Determinants of Export Growth in Uganda (1987-2006)

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BSC. QUANTITATIVE ECONOMICS

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF STATISTICS, MAKERERE UNIVERSITY KAMPALA

November 2009
DECLARATION

I, Nimrod Agasha, hereby declare that the work presented herein is original and has never been submitted to any University or institution of higher learning for any award.

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ACKNOWLEDGEMENT

Special thanks go to my supervisors Dr. Tom Makumbi Nyanzi and Dr. Bruno Ocaya who without their fatherly criticism and guidance, this work would not have appeared in its current form. I wish also to extend my thanks to the staff of the Institute of Statistics and Applied Economics both academic and non academic, for providing me an enabling environment to complete my studies.

It would be the greatest ingratitude if I do not commend my classmates and friends, Gregory, Mark, Ainea, Dan, Ogwang, Lillian, Emma, Boaz, Casement, Ian, Norman, Henry, Dickson, Kakuru, Dennis and Patrick for their guidance and inspiration during the course. Above all, I am grateful to our lord for giving me the energy, strength and determination to pursue my endeavors against all odds I encountered while undertaking this work.
DEDICATION

This dissertation is dedicated to my parents, Mr. Fred Kweyunga and Mrs. Mary Nyinomujuni, siblings, Sam, Joshua, Irene, Apophilia, Albert and Hilda for their unwavering financial and moral support towards my education.
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<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>BOU</td>
<td>Bank of Uganda</td>
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<tr>
<td>COMESA</td>
<td>Common Market for East and Southern Africa</td>
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<td>EAC</td>
<td>East African Community</td>
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<tr>
<td>ECGF</td>
<td>Export Credit Guarantee Fund</td>
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<td>ERP</td>
<td>Economic Reform Programmes</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>NTE</td>
<td>Non Traditional Exports</td>
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<tr>
<td>RER</td>
<td>Real Exchange Rate</td>
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<tr>
<td>TOT</td>
<td>Terms of Trade</td>
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<tr>
<td>UBOS</td>
<td>Uganda Bureau of Statistics</td>
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<tr>
<td>UEPB</td>
<td>Uganda Exports Promotions Board</td>
</tr>
<tr>
<td>UNBS</td>
<td>Uganda National Bureau of Standards</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>UTB</td>
<td>Uganda Tourism Board</td>
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ABSTRACT

The main objective of the study was to identify the determinants of export growth in Uganda for the period 1987-2006. The study was prompted by the inconsistencies in the findings by various researchers on the determinants of export growth hence the need for a clarification on the plausible determinants of export growth.

The study was conducted using data obtained from African Development Indicators; World Bank tables and the United Nations Statistics Division Common Database. An export supply model used by Musinguzi et al (2000) was adopted for the study. Foreign price level and Foreign Direct Investment were added to Gross Domestic Product, Terms of Trade and Real Exchange Rate, the explanatory variables used in the model adopted.

Foreign price level and Terms of Trade were found to be statistically significant in explaining export growth for Uganda between 1987 and 2006. Interestingly, Foreign Direct Investment, Real Exchange Rate and Gross Domestic Product as per the findings do not significantly affect export growth.

This study recommends that in order to improve export growth, the motive of Foreign Direct Investment should be changed from capturing the domestic market to production for export. There should be diversification of exports preferably to include manufactured good but emphasis should be put on utilizing the export potential of the newly discovered oil which if exported would attract higher prices than the current blend of exports.
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CHAPTER ONE
INTRODUCTION

1.1 Background

Uganda’s export sector is dominated by export of primary commodities which include agricultural products mainly coffee, cotton, flowers, simsim, fish, unprocessed minerals such as gold, live animals to mention a few. At the time of independence in 1962, Uganda’s traditional exports constituted of agricultural commodities and unprocessed minerals and by the end of the 70s, coffee was the largest foreign exchange earner accounting for about 51% of total export earnings.

The European Union and Common Market for East and Southern Africa (COMESA) states are Uganda’s major trading partners and this has been ongoing since 2001. In 2005, the European Union constituted 31.1% of total export share followed by COMESA which accounted for 30.7%. North America and Asian continents constituted 2.3% and 7.5 % respectively (UBOS, 2006).

In the early 1990’s, Uganda initiated significant reforms in the economy and one of objectives of these reforms was to boost the export sector. These reforms included among others, the liberalization of foreign exchange rate regime and the elimination of export taxes along with the abolition of taxes on import inputs meant for the export sector (Musinguzi, 2002). This led to the creation of agencies like Uganda Investment Authority, which was established, by an Act of Parliament-investment code of 1991. It was mandated to contribute to the development of the country through promotion and facilitation of private sector initiatives by prioritizing sectors targeting both local and international potential people. It was also charged with attracting export oriented investments. Another agency that was established as a result of the above reforms was the Uganda Exports Promotions Board.
(UEPB), which came into existence in 1996 also by an Act of Parliament. It is charged with the promotion, coordination and development of exports on a sustainable basis. Other agencies include the Uganda National Bureau of Standards (UNBS), which enforces quality of the country’s exports and the Uganda Tourism Board (UTB), which is responsible for marketing the country’s tourism facilities to outside world. In the early 1990s, the government’s initiative to promote the export sector also led to the replacement of export licenses with export certificates which greatly simplified the processing of export promotion applications (UEPB, 2005).

Government of Uganda has also actively participated in regional integration matters in a bid to gain access to regional markets. Uganda is presently a member of the African regional body, Common Market for East and Southern Africa (COMESA) and the East African Community (EAC). Uganda has also signed a number of treaties with member states in the East African Community, one of them being the East African Community Customs Union under which traders are supposed to pay equal tax as their counterparts in the region despite Uganda being a landlocked country.

These developments led to considerable diversification of the exports which led to the emergence of items like Fish and Fish products, simsim, maize and cut flowers classified as Non Traditional Exports (NTE). Fish and maize, which prior to the above reforms were insignificant, currently constitute a substantial proportion of the country’s foreign exchange earnings. Some of the traditional exports such as copper which in the past were major imports have now disappeared from the market. The Non Traditional Exports have taken over traditional exports as the main source foreign exchange since 2001. Their share of total export earnings rose from 14% in 1991 to 67.1% in 2005 (UBOS, 2006).
1.2 Performance of Uganda’s export sector

Uganda’s exports mainly comprise of agricultural products which include coffee, cotton, tea, flowers, processed fish and fish products and vanilla among others. Prior to the 1990s, the country’s poor export performance was largely due to policy induced factors. These included controls of foreign exchange market (rationing of official exchange rates), high tariffs, import bans, quotas, and taxes on exports (Rudaheranwa, 2004).

However, trade policy reforms (trade liberalization) in the 1990’s decontrolled producer prices and dismantled the monopoly power of former marketing boards both of which reinforced the exchange rate policy reform. The reforms also ended the payment of fixed margins to participants in production, marketing and distributional channels which led to increased competition hence efficiency. These trade policy reforms also led to considerable improvements in price incentives that resulted into positive supply responses both in terms of volume and composition of exports. Since 1991, commodity composition of Uganda’s exports has increased significantly with traditional exports coffee, cotton, tea and tobacco contributing about 53% and 38% in 2000 and 2003 respectively to total exports, a decline from just less than 86% in 1992 (MFPED,2003). There have also been improvements in export foreign exchange earnings. For example, Uganda’s export earnings increased from about US$ 258 million in 1981 to a peak of about US$ 889.8 million in 2005 (BOU, 2006). Figure 1.1 shows the trend of export earnings in Uganda since 1987.
The export sector has been characterized by fluctuations in export earnings since 1987. Figure 1.1 shows that earnings stagnated from 1987 to 1992 and increased marginally in 1993 before increasing steadily from 1994 to 1997. In 1998, there was a drop in earnings while in 2001, export earnings increased till 2006 when there was a decline. The above trend is attributed to the fact that our exports are dominated by agricultural products which frequently experience price fluctuations on the world market.

The export sector has still not attained stable growth in the aftermath of the 1991 Economic Reform Programmes (ERP) and where there has been increase in the growth rate and earnings, it has been marginal hence the need to identify the determinants of export growth for Uganda’s economic development.
1.3 Problem Statement

Uganda’s export sector has been characterized by fluctuating export earnings for the past two decades. Since independence, coffee has been the leading export accounting for more than 50% of the total export earnings until recently when it was overtaken by Non Traditional Exports. Some of the traditional exports such as copper disappeared in 1997 and commodities like fish and maize, which previously were not among the traditional exports, emerged and presently constitute a significant proportion of total exports. The government has attempted to promote the export sector through establishing agencies to help exporters by providing them with incentives and advice but the export growth rate has remained low.

