deficit in trade of USD 1592.51 million higher as compared to USD 1569.30 million of previous year. However, re-exports have increased from USD 91.89 million to USD 141.65 million from 2012 to 2017.

Table 3: Rwanda's Formal Trade Values in USD million from 2012 to 2017

Flow/Period	2012	2013	2014	2015	2016	2017
Export	416.87	394	456.49	485.59	479.99	474.66
Import	1,838.55	1,905.35	2,002.28	2,058.37	2,189.51	2,208.82
Re-exports	91.89	109.23	133.90	145.40	140.22	141.65
Total Trade	2,347.32	2,408.58	2,592.67	2,689.35	2,809.73	2,8025.13
Trade Balance	-1,329.79	-1,402.11	-1,411.89	-1,427.39	-1,569.30	1,592.51

Source : NISR(2018)

From the Table 3, it is indicated that Uganda is a leading import partner with USD 14.8 million in 2017 and Burundi is in second position. DRC comes in the third position while

Tanzania comes in the fourth position. This can be explained by the fact Rwanda imports a lot

of manufactured goods from Uganda.

Table 4: Rwanda's Informal Cross Border Trade Import Partners (Values in USD million) from 2012 to 2017

Countries	2012	2013	2014	2015	2016	2017
Burundi	6.71	5.62	6.54	6.58	8.21	4.35
DRC	3.51	2.95	2.81	3	2.1	3.19
Tanzania	1.46	0.7	0.47	0.39	0.637	0.927
Uganda	10.95	8.14	9.4	11.78	19.57	14.81

Source : NISR(2018)

In terms of informal tarde destination, Table 4 depicts that Rwanda's most ICBT Export

partner is DRC from 2012 up to 2017 with USD 73.78 million and USD 81.94 million

respectively. Uganda, Burundi and Tanzania followed successively. This is explained by the

fact that Rwanda exports a lot of food staples to DRC eastern region, which is closer to

Western Rwanda.

Table 5: Rwanda's Informal Cross Border Trade Export Partners (Values in USD million) from 2012 to 2017

Countries	2012	2013	2014	2015	2016	2017
Burundi	10.47	8.98	9.13	7.09	7.53	4.15
DRC	73.78	90.64	87.61	82.19	90.28	81.94
Tanzania	0.14	0.11	0.059	0.052	0.027	0.04
Uganda	9.32	8.89	10.66	18.99	24.1	12.3

Source : NISR(2018)

A closer review of the socio-economic characteristics of ICBT traders show that recently

females participation has surpassed the males counterpart from 2017 to 2018. On average,

50% of all informal trades were carried out by women since 2015.

Table 6: Participants in Informal Cross Border Trade by Gender from 2012 to 2018

Gender	2012	2013	2014	2015	2016	2017	2018
Male	51.5	50	50.7	49.8	51.6	46.3	42.4
Female	48.5	50	49.3	50.2	48.4	53.7	57.6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source : NISR(2018)

In the Table 6 , some of the professions increase while others decrease in same period, but all professions can't increase or decreases all of them at once. Among professions, Traders dominate in participants of the ICBT from 2012 to 2018 at 75.4% and 77.5% respectively. They are followed by Farmers, Students, Civil servants, Teachers and others respectively. It is important to note that around 75% of the traders are female.

This can be explained by the fact that informal cross border trade does not require too many formalities compared to formal trade. Hence, women with a low level of education and a low level of income find it easy to be involved in this type of trade. In addition to this, they find it easy to mix this kind of business with their households' chores.

Table 7: Participants in Informal Cross Border Trade by Profession from 2012 to 2018

Profession	2012	2013	2014	2015	2016	2017	2018
Farmer	19.3	19.1	20.9	21.6	21.2	20	19.7
Trader	75.4	76.3	75.1	74.1	74.5	77.1	77.5
Civil Servant	0.5	0.5	0.4	0.5	0.8	0.8	0.7
Student	1.4	1.1	1	0.8	3.6	2.1	2.1
Teacher	0.2	0.3	0.3	0.3	0	0	0
Other	3.3	2.9	2.4	2.8	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source : NISR(2018)

