

# **IMPACT OF INTERNATIONAL TRADE ON ECONOMIC GROWTH THROUGH SMALL AND MEDIUM ENTERPRISES OF RWANDA (2000 to 2016)**

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## **ABSTRACT**

*This research aimed at assessing how international trade and expansion of SMEs play a greater role on economic growth of Rwanda. The idea that international trade is an engine of economic growth dates from long back, and even now an overwhelming body of literature affirms a strong and positive link between international trade and economic growth. The finding reveals the major challenges confronting SMEs in Rwanda and the study thus suggests recommendations for running successful small businesses in Rwanda. Small and Medium Enterprises (SMEs) are essential to economic growth and significantly indispensable to generate profit, augment sales and provide return on investment to the owners of SMEs. Therefore the SMEs growth depends to a great degree on the way entrepreneurship skills have been developed in SMEs. To achieve them, we collected primary data from 140 different SMEs and 10 employer's officers of ministries, government's boards which have international trade and SMEs in their attribution. Data were collected using structured and unstructured questionnaires. The responses of the participants were analyzed by the statistical package for social sciences (SPSS) that generated the frequency distributions, means, standard deviations, etc. The major findings of this study include the following: SMEs have played and continue to play significant roles in the growth, development and industrialization of many economies of the world. In looking at programs and policy options to strengthen and expand the SME sector in Rwanda, the Policy identifies similarities, to stimulate growth of sustainable SMEs through enhanced business support service provision, access to finance by improving productivity, efficiency and by stimulating and enabling innovation, facilitating commercialization, new business formation, increasing research and development in the same case of marketing and advertisement. The stationary properties and order of integration of the data are tested using both Augmented Dickey-Fuller (ADF) test and Phillip-Perron (PP) test on all the time series data. The variables are stationary at first differences, and so Johansen co-integration tests are then employed to determine whether the variables are co-integrated. The VECM enables not only the analysis of the long run and short run relationships, but also the examination of any causal relationships between international trade and economic growth. This framework, through which the dynamics feedbacks are captured, also permits the detection of any indirect effects among the variables. Finally,*

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*the direction of causality between openness and economic growth is determined by applying Granger-Causality tests.*

**Key word:** *Economic Growth, International Trade, Rwanda, SMEs, Term of Trade.*

## I. INTRODUCTION

In today's global economy, it has been agreed that international trade success is crucial to the overall economic development of economies. Moreover, the contribution of SMEs to the export development of different economies has become the core of different policies of developing countries. Export promotion strategy had proved to have a marginal effect on export performance, which led to the reduction of resources devoted to them. The literature on international economics suggests that there are a number of ways in which the expansion of exports promotes economic growth. Increased export earnings help reduce the foreign exchange gap and thus facilitate the importation of capital goods and technical knowledge, and these would lead to economic growth [1].

The globalization of today's trading environment has forced economies to prioritize the development of the export competitiveness of their SMEs sector, as to be able to survive amidst the fierce global competition and challenges. The digital economy has created new means and channels of overcoming barriers of trade faced by SMEs due to their size and limited resources. However, some countries had the view that these are potentially capable of providing the necessary guidance and expertise especially for SMEs to put them on the right track for internationalization and thus have been committed to improve the effectiveness of the export promotion strategy. On the macro level, export activity among SMEs has shown the capacity to drive economic development, according to the Organization for Economic Co-operation and Development [2]. Export business integrates countries into the world economy and mitigates them from external shocks from other countries. In addition to this, export business serves as a source of foreign exchange to countries involved and reduced potential balance of payment problems. Firms' exports, therefore, create employment in the domestic economy, which in turn increases consumption and private spending. Furthermore, openness to trade improves international negotiations concerning trade and tariff issues, and countries can use this platform for their own benefit and build their respective welfare positions concerning trade barriers [3]

Moreover, in addition to the specific macro and micro benefits, advancement in international transportation and communication, reductions in trade barriers, the shortening of product and technology life cycles, and large multinational enterprises competing against SMEs in their own domestic market are also among the factors facilitating the internationalization of SMEs [4]. According to researchers (Simões & Crespo, 2002) [5], the internationalization of the firm was resurrected in the 1950s after the Second World War, with the large multinational firm as the main unit of analysis. These authors counted the research on the international of SMEs started in the 1970s. Since, the research on international of small and medium enterprises has been flourishing. Currently, it is the most recent theoretical trend centers on internationalization of the small venture firm, international entrepreneurship [6].

In Africa, the SME sector accounts for almost 90% of all the enterprises, in which they are located in both the rural and urban areas, whereby they provide more equitable distribution of income in all areas of the countries.

This means that the SMEs are the main source of providing employment to the people and stimulate the development of the countries by promoting the entrepreneurship and the business skills amongst communities and strengthen the local production sector as well as the industrial base. Therefore the SMEs in Africa have been considered to be a very important engine for obtaining national development goals, such as poverty alleviation and economic growth [7]. For example, in South Africa, the SMEs account about 46% of the total economic activities and 84% of private employment. It is also estimated that about 80% of the formal business sector and 95% of the total business sector are considered to be the SMEs [8].