Musinguzi, Stryker and Obwona (2000), using an export growth function, found out that Uganda’s export growth rate is significantly and positively affected by its previous growth rate and terms of trade but is not significantly affected by real exchange rate. A similar study by Ngeno (1996) in neighboring Kenya, using export growth as a function of output and real exchange rate found out that both output and real exchange rate significantly affect export growth. The contradictions on the determinants of export growth as shown by the findings of the studies above prompt the need for further research on factors affecting export growth so that information is provided to aid in the formulation of corrective policies to address the problem.
1.3 Objectives

The main objective of the study was to identify the determinants of export growth in Uganda. The specific objectives were:

1. To examine the relationship between export growth and Foreign Direct Investment
2. To establish the relationship between export growth and Terms of Trade
3. To establish the relationship between export growth and Real exchange Rate
4. To examine the relationship between export growth and real Gross Domestic Product
5. To establish the relationship between export growth and foreign price level.

1.5 Hypotheses

1. There is no relationship between export growth and Foreign Direct Investment
2. There is no relationship between export growth and Terms of Trade.
3. There is no relationship between export growth and Real exchange Rate.
4. There is no relationship between export growth and real Gross Domestic Product.
5. There is no relationship between export growth and foreign price level

1.6 Significance of study

Export instability affects the general performance of the economy. Uganda being a primary commodity exporter is faced with a challenge of price fluctuations on the world market. Identifying the determinants of export growth will help provide information to the policy makers to enable them come up with the appropriate policies regarding the growth of the sector and the economy as a whole. Findings from the study will enrich existing literature on export performance and also broaden the understanding of determinants of export growth in Uganda.
1.7 Organization of the Dissertation

The study is comprised of five chapters. Chapter one presents the background, problem statement, objectives, hypotheses and significance of study. Chapter two reviews the theoretical and empirical literature on the determinants of export growth while the specification of the empirical model, data sources, data analysis techniques and all the other tests carried out are discussed in Chapter three. Chapter four contains the empirical findings and interpretation of results whereas summary of findings, conclusions and recommendations are presented in Chapter five.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
This chapter reviews work done by previous scholars on the determinants of export performance in a number of countries. Emphasis was put on empirical literature and only developing countries especially those in Sub Saharan Africa were considered since they are almost at the same level of development as Uganda and also have a similar export structure.

2.2 Export supply functions
There have been a number of empirical studies of export supply functions majority of which have been based on the notion of specialised profit maximization. The literature constitutes both price and scale measures (GDP in the supplying nation, exchange rate and unit price measures) but sometimes includes additional factors of exchange rate variability and trade.

Several empirical models have been used to examine the performance of exports of goods and services. Balassa (1990) studied the responsiveness of exports of goods and services to real exchange rate related price incentives. The study was conducted for 16 Sub-Saharan African (SSA) countries and the model used had export volumes as a function of output proxied by Gross Domestic Product, real exchange rate and export volumes of the previous period.

Sekkat and Varoudakis (2000) extended the work of Balassa by incorporating two more exchange rate policy indicators namely, real exchange rate volatility and misalignment. The study was conducted for selected SSA countries and postulated the following relationship between export volumes and exchange rate variables:
\[ \log X_i = \alpha_0 + \alpha_1 \log \text{MNF} + \alpha_2 \log \text{RER} + \alpha_3 \log \text{RERV} + \alpha_4 \log \text{MIS} + \sum_1 \] ................................. 2.1

Where \( X \) is the ratio of export to Gross Domestic Product, \( \text{MNF} \) is the ratio of total manufactured value added to Gross Domestic Product, \( \text{RER} \) is the real exchange rate, \( \text{RERV} \) is the volatility of the real effective exchange rate, \( \text{MIS} \) is a measure of misalignment of real effective exchange rate and \( \sum \) is the error term.

Karimi (2003) estimated export supply function for Iran using data for period 1970-1998. The export supply function used for the study was specified as;

\[ \log X_s = \beta_0 + \beta_1 \log \left( \frac{P_x}{(P_b \times \text{Er})} \right) + \beta_2 \log \text{YR} + \beta_3 \log \text{SSR} + \beta_4 T \] ................................. 2.2

Where \( X_s = \) export, \( P_b = \) domestic price in national currency, \( P_x = \) export price, \( \text{ER} = \) exchange rate in producer country in dollar, \( \text{YR} = \) Gross Domestic Product in the producer country, \( \text{SSR} = \) supply side shock and \( T = \) time trend.

2.3 Effect of foreign direct investment on export growth

Hoekman and Djankov (1998) analyzed the magnitude of change in the export structure in Central and Eastern European countries. They investigated the relative importance of subcontracting trade, imports of input, and FDI as determinants of the countries’ export performance in European Union markets. A statistical analysis of the extent to which these variables are associated with the countries’ export composition during 1990-95 was undertaken. The findings of this study suggested that of all the countries looked at, only Poland had a significant positive association between FDI and exports structure.
Alvarez (2002), Wignaraja (2002), Sarpong (2004) and (Van Dijk 2002) conducted Studies analyzing firm-level export performance in developing countries of Chile, Mauritius, Ghana and Indonesia respectively. In the Chilean firms, factors affecting the decision to export and the determinants of export success were identified. The study concluded that productivity, firm size and human capital increase the sustainability of export while foreign technical licenses and foreign capital participation positively improve export performance. In Ghana, the relationship between export performance and investment behavior of private firms was tested using a simultaneous equation model. The study did not find any positive or significant relationship between the two variables. The study of Van Dijk (2002) attempted to determine the factors affecting export performance for Indonesian manufacturing firms. It highlighted the importance of sectoral variation in determining export activities and concluded that relative size, foreign ownership and age were significant factors across all sectors.

Amelia and Santos (2000) studied the effect of trade liberalization on export performance in selected developing countries. Using pooled cross sectional and time series data for 48 African countries and an export demand function with share of exports to Gross domestic Product as a dependent variable, Foreign Direct Investment was found to significantly impact on export volumes. Export performance was highly negative with price and real exchange rate exerted a significant negative impact on export volumes.

Hoekman and Djankov (1997) investigated the relative performance of trade. Imports of inputs, foreign direct investment (FDI) and entrepreneurs’ response to changed incentives were major determinants of a country’s export performance. Growth of exports in Central and Western Europe
was found to be a consequence of entrepreneurial response to new incentives which caused them to restructure their production in order to capture new markets. Lack of changes in export structure and foreign direct investment had insignificant effects on export performance. FDI sometimes chooses sectors in the economy in which the country may not have relatively specialized under central planning which may affect export performance. Imports of intermediate inputs and machinery were also found to be important determinants of changes in export structure.

Vinod and Nash (1991) postulated that the poor performance in African countries exports was due to trade policies which did not contribute to acceleration in industrialization growth. They indicated that import restriction policies often bias exporters. High tariff and non-tariff barriers significantly raise prices of input products in the manufacturing sector and greatly affect the potential of exporters’ to compete in foreign markets.

2.4 Terms of trade and export growth

Svedberg (1990) commented on the sluggish export performance of sub-Saharan Africa countries from 1980 to 1985. Factors which influence exports were identified and categorized as external and internal. Unfavorable terms of trade which had a negative effect on the exports and the limited change in export structure facing sub-Saharan Africa countries were cited as the major external factors. The internal factors which lead to poor export performance identified were domestic policies including overvalued exchange rates and high taxes on producers’ exports that reduce export supply.

Ministry of Finance, Planning and Economic Development (1995) reported that exports increased from the period 1991 to 1994 due to the dramatic improvement in the terms of trade for coffee. The
price of coffee tripled because the Brazilian coffee crop was hit by frost. This significantly reduced
the Brazilian coffee supply on the international market and during the same period, exports
improved due to domestic policies. Liberalization of foreign exchange payments which removed the
anti export bias from the official exchange rate and the abolition of export taxes were some of the
policies credited for this performance.

