International Trade Liberalization and Economic Growth: The Role of Regulatory Policies

Peter Kibet Biwott

Macroeconomics Division
Kenya Institute for Public Policy
Research and Analysis

KIPPRA Discussion Paper No. 125
2011

KIPPRA IN BRIEF

The Kenya Institute for Public Policy Research and Analysis (KIPPRA) is an autonomous institute whose primary mission is to conduct public policy research leading to policy advice. KIPPRA's mission is to produce consistently high-quality analysis of key issues of public policy and to contribute to the achievement of national long-term development objectives by positively influencing the decision-making process. These goals are met through effective dissemination of recommendations resulting from analysis and by training policy analysts in the public sector. KIPPRA therefore produces a body of well-researched and documented information on public policy, and in the process assists in formulating long-term strategic perspectives. KIPPRA serves as a centralized source from which the Government and the private sector may obtain information and advice on public policy issues.

Published 2011

Bishops Garden Towers, Bishops Road
P.O. Box 56445, Nairobi, Kenya
tel: +254 20 2719933/4; fax: +254 20 2719951
email: **admin@kippra.or.ke**
website: http://www.kippra.org

ISBN 9966 777 87 3

The Discussion Paper Series disseminates results and reflections from ongoing research activities of the Institute's programmes. The papers are internally refereed and are disseminated to inform and invoke debate on policy issues. Opinions expressed in the papers are entirely those of the authors and do not necessarily reflect the views of the Institute.

This paper is produced under the KIPPRA Young Professionals (YPs) programme. The programme targets young scholars from the public and private sector, who undertake an intensive one-year course on public policy research and analysis, and during which they write a research paper on a selected public policy issue, with supervision from senior researchers at the Institute.

KIPPRA acknowledges generous support from the Government of Kenya (GoK), the African Capacity Building Foundation (ACBF), and the Think Tank Initiative of IDRC.

Abstract

This study investigates the relationship between international trade liberalization and economic growth, with a focus on the role of regulatory policies in selected 16 sub-Saharan Africa (SSA) countries. It seeks to examine the role of regulatory policies on economic growth directly, and whether they affect international trade liberalization contribution to economic growth. While international trade liberalization refers to the removal of barriers to international trade, regulatory policies improvement is the reduction of regulations in credit, labour and product markets that exist within a country to create efficient and less regulated economy. Human development and physical capital accumulation are the other determinants of economic growth examined in this study. Using panel data, the study utilizes the instrumental variables (IV) methodology to deal with the problem of endogeneity. The results show that international trade liberalization, accumulation of physical capital and efficient regulatory policies contribute to economic growth. International trade liberalization and efficient regulatory policies compliment each other, and their concurrent implementation increases the rate at which the economy grows. The study shows that less regulated countries benefit more from international trade liberalization than highly regulated countries.

Abbreviations and Acronyms

ADB	African Development Bank
CAR	Central Africa Republic
COMESA	Common Market for Eastern and Southern Africa
EAC	East Africa Community
EAP	East Asia and Pacific
ECOWAS	Economic Community of West African States
EFW	Economic Freedom of the World
EGT	Endogenous Growth Model
EU	European Union
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
HDI	Human Development Index
HDR	Human Development Report
IMF	International Monetary Fund
ISI	Import Substitution Industrialization
IV	Instrumental Variables
LAC	Latin America and Caribbean
MENA	Middle East and North Africa
NTBs	Non-Tariff Barriers
PWT	Penn World Tables
SADC	Southern Africa Development Corporation
SSA	sub-Saharan Africa
TSLS	Two Stage Least Squares
UNDP	United Nations Development Fund
WB	World Bank
WDI	World Development Indicators
WTO	World Trade Organization

Table of Contents

1. Introduction

1.1 Background

The study focuses on sub-Saharan Africa (SSA), the poorest region in the World with per capita growth of, on average, US$552 in the 1990s and US$565 in the 2000s. This is the lowest compared to East Asia and Pacific (EAP), European Union (EU), Latin America and Caribbean (LAC), and Middle East and North Africa (MENA) (Tables 2.1 and 2.2). Long term high economic growth performance is required for low income countries to achieve economic development. SSA's poor economic growth performance over the decades is partly due to poor policies that led to inadequate human and physical capital, poor infrastructure, macroeconomic instability and lack of the rule of law (Rodrik, 1998). Long term high economic growth performance leads to economic development.

El-Erian and Spence (2008) identified thirteen (13) countries[1] that have sustained their economies for over 28 years at an average growth rate of at least 7 per cent, achieving middle or high income status. On the contrary, majority of the SSA countries' economic growth rates have been lower than 7 per cent, exhibiting fluctuations over the years. This shows why most SSA countries have remained at low income status over the years. Mauritius and South Africa are among a few countries in SSA that have achieved the middle income status due to remarkable economic growth performance.

SSA countries adopted international trade liberalization because their persistent poor economic performance had been blamed on import substitution policies (Little, Scitovsky and Scott, 1970 and Balassa, 1971). International trade liberalization is the removal or reduction of restrictions to international trade such as tariffs and non-tariff barriers (NTBs) (Ackah and Morrissey, 2007). On the other hand, regulatory policies[2] comprise internal market regulations in the labour, credit and product markets. This study's focus on regulatory policies is because they can either inhibit or foster the gains from international trade liberalization on economic growth and fewer studies have been undertaken in SSA. International trade is important to the SSA

[1]. These are Botswana, Brazil, China, Hong Kong SAR, Indonesia, Japan, South Korea, Malaysia, Malta, Oman, Singapore, Taiwan and Thailand

[2]. Regulatory policies refer to regulation of Credit, Labour and Business, as obtained from the Economic Freedom of the World (EFW) database. It focuses on regulatory restraints that limit exchange in credit, labour and productive markets. The index ranges between 0 and 10, where 0 implies a highly regulated economy and 10 is a lowly regulated economy.

economies as shown by the share of GDP, which is among the highest in the world at 59 per cent on average from 1981 to 2010. The trade share of GDP grew from 56 per cent in the 1990s to 60 per cent in 2000s. However, SSA's share of world trade is the lowest at an average of 2 per cent over the same period (Table 2.1 and Figure 2.1).

The adoption of international trade liberalization was meant to expand international trade so as to contribute to the achievement of a high economic growth performance supportive of economic development in SSA, although not much success has been achieved. The SSA share of international trade to GDP has been increasing, compared to her share of world trade over the review period. The low participation in world trade, high shares of trade to GDP, trade liberalization deepening, the nature and role of regulatory policies and persistent poor economic growth performance in selected SSA countries is the motivation of this study. These countries have been selected, in part, based on data availability, income levels, economic and international trade performances and membership to East Africa Community (EAC), Economic Community of West African States (ECOWAS), Southern Africa Development Corporation (SADC), and the World Trade Organization (WTO). The countries are: Benin, Botswana, Central Africa Republic (CAR), Ghana, Kenya, Madagascar, Malawi, Mali, Mauritius, Nigeria, Sierra Leone, South Africa, Tanzania, Togo, Uganda and Zambia.

