ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

THE POVERTY IMPLICATION OF TRADE LIBERALISATION IN SUB-SAHARAN AFRICA REGION: A DYNAMIC PANEL GENERAL METHOD OF MOMENTS ANALYSIS

By

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A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ECONOMICS

May, 2011
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Acknowledgements

First and foremost, praise goes to God, who allows me to persevere in trying times. I then would like to express my gratitude to all those who gave me the possibility and courage to complete this thesis. My special thanks then goes to Dr. Girma Estiphanos for his help and advice throughout my work on this thesis.

I am also greatly indebted to Wolaita Sodo University for the scholarship it provided during my whole study. I would also like to extend my gratitude to AERC for the study I had in Nairobi, Kenya and their financial support in preparing this thesis.

I also owe a profound appreciation to Tilahun Molla and Tsegaye Gebrekidan with whom various parts of this work have been discussed. Last but not least, I also thank my family members and all my friends for the love and moral support they have shown to me.

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Abbreviations and Acronyms

ADI	African Development Indicators
ECA	Economic Commission for Africa
EP	Export Promotion
GDP	Gross Domestic Product
GMM	General Method of Moments
GNP	Gross National Product
H-D	Harrod-Dommar
H-O	Hecksher Ohlin
S-S	Samuelson-Stopler
IMF	International Monetary Fund
IS	Import Substitution
IV	Instrumental Variable
MDGs	Millennium Development Goals
OLS	Ordinary Least Squares
RCA	Revealed Comparative Advantage
SAP	Structural Adjustment Program
SSA	Sub-Saharan Africa
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Project
WB	World Bank
WDI	World Development Indicators
WTO	World Trade Organization

Abstract

This thesis examines the poverty implication of trade liberalisation through its potential nexus with overall income growth and distribution. Combining results from OLS and Dynamic Panel GMM techniques due to Arellano-Bond (1991) and Blundell-Bond (1998) employed, some evidence is found from recent data that trade liberalisation is poverty reducing in SSA. Specifically, the OLS results show that the distributional consequences of trade liberalsiation are small and not significantly different from zero. However, openness to trade contributes to higher inequality in the region's resource rich countries. Additional results obtained from the same regression include that the poor's income is closely related with overall average income with an elasticity coefficient of around 0.8, and inflation is related with higher inequality. Thus, although the poor's income is closely related with overall income growth, income inequality will be rising over time which could be compounded by inflation. After accounting for most of the factors relevant in determining income growth, the growth impact of trade liberalisation was also examined. The principal finding in this is that trade liberalisation in SSA positively affects income growth.

Combined, the findings suggest that trade liberalisation must have played a role in the recent decline in the region's poverty through its relation with income growth. Besides, although the structure of production in African economies is positive but not statistically different from zero, its significance could be disguised by the continued commodity demand boom African economies currently enjoy. However, the current policy on trade in SSA may not be adequate. First, openness in resource rich countries in region is associated with increasing income inequality. Secondly, the poor's income is less than unitary elastic to overall income changes that income inequality in the region will be increasing with growth overtime. Thus, complementary measures to tackle the growing tendency for inequality overtime and encouraging other growth drivers may be necessary.

Chapter One: Introduction

1.1. Background

Debate on trade policy, trade and poverty has been one of the longstanding economic issues in developing countries. Sub-Saharan Africa Region, which consists of 48 countries, is one where this has always been lively.[1] Perhaps, the only exception one could find here may be the era of colonization during which almost all countries in SSA had experienced the nearest incident of free trade (Shafaeddin, 2006). Despite that, SSA was seriously underdeveloped and mired in wide spread poverty. Indeed, that was what individual countries in the region inherited in the late 1950s and early 1960s during independence. There was not much surprise though, as the living conditions of people under colonies were decidedly poor (Baah, 2003). Shortly, economies under colonization are structured to facilitate resource exploitation with administrative barriers put against industrialization and development (Sandbrook, 1985). Thus, the emergent African economies freed from colonial rule had to tackle underdevelopment with enormous poverty and structurally dependent economies.

Over the years since independence, poverty reduction has been at the center of development policies (at least for those initiated by African countries themselves) of individual countries. But in terms of success, the five decades of independence is often considered as Africa's lost decades. On top of the millions of poor people from the start, the number of poor people has been increasing. Therefore, endemic poverty remains to be the most daunting challenge in the region. Since the Copenhagen Summit in 1995, efforts to reduce poverty are revitalized including through global support and commitments such as World Bank's lending facilities like poverty reduction and growth facility and the Millennium Declaration which endorsed Millennium Development Goals (MDGs).[2]

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[1] All the African countries covered in this study are Sub-Saharan. Thus, throughout the terms Africa, SSA and Sub-Saharan Africa are interchangeably used.

[2] The MDGs refer to a set of objectives endorsed by world leaders in Sep, 2000 aimed at reducing global poverty. These includes the achievement of the following goals by 2015: (1) Reduce by half the level of extreme poverty and hunger; (2) Achieve universal primary education; (3) Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015; (4) Reduce by two thirds the mortality rate among children under five; (5) Reduce by three quarters the maternal mortality ratio; (6) Halt and begin to reverse the spread of HIV/AIDS, and the incidence of malaria and other major diseases; (7) Integrate the principles of sustainable development into country policies and programs, reverse the loss of environmental resources, reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation, and achieve significant improvement in lives of at least 100 million slum dwellers by 2020; and (8) Develop a global partnership for development. See United Nations, "Millennium Development Goals," at http://www.un.org/millenniumgoals/.

Trade liberalisation is often integral to the conditionalities in these global supports. However, its consistency with development and poverty reduction in SSA is dubious at best. Some insight may be gained from analysing Africa's past. In this regard, there have been two notable shifts since colonial independence. Although changing views over the years on how to achieve development objectives to the best may have major contributions, the actual ones followed may also reflect revisions based on changing circumstances including economic and non economic ones that the specific policies followed by countries may not entirely underpin economic rationale. Some of these are obvious from the general trend of trade regimes in the region and contemporary developments in economic theory. In that, classification of past trade policy regimes in SSA follows UNCTAD (2008).

Beginning with the colonial period, for instance, the conduct of trade policy in the region has been decided by colonialists. Such order has seen near free trade regimes with deep and pervasive poverty. The contemporary economic theory (classical) may have provided the justification. However, many question if it really was a genuine case as it most served the colonialists' economic interest of securing raw material supply at cheap price and market for their manufactures. Indeed, the economic structure inherited at independence was: more concentrated in extractive industries; heavily dependent on production and export of primary commodities and import of manufactured goods, and lacking internal articulation between production and consumption (Shafaeddin, 2006; Nunn, 2005; Alemayehu, 2010).

Since the end of WWII, however, new ideas that highlight the attributes that such kind of trade integration has in terms of the low living standards of people in developing countries have emerged. For instance, seminal works by Prebisch (1950) and Singer (1950) has shown that there was a secular tendency for the terms of trade to turn adversely against primary commodity producers such that export earnings grow slowly overtime while import bills rise rapidly. Meanwhile, other studies at the time have also shown the volatility of commodity prices. Obviously, both could create developmental challenges in poor countries. Diversification of production through industrialization was thus considered as an alternative to tackle the problem.

Moreover, the Prebich-Singler thesis has fitted well into the mainstream development thinking at its heydays in the 1950s and the period immediately afterwards (Singer, 2003). Some of these include Lewis's (1954) hypothesis about "surplus" labor or disguised unemployment in less developed countries like Africa and Rodan's big-push theory (1943). Industrialization was then made virtually synonymous with development. Besides, in the conditions of the 1950s and 1960s, a tendency to give preference to IS was natural because of the necessity to establish the foundations for industrialization and the ease to start with substituting imports. The demonstration effect of the Soviet Union's state led industrialization may partly have contributed in this, as it was consistent with self sufficiency.

Therefore, development strategies aimed at restructuring own economies towards self sufficiency were high on the agenda of contemporary African leaders. Specifically, industrialization policies emphasising IS became common in the region until it was put to an end by a large scale economic crisis that emerged in the mid 1970s. Indeed, prior to the event, countries like Burundi, Ethiopia, Ghana, Madagascar, Nigeria, Senegal, Sudan, the United Republic of Tanzania, and Zambia had inward-oriented development policies with significant trade restrictions (UNCTAD, 2008). The main elements of these policies consisted of high tariff and non-tariff trade barriers and overvalued exchange rates (Baah, 2003).[3] Rapid industrialization was then anticipated through protection of domestic industry from foreign competition and cheaper import of capital goods.

The initial implementation of the policy was successful, as GDP growth in the region through 1960-1975 was a staggering 4.5 percent (Adedeji, 2002). However, it was not sustained due to the anti export bias of the domestic protectionist policy and adverse external shocks. Specifically, while the policies underlying IS discouraged production for exports, subsequent to the oil price shocks of 1973 and 1979, global economic recession hit the region's commodity exports leading to severe current account deficits. On top of that, the industrial structure due to the IS strategy did not created linkage effect as the domestic economy remained heavily reliant on meager foreign exchange earnings for its imports of intermediate goods and spare parts. The cumulative impact of all these factors was severe macroeconomic and structural imbalances which manifested in terms of unsustainably high external debts that many of the region's economies including Angola, Cameroon, Congo, Ivory Coast, Gabon, Gambia, Mozambique, Niger, Nigeria, Tanzania and Zambia had actually declared moratorium in the early 1980s (Moyo, 2008).

Despite attempts to maintain the self sufficiency element in subsequent policies, as in the Lagos Plan of Action (1981), the heavy pressure from the International Monetary Fund (IMF) and the World

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3 From the outset, however, it may be said that IS policies are largely incompatible with open trade regimes. Therefore, it can be considered as the underlying rationale for trade protection in Africa during the 1960s.

Bank (WB) through SAP lending had initiated a wave of trade liberalisation reforms.[4] As it was predominantly attributed to Africa's contemporary economic problems, the IS strategy had to give way to export oriented freer trade policy. In that, the questions of structural transformation and economic transformation were given rather less emphasis. Instead, as prerequisites to economic growth and development, it was presumed that Africa needs improvements in economic and technical efficiency. Comparative advantage consistent trade was considered as an essential beginning in that *(ECA, 2005)*.

Nonetheless, the financial incentives with the conditionalities set by IMF and WB also had strong influence to the wave of unilateral trade liberalizations that set in since early 1980s. Indeed, about 60 percent of African countries have undergone or were undergoing structural adjustment programs in the middle of the 1980s (WB, 1994). By mid-1990s, almost all economies in the region have gone through the program at least once.

Yet, trends of plummeting growth rates, mounting external debt and poverty rates continued unabated or in most cases became worsened. In terms of growth, for instance, per capita income in SSA shrank at the rate of 0.3% between 1980 and 2004 from a positive annual growth rate of 1.6% during the 1960s and the 1970s. Most of the decline was in the 80s when the region's per-capita income shrank by 1.2% per annum (WB, 2002). In effect, poverty in the region has been exacerbated during the implementation of SAPs.

However, some exceptions have been there. For instance, together with trade liberalisation reforms, noticeable declines in income poverty were observed in Botswana, Burkina Faso, Cameroon, Ethiopia, Lesotho, South-Africa and Uganda during the 1990s (Islam, 2004; Alemayehu, 2010).

Currently, the region's economic performance is improving. Moreover, countries in SSA continue to open up their international trade. However, there remains difficultly identifying any real relationship between the two events. Regarding the historical account on the issue above, no obvious pattern is there to aid in inferring anything real from such contemporaneous occurrences. Perhaps, as

[4] Structural adjustment program is an economic program focused on production efficiency and market signals paying attention to such elements as macroeconomic stability, balanced fiscal accounts, tax reforms, trade liberalisation and deregulation (Williamson, 2000). Despite its proponents advocating that it is essential for improved economic performance, however, it is criticized as being narrowly focused on short and medium-term stabilization of output, prices, and the balance of payments, and not on long-run sustained growth, particularly in the poorest countries.

Roderick (2004) attested the economic history in SSA proves the success of neither trade protection nor liberalisation per se. If anything, it looks more like the assessment by UNIDO (2007, PP. 7) that:

> "While Import Substitution did not build up the domestic capital goods sector in Africa, its performance was not surpassed in the next period of market-led development policy".

Despite that, it could be inferred from recent measures and the adoption of the plan called "The New Partnership for Africa's Development (NEPAD)" by African union and all its member states in 2002 and the macroeconomic policy contents of PRSPs that the case is again for more liberal trade policy. Perhaps this may be due to the fact that the SAPs introduced in the 1980s continue to guide policy making in Africa (Alemayehu, 2006). Generally, it remains that there is no resolve on the appropriateness of trade liberalisation measures in terms of the overarching objective of the region, which is eradicating poverty. The evidence that may be provided by the recently accumulated data may resolve the issue.

1.2. Statement of the Problem

Africa in general is the world's poorest continent. Yet, African countries south of the Sahara are even poorer. Lowest scores of per-capita income and development indicators such as educational attainment, infant mortality, and life expectancy are amongst the region's infamous leads to the rest of the world. It is also one of the last places on earth in which famine still persists. Unfortunately, this may be the life of more than half of the region's population which must struggle with hunger, anxiety; loss of dignity and any sense of efficacy while subsisting on less than $1.25 a day (see UNMDG Report, 2009). Such level of destitution is demeaning and life threatening. Hence, no country in the world may consider it tolerable.

Not too long ago, the world as a whole was poor in the same way as Africa is today. It was since the industrial revolution that countries in most parts of the world were able to overcome or significantly ease their economic difficulties (Hazlitt, 1996). However, SSA is stuck in the same situation where others have succeeded in changing. According to Xavier- Sala- Martin (2002), such failure is a mystery for economists. Duplicating the experience of successful regions could be a natural response to the problem though. But, complicating such emulation is the contradicting attributions to the success of the other world that is at the bone of the literature and Africa's own experience under different policy interventions. Another reason may be that the global economic environment is always changing.

Nonetheless, the aim to reduce poverty in the region remains to be a central problem to economic policy making. To validate specific policy measures, it may help to attach some objective results to them. Spiegel (2007) notes that the importance attached to a particular economic policy should not be far away from its role in economic performance, improvement to economic growth, development and equity in a sustainable manner. Whereas policies fostering economic growth are deemed necessary to reduce poverty permanently, those negating economic growth will ultimately worsen it. Obviously, the topic of growth in Africa is fundamental to the region's poverty.

In this connection, it is widely acknowledged by economists that trade policy has effects on economic performance as well as the distribution of income both of which have important implications for poverty reduction.[5] However, there is no consensus on the form of trade policy which is more suited for poverty reduction. The contention lies in how much to liberalise and when.

The dominant proposition for more liberal trade policies argues that income growth is the natural outcome of the economic and technical efficiency which liberalisation measures are consistent with whereas protection is a costly interference into otherwise efficiently functioning markets. In addition, trade liberalisation is considered to promote more equitable distribution of income in developing countries. As such, trade liberalisation can address both sources of poverty: meagerness of income resources and its distribution. There is at least partial support for this in various studies. So, for instance, on a series of studies, Dollar and Kraay (2001, 2002, 2004) documented that one of the surest ways to eradicate poverty in the poorest countries is to pursue trade liberalsiation. Similarly, the literature reviewed by Winters (2004) concludes that trade induced growth is positive and has such a dominant impact than any adverse distributions that may be thereof. In addition, they argued that "no country has lifted itself out of poverty by turning its back on international trade".

Though this is consistent with the impossibility for complete Autarky to work well, however, it may also be true that in low-income countries whose industrialization is at its early stage, trade liberalisation may not succeed in reducing poverty. Specifically, the analytical explanations supporting trade liberalisation are sensitive to assumptions and are mostly criticized for being static

[5] Trade policy could be broadly defined as any policy directed primarily at the level and/or pattern of trade.

in nature. Most importantly, countries may risk being locked into permanently slow growth by simply accepting static comparative advantage. Thus, liberalisation could cause poverty in already poor countries. Besides, the influence of trade liberalisation on the distribution of income in developing countries may not necessarily be in favor of poor people there. So, liberalising very slowly or keeping protection until a more diversified production structure is achieved by means of an integrated industrial and trade strategy using tariffs, taxes and subsidies may be necessary. There is also strong historical support for this.

In sub-Saharan Africa, poverty has always been pervasive in spite of the significant changes in the region's trade regimes overtime. Besides, there is no clear cut conclusion regarding the merits of trade liberalisation from studies which consider all countries in the world. In the absence of this, however, the contents of Poverty Reduction Strategy Papers (PRSPs) and, regional and global commitments like NEPAD and the MDGs imply the continuation of trade liberalizations that the region has been undergoing since the 1980s.[6] On the basis of such projection, verifying whether its coincidence with the recent improvement in economic performance and meager reductions in poverty is anything real is of paramount importance.

Therefore, this research tries to examine whether the current wave of trade liberalisation that is happening in SSA is good for the region's economic development and poverty reduction. Particularly, using current data on trade liberalisation, this research tries to assert whether the slow reduction in poverty in Sub-Saharan Africa is in spite of trade liberalisation or because of it?. Producing direct evidence is difficult due to the paucity of data. Therefore, attempt is made to indirectly address the issue by formulating the following questions:

- What is the differential impact of openness on the real income of the poor vis-à-vis the non-poor in Sub-Saharan Africa Region?
- Has trade liberalisation increased income growth in the region?
- What are the key factors underlying recent improvements in the region's economic performance?
- What was the influence of Africa's economic structure, composition of imports and production structure on current economic performance?

[6] In addition many African countries are in accession process to join the world trade organization (WTO).

1.3. Objective of the Study

The overall objective of this research is:

- To empirically examine whether trade liberalization measures that countries in SSA region continue to undertake is capable of reducing income poverty in the region or not.

In order to achieve this overall objective, the study also has the following specific objectives:

- based on existing literature and other secondary data bases, to provide a brief description of the evolution, foundation and linkage between trade policy, economic growth and poverty in the region;
- to identify whether trade liberalisation has systematically influenced the poor's income;
- to empirically examine the nexus between trade liberalisation and economic growth;
- to explore other factors which were driving economic growth in the region and
- to identify the influence of Africa's economic structure; composition of imports and production structure on current economic performance?

1.4. Hypothesis and Methods of Analysis

Based on the related literature to the objectives and problems stated in previous sections, different hypotheses are developed for further examination. The first hypothesis is that trade in general and liberalisation in particular plays an important role in explaining the slow trend of poverty reduction in SSA. It is believed that the real solution to the problem of poverty is underdevelopment of the region that is caused by lack of structural transformation and the resulting long term stagnation of the region's economies. The subsequent lack of wealth creation over the years explains Africa's poverty. As learned from the background to this study and later theoretical justifications provided, trade liberalisation in SSA is likely to be an aide to this since, despite being largely open already, further opening to trade may only result in the deepening of the traditional exports in which the region's comparative advantage lies. Thus, current measures are likely to slow down growth and poverty reduction.