Although, Rwanda like other countries, SMEs plays an important role in the process of industrialization and economic growth by significantly contributing to employment creation, income generation and catalyzing development in urban and rural areas[9]. In contrast, Rwanda has a latent mass of trainable workforce, a large base of educated workers, scientists, potential innovators, who would contribute towards private sector job creation through research and development (R&D) and innovation (starting commercial enterprises), yet little has been achieved to this end. Many Rwandan training institutions and agencies have focused on training business management and technical courses, business plan competitions for graduate students and entrepreneurs, but there is little further support and inadequate mentorship to apply the skills and knowledge acquired during training to commercial opportunities. The potentials and opportunities for SMEs in Rwanda to rebound and play the crucial role of engine of growth, development and industrialization, wealth creation, poverty reduction and employment creation are enormous [10]. The realization of this requires a paradigm shift from paying lip service to a practical radical approach and focus on this all important sector of the economy by the government realistically addressing the identified problems. While SMEs themselves need to change their attitude and habits relating to entrepreneurship development, the governments need to involve the SMEs in policy formulation and execution for maximum effect. There is also the dire start to introduce entrepreneurial studies in our secondary schools and Universities in addition to emphasizing science, practical and technological studies at all levels of our educational system [11].

## II. STATEMENT OF GENERAL PROBLEM

Small and Medium Enterprises (SMEs) in Rwanda have not performed respectably well and consequently have not played the estimated vital and energetic role in the economic growth and development of Rwanda. This situation has been of great concern to the government, citizenry, operators, practitioners and the organized private sector groups. Year in year out, the government, provinces and even local levels through budgetary allocations, policies and pronouncements have signified interest and acknowledgement of the fundamental role of the SME sub-sector of the economy and thus made policies for revitalizing the similar. They have furthermore been financial incentives, grants, bilateral and multilateral agencies support and aids as well as specialized institutions all geared towards making the SME sub-sector vibrant. As well as a low level of agricultural, industrial and infrastructural development (irrigation, road and total absence of railway networks) all represent disturbing indices, which also contribute to the dismal performance and contribution of our SMEs in international markets. The main problems of SMEs in Rwanda which are however not insuperable: low level of entrepreneurial skills, poor management practices, constrained access to money and capital markets, low

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equity participation from the promoters because of insufficient personal savings due to their level of poverty and low return on investment, inadequate equity capital, poor infrastructural facilities, high rate of enterprise mortality, shortages of skilled manpower, societal and attitudinal problems, integrity and transparency problems, restricted market access, lack of skills in international trade; bureaucracy, lack of access to information given that it is costly, low level of innovation and the absence of research and development even if marketing and advertisement. SMEs in Rwanda have remained fewer aggressive compared to regional neighbors and if no effort is made to make them more competitive, this situation is likely to degenerate with the complete fledged East African Community (EAC) common market, which Rwanda is set to enter in July 2010. Making accessible and new Rwandan SMEs more competitive in significance added exports is consequently one amid other vital actions necessary to abolish the trade imbalance and build competitiveness. In addition, for expanding the export sector, SMEs also represent a potential source of tax revenue, thus reducing Rwanda's dependence on foreign assistance. Small and medium enterprise might comes from the aptitude of minor firms to react quickly and flexibly to adjust to market realities and to get advantage of opportunities that would not be an advantage to larger firms. Small enterprises develop and become medium enterprises while they are increasingly able to develop the resources to enlarge out of their local economic system.

### III. OBJECTIVES

The general objective is to examine the effects of international trade on economic growth through capacity of promoting the expansion of production in small and medium enterprises of Rwanda. Then the Specific objectives of this study are: to analyze the role of government in promoting international trade and the expansion of SMEs; to establish whether or not the SME is an exogenous variable that has a significant effect on output growth and also in international trade; to investigate the critical success factors that influence the performance of SMEs in Rwanda and in international market; to assess financial based problems facing small and medium enterprises; to examine the causal link between international trade and economic growth.

### IV. METHODOLOGY OF THIS STUDY

In Rwanda there are 13,385 small enterprises and 1,628 medium enterprises all of those have more than 100000 people working in SMEs and the researcher could not cover all SMEs in Rwanda [12]. Stratified random sampling techniques were used for the study [13]. Primary and secondary data were the instruments used to collect data from the respondents. Primary data have been collected to supplement the secondary data regarding the problems faced by the impact of international trade on economic growth through SMEs in Rwanda. The primary data helps to confirm some of the conclusions drawn from the secondary data and have provided some information that were not available from the secondary data. In this technique, the researcher uses Stratified sampling: a probability sampling procedure in which sub-samples are drawn from samples within different strata that are more or less equal on some characteristics. The reasons for taking a stratified sample are (1) to have a more efficient sample than could be taken on the basis of simple random sampling, and (2) to assure that the sample will accurately reflect the population on the basis of the criterion or criteria used for stratification [14]. Stratified sampling is a modification of simple random and systematic sampling designed to produce more

representative and thus more accurate samples [15]. Secondary data include written documents can also include books, journals and magazine articles [16]. Documentary data provides an insight to the study, based on the literature and studies conducted before this one. Books, journal articles and reports on the aspects of international trade and monetary policy were consulted and so the research was able to determine the truth about the phenomenon. In this study, the secondary data used draw from Rwanda National Bank (BNR), National Institute of Statistics of Rwanda (NISR) and World Bank (WB).

In order to investigation the fundamental relationships discussed above (introduction) we stipulate the following multivariate VAR model:  $ltot_t = \beta_0 + \beta_1 lrer + \beta_2 ltechpro + \beta_3 lclose + \beta_4 lexch + \beta_5 linv + \beta_6 lcpi + u_t$  [17].