This study seeks to provide empirical evidence to enhance the knowledge on the relationship between international trade liberalization, regulatory policies and economic growth in the sampled SSA countries. Recommendations from this study may be useful in advising formulation of international trade liberalization and regulatory policies aimed at enhancing economic growth in SSA and the individual countries.

1.2 Statement of the Problem

Economic growth performance in SSA is the lowest compared to EAP, EU, LAC, MENA and the world (Table 2.1 and Table 2.2) despite adoption of international trade reforms focusing on liberalization. While the trade shares of GDP indicate improved international trade by the selected SSA countries and SSA at large, their world share of trade is low, stagnating at 2 per cent. This depicts the diminishing

participation of the SSA countries in global trade. Further, imports comprise a larger share of total international trade than exports, yet most of the SSA countries pursue export-led economic growth strategies as part of their liberalization process. This may imply that the export-production capacity of the SSA countries is still low, explaining partly the low economic gains from international trade liberalization. In spite of over three decades of international trade liberalization, most of the SSA countries remain the poorest in the world. The economic growth rates are low and fluctuating, depicting uncertainty. Consequently, the economic development aspiration by the SSA countries seem elusive.

The role of regulatory policies on trade liberalization's contribution to economic growth performance has not gained empirical prominence in SSA, much the same way as international trade liberalization did. Yet, the nature of regulatory policies can impede or stimulate economic growth directly or indirectly, through international trade liberalization (Freund and Bolaky, 2007). Consequently, studying the role of regulatory policies is important because it will give guidance on the attainment of the level at which their enforcement is not an impediment to economic development. Broadening the understanding of the role of international trade liberalization and regulatory policies on economic growth is an important economic development issue. As the selected SSA countries seek to enhance their quest for economic development, the role of regulatory policies needs to be empirically examined and documented, to inform the current and future economic development policy process. This study offers an empirical opportunity for economic development policy approach, which can widen the scope of public and private sectors' policy making process.

1.3 Research Objectives and Questions

The main objective of this study is to investigate the role of regulatory policies and international trade liberalization on economic growth. The research questions are:

(i) What is the effect of international trade liberalization on economic growth?

(ii) What is the effect of regulatory policies on economic growth?

(iii) What is the effect of the interaction between regulatory policies and international trade liberalization on economic growth?

(iv) What are the policy implications of the study?

1.4 Organization of the Paper

The rest of the paper is arranged as follows: Chapter 2 discusses the performance overview, while chapter 3 focuses on the theoretical and empirical literature review. Chapter 4 presents the specification of the methodology and estimation results, and chapter 5 concludes and provides the policy recommendations.

2. International Trade and Economic Performance Overview

The SSA countries' economic growth and international trade performance and income status are shown in Table 2.1 and Figure 2.1. A comparative analysis is undertaken with EAP, EU, LAC, MENA and the world to highlight the low income nature of most SSA countries. Table 2.1 shows that over the study period, the average economic growth rate in SSA is 0.2 per cent and the per capita income is US$ 540. The sampled

Table 2.1: Average economic and trade performance and income levels (1981-2010)

Country	GDP per capita (US$)	GDP per capita growth rates (%)	Total trade share of GDP (%)	Exports share of GDP (%)	Imports share of GDP (%)	Income status
Benin	324	1	46	16	30	Low
Botswana	2764	5	98	53	45	Middle
CAR	264	-1	43	21	26	Low
Ghana	244	1	65	26	39	Low
Kenya	424	0.2	58	28	32	Low
Madagascar	269	-1	50	20	30	Low
Malawi	143	0.2	61	25	36	Low
Mali	222	1	54	20	34	Low
Mauritius	3106	4	120	58	62	Middle
Nigeria	375	0.7	65	35	30	Low
Sierra Leone	233	0.2	47	20	27	Low
South Africa	3230	0.4	52	27	25	Middle
Tanzania	196	1	28	10	18	Low
Togo	264	-1	80	35	45	Low
Uganda	216	2	34	12	22	Low
Zambia	372	-1	71	33	38	Low
Sampled SSA	790	1	61	27	34	Low
SSA	540	0.2	59	29	30	Low
World	4742	1	42	21	21	Middle
EAP	3473	3	42	22	20	Middle
EU	15206	2	60	30	30	High
LAC	3824	1	37	19	18	Middle
MENA	2651	1	69	35	34	Middle

Source: Author's construction using World Development Indicator, 2010

SSA countries average growth rate is 1 per cent, while the per capita GDP is US$ 790. The SSA per capita income is much lower compared to that of the world (US$ 4,742), EAP (US$ 3,473), EU (US$ 15,206), LAC (US$ 3,824) and MENA (US$ 2,651). The region that experienced rapid economic growth is the EAP from GDP per capita of US$ 2,700 in the 1990s to US$4,532 in 2000s.

The SSA region and the selected SSA countries trade share of GDP are 59 and 61 per cent, respectively, which is among the world's highest with the EU at 60 per cent and MENA at 69 per cent. Further, the trend from Table 2.2 and Figure 2.2 shows high improvements in trade shares of GDP for the SSA, EU and MENA regions compared to the rest of the

Table 2.2: Average decade economic and trade performance trends (1980s-2000s)

Countries/ Regions	GDP per capita (USD)			Per capita growth rates (%)			Trade/GDP (%)		
	1980s	1990s	2000s	1980s	1990s	2000s	1980s	1990s	2000s
Benin	314	308	350	0	1	1	51	45	41
Botswana	1704	2741	3846	8	3	3	119	93	40
CAR	306	253	244	-2	-1	-1	53	40	36
Ghana	208	234	290	-1	1	3	26	63	107
Kenya	427	421	425	1	-1	1	56	59	60
Madagascar	302	254	251	-2	-1	1	35	49	68
Malawi	146	140	142	-2	2	1	54	65	63
Mali	191	201	274	-1	2	3	49	57	55
Mauritius	1929	3071	4317	3	4	3	112	127	122
Nigeria	335	363	428	-2	1	4	42	80	72
Sierra Leone	273	200	224	-1	-5	6	42	44	54
South Africa	3325	2993	3372	0	-1	2	53	44	59
Tanzania	-	263	326	-	0	4	-	52	32
Togo	291	253	249	-1	0	-1	100	70	72
Uganda	140	210	297	0	4	4	29	31	41
Zambia	429	338	349	-2	-3	3	71	71	71
SSA	552	505	562	-1	-1	2	54	56	66
Selected SSA countries	645	765	961	0	0	2	56	62	62
World	4,234	4,872	5,715	2	2	1	37	42	52
EAP	2,744	3,630	4,532	4	2	3	37	40	56
EU	12,852	15,717	19,012	2	2	1	55	60	73
LAC	3,586	3,880	4,487	-1	2	2	31	40	46
MENA	2,441	2,649	3,209	-1	2	3	71	71	80