Secondly, although economic growth is the major factor through which trade liberalisation may affect the pace of poverty reduction in SSA, its impact on income inequality could as well affect poverty reduction. Trade theories based on perfect market conditions attribute trade liberalisaation to more equitable distribution of income in countries like those in SSA. But, in actual life there are market imperfections and political economy factors that affect the distribution of income. Here again, many good reasons could be provided for the equity influence of trade liberalisation not to work in the context of SSA. However, the actual experience remains to be seen.

As methods of analysis, this thesis employs both descriptive as well as econometric techniques on secondary data obtained from various sources exclusively on some SSA's economies. Descriptively, the recent economic activity including growth performance of countries, trade policy and structure, and poverty will be analyzed to meet some of the objectives listed in 1.2 above. To meet the remaining objectives, the link between trade liberalisation, economic growth and income distribution is analysed using econometric techniques like the Difference and System panel GMM estimators' due to Arellano-Bond (1991) and Blundell-Bond (1998) and OLS. A brief introduction of these econometric techniques is provided in chapter four of this thesis.

1.5. Significance of the study

It has been a long time since the infamous accolade of the poorest economic region in the world has been given to SSA. Among the many reasons that are most often attributed to it is the protective trade policy regimes that the region has followed in the past. It was said to have caused the stagnation of the region's economies. Moreover, though meagerness of income is likely to be the main reason for poverty in the region, income distribution may also be a factor. In both counts, then trade liberalisation is often praised to decrease poverty. But, that has not been confirmed by historical factors nor has been without criticisms. Especially, SSA did seem to benefit from neither protection nor liberalisation in the past. Yet, persistence of the current policy stance to liberalise is highly likely. Therefore, the importance to investigate the merit of these measures entirely within the context of the region's economies is obvious.

This thesis attempts to contribute to that by examining economic growth and distributional implications of trade liberalsiation with emphasis on the former. In that, the fact that the dramatic differences in standard of living among rich and poor countries could be accounted for by only small differences in long term economic growth is emphasised. However small, such differences are the interest of policymakers and analysts in learning whether dynamic gains from trade liberalization exist or not.

1.6. Scope and Limitations

This study was constrained by paucity of data on income inequality and poverty. To directly relate inequality with trade policy or poverty with the later, the series in all cases are scarce and when available are only at irregular intervals. Thus, the study has to rely on examining whether income growth in general is systematically related with distribution and the influence of trade liberalisation on both the growth and distribution of income. However, instead of a measure of inequality that is common for all countries, the distributional consequence of trade liberalisation is inferred from the behavior of income at the lowest quintile of the income distribution in individual countries.

In addition, structural transformation and hence sustainable growth may depend on moderate protection on a selective basis. Thus, examining the merit of sectoral level protection may provide more clarity. However, that too was not covered under this study.

1.7. Organisation of the Study

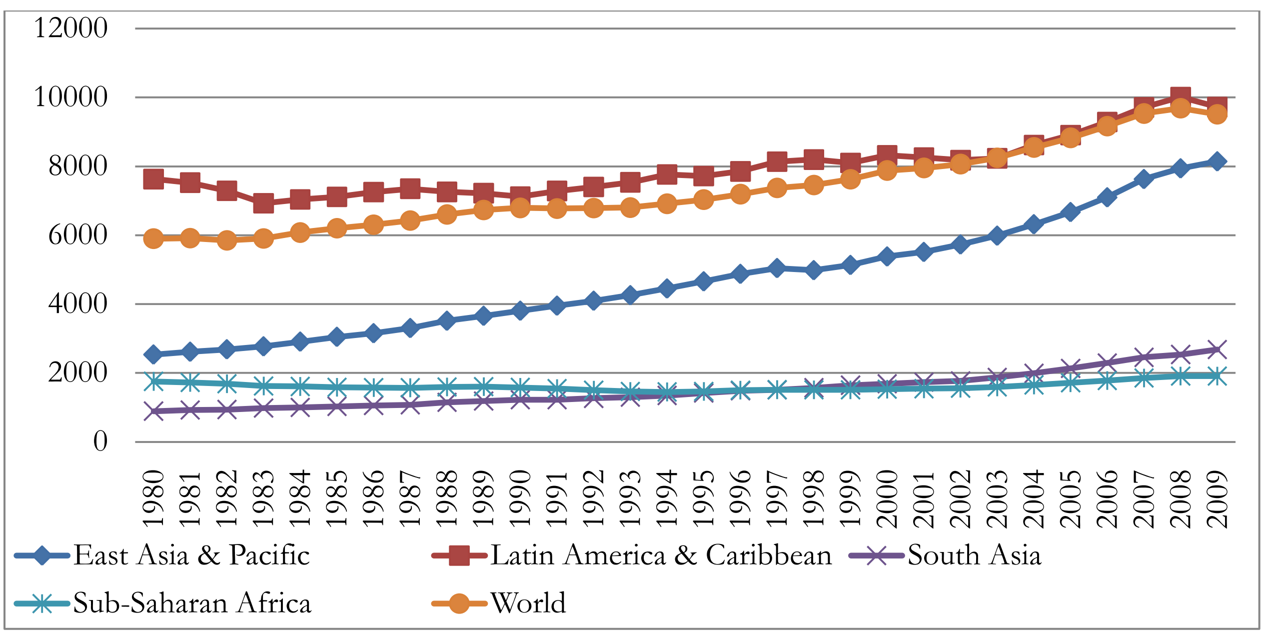
This thesis consists of six chapters. Chapter one provides background of the study and the research problem, and determines objectives, scope and limitations and organization of the thesis. The next chapter briefly reviews the recent economic performance, trade and poverty situation in SSA. Chapter three discusses the literature starting with definition of relevant concepts, elaborate on the theoretical framework linking trade liberalisation with poverty as needed to achieve the aim of the study analytically. It proceeds with the theoretical and empirical literature in order to draw lessons for SSA's countries. Chapter four specifies the empirical model, and discusses data sources and the estimation method employed. Chapter five presents the econometric analysis including; the findings and discussion of the results. Chapter six concludes by providing summary of the main findings of the study and simple recommendation based on findings.

Chapter 2: Economic Performance, Trade Liberalisation and Poverty in Sub-Saharan Africa

2.1. Recent Economic Performance and its features

Growth rate of real GDP is a key indicator of economic performance which can fundamentally affect the wellbeing of citizens. Indeed, the prevailing huge gap in the wellbeing of people across countries in the world is attributable to small variations in long term GDP growth rate. Despite the strong divergence that is due to the industrial revolution, the recent spread of growth in some parts of the world has created a new one. For instance, it is evident from figure 2.1 below that while starting from lower levels of per-capita income relative to SSA, per-capita incomes in South Asia region surpassed that of SSA's since 1998. Significant improvement in per-capita income has also been achieved in East Asia and pacific region where GDP growth has been strong. If anything, SSA exhibited falling per-capita income for about the first half of the period and recovery in the other half without much change since the 1980s. Hence, except for recent revival in per-capita income growth, the region's economies have simply stagnated during a new era of global prosperity.

Figure 2.1: Trend of Per-Capita income by World Economic Regions, since 1980.

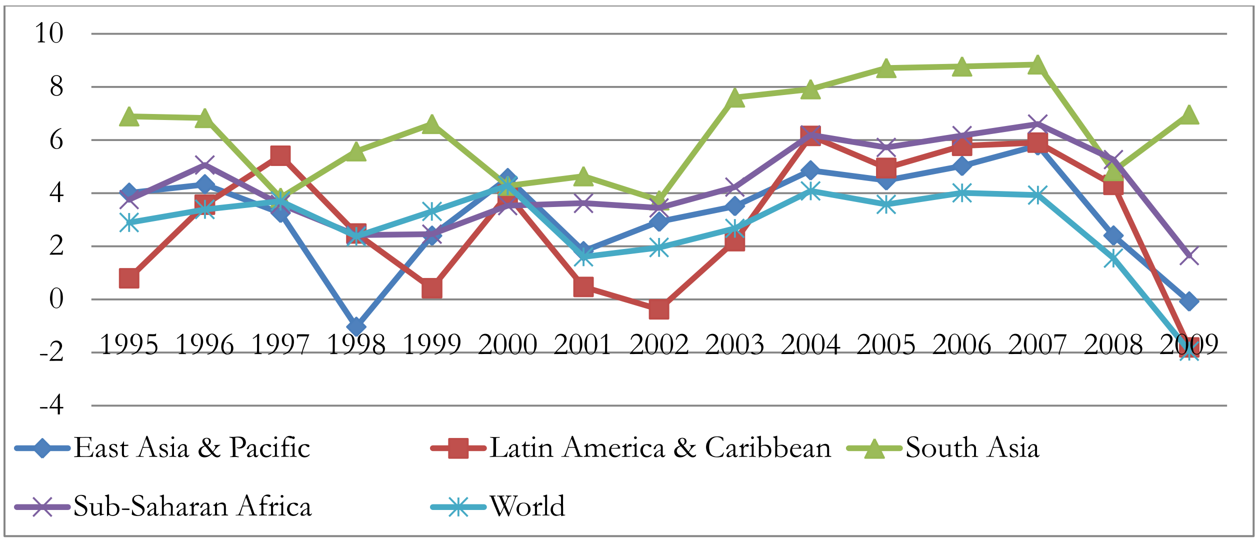


Source: World Development Indicator 2010 Data Base CD-ROM and own compilations.[7]

[7] GDP per capita, PPP (constant 2005 international $)

Beginning the 21st century, however, growth performance in SSA has been improving. The economic growth rate registered by the region stands second to South Asia. In Figure 2.2 below, the trend growth rate of the region has consistently exceeded that of the average for the whole world since 2000. Interestingly, the improvement has occurred broadly across several types of countries- resource rich countries irrespective of their location, coastal but resource scarce, landlocked and resource scarce countries. [8] Therefore, the onset of the 21st century has often been considered as the first consistent reversal of SSA's persistently declining per capita incomes since the 1980s.

Figure 2.2: Recent Trends in Real GDP Growth Rates by world economic regions



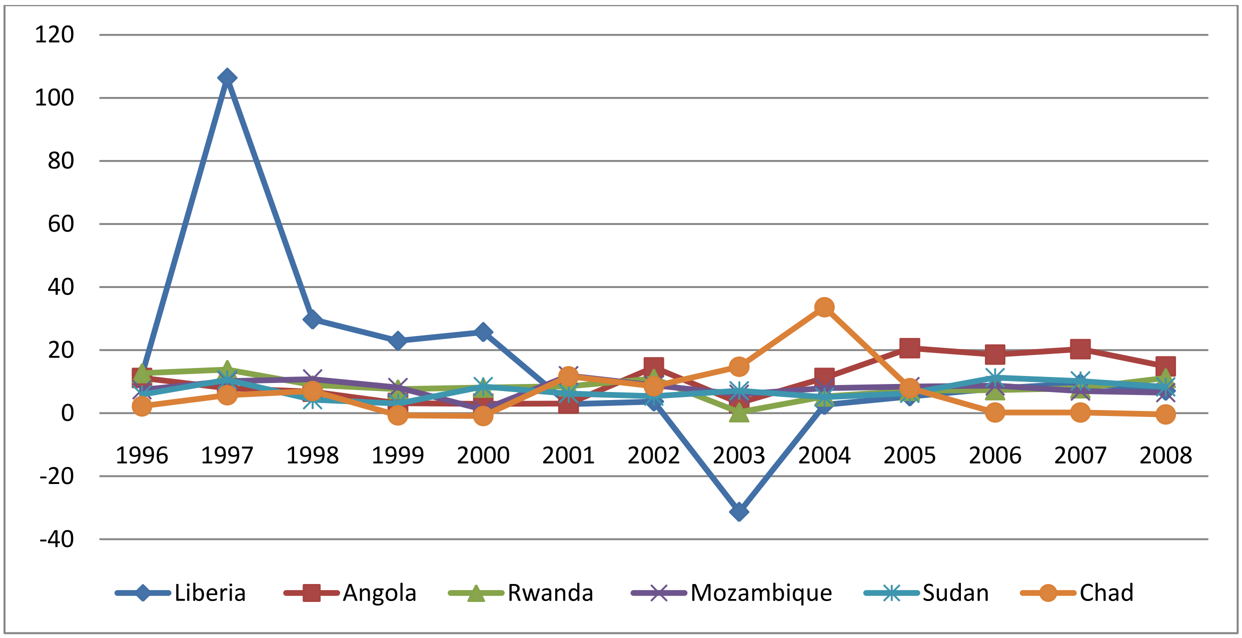
Source: World Development Indicator 2010 Data Base CD-ROM and own manipulations

These averages, however, may hide important variations across countries. The annual constant GDP growth rate on constant 2005 US dollars of 16 countries in SSA for the period 1996-2008 was above 5 per cent. Those above 6 per cent growth rates include Liberia (12.56 percent), Angola (10.41 percent), Rwanda (8.04 percent), Mozambique (7.92 percent), Sudan (7.16 percent), Chad (6.94 percent), Uganda (6.91 percent) and Ethiopia (6.29 percent). Over the same period, however, disappointing growth rates that seems unlikely to improve per capita incomes were registered in countries like Burundi (2.1 percent), Central African Republic (1.81 percent), Comoros (2.1 percent), Congo, Dem. Rep. (1.64 percent), Cote d'Ivoire (1.05 percent), Djibouti (2.41 percent), Eritrea(0.87 percent), Gabon (1.25 percent), Guinea Bissau (-1,51 percent) and Togo (2.55 percent).

[8] This is a three way classification of the region's economic geography by the Economic Commission for Africa (ECA).

Other encouraging growth performers registering growth rates exceeding 5 percent include Cape Verde, Tanzania, Botswana, Mali, Burkina Faso, Ghana, Sierra Leone and Gambia, in the order of their ranking. Whereas Angola, Sierra Leone, Chad and Sudan are oil exporting countries, the rest Liberia, Rwanda, Uganda, Mozambique, Ethiopia, Cape Verde, Tanzania, Botswana, Mali, Burkina Faso, Ghana, Sierra Leone and Gambia are rapidly growing oil importing countries. Besides, significant turns were present in the data. Figure 2.3 below depicts these turns which were especially large for Liberia and Chad.[9]

Figure 2.3: Real GDP Growth for the six fastest growing Countries in Sub-Saharan Africa



Source: African Development Indicators 2010 Data Base CD-ROM, and own computations.

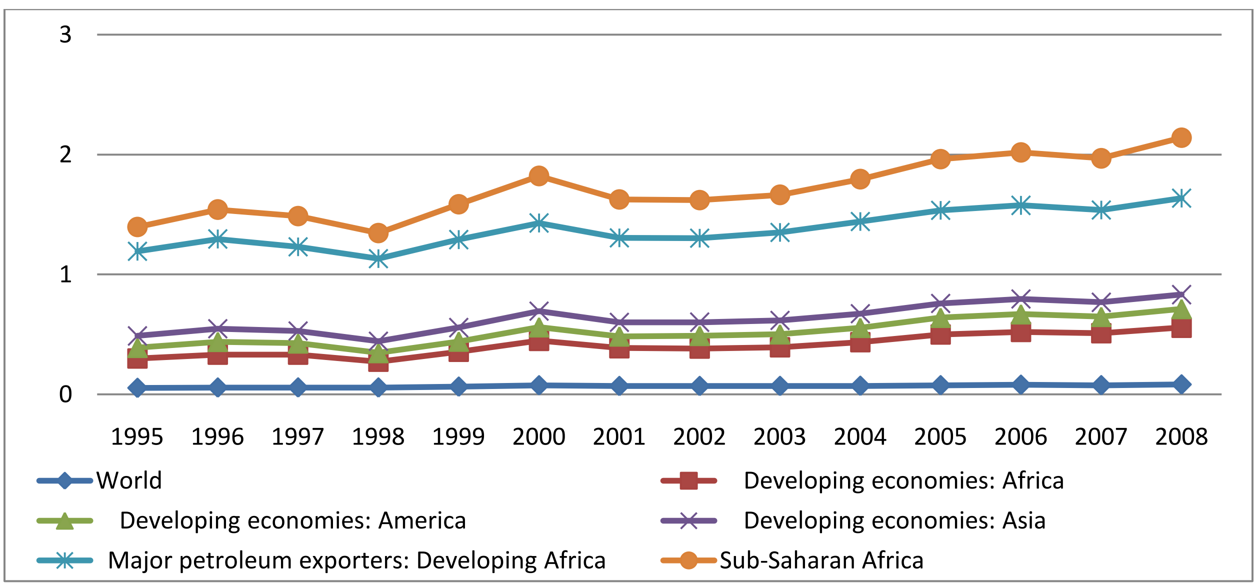
Despite the variations, however, improvements since the beginning of the 21st century are due to a mix of internal and external factors. In terms of external factors, the international environment facing African countries has been improving due to robust global demand and high commodity prices beginning 2003. Internally as well, there has been improvement in a number of countries with regard to macroeconomic stability, greater commitment to economic reforms, private capital flows, debt relief, oil production and non-fuel exports. Moreover, political conflicts and wars have ceded in many parts of the region (UNECA, 2008), notably in almost all the best performers observed above.

[9] This is based on constant compounded growth rates calculated for GDP, at PPP (constant 2005 international $) from the data set in African development indicator, 2010 CD-ROM.

However, external factors were highly important. Indeed, much of the improved growth performance in the region was driven by increased revenue from oil and mineral exports in resource-rich countries. For instance, according to ECA (2009), despite being minority, oil-exporting African countries contributed 53.3 per cent and 61.4 per cent to the continent's total GDP and GDP growth rate in 2008, respectively. That is, the impact of high commodity prices was also important. However, this is not without concerns. Theoretically, sustainability of such trends is strongly questionable. In addition to theoretical concerns, UNCTAD (2003) also underscores that historical experiences indicate that booms in commodity price are short lived while slumps persist.

Besides, recent experience has shown that hundreds of thousands of jobs have been lost in individual African countries subsequent on the recent global economic crisis. Although, things are returning to normal again, the incident has thrown many people into poverty. In that, commodity markets were the most powerful transmission mechanism through which Africa was adversely affected. Unfortunately, this may be exacerbated by the increasing vulnerability of the region to such events as shown by Figure 2.4 below in which export concentration is deepening over time.