According to World Bank (1996), Uganda’s predominantly agricultural primary commodity exports
suffer from declining terms of trade especially coffee exports and high price volatility in the
international prices. In addition, the production of these commodities tends to be susceptible to
adverse supply shocks such as unexpected changes in weather and attacks from pests and diseases.

Kasekende and Atingi-Ego (1999) studied the impact of trade liberalisation on key markets in Sub-
Uganda’s exports as a function of real effective exchange rate, terms of trade, and income of trading
partner countries. Uganda’s exports were found to be positively and significantly correlated with
both the terms of trade and the error correction term ($ecm$) lagged three periods but real effective
exchange rate was not significantly related to exports.

Musinguzi, Obwona and Stryker (2000) using an export growth function disequilibrium model,
theoretically specified exports as a positive function of the terms of trade, exchange rates and
capacity to produce commodities for export sector. Output was measured in terms of industrial
output. Exports were significantly and positively affected by the previous year’s export performance
and current performance of the real economy but were marginally increased by an increase in the terms of trade though it was significant. Real exchange rate did not significantly boost exports.

Bank of Uganda (2001) reported that in May 2001, the external sector of Uganda continued to operate under pressure owing to deteriorating terms of trade and poor export sector performance as a result of a further decline in the prices of coffee compared to the corresponding period in 2000.

2.5 Impact of real exchange rate on export growth

Sharma (2001) investigated the determinants of exports in India using annual data for 1970-98. The study used the simultaneous equation framework and the results of study suggested that demand for Indian exports increased when its export price fell in relation to world prices. The appreciation of the rupee adversely affects Indian exports and exports supply is positively related to the domestic relative price of exports and higher domestic demand reduces export supply.

Bahmani and Ltaifa (1992) analyzed the effects of exchange rates on exports and results showed that exchange rates adversely affect exports. Sivri and Usta (2001), while studying the determinants of export growth in Turkey found that real exchange rate does not appreciably account for changes in exports. Oztang (2000) postulated total exports to be a function of foreign income and real exchange rate and results revealed that real exchange rate is a statistically significant determinant of export performance.

Nowak et al (2007) used an extended version of gravity model for Turkey covering 1988-2002 while investigating the trade effects of Turkey’s trade integration into European Union. Sectoral trade
flows to the European Union were examined based on panel data. Real exchange rate, a proxy of price competition turned out to be statistically significant in explaining export performance. The depreciation of real effective exchange rate was also found to significantly increases the level of Turkish exports.

Edwards and Golub (2004) examined the determinants of export supply in South Africa and found out that foreign prices, domestic prices and the exchange rate have a strong impact on manufacturing export performance in South Africa. Using an econometric model, results showed a positive and significant coefficient on the relative price variable and the real effective exchange rate. A conclusion was drawn that a 1% increase in the relative price of exports is estimated to raise average manufacturing export volumes by to 2.5% in the long-run.

Baak, Mahmood, and Vixathep (2002) studied the impact of exchange rate volatility on exports in four East Asians countries (Hong Kong, South Korea, Singapore, and Thailand). Findings revealed that exchange rate volatility has negative impacts on exports in both the short run and long run periods.

Chowdhury (1993) investigated the impact of exchange rate volatility on the trade flows of the G-7 countries in context of a multivariate error-correction model. Exchange rate volatility was found to have a significant negative impact on the volume of exports in each of the G-7 countries.
Granberg (1998) suggested that the exchange rate is not the only or even major factor at play in promoting exports to other policies. Moderate devaluation and appreciation have marginal impacts on exports and trade in general.

Schnitzer (1991) argued that inflation has an influence on the economy. When there is inflation, domestic products become expensive than the imported commodities and people find it easier to purchase foreign goods than domestic goods. Consequently, exports decrease since they become more expensive to importers.

Fosu (1992) analysed the effect of real exchange rates on agricultural exports in Ghana. Between 1960 and 1982, it was observed that there was a decline in nominal exchange rate which led to the reduction of total export volume of coffee and cocoa. On the contrary, the 1983 to 1989 period was characterized by a real exchange rate increase as well as the implementation of World Bank (WB) and International Monetary Fund (IMF) structural reforms which resulted into an increase in real total agricultural exports. An economic model that estimated both aggregate and sectoral supply functions with elasticities of agricultural price incentives with respect to changes in real exchange rate was employed. The results showed that the elasticities of agricultural exports were less than unit (inelastic) and only significant with coffee and cocoa but insignificant with cashew nut exports and aggregate agricultural exports.

Lyakurwa (1998) expressed concern that export performance of sub Saharan Africa over the last three decades was below par and consequently the region had lost a share of world exports by over 250% in the last 30 years. This was attributed to the import compression particularly in the 1980’s
when their participation declined and their place was taken over by fastest growing economies of East Asia and Latin America. Both institutional and policy factors had affected the export performance of the sub Saharan African countries. Ordinary regression for all the categories of exports from sub Saharan African countries showed that real exchange rate, government expenditure, gross investment and freight cost in case of manufactured exports influenced the growth rate of exports.

According to Helleiner (2002), a competitive real exchange rate is associated with Non traditional exports success. Using time series, a study on Tanzania’s non traditional exports revealed a statistically significant relationship between real devaluation and non traditional exports growth.

Goldstein and Khan (1985), and Senhadji and Montenegro (1999) estimated export demand elasticities for a large number of developing and industrial countries using time series techniques. Exports were found to react to both the income of trade partners and relative prices. The average long-run price and income elasticities for all countries were found to be approximately -1 and 1.5, respectively, but there was a wide diversity of experiences.

Edwards and Alves (2005) while studying South Africa’s export performance, determinants of export supply found out that exchange rate depreciation on average positively affects export performance. Results showed that export growth is not predominantly dependent on the economic prosperity of South Africa’s trading partners or their ability to compete in the export market on the basis of price. Export volumes are determined by the profitability of export supply and factors which raise the output price and reduce the cost of production enhance export performance.
2.6 Gross domestic product and export growth

Rodrik (1999) carried out a regression analysis on pooled cross section and time series data for 1964-1994. Using export growth rate as a function of a wide range of determinants including trade policies, income levels and geographic variables in a sample of 37 Sub Saharan Africa countries, it was established that GDP has a statistically significant effect on export growth.

Cline (2004) used Ordinary Least Squares regression for pooled data on 100 developing countries for the period 1981-2001. Export growth rate was expressed as a function of the share of manufacturing to exports, real effective exchange rate, Gross Domestic Product real growth rate and Per Capita Income. The effect of GDP growth rate and real effective exchange rate on export growth was statistically significant.

Kumar (1998) conducted a study on the determinants of export performance in the developing countries and confirmed that GDP has got a positive impact on exports. Increased level of production is the main cause of export expansion since surplus of output can be exhausted in international markets. However, in a closed economy, surplus production leads to fall in price which in turn creates pessimism among the producers where as in an open economy such surpluses create foreign reserves through exportation.

Ngeno (1996) studied the determinants of exports in Kenya using an export growth equilibrium and disequilibrium model. Theoretically, export growth was specified as being positively related to output level since higher production should lead to increase in export growth. The coefficient of real exchange rate was postulated to be positive because depreciation of the domestic currency increases
export earnings and therefore increases production for export. Empirical result suggested that an increase in domestic output increased the export growth. Growth promoting policies were found to be insignificant in relation to export supply since Kenya is a price taker in the world market. It was also established that the use of the world price as a signal for exports was constrained by the quota system.

Fugazza (2004) studied export performance and its determinants, supply and demand constraints. The log of GDP (lagged) was highly significant across all periods and real exchange rate also had a significant effect on export performance. A 1 per cent real depreciation was found to increase exports by 6 percent. Results indicated that an overvalued currency is detrimental to export performance since an overvalued currency translates into a direct loss of price competitiveness for exporting firms. Foreign Direct Investment was also found to affect export performance positively and experience in a number of countries suggests that FDI strongly contributes to the transformation of the composition of exports.

2.7 Effect of foreign price level on export growth

The external trade environment and domestic products geared towards utilizing opportunities of trade and responding to constraints to trade influenced the growth and development of African economies significantly, Ndulu and Lipumba (1990). The policies involved those targeting the exchange rates, tariff structure, export taxation, import controls and administrative exchange allocation system, wage, pricing especially for agricultural products and adjustment policies to external conditions. The external factors were found to be world prices of the primary commodities, which for most small economies have to be taken as given. The export baskets of the African
countries were also still concentrated on commodities which had a low growth rate of demand on the world market.