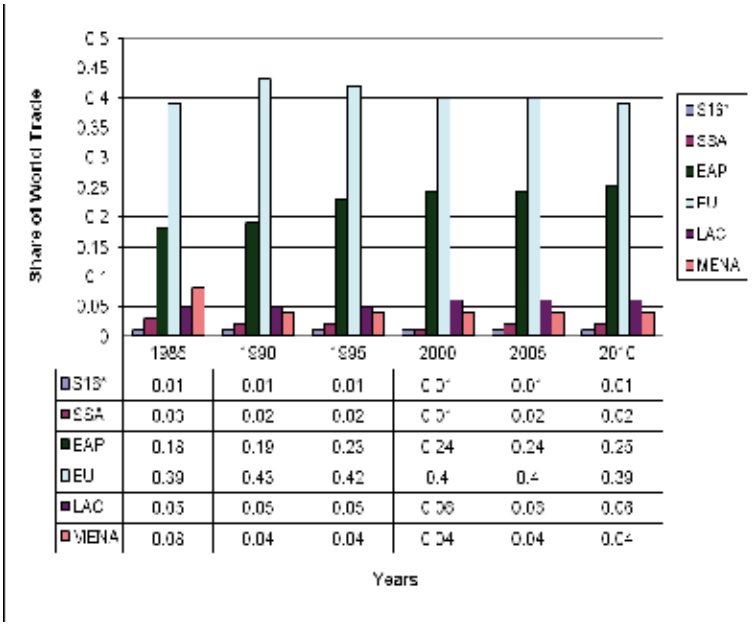
Countries/ Regions	Exports/GDP (%)			Imports/GDP (%)		
	1980s	1990s	2000s	1980s	1990s	2000s
Benin	17	16	14	34	29	27
Botswana	62	51	45	57	42	37
CAR	20	16	15	33	24	21
Ghana	11	25	43	15	38	65
Kenya	26	28	25	31	31	34
Madagascar	14	20	27	22	28	41
Malawi	24	25	25	30	39	39
Mali	16	21	23	34	36	32
Mauritius	54	62	59	58	66	64
Nigeria	22	42	42	20	38	31
Sierra Leone	20	20	20	23	24	34
South Africa	29	24	30	24	21	29
Tanzania	-	16	14	-	36	18
Togo	46	30	29	53	40	43
Uganda	12	10	13	18	21	27
Zambia	34	33	33	36	39	38
SSA	27	27	32	28	29	34
Sampled SSA countries	25	27	29	30	34	36
World	19	21	26	19	21	26
EAP	20	21	29	18	19	27
EU	27	30	38	28	30	36
LAC	17	19	24	15	21	22
MENA	34	35	45	37	35	35

Source: Author's construction using World Development Indicator, 2010

world. For example, trade shares of GDP for Kenya improved from 56 to 60 per cent in 1990s and 2000s, respectively. Trade in the selected SSA countries grew from 56 to 62 per cent, whereas that of SSA grew from 54 to 66 per cent, respectively.

In addition, Tables 2.1 and 2.2 show that most SSA countries are net importers of goods and services. But EAP, EU, LAC and MENA are net exporters of goods and services. Although exports and imports increased in SSA, on average, like other regions, imports increased more than the exports. According to Figure 2.1, SSA average share of world trade is the lowest at 2 per cent and the selected SSA countries at 1 per cent, compared with the rest of the world. The EU and EAP are leading in global trade participation at averages of 40.5 and 22.2 per cent, respectively, constituting 62.7 per cent of world trade. LAC and MENA

Figure 2.1: Regional share of world trade (1980s to 2010)



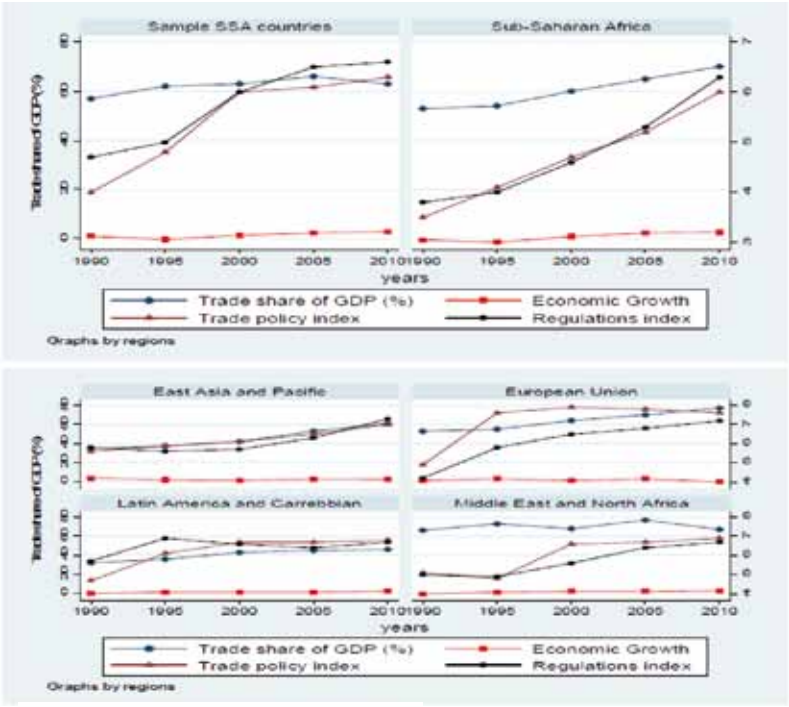
	1980s	1990	1995	2000	2005	2010
S16*	0.01	0.01	0.01	0.01	0.01	0.01
SSA	0.03	0.02	0.02	0.01	0.02	0.02
EAP	0.18	0.19	0.23	0.24	0.24	0.25
EU	0.39	0.43	0.42	0.4	0.4	0.39
LAC	0.05	0.05	0.05	0.06	0.06	0.06
MENA	0.08	0.04	0.04	0.04	0.04	0.04

Source: Author's construction from WDI 2010
S16*: A selected sixteen sub-Saharan Africa countries

average shares of the world trade are 6 and 5 per cent, respectively. Although trade is an important source of economic growth in SSA, their participation in world trade is insignificant. This may explain the low economic growth gains from international trade liberalization.

Table 2.1 shows that the average economic growth rates among the SSA countries are low. EAP and EU have the highest average growth rates per capita of 3 and 2 per cent, respectively. Table 2.2 shows that decade economic growth rates per capita are lowest in most of the countries or regions over decades. The SSA per capita growth expanded from -1 per cent in the 1980s to 2 per cent in the 2000s. On the other hand, the sampled SSA countries also experienced a growth improvement of 2 per cent. Despite the improved economic performance in SSA during the three decades, economic growth rates were lower than 7 per cent and, therefore, not supportive to the achievement of economic development (El-Erian and Spence, 2008). The performance above can be attributed partly to the reforms in international trade and regulatory policies highlighted by Figure 2.2.