Where the following notations have been used: **ltot**: logarithm of the terms of trade; **lrer**: logarithm of the real exchange rate of Rwanda; **ltechpro**: logarithm of technological progress, a proxy of the real gdp; **lclose**: logarithm of the degree of closeness, a proxy of the ratio of gdp to the sum of exports and imports; **lexch**: logarithm of the nominal exchange rate; **linv**: logarithm of the ratio of investment to gdp; **lcpi**: logarithm of cpi; **u<sub>t</sub>**=error term.

The whole work of analyzing the data was done with the help of computer program. The computer programs used extensively in this study is econometrics model of E-views 9 for secondary data and the method of statistical analysis and SPSS will include collection of data and statistical measures will be applied in primary data. The collection of data will be analyzed by the use of descriptive statistics which will be applied according to the research questions. The researcher adopts statistical analysis such as frequency tables and percentage to analyze data.

## V. RESULTS FINDINGS OF THE STUDY

**Table 1: Changes in establishment characteristics since 2011**

A comparison of 2011 and 2014 establishment censuses shows that there was a growth of 24.4% in the total number of private and business oriented mixed establishments in this three-year period. The remarkable increase was observed for establishment involved in the following economic activities: mining and quarrying scored the highest growth (473.5 %), construction (42%), accommodation and food service activities (34.1%), Human health and social work activities (33.1%) and Arts, entertainment and recreation (31.0%). With regard to the establishment size, there is increase in all size categories; however, the increase is profound for large enterprises (102.9 %). As the change in employment level is concerned, there has been an increase of 35% in employment size between 2011 and 2014. The increase in employment size has been extremely high in mining and quarrying (572.3%), administrative and support services activities (268.3%) and Electricity, gas, steam and air conditioning supply (160.4 %) [15] (Establishment census, 2014)

Size	Count		Percentage increased
	2011	2014	
Micro(1-3)	111,204	138,039	24.1
Small(4-30)	7,479	9,585	28.2
Medium(31-100)	453	539	19
Large(100+)	105	213	102.9
<b>Total</b>	<b>119,270</b>	<b>148,376</b>	<b>24.4</b>

Source: Establishment census, 2014

**Table 2: Classification of respondents according to their age**

		Frequency	Percent	Cumulative Percent
Valid	less25	4	2.7	2.7
	Between 25 to 40	39	26.0	28.7
	Between 40 to 60	74	49.3	78.0
	Above 60	33	22.0	100.0
	Total	150	100.0	

Source: Field research, 2017

It can be deduced that businesses people are in different age groups of the population even if the youth people were unable to create SMEs due to financial limitations and irresponsibility. The implication of the study is people with the age from 40- 60 years are more engaged in entrepreneurial activities than the other groups in Rwanda. This indicates that, the age groups between 40 to 60 years are economically active and tend to be productive and resourceful.

**Table 3: Classification of respondents according to their level of education**

		Frequency	Valid Percent	Cumulative Percent
Valid	Illiterate	2	1.3	1.3
	Primary	15	10.0	11.3
	Professional skills	53	35.3	46.7
	Secondary	51	34.0	80.7
	University level ( A1&A0)	25	16.7	97.3
	Master's	4	2.7	100.0
	Total	150	100.0	

Source: Field research, March 2017

This may imply that formal education is not a critical factor in business success; this was proved by the findings because most entrepreneurs in this study have low level in education. But, it is better to note that many respondents are classified from the professional skills up to master's level, which means that some of the respondents know very well how to make business. Rwanda is presently suffering from a significant lack of skilled workers. The country's fast growing economy is experiencing qualified labor shortages, which are occasionally buttressed by workers from neighboring Kenya and Uganda. Through its development plan, Rwanda aims to transform itself from a subsistence agriculture based society to a service driven and knowledge based economy. As a result, significant opportunities exist for education and training companies, as well as consultancies specializing in customer service, hospitality, information technology, accounting, engineering, construction, and management education [16].

**Table 4: View of respondents on durability of the companies**

		Frequency	Percent	Cumulative Percent
Valid	Less 5 years	28	18.7	18.7
	Between 5 and 15 years	76	50.7	69.3
	Above 15 years	46	30.7	100.0
	Total	150	100.0	

Source: Field research, 2017

Clearly, businesses that are starting seem to face serious challenges that make owners to consider their businesses as processed poorly within the first year of start up. It moreover seems that most SMEs in Rwanda hit their peak at the fifth year. Looking at the performance rating by length of time the businesses had been in operation; one may conclude as businesses that are not mature in activity; their returns seem to decline. Key among this include insufficient capital, inadequate market research, over concentration on one or two markets for finished products, lack of succession plan, inexperience, lack of correct book keeping, lack of good records, lack of ability to separate business and family or personal finances, lack of business strategy, inability to distinguish between revenue and profit, inability to engage or employ the right caliber staff, planlessness, fear of competition, lack of official patronage of locally produced goods and services, dumping of foreign goods and overconcentration of decision making on one person usually the owner. Other challenges which SMEs face in Rwanda include irregular power supply and other infrastructural inadequacies (water, roads, electricity, etc) unfavourable fiscal policies, multiple taxes and levies, high interest rates by financial institutions, fuel crises or shortages, policy inconsistencies, uneasy access to funding, poor policy implementation, restricted market access, raw materials sourcing problems, competition with cheaper imported products, lack of requisite skill and experience, thin management, unfavourable monetary policies, processing and storage technology and facilities, lack of entrepreneurial spirit, poor capital structuring as well as poor management of financial, human and other resources.