On average, Feet (on foot) is the most popular means of transport used at 53.2% from 2012 to 2018 and Bicycle next with 31.22% then followed by Boat, Vehicle, Motorcycle and others respecvtively. This can be explained by the fact that most of the consignments are in small quantities and do not require sophisticated means of transport such as trucks or cars. In addition to this, some crossing points do not necessarily have access to roads where cars and trucks can be used. Victor Ogalo (2010) observed that main modes of transport used include: vehicles, bicycles, head/hand, motorcycles, wheel chairs, animals (donkeys), push carts, boats/canoe etc

Table 8: Mode of Transport used in Informal Cross Border Trade from 2012 to 2017

Mode of transport	2012	2013	2014	2015	2016	2017	2018
Feet	53.7	53.8	52.6	52.5	50.1	53.3	57
Bicycle	30	29.6	30.3	30.5	34.1	32.9	31.2
Vehicle	5.6	5.6	5.9	5.4	4.6	3.6	3.1
Boat	9.9	10.1	10	10.4	9.9	8.9	7.6
Other	0.7	0.9	1.1	1.2	0	0.1	0.2
Motorcycle	0	0	0	0	1.2	1.2	0.8
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source : NISR(2018)

The reason for importation changed for different ways since some increases other remain constant while others are decreasing and all in the same period. In general, the dominant reason for importing in ICBT from 2012 to 2015 is because of cheap price on an average of 87.9% followed with un-availability of items on local market. This is corroborated by Prof. Jonathan Crush (2015).

Table 9: Reasons for importing in Informal Cross Border Trade from 2012 to 2015

Reason for buying	2012	2013	2014	2015
Not available on local market	5.7	4.9	4.3	7.9
cheap price	87.7	88.1	87.2	88.6
Good quality	1.3	1.3	1.3	1
Cheap price + Good quality	1.4	1.4	1.5	1.3
other reasons	3.9	4.2	5.6	1.1
Total	**100**	**100**	**100**	**100**

Source : NISR(2018)

Furthermore, mostly, the reason for exportation increased for some while in the same period others are decreasing. The dominant reason for exporting in ICBT from 2012 to 2015 is because of Good price (with an average of 87.9%) followed by need to buy other products at 4.8%.

Table 10: Reasons for exporting in Informal Cross Border Trade from 2012 to 2015

Reason for selling	2012	2013	2014	2015
Good price	84	88.4	88.9	90.4
stable currency	2.8	2.9	3.6	4.1
To buy other products	7	5.4	3.5	3.4
good price + stable currency	1.1	0.2	0.1	0.1
Other reasons	5.2	3.1	4	2
Total	100	100	100	100

Source : NISR(2018)

From the above table, it is observed that money obtained out of savings is mostly used for importing in ICBT from 2012 to 2015 at a percentage of 90.6% in 2015 and 89.6% in 2012 and money from direct sales are fewer used.

Table 11: Source of Money used for importing in Informal Cross Border Trade from 2012 to 2015

Source of money used in buying	2012	2013	2014	2015
From savings	89.6	89.6	89.2	90.6
From what I sold directly	10.4	10.4	10.8	9.4
Total	**100**	**100**	**100**	**100**

Source : NISR(2018)

Administrative challenges have been reported by traders as the biggest challenge they face (showing invoices; etc) at 41% . The second challenge reported is confiscation of goods by customs officials (reported at 17%). Poor quality of road (9%), corruption of customs agents (8%), difficulty of accessing bank loans (7%), limited financial literacy (6%), congestion at the border (6%) have also been reported as challenges.

Table 12: Challenges faced for ICBT Traders

Challenges	Frequency in %
Administrative issues	41
Other non reglementary obstacles at the border (harrasment, confiscation of goods, etc)	17
Poor quality of roads	9
Social and political tensions	4
High charges of transporters	2
Congestion of the border post	6
Corruption of customs agents	8
Difficulty of accessing bank loans	7
Limited financial literacy	6
Other	0

Trade facilitation has been reported as the intervention needed by ICBT traders (32%). Facilitation to access bank loans (26%) comes second as a proposed solution by ICBT traders. Improving the quality of feeder roads (15%) and Setting up an umbrella of ICBT traders (11%) have also been proposed by traders.