Figure 2.4: Export Concentration Indices for Developing Countries by Region



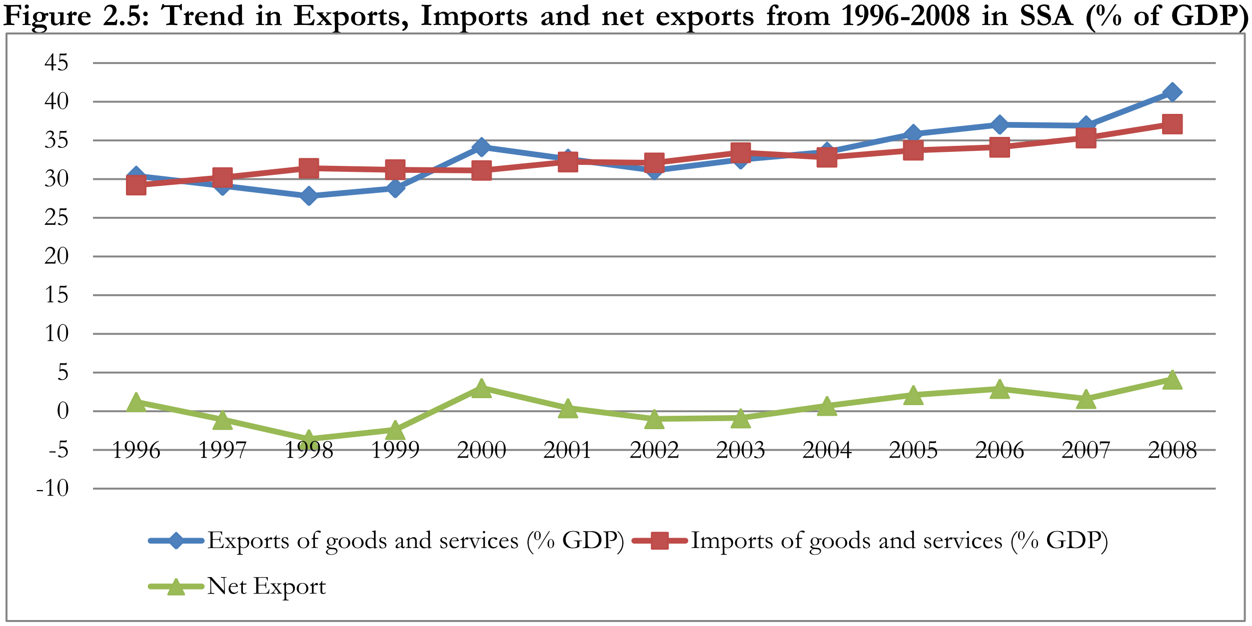
Source: Own Computation based on UNCTAD Statistical Hand Book 2009.

As demand and prices of commodities which African countries export could be volatile and downward trended in the long term, sustainability of the current economic growth performance is anything but questionable. Indeed, down ward trend in prices of African exports during the periods

80-85, 86-90, and 91-95 used to account for average annual terms of trade losses of -6.2, -2.5 and -3.2 percents (African Development Bank, 1997). Recently, again, it is documented by UNCTAD (2008) that for 24 Sub-Saharan African countries that do not export fuels or mining products, the terms of trade has been continually deteriorating, as the prices of their exports have been outpaced by those of their imports. Thus, the increasing concentration of the region's exports over the period 1995-2008 may hamper future growth. Besides, such deepening has been in terms of primary commodity exports.

This is incongruous with sustainable growth and development that calls for diversification and restructuring the existing economic structure and trade, unless the positive exogenous factors continue (Nissanake, 2009). In that, the current policy environment is contrary to the required policy space for African governments to devise systematic industrial strategy that supports structural transformation and technological upgrading of the region (Chang, 2009). Entering into world markets with manufacturing goods and services may be important as opposed to the current process. Thus, according to Toto (2007), productivity growth in developing countries, unlike developed countries, is much more dependent on changing the structure of production towards activities with higher levels of productivity.

Figure 2.5: Trend in Exports, Imports and net exports from 1996-2008 in SSA (% of GDP)

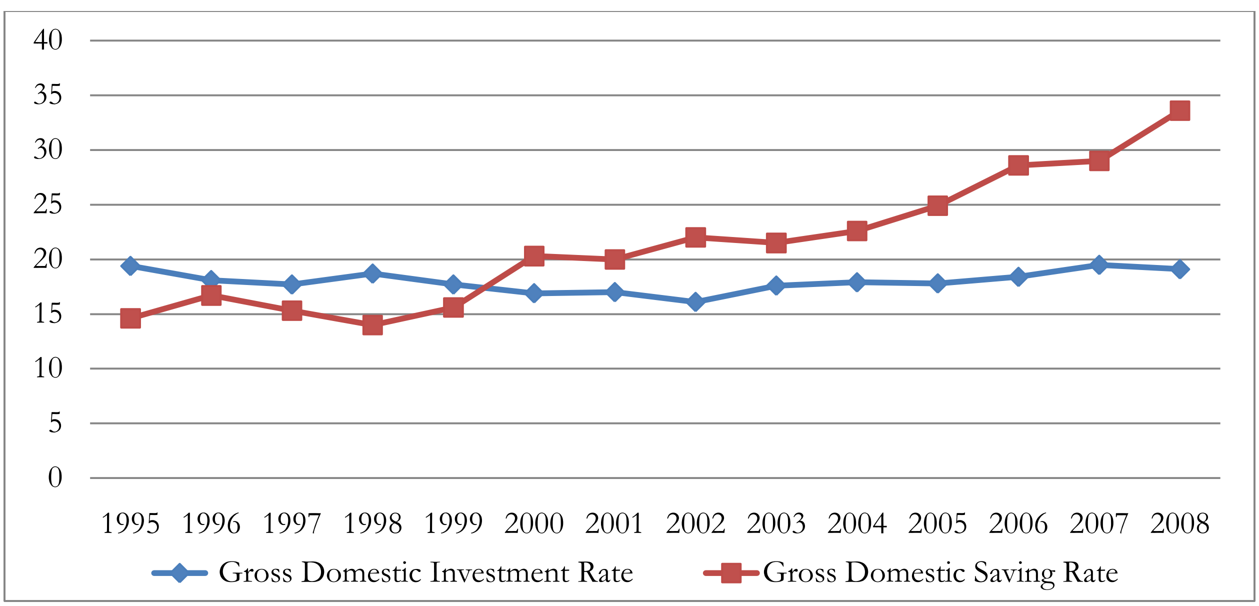


Source: World Bank, African Development Indicators 2010 Data Base CD-ROM, and own compilation.

Another concerns related to increasing concentration of exports is vulnerability to external shocks. Thus, Figure 2.5 above may indicate the impact external shocks may exert on current account balances. Clearly, while both imports and exports are increasing over time, the path followed by import is relatively steady where as export is cyclical. Consequently, the trade balance follows export earnings and commodity price changes which in turn seem to be affected by major global economic developments. For instance, in the figure, the onset of the trade deficits in 1997-98 and 2001 seem to follow the financial crisis in East Asia and economic recession in USA, respectively.

Whether the current pattern of specialization could be tolerated with respect to transformation in production structure and exports may depend on how the level of domestic investment and saving are evolving over time. Indeed, rapid accumulation from the proceeds of economic growth could serve the way for transformation. Support for trade liberalsation has also been mustered with the presumption that growth and transformation are the natural outcome of economic efficiency for which freer trade is consistent with. In any case, structural transformation has to depend on the behavior of domestic savings and investment. This is shown in Figure 2.6 below. As the figure shows, there is a tendency for the domestic saving rate to increase. But, the accumulation of capital has been somehow stable at 19 percent of GDP. Whether structural transformation ay emerge from such marginal changes is hard to expect.

Figure 2.6: Recent Trend in domestic saving and investment in SSA (% of GDP)



Source: World Bank, African Development Indicators 2010 Data Base CD-ROM, and own compilation.

Summing up, growth has revived throughout large parts of the Sub-Saharan Africa region during the past decade or so. However, there are several concerns. Instead of diversifying away from the production of primary commodities, SSA's dependence has been deepened. This renders sustainability of the recent growth fragile. Although economic growth in China and India, the main drivers of global demand for commodities, is expected to continue in the foreseeable future, their growth pattern may shift to less resource consuming type. Thus, with increasing concentration of exports in few primary commodities both internal and external balances remain vulnerable. Diversifying away from primary commodity production may be needed. In that, the trend for domestic investment in the region is low and stable at around 19%. Hence, there could be an imminent risk for growth and poverty reduction to slow down in the future.

2.2. Trade Liberalisation in Sub-Saharan Africa Region

Since independence, the first round of trade policies in SSA were highly protective reflecting the IS industrialisation strategy that was virtually across the region. But, the strategy did not survive through the 1980s as the region was engulfed by a large scale economic crisis. Sharp decline in economic growth rate and debt servicing difficulties with negative external economic shocks and rigidities in internal economic structures have made reforms that came through external assistances unavoidable. Thus, WB and IMF initiated and introduced market oriented policy reforms within the context of conditionalities attached to the much needed bailout money they gave since the 1980s.

Fundamental aspects of the conditinalities attached were currency devaluation and trade liberalization. The abatement of the economic crisis at the time and resumption of economic growth was premised after the implementation of these reforms. Consequently, a key aspect of trade policy in the region since the 1980s was unilateral trade liberalisation that has appears to continue.

In the early 1980s, SSA was considered the least open region in the world. According to Coulier and Gunning (1999), on Sachs and Warner indicator, almost all of the region's economies were closed by then as opposed to 37 percent of developing countries elsewhere. Besides, the protection imposed was generally high and complex that its liberalisation has to be undertaken in steps. The first step, therefore, involved the gradual lifting of non tariff barriers and converting them into tariff equivalents through a process called tariffication. Hence, the liberalization involved the abolition of quantitative restrictions first and reductions in tariff rates proceeded then. In effect, the early process has made the whole Africa a place where non-tariff barriers are least used in the entire world while the later process is still going on, and appears to influence production incentives (UNCTAD, 2008). It is this later process which may be more important to current poverty trends in the region.

Table 2.1: Reduction in Simple Average MFN Applied Tariff Rates in some Sub-Saharan Africa countries, 1996 – 2008 (Unweighted in %)

Country Name	1996[10]	2008	Percentage Change
Benin	13.1	13.3	1.53
Burkina Faso	32.2	11.5	-64.29
Burundi	29.5*	12.8	-56.61
Comoros	38.9*	11.3	-70.95
Congo DR	17.6	12.8	-27.27
Ethiopia	24.3*	18.18	-25.19
Gambia	13.5	18.7	38.52
Ghana	14.5	13	-10.34
Guinea	14.3	13.9	-2.8
Guinea-Bissau	27.8	12.9	-53.6
Kenya	13.5	12.1	-10.37
Madagascar	7.6	12.1	59.21
Malawi	25.5	12.1	-52.55
Mali	15.2	12.9	-15.13
Mauritania	19*	11.9	-37.37
Mozambique	15.6	10.8	-30.77
Niger	18.3	13	-28.96
Rwanda	35*	18.6	-46.86
Senegal	12.3	13.4	8.94
Tanzania	24.4	11.7	-52.05
Togo	15.3	13.1	-14.38
Uganda	12.8	12	-6.25
Zambia	14.7	10.8	-26.53
Zimbabwe	40.6	20	-50.74
Angola	19*	7.4	-61.05
Botswana	11.1	8	-27.93
Cameroon	18.1	17.9	-1.1
Cape Verde	24.1	15.3	-36.51
Cote d'Ivoire	18.5	13.2	-28.65
Gabon	20.4	18.6	-8.82
Lesotho	11.4*	9.2	-19.3
Mauritius	33.6	4.2	-87.5
Namibia	24.4	6.3	-74.18
Nigeria	23	10.7	-53.48
South Africa	15	7.7	-48.67
Sudan	5	14.3	186
Total Simple Average	19.975	12.66	-36.63

Source: Own computation based on World Bank staff calculations.[11]

[10] * Denote that the Figures taken are 1997 figures.

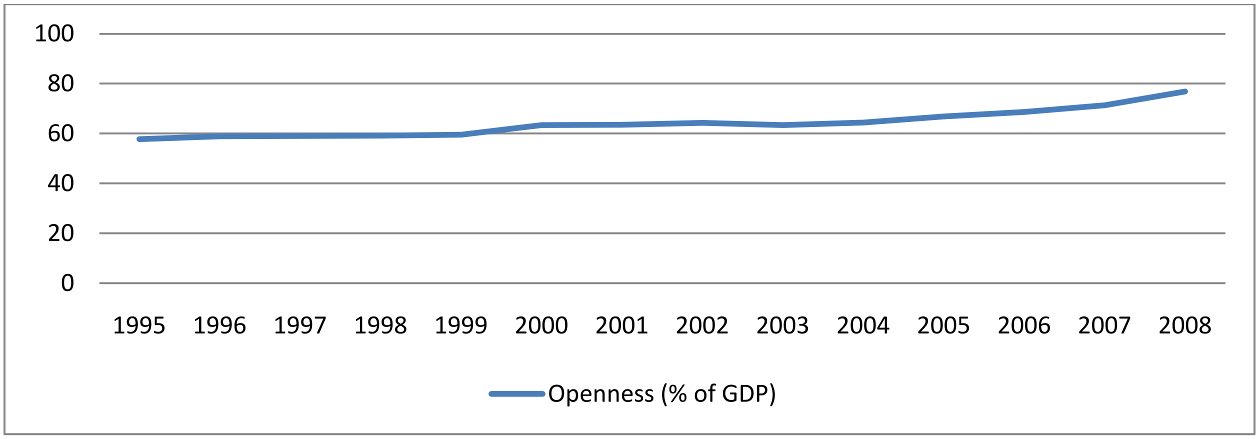
[11] All tariff rates are based on unweighted averages for all goods in ad valorem rates, or applied rates, or MFN rates whichever data are available in a longer period. The data is available at http://siteresources.worldbank.org/INTRANETTRADE/Resources/tar2009.xls.

This reduction in average applied tariff rates has reduced the number of countries with an average applied tariff rate of 15 per cent or more from 26 countries in 1996 to just 3 in 2008. Besides, no one country has tariff rate more than 20 percent in 2008. Of the countries which have reduced their tariff rates, 11 of them have cut their tariff rates by more than 50 percent. These include Mauritius by 87.50 percent; Namibia by 74.18 percent; Comoros by 70.95 percent; Burkina Faso by 64.29 percent; Angola by 61.05 percent; Burundi by 56.61 percent; Guinea-Bissau by 53.6 percent; Nigeria by 53.48 percent; Malawi by 52.55 percent; Tanzania by 52.05 percent and Zimbabwe by 50.74 percent. Mean while, the reduction in tariff rates was below 10 percent for only 4 countries of the 31 countries which cut their tariff protection.

Of the 5 countries which have increased their tariff rates only Gambia has a tariff rate larger than 15 percent. In fact, the tariff rates for the other three also remain close to the region's simple average rate. In terms of percentage changes, the increase by Sudan represents the largest increase. However, its current rate is only less than 2 percentage points higher than the regional average. In general, among the 36 countries, not a single country has simple average applied tariff rates above 20 percent level, only 6 have above 15 percent, and 5 countries have less than 10 percent. Thus, the average applied tariff rate of the remaining 25 countries should be falling between 10 and 15 percents.

One of the anticipated effects of these measures is to increase the relative share of tradeables production, as the absolute price of importables decreases while that of exportables increases. This is shown by Figure 2.7 below. The volume of international trade in the region has increased from a higher level already. From slightly below 60 percent, it is now closing to 80 percent of the regions GDP. This is accounted for by increases in both exports and imports. Much of the increase in export revenues also seems to be due to improved prices than volumes that the influence of the policy measures is not much. This, in turn seems to come mainly from growth in major developing countries such as India and China. The significance of these factors is that the recent increases may reflect long term structural factors rather than the effect of the policy shifts. Indeed, it is symptomatic of structural rigidities that may relate to the type of goods Africa specializes in production.

Figure 2.7: Recent trends in trade openness in Sub-Saharan Africa region



Source: World Bank, African Development Indicators 2010 Data Base CD-ROM, and own compilation.

The figure also shows that sub-Saharan African countries have been open for international trade from the beginning. Notwithstanding the increase observed over time, international trade accounts for more than 60% of the region's GDP from the outset. As it stands in 2008, this has gone to 77% of the regional GDP. If not more, thus, Africa trade's as much as other regions do. Thus, it seems to be incongruous to attribute Africa's past economic woes to its relative closeness to international trade. Consequently, Rodrick (2006) argued that the problem in Africa is not that it does not trade with the outside world. But, it is marginalized because it failed to maintain its relative economic size in a world of growing economies. In that, trade liberalisation may not be an important factor. Rather, he argues that the way to reverse Africa's economic problems may not be to target trade volumes per se, or improve the conditions that this may be brought about but to grow.

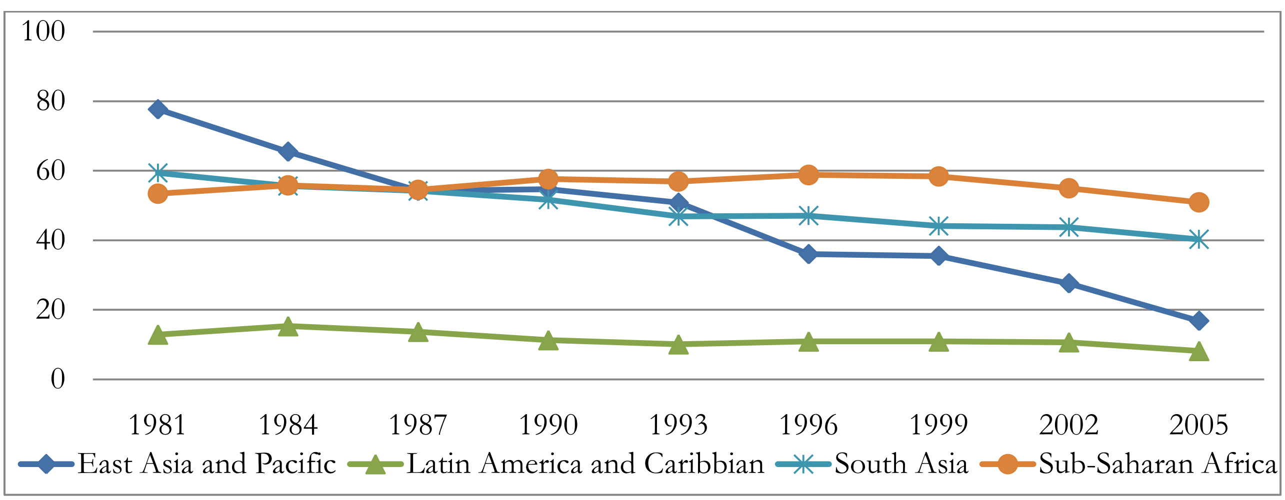
Summing up, countries in SSA continue to liberalise trade with the exception of few reversals, albeit from lower levels of protection. Trade intensity of most countries has also increased. In addition, economies in the region have experienced improvements in their growth performance. However, in conjunction with the previous section it can be seen that the structural weaknesses of the region has been deepening and the increase in trade openness may have less to do with the trade liberalisation measures undertaken by the region's economies than economic boom in other parts of the world. Hence, so far, it remains unclear whether the contemporaneous coincidence between trade liberalisation and rapid growth in the region is anything real. But, clearing up the issue is important to understand the poverty impact of trade liberalisation. The need remains for empirical analysis to resolve the confusion. The next section will briefly account for poverty in the region.

2.3. Recent Trend of poverty in Sub-Saharan Africa Region

In contrast to other parts of the world which enjoyed unprecedented prosperity, SSA entered the 21st century with daunting challenges of poverty and underdevelopment. Globally, 31 of the 49 least developed countries and 34 of the 41 heavily indebted poor countries are in SSA (UNCTAD, 2008). Thus, absolute poverty is also endemic in the region.[12] Recently, it is documented by UN-MDG Report (2009) that $1.25 a day poverty rate in the region oscillates between 58 percent and 51 percent through 1990 - 2005. This was despite numerous policy measures since independence that were introduced to eradicate poverty and improve living standards.