**Table 5: Classification of respondents according to their occupations**

		Frequency	Valid Percent	Cumulative Percent
Valid	Owner	85	56.7	56.7
	General manager	48	32.0	88.7
	Human resource	17	11.3	100.0
	Total	150	100.0	

Source: Field research, 2017

There is clear indication that in Rwanda, many SMEs are preferred managing by their owner than giving it to someone for their management, this is because the income generated by the business is not enough to employ additional hands and sometimes it is not easy to separate business money and family's everyday activities.

**Table 6: Classification of respondents according to their international trading level**

		Frequency	Valid Percent	Cumulative Percent
Valid	Yes	128	85.3	85.3
	No	22	14.7	100.0
	Total	150	100.0	

Source: Field research, 2017

For these companies that accomplish international trade can export, import or combine both. This implies that many SMEs' operating their international businesses and the government is getting a lot of taxes from this sector. In the international business, some Rwandan businesses do not compete with foreign businesses because of many challenges, such as low income used; few raw materials locally; small internal market; low productivity and sometimes government policy that obliges them to consider the quality products than quantity products.

**Table 7: Classification of enterprises according to their types of international trade**

		Frequency	Valid Percent	Cumulative Percent
Valid	Export	54	36.0	36.0
	Import	32	21.3	57.3
	Export and import	42	28.0	85.3
	None	22	14.7	100.0
	Total	150	100.0	

Source: Field research, 2017

The implication for the study is that the majority of SMEs carry out international trade in their business. The reason behind is that the exportation and importation require large capital which many of those SMEs do not have.

**Table 8: Classification of respondents according to their main activity**

		Frequency	Valid Percent	Cumulative Percent
Valid	Mining	11	7.3	7.3
	Textile	5	3.3	10.7
	Transport	1	.7	11.3
	Agriculture	35	23.3	34.7
	Paints	1	.7	35.3
	Oil processing	1	.7	36.0
	Food and beverage	38	25.3	61.3
	Pharmaceutical	2	1.3	62.7
	Electronically	5	3.3	66.0
	Craft	41	27.3	93.3
	Paper and rubber	1	.7	94.0
	Leather manufacture	8	5.3	99.3
	Construction	1	.7	100.0

		Frequency	Valid Percent	Cumulative Percent
Valid	Mining	11	7.3	7.3
	Textile	5	3.3	10.7
	Transport	1	.7	11.3
	Agriculture	35	23.3	34.7
	Paints	1	.7	35.3
	Oil processing	1	.7	36.0
	Food and beverage	38	25.3	61.3
	Pharmaceutical	2	1.3	62.7
	Electronically	5	3.3	66.0
	Craft	41	27.3	93.3
	Paper and rubber	1	.7	94.0
	Leather manufacture	8	5.3	99.3
	Construction	1	.7	100.0
	Total	150	100.0	

Source: Field research, 2017

The implication for the study is that the majority of SMEs are craft; food and beverage and agriculture. The entrepreneurs whose carry out handcraft confirm that many Rwandan do not utilize their products, even if many raw materials used are not available in Rwanda. Those reasons push them to make export and import of their products; for food and beverage here it combines flour of maize and cassava, rice, wheat, milk processing, meat processing that are used by Rwandan in everyday life and push our entrepreneurs to import more than to export. About agriculture, the majority does export tea and coffee then the others export macadamia, pyrethrum and stevia dry leaves in law quantity. Mining is another biggest Rwandan source of foreign currency, because they export cassiterite, coulomb tantalum, gold and wolfram. The Rwandan entrepreneurs export raw materials of skin and mining in law price, thereafter import leather manufacturing and metallic products at high price. Textile, electronic and some handcrafts in Rwanda import raw materials that used in processing of their products.

**Table 9: Classification of enterprises according to their net capital invested**

		Frequency	Percent	Cumulative Percent
Valid	Less than 500000	24	16.0	16.0
	Between 500000 and 15000000	79	52.7	68.7
	Between15000000 and 75000000	37	24.7	93.3
	Above 75000000	10	6.7	100.0
	Total	150	100.0	

Source: Field research, 2017

In general, net capital invested is an important aspect for any business as well as to SME's performance. The expansion of businesses can result in more income thus affecting the socio economic status of owner, as he will now be in a higher income class. The increase in capital also allows individuals to execute their businesses with more self confidence and strengthens their belief in themselves and their economic activity.

**Table 10: Classification of firms according to their sales turnover**

		Frequency	Valid Percent	Cumulative Percent
Valid	Less than 500000	1	.7	.7
	Between 500000 and 12000000	36	24.0	24.7
	Between 12000000 and 50000000	61	40.7	65.3
	Above 50000000	52	34.7	100.0
	Total	150	100.0	

The implication of this findings show that sales turnover of enterprise depend on net capital invested because of high net capital occasioning high sales turnover and vice versa.

**Table 11: Classification of responding according to the countries that they export to**

		Frequency	Valid Percent	Cumulative Percent
Valid	EAC	23	15.3	15.3
	Other African countries	17	11.3	26.7
	Europe	21	14.0	40.7
	America	15	10.0	50.7
	Asia	23	15.3	66.0
	None	51	34.0	100.0
	Total	150	100.0	

Source: Field research, 2017

This means that the SMEs products are preferable in EAC and Asia countries than the others, and also the problems of means transport which is very cheap in those countries (EAC and Asia) than Europe and America. Because many Rwandan products pass by Mombasa and Dar es salaam ports, then Doha airport (Qatar) or Dubai airport before distributed in Europe, other African countries, Asia and America.