Table 13: Solutions proposed by Informal Cross Border Traders

Proposed solutions	Frequency in %
Administrative facilitation for cross border traders	32
Set up a umbrella representing cross border traders	11
Improve infrastructure (quality of main roads and feeder roads)	15
Ease of Social and political tensions	2
Reduction of the transportation cost	9
Expand the border	1
Training of Financial literacy	4
Facilitation of accessing bank loans	26
Other	0

4.3 Checking for multicollinearity between the independent variables

If one variable is a perfect linear function of another in the model, standard errors become infinite and the solution to the model becomes indeterminate. To the extent that one independent is a near but not perfect linear function of another independent, the problem of multicollinearity will occur in logistic regression. As the independents increase in correlation with each other, the standard errors of the logit (effect) coefficients will become inflated. Multicollinearity does not change the estimates of the coefficients, only their reliability. To avoid the misleading results, we have used the Variance Inflation Factor (VIF) to check for multicollinearity between the independent variables.

Table 14: VIF Test

Variables	VIF	1/VIF
Age	1.48	0.674573
Gender	1.32	0.755312
Other HH member with income	1.21	0.827009
Distance Hometomarket	1.15	0.865822
Distance home totheroad	1.14	0.877227
Level of Education	1.07	0.936577
Ubudehe category	1.02	0.977349
Othersource of Income	1.01	0.986152
Mean VIF	1.52	1.18

The table above reveals that we have no problem of multicollinearity among our independent variables, since in all cases, the VIF < 10. Thus, we may proceed with all our independent variables to fit the multiple logistic model.

4.4 Checking for non-linearity between the dependent variable and independent variables

The logistic regression is used to check whether there is not a linear relationship between the binary dependent variable and the independents variables. Normally distributed error terms are not assumed. The following table is the output of SPSS on the linearity between the dependent variable (Informal Cross Border Trade Participation) and the independent variables (age, gender, dependancy ratio, proximity to the border, proximity to the market, level of education, …)

4.6. Multiple Logistic Regression Model Fitting

Based on the table above, our table sample was 468 interviews among whom 428 (91.5%) are involved in ICBT while the remaining 40 (8.5) are involved in formal trade. In terms of gender, 351of our interviewees (75%) were female while the remaining 117 (25%) were male. In terms of ubudehe, 363 (77.56) of our interviewees belong to category 2 of ubudehe while the remaining 105 (22.44%) are in category 3 of ubudehe. In terms of education, 335 (71.58%) have primary level of education or below. The remaining 133 (28.42%) have above primary education**.**

Table 15:Basic Statistics

	Code	Frequency	Percentage
TypeofCBT	Informal=1	428	91.45
	Formal=0	40	8.55
Gender	Male=1	117	25
	Female=0	351	75
Ubudehe	Poor=1	363	77.56
	Rich	105	22.44
Level of education	Educated=1	133	28.42
	Not educated=0	335	71.58

The R squared can be interpreted that our dependant variable (Informal Cross Border trade participation) variation is explained by our linear model at 87.41%.

Table 16: Model Summary

Source	SS	Df	MS	Number of obs	=	468
				F(8, 459)	=	0.82
Model	0.516962521	8	0.06462032	Prob > F	=	0.5831
Residual	36.0642341	459	0.0785712	R-squared	=	0.8741
				Adj R-squared	=	-0.8512
Total	36.5811966	467	0.0783323	Root MSE	=	0.2801

According to the Cox & Snell R Square our dependant variable (Informal Cross Border trade participation) variation is explained by our linear model at 74%. While according to the Nagelkerke R Square our dependant variable (Informal Cross Border trade participation) variation is explained by our linear model at 76%.

Table 17: 16 Pseudo R squared

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	266.637[a]	.074	.076

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

4.6.2 .The Model with significant parameters only

Table 18: Model with significant variables only

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Age	-.039	.035	1.201	1	.0273	.962	.898	1.031
	Gender	.166	.441	.141	1	.007	1.180	.497	2.800
	Levelofeducation	-.123	.367	.113	1	.037	.884	.430	1.816
	Ubudehe	.438	.374	1.374	1	.041	1.550	.745	3.227
	Othersourceofincome	.831	1.050	.627	1	.029	2.296	.293	17.984
	OtherhouseholdmemberwithincomY	-.528	.389	1.845	1	.004	.590	.275	1.264
	Hometoborder	.278	.369	.566	1	.012	1.320	.640	2.722
	Constant	3.348	1.066	9.870	1	.002	28.460		

a. Variables entered on step 1: Age, Gender, Level ofeducation, Ubudehe, Other source of income, Other household member with income, Near the road, Home to border.

The Table 18 represents the final model without insignificant variable which is Near the road.