However, poverty rate in other poor countries has been steadily declining in the past 3 decades. Between 1990 and 2005, it has declined by more than 40 percent globally. Thus, SSA's contribution in this had only been meager. Rather, countries in East Asia and pacific region have the biggest contribution to the reduction as the figure there fall from 54.7 percent in 1990 to 16.8 percent in 2005. Another commendable contribution is due to South Eastern Asia where the fall has been from 51.7 percent in 1990 to 40.3 percent in 2005. But, the fall in SSA has been from 57.6 percent in 1990 to 50.9 percent in 2005. Looking back to the 1980s, being the poorest was not even SSA's lead. However, the region took over the infamous lead due to mostly its lag in terms of economic growth. The $1.25 dollars a day poverty trend in developing regions is shown by Figure 2.8 below.

Figure 2.8: Poverty headcount ratio at $1.25 a day (PPP), by region (1981-2005)

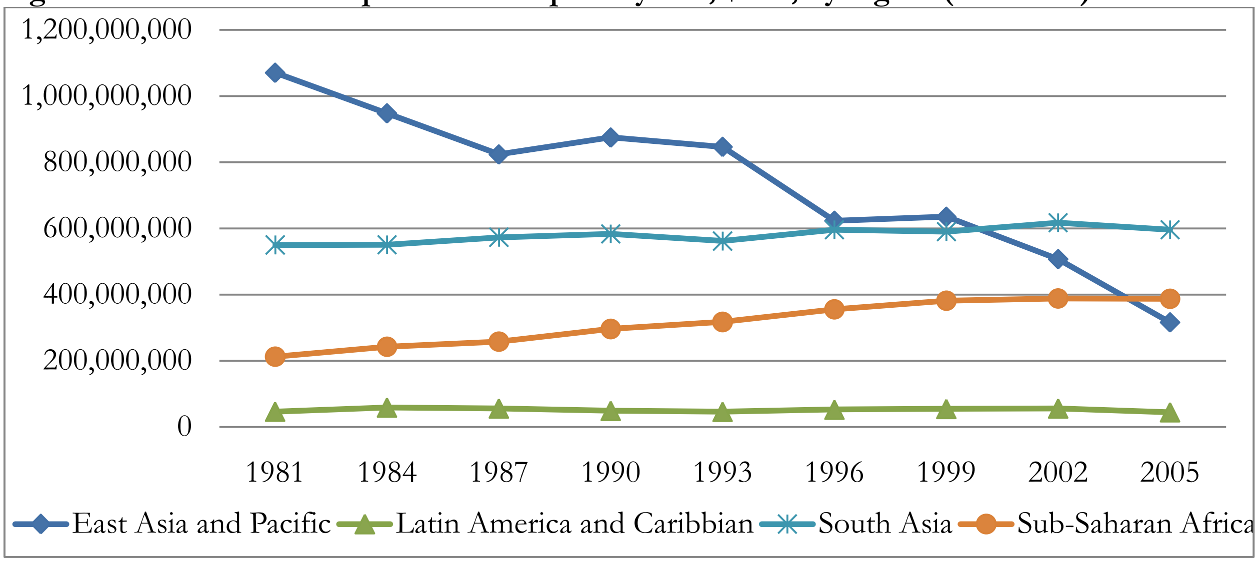


Source: UN-WIIDER (2010), and own compilation.

[12] This is when the available income is too small to barely survive.

Moreover, not only is the largest poverty incidence in Sub-Saharan Africa, but it also has seen the largest increase in the absolute number of poor people. Thus, the number of absolutely poor people has reached to close to 400 million in 2005 from a little over 200 million in 1981. Only South Asia has seen increases but only comparatively very small. This is shown by figure 2.9 below.

Figure 2.9: Number of People below the poverty line, $1.25, by region (1981-2005)



Source: UN WIIDER, and own compilation.

Together with section 2.1, this makes that poverty reduction experiences are closely related to economic growth experiences. Thus, rapid growth rates in per capita incomes of other parts of the world have been followed by large declines in poverty. On the other hand, SSA's economic growth was too slow to reduce poverty to the same extent. Instead, with high population growth rate, it had translated into increases in the absolute number of poor people living in the region. Besides, neither do the future task look easier. As it stands in 2005, the depth of poverty in the region is more than twice as high as in the whole developing countries or even Southern Asia, which is next on the line. This is shown by Table 2.2 below.

Table 2.2: Poverty gap ratio at $1.25 a day since 1990, by regions

Regions	1990	1999	2005
Sub-Saharan Africa	26	26	21
Southern Asia	14	11	10
South Eastern Asia	11	10	4
Developing regions	14	11	8

Source: UN-MDG Report, 2009

As the dismal poverty picture in SSA may thus reflect the weak economic growth in the past, recent growth resurgence has relatively brightened Africa's future poverty picture, vis-à-vis its own past. But, regional generalization could also obscure individual variations across countries. Table 2.3 shows the trend of poverty in some countries of the region where at least two observations of poverty incidence have been found from the 2010 MDGs database.

Table 2.3: $1.25 a Day Poverty Reduction in some Sub-Saharan Africa Countries

Country Name	Poverty incidence (%) First observation	Poverty Incidence (%) Second Observation	Change in Poverty Incidence Over the Period (%)	Percentage Change in Poverty	Annual Change at constant rate
Burkina Faso	71.2(1994)	56.5(2003)	-15.6	-20.6461	-2.53674
Burundi	84.2(1992)	81.3(2006)	-2.9	-3.44418	-0.25004
Cameroon	51.5(1996)	32.8(2001)	-18.7	-36.3107	-8.62796
Central African Republic	82.8(1993)	62.4(2003)	-20.4	-24.6377	-2.789
Cote d'Ivoire	17.8(1993)	23.3(2002)	5.5	30.89888	3.036923
Djibouti	4.8(1996)	18.8(2002)	14	291.6667	25.55079
Ethiopia	60.5(1995)	39(2005)	-21.5	-35.5372	-4.29582
Gambia	66.7(1998)	34.3(2003)	-32.4	-48.5757	-12.4545
Ghana	51.1(1992)	30(2005)	-21.1	-41.2916	-4.01404
Guinea	92.6(1991)	70.1(2003)	-22.5	-24.2981	-2.29302
Guinea-Bissau	41.3(1991)	48.8(2002)	7.5	18.15981	1.528545
Kenya	38.4(1992)	19.7(2005)	-18.7	-48.6979	-5.00457
Lesotho	56.4(1993)	43.4(2003)	-13	-23.0496	-2.58607
Madagascar	72.5(1993)	67.8(2005)	-7.7	-6.48276	-0.55698
Malawi	83.1(1998)	73.9(2004)	-9.2	-10.1083	-1.7604
Mali	86.1(1994)	51.4(2006)	-34.7	-40.302	-4.20783
Mauritania	42.8(1993)	21.2(2000)	-21.6	-50.4673	-9.54905
Mozambique	81.3(1997)	74.7(2003)	-6.6	-8.11808	-1.40119
Nigeria	49.2(1993)	64.4(2004)	15.2	30.89431	2.477651
Senegal	65.8(1991)	33.5(2005)	-32.3	-49.0881	-4.70755
Sierra Leone	62.8(1990)	53.4(2003)	-9.4	-14.9682	-1.23952
South Africa	24.3(1993)	26.2(2000)	1.9	7.81893	1.081276
Swaziland	78.6(1995)	62.9(2001)	-15.7	-19.9746	-3.64564
Uganda	70(1992)	51.5(2005)	-18.5	-26.4286	-2.33322
Tanzania	72.6 (1992)	88.5 (2000)	15.9	21.9009	2.5066
Zambia	62.8(1991)	64.3(2004)	1.5	2.388535	0.181738

Source: own compilation based on data from the Millennium Development Goals report of 2010.

Out of the 26 countries above, 19 of them has experienced poverty reduction ranging from 3.4 percent in Burundi within 14 years to 50.47 percent in Mauritania over a period of 7 years and 49.01 percent in Senegal within almost the same period of 14 years as Burundi. The poverty reduction in Senegal was steady whereas Burundi has experienced increases before reduction. But, in Mauritania, the poverty reduction in the first three years between 1993 and 1996 was very fast relative to the next four years period up to 2000. Hence, Mauritania has the highest and fastest rate of poverty reduction with in a relatively short period of time where as the smallest rate of poverty reduction has been observed in Burundi, albeit with increases in between.

In addition, the table also shows that out of the 26 countries 7 of them have witnessed increased rate of poverty. Although starting form a low level of poverty incidence, the increase in the rate of poverty has been significantly high in Djibouti. It has increased by 291.67 percents within just 6 years. Other countries with a notably high increase in poverty incidence have been Cote D'Ivoire, Nigeria and United Republic of Tanzania, where poverty has increased by more than 20 percents.

Overall, the un-weighted average compounded rate of poverty reduction for the 26 countries listed in the table above has been 1.46 percents with a standard deviation of 6.62. Given such trend of poverty reduction, it will take more than 47 years to half poverty in the region. This is almost twice as long as the duration stipulated under the MDGs plan. When Djibouti with a relatively low population but a significant increase in poverty rate is excluded, however, the average compounded rate of poverty reduction will be 2.54 percents per annum. With this rate of poverty reduction, the number of years required to half the rate of poverty will be close to 27 years.

Although it is not weighted by population for the countries considered, the result suggests that it is unlikely for the region as a whole to attain the number one target of millennium development goal, which is reducing the rate of income poverty by half. This situation underscores the need for accelerated growth with more equitable distribution of the benefits from it. Besides, Africa's success in the future depends on the depth of poverty as well. In that respect, although there are some places where poverty has actually deepened, it has declined in many places. Significant improvements have been observed in Burkina Faso, Cameroon, Central African Republic, Ethiopia, Gambia, Ghana, Guinea, Kenya, Mali, Senegal and Sierra Leone. Nevertheless, it deepened significantly in Cote d'Ivoire, Djibouti and Tanzania. This is shown in Table 2.4 below.

Table 2.4: Change in poverty gap in Sub-Saharan Africa countries since 1990

Country	First observation	Second observation	Percentage Change	Annual change at constant rate
Burkina Faso	34.72(1994)	20.27(2003)	-41.6187	-5.80444
Burundi	40.02(1992)	36.39(2006)	-9.07046	-0.67688
Cameroon	18.87(1996)	10.17(2001)	-46.1049	-11.629
Central African Republic	56.96(1993)	28.3(2003)	-50.316	-6.75584
Cote d'Ivoire	4.03(1993)	6.82(2002)	69.23077	6.019705
Djibouti	1.57(1996)	5.29(2002)	236.9427	22.44076
Ethiopia	21.23(1995)	9.6(2005)	-54.781	-7.62975
Gambia, The	34.7(1998)	12.05(2003)	-65.2738	-19.0659
Ghana	18.34(1992)	10.49(2006)	-42.8026	-3.91187
Guinea	63.34(1991)	32.24(2003)	-49.1001	-5.47216
Guinea-Bissau	21.7(1991)	16.52(2002)	-23.871	-2.44897
Kenya	15.35(1992)	6.1(2005)	-60.2606	-6.85257
Lesotho	30.15(1993)	20.76(2003)	-31.1443	-3.6628
Madagascar	34.8(1993)	26.52(2005)	-23.7931	-2.23888
Malawi	45.96(1998)	32.31(2001)	-29.6997	-11.0828
Mali	53.09(1994)	18.79(2006)	-64.6073	-8.29152
Mozambique	41.97(1997)	35.4(2003)	-15.654	-2.79751
Niger	29.66(1992)	28.08(2005)	-5.32704	-0.42021
Nigeria	22.89(1993)	29.57(2004)	29.18305	2.355125
Senegal	34.32(1991)	10.8(2005)	-68.5315	-7.92663
Sierra Leone	44.81(1990)	20.3(2003)	-54.6976	-5.90907
South Africa	6.92(1993)	8.18(2000)	18.20809	2.418444
Swaziland	47.74(1995)	29.38(2001)	-38.4583	-7.77226
Tanzania	29.68(1992)	46.84(2000)	57.81671	5.869076
Uganda	30.33(1992)	19.11(2005)	-36.9931	-3.49089
Zambia	40.23(1991)	32.76(2004)	-18.5682	-1.56762

Source: Own computation based on data from World Bank poverty data base.

In conclusion, it was seen that SSA has maintained robust economic growth in the last decade or so. Though this is an encouraging trend, its poverty reduction impact for most of the earlier part of the decade for which we have data has been meager. Nevertheless, it does not contravene with the view that lack of good growth performance is a major factor behind the lack of poverty reduction in SSA. Rather, there seems to be inadequacy of growth rates to meet MDGs. On the other hand, existence of high level of poverty in middle income countries like Botswana and Namibia may also signify the importance of inequality in explaining slow rate of poverty reduction in the region. That is, growth may not be the sole solution to SSA's poverty. In addition, the region did not succeed much in denting the depth of poverty such that reducing poverty could be easier in the future. Despite that, the region's economies continue to reduce their level of trade protection. This is already exerting an influence on production incentives and structure. Overall, its implication for poverty reduction remains to be dealt with empirically.

CHAPTER THREE

3. REVIEW OF LITERATURE

3.1. Theoretical Literature

Underdevelopment of the Sub-Saharan Africa has kept almost the entire region in a quagmire of poverty. Interest in the determinants of this often ignites debate on the nexus between trade and development. Therefore, international trade policy has always been controversial. Nevertheless, its effect on economic performance and other factors affecting poverty is well appreciated in both theories and empirics.[13] Broadly speaking, the controversies surrounding IS and EP remain to be important. The strong linkage between trade policy and development-cum-industrialisation strategy is mainly emphasised in IS policies. Most importantly, measures which are part of IS are inconsistent with free trade. In contrast, trade liberalisation is necessary to achieve EP which relies on neutrality in production for domestic versus export purposes (Krueger, 1998).

Support for one or the other is founded on some principles or traditions in economic theory. It is important to explore the theoretical underpinnings of international trade relations within the perspective of the two to enhance knowledge of the effect trade policy may have on poverty and development in Africa. The conventional wisdom in this is mainly founded within the theory of comparative advantage that claims the superiority of freer trade in terms of economic performance. Particularly, comparative advantage consistent policies are said to invariably benefit all trading countries. Interestingly, this seems to be increasing with the countries involved being more heterogeneous in terms of their relative resource endowment and perhaps level of development too.

Consequently, trade barriers are considered as inefficient interferences into otherwise efficiently functioning autonomous markets. Besides inefficient allocation of resources, they are also blamed for limiting competitive pressure in domestic markets; reducing exported gains from exploiting economies of scale, obstructing access to greater product and input variety, reducing technical progress and increase rent seeking activities. Thus, while avoiding such problems, trade liberalisation creates additional wealth which could help in reducing poverty. Moreover, it invalidates IS policies underscoring that the only natural path to structural transformation is investment in the medium to long term which essentially should be driven by productivity gains subsequent on freer trade.

[13] This is mostly proxied by indicators such as openness and tariff rates on imports.

In relation to poverty, perhaps, it is not only income growth that trade libralisation is good for. But, as opposed to trade-restricting policies that alter relative prices in favour of capital-intensive activities, trade liberalisation expands labour-intensive activities providing employment and income for large numbers of poor people causing more equitable distribution of income (Dornbusch, 1992). Thus, trade liberalisation in developing countries is said to reduce poverty in those two ways.

However, opponents of free trade stress the importance of the level of industrial development of a country before liberalising trade. In their view, dynamic and sustainable growth under freer trade depends on competitiveness in industrial production. Despite its static efficiency gains that come from better resource allocation, trade liberalisation may, however, adversely affect the speed by which developing countries industrialise and grow. Support here could be drawn from the Prebisch-Singler hypothesis, state led big push theories and other similar thinking, as they forcibly argue that developing countries should foster industrialization before they liberalise their trade lest their development is hampered.

Generally, they claim that under the prevailing structure of static comparative advantage, the specialization patterns resulting from free trade slows down industrialization and growth in developing countries. This may occur because factors including long term deterioration of terms of trade and volatility of export demand tend to slow growth in developing countries (see Prebisch and Singler). In addition, this could be compounded by the tendency for the current form of specialization to reinforce itself in future specializations (Chang, 2002). Furthermore, recent growth theories have shown the possibility of slow growth in developing countries due to trade libralisation.

These issues are serious in that they may work as a development trap to contribute to the persistence of poverty. However, trade protection measures may work to break such impasse on poverty reduction by allowing for production structure to change. Such were the influential theoretical constructs in the 1950s and 1960s that the typical development policy practiced in many developing countries then had elements that defy static comparative advantage.

Nonetheless, it is almost a tautology to say that some trade is always good. Yet, the controversies above suggests, the difficult task of determining the appropriate level and mix of trade openness. Examples abound. The historical account of SSA's economic performance is one that is discussed in the background to this study. Although cross country findings are leant towards the goodness of freer trade, its effect could vary across countries. In this, specific initial conditions of economy's including their nature, bottlenecks and transmission mechanisms may matter. Therefore, as argued by Yannikaya (2003), not all countries may gain and there could be losers in trade liberalisation.

Before review of the empirical findings, the nexus between trade liberlaisation, economic growth and inequality, and hence poverty is theoretically discussed. As it will be seen, the theoretical discussion does not have unambiguous implications. Therefore, the empirical literature is then examined. These are presented in subsequent sections. Yet, the definition of relevant concepts and framework of the study precedes both.

3.1.1. Definition of Terms, Concepts and the Theoretical Frame Work

The linkage between trade liberalisation and poverty is complex. While poverty is a multifaceted problem caused by many complex factors, trade may only be one and perhaps mostly an indirect factor. Empirical studies, therefore, try to investigate the nexus between trade and poverty indirectly through an examination the potential channels of transmission. But, before discussing the nexus between poverty and trade liberalisation, providing definition and measurement of the concepts trade liberalisation and poverty stands is very useful. While starting with the discussion of the meaning and measurement of the terms poverty and trade liberalisation on operational basis, this section will thus discuss the possible channels through which trade liberalisation affects poverty.

Starting with poverty, it is often noted that poverty is a complex and multidimensional phenomenon with considerable controversy in the literature it should be defined and measured (Agenor, 2005). One can thus confront a range of definitions with influences emanating from various disciplinary and ideological sources. This availability of many definitions of poverty and its measures makes the spatial and temporal comparison of poverty difficult. In general, however, poverty can be referred to a state of lack of command over basic consumption needs or a situation of inadequate level of consumption that gives rise to insufficient food, clothing, shelter etc (World Bank, 2000). The broader it is defined, the more difficult it is to make it operational in terms of identifying the poor, measuring poverty and making cross country comparisons. For instance, more and more holistic approaches try to complement this definition by trying to account for the social and political deprivations or even the feelings the poor may suffer.