**Table 12: Classification of firms according to the countries import from**

		Frequency	Valid Percent	Cumulative Percent
Valid	EAC	27	18.0	18.0
	Other African countries	17	11.3	29.3
	Europe	16	10.7	40.0
	America	3	2.0	42.0
	Asia	12	8.0	50.0
	None	75	50.0	100.0

		Frequency	Valid Percent	Cumulative Percent
Valid	EAC	27	18.0	18.0
	Other African countries	17	11.3	29.3
	Europe	16	10.7	40.0
	America	3	2.0	42.0
	Asia	12	8.0	50.0
	None	75	50.0	100.0
	Total	150	100.0	

Source: Field research, 2017

**Table 13: Respondents' views about money spent in research and development by enterprise**

		Frequency	Valid Percent	Cumulative Percent
Valid	Less than 100000	18	12.0	12.0
	Between 100000 and 1000000	52	34.7	46.7
	above1000000	48	32.0	78.7
	None	32	21.3	100.0
	Total	150	100.0	

Source: Field research, 2017

In the above table, it can be seen that money spent in research and development of enterprise helped to increase the financial literacy in terms of ameliorating business in long run. About research and development of SMEs in Rwanda, the results reveal that the majority of them do not know their importance, because of 68% spend less than 1000,000 rwf with 21.3% of respondents do not spend anything in research and development while 32% spent more than 1000,000 Rwandan francs (Rwf). These ameliorate the condition and quality of production which increases the chance of achieving the planned goals.

**Table 14: Enterprise does marketing and advertisement**

		Frequency	Valid Percent	Cumulative Percent
Valid	Yes	86	57.3	57.3
	No	64	42.7	100.0
	Total	150	100.0	

Source: Field research, 2017

The reason of respondents that do not use marketing and advertisement is marketing and advertisement in Rwanda is very expensive. The implication of this finding shows the low level of business in Rwanda because of marketing and business are not separated, then customers do not know the products produced by any enterprise without advertisement.

**Table 15: Views of respondents on application for loan in financial institutions**

		Frequency	Valid Percent	Cumulative Percent
Valid	Yes	131	87.3	87.3
	No	19	12.7	100.0
	Total	150	100.0	

Source: Field research, 2017

From the table above, 12.7% of the respondents gave repayment problems as their reason for not accessing credit, lack of collateral (guarantors) and high interest rate charged on credit was deterring them, as their reason that not permit to them to request loan from the financial institutions. In addition to that, they have fear of their inability to re-service the borrowed funds because the survival of their families depended on profits generated from the businesses. Although, SMEs have diverse sources and options in toning funds for their business process they are habitually restricted only to justness or debt financing.

**Table 16: Enterprise received loan from bank**

		Frequency	Valid Percent	Cumulative Percent
Valid	Yes	131	87.3	87.3
	No	19	12.7	100.0
	Total	150	100.0	

Source: Field research, 2017

Classification of the business performance is greatly dependent on the judicious use of resources acquired (loan) for operation and hence the higher the interest rate charged, the greater challenge it presents the business to strive and redeem its debts.

**Table 17: Classification of respondents according to the purpose of loan**

		Frequency	Valid Percent	Cumulative Percent
Valid	Raw material	42	28.0	28.0
	Pay wage and salaries	2	1.3	29.3
	Reinforce business	87	58.0	87.3
	None	19	12.7	100.0
	Total	150	100.0	

Source: Field research, 2017

Table 18: Challenges or problems affecting SMEs performance

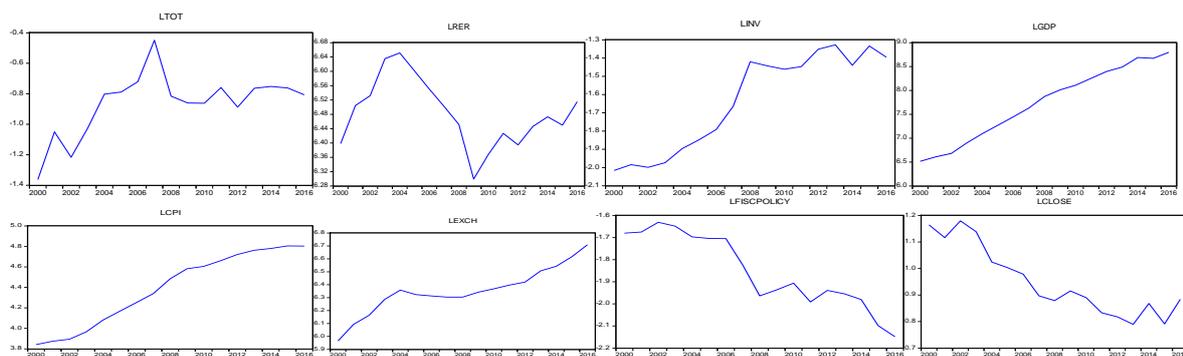
		Frequency	Valid Percent	Cumulative Percent
Valid	Customers	18	12.0	12.0
	Competition	14	9.3	21.3
	Access to finance	9	6.0	27.3
	Skilled staff or regulation labors	11	7.3	34.7
	Lack of raw material	41	27.3	62.0
	Transportation	16	10.7	72.7
	Lack adequate infrastructure	14	9.3	82.0
	Access to electricity	8	5.3	87.3
	Lack initiative of creativity	19	12.7	100.0
	Total	150	100.0	

Source: Field research, 2017

### 5.1 Econometric Analysis Of The Impact Of International Trade On Economic Growth Of Rwanda

Tools of econometrics are then used here to analyze the obtained data in order to know the impact and influence of international trade on economic growth of Rwanda and the implication of changes in those impacts. With that, policy makers in Rwanda can make good decisions to achieve the desired goals.