Now equation becomes as follow:

$$Y = 3.348 - 0.039Age + 0.166Female - 0.123Level\ of\ education + 0.831Other\ source\ income$$
$$- 0.528Other\ household\ income + 0.278Near\ the\ border + 0.438ubudehe\ category$$

The results above indicate that as people get older they are less likely to be involved in informal cross border. Being female increases the probalility of being involved in ICBT by 16.6% compared to being male. The higher the level of education, the lower the probability of being involved in ICBT (by 12.3%). Having another source of income increases the probability of being involved in ICBT by 80%. Having another household member with a regular income decreases the probability of being involved in ICBT by 52%. Living near the border increases the chance of being involved in ICBT by 27.8%. This is in line with Robert Nkendah et al (2014) proximity to the border who noted that most people involved in ICBT live near the border.

Being in category 2 of ubudehe increases the chance of being involved in ICBT by 43.8% compared to those who are in category 3. The estimated coefficients on gender, age, level of education, having another source of income, living near the border, being in ubudehe 2 category house ownership, are statistically significant and are found to be factors determining involvement in informal cross border trade.

To summarize the above results, involvement in informal cross border trade is highly affected by the social economic characteristics of the participant (gender, level of education, ubudehe category, other source of income) and geographical location (proximity to the border).

People with a relatively low level of education, low level of income, female and living near the border are more likely to be involved in informal cross border trade. This is due to the fact that they can easily earn a living without having to invest too much and without having to get formal documentation of being involved in trade (Trade Register, TIN number, import licence, certificate of origin, etc). It is important to note that given the fact that some people

sell their goods in order to acquire other goods on the foreign markets where they have gone to sell their goods.

This means that there is an interdependence between markets on either side of the border because some products available on one side are not available (or are expensive) on the other side of the border.As agricultural production is highly affected by seasonality, and we have seen that most of the traded goods are food staples, this has also an effect on informal cross border trade because people from one side of the border can harvest in a period where people from the other side have not yet harvested. Consequently, the community that harvests first will export first to their neigbhour. The other community will also export later when it has harvested. The gains from informal trade include job creation and provision of both agricultural and industrial goods that would otherwise be unavailable. Chris Ackello-Ogutu, (1997). Informal trade thus plays an important role in food security by moving food from surplus to deficit areas and by providing income to those involved in it. Chris Ackello-Ogutu, (1997).

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This thesis examined the determininants of informal cross border trade in Rwanda. It also studied the profile of traders involved in this type of trade, the challenges they face and has proposed solutions to those challenges. The literature review states that informal cross border trade is good for those involved because it helps alleviate poverty. On the other hand, some traders abuse it by trying to avoid taxes which they should be normally paying. The literature review also states that border communities are highly likely to be involved in informal cross border trade due to proximity with the border and the facilitation given to them by migration office of crossing the border without standard travel documents.

This thesis used binary logistic regression to find the key determinants of informal cross border trade in Rwanda. The results revealed the following:

i. Market opportunities on the other side (s) of the border. This means that importers can easily find cheaper products in neighbouring countries or products that are not easily found on the local market. For exporters, they can sell their goods at a higher price in the neighbouring countries. The border communities find an opportunity in being involved in informal cross border trade as it helps them improve their economic status;

ii. Having a small capital leads to traders being involved in small scale (informal) trade

iii. Proximity to the border is a factor in being involved in informal cross border trade; and

iv. Women represent a higher proportion of people involved in informal cross border trade.

5.2 Conclusion

The following conclusions were reached:

i.   Informal cross border trade has a considerable share in external Trade between Rwanda and her neighbours. For certain goods (especially staple food), informally traded goods have higher values and volumes compared to formal values and volumes of the same products. This can be explained by the fact that they are easily traded in small quantities.

ii. Based on the time series of ICBT imports and exports, the informal cross border trade is increasing over time. However, the informal cross border trade between Rwanda and Burundi has been decreasing over the last two years.

iii. There is social relations between Rwandan communities and their neighours on the other side of the border, particularly along the Rwanda- DRC border

iv. It has been observed that there is an interference of people who are involved in ICBT and those involved in formal trade. If not controlled properly, ICBT can cause food shortage in the country as people involved in ICBT look for higher prices offered at foreign markets and end up emptying the country's food stock.