Following the definition, the poor can be identified as those who do not have enough income or consumption to put them above some adequate threshold level that commands necessities. This is the most conventional measure of poverty and uses the 'poverty line' as the threshold income for identifying the poor.[14] There are three measures of poverty which uses poverty line for identification of the poor; poverty incidence, which measures the percentage of the population with income levels below the poverty line; poverty gap, which measures the proportion of a typical poor's income in relation to the poverty line; and a measure of the severity of poverty, which is measured in a way that gives more emphasis to the poorest amongst the poor. In general, these measures are called absolute measures of poverty by their use of the poverty line. Among these, the most commonly used measure is poverty incidence which takes the percentage of population below the poverty line (see World Bank, 2005; Lipton and Ravallion, 1993; Kanbur, 2004; Grusky and Kanbur, 2006).

Absolute measures of poverty are referred to as one-dimensional since they focus on lack of command over economic resources. In such cases, the income of the poor must grow in order for the poor to cross the poverty line. Essentially, an individual above such threshold level of income is considered to have the purchasing power to acquire the bundle yielding minimally adequate level of well-being. Underlining this and the nature of related data available, the study will consider average income of people in the lowest quintile of the income distribution across countries in SSA.[15]

Trade liberalisation, on the other hand, refers to the relaxation or complete removal of barriers to trade across borders. It represents a move towards free trade in which production incentives are neutral for both exports and imports. It may also be considered as the absence of protection that restricts trade or otherwise change domestic relative prices against the international one. Consistently, it may account for measures which bring about convergence of domestic prices towards international ones and consequently change the flow of trade. It might be undertaken unilaterally or through bilateral, regional and multilateral negotiations. Again, due to operational reasons this study considers only unilateral trade liberalisations.

[14] According to UNCTAD (2002) and World Bank (2005), poverty line represents the monetary value necessary to achieve a level of consumption that is regarded as minimally adequate. It includes both purchased goods and the imputed value of consumption from the household's own production.

[15] Specifically, the average income of people in the lowest quintile of the income distribution will be used as a proxy measure for the average income of the poor.

Notwithstanding the definitions, however, the actual measurement of trade liberalisation is still an arduous undertaking for the following reasons. First, both protection and its relaxation or removal is likely to be applied in varying degrees among sectors and products of an economy. Secondly, trade liberalisation entails dismantling quantitative and qualitative barriers to trade, such as non-objective tools that are very difficult to verify. Third, measurement of the overall degree of liberalisation is complicated by the difficulty to effectively know how the stated liberalisation is implemented. Fourth, although many studies use a country's openness as measured by the ratios exports, imports or the sum of the two to GDP or GNP as a proxy for trade liberalisation, these are not necessarily closely related to the presence or absence of protection but also by the size of the country as well as the structure of its exports. As a result, one can hardly find a widely used overall indicator of trade liberalisation that would permit unambiguous ranking of countries in terms of liberalisation or protection (Rivera-Batiz and Olive, 2003; Winters et.al, 2004). Rather, in many empirical studies, the two measures are interchangeably used. This study uses both trade intensity and average applied tariff with emphasis on the later since it relates more to trade policy.

Given the definitions and measurements of the concepts, the issue remains how trade liberalisation is related to poverty. It is difficult to establish a direct simple relationship between the two. As Winters et.al (2004) remarks 'historical instances in which trade liberalisation has been observed as the main economic shock are very rare.' Besides, for both variables, there is not enough and comparable data across countries to establish a direct systematic relationship between trade liberalisation and poverty. An alternative is to start with the identification of the possible channels of interaction and proceed with the examination of each channel. Hence, a very useful framework to start with is technically decomposing income poverty to a combination of lowness of average incomes and skewness in distribution. Obviously, poverty depends positively on the level of income and negatively on the level of inequality. Both channels are examined in this study with a general emphasis on income growth.

This approach is supported by many economists including, Addison and Bingsten (2003) and Bourguignon (2004) who argue that in order for poverty to decrease countries should either achieve faster economic growth, or redistribute income in favor of people at the lower strata of the income distribution, or design policies that ensure growth of income of the poor. As a starting point, we note theories which claims that open trade affects both income growth and its distribution favourably. However, this is in no way the only view in the literature. Perhaps, it may be important to see conditional effects on country characteristics and inter-temporal variation to the effects produced by trade liberalistion.

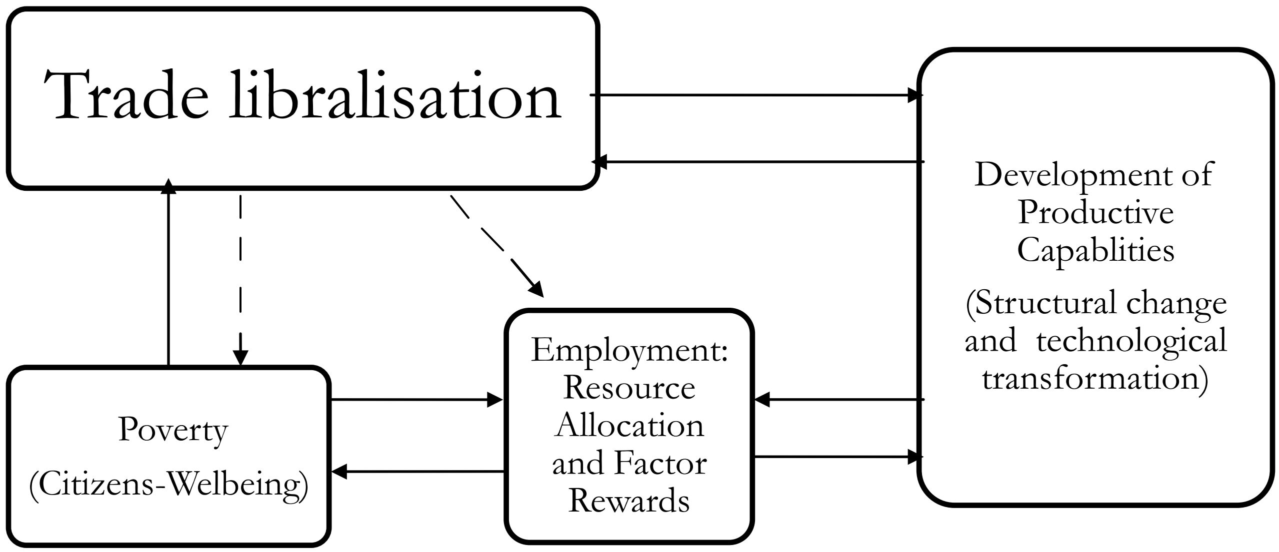
Indeed, while liberalising trade can influence both the distribution of income and growth over time, there are static and dynamic elements mainly to the later (see Bhagwati and Srinivasan, 2002; Devarajan, 2002).[16] This distinction is one of the main reasons for the ongoing dispute. In that, the income growth effect of trade liberalisation may depend on time. Regarding the static gains, specialization in production due to liberalisation introduces a onetime increase in productivity. However, the long-run dynamics of the resulting specialisation induces an indirect but fundamental effect on poverty –productivity improvement that could go anyway. As it does so, there is strong debate. Specifically, while the static improvements in productivity are possible for all countries, the long term productivity improvement depends on accumulation of factors (physical and human capital), the particular type of subsequent factors accumulated and technical advances which all may in turn could be affected by the pattern of specialisation. Essentially, although the static effects are still worth something, the dynamic effects may matter most.

But, poverty is also dependent on the distribution of income, which the specialisation effect of trade liberalisation can alter. Specially, it can lead to relative price changes that affect the incentives to trade and factor allocation on alternative productions. By virtue of factor intensity differences in alternative production, various factor markets will receive differential effects on demand. Thus, the distribution of income could change, as does the relative returns to factors of production. But, in this, the distinction of dynamic and static effects does not seem to be much relevant. So, such effects are direct.

However, it is important to note that trade liberalisation may also affect economic performance through its spillover on macroeconomic stability and institutional quality of a nation. Although all these are relevant to understand the poverty impact of trade liberalisation, most of them could also directly affect long term growth of an economy. Therefore, the scheme below is adopted from UNCTAD (2004) to present the nexus between trade liberalisation and poverty.

[16] As opposed to static effects, dynamic effects refer to effects which persist over an extended period.

Scheme 1. The Relationship Between Trade Liberalisation And Poverty.



Source; modified from UNCTAD/LDC/2004

The above scheme reflects resource allocation and factor reward impacts of trade liberalisation through change in relative prices of exportables or imporatbles. The resulting change in the market for various factors of production can influence the distribution of income. Moreover, reallocation of production factors produces a onetime efficiency gain in production. The two are almost first round gains or effects and are indicated by the dashed arrows. However, there are also second round effects where most of the debate seems to emerge from. These pertain to dynamic development links between trade and poverty through the development and utilization of productive capacity; ability and capacity to accumulate factors of production and technology. They are also characterized by structural transformation and sustainable growth. The heavy arrows indicate those links.

Whilst the static links are important for short-term poverty alleviation, the dynamic links could be most important for lasting poverty reduction. Especially, from the perspective of developing countries, there may be a possible trade off between short-run and long-run growth and hence poverty reduction. Therefore, below the partial effects on distribution as well as economic growth of trade liberalisation are separately discussed.

3.1.2. Trade Liberalisation, Income Inequality and poverty in Developing Countries

One of the most important insights in trade theory is that changes in a country's trade policy can affect the distribution of income within the country. This may stem from the fact that an individual's income depends on his or her endowment of productive factor resources and an array of factor prices.[17] Hence, given an endowment of factors of production and full employment, both before and after liberalisation, the income of an individual is affected by trade liberalisation through changes in factor prices. Neo-Classical economics asserts that such change is favorable for poverty reduction in developing countries. Despite some strong assumptions, the result rests on some compelling premises that either given labor and capital the poor is relatively more endowed with labor or that from among skilled and unskilled workers most of the poor workers constitute the unskilled ones.

Trade liberalisation may redirect resource employment in production and trade in accordance with comparative advantage. Thus, increased opportunity for sectors that are able to export and increased competition for importing sectors due to availability of less expensive and different goods through imports produces redistributive effect in resources and income. While exporting sectors gain, imports compete with local production and this new competitive pressure may hurt local producers of the goods. Besides, the necessary reallocation of factor resources will produce differential impact on demand for various factors of production. Thus, the real rewards for labor versus capital or skilled versus unskilled workers will be affected (World Trade Report, 2008).

Notwithstanding these differential impacts in terms of rewards to factor of production and individuals, the motive to international trade is the mutual gains from it. According to the basic principle in free trade theory to which trade liberalisation is a core component, it is more efficient for a country to produce the goods for which it has the least relative cost of production or relative price due to supply conditions of human resources, natural and physical capital in comparison to its trading partners. Such trade gives rise to derived gains from specialised production in the area of comparative advantage. This principle was first developed by David Ricardo. Though Ricardo's theory implies differential gains for export and import competing sectors, his formulation entirely

[17] This follows the neo-classical theory of functional distribution of income.

abstracts from distributional consequences of trade liberalisation. This lack of distributional implications of trade liberalisation has been brought about by his use of labor theory of value.[18]

In contrast, the H-O Theorem is the foundation for the standard argument in international trade theory regarding the distributional consequences of freer trade.[19] While maintaining the comparative advantage principle, the theorem extends Ricardo's model to two production factors: capital and labor.[20] Due to factor intensity difference in production among different goods, a country has comparative advantage in the production of the good which intensively uses the factor of production that is relatively more abundant and hence cheaper.[21] In other words, pre-trade relative prices will be such that in a relatively labor abundant country the opportunity cost of producing the good intensively using the abundant factor will be smaller and the vice verse.[22] According to the H-O Theorem, therefore, a liberalising economy will be impelled to specialise in the production of the good of such comparative advantage. The distributional effects of opening up to trade are then addressed by the S-S Theorem.

Following H-O Theorem, the S-S Theorem predicts that free trade equalises factor prices among trading countries. At the heart of this explanation is the existence of proportionality between prices of goods and prices of factors. Specifically, trade liberalisation causes expansion of some sectors and contraction of others in accordance with comparative advantage. Meanwhile, resources are transferred from the shrinking import competing sector to the expanding exporting sector. Consequently, factor intensity will change in all productions because the release of factors of production from the import competing sector will be at different proportions than what the expanding export sector used to absorb.

Such change will be opposite to the relative factor endowment of the liberalising economy. In developing countries, for example, capital intensity will increase and so will the productivity of the

[18] According to this theory labor is the only measure of value.

[19] The theorem is useful in explaining trade between countries with different factor endowment. As example would be the significant bilateral trade between Europe SSA.

[20] In principle, it is possible to extend the Ricardian model into an 'n' factor model with the same implications about specialization and factor rewards. Indeed, Ethier (1974) and Jones and Scheinkman (1977) highlighted the central prediction of the theorem which survives such relaxations: with many goods and factors a tariff change will always raise the real return of at least one factor and lower the real return of at least one other factor.

[21] There are different measures of factor aboundance. However, the simplest measure says that country X is relatively capital abundantto country Y when − − .

[22] Implies that in each trading country the pre-trade relative price of the good which uses the relatively abundantfactor will be cheaper.

relatively abundant factor- labor. Moreover, perfect competition in factor markets implies that the real reward for the abundant factor will increase. This process will cease when factor prices converge between countries with relatively different factor endowments. It follows that trade liberalisation must increase the share of labor income and improve income inequality in developing countries.

Within the same analytical framework, one can alternatively consider for the existence of skilled and unskilled workers while the latter being relatively abundant in developing countries. Based on these theorems, the standard trade theory predicts that unskilled workers in developing countries would benefit from freer trade. Again, trade liberalisation will be conducive to reduction in income inequality and poverty because unskilled workers are the most likely to be in a situation of poverty. But, there are reasons for which the poor in countries with an abundance of unskilled labor may not always gain from trade reforms. Hence, the S-S theorem systematically over emphasizes the poverty impact of trade liberalisation.

As a result, Harrison (2005) suggests that policy makers need to be cautious about expecting large gains in poverty reduction from trade reforms. One reason is that labor is not nearly as mobile as simple trade models assume. If comparative advantage is to increase the incomes of unskilled workers, they need to be able to move out of contracting sectors and enter the expanding ones. A second reason is that trade liberalisation may lead to less protection for unskilled workers relative to skilled ones. A third reason is that even firms in countries with a comparative advantage in producing goods that use unskilled labor need to use skilled workers in order to compete in global markets. This together with skill biased technological change may increase the demand for skilled workers in both developing and developed countries. As a result, income inequality may increase.

Besides, major problems lie in the heroicness of the assumptions in the H-O framework. In addition to the standard assumptions of competitive markets, the framework assumes that countries are effectively identical in every aspect except in their endowment of factors of production. It is also based on a two goods, two factors of production and two countries assumption in which each country faces identical homogenous and constant returns to scale production functions. As a result, the possibilities for factor intensity reversal and of complete specialization are ruled out (Bhagwati et al, 1998, Rivera and Olive, 2003). That is both countries should produce some of both goods but more of the good of their own comparative advantage and if a good is labor or capital intensive, it will be so in both countries.

Moreover, since frictionless and instantaneous mobility of factors between sectors is assumed, the predicted gains and losses to the factors of production in the H-O framework are irrespective of their employment i.e. in exporting or importing sectors. But, in the short-run gains and losses to a factor can depend on whether the factor is employed in the export or import sector due to temporary immobility or specificity of some factors from the sector they are already employed. In effect, with the introduction of these assumptions, the exactness of distributional predictions will be lost. The benefits and costs of trade will be unevenly distributed between workers employed in exporting and importing sectors. Here, the pattern of protection is also important. For instance, if the initial protection happens to be in sectors with low skill intensive production, trade liberalisation may mean deterioration in the income of the poor and increase in inequality.

A theoretical approach partly deals with these shortcomings and with better insights to the distributional effects of trade liberalisation is the specific factors model. The model relaxes the assumption that all factors are fully mobile between sectors. Thus, trade liberalisation will then lower the real return of the factor specific to the import-competing sector. However, its effect on the real return of the mobile factor is ambiguous since it depends on the pattern or even composition of spending. As limiting cases, when the factor income is spent entirely on the importable good whose price decreases after trade liberalisation, the real income of the mobile factor will definitely increase and the opposite happens when it is spent entirely on the exportable good.

However, the specific factors will eventually lose their distinctiveness and become inter-sectorally mobile. Thus, the specific-factors model can be viewed as one depicting a short-run equilibrium while the predictions of the S-S Theorem are restored in the long-run (Neary, 1978). Effectively, the implications of the H-O model can simply be reinstated to explain the long-run situation. Yet, trade liberalisation can deteriorate the income of those factors of production which are specific to the import competing sector until they become mobile. And, if the poor are sectorally immobile and employed in the import competing sectors, trade liberalisation will hurt them in the short term which may be seen in increasing income inequality.

Cited in the World Trade Report (2009), the following example given by Krugman and Obstfield (2006) elaborates the issue more. Suppose a country produces food and textiles with the production factors of land and labour. Assume also that the country finishes by importing textiles and exporting food after trade liberalisation. In the long term, this is good news for landowners and bad news for workers. However, in the short term, the owners of the land that is currently being used for textile production may suffer, while workers who are currently producing food may gain.

However, this view is challenged by the “new new” trade theory according to which both net-exporting and net-importing sectors will be characterized by expanding high productivity firms and shrinking low-productivity firms (Bernard et al. 2007b). As a result, trade reforms will generate job creation and job destruction in all sectors but imply only a reshuffling of jobs within sectors however significant it might be. But, this may be good news in terms of lower adjustment costs because it is more difficult for workers to move across sectors than for firms to change within the same sector. A move across sectors may, for instance, imply higher retraining costs for workers and longer search periods. On the other hand, the fact that adjustment occurs in all sectors implies that a wider range of jobs are at risk.

In addition, a lot of empirical tests in developing countries contrast the predictions of H-O and S-S Theorems. Thus, several explanations about how trade liberalisation could split instead of aligning income distributions in developing countries were presented. Some studies suggested considered additional production factors such as land and natural resources (e.g. Fischer, 2000). In that, extraction of mineral resources in mineral resource abundant countries may require more skilled labor relative to unskilled labor, greater openness will thus favor skilled workers and hence become unequalising. Moreover, unequal initial distribution of these assets could worsen the situation.

Others point to the effect of trade liberalisation on the process of technology acquisition. For example, in addition to shifting the structure of production, trade liberalisation increases the use of foreign skill biased technologies. Therefore, Haskel (1999) and Acemoglu (2002) argue that skill biased technological changes associated with trade liberalisation increases demand for skilled labor relative to demand for unskilled labor which in turn influence the relative wage in favour of the former.

Finally, it is worth pointing out that the conventional neo-classical income distribution frame work employed conceives its central problem to lie in the determination of levels of employment and remuneration of the factors of production, grouped into labor and capital or skilled labor and unskilled labor. Due to its full employment assumption, there are also smooth and instantaneous production adjustments and resource reallocation following changing price signals. However, these are restrictive assumptions since unemployment is not even an exception especially in developing countries. Furthermore, the majority of the poor in those countries are self employed subsistence farmers and do not always enter the wage economy. Most importantly, in spite of its huge importance in analysing the effect of trade reform on the poor, the theory is inadequate to explain income inequality and poverty in a developing country.