#### Graphical analysis



By observing the above graphical representations, it is easy to say that the present data are not stationary as some of them are increasing or decreasing and as it can be seen, the variability is not constant. So, we can say that they are not stationary at level but other tests have to be used in order to confirm that.

**Table 1: Results of the Unit Root Tests: using PP and ADF tests**

Variables	PP test				ADF test			Con clusion
	Level	Intercept & Trend	Intercept	None	Intercept & Trend	Intercept	None	
LTOT	Level	-2.707292	-3.43313**	-1.574326	-2.730610	-3.134793**	-1.41245	I(1)
	Δlevel	-6.092046*	-5.596234*	-5.567786*	-5.581302*	-5.533138*	-5.629288*	
LRER	Level	-2.094068	-1.814370	0.367523	-2.184991	-3.159508**	0.398044	I(1)
	Δlevel	-2.938705	-3.226613**	-3.362416*	-2.987240	-3.245304**	-3.371602*	
LCPI	Level	-0.178007	-1.334749	4.023768	0.319850	1.514458	0.959244	I(1)
	Δ level	-1.530380	-2.143402	-0.921233***	-2.151803**	-1.579857**	-0.991422***	
LEXCH	Level	-2.167021	-1.094747	2.882823	-1.522941	-1.015298	3.808362	I(1)
	Δ level	-1.996147*	-2.426210*	-1.812585***	-2.178924	-2.454572***	-1.868128***	
LFISC POLICY	Level	-2.367805	0.964149	3.270187	-2.446681	0.112612	1.961234	I(1)
	Δ level	-4.057226**	-4.240603*	-2.810946*	-3.449842***	-3.447956**	-2.852141*	
LInv	Level	-1.196369	-1.142449	-2.224622	-1.196369	-1.141956	-2.067989**	I(1)
	Δ level	-3.554947***	-3.550463**	-3.061231*	-3.571344***	-3.552523**	-3.061231*	
LCLOSE	Level	-1.468256	-1.720172	-1.821396	-0.713724	-1.367196	-1.425668	I(1)
	Δ level	-4.605729*	-5.803543*	-4.228106*	-4.778782*	-4.609930	-4.231604*	
LRGDP	Level	-0.651646***	-1.180879	6.959861	-0.332161	-1.626746	7.994334	I(1)
	Δ level	-4.314980**	-3.611186**	-0.721839	-4.116762**	-3.615381**	-0.520728	

\* Indicates statistical significant at the 1 percent level, \*\* Indicates statistical significant at the 5 percent level and \*\*\* Indicates statistical significant at the 10 percent level. Source: Author’s calculation.

The unit root test shows that all variables are not stationary at level. However, they become stationary after their first difference. The assessment of the short run dynamics of the term of trade makes the test of co-integration necessary which forms the next stage of analysis.

## Co-Integration Test

If two or more time series are not stationary, it is important to test whether there is a linear combination of them which is stationary. This phenomenon is referred to as the test for co-integration. The evidence of co-integration implies that there is a long run relationship among the variables. In this study, we apply the Engle Granger method in order to test cointegration. To do so, we first of all show the long run relationship between the considered variables and from that equation, we compute the residuals where we check their stationarity. If the obtained residuals become stationary at level, that becomes an incontestable sign of the presence of cointegration among the considered variables. The following presents the results of the long run equation of term of trade in Rwanda by using Ordinary Least Square.

### The Long Run Equation Test Of Term Of Trade In Rwanda

Dependent Variable: LTOT

Method: Least Squares

Date: 08/07/17 Time: 21:11

Sample: 2000 2016

Included observations: 17

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LRER	0.256375	1.462817	0.175261	0.8648
LGDP	0.113789	1.215573	0.093610	0.9275
LCLOSE	-3.157865	1.360314	-2.321424	0.0454
LFISCPOLICY	-0.187008	0.921980	-0.202833	0.8438
LEXCH	0.259662	1.062151	0.244468	0.8124
LINV	0.779305	1.093567	0.712627	0.4941
LCPI	-0.428035	3.426826	-0.124907	0.9033
C	-1.100516	13.70839	-0.080280	0.9378
R-squared	0.790849	Mean dependent var		-0.863820
Adjusted R-squared	0.628175	S.D. dependent var		0.206947
S.E. of regression	0.126191	Akaike info criterion		-0.996857
Sum squared resid	0.143317	Schwarz criterion		-0.604757
Log likelihood	16.47329	Hannan-Quinn criter.		-0.957882
F-statistic	4.861578	Durbin-Watson stat		1.320325
Prob(F-statistic)	0.015903			

From the above, 79% variation in terms of trade has been explained by the variation in independent variables as shown by  $R^2$ . The F statistic and its corresponding probability show that all independent variables have jointly explained by the Rwandan term of trade because they are jointly statistically different from zero. The results show that in the long run, the term of trade of Rwanda depreciates with improvement in technological progress, increase in investment and increase in nominal and real exchange rate. The resulting residuals have to be tested for stationarity and if they become stationary at level, that will be an indication that the current variables are co-integrated. So, the following is the unit root test for the obtained residuals.