Figure 2.2: International trade liberalization, regulatory policies and economic growth



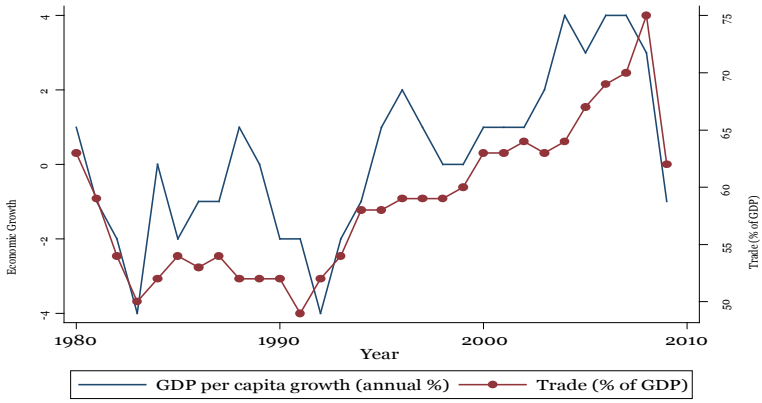
Source: *Author's construction from WDI and EFW*

Figure 2.2 compares international trade liberalization, regulatory policies, and GDP per capita trends in SSA, LAC, EAP, EU and MENA regions between 1990 and 2010. It shows that international trade liberalization has been undertaken concurrently with the improvement of the regulatory policies, contributing to economic growth. Except for SSA and MENA, the increases in the trends of trade policy and regulation indices were faster than those in the trade share of GDP. This can mean that although reforms in regulatory policies and international trade liberalization were fast paced, the gains in international trade came much slower for LAC, EAP and EU. On the other hand, the gains from the trade and regulatory reforms for SSA and MENA were faster as shown by the trends in trade shares of GDP.

The trade policy and regulation indices and trade share of GDP for EAP, EU, LAC and MENA are oscillating together. The EU seems to have liberalized trade until 2005, when their trading regime got stricter as shown by the declining trade policy index trend, although EU's trade performance was not impeded. Reduction of regulations in the labour, credit and product markets by the EU was much slower

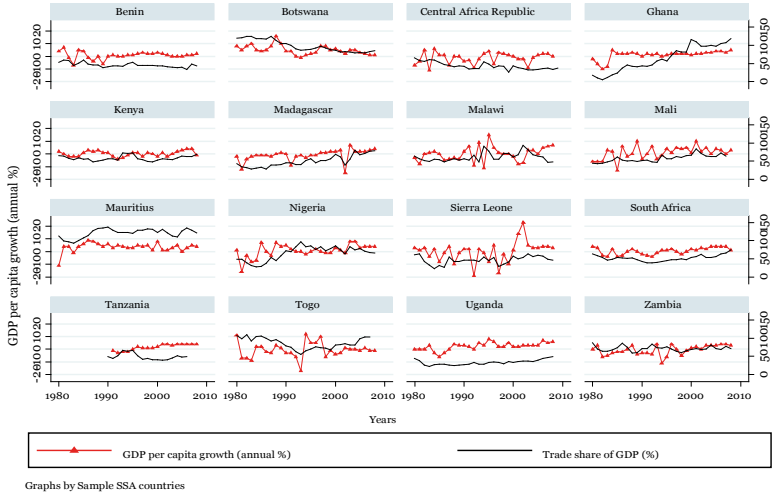
compared to international trade liberalization, as shown by the indices trends. The economic growth trends for all the regions in Figure 2.2 are positively related to the increases of trade shares of GDP, and reforms in international trade and regulatory environment. Figure 2.2 emphasizes the importance of a broad based policy approach to economic development. Figures 2.3 and 2.4 show trends in trade shares of GDP, and the growth rate of GDP per capita for the SSA region and the selected SSA countries, respectively.

Figure 2.3: Economic growth and international trade in SSA



Source: Author's construction from WDI 2010 data

Figure 2.4: Relationships between trade and economic growth



Source: Author's construction from World Development Indicators and Economic Freedom of the World data

3. Literature Review

3.1 Theoretical Literature

The study examines international trade and economic growth theories which underpin the importance of the determinants of economic growth such as international trade, human and physical capital accumulation, and regulatory policies on economic development of low income countries. The theories of comparative advantage and Heckscher-Ohlin are the basis for which international trade liberalization was founded. They respectively explain international trade on the basis of costs and factor proportions, implying that countries will respectively trade on goods and services they produce at low costs and based on their factor endowments. These theories postulate that developing countries trade in labour intensive products, as they are endowed with abundant labour, which lowers the opportunity costs of production. On the other hand, the developed countries specialize on capital intensive products due to their abundance of capital (Ray, 1998 and UNDP, 2003). The counter argument to the above postulations is the advancement of the infant industry and the new trade theories that advocate for a balance between international trade liberalization, and protection to foster economic growth (Qiu, 1994 and Krugman,1983, 1987 and 1994).

On the other hand, economic growth theories that underpin the importance of international trade liberalization are the Solow model and the endogenous growth theory (EGT). The Solow model (Solow, 1956) postulates that only changes in exogenous technological progress have permanent economic growth effects. International trade, therefore, would play an important role in technological diffusion and progress. Gundlach (2007) and Ray (1998) argue that international trade would lead to technological development and new skills transferred from developed to low income countries, enhancing productivity and consequently economic growth performance. The Solow model accounts for convergence of similar countries to same levels of income (steady state), with the EGT accounts being for long term economic growth phenomenon due to increasing returns to scale (Ray, 1998 and Romer, 1986 and 1994).

The EGT postulates that long term improvements, for example in international trade, regulatory policies, physical and human capital would generate high rates of economic growth performance for a longer period of time needed to achieve economic development. EGT focuses

on generation of country specific technology and new skills augmented by those obtained internationally through international trade (Shaw, 1992).

The interaction between local and foreign technology, skills and knowledge would breed unique innovations and inventions that are likely to generate high and sustainable rates of economic growth. The theory on the relationship between regulations and economic growth has been put forward through the impact of FDI on economic growth (Busse and Groizard, 2008). "The theory of the multinational firm proposes that multinational corporations have a technological advantage over local firms that outweighs the cost of doing business in external markets". Busse and Groizard (2008) argue that countries with appropriate regulations and institutions grow their economies through expansion of FDI. They add that "excessive regulations are likely to restrict growth through FDI, if human and capital resources are prevented from reallocating."

EGT is used in this study to investigate the long term economic growth prospects of selected SSA countries. It forms the basis for selection of the determinants of economic growth used in this study namely: international trade liberalization, regulatory policies, and human and physical capital accumulation.