Accordingly, Winters et al (2004) underscored that in many poor countries, the poor are just not connected to the labour markets on which it is possible to do S-S exercises and those labour markets do not display the required inelasticity of supply. Rather, most of the poor are often isolated, largely reliant on subsistence agriculture and dependent on production rather than wages for their cash incomes. As they pointed out, therefore, a plausible way of considering the poor in developing countries is through the farm household model due to Inderjit Singh, Lyn Squire, and John Strauss (1986) in which individuals make production as well as consumption and labor supply decisions.

In such farm household model, falling prices due to trade liberalisation benefit net consumers while rising prices benefit net sellers, given properly functioning market. Furthermore, the actual loss and gain depends on the size of those price changes, the products to which they relate and the distribution of consumption and production. In addition, the rate at which poverty is reduced depends on the ability of household members to adjust their consumption and production in response to the price changes.

Rising prices provide incentive to increase production, while the opposite is true for falling prices. But, poor or more costly access to national and international markets will lead to muted price signals and so dampen supply responses. Also, high transport and transaction costs coupled with low local demand will often result in the slow development of markets and low competition. Low levels of competition between traders may result in low farm gate prices and little choice for producers, who may respond by partial disengagement from markets prioritizing production for own consumption and barter trade. On top of that, households with few assets or savings to buffer them may react by entirely disengaging themselves from market activities in order to avoid the risk from volatile prices. In the worst case, it is possible that trade liberalisation may exacerbate the marginalization of the rural economy while the relatively more developed urban sector alone integrates with the international economy. Such circumstances can nullify or even make the distributional effect of trade liberalisation negative.

In sum, there is the possibility for freer trade to have all sorts of effects on the distribution of income. If the traditional trade theory is correct, liberalisation benefits the poor in developing countries. But, if factors are immobile and the initial protection is in favour of the poor, poor people in developing countries may bear adjustment costs in the short to the medium term. On the other hand, trade induced technological change and destructions to markets that exist before trade liberalisation can also affect the poor negatively. Yet, incomes of poor people which are entirely excluded from market activities can remain unaffected by trade liberalisation. Lasting and far reaching poverty reduction requires sustainable economic growth as a necessary (though not entirely sufficient) condition. Nevertheless, the effect trade may have on income distribution is also an important empirical issue that should be examined.

3.1.3. Trade liberalisation, Economic Growth and Poverty in developing countries

Economic growth is a fundamental issue highly related to standard of living. Indeed, economists agree on the fact that the current difference between developed and developing countries that is enormous have been brought about by small differences in the rate of economic growth compounded over a long time (e.g., Acemuglu, 2006). Identification of the factors that can contribute to this has been a major economic enquiry since economics emerged as a discipline. The emergence of international trade theory was also closely related to this that economists interested in living standard differences and the speed of economic growth have also been interested in trade (Ucar, undated; Chen, 2009). Generally, however, knowledge of how economies grow is essential for understanding how a typical policy like trade liberalisation affects actual growth.

In addition, it was learnt from section 2.2 that Africa in general continues with the liberal trade reforms that started in the 1980s. As many are still applying for membership into the WTO, the continuation of such reforms in the years ahead is highly likely. A crucial issue here is then how these measures will aid economic growth and potentially reduce poverty.

The related theoretical literature broadly classifies the factors affecting economic growth as proximate and fundamental factors. These factors include accumulation of factors of production such as technology, physical and human capital, and a pattern of institutions, geography and development of the financial sector which affects the way in which investment and technological progress are encouraged (Heidjira, 2004; Snowdon and R. Vane, 2005; Acemuglu, 2006). However, in the context of developing countries, the importance of other factors such as specialization pattern, terms of trade and balance of payments are also well acknowledged (Barro and Sala Martin, 1994; Medoza G., 1994; Alemayehu, 2002, 2009; Thirlwal, 2000). Much have been said and written about them over the centuries.

Historically, modern economic analysis relating freer trade with economic growth was first introduced by classical economists. In fact, they are acknowledged for anticipating most determinants of economic growth that were identified by economic growth theories in the 20th century. Though not characterized by rigorous models, classical theories of international trade and growth were inseparable. Separate models for international trade and growth were developed by neoclassical economists. Nevertheless, freer trade was advocated in the works of both neoclassical and classical economists. Analysis of economic growth and international trade has been merged again by recent theories of growth and international trade. The modeling frameworks advanced by these theories have been acknowledged to have contributed to a better understanding of the nexus between economic growth and international trade. Due to various factors, however, the link between freer trade and economic growth is not obvious (Afonso, 2001).

Since both trade and growth theories remain to have important implications, however, the theoretical literature reviewed borrows from each to ensure a fair discussion of the link between trade liberalisation and the temporal evolution of income.

Starting with traditional trade theories, therefore, trade has economic gains that more trade or freer trade implies more gains.[23] The source of such gains is specialisation of production according to comparative advantage. The principle states that a country specialising in the production of goods which intensively use its abundant resources will obtain economic benefits. In that, free international trade functions autonomously ensuring that each country will specialize in the production of goods and services that it can produce relatively more efficiently than other countries and exchange with each other for what they need. Such are the sources of benefits enjoyed by a liberalizing economy (Prabirjit, 2007). Essentially, the benefits come from improved economic efficiency due to the reallocation of resources from producing some of all the goods that the economy needs to more of

[23] These include trade theories with neoclassical foundation. It incorporates the principles of perfect competition, homogenous goods and constant returns to scale in production.

the goods that the economy has the least opportunity cost of production and freely exchanging it in the world market for what the country is lacking.

However, such gains are mainly static in nature. Once the reallocations have taken place, there will be no additional efficiency to be gained. Besides being valid only under perfect market conditions, the conclusions are also inconsistent with the actual experience of industrialisation and economic development in early developed countries that reveals extensive protection instead of trade liberalisation. Including England as a pioneer, for example, developed countries like USA, Germany, Russia, France and Italy have industrialized and developed through protection of infant industries (see Prebisch,1950; Nurkse, 1959; Gerchenkron, 1962; Chang, 2002, 2006, 2009; Prabirjit, 2007).[24] Furthermore, Prabirjit, (2007) notes that free trade policies in former colonies like India and China had been associated with deindustrialization. Similarly, Polterovich, and V. Popov (undated) attributed the stagnation of China's per capita GDP between 1949 and 1850 to the excessively open trade at the time.

These theories also do not take into account the structural problem associated with primary commodity specialization in which developing countries have comparative advantage. The most influential challenge to this neglect was presented by the works of Prebisch (1950) and Singler (1950), in which negative consequences of free trade at early stages of development was shown. It was debated that once static advantages are gained due to specialization, the future prospect is gloomed by unfavorable evolution in the terms of trade. Their argument was also supported by observations that the prices of commodities in which poor countries have comparative advantage have been secularly declining over the long term.[25] Besides, structure of markets in which primary commodities vis-à-vis manufactured goods are sold, continued scientific discovery of synthetic substitutes for primary products, and lowness of income and price elasticity of demand for primary products have been premised to contribute to such results (see Alemayehu, 2002, 2010).

In this regard, it is general knowledge in macroeconomics that exports are injections into whereas imports are leakages out of the economy. Therefore, the deteriorating terms of trade due to freer trade may slow down or deteriorate the temporal evolution of income in poor countries. Growth

[24] Since the collapse of the Soviet Union, however, Russia can be excluded from the example.

[25] This is as opposed to the view held by some classical economists that the operation of the law of diminishing returns in primary production and increasing returns in manufactures will improve developing countries terms of trade and induce structural transformation of their economies.

could also be slowed down due to decreasing capacity to import capital goods from abroad. In the extreme, Bahgwati (1958) has showed that dependence on commodity exports may result in the phenomenon of 'immiserizing growth' that the impact on a developing country's real income of increases in productivity of its export sector could be negative because of a strong deterioration in its terms of trade overshadowing the beneficial effects of expansion. Lastly, commodity exports could be associated with the resource curse phenomena and is subject to highly volatile prices. These problems could be exacerbated in developing countries by trade liberalisation measures.

The implication of such factors for trade policy in developing countries is important. Specifically, they imply that a switch to export of non-primary commodities or expansion of manufactured goods production would offer better growth and development prospect (Alemayehu 2002, 2010). In general, this may need the adoption of industrialization policies that defy comparative advantages.

Despite a consensus on commodity price volatility, however, the characteristics of long term trend of secular deterioration is controversial. Besides, whether the terms of trade for primary products are falling, stationary, or rising may not be important by itself. Rather, if the price of a primary product is falling but a country's production costs are falling even more, then the wealth the country realizes in the form of producer surplus can be rising, increasing the benefit it receives from its production and trade. In the same manner, rising export prices does not necessarily mean higher benefits. Therefore, even when the terms of trade of primary products are falling, it may still be the only viable path of rapid development in poor countries (Tilton, 2003).

In addition, a host of other mechanisms through which trade liberalisation can be good for growth in developing countries has been introduced by new trade theories.[26] These theories draw much attention to the indirect dynamic effects of freer trade. These include acceleration of physical and human capital accumulation, enhanced technological transmission and improvements in the quality of macroeconomic policy (Prabirjit, 2007). Economic growth may also benefit from freer trade due to increased inter linkage among economic sectors, expanded exports and imports, and improvements in X-efficiency which is induced by improved managerial skill and less slack in the production process. Such indirect dynamic gains are said to occur in the medium to the long term.

[26] New trade theories are recently developed models based on imperfect competition due to monopoly, increasing returns and strategic trade in duopoly. It is in essence a non-comparative advantage theory, driven mainly by increasing returns to scale.

Specifically, seminal new trade theories incorporating increasing returns to scale and imperfect competition are due to Brander and Spencer (1983) and Krugman (1984, 1996c).[27] Interestingly, these models have also shown conditions under which trade protection may not be growth enhancing. So Krugman (1984) argues that instead of freer trade import protection or export promotion could serve to win market power in oligopolistic markets. As it stands now, then, there is no clear trade policy recommendation emanating from new trade theories.

For instance, with economies of scale or increasing returns, the positive feedback effects of large scale operation are important. The larger market entailed in freer trade allows for firms to enjoy economies of scale in production. But it also implies path dependence that whoever has the leading position can maintain and extend it. Thus, countries may risk being locked into permanently slow growth by simply accepting static comparative advantage, as freer trade could militate against late comers into industries. In the advent of opening up previously protected economics, increased competitive pressure on domestic firms may eventually led to foreclosure and deindustialisation.

As specialization patterns can arbitrarily depend on history and accident rather than factor endowments, however, small historical events may play a decisive role in the development of technology or the location of industry. In other words, as in development theories, rapid economic growth in developing countries could be the result of reallocation of labor towards high productivity activities subject to increasing returns to scale. The role of manufacturing in capital accumulation and skill formation is emphasised here. Thus, industrial policies in LDCs could produce better outcomes than the market itself or trade liberalisation per se (Krugman, 1994, 1996c; Brander and Spencer, 1983). But, trade liberalisation could be detrimental to the development of poor countries.

In addition, existence of positive externalities between firms or sectors in an economy implies that other firms or sectors will profit from their existence. But, difference between private and social costs and returns result in too little investment in sectors characterised by positive externalities. Growth could be hastened due to positive externalities when sectors with positive externality are encouraged. Thus, protection, export subsidy and so on may raise growth and national income.

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[27] Economies of scale refer to the declining tendency for average costs when the cumulative production increases because workers and managers gain efficiency through experience. Externalities, on the other hand, are costs or benefits that are not completely internalised by the party that generates them. They can either be negative when involving social cost unaccounted by the party producing them or positive when it involves social benefit for which the producing party is not compensated.

Given the interventionist trade policies that the foregoing discussion generally suggests, however, skeptics question the ability of any government of successful conduct. In that, there could be very large risks as opposed to very small potential benefits. Krueger (1998), for instance, infers from experience that due to the considerable discretion bureaucrats have in either determining which industries to encourage or how to allocate scarce foreign exchange, protective trade regimes commonly give rise to political capture and rent seeking. Therefore, the outcome in many countries has been permanently high tariff rates while industries failed to become internationally competitive.

Here, it is necessary to underline the fact that no obvious theoretical relationship has yet been established about the link between trade and growth. Traditional trade theories suggest that trade can be an engine of economic growth and development. There were strong theoretical challenges though. Yet, new trade theories and historical facts have also shown situations in which trade protection may not enhance economic growth. Seeking for more clarification, the subsequent discussion examines the issue within the context of growth theories.

In growth theories, production of output in any given economy at any point in time is determined by a combination of factor resources and technology available. Therefore, ceaseless accumulation of human and/or physical capital and knowledge is the source of all long run growth. These are generally distinguished as proximate causes of growth and Neo-Keynesian, Neo-Classical and Endogenous growth models concentrate on explaining how output varies when these factors vary. However, there are also fundamental causes of economic growth which generally includes the influences of the level of financial development, macroeconomic stability, geography, integration and institutions (see Gallup et al, 1998; Temple, 1999; Roderik, 2003; Krueger 1997, Dollar and Kraay 2003). These are important factors influencing a country's ability and capacity to accumulate factors of production and invest in the production of knowledge. Nevertheless, there is no consensus on the relative importance of these factors. Besides, they are also not mutually exclusive (Roderik, 2003; Snowdon and R. Vane, 2005).

Beginning with the Neo-Keynesian, H-D growth model developed by Roy- Harrod (1939) and Evesy-Domar (1946), a critical assumption in the model is the constancy of productivity of physical capital (Solow, 1994). Thus, given an exogenous population growth rate and some level of unemployment, short-run economic growth in the model is determined by the economy's saving rate. In the determination of long-run growth rate, however, there is only a passive role even for saving rate to play. To achieve equilibrium, the saving rate should be such as to allow the same rate of capital accumulation as the exogenous rate of labor growth. Though not explained by the model itself, however, if labor remains permanently slack or if trade affects the efficiency of resource use, thus leading to a lasting decline in the capital-output ratio, growth rate and per-capita income of trading countries can be permanently higher.

Moreover, in the original H-D growth model, growth in developing countries could be constrained by low domestic saving rate. Therefore, the lowness of saving rate was considered as the only critical problem in the development of poor countries. However, growth experiences in the 1980s and 1990s have indicated an alternative constraint. Specifically, growth was constrained by limited supply of foreign currency. Built on the H-D, then, the two gaps model developed by Chenery and Strout (1966) shown that growth in developing countries can be constrained by the more binding of two constraints: saving constraint and foreign exchange constraint. Of the two, however, the model presumed that the foreign exchange constraint is often more binding. With no reference to trade policies, foreign aid was suggested to ease the constraint and resume growth. Hence, financing gap models were developed in order to solve both constraints that developing countries may face.

Yet, from even more experience, many economists criticized such models as overly reliant on resource quantity instead of resource use or quality. They argued that it is not simply the lack investment constraining growth in developing countries but misallocation of resources due to "wrong prices" or restrictive trade policies (Easterly, 1999). Alternatively, therefore, developing countries could speed up their economic growth by dismantling their trade protection and streamlining resource allocation in line with the new set of "right prices". Besides, trade liberalisation may solve the foreign exchange constraint by removing the anti export biases.

However, there was no intellectual support for the H-D growth model. The author's themselves have to repudiate it in 1957 by endorsing the Neo-Classical growth theory developed by Solow (Easterly, 1999). Here, the saving rate ceases to have any effect on long-run rate of economic growth. Diminishing returns to capital will eventually extinguish capital deepening and growth from happening that economies are only bound to grow up to a certain level of per-capita income called the steady states. In that, the rate of growth of output per worker depends solely on the rate of technological progress. Nevertheless, the possibility of surplus labor in developing countries, as in the Lewis's model, can delay the diminishing returns associated with capital deepening.

Yet, economic policies in general will not have long run growth effect but during the transition from one steady state to another (Heijdra, 2004; Acemuglu, 2006). The short-run increase in growth is explained by static efficiency gains due to reallocation of resources from 'inefficient' use to 'efficient' use, as trade protection is dismantled. According to Dollar and Kraay (2004), such changes could be large because of the lengthy duration of the adjustment between steady states. In a similar vein, Baldwin (1989, 1992) contends that dynamic gains may result from such static gains.

In addition, the neoclassical growth model states that the engine of long run economic growth is exogenous technological change in which trade policy has no effect. Assumptions in the neoclassical model imply that there is no intentional investment to advance the level of technology. Naturally, therefore, countries with higher rates of growth should be the ones which have experienced greater technological progress. But, that is not predicted by the theory because all countries also have access to the same stock of global knowledge.

Hence, the model is considered as inconsistent with the persistent cross-country differences in per-capita incomes and growth.[28] The main inconsistencies identified are the difference between the model's predictions about convergence on the whole against the persistent and wide income gaps that exist across countries, and the speed with which the converging economies close their income gap with the leading ones. However, Mankiw, et al (1992) have attempted to revive the model by including human capital as additional accumulable factor (Heidjira, 2005). Their modeling framework has shown the possibility of persistent differences or even divergence. Hence, stagnation in poor countries could be a normal condition. Thus, the possibility of technological differences in explaining long run growth differences across countries was once again ignored.

However, in the pioneering works of endogenous growth theory by Romer (1986) and Lucas (1988), the existing disparities in income levels are still too much for the neoclassical growth model to accommodate (Romer, 1994). Instead, such disparities should be due to difference across countries of endogenously determined technology and hence growth. Thus, each country can have its own idiosyncratic growth rate depending on its own particular combinations of technological and

[28] For instance, following neoclassical growth theory's assumption that technological progress is exogenous and identical across countries, the long run growth should also be the same.

preference parameters of which technology is the core. Their pioneering contribution has opened a wave of theories explaining the endogenous formation of technology.

The first generation of endogenous growth theories were capital fundamentalist so called AK type owing to constant returns to capital accumulation resulting from contemporaneous or intertemporal externalities between individuals who accumulate physical capital as in say Romer (1986) and human capital as in Lucas (1988). Unlike the Solow model, productivity growth here is dependent on positive externalities from capital accumulation which includes both human and physical capital. Thus, policies affecting saving and investment rates could also affect broadly defined capital and the pace of technological progress (see Heidjira, 2004; Teignier, 2010). Nonetheless, according to Lucas (1988), international trade can reinforce specialization towards pre-trade endowment differences and learning takes place in the specialised sector. If the rate of learning differed from sector to sector, the rates of economic growth will also be different across countries.

These classic papers, however, did not emphasize sector specialization considerations. For instance, Romer (1986) explained technological progress as an intentional by product of capital accumulation by individual firms. Sector specialization consideration has been dealt by a second wave of endogenous growth theories which are based on innovation and diffusion. In general, economic policies and institutions could affect growth through their influence on the incentives and/or ability to undertake R&D and diffusion of knowledge. Some of these works include Romer (1990, 1994, 1996c), Young (1991), Grossman and Helpman (1990, 1991a, 1995), Rivera and Romer (1991), Aghion and Howitt (1992), Matsuyama (1992), Eaton and Kortum (2001).