5.3 Recommendations

Base on the findings of this research, the following policy recommendations were proposed:

i.   The government should improve its regulations of ICBT through appropriate policies, in order to make sure that ICBT benefits are optimalized and the side effects are minimized. In order to improve the ICBT, the government should focus on special groups of ICBT traders (women, people with a low level of education) and the obstacles faced in formal trade procedures (access to finance, financial literacy,etc).

ii.   The government should have a plan of turning ICBT traders into formal traders in the long run. Among the mechanisms that can be adopted include :

- Lower costs of being involved in formal trade and simplify administrative procedures;

- Provide technical assistance including training on financial literacy and customs procedures.

iii.   The government should collaborate more with neighbouring governments to improve and regulate ICBT as it benefits   people from both sides.

iv.   Finally, in order to have a broader knowledge of ICBT in Rwanda, further studies comparing the income generated from ICBT and revenue loss; the impact of Rwanda's trade liberalization policies on informal border trade; and how much do big traders abuse informal cross border trade through fragmentation of their consignments, among other areas; should be carried out.

"Creating a supportive environment for the informal traders could be the start of a successful process of formalization of the informal traders. This will enable the countries to collect better information of the goods, values and quantities traded amongst them, hence improving the planning and decision-making of the EAC countries (Ogalo, 2010).

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APPENDICES

APPENDIX I : QUESTIONNAIRE

SURVEY ON DETERMINANTS OF INFORMAL CROSS BORDER TRADE IN RWANDA

INTERVIEW GUIDE WITH CROSS BORDER TRADERS

This questionnaire aims at collecting data on the determinants of being involved in the Informal cross border trade : Social characteristics of the respondents ; economic characteristics of the respondents, access to Key infrastructure, challenges faced and proposed solutions

S0Q1 : Crossing Point:_____
S0Q2 : Date of the interview :_____
S0Q3 : Questionnaire Number : _____
S0Q4 : Questionnaire ID : _____

SECTION 1 : SOCIAL PROFILE OF THE TRADER

S1Q0 : Gender _____ S1Q1: Marital Status Married _____ Not married _____

S1Q2 : Age : _____

S1Q3: Number of Household members _____

S1Q4: Household members aged below 16 and above 60 _____

S1Q5: Dependancy ratio in family _____

S1Q6:   Nationality _____   S1Q7:   Country   of residence _____

S1Q8 : Sector of residence : _____

S1Q9: Level of Education : None ☐ Primary ☐ Primary ☐ Secondary ☐ University ☐ Other ☐

S1Q10 Number of years spent in Cross Border Trade _____
S1Q10 : Type of activity :   Producer ☐ Importer ☐ Exporter ☐

S1Q11:   Which   category   of   Ubudehe   are   you   currently   in ? :
_____
S1Q12: Which category of Ubudehe were you in before 2015:_____

SECTION 2 : Economic Characteristics of the respondent

S2Q01: What type of cross border trade are you involved in?

Informal ☐ Formal ☐

S2Q02: If in informal what are the main reasons behind?

No	Reason	Tick
S2Q02a	Limited capital	
S2Q02b	Nature of products traded	
S2Q02c	Proximity to the border	
S2Q02d	Other	

S2Q03: How much in Rwf did you invest in this Cross Border trade ?

Below 300,000		Between 300,000-1,000,000		Between 1M – 5M		More than 5M	

S2Q04 : What is your annual turnover in Rwf from Cross Border trade ?

Below 300,000		Between 300,000-1,000,000		Between 1M – 5M		More than 5M	

S2Q05 : Do you have any other source of income ?   Yes ☐ No ☐

S2Q06 : If yes, which one ? :

No	Source of Income	Tick
S2Q06a	Salary	
S2Q06b	Rent	
S2Q06c	Farming income	
S2Q06d	Other business income	
S2Q06e	Remittances	
S2Q06f	Other	

S2Q07: Where did you get money to fund your cross border trade activities ?

No	Source of Income	Tick
S2Q07a	Savings	
S2Q07b	Loan from a friend	
S2Q07c	Loan from a financial institution	
S2Q07d	Sale of an asset	
S2Q07e	Remittances	
S2Q07f	Other	

S2Q08:Is there any other member of your household who earns a regular income ?   Yes ☐ No ☐

S2Q09: What are the estimates of your annual expenditure in Rwf?

Below 300,000		Between 300,000- 1,000,000		Between 1M – 5M		More than 5M	

S02Q10 : Do you own the following assets ?