Rafik and Svedberg (1990) examined the export performance of sub-Saharan Africa countries and detected a decline during the 1970 to 1985 period. The major cause of the decline was the protection facing exports from the sub-Saharan countries. Protection in terms of export quotas and price decline of primary products accounted for one third of the total world market share loss by sub-Saharan Africa.

Musinguzi (1999) in his analysis of the factors that affect export earnings instability in Uganda, found out that Uganda’s exports which are mainly primary products are faced with two major problems of declining quantity of exports and export price fluctuations.

BOU (2005) reported that coffee export earnings during the second half of 2004/05 amounted to USD 88 million up from USD 66.6 million realized in the corresponding period of 2003/04. It further revealed that export volumes fell from 1.39 (60kgs) million bags during the second half of 2003/04 to 1.28 million bags in the corresponding period of 2004/05. In the same period, there was an increase of 43.3% in average unit price which more than offset the decline in export volumes leading to the increase in coffee export earnings.

Primary commodities exhibit excessive short term and medium term fluctuations and long term declines, Jayant (2006). Erratic short term movements in commodity markets hamper economic decisions while long term declines of primary products exacerbate deteriorations in terms of trade.
High degree of price instability of primary commodities coupled with worsening terms of trade leads to a contraction of export earnings and instability in the commodity depending developing countries. Burundi depends on coffee and tea to an extent of 87%. Its coffee and tea prices fell by 37% and 20% in 1986 and 1987 respectively and as a result, annual exports fell from USD 154 million to USD 90 million.

Ministry of Finance Planning and Economic Development (2007), reported that coffee exports for the month of July shot to USD 28.3 million registering a 52.5% increase compared to July 2006 as a result of the average coffee prices rising by 36% vis a’ vis the price in July 2006. The volumes for the coffee exports also increased by 106.7% to 268,864 (60kgs) bags in July 2007 compared to July 2006 owing the favorable weather conditions and good husbandry practices. Coffee export earnings for May 2007 increased by 63.3% to USD 17.9 million compared to may 2006 as a result of a 9.1% increase in export prices on the world market. The price was USD 1.62 per kilogram, the highest price since May 1998.
CHAPTER THREE
METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was used in the study, sources of data, variables that were used, scope, technique for data analysis and various tests that were carried out and the procedures for the interpretation of results.

3.2 Data Sources

Secondary data was used for the study. It was obtained from Bank of Uganda, Uganda Bureau of Statistics, African Development Indicators, World Bank tables and United Nations Statistics Division common data base. The variables that were used are export growth rate (EGR), foreign price level (P_f), real exchange rate (RER), Gross Domestic Product (GDP), Foreign Direct Investment (FDI) and Terms of Trade (TOT).

3.3 Data Analysis

The data was analyzed using E-VIEWS to perform the Ordinary Least Squares regression in order to establish if the above variables significantly affect export growth rate as well as the other tests which precede regression analysis. Annual data was obtained and in order to create more data points, it was converted to quarterly range using Eviews. The technique used was the quadratic match average which fits a local polynomial for each observation of the series in annual range. It then uses a polynomial to fill in all observations in quarterly range. The quadratic polynomial is formed by taking sets of three adjacent points from the source series and then fitting a quadratic so that the average of the quarterly observations matches annual data actually observed. The three points
mentioned above are selected in a way that one point before and after the period currently being interpolated provide the three points.

3.4 Model

The study employed a time series regression analysis in which export growth rate was assumed to be determined by internal supply factors, an approach used by Musinguzi, Stryker and Obwona (2000) while studying the monetary and exchange rate policy in Uganda. Their model had lagged export growth rate, Gross Domestic Product, Terms of Trade and real exchange rate as the predictors of export growth and this study included in its model, Foreign Direct Investment and foreign price level in addition to the above mentioned predictors. This export supply model is based on the assumption that in Low Developed Countries like Uganda which mainly export primary commodities, import and export prices are exogenously determined on the world market implying that their exports are constrained by more of supply bottlenecks than world demand. The conventional export function has exports related to incomes of foreign importing countries, but for small countries like Uganda, the external element is not a limiting factor as their exports constitute a very small proportion of the external world’s commodity basket.

The study therefore used the model below;

\[ \text{EGR}_{i} = \beta_0 + \beta_1 \text{RER} + \beta_2 \text{GDP} + \beta_3 \text{TOT} + \beta_4 \text{P}_f + \beta_5 \text{FDI} + \epsilon_i \] \hspace{1cm} \text{3.1}

Where;

EGR is Export Growth Rate,
GDP is Gross Domestic Product,
TOT is Terms of Trade,
Pf is foreign price level proxied by USA’s Consumer Price Index since the unit value of exports is a dollar adopted from Cottani (1990) in a study titled “Real exchange rate behavior and economic performance in LDC”.

FDI is Foreign Direct Investment,

RER is real exchange rate computed as RER=E* Pf/Pd where E is nominal exchange rate, Pf is foreign price level and Pd is domestic price level proxied by Uganda’s Consumer Price Index.

3.5 Test for Normality

The series used in the model were tested for normality by plotting a histogram for residuals and also using the Jarque-Bera test statistic. The Jarque-Bera statistic is computed as per the formula below;

\[ JB = \frac{n}{6} \left[ (\text{skewness}X_t)^2 + \frac{(\text{kurtosis}X_t)^2}{4} \right] \]

where \( n \) is the number of observations.

The statistic tests the null hypothesis that the series is normal against the alternative that the series is not normal. Where the probability of the statistic was less than 0.05%, the level of significance, the series was regarded not normal and otherwise; a series was regarded normal.

3.6 Test for Stationarity

The series were also tested for stationarity using the Augmented Dickey Fuller test. The reason for this test is the fact that macroeconomic variables are desired when they are stationary and on the contrary, regression on the series yields spurious results. The ADF statistic is computed using formula below;

\[ \Delta Y_t = \alpha_0 + \lambda + \delta Y_{t-1} + \sum_{i=1}^{l} \phi_i \Delta Y_{t-i} + \epsilon_t \]
Where $l$, is the lag length

The ADF statistic tests the null hypothesis that the series are non stationary against the alternative that the series are stationary. Where the absolute value of the computed ADF statistic is greater than the tabulated one, the null hypothesis is rejected and an inference drawn that the series is stationary at a given level of significance. The series which were found to be non stationary were differenced to make them stationary.

### 3.7 Test for Cointegration

The variables used in the study were tested for cointegration in order to establish if there existed a long run relationship between the series. The fundamental equation for testing for cointegration using Johansen’s procedure is as below;

$$\Delta Y_t = \sum_{i=1}^{p-1} \pi_i \Delta Y_{t-1} + \pi_Y Y_{t-p} + \epsilon_t$$  \hspace{1cm} \text{3.4}$$

Where;

$$\pi = [I - \sum_{j=1}^{i} A_j]$$ is trace statistic,

$$\pi = [I - \sum_{i=1}^{p} A_i]$$ is Eigen value.

The key feature in Johansen’s value is the rank ($\pi$) which equals the number of independent cointegrating equations. The series were therefore tested for cointegration and after confirming its presence, when the absolute value of the likelihood ratio was greater than the tabulated value at a given level of significance for a given hypothesized number of cointegrating equations, an error correction model was constructed and later a parsimonious model of the series also developed.
3.8 Diagnostic tests

The variables were subjected to the Whiteness test. This is a test which examines the series for constant variance and serial correlation. The test for serial correlation tests the null hypothesis that the series are not serially correlated against the alternative that the series are serially correlated whereas the test for constant variance tests the hypothesis that the series have a constant variance against the alternative that the series have a varying variance.

3.9 Problems encountered

The main challenge in this research was finding data to use in analysis. Ironically, there are several sources of macroeconomic data but getting the appropriate data was not easy. Much of the data was expressed in different base years and varied from source to source. In addition, some of the variables were not provided directly and had to be computed using internationally recognized formulae.
CHAPTER FOUR
DETERMINANTS OF EXPORT GROWTH

4.1 Introduction

This Chapter presents the research findings as per the objectives and hypotheses of the study on the determinants of export growth. It also shows how the interpretation of the results was done for the various tests conducted in the study.