Here, many reasons are provided to support that freer trade increases innovation and diffusion of technology among countries. Following integration due to liberalisation measures, competing economies can enjoy access to larger technical knowledge base, reduced redundancy in industrial research and large potential market size for new products (Rivera & Romer, 1991). As a result, a dynamic process can set in where the stock of general knowledge locally available increases as a result of trade which then raises the productivity in the research sector, thereby speeding up innovation rate (Romer, 1986, 1990). Besides, more open countries are able to import products including capital goods that embody superior foreign technology.

However, there are some situations pertaining to some countries that open trade could retard economic growth. For example, it can produce differential impact on firms' incentives to engage in R&D, or individuals' incentives to acquire more schooling or the underlying technology of production and/or the scope for technological improvement through learning by doing. Hence, countries which trade more internationally may have their long run growth rate increase or decrease.

Considering the incentive for R&D activities, the effect of trade liberalization in individual countries is ambiguous. Specifically, there are two off setting effects on the incentive to invest in R&D that freer trade produces. One is the potentially large market that any successful innovator can exploit through exports. The other is the great difficulty of coming up with ideas that not only advances the domestic state of the art but also competes successfully with technologies available through imports. The first effect encourages research while the second discourages it (Eaton and Kortum, 2001; Grossman and Helpman, 1995). It is highly unlikely for SSA to enjoy the first while the latter is not.

However, those are not the only factors. Categorical R&D spending may be an inadequate measure of the resources devoted for technical improvement (Solow, 1994). Different sectors could present different scopes for progress. Specifically, significant productivity improvement could come from learning by doing in some sectors than others. That is why a developing country's growth rate may slow down due to the production specialization that follows trade liberalisation. Such possibilities are discussed by Grossman and Helpman (1990, 1991a), Young (1991, 1993) Matsuyama (1992).

For instance, Grossman and Helpman's (1991a) innovation-based endogenous growth theory shows that trade between two countries with identical labour forces while one of which have accumulated slightly more general knowledge in the past than the other country results in specialisation pattern in which the country with the lower stock of general knowledge specializes in traditional goods production. Consequently, countries with lower stock of general knowledge may experience a trade-induced reduction in growth rate.

In addition, Young (1991) argues that the static comparative advantage in LDCs leads such countries to specialize in goods in which learning by doing is mostly exhausted. That is because comparative advantage in LDCs induces specialisation in the production of traditional goods. Therefore, an LDC (DC) experiences rates of technical progress and GDP growth less than or equal (greater than or equal) to those enjoyed under autarky. [29] Along the same lines, a circular chain of causation from trade to specialization in sectors with weak productivity spillovers to low growth is suggest by Matsuyama (1992).

In the models by Grossman & Helpman's (1991a) and Young (1991), absence of international diffusion of knowledge is assumed. Even when technological spillovers are global, however, Grossman & Helpman (1990) have shown the same possibility by using the comparative advantage theory. Generally, for a country that has comparative advantage in low-technology sectors or natural resources trade may be less beneficial or could even be harmful due to its influences on human capital accumulation. Developing countries with abundant unskilled workers will end up specialising in traditional activities and hence lower human capital stock in the long run.

Summing up, the theories discussed above are merely a useful guide for the empirical analyses. Obviously, there are plausible analytical arguments suggesting that freer trade may affect economic growth both ways. Neoclassical trade and growth theories present unambiguous case for greater openness and economic integration. Besides being commonly viewed as static, however, their analysis is based on assumptions that are acknowledged to be unrealistic. In that respect, recent trade and growth theories could be an improvement. But, these lack unambiguous implication regarding the income growth impact of freer trade. Therefore, in the absence of a theoretical solution which is correct in its underlying assumptions or precise in its implication for the effect trade liberalisation may have on economic growth, it is natural to seek for empirical evidence. Thus, examination of the literature shifts to the empirical evidence that could be obtained from previous studies on the issue.

3.2. Empirical Literature

This section begins with the review of the empirical evidence on the impact of trade liberalisation or freer trade on poverty. As it appears, there is little direct evidence on the relationship between freer trade and poverty. Derivation of direct empirical regularities between freer trade and poverty is made difficult by data problems in relation to both variables as well as lack of enough historical instances at which trade liberalisation episodes could be identified as major economic shocks. Thus, identifying the channels through which freer affects poverty and working through them is generally the norm to interpreting the evidence (Winters et al. 2004).

[29] Autarky is an economic situation of no international trade.

In general, there is a huge body of literature supporting the idea that openness promotes economic growth and favor poverty reduction. However, contrasting evidence can be drawn from some studies. As it stands, therefore, the evidence indicates that it may go any direction. This may be complicated since the overall poverty impact of trade liberalisation is the sum of many marginal effects on growth as well as income inequality among different sets of people. Moreover, most studies treat openness and trade liberalisation as a single concept when trade liberalisation is one among the many factors which determines openness of an economy.[30]

As per the findings, most studies reported that being open to external trade makes way for rapid economic growth while rapid economic growth is an effective and efficient means for alleviating poverty. With other things the same, therefore, countries with few restrictions on trade will have faster economic growth than countries that heavily restrict trade and poverty reduction will be faster with the former. Some, however, reject those findings stating that the effects of trade policy per se on economic growth are indirect and much more modest (Roderik, 1998). Instead, other factors weight much more and consequently Rodrik (2008) has strongly suggested that developing countries instead need to have policy space to rethink their interactions with global markets. Many others also point that outright trade liberalisation is good for poverty reduction is wrong on methodological and historical grounds.

Much of the contention here focuses on the growth effect of trade liberalisation with little debate on the subsequent effect of growth on poverty or inequality. This is partly because growth is necessary and sometimes sufficient for poverty reduction. For instance, by regressing the change in the 1$-a-day poverty ratio on the change in mean income, Ravallion (2001) found that the elasticity of poverty with respect to mean income growth is 2.5 or 2 if the mean income measure is instrumented to allow for errors of observation. Also, Dollar and Kraay in various studies found the elasticity of poor's income to mean income variation is unity. Country case studies that decomposed sources of poverty reduction in Africa reveal also that the growth component is overwhelmingly dominant to the redistributive component. These studies include Bingsten et al (2003) in the case of Ethiopia, Kabore (2003) in the case of Senegal and Burkina Faso and Baye (2006) in the case of Zambia, Obwona et al (2006) in the case of Uganda and Kabore et al (2007) in the case of Burkina Faso.

[30] For instance, the reviewed papers use different definitions of trade openness; some use policy measures such as tariffs while others use outcome-based measures such as the GDP share of imports plus exports.

Therefore, rapid economic growth is often given a prominent role as a means of reducing poverty. However, as cited by Fosu (2008), the findings from cross country African data by Ali and Thorbecke (2000) shows that poverty in Africa is more responsive for income distribution than for growth due to the high inequality that is there in the region. To show the importance of initial inequality, Fosu (2008) noted that growth accelerations in Ethiopia or Ghana can reduce poverty twice as much they can in Namibia or Botswana due to high inequality in the latter countries. But, the latter kind of countries is not few in SSA.

Nonetheless, most studies analyzing the effect of trade liberalisation on income growth support the idea that openness is growth promoting and poverty reducing. Seminal works mainly using cross country regression analysis include Dollar (1992); Ben-David (1993); Sachs and Warner (1995); Harrison (1996); Edwards (1998); Collier and Gunning (1999); Frankel and Romer (1999); McCulloch et al. (2001); Irwin and Tervio (2002); Berg and Krueger (2003); Dollar and Kraay (2001, 2002 a,b, 2004); Winters et al. (2004); Hertel and Reimer (2005); Ravallion (2005); Tøndel and Wiig (2007) and Wacziarg and Welch(2003, 2008).

Early studies by Dollar (1992) and Ben-David (1993), using different measures of openness, found that trade is significantly and positively associated with economic growth. Moreover, Ben-David (1993) documented that formal trade liberalisation agreements and their implementation has led to income convergence among liberalizing countries. Likewise, Sachs and Warner (1995), Edwards (1998), Frankel and Romer (1999), Wacziarg and Welch (2003, 2008) have all shown that trade openness promotes economic growth. With regard to tariffs, a significant and negative effect was shown by Harrison (1996), Edwards (1998) and Wacziarg and Welch (2008).

Especially, Dollar and Kraay (2001b, 2002a, 2004) attested in their seminal works that freer trade raises incomes of the poor by raising overall income because economic growth in general and trade induced growth in particular has no systematic influence on income distribution. They drew evidence from the comparative difference exhibited by "rapid globaliser's", representing a third of the developing countries of the world, fast economic growth and strong poverty reduction over a period of two decades or so while at the time the remaining two-thirds of the developing world, with a large concentration in Africa that saw economic stagnation or deterioration, impoverished their population. In other words, they concluded that the only countries that saw significant poverty reduction during the 1990s were the ones that have become more open to foreign trade.

Similarly, Berg and Krueger (2003) reported that trade liberlsiation is good for poverty reduction. In addition to acknowledging the importance of other policy reforms, they claimed that those reforms with positive externalities on growth and poverty are complementary to trade liberalsiation. Thus, they argued for making openness a primary part of reform packages to reduce poverty. On the other hand, dubbed as "sins of commission", trade protection has been identified by Collier and Gunning (1999) as one of the key factors attributed for Africa's weak growth performance in the 1980s. The quantification of the magnitude of the shortfall by Sachs and Warner (1995) presented that the growth shortfall in the SSA accounted by restrictive trade policy, along with geographical factors and dutch-disease was 1.2% per annum.

However, these evidences have been questioned by other studies on methodological as well as historical grounds. On methodological grounds, a series of works by Rodriguez and Rodrik (1999, 2000, 2001) and Birdsall & Hamoudi (2002) have shown that the positive results in the above studies suffer from systemically biased selection favouring the finding of a robust link between trade liberalisation and growth. They argued that the findings are less robust than claimed citing the problem with the openness measure commonly used, statistical sensitivity of the specifications, the collinearity of protectionist policies with other bad policies, and other econometric difficulties.

Rodriguez and Rodrik have instead attributed SSA's poor economic performance to its poor infrastructure, its geography, its dependence on a limited number of primary products, which means that although trade reforms may raise trade volumes, their influence on economic growth is weaker. Nevertheless, they refrained from suggesting trade protection as an alternative.

In effect, Winters et al (2004) note that trade has certainly not been identified as a hindrance. Yet, Birdsall & Hamoudi argued that the decline in trade intensity and slow growth in the "non-globalising" group of countries in the Dollar and Kraay's studies since the 1980s is due to decline in commodity prices and their high commodity export dependence than a result of policy. Hence, the positive relationship between volume of international trade and income growth was said to be an incorrect attribution. Instead, Sindzingre, (2007) underscored that the risky market and trade structure that is entitled by commodity dependence is important in the determination of its impact on income growth. Countries under such circumstances may even compound their poverty problem by simply liberalising trade.

Therefore, while trade liberalisation in SSA may work in the same way as it does anywhere in the world, its growth impact in SSA is generally weaker (Rodric, 1998). Thus, too much focus on liberalisation might be counter-productive by shifting attention away from the fundamentals of long term growth. As liberalisation per se will not set economies on a sustained growth path, it pays to give attention to growth fundamentals like human resources, physical infrastructure, macroeconomic stability and rule of law.

In other words, the finding that trade liberalisation is positively associated with economic growth could be due to endogeniety problems. Countries whose incomes are larger for reasons other than trade may trade more and the finding that openness matters for growth could largely be spurious. The most cited early study dealing with the endogeniety problem is Frankel and Romer (1999) who used geography variables to instrument for trade. Their finding showed that trade has a quantitatively large and robust, though only moderately statistically significant, positive effect on income level. They presumed that while countries' geographic characteristics have important effect on trade, they are not correlated with the other determinants of income. Along the same line, Irwin and Tervio (2002) concluded that the countries that trade more as a proportion of their GDP has higher incomes as they grow more even after controlling for the endogeniety of trade.

Overall, it seems that trade contributes to improvement in real income and per capita income growth. However, the endogeniety problem pointed out by Rodriguez and Roderik (1999, 2001) still remains. The robustness of Frankel and Romer's results has been disqualified when latitude and institutional measures were included in their regression. Moreover, geographically determined trade has correlations with public health and institutional quality through exposure to various diseases and the historical experience of colonialism, migrations, and wars. Besides, it can determine the quality and quantity of natural endowments including soil fertility, plant variety, and the abundance of minerals. Despite trade openness, all of these may affect income and its growth, hence endogenous.

Turning to historical grounds, Chenery et al. (1986) discussed the historical evidence that successful experiences of manufacturing exports in developing countries, which are fundamental to growth there, were generally preceded by periods of protection in general. Thus, loss of such production experience in developing countries following trade liberalisation may have negative cumulative effects on growth. For the same reason, Chang (2002, 2009) compared liberalisation policies as measures of 'kicking away the ladder' which the developed countries used in the past. He contends that trade liberalisation has a far more doubtful record than managed growth overall. Especially trade liberalisation has been attributed by him for the poor economic outcomes in SSA.

Although there are much evidence that trade liberalisation is good for growth and poverty reduction, there are claims against too. Direct studies of the impact of trade liberalisation on poverty of economies in Southern Africa by Tondel and Wiig (2007) have also reported mixed results. For instance, Lesotho, Malawi, Mozambique and Swaziland experienced both increasing trade and a reduction in poverty during 1990-2001. Whereas, Zimbabwe and Zambia experienced an increase in poverty rate and a decrease in trade over the same period. So the evidence from these countries supports the notion that more trade is positively associated with poverty reduction while less trade is associated with higher levels of poverty. But, Tanzania Madagascar, South Africa and Botswana show diverging experiences in trade and poverty. Both poverty and trade have decreased for Botswana and Tanzania while for South Africa and Madagascar the increase in trade has not been associated with poverty reduction.

In conclusion, the theoretical literature presented in this chapter has shown contending debates which by no means was resolved. Most empirical studies have found a positive impact on growth of trade liberalisation. Some also have found that the distribution of income is on average neutral to trade liberalsiation. Thus, trade liberalisation may be good for growth and poverty reduction. However, the robustness of such findings and their conformity with historical facts is strongly questioned. Besides, some characteristics peculiar to SSA even indicate that it may not even be the likely outcome there. Therefore, while the final verdict on the link between growth and trade liberalisation is open, it is even more open in SSA. Consequently, it is important to undertake an empirical analysis exclusively within SSA. As part of this, the theoretical model, empirical specifications and econometric approaches that are going to be used for estimation are presented in the next section.

Chapter 4: Theoretical Model, Empirical Specification and Econometric Approach

4.1. Theoretical Model

The general framework used to analyse the potential linkage between trade and poverty has identified two important transmission mechanisms through which trade liberalisation could affect poverty: the income distribution channel and growth channel. This largely relied on the technical attribution of poverty to low average income and/or its asymmetric distribution. Therefore, the poverty implication of trade liberalisation in this study will be drawn from the combined influence on the two of recent liberalizations.

Given this general setting, however, the overall per-capita income in SSA is too low to give much room for poverty reduction through redistributive measures. Indeed, the persistence of pervasive poverty in the region is mainly a result of economic stagnation and rapid deceleration of past growth episodes that what can be achieved through redistributive measures is likely to be insignificant. Therefore, empirical knowledge about obstacles to growth in SSA is critical. Such enquiry can improve understanding of the nature, impact and constraints to economic growth and poverty of the region's particular characteristics.

It can be recalled from the previous section that factors driving and maintaining economic growth are distinguished as proximate and fundamental factors. The neoclassical growth accounting procedure is employed to identify the proximate factors. [31] This is a common practice by most studies due to the widespread agreement that international comparative data fit a pattern of conditional convergence. However, trade liberalization measures as well as other fundamental factors driving economic growth were then augmented into the neoclassical growth decomposition. Instead of ad hoc specifications, this theoretical framework is also adopted for its simplicity and tractability. Moreover, the incorporation into the empirical model of the likely effects of other factors that affect income growth was made easy by it.

Thus, as long-run living standards enjoyed by citizens of a given country is largely determined by sustained growth or the lack of it, much emphasis is given to what impact open trade policy in

[31] Such approach, as is outlined in the proceeding sub section, shows that cross country income differences may result from a combination of physical capital differences, human capital differences and technology differences. Technological progress is indirectly accounted by a residual after accounting for differences in physical and human capital.

particular and trade in general would have on long run economic growth. However, in order to be able to make inference about its poverty impacts, any growth attributable to a given trade regime must be investigated in connection with its distributional consequences. Therefore, two separate models are used. The first model, relates the income of the poorest 20% of the society with the average national income controlling for trade liberalisation measures and other factors while the second model relates some measures of trade policy and volume to income growth.

The first model is similar to the one used by Dollar and Kraay (2001a). The model used to investigate the growth impacts of trade borrows a lot from the theoretical framework developed by Bidlingmaier (2007).

Starting with the model that will address the distributional implication of trade liberalisation, income of the typical poor is related with the mean income as follows:

……………………...……………………………………………...….………………….. (1.)

Where refers to the average income of poor people while refers to overall per-capita income in country **i**. Then, the influence of trade liberalisation and some other important variables will be controlled for.

To continue with the growth mechanism, the dependent variable is determined according to the neo-classical growth model. Thus, decomposing the neoclassical growth model, some aspects of new trade and endogenous growth theories are then incorporated in are incorporated in the process.[32] Hence, the natural starting point in this is aggregate output (Y) specified as a function of capital , labor and a productivity factor that reflects existing technology. That is,

; …………………………………………………...…… (2)

Hence, output growth results: (i) from the accumulation of production factors or and/or (ii) from increases in the productivity factor , that is, from productivity growth. As the production function exhibits constant returns to scale in all factors and technological progress, —— is

[32] In the neo-classical growth model, aggregate production function (usually Cobb-Douglas) is used to explain the growth of output by changes in factor inputs.

assumed to be labor-augmenting, the evolution of one of the growth drivers (physical capital) is then assumed to depend on a constant saving ratio which will augment the stock of capital through investment as follows:

; ……………………..……………………………… (3)[33]

Furthermore, the above production function is also augmented for imported capital goods (Z) and human capital (H) to account for the role of these factors. The incorporation of human capital is a common practice in economics. But, imported capital has entered separately to reflect the fact that developing countries depend on imports for capital goods as well as the potential superiority of such imports in terms of productivity. Its importation is then assumed to be financed by net export revenues.[34]

….……………..…………………………………… (4)

Technically, the accumulation of imported capital (Imp) is formulated as follows:

………………………………………………………….. (5)

Where, and are net magnitudes referring only to capital goods, i.e. the stock of imported capital is increasing through the import of capital goods ( ) which are financed through net exports ( ) that is linked to income through the net export ratio .

In addition, human capital can be accumulated in three different ways: through investment into education, through learning by doing, and through international knowledge spillover. Human capital formation through investment in education is build on the assumption that the fraction of income a country chooses to invest into schools, universities, or other training facilities leads to the formation of human capital. In line with Mankiw et al (1992) and others the same production function applies to human capital as to physical capital: Human capital is accumulated through investment into

[33] At this stage the saving rate in an economy is equal to the excess of production over consumption because there is no government and no international trade.

[34] Net export revenues are total export revenues less expenditure for imported consumption goods. In this setting, it is important to point out that exports per se have no impact on income. Only through their function as "savings" to finance imported capital goods are exports considered income enhancing.

education which is financed through savings that can be expressed as savings-ratio multiplied by income :

—— ……………………………………………………………………….. (6.)