3.2 Empirical Literature Review

(a) International trade liberalization

The quest for international trade liberalization emanated from the works of Little *et al.* (1970) and Balassa (1971) who strongly argued that the import substitution industrialization (ISI) policy regime was the cause of developing countries' poor economic growth performance. Rodrik (2001) has, however, argued that ISI worked well prior to 1973 in countries including Swaziland, Botswana, Lesotho, Gabon, Togo and Kenya. But the World Bank and International Monetary Fund (IMF) called for policy shift from the ISI regime to international trade liberalization through the structural adjustment programmes (SAPs) (Rodrik, 2001; UNDP, 2003 and Shafaeddin, 2005). As a result, the international trade liberalization regime was adopted in the 1980s through the 1990s, and in the 2000s. Babatunde (2009) and Ackah and Morrisey (2007) found that most SSA countries started adopting international trade liberalization in early 1980s, but a significant

reduction of international trade barriers occurred in the 1990s.

Wacziarg and Welch (2003), Sachs *et al.* (1995) and Ben-David and Loewy (1998) reveal that international trade liberalization contributes to economic growth. Frankel and Romer (1999) found similar results although they argued that the link between trade and income was not strong. Findings by Krugman (1994), Vamvakidis (2001) and Yanikkaya (2002) show that a blend of both international trade liberalization and protection can be good for economic growth. Apart from international trade liberalization being growth enhancing, its extent can have adverse effects on economic growth.

Pak H. (2011) argues that Africa experienced persistent economic declines despite international trade liberalization. Over half a century ago, best performing countries are those that liberalized partially, selectively and gradually; for example, the newly industrialized economies of East Asia used long-term industrial policies (ibid.). Here, the pace and nature of international trade liberalization pursued is questioned. The justification for trade protection emanates from the infant industry arguments, including the multilateral trading negotiations at the World Trade Organization (WTO). The extent of international trade liberalization by either developing or developed countries caused the discontents witnessed at the Doha Development Round of WTO trade negotiations (Francois *et al.*, 2005).

International trade liberalization contributions to economic growth are auxiliary (Rodrik, 1998). Greenaway, Morgan and Wright (2001), in their study using panel data, established a weak relationship between international trade liberalization and economic growth due to the depth and intensity of international trade reforms by the various countries. Rodriquez and Rodrik (2000) critiquing the works of Dollar (1992), Ben-David (1993), Sachs *et al.* (1995), and Edwards (1998), all who found that international trade liberalization is good for economic growth, argue that contribution of international trade liberalization on economic growth is inconclusive. Ackah and Morrisey (2007) also found a weak relationship between international trade liberalization and economic growth and suggest more empirical testing. For poor countries, they argue that trade protection can be associated with high economic growth in the short term; that is, “the effect of protection on economic growth only becomes negative beyond some income threshold”.

(b) Regulatory policies

Improvement of the regulatory environment to create efficient credit, labour and product markets stimulates economic growth. Busse and Groizard (2008), using panel data methodologies, found that economic growth performance is high in less regulated or flexible economies due to expansion of local and foreign direct investments (FDI). This signifies the role of regulatory policies on increasing the rate of capital accumulation, which aids in accelerating the pace of economic growth.

Busse and Hefeker (2009) argue that flexible labour markets enhance the effects of international trade liberalization on economic growth. Moreover, findings by Djankov, McLiesh and Ramalho (2006) using panel analysis, show that improvement of business regulations accelerate the pace of economic growth (Baldwin, 2003). Stringent regulatory policies have been associated with deteriorating economic growth performance. Freund and Bolaky (2007) used panel data and found that better regulatory policies (low levels of regulation) increase the effects of international trade liberalization on economic growth. The interaction between international trade liberalization and regulatory policies show that international trade liberalization increases incomes of countries with flexible economies, unlike those with rigid economies.

(c) Physical capital accumulation

Physical capital accumulation is one of the channels through which economic growth can be achieved. Winters (2004) argue that for international trade liberalization to bear long term high economic growth performance, a combination with accumulated physical capital policies is needed. Wacziarg (2001), using panel models, suggests a positive impact of international trade liberalization on economic growth, with high contributions by capital accumulation and low effects experienced from technological development and macroeconomic stability. Serven and Solimano (1996) and Felipe, Lavina and Fan (2008) also demonstrated that promoting domestic and foreign capital accumulation leads to long term high economic growth. Countries with economic policy frameworks that inhibit capital accumulation diminish the benefits of international trade liberalization on economic growth (Hadjimichael and Ghura, 1996 and Rodrik, 2004).

(d) Human capital accumulation

Human development index (HDI) is used as a proxy for human capital

accumulation. Human development entails building peoples' capabilities to be knowledgeable, having high living standards, and living longer. People of such capability can adapt and easily create new technologies postulated by EGT. According to Barro (1991), accumulating quality and quantity of human capital leads to high economic growth performance. Davis and Guinlivan (2006), using GMM methodology, found that trade improves human development. Further, Romer (1986), Barro (1991) and UNDP (2008) argue that creating a large pool of educated and healthy people increases possibilities of generation and adaptation of new technology that enhances productivity, thereby stimulating economic growth. Similarly, Shaw (1992) argues that international trade liberalization exposes low income countries to the world stock of human capital, which contributes to high economic growth levels.

4. Specification of the Methodology and Results

4.1 Panel Data Methods

Panel models are becoming widely used in economic development policy analysis. They have strengths which include more observations, increased degrees of freedom, decreased problems of collinearity of regressors and modelling flexibility of behaviour differences within and between countries (Hsiao, 2007). This improves the accuracy or efficiency of the estimation results. One of the disadvantages of panel data analysis in primary research is that collection of long term primary data is cumbersome, particularly following all selected variables accurately over the research period (selection bias).

Panel data comprises models such as fixed effects model (FEM), random effects model (REM), and instrumental variables (IV). The FEM and REM are not used in this study because they do not address the problem of endogeneity, which is as a result of measurement errors, reverse causality, omitted variables and/or selection bias, among other causes. For example, international trade expansion can lead to economic growth and on the other hand, economic growth can lead to increase in international trade. Endogeneity arises also when the unobserved variables, for example, affecting economic growth, are correlated with the explanatory variables included in the model.

According to Lee *et al.* (2004), international trade liberalization measures (OPEN and POLICY) are generally related to the measures of economic growth (GDP), creating the endogeneity problem. Frankel and Romer (1999), through IV methodology, addressed endogeneity problem using geographical indicators as instruments, arguing they do not correlate with income. However, Rodriquez and Rodrik (2000) argued that the use of geographical indicators is invalid, since diseases, floods or droughts affect incomes. Roodman (2006) identifies two ways of solving endogeneity problem; namely, differencing the data to get rid of fixed effects and IV. The IV is therefore the preferred methodology that is used to deal with the endogeneity problem in this study. The lagged values of endogenous or predetermined variables in levels are used as instruments.