Table 4.1 Description of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Unit of measurement</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR</td>
<td>Export growth rate</td>
<td>Percent</td>
<td>United Nations Statistical Division</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investment</td>
<td>Millions US $</td>
<td>United Nations Statistical Division</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
<td>Millions of US $</td>
<td>Bank of Uganda</td>
</tr>
<tr>
<td>Pf</td>
<td>Foreign price level</td>
<td>Index</td>
<td>United Nations Statistical Division</td>
</tr>
<tr>
<td>RER</td>
<td>Real exchange rate</td>
<td></td>
<td>UBOS and author’s computations</td>
</tr>
<tr>
<td>TOT</td>
<td>Terms of trade</td>
<td>Index</td>
<td>African Development Indicators</td>
</tr>
</tbody>
</table>
Table 4.2 Data used for the study

<table>
<thead>
<tr>
<th>Year</th>
<th>EGR</th>
<th>FDI</th>
<th>GDP</th>
<th>PF</th>
<th>RER</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>145.98</td>
<td>3.00</td>
<td>2984.00</td>
<td>66.02</td>
<td>558.97</td>
<td>100.00</td>
</tr>
<tr>
<td>1988</td>
<td>159.91</td>
<td>10.00</td>
<td>6802.00</td>
<td>68.67</td>
<td>485.89</td>
<td>99.80</td>
</tr>
<tr>
<td>1989</td>
<td>84.74</td>
<td>13.00</td>
<td>7235.00</td>
<td>71.98</td>
<td>663.01</td>
<td>95.10</td>
</tr>
<tr>
<td>1990</td>
<td>26.73</td>
<td>6.00</td>
<td>7703.00</td>
<td>75.87</td>
<td>1008.91</td>
<td>76.00</td>
</tr>
<tr>
<td>1991</td>
<td>67.63</td>
<td>1.00</td>
<td>8131.00</td>
<td>79.08</td>
<td>1405.46</td>
<td>69.70</td>
</tr>
<tr>
<td>1992</td>
<td>36.40</td>
<td>6.70</td>
<td>8409.00</td>
<td>81.48</td>
<td>1467.36</td>
<td>63.00</td>
</tr>
<tr>
<td>1993</td>
<td>21.84</td>
<td>54.60</td>
<td>9109.00</td>
<td>83.88</td>
<td>1500.79</td>
<td>58.90</td>
</tr>
<tr>
<td>1994</td>
<td>79.88</td>
<td>88.20</td>
<td>9688.00</td>
<td>86.07</td>
<td>1150.24</td>
<td>69.70</td>
</tr>
<tr>
<td>1995</td>
<td>19.17</td>
<td>1.00</td>
<td>8131.00</td>
<td>89.08</td>
<td>1405.46</td>
<td>69.70</td>
</tr>
<tr>
<td>1996</td>
<td>35.88</td>
<td>121.20</td>
<td>10795.00</td>
<td>91.08</td>
<td>1077.26</td>
<td>102.40</td>
</tr>
<tr>
<td>1997</td>
<td>9.93</td>
<td>121.20</td>
<td>8029.00</td>
<td>94.66</td>
<td>1476.43</td>
<td>78.20</td>
</tr>
<tr>
<td>1998</td>
<td>8.92</td>
<td>210.00</td>
<td>6944.00</td>
<td>96.73</td>
<td>1447.05</td>
<td>57.30</td>
</tr>
<tr>
<td>1999</td>
<td>14.84</td>
<td>140.20</td>
<td>7458.00</td>
<td>100.00</td>
<td>1644.48</td>
<td>100.00</td>
</tr>
<tr>
<td>2000</td>
<td>0.98</td>
<td>160.70</td>
<td>5927.00</td>
<td>102.82</td>
<td>1769.77</td>
<td>79.00</td>
</tr>
<tr>
<td>2001</td>
<td>19.87</td>
<td>151.50</td>
<td>6220.00</td>
<td>104.45</td>
<td>1846.70</td>
<td>67.00</td>
</tr>
<tr>
<td>2002</td>
<td>4.01</td>
<td>184.65</td>
<td>6645.00</td>
<td>106.82</td>
<td>1913.21</td>
<td>71.00</td>
</tr>
<tr>
<td>2003</td>
<td>28.53</td>
<td>202.19</td>
<td>6959.00</td>
<td>109.68</td>
<td>1752.93</td>
<td>93.53</td>
</tr>
<tr>
<td>2004</td>
<td>16.36</td>
<td>222.21</td>
<td>8950.00</td>
<td>112.61</td>
<td>1648.40</td>
<td>98.50</td>
</tr>
<tr>
<td>2005</td>
<td>24.97</td>
<td>257.06</td>
<td>9531.00</td>
<td>117.06</td>
<td>1641.58</td>
<td>102.00</td>
</tr>
</tbody>
</table>

4.2 Univariate analysis

Table 4.3 presents the descriptive statistics of the variables used in the study.

Table 4.3 Descriptive statistics of variables used in the model.

<table>
<thead>
<tr>
<th>Variable</th>
<th>EGR</th>
<th>FDI</th>
<th>GDP</th>
<th>PF</th>
<th>RER</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>39.267</td>
<td>120.754</td>
<td>8192.650</td>
<td>91.573</td>
<td>1324.583</td>
<td>81.652</td>
</tr>
<tr>
<td>Median</td>
<td>23.716</td>
<td>133.280</td>
<td>8029.391</td>
<td>92.234</td>
<td>1426.435</td>
<td>78.969</td>
</tr>
<tr>
<td>Maximum</td>
<td>196.223</td>
<td>296.950</td>
<td>13154.94</td>
<td>118.411</td>
<td>1926.160</td>
<td>104.988</td>
</tr>
<tr>
<td>Minimum</td>
<td>-12.560</td>
<td>0.313</td>
<td>811.781</td>
<td>65.171</td>
<td>471.568</td>
<td>53.950</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>47.633</td>
<td>91.565</td>
<td>2212.938</td>
<td>14.697</td>
<td>416.894</td>
<td>15.811</td>
</tr>
<tr>
<td>Skewness</td>
<td>1.805</td>
<td>0.049</td>
<td>-0.239</td>
<td>-0.047</td>
<td>-0.562</td>
<td>0.004</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>5.836</td>
<td>1.773</td>
<td>3.930</td>
<td>2.009</td>
<td>2.357</td>
<td>1.539</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>70.281</td>
<td>5.048</td>
<td>3.643</td>
<td>3.300</td>
<td>5.590</td>
<td>7.114</td>
</tr>
<tr>
<td>Probability</td>
<td>0.000</td>
<td>0.080</td>
<td>0.162</td>
<td>0.192</td>
<td>0.061</td>
<td>0.029</td>
</tr>
<tr>
<td>Observations</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
</tbody>
</table>

Source: UN Data and author’s computations
The mean export growth rate in the study period was 39.267 percent but this was high due to the figures obtained in the late 80s when the economy was undergoing reforms. Maximum registered growth was 196.223 percent and the lowest was -12.560 percent. The standard deviation of growth rate from the mean was 47.6333 percent. The inflow of Foreign Domestic Investment in Uganda from 1987 to 2006 was 120.754 million dollars on average with the highest inflow recorded being 296.95 and the least 0.313 million dollars. The standard deviation from the mean of Foreign Direct Investment was 91.565 million dollars. The mean Gross Domestic Product in the study period was 8,192.650 million dollars with the highest estimate at 13,154.94 million dollars and the least at 811.781. The average foreign price level in the period of study was 91.573 with the highest level being 118.411 and least 65.171. The standard deviation from the mean foreign price level in the period was 14.697. The mean real exchange rate was 1324.583 with the highest being 1926.160 and lowest 471.568. The standard deviation from the mean Real exchange rate was 416.894. Terms of trade in Uganda have not been favorable as depicted by the results in Table 4.1. The mean Terms of Trade was 81.652 percent and the highest was 104.988 and least 53.950. The standard deviation was 15.811 for the entire period.

The jarque-bera statistic shows that with exception of export growth rate and Terms of trade, the other variables are normal at 5 % level of significance. The skewness statistics of export growth rate and Terms of trade are much higher than zero and this implies that the variables are not normal. The kurtosis values for export growth rate and Terms of trade don’t tend to 3 in absolute terms which is the condition for normality of any series.