Type of Asset	Yes (1), No (2)
Residential House	
Commercial house/building	
Piece of land for farming of more than 250 acres	
Other fixed asset (Car, etc)	

SECTION 3 : ACCESS TO INFRASTRUCTURE

S3Q1: How far in km is your residence from a well maintained road (with tarmac or laterite)?

Less than 1 km		Between 1- 5 km		Between 5 – 10km		More than 10 Km	

S3Q2: How far is your home to the market ?

Less than 1 km		Between 1- 5 km		Between 5 – 10km		More than 10 Km	

S3Q3 How far is your home to the nearest border ?

Less than 1 km		Between 1- 5 km		Between 5 – 10km		More than 10 Km	

SECTION 4 : CHALLENGES FACED IN CROSS BORDER TRADE

S4 Q1 :What are the challenges faced during cross border trade :

Challenges	Tick
Administrative issues	
Other non reglementary obstacles at the border (harrasment, confiscation of goods, etc)	
Poor quality of roads	
Social and political tensions	
High charges of transporters	
Congestion of the border post	
Corruption of customs agents	
Difficulty of accessing bank loans	
Limited financial literacy	
Other	

S4 Q2 :What are the proposed solutions :

Proposed solutions	Tick
Administrative facilitation for cross border traders	
Set up a umbrella representing cross border traders	
Improve infrastructure (quality of main roads and feeder roads)	
Ease of Social and political tensions	
Reduction of the transportation cost	
Expand the border	
Training of Financial literacy	
Facilitation of accessing bank loans	
Other	

THANK YOU FOR YOUR COOPERATION

APPENDIX II: TOP TEN IMPORTED GOODS IN ICBT

Rwanda's Top 10 ICBT Imported goods (values in US$ million)- Annual

Product	2012	2013	2014	2015	2016	2017
Maize flour	0.56	0.42	0.40	1.13	3.56	2.76
Coffee (parche)	2.24	1.32	1.29	1.61	1.11	1.54
Sorghum	1.74	0.49	0.85	1.11	0.46	1.12
Husked rice	0.56	0.52	0.57	0.62	0.93	1.00
Irish potatoes	0.86	1.00	0.95	0.97	0.79	0.89
Dried Beans	1.22	1.05	0.89	1.69	1.30	0.58
Cassiterite	1.03	0.46	0.15	0.60	1.11	0.43
Coltan	0.28	0.94	2.15	1.71	1.63	0.20
Whiskies and others	0.94	1.14	1.32	1.19	0.14	0.09
Other manufactured & recycled products	1.06	0.76	0.72	0.78	0.05	0.05

APPENDIX III : TOP TEN GOOD EXPORTED IN ICBT

Rwanda's Top 10 ICBT Exported goods (values in US$ million)- Annual

Product	2012	2013	2014	2015	2016	2017
Household electrical appliances	0.06	0.08	0.03	9.36	0.02	0.046
Agricultural products n.e.c.	0.04	0.04	0.02	7.18	0.01	0.280
Other mining products	0.01	0.00	0.00	6.80	0.00	0.011
other dairy products	0.01	0.01	0.08	5.62	0.07	0.166
Fresh fish tilapia	0.00	0.00	0.00	4.46	3.10	0.044
Rabbit and Other live animals	0.10	0.12	0.11	4.06	0.00	0.935
pig live	1.76	2.07	2.11	3.89	3.47	0.000
Other roots and tubers	0.01	0.00	0.00	3.65	0.01	0.084
Dried fry of Kivu	0.16	0.33	0.36	3.47	0.00	0.000
Wheat flour	3.31	4.87	0.88	3.00	2.09	0.010
New Clothing	0.74	0.34	0.33	2.81	0.54	0.021

UNIVERSITY OF RWANDA

COLLEGE OF BUSINESS AND ECONOMICS

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TO WHOM IT MAY CONCERN

This is to certify that Mr Habinshuti Vital bearing Reg No 217302831 is a student in Master of Science in Economics , at the University of Rwanda-College of Business and Economics. He is currently in the process of gathering data for research work entitled "The determinants of informal cross border trade in Rwanda, 2012-2018".

He will be approaching you with the aim of collecting relevant information to complete his study. We request you to kindly extend the necessary cooperation in providing the needed data.

Do not hesitate to contact the Directorate of Research and Innovation should you need further information.

Sincerely

Prof. Bideri Ishuheri Nyamulinda
Ag Director of Research and Innovation
University of Rwanda-College of Business and Economics
Mob Tel 0738407631 or 0788716140