4.2 Model Specification

The endogenous growth model follows the works of Romer (1994), Ray (1998), Chen and Gupta (2006), and Freund and Bolaky (2007). The model is specified as follows:

$$EG_{i,t} = \beta_0 + \beta_1(CAPITAL)_{i,t} + \beta_2(HDI)_{i,t} + \beta_3(POLICY/OPEN)_{i,t} + \beta_4(REGULATION)_{i,t} + \beta_5(POLICY/OPEN*REGULATION) + \mu_{i,t}$$

where *EG* is the per capita economic growth rate; *CAPITAL* is the accumulation of physical capital; *HDI* is the accumulation of human capital; *POLICY* is the international trade liberalization policy measure; *OPEN* is the outcome measure of international trade liberalization; *REGULATION* is the regulatory policies measure comprising regulations in the labour, credit and product markets; *POLICY/ OPEN*REGULATION* represents the interaction between international trade liberalization measures and regulatory policies; β are the explanatory variables' coefficients; and "it" represents the number of cross sections and time periods in the panel. The detailed descriptions of variables are in Table 4.1.

4.3 Data Sources

The data was obtained from the World Development Indicators (WDI), Human Development Reports (HDR), Penn World Tables (PWT), and Economic Freedom of the World (EFW) 2010 databases. The data is from 1981 to 2010, aggregated in five year periods to reflect the long term growth characteristics of EGT and UNDP (2008) findings that international trade gains are consolidated for a period of at least five years.

4.4 Interpretation of the Estimation Results

4.4.1 Instrumental variable results

The IV results (Table 4.2) show that capital accumulation and interaction variables have a positive effect on economic growth among the selected SSA countries. The results show that improvement of the regulatory policies by reducing regulations in labour, credit and product markets enhance economic growth directly and increase the benefits of international trade liberalization on economic growth. IV equations [3] and [4] show that when international trade liberalization policy measure is used, a one per cent increase in capital accumulation

Table 4.1: Description of independent variables

Variable	Independent variables
Physical capital accumulation (CAPITAL)	Capital formation (% annual growth): This accounts for the accumulation of capital goods, including machinery and improvement of infrastructure.
Human Development Index (HDI)	HDI is a composite measure developed to measure the broader view of development. It entails variables such as life expectancy and literacy levels. HDI is used in this research to proxy for human capital accumulation. The HDI is derived from GDP, education and life expectancy indices as follows: HDI=(GDP index+education index+life expectancy index)/3
International trade liberalization index (POLICY)	The index, best known as freedom to trade internationally, relates to barriers to international trade and entails, in part, taxes on international trade, and regulatory trade barriers that can hamper international trade flows. The index measures how a country has progressed in international trade liberalization. The index ranges between 0 and 10. 0 is an indicator of a restrictive international trade regime. The higher the index, the more a country has undertaken international trade liberalization. The components of this index are: taxes on international trade; revenues from trade taxes (% of trade sector); mean tariff rate; standard deviation of tariff rates; regulatory barriers; non-tariff trade barriers; compliance costs of importing and exporting; size of trade sector relative to the expected; black market exchange rates; international capital market controls; foreign ownership/investment restrictions, and capital controls. POLICY={(Vmax-Vi)/Vmax-Vmin)}10 where V is the values of components constituting the index.
Outcome measure of trade liberalization (OPEN)	This is the trade share of Gross Domestic Product (GDP) calculated as total trade (exports+imports) divided by GDP. The outcome measure is used as another measure of the interaction between countries with respect to international trade.
Regulatory policies (REGULATION)	The index is referred to as regulation of credit, labour and business. The index focuses on regulatory restraints that limit exchange in credit, labour and product markets. It is a measure showing the regulation of credit, labour market, and overall business or investment market. It is also a measure ranging between 0 and 10, where 0 shows high regulation in the labour, credit and product markets, while 10 shows the lowest regulation of the same markets. The components of this index are: credit market regulations, ownership of banks, foreign bank competition, private sector credit, interest rate controls/negative real interest rates, labour market regulations, hiring regulations and minimum wage, hiring and firing regulations, centralized collective bargaining, hours regulations, mandated cost of worker dismissal, conscription, business regulations, price controls, administrative requirements, bureaucracy costs, starting a business, extra payments/bribes, licensing restrictions, and cost of tax compliance.
Regulation index={(Vmax-Vi)/Vmax-Vmin)} 10 where V is the values of components constituting the index.	

Source: World Development Indicators (2010), Human Development Reports (2009), Penn World Tables, and Economic Freedom of the World (1975-2009)

increases economic growth by 0.09 and 0.11 per cent in half a decade, respectively. In addition, columns [1] and [3] in Table 4.2 show that a one per cent increase in regulations index enhances GDP per capita by 7.78 per cent, when the outcome measure (OPEN) is used and 8.34 per cent when the policy measure (POLICY) is used.

Importantly, the results in columns [2] and [4] show that less regulations enhance the effects of international trade liberalization on economic growth. The interaction between international trade liberalization measures and regulatory policies (OPENREGULA TION,POLICY*REGULATION) significantly increases the rate of economic growth. A one per cent increase in OPEN*REGULATION interaction cause an increase in the rate of the economy by 0.106 per cent in five years. On the other hand, a one per cent increase in the POLICY*REGULATION interaction causes an increase of the economy by 1.55 per cent in five years.

The interaction results can be substantiated further to mean that the positive coefficient on POLICY*REGULATION and the negative coefficient on POLICY imply that GDP per capita decreases in POLICY at a rate that is increasing in REGULATION. In addition, the interaction of the outcome measure and regulatory policies, OPEN*REGULATION, yields a positive and significant coefficient, but the coefficient on OPEN is negative and insignificant. This result implies that OPEN does not have an independent effect on economic growth; rather, countries with effective and efficient labour, credit and product markets regulations gain significantly more from international trade liberalization than highly regulated economies. The interaction shows that improving regulatory policies enhances the effects of international trade liberalization on economic growth. This confirms the argument by Rodrik (1998) that international trade liberalization in developing countries does not confer much economic growth benefits, unless regulatory policies are improved.