4.3 Ordinary Least Squares Regression

Table 4.4 presents ordinary least square regression results of export growth rate on Foreign Direct Investment, Gross Domestic Product, Real exchange rate, Terms of Trade and foreign price level.
Table 4.4 Model regression results

Dependent Variable: EGR
Included observations: 80

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.452</td>
<td>90.638</td>
<td>0.005</td>
<td>0.996</td>
</tr>
<tr>
<td>FDI</td>
<td>-0.412</td>
<td>0.181</td>
<td>-2.276</td>
<td>0.026</td>
</tr>
<tr>
<td>GDP</td>
<td>-0.006</td>
<td>0.002</td>
<td>-3.395</td>
<td>0.001</td>
</tr>
<tr>
<td>PF</td>
<td>2.963</td>
<td>1.770</td>
<td>1.674</td>
<td>0.098</td>
</tr>
<tr>
<td>RER</td>
<td>-0.106</td>
<td>0.032</td>
<td>-3.351</td>
<td>0.001</td>
</tr>
<tr>
<td>TOT</td>
<td>0.116</td>
<td>0.299</td>
<td>0.389</td>
<td>0.698</td>
</tr>
</tbody>
</table>

R-squared 0.659 S.E. of regression 28.058
Adjusted R-squared 0.636 Akaike info criterion 9.578
F-statistic 28.589
Durbin-Watson stat 0.327 Prob(F-statistic) 0.000

Source: Computed by the author

Results in Table 4.4, show that approximately 66% of the variation in export growth rate is explained by Foreign Direct Investment, Gross Domestic Product, foreign price level, Real exchange rate and Terms of Trade. The value of R-squared is greater than Durbin-Watson statistic which creates suspicion that the regression results are spurious hence unreliable.

4.4 Test for Normality

The variables used in the model were tested for normality to ascertain if the spurious results in the model above were due to non normality of the variables. This was tested using Jarque-Bera statistic and the results are presented in the Table 4.5.

Table 4.5 Test for normality

<table>
<thead>
<tr>
<th>Variable</th>
<th>EGR</th>
<th>FDI</th>
<th>GDP</th>
<th>PF</th>
<th>RER</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skewness</td>
<td>1.805</td>
<td>0.049</td>
<td>-0.239</td>
<td>-0.047</td>
<td>-0.562</td>
<td>0.004</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>5.836</td>
<td>1.773</td>
<td>3.930</td>
<td>2.009</td>
<td>2.357</td>
<td>1.539</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>70.281</td>
<td>5.048</td>
<td>3.643</td>
<td>3.300</td>
<td>5.590</td>
<td>7.114</td>
</tr>
<tr>
<td>Probability</td>
<td>0.000</td>
<td>0.080</td>
<td>0.162</td>
<td>0.192</td>
<td>0.061</td>
<td>0.029</td>
</tr>
</tbody>
</table>

Source: Computed by author
Normality test results in Table 4.5 show that export growth rate and terms of trade are not normal at 5% level of significance. The probabilities of their Jarque-Bera statistics are less than 0.05, the level of significance. We reject the null hypotheses that they are normal and conclude that they are not normal. This could be the reason for the low Durbin-Watson statistic in the ordinary least squares regression results in table 4.4. There is need to log the variables prior to their use in the subsequent tests.

**4.5 Test for Stationarity**

The variables were tested for stationarity using the Augumented Dickey Fuller (ADF) statistic. Results of the test for stationarity are presented in the Table 4.6.

**Table 4.6 Stationarity test for variables in levels**

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF statistic</th>
<th>1% value</th>
<th>5% value</th>
<th>10% value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEGR</td>
<td>-4.802</td>
<td>-4.080</td>
<td>-3.468</td>
<td>-3.161</td>
</tr>
<tr>
<td>LFDI</td>
<td>-2.180</td>
<td>-4.080</td>
<td>-3.468</td>
<td>-3.161</td>
</tr>
<tr>
<td>LGDP</td>
<td>-2.093</td>
<td>-4.080</td>
<td>-3.468</td>
<td>-3.161</td>
</tr>
<tr>
<td>LPf</td>
<td>-3.808</td>
<td>-4.080</td>
<td>-3.468</td>
<td>-3.161</td>
</tr>
<tr>
<td>LRER</td>
<td>-4.660</td>
<td>-4.080</td>
<td>-3.468</td>
<td>-3.161</td>
</tr>
<tr>
<td>LTOT</td>
<td>-3.539</td>
<td>-4.080</td>
<td>-3.468</td>
<td>-3.161</td>
</tr>
</tbody>
</table>

Source: Computed by author

The results in Table 4.6 show that export growth rate, Real exchange rate, foreign price level and Terms of Trade are stationary at 5 % level of significance. The absolute values of their ADF statistics are greater than the critical values at 5 % whereas for Foreign Direct Investment and Gross Domestic Product, their ADF statistics in absolute terms are less than the critical values at 5 % significance level. Some of the variables were found to be non stationary and had to be differenced in order to make them stationary. Table 4.7 presents results of the test after differencing.
Table 4.7 Test for stationarity after differencing

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF statistic</th>
<th>1% value</th>
<th>5% value</th>
<th>10% value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEGR</td>
<td>-5.775</td>
<td>-4.082</td>
<td>-3.469</td>
<td>-3.161</td>
</tr>
<tr>
<td>LFDI</td>
<td>-4.149</td>
<td>-4.082</td>
<td>-3.469</td>
<td>-3.161</td>
</tr>
<tr>
<td>LGDP</td>
<td>-4.811</td>
<td>-4.082</td>
<td>-3.469</td>
<td>-3.161</td>
</tr>
<tr>
<td>LPf</td>
<td>-4.578</td>
<td>-4.082</td>
<td>-3.469</td>
<td>-3.161</td>
</tr>
<tr>
<td>LRER</td>
<td>-3.747</td>
<td>-4.082</td>
<td>-3.469</td>
<td>-3.161</td>
</tr>
<tr>
<td>LTOT</td>
<td>-4.559</td>
<td>-4.082</td>
<td>-3.469</td>
<td>-3.161</td>
</tr>
</tbody>
</table>

Source: Computed by author

All the variables after taking the first difference become stationary. The results further show that all the variables are stationary at 5 and 10 percent levels of significance since for all of them; the absolute ADF test statistical values are greater than the critical values.

4.6 Test for Cointegration

After establishing that the variables are integrated of the same order, they were tested for cointegration using Johansen’s maximum likelihood method and the results are presented in Table 4.8.

Table 4.8 Cointegration test

<table>
<thead>
<tr>
<th>Eigen value</th>
<th>Likelihood ratio</th>
<th>5% value</th>
<th>1% value</th>
<th>Hypothesized CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.532</td>
<td>160.960</td>
<td>104.94</td>
<td>114.36</td>
<td>None **</td>
</tr>
<tr>
<td>0.371</td>
<td>102.423</td>
<td>77.74</td>
<td>85.78</td>
<td>At most 1 **</td>
</tr>
<tr>
<td>0.321</td>
<td>66.671</td>
<td>54.64</td>
<td>61.24</td>
<td>At most 2 **</td>
</tr>
<tr>
<td>0.242</td>
<td>36.904</td>
<td>34.55</td>
<td>40.49</td>
<td>At most 3</td>
</tr>
<tr>
<td>0.144</td>
<td>15.529</td>
<td>18.17</td>
<td>23.46</td>
<td>At most 4 *</td>
</tr>
<tr>
<td>0.045</td>
<td>3.537</td>
<td>3.74</td>
<td>6.40</td>
<td>At most 5 **</td>
</tr>
</tbody>
</table>

Source: Computed by author

*(**) denotes rejection of the hypothesis at 5%( 1%) significance level

Likelihood ratio test indicates 3 cointegrating equation(s) at 5% significance level.
Results in Table 4.8 show that there are three cointegrating equations at 5% level of significance. The absolute value of the likelihood ratio is less than the critical value at 5% level of significance for 3 cointegrating equations. We therefore accept the null hypothesis that there are 3 cointegrating equations. This means that despite some of the variables being non stationary, their linear combination is stationary hence the existence of a long run relationship of the variables. This calls for a long run model of the variables and an Error Correction Model for their short run relationship as presented in the subsequent tests.