## Unit root test of residuals by using ADF test

Null Hypothesis: RESID01 has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=3)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.392200	0.0299
Test critical values: 1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)

Method: Least Squares

Date: 08/16/17 Time: 17:58

Sample (adjusted): 2003 2016

Included observations: 14 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.826627	0.243685	-4.392200	0.0053
C	0.016386	0.030506	0.537139	0.6010
R-squared	0.489514	Mean dependent var		0.011512
Adjusted R-squared	0.446974	S.D. dependent var		0.153318
S.E. of regression	0.114016	Akaike info criterion		-1.373387
Sum squared resid	0.155997	Schwarz criterion		-1.282093
Log likelihood	11.61371	Hannan-Quinn criter.		-1.381838
F-statistic	11.50702	Durbin-Watson stat		2.080799
Prob(F-statistic)	0.005346			

As it can be seen, the ADF statistic is -4.392200 and its absolute value is greater than the absolute value of critical values at 1%, 5% and 10%, that is why we reject the null hypothesis saying that the obtained residuals have a unit root (to have a unit root means that a considered variable is not stationary). In addition, the obtained probability of accepting that null hypothesis is equal to 0.0299, which is less than 5%. With this small probability, we reject also the null hypothesis saying that our residuals have a unit root. So, we conclude that the obtained residuals are stationary at level and this leads us to confirm that our variables used in estimating the long run equation are co-integrated.

## Short Run Dynamics Of The Terms Of Trade

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The term of trade and all the regressors of the model are not stationary but as the Co-integration is established, the appropriate mechanism for modeling the short run term of trade for Rwanda is an error correction mechanism (ECM). We therefore estimate an error correction model of the term of trade. In performing the error correction mechanism, the obtained results are the following:

## Summary Of Error Correction Model Of Terms Of Trade

Dependent Variable: DLTOT

Method: Least Squares

Date: 08/16/17 Time: 17:41

Sample (adjusted): 2002 2016

Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLRER	-1.451589	0.866441	-1.675347	0.1449
DLGDP	1.816069	1.017831	1.784254	0.0246
DLCLOSE	-3.584037	0.799091	-4.485143	0.0042
DLFISCPOLICY	-0.171685	0.526624	-0.326011	0.0555
DLEXCH	0.957577	0.921080	1.039624	0.3386
DLINV	0.421532	0.605892	-2.346181	0.0574
DLCPI	-3.607071	2.290679	-1.574673	0.0664
RESID01	-0.663282	1.335924	-0.496497	0.6372
C	-0.068847	0.110357	-0.623852	0.0557
R-squared	0.858620	Mean dependent var		0.016208
Adjusted R-squared	0.670114	S.D. dependent var		0.162411
S.E. of regression	0.093282	Akaike info criterion		-1.622673
Sum squared resid	0.052209	Schwarz criterion		-1.197843
Log likelihood	21.17005	Hannan-Quinn criter.		-1.627198
F-statistic	4.554868	Durbin-Watson stat		2.017584
Prob(F-statistic)	0.040493			

The F statistics and its corresponding p value show that all estimated coefficients jointly influence the term of trade of Rwanda.  $R^2$  shows that the estimated model is a good one because it is showing that 85.8% variations in terms of trade have been explained by the variation of independent variables. Six out of nine estimated parameters are statistically significant at 10% level of significance.

## Serial Correlation Lm Test

This test of Breuch- Godfley shows whether the model contains problems of autocorrelations of residuals. It means the errors of the period t affect the errors of the next period t+1, the followings are the results:

**Serial Correlation Test**

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	2.096206	Prob. F(2,7)	0.1935
Obs*R-squared	6.367796	Prob. Chi-Square(2)	0.4149

The probability of observed R squared is 41.4% greater than 5% which means that our model doesn't contain the problems of residuals autocorrelation.

**The Test Of Heteroscedasticity**

Test consists in detecting if in the model, errors vary with time.

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.940705	Prob. F(7,9)	0.1746
Obs*R-squared	10.22557	Prob. Chi-Square(7)	0.1761
Scaled explained SS	2.880739	Prob. Chi-Square(7)	0.8958
Heteroskedasticity Test: ARCH			
F-statistic	0.616863	Prob. F(1,14)	0.4453
Obs*R-squared	0.675234	Prob. Chi-Square(1)	0.4112

The tests of ARCH shows that the probability of Obs\*R-squared is 41% greater than the threshold of 5%. Even the Breusch Pagan Godfrey test shows us that there is no heteroscedasticity, because the probability of Obs\*R-squared is 17% greater than the threshold of significance of 5% and it means that the variance of error is constant; it does not vary according to time. From those two test, we conclude that there is no presence of heteroscedasticity in our model (Variance is constant).