Table 4.2: Instrumental Variables (IV) estimation results

Model	**IV Equations 1 to 4**			
Variables	**[1] EG**	**[2] EG**	**[3] EG**	**[4] EG**
CAPITAL	0.0618 (0.042)	0.0234 (0.052)	0.0864* (0.045)	0.111** (0.050)
HDI	-2.566 (3.263)	2.309 (3.741)	0.23 (2.887)	1.368 (3.12)
OPEN-1	0.0214 (0.0191)	-0.0524 (0.0469)		
POLICY-1			-0.124 (0.5)	-1.295 (0.861)
REGULATION	0.778*** (0.259)		0.834*** (0.299)	
POLICY*REGULATION				0.155** (0.062)
OPEN*REGULATION		0.0106* (0.0056)		
Constant	-3.733*** (1.428)	-0.159 (1.259)	-3.789** (1.676)	1.316 (2.402)
Observations	64	64	63	63
R-squared	0.4764	0.4020	0.4771	0.4006
Diagnostic Tests				P-Values
Wald/F-Test	0.0010	0.0080	0.0015	0.0046
Ramsey RESET	0.7890	0.7618	0.4639	0.8783
Breusch-Pagan Test	0.3057	0.2870	0.5710	0.5916
Sargan Test	0.4698	0.0570	0.1920	0.2646
Level of significance: *** p<0.01, ** p<0.05, * p<0.1				

5. Conclusion and Policy Recommendations

5.1 Conclusion

The study investigated the effects of international trade liberalization and regulatory policies on economic growth in selected SSA countries. The SSA region has been experiencing low levels of economic growth performance in the world, despite her continued effort on international trade liberalization. Today, SSA is one of the underdeveloped regions of the world, with very low participation in world trade, despite its high shares of the region's economy. The results show that international trade liberalization contributes to economic growth more when an effective and efficient regulatory environment is created. This implies that countries with effective and efficient or low levels of regulation in labour, credit and product markets benefit more from international trade liberalization than highly regulated economies.

Effective and efficient regulatory policies have a higher contribution to economic growth in low income countries. Interactions between international trade liberalization and regulatory policies have shown that they depend on each other. When the international trade liberalization measures were entered on their own, the results were either positive or negative but insignificant, showing that there is no important role for international trade liberalization alone in promoting economic growth in the selected SSA countries. However, when the interactive variables *(POLICY*REGULATION and OPEN*REGULATION)* are introduced in the regressions, the signs of international trade liberalization measures become negative and insignificant, while those signs for the interactive variables become significantly positive.

The results show that international trade liberalization does not have an independent effect on economic growth, but concurrent creation of effective and efficient regulatory policies increase low income countries economic growth gains from international trade liberalization. Therefore, international trade liberalization is a necessary but not sufficient condition for high and sustained economic growth performance. In addition, the results show that an increase in accumulation of both local and foreign capital accumulation contributes to economic growth.

5.2 Policy Recommendations

The SSA countries need to deepen and improve both international trade liberalization and regulatory policies in order to increase prospects for high economic growth performance. Creating efficient labour, credit and product markets would accelerate economic growth through enhanced international trade gains. The selected SSA countries should ensure deeper implementation of international trade liberalization and regulatory policies. This should be undertaken jointly through the various SSA countries' regional trading arrangements, including EAC, COMESA and SADC tripartite and ECOWAS. In addition, individually, each country should ensure that effective and efficient regulatory policies are created. This would improve the rate at which the economy grows and improve the prospects for economic development.

Regulatory policies concern labour, credit and product markets regulations. It would be important to review the current status in Kenya's credit market regulations as a way to fast-track their reforms. Credit market regulations reforms should foster more private sector participation, both local and international, and access to sustainable affordable credit to the private sector. Labour market regulations also need to be further improved to create better working conditions for workers. This can be, for example, through the provision of capacity building opportunities such as on the job training and sponsorship to high education levels at local and foreign universities. The better working conditions, in part, improve worker's productivity. This way, international trade liberalization would increase labour force earnings, leading to improved living standards. Consequently, high and sustained economic growth performance would be achieved in Kenya, like would be in the selected SSA countries.

Product markets regulations include business regulations that are critical in determining the rate of capital accumulation. To improve the business environment, Kenya began regulatory reforms in 2005, which culminated in the formation of the Business Regulatory Reform Unit (BBRU) and creation of an inventory of all approved licenses in Kenya, called the e-registry. Deepening of this process would eliminate unnecessary regulations, and retain or simplify business regulations on the basis of health, safety and environment. Within the context of the Constitution, the 47 counties should ensure that business regulations are reduced to encourage many Kenyans to invest or expand their investments and create wealth for the country. Issuing business

regulations or licenses to raise revenue at the counties should be discouraged. Therefore, effective and efficient regulatory policies would spur capital accumulation, which is a critical contributor to economic growth. Kenya as part of the selected SSA countries needs to ensure that capital accumulation, both locally and internationally is accelerated.

5.3 Suggestions for Future Research Areas

Future research work should focus on a panel data of all SSA countries with other comparator countries, for example Asia, Europe, Latin and North America. Cross country studies focus mostly on establishing the effects of international trade liberalization or regulatory policies on economic growth and not the extent to which these policies can be adopted, considering the countries' levels of economic development. Understanding the extent to which countries or regions should undertake international trade liberalization or regulatory policy reforms is important because unlimited liberalization can be hurting, depending on heterogeneous nature of countries. In addition, the international trade liberalization successes and challenges of the WTO need to be examined with regard to the Doha Development Round. The WTO experience would help in understanding the nature of international trade liberalization within and between developed and developing countries. Finally, future research work should investigate macroeconomic convergence in SSA region, using the Solow model.

References

Ackah, C. and Morrissey, O. (2007) , "International Trade Liberalization is Good for You if You Are Rich", CREDIT Research Paper No. 07/01, pp. 1-47.

Ackah, C. and Morrisey, O. (2007), "Trade Protection as Income Protection in Poor Countries", Conference on New Political Economy of Globalization, available at http://www.nottingham.ac.uk/shared/shared_levevents/conferences/2007_tulane_Morrissey_Ackah.pdf, accessed on 16 March, 2011.

Ackah, C. and Morrisey, O. (2005), "Trade Policy and Performance in Sub-Saharan Africa Since the 1980s", CREDIT Research Paper No. 05/13, pp. 1-39.

Babatunde, A.M. (2009), "Can International Trade Liberalization Stimulate Export Performance in Sub-Saharan Africa?" Babatunde, *Journal of International and Global Economic Studies*, 2(1), pp. 68-92.

Balassa, B. (1971), "Trade Policies in Developing Countries", *The American Economic Review*, Vol. 61, No. 2, pp. 178-187.

Baldwin, R. (2003), "Openness and Growth: What is the Empirical Relationship", NBER Working Paper No. 9578, pp. 1-29.

Barro, R. (1991), "Economic Growth in a Cross Section of Countries", *The Quarterly Journal of Economics*, Vol. 106, No. 2, pp. 407-443.

Ben-David, D. and Loewy, M. (1998), "Free Trade, Growth and Convergence", *Journal of Economic Growth*, Vol. 3, pp. 143-170.

Busse, M. and Groizard, L. (2008), "Foreign Direct Investment, Regulations and Growth", *The World Economy*, Vol. 31, No. 7, pp. 861-86.

Busse, M. and Hefeker, C. (2009), "Trade, Labour Markets Regulations and Growth", *Applied Economic Letters*, Vol. 16, Issue 8, pp. 809-12.

Chen, P. and Gupta, R. (2006), "An Investigation of Openness and Economic Growth Using Panel Estimation", University of Pretoria, Working Paper No. 2006-22 (Online paper), available

at http://web.up.ac.za/UserFiles/WP_2006_22.pdf, accessed on 14 March 2011.