**Table 4.9 Long run relationship model**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>39.015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LFDI</td>
<td>-0.263</td>
<td>0.144</td>
<td>-1.820</td>
</tr>
<tr>
<td>LGDP</td>
<td>1.314</td>
<td>0.542</td>
<td>2.425</td>
</tr>
<tr>
<td>LPF</td>
<td>-9.694</td>
<td>2.928</td>
<td>-3.311</td>
</tr>
<tr>
<td>LRER</td>
<td>-2.234</td>
<td>0.682</td>
<td>-3.276</td>
</tr>
<tr>
<td>LTOT</td>
<td>1.475</td>
<td>0.853</td>
<td>1.731</td>
</tr>
</tbody>
</table>

Source: Computed by author

Table 4.9 reveals that the effect of Gross Domestic Product and real exchange rate on export growth rate is significant. Foreign Direct Investment and terms of trade have no significant effect on export growth rate while foreign price level is also significant but with an unexpected sign of its coefficient.

**4.7 Error Correction Model**

After confirming that the variables are cointegrated, an Error Correction Model which is constructed by including in the model, the lagged terms of the variables and the Error Correction Term was generated. The error correction model shows the short run relationship between variables and its results are presented in the Table 4.10.
Table 4.10 Short run relationship model

Dependent Variable: DLEGR  
Included observations: 75 after adjusting endpoints

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.154</td>
<td>0.410</td>
<td>0.377</td>
<td>0.7078</td>
</tr>
<tr>
<td>DLEGR_1</td>
<td>1.285</td>
<td>0.348</td>
<td>3.696</td>
<td>0.0005</td>
</tr>
<tr>
<td>DLEGR_2</td>
<td>0.146</td>
<td>0.117</td>
<td>1.245</td>
<td>0.2188</td>
</tr>
<tr>
<td>DLEGR_3</td>
<td>-0.412</td>
<td>0.122</td>
<td>-3.372</td>
<td>0.0014</td>
</tr>
<tr>
<td>DLFDI</td>
<td>-0.384</td>
<td>0.253</td>
<td>-1.522</td>
<td>0.1343</td>
</tr>
<tr>
<td>DLFDI_1</td>
<td>0.459</td>
<td>0.299</td>
<td>1.535</td>
<td>0.1312</td>
</tr>
<tr>
<td>DLFDI_2</td>
<td>0.132</td>
<td>0.117</td>
<td>1.245</td>
<td>0.2188</td>
</tr>
<tr>
<td>DLFDI_3</td>
<td>0.247</td>
<td>0.227</td>
<td>1.088</td>
<td>0.2817</td>
</tr>
<tr>
<td>DLFDI</td>
<td>-0.384</td>
<td>0.253</td>
<td>-1.522</td>
<td>0.1343</td>
</tr>
<tr>
<td>DLFDI_1</td>
<td>0.459</td>
<td>0.299</td>
<td>1.535</td>
<td>0.1312</td>
</tr>
<tr>
<td>DLFDI_2</td>
<td>0.132</td>
<td>0.257</td>
<td>0.512</td>
<td>0.6112</td>
</tr>
<tr>
<td>DLFDI_3</td>
<td>0.247</td>
<td>0.227</td>
<td>1.088</td>
<td>0.2817</td>
</tr>
<tr>
<td>DLGDP</td>
<td>2.083</td>
<td>2.526</td>
<td>0.824</td>
<td>0.4136</td>
</tr>
<tr>
<td>DLGDP_1</td>
<td>2.425</td>
<td>2.550</td>
<td>0.951</td>
<td>0.3462</td>
</tr>
<tr>
<td>DLGDP_2</td>
<td>-1.211</td>
<td>2.516</td>
<td>-0.481</td>
<td>0.6325</td>
</tr>
<tr>
<td>DLGDP_3</td>
<td>0.105</td>
<td>1.917</td>
<td>0.055</td>
<td>0.9564</td>
</tr>
<tr>
<td>DLPF</td>
<td>-1.339</td>
<td>1.524</td>
<td>-0.879</td>
<td>0.3839</td>
</tr>
<tr>
<td>DLPF_1</td>
<td>1.879</td>
<td>2.703</td>
<td>0.695</td>
<td>0.4901</td>
</tr>
<tr>
<td>DLPF_2</td>
<td>-2.421</td>
<td>0.747</td>
<td>-3.240</td>
<td>0.0021</td>
</tr>
<tr>
<td>DLPF_3</td>
<td>3.531</td>
<td>1.129</td>
<td>3.131</td>
<td>0.0029</td>
</tr>
<tr>
<td>DLRER</td>
<td>-2.936</td>
<td>4.202</td>
<td>-0.699</td>
<td>0.4880</td>
</tr>
<tr>
<td>DLRER_1</td>
<td>4.638</td>
<td>5.251</td>
<td>0.883</td>
<td>0.3814</td>
</tr>
<tr>
<td>DLRER_2</td>
<td>6.826</td>
<td>5.035</td>
<td>1.356</td>
<td>0.1813</td>
</tr>
<tr>
<td>DLRER_3</td>
<td>-2.633</td>
<td>4.187</td>
<td>-0.629</td>
<td>0.5322</td>
</tr>
<tr>
<td>DLTOT</td>
<td>-1.635</td>
<td>2.144</td>
<td>-0.762</td>
<td>0.4495</td>
</tr>
<tr>
<td>DLTOT_1</td>
<td>12.075</td>
<td>2.842</td>
<td>4.248</td>
<td>0.0001</td>
</tr>
<tr>
<td>DLTOT_2</td>
<td>-7.844</td>
<td>2.339</td>
<td>-3.354</td>
<td>0.0015</td>
</tr>
<tr>
<td>DLTOT_3</td>
<td>4.024</td>
<td>1.725</td>
<td>2.333</td>
<td>0.0237</td>
</tr>
<tr>
<td>ECT_1</td>
<td>-1.566</td>
<td>0.392</td>
<td>-3.992</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

R-squared 0.543  Akaike info criterion 2.592
Adjusted R-squared 0.327  F-statistic 3.071
Durbin-Watson stat 2.116  Prob(F-statistic) 0.000

Source: Computed by author

Table 4.10 reveals that approximately 54% of the variation in export growth rate is explained by the Gross Domestic Product, Foreign Direct Investment, foreign price level, real exchange rate and Terms of Trade. The probability of the F statistic is significant which implies that the model is well specified.

The export growth rate of the previous period significantly impacts on the current period’s export growth rate. This is due to the fact that the determinant factors of export growth in a given period sometimes spill over to another period affecting its performance as well. The growth rate of the previous three periods also has a significant effect on the current period’s export growth rate. This finding is
consistent with that of Musinguzi, Obwona and Stryker (2000) who found out that lagged export growth rate has a statistically significant impact on current period’s growth rate.

Foreign Direct Investment has no statistically significant effect on export growth. This is attributed to the fact that most foreign direct investments in Uganda focus on capturing the domestic market as opposed to foreign markets which would penetrated by producing export items other than locally consumed. This finding contradicts that of Amelia and Santos (2000) who found out that in developing countries, Foreign Direct Investment significantly impacts on export volumes since it changes their structure. Hoekman and Djankov (1998) analysed the magnitude of change in export structure in eastern European countries and their findings suggested that there is a significant positive association between FDI and exports structure in Poland which is also a different finding from the one in this study.

The Gross Domestic Product of the current period has a positive but insignificant effect on the current period’s export growth rate. This is because much of the output in Uganda is agricultural and a significant proportion of it put to subsistence use and not sold in both local and international markets. GDP of the previous periods also does not significantly impact on export growth rate of a given period. This is a different finding from that of Ngeno (1996) who studied the determinants of exports in Kenya and found out that an increase in domestic output increases export growth. Kumar (1998) conducted a study on determinants of export performance in developing countries and found out that Gross Domestic Product has a positive relationship with export volumes since increased production leads to surplus output in an open economy being exhausted in international markets. This finding also contradicts the findings of Fugazza (2004). While studying export performance and its determinants in developing
countries, lagged Gross Domestic Product was found to have a positive significant relationship with export growth rate.

Foreign price level has a significant and positive effect on export growth rate. The effect is statistically significant at 5% level. Lagged foreign price level significantly affects the current period’s export growth rate. This finding is consistent with that of Ndulu and Lipumba (1990) who while studying opportunities and constraints to trade and their influence on growth and development of African economies, established that foreign prices of primary commodities significantly affect the export performance of countries involved in their production. Edwards and Golub (2004) investigated the determinants of export supply in South Africa and found out that foreign prices have a highly significant impact on manufacturing exports performance in South Africa.