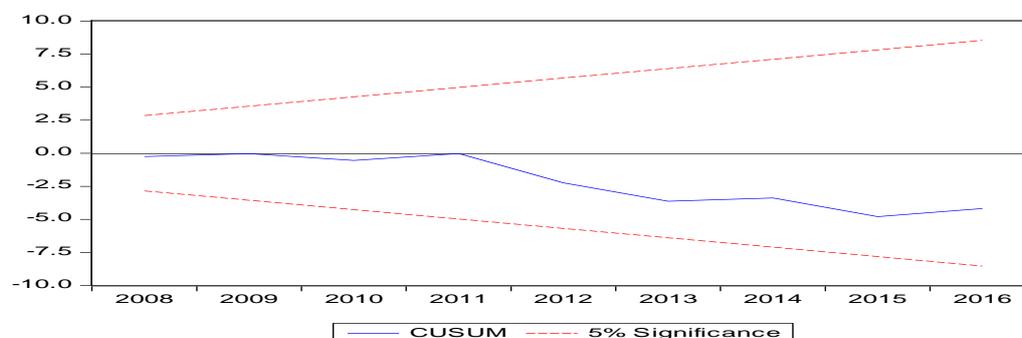
**Stability Tests**

In order to judge the effectiveness of our models, it is necessary to carry out a test of stability. To do so, we chose the CUSUM test and a Ramsey reset stability test.

**Cusum Test**

The CUSUM test which shows us that the parameters of our model are stable when it is noticed that the representative curve is located between the two lines indicating the critical point considered (5%). By the contrary it is the case of instability of the parameters of the model. The obtained curve is the following:

**Figure 2: CUSUM TEST**



By judging the above graph, it shows us that the parameters of our model are stable because the navigating blue line of graph does not cross the borders (the straight red lines) represent critical bounds at 5% significant level. This indicates that the terms of trade in Rwanda have been moving in a stable way from 2000 up to 2016.

### **Ramsey Reset Stability Test**

The Ramsey reset test is a general test to see whether there is no specification error in our model. Then we check whether we didn't omit the important variables from our model and if the functional form that we have chosen is the correct one. The obtained results for our model are the following:

Ramsey RESET Test			
Equation: UNTITLED			
Specification: ltot lrer lgdp lclose lfiscpolicy lexch linv			
LCPI C			
Omitted Variables: Squares of fitted values			
	Value	Df	Probability
t-statistic	1.559013	8	0.1576
F-statistic	2.430522	(1, 8)	0.1576
Likelihood ratio	4.510010	1	0.3357

As the probability of the likelihood ratio is equal to 33.57% greater than 5% level of significance, it means that our model does not contain any specification error. So, the estimated model is a good one since it is a model which is normally distributed, it doesn't have a problem of autocorrelation, no presence of heteroscedasticity, no specification error and the parameters of our model have been found to be stable. So, we can trust the findings of the model.

## **VI. CONCLUSION AND RECOMMENDATIONS**

The importance of small and medium enterprises is offering employment to the team of unemployed youth and adults in Rwanda cannot be overemphasized. The country unemployment continues to rise with the army of University and polytechnic graduates storming the hopeless labor market on a yearly basis. The government is not able to create enough jobs to cater for its ever increasing population, making small business the last hope of securing employment of the Rwandan. This study, however, provided insights into our understanding of the challenges confronting SMEs in Rwanda which are: low level of entrepreneurial skills, poor management practices, constrained access to money and capital markets, low equity participation from the promoters because of insufficient personal savings due to their level of poverty and low return on investment, inadequate equity capital, poor infrastructural facilities, high rate of enterprise mortality in the beginning, shortages of skilled manpower, integrity and transparency problems, restricted market access, lack of skills in international trade; bureaucracy, lack of access to information given that it is costly, low level of innovation as well as the absence of research and development. Small and medium enterprise strength comes from the talent of less significant firms to react hastily and flexibly of adapting the market realities and to take advantage of opportunities that would not be an advantage to larger firms.

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The empirical study investigates the causal links between international trade and economic growth in Rwanda during the years 2000-2016. The research used the Cointegration and Granger Causality test as methodology of econometrics. First, the stationary properties of the data and the order of integration of the data were tested using both the Augmented Dickey-Fuller (ADF) test and the Phillip-Perron (PP) test. It was found that the variables were non-stationary at levels, but stationary in first differences, that is, they are integrated of order one. The Johansen multivariate approach to cointegration test was then applied to test for the long-run relationship among the variables. Results indicated the presence of cointegrating vector, thus confirming the presence of a long run relationship among the underlying variables. The VECM model was then estimated. Significant positive links were revealed both in the long-run and the short-run, indicating that openness is an important engine of economic growth in Rwanda. In the long run, the results demonstrated that openness enhances growth. In the short run however, the VECM table depicted the presence of a bi-directional causality between term of trade proxy and economic growth. Yet another major result from the VECM framework shows that international trade indirectly promotes economic growth by boosting private physical capital in the short run. Term of trade thus proves to be an important ingredient for growth in Rwanda. If these findings are seriously considered by policy makers, it is pertinent that policies enhancing both growth-led trade and trade-led growth can be successfully pursued in Rwanda, which will undoubtedly benefit effectively from international trade.

## 6.1 Recommendations

The study also recommends that government at all level should step up their assistance to SMES and other businesses in terms of providing seminar, workshop and training for the business owners on how to run a successful business. Most importantly, Rwanda government should make concerted efforts to upgrade the infrastructural facilities to meet up with the international standard. This will not only help businesses to grow and flourish, but will also make Rwanda, a destination for the international investors. The investors would use very well the chance provided by the government of Rwanda that expands the international markets such as EAC, COMESA, Commonwealth, etc. It is hoped that the ideas presented in this study will go a long way in finding solutions to SMEs problems in Rwanda.

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