Davies, D. and Quinlivan, Q. (2006), "A Panel Data Analysis of the Impact of Trade on Human Development", *Journal of Socio-Economics*, Vol. 35, No. 5, pp. 868-876.

Djankov, S., McLiesh, C. and Ramalho. R. (2006), "Regulation and Growth", Vol. 92, No. 3, pp. 395-401.

Dollar, D. (1992), "Outward-oriented Developing Economies Really do Grow More Rapidly: Evidence from 95 LDCs, 1976-1985", *Economic Development and Cultural Change*, Vol. 40, No. 3.

Edwards, S. (1998), "Openness, Productivity and Growth: What Do We Really Know?" *The Economic Journal*, Vol. 108, Issue 447.

El-Erian, M. and Spence, M. (2008), "Growth Strategies and Dynamics: Insights from Country Experiences", *World Economics*, Vol. 9, No. 1, pp. 57-96.

Felipe, J. Lavina, E. and Fan, E. (2008), "The Diverging Patterns of Profitability, Investment and Growth of China and India during 1980-2003", *World Development,* Vol. 36, No. 5, pp. 1-35.

Francois, J., Meijl, H., Tongeren, F. and Evenett, S. (2005), "International Trade Liberalization in the Doha Development Round", *Economic Policy*, Vol. 20, No. 42, pp. 349, 351-391.

Frankel, J. and Romer, D. (1999), "Does Trade Cause Growth?", *The American Economic Review*, Vol. 89, No. 3, pp.379-399.

Freund, C., and Bolaky, B., (2007), "Trade, Regulation and Income", *Journal of Development Economics*, DEVEC-01342, pp. 1-13.

Gundlach, E. (2007), "The Solow Model in the Empirics of Growth and Trade", Keil Institute for the World Economy, available at http://www.ifw-members.ifw-kiel.de/publications/the-solow-model-in-the-empirics-of-growth-and-trade/kap1294_revised.pdf, accessed on Sept. 24 2010.

Greenaway, D., Morgan, W. and Wright, P. (2001), "International Trade Liberalization and Growth in Developing Countries", *Journal of Development Economics*, Vol. 67, pp. 229-244.

Hadjimichael, M., and Ghura, D. (1996), "Growth in Sub-Saharan Africa", *International Monetary Fund*, Vol. 43, No. 3, pp. 605-634.

Hsiao, (2007), "Panel Data Analysis-Advantages and Challenges", Institute of Economic Policy/Research (IEPR) Working Paper, No. 06/49, pp. 1-22.

Krugman, P. (1983), "New Theories of Trade among Industrial Countries", *The American Economic Review*, Vol. 73, No.2, pp. 343-347.

Krugman, P. (1987), "Is Free Trade Passe?", *Journal of Economic Perspectives*, Vol. 1, No. 2, pp. 131-144.

Krugman, P. (1994), Rethinking International Trade, London: MIT Press Cambridge.

Lee, H., Ricci, L. and Rigobon, R. (2004), "Once Again, is Trade Openness Good for Growth", *Journal of Development Economics*, Vol. 75, Issue 2, pp. 451-472.

Little, I., Scitovsky, T. and Scott, M. (1970), Industry and Trade in Some Developing Countries: A Comparative Study, London: Oxford University Press.

Pak Hung, M. (2011), "International Trade Liberalization Sequence for Sustained Economic Growth", Munich Personal RePEc Archive (MPRA) Paper No. 28917, pp. 1-19.

Qiu, L. (1994), "Optimal Strategic Trade Policy under Asymmetric Information", *Journal of International Economics*, Vol. 36, pp. 333-354.

Ray, D. (1998), Development Economics, New Jersey: Princeton University Press.

Rodriquez, F., and Rodrik, D. (2000), "Trade Policy and Economic Growth: A Sceptics Guide to the Cross National Evidence", National Bureau of Economic Research, Working Paper 7081, pp.1-82.

Rodrik, D. (2004), "Trade Liberalization and Economic Performance: An Overview", *The Economic Journal*, Vol. 114, Issue 493.

Rodrik, D. (1998), "Trade Policy and Economic Performance in sub-Saharan Africa", NBER Working Paper No. W6562, pp. 1-74

(online paper), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=226295, accessed on 31 August 2010.

Rodrik, D. (2001), "Development Strategies for the Next Century", Harvard University Working Paper, available at http://www.eclac.cl/prensa/noticias/comunicados/6/7616/DaniRodrik29-08.pdf, accessed on 31 August 2010.

Romer, P. (1986), "Increasing Returns and Long Run Growth", *The Journal of Political Economy*, Vol. 94, No. 5, pp. 1002-1037.

Romer, P. (1994), "The Origins of Endogenous Growth", *The Journal of Economic Perspectives*, Vol. 8, No. 1, pp. 3-22.

Roodman, D. (2006), "How to Xtabond2: An Introduction to 'Difference' and 'System' GMM in Stata", Center for Global Development, Working Paper No. 103, pp. 1-51.

Sachs, J.,Warner, A., Aslund, A. and Fischer, S. (1995), "Economic Reform and the Process of Economic Integration", *Brookings Papers on Economic Activity*, Vol. 1995, No. 1, pp.1-118.

Shafaeddin, S. (2005), "International Trade Liberalization and Economic Reform in Developing Countries: Structural Change or De-Industrialization?", United Nations Working Paper No. 179, pp. 1-27.

Shaw, G. (1992), "Policy Implications of Endogenous Growth Theory", *The Economic Journal*, Vol. 102, No. 412, pp. 611-621.

Solow, R. (1956), "A Contribution to the Theory of Economic Growth", *The Quarterly Journal of Economics*, Vol. 70, No. 1, pp. 65-94.

UNDP (2003), Making Global Trade Work for People, New York and London: Earthscan Publication.

UNDP (2008), Aid for Trade and Human Development: A Guide to Conducting Aid for Trade Needs Assessment Exercises, New York: United Nations Publications.

Wacziarg, R. (2001), "Measuring the Dynamic Gains from Trade", *World Bank Economic Review*, Vol. 15, No. 3, pp. 393-429.

Wacziarg, R. and Welch, K. (2003), "International Trade Liberalization and Growth: New Evidence", National Bureau of Economic Research Working Paper No. 10152, pp. 1-90.

Winters, A. (2004), "International Trade Liberalization and Economic Performance: An Overview", *The Economic Journal*, Vol. 114, No. 493, pp. F4-F21.

Vamvakidis, A. (2001), "How Robust is Growth Openness Connection? Historical Evidence", *Journal of Economic Growth*, Vol. 7, pp. 57-80.

Yanikkaya, H. (2002), "International Trade Openness and Economic Growth: A Cross Country Empirical Investigation", *Journal of Development Economics*, Vol. 72, pp. 57-89.