The effect of real exchange rate on export growth rate is not statistically significant. This could have been due to high susceptibility of our export to price fluctuations which limits the gains arising out local currency depreciation. This finding is similar to that of Musinguzi and Obwona (2000) who found no significant relationship between real exchange rate and export growth rate but then contradicts a number of other findings. Studies in Ghana and India by Fosu (1992) and Sharma (2001) respectively have shown that real exchange rate has a significant negative relationship with export growth. According to Sharma, a fall in domestic prices due to exchange rate depreciation makes exports cheaper in the international markets resulting into their increased demand. Cline (2004) also had a similar study using pooled data for over 100 developing countries for the period 1981-2001. Ordinary Least Squares regression showed that the depreciation of real exchange rate increases export growth.
Terms of trade has a statistically significant positive effect on export growth. Lagged Terms of trade significantly affects the current period’s export growth rate. This is consistent with Jayant (2006) finding on Burundi that deteriorating terms of trade lead to a contraction of export earnings and instability. A number of other studies reviewed suggest the same. Musinguzi, Obwona and Stryker (2000) found out that Terms of Trade has a significant positive relationship with export growth rate though an increase in Terms of Trade marginally increases export growth. Kasekende and Atingi-Ego (1999) while studying the impact of trade liberalization on key markets in Sub Saharan Africa, found out that export volumes are significantly correlated with terms of Trade. Svedberg (1990) did a similar study on Sub Saharan Africa countries between 1980-1985 and attributed the sluggish export performance in Africa at the time to unfavorable Terms of Trade.

The negative coefficient of the Error Correction Term implies that there is a feedback mechanism in the short run. The error correction model helps to correct for disequilibrium in the short run and results show that approximately 2% of the disequilibrium in export growth rate was corrected.

4.8 Parsimonious model

After the formulation of the error correction model, there was need to reduce the short run model components. This was done by expunging variables whose absolute values of the t-statistic were less than one and the insignificant ones from the error correction model. Results of reduced model (parsimonious) are presented in Table 4.11.
Table 4.11 Parsimonious model

Dependent Variable: DLEGR
Included observations: 75 after adjusting endpoints

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.000</td>
<td>0.310</td>
<td>0.002</td>
<td>0.9988</td>
</tr>
<tr>
<td>DLEGR_1</td>
<td>1.035</td>
<td>0.233</td>
<td>4.441</td>
<td>0.0000</td>
</tr>
<tr>
<td>DLEGR_3</td>
<td>-0.365</td>
<td>0.117</td>
<td>-3.111</td>
<td>0.0028</td>
</tr>
<tr>
<td>DLPF_2</td>
<td>-4.582</td>
<td>1.356</td>
<td>-3.378</td>
<td>0.0012</td>
</tr>
<tr>
<td>DLPF_3</td>
<td>2.149</td>
<td>0.663</td>
<td>3.241</td>
<td>0.0019</td>
</tr>
<tr>
<td>DLTOT_1</td>
<td>8.452</td>
<td>1.999</td>
<td>4.227</td>
<td>0.0001</td>
</tr>
<tr>
<td>DLTOT_2</td>
<td>-7.421</td>
<td>1.596</td>
<td>-4.649</td>
<td>0.0000</td>
</tr>
<tr>
<td>DLTOT_3</td>
<td>4.611</td>
<td>1.349</td>
<td>3.419</td>
<td>0.0011</td>
</tr>
<tr>
<td>ECT_1</td>
<td>-1.328</td>
<td>0.264</td>
<td>-5.025</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

R-squared 0.427  Akaike info criterion 2.422
Adjusted R-squared 0.359  F-statistic 5.604
Durbin-Watson stat 2.149  Prob(F-statistic) 0.000

Source: Computed by author

Results in table 4.11 show that the value of R-squared reduces from approximately 54% to 43%. However, all the predictors in this model are statistically significant unlike in the Error Correction Model where both Significant and Insignificant variables are included. The reduction in the R-squared value is due to the elimination of variables and their components which are not statistically significant in the Error Correction Model yet there is a portion they contribute to the variation in export growth rate.
CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction
The main objective of this research was to identify the determinants of export growth. The chapter presents the summary of the findings in the previous chapter, conclusions drawn from the study and recommendations on how export performance can be improved.

5.2 Summary of findings
The research investigated the determinants of export growth for the period 1987-2006. The data used was obtained from Uganda Bureau of Statistics, African Development Indicators; World Bank tables and United Nations Statistics Division Common Database.

Lagged export growth rate was found to have a significant positive effect on current period’s export growth rate. It was also established that foreign price level and Terms of Trade both have a significant positive effect on export growth rate where as Gross Domestic Product, real exchange rate and Foreign Direct Investment have no significant effect on export growth rate. The insignificant effect of Foreign Direct Investment on export growth was attributed to the motive of such investments. If the motive of foreign direct investment is to capture domestic market, it may not contribute to export growth. The low level of monetization in the country where subsistence production in the agriculture sector is estimated at 60% is thought to be the reason for the insignificance of Gross Domestic Product in explaining export growth rate.
5.3 Conclusions

Empirical results and analysis presented in the previous sections suggest that foreign price level and terms of trade have a significant positive relationship with export growth rate. The positive relationship of foreign price level is consistent with past findings. Ndulu and Lipumba studied the influence of trade opportunities and constraints on the growth of African economies in 1990 and found out that foreign prices especially for primary commodities significantly impact on export performance.

Kasekende and Atingi-Ego (1999) while studying the impact of trade liberalization on key markets in Sub Saharan Africa established that there is a significant correlation between export performance and Terms of Trade which is consistent with the findings of this study. The significance of foreign price level explains the structure of Uganda’s exports. Primary exports are known to experience price fluctuations which are also synonymous with export growth rates.

Foreign Direct Investment, Gross Domestic Product and real exchange rate do not have a statistically significant effect on export growth rate. The findings on the real exchange rate, Foreign Direct Investment and Gross Domestic Product contradict a number of previous findings including those reviewed in this study. Ngeno studied the determinants of export performance in Kenya in 1996. Using empirical analysis, it was found out that Gross Domestic Product significantly increases export growth. Amelia and Santos (2000) studied the effect of trade liberalization on export performance in selected developing countries and discovered that FDI significantly affects export volumes. Sharma while investigating the determinants of exports in India discovered that a fall in
domestic prices due to exchange rate depreciation makes exports cheaper in the international markets resulting in their increased demand.

The insignificant effect of GDP on export performance was attributed to the high level of subsistence production in the economy. The motive of foreign direct investment in Uganda is to capture domestic market implying less is produced for export hence the insignificant effect of FDI on export growth. The reason for the insignificant effect of real exchange rate on export growth is thought to be the high susceptibility of Uganda’s exports to price fluctuations on the world market.

The findings however show that there is room for improvement considering the economic situation in the country. There is need to redirect Foreign Direct Investment to production for export other than focus on the domestic market. Modernization of agriculture which is the major source of Uganda’s exports would boost export performance. A number of the country’s would be exports fall short of the international market standards, most of which relate to storage. The newly discovered resources such as oil in western Uganda should be constituted in the export basket as soon as possible as a means of diversifying our primary exports which fetch low prices on the international market.

5.4 Recommendations

There is need to diversify Uganda’s exports. Diversification may appear like an awful task as various arguments have been advanced that African countries cannot be significant exporters of manufactured goods given their lack of necessary skills. However, new resources such as oil in western Uganda have been discovered and therefore plans to have it exported should be implemented as soon as possible.
Uganda needs to focus on the modernization of agriculture since it is the major source of exports. Modern storage facilities should be put in place in order to preserve our produce for export. Some of the agricultural produce is sold in the regional markets at low prices because it falls short of the entry requirements in the international markets which attract high prices.

The motive for FDI should be redirected from capturing the domestic market to production for export. Uganda has registered tremendous improvements in Foreign Direct Investment flows over the years but it appears its intention has not been export oriented. There is need to make use of Foreign Direct Investment to change the structure of exports since the current composition fetches low prices and is more affected by price fluctuations.

**5.5 Suggestions for further research**

Uganda’s exports mainly constitute agricultural products and are therefore susceptible to price shocks. The effect of Gross Domestic Product on export performance was found to be insignificant and therefore I would like to propose that future studies about the same should consider agriculture’s share of gross domestic product and not GDP as a whole.
REFERENCES