Human capital accumulation can also be affected by the learning by doing and or international knowledge spill over. Freer trade in general could foster economic growth in developing countries through the diffusion of technologies from developed countries i.e trade liberalisation can facilitate technology adoption rate by developing countries which are far away from the world technological frontier (Grossman and Helpman, 1991a). However, it is also pointed out by Young (1991) and Grossman and Helpman (1991a) that the initial comparative advantage in developing countries could lead to specialisation in production of goods for which learning by doing are exhausted. Freer trade could, therefore, slowdown the long run accumulation of human capital and technologies. Besides, it may interact with the level of human capital stock as well as the structure of production and institutional factors that lay the foundation for incentive to adopt foreign knowledge.

One of these possibilities about human capital formation and knowledge accumulation can be captured by incorporating another term into the neo-classical framework by multiplying the human capital accumulated through investment in education with an index for learning by doing:

—— ……………………………………………………………….. *(7.)*

The more a country engages in producing manufactured goods as opposed to primary commodities, the higher the value of will be. As models of endogenous growth seem to suggest, the pattern of sector specialisation is likely to affect the link between trade liberalisation and growth. As such, it is presumed here that specialization in commodity production and export is not good for long run growth as it offers less potential for learning by doing relative to specialization in manufacturing (see among others Young, 1991; Grossman and Helpman, 1991a). This is incorporated here by the term , which measures the share of manufacturing sector in the overall GDP.

Another index for the degree of openness of an economy is incorporated into this through the term , which proxies the level of international diffusion of knowledge. As in the new growth theories, free international trade is assumed to affect income growth through its impact on technological change. Hence:

(8.)

The accumulation of human capital still exhibits neo-classical production function features such as diminishing returns. Taking into consideration depreciation, human capital formation continues to converge into a steady state, with a possible much higher income disparity between countries. The steady state human capital intensity (human capital per head) now not only depends on the willingness to save for education but also on the production structure and the degree of trade openness.

In doing so, it incorporates growth determinants from endogenous growth models into a neo-classical framework. To this end, the basic production function has been expanded for the inclusion of two more kinds of capital, human capital and imported capital and a more detailed breakdown of capital (both human and physical) accumulation. But, the function still exhibits the traditional neo-classical features like diminishing returns to all production factors and constant returns to scale. Since the steady-state income and income convergence between countries is conditioned by more variables than the willingness to save, however, it allows for much higher differences in steady-state income across countries. This is consistent with conditional convergence that faster transitory growth is possible for countries that have not yet reached their steady state and richer countries can grow faster than poorer ones, if they are further away from their individual steady states. Last but not least, the model explicitly incorporates the indirect influence of international integration, namely the specialisation factor or manufacturing value added and the knowledge diffusion factor .

To proceed further, define as the stock of physical capital per unit of effective labor, as the stock of human capital per effective unit of labor, as the stock of imported capital per effective unit of labor, and as the income per effective unit of labor.

From (3.) one receives the effective unit income equation:

…………..……………………………………………………… (9.)

Assuming the same constant rate of depreciation for all types of capital and population growth rate equaling the growth rate of the labor force and technology growing at the same constant rate , the evolution of the capital stocks are given by:

, ………………………………………………………… (10.)

, ………………..…………….... (11.)

, …………………………………………………...… (12.)

The steady state is reached when and do not change any more, i.e. the capital stock per effective unit of labor stays constant. In this situation every additional increase in the stock of capital is offset by depreciation, population growth and technical progress . The steady-state values for and are obtained by setting and (equal to zero and simultaneously solving for and For purposes of simplification the time indices are omitted in the following arithmetic and is replaced by .

From equation follows: , Replacing by equation and solving for :

……………………..…………………………………………….…….. (13.)

In the same way solving for :

……………………………………………………...….. (14.)

And solving (12.) for :

…………………………………………………………………...….. (15.)

The above performed arithmetic provides three equations with three unknown variables (and). Therefore, solving these equations simultaneously, the steady-state values and as an expression of only independent variables will be:

……………………………………..……. (16.)

……………………..………..…. (17.)

……………………..……………….……. (18.)

Inserting these equations into yields the equilibrium effective unit income equation:

…………………………………………… (19.)

Taking logarithms:

……………………………………………….. (20.)

Since there are no data for income per effective labor unit the equation has to be transformed back to a per-capita-income equation. Because and, since we obtain:

………..……………….... (21.)

As mentioned above, the technological growth rate is assumed to be constant and the same across countries. Therefore, the level of technology can be expressed as some initial stock A_0 multiplied by the exogenous growth rate and some country specific shocks: The term reflects more country specific factors such as production structure, resource endowments, climate etc. With this information can be expressed as:

……………………… (22.)

This equation provides an empirical specification directly derived from an extended neo-classical growth model for testing the influence of different variables on the level of per-capita-income. The right side specifies the factors that determine the level of the steady state per-capita-income in this theoretical setting. Apart from the initial stock of technology and its exogenous growth rate , there are domestic savings for investment in education , production specialisation , and global knowledge spillovers due to trade , which enhance human capital accumulation and productivity growth, as well as domestic savings for investment into physical capital and net-exports for capital goods import , plus population growth ( ), which has a negative effect on the level of per-capita-income. Notice that the growth rate of technological progress and depreciation are assumed to be constant.

However, the above specification is in terms of the level of per- capita income. By assuming that countries have not yet reached their steady state level income, the relation could be re-specified in terms of growth rate in per-capita income. In this case, growth depends on how far away a country is from its steady state. Countries grow to their individual steady state, which is defined by various country specific factors, like for e.g. the saving rate. Therefore, a rich country can grow faster than a poor one, if it is further away from its own steady state. This growth process is referred to as conditional convergence, which means that incomes of countries with similar steady state parameters will converge. Therefore, the transitional growth rate near the steady state in the following equation can be used to derive the regression equation:

……………………………………….….. (23.)

It can be shown that the exponential function is a solution to the differential function = - for any coefficient c. Thus, choosing the logarithm of the quotient of the basis income and the steady state income as coefficient, the solution to the differential equation will be:

.... (24)

By rearranging terms:

.... (25)

According to the above equation, the effective per-capita-income is dependent on initial income and steady state income weighted by the regression coefficient. Per capita values can be obtained by using the relation – :

– – ………...…… (26.)

By further rearranging and using the relation the growth rate of per-capita-income is given as log difference between the actual income and basis income:

– –

…………..…………...………………………………….. (27)

The per capita growth rate depends on the difference between initial income and steady state income adjusted by convergence coefficient λ plus the initial level of technology and its growth rate. Other things being equal, countries grow faster if the distance between their initial income and steady state is bigger.

Finally substituting with equation (20.):

………………………………………………………………………………………. (28.)

Thus, the growth of per-capita-income depends on the determinants of the steady state and initial income. As identified in the literature, other variables are also incorporated into equation (28) including initial per- capita income to account for convergence hypothesis, lagged growth rate in order to check for the existence of dynamic process in growth and other fundamental determinants of growth such as financial market deepening and inflation of which the latter accounts for macroeconomic stability. After including these factors, then, the econometric estimation of the transitional growth behavior of countries in SSA is performed for equation (28) above.

4.2. Empirical Specification

Based on the transmission mechanisms discussed, some variants of the following econometric specification will be used first in order to estimate how the per-capita income of the poor is related with the overall per-capita income and the influence of trade liberalisation in that. That is,

………………..………………………….....……… (29.)

Where refers to the natural log transformed values of average income of people at the lowest quintile (taken as per-capita income of the poor) in individual countries while refers to the overall income per-capita income in individual countries. represents the control variables identified by the literature as important determinants of inequality. Specifically, the distribution of assets in resource rich countries as well as inflation tends to hurt the poor most whereas trade liberalisation in poor countries tends to be equalizing. Besides there could be interaction effect especially because openness in highly unequal society could marginalize the poor even further.

In this regression, the key parameters of interest are and the coefficient on trade liberalisation. measures the elasticity of income of the poor with respect to mean income. In general, there exists a continued trend of trade liberalisation throughout the period under investigation. Should the Neo-Classical theoretical implications of trade on income distribution hold, must be larger than 1. However, as it has been noted in the previous chapter, past theoretical and empirical works are not much indicative about the size of this coefficient. is also an important parameter which may accounts for the influences of resource endowment on the share of income accruing to the poorest 20 percent of the society, trade liberalisation and inflation. on trade liberalisation is expected to be positive after accounting for inflation and resource endowments.

It should be noted here that these data do not run over longer time periods. Besides, they are scarcely available for some countries while some are virtually absent for others. Thus, pooled OLS regression is done on the available country-year observations.

Regarding the second empirical specification, equation (28.) from section 4.1 is adjusted for some additional cross country growth determinants. Accordingly,

…………………………………..……………………..………………… (30.)[35]

Where i =1, 2,…,N represent countries while t=1,2,…,T represent the time periods. The dependent variable is a vector of growth rate of per-capita-income for country i at time t. The intercept is a vector of technology parameter which is specific to each country and is made up by the stock of technology and its exogenous growth .

The terms in the left hand side refer to the logarithms of initial per-capita income , physical capital accumulation , human capital accumulation through; school education , imported capital accumulation , population growth plus depreciation and technology growth rate , learning by doing , measures of trade liberalistion , a measure financial market deepening a measure of macroeconomic stability proxied by inflation and institutional quality measured by . The last term denotes a vector of the error terms which contains the non-explained variance of the dependent variable. It is assumed to have an expected value of zero, the same variance for all observations and no correlation with the other variables. In this specification, the major coefficients of interest would be , , and . It is hypothesized by the study that is negative for openness and positive for tariff rate while and are positive.

4.3. Data and Econometric Approach

4.3.1. Data

Despite the fact that there are forty eight countries in Sub-Saharan Africa region, only 40 and 28 countries were included in level and differences of the first regression equation. In the second regression, 24 countries are included. This was due to data availability and quality considerations. For the same reason, the study period covers the period 1996-2008. Various data sources are also used. Following Mankiw, et al (1992), is assumed to be 5% which is added to population growth rates. The lists of the countries under consideration as well as the various data sources according to each variable are documented in the appendix section of this thesis.

[35] In the income growth equation (27.) the logarithm of initial income per capita is added as independent variable to address the issue of convergence prediction in the Neo-Classical growth model.

4.3.2. Econometric approach

For some of the variables, data used in this thesis runs both across countries and over time. For some others, however, there was not enough observation in both terms. As a result, both panel data and pooled cross sectional techniques are applied to estimate the regression equations. Specifically, the first regression equation applies the pooled cross sectional analysis. In that, the classical ordinary least squares (OLS) method is used. In the second regression, panel data techniques are used.

Generally, panel data techniques are suitable to capture individual dynamics and idiosyncratic characteristics which show very little or no variation over time. Specific benefits of using panel data include; more efficient estimators; reduced identification problem in the presence of endogenous regressors or measurement error, robustness to omitted variables and the identification of individual dynamics. In many cases, panel data will also provide internal instruments for regressors that are endogenous or subject to measurement error (among others see Verbeek, 2004; Green, 2002; Baltagi, 2005; Hsiao, 2003)

Most past literature studied the impact of trade on economic growth by taking openness as measure of trade liberalisation and controlling for other important growth determinants. However, this has been seriously criticized for failing to take into account the possibility of reverse causality between economic growth and trade liberalisation[36]. Thus, the problem of endogeneity was common in early studies. Over the years, this problem has been clearly understood in the literature and there are some notable attempts to remedy it.

With most of the attention devoted to the problem of reverse causality between trade liberalisation and economic growth, however, reverse causalities that could possibly exist between other explanatory variables and economic growth have not been strongly addressed. As the number of variables in the regressions suspected for this risk grows, the moment conditions which are essential to identify the regression coefficients become less and less likely to hold. Therefore, obtaining consistent estimates would require taking into account these reverse-causality risks by obtaining instruments which are sufficiently correlated with the explanatory variables but orthogonal with economic growth.

[36] A detailed discussion of this could be read in the seminal study by Rodriguez and Roderick (2001).

Even if one were to pay no attention to the possible reverse causalities between the explanatory variables and economic growth, however, the risk of endogeneity persists. This is due to omitted variable bias. A single omitted variable which is correlated with trade liberalisation, economic growth or one of the other explanatory variables would bias all the coefficient estimates. The ideal solution to mitigate these endogeneity problems would be to obtain variables which are correlated with the endogenous terms but uncorrelated with the error term – external instruments. Nonetheless, identifying external instruments which fulfill this exclusion restriction is a difficult and time-taking exercise. This becomes more difficult when many of the variables are endogenous. In such situations, one may use internal instruments in so far as the exclusion restrictions hold.

The GMM estimators used in this thesis are intended to account for endogeneity that could result from reverse causality or omitted variable bias.[37] The next chapter estimates System and Difference GMM estimators which are due to Arellano-Bond (1991) and Blundell-Bond (1998). These two techniques are intended to account for the endogeneity issues mentioned above given that the over-identifying tests and auto-correlation tests are passed. Below, a brief discussion of these two estimation techniques is presented. For a more detailed, easy and pedagogic discussion of these estimation strategies, one may consult Roodman (2006).

Suppose the data generating process for certain variable is given in the following form:

Where, is a vector of time varying controls apart from the explicitly included lagged dependent variable. is a composite error term which has two elements: time-constant individual specific parameters and time-varying shocks . Further, it is assumed that

The obvious problem here is that apart from potentially endogenous variables in the vector of controls , the lag dependent variable itself is endogenous due to the individual specific parameter grossed in the idiosyncratic error- . Applying standard OLS estimation on this data generating process would produce inconsistent estimates for α because the condition that

[37] However, these estimators have their own weaknesses. Often, the correlation between the endogenous variable and the invoked internal instrument(s) may not be sufficiently strong to fulfill statistical requirements.

does not hold.[38] It is also very interesting to note that the fact that the lagged dependent variable is endogenous would contaminate the consistency of the coefficients for all other variables used in the regression.

The most straight forward, though incorrect, attempt to take care of the problematic time constant factor in the error would be fixed effects estimation, where the time average of all variable in the regression is deducted from the original variable to obtain the within transformation. But the fixed-effects estimators will not be consistent due to the endogeneity of .[39] The inconsistency associated with fixed effects decreases as the time dimension of the panel increases. However, given that the data for this thesis runs for 13 years (1996-2008), the inconsistency with fixed effects is likely to be large.

There are basically two solutions towards working around this problem, each one of them resulting in a distinct estimator. First, one may apply simple transformations like first differencing to relinquish the problematic individual specific variable and thereby estimating the following equation:

The time invariant variables are expunged in this equation. However, the endogeneity problem with still remains since in and in are correlated. Nevertheless, lags that date back starting from and including are valid instruments.

The above approach where the data is transformed to avoid the problematic time invariant factor is generally regarded as Difference GMM. Another way of dealing with the problem instead of just discarding the fixed effects is to instrument with variables thought to be orthogonal to the fixed effect. This later approach results in estimators which are called System GMM estimators. In this estimation mechanism, rather than the endogenous variables, the instruments are transformed to obtain the required orthogonality condition. This technique is however valid when the changes in the instrument variable (s) are orthogonal to the individual specific parameter.

System GMM estimator estimates the original equation taking into account the endogeneity of the lagged dependent variable (and other potentially endogenous variables) and instrumenting it with the

[38] Due to reverse-causality and omitted variable bias, most of the coefficients in β are also likely to be biased.
[39] See Wooldridge (2004), P 302 for technical details.

difference of its lags. Thus any of the lag differences that start with and go further backwards are valid instruments for .

The difference between the two estimators can be put as follows: In Difference GMM estimation the problematic individual specific term is relinquished through transformations and endogenous variables in differences are instrumented using levels of their lag counterparts. In System GMM estimation the time invariant factor is not removed and endogenous variables in levels are instrumented with their differenced lag counterparts. That is, while differences are instrumented with levels in Difference GMM, levels are instrumented with differences in System GMM.

Mostly, the number of instruments invoked is more than what is needed for exact identification of coefficients. Hence, the validity of the extraneous instruments is checked using Sargan tests for over-identifying restrictions. Furthermore, the vector of instruments crucially depends on autocorrelations in the error . If, for example, follows autocorrelation of order one, then is not orthogonal with it due to the in as a result of the autocorrelation. Therefore, cannot be used as an instrument and the instrument vector should start from lag three and backwards, unless there is evidence for autocorrelation of order two which further moves the first element of the instrument vector by one lag longer. To be conscious about such problems, the p-values from Arellano-Bond test for autocorrelation are reported.

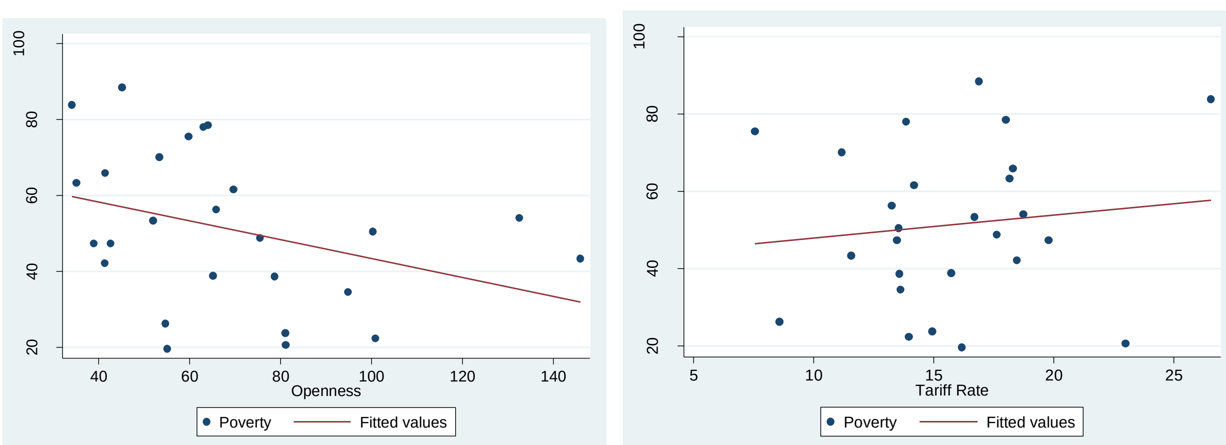
Chapter 5: Results and Discussion

As it was shown in section 2.2 of chapter two, Sub-Saharan African countries continue to liberalise their trade that started the 1980s. It is the objective of this thesis to examine the poverty implication of this continued practice of trade liberalisation in SSA. An indirect identification approach has been employed to achieve this. Based on econometric exercises on the approach used, this chapter presents and discuses the results found in separate sections.

5.1. Preliminary Assessment of trade liberalisation and poverty in Sub-Saharan Africa

As a preliminary analysis, a snap shot of the potential relationship between trade liberalisation and poverty can be observed from their correlation. This is good to get a feel of the data. Accordingly, Figures 5.1 below shows the aggregate relationship between poverty (head count ratio at 1.25$ a day) and alternative measures of trade liberalisation.[40]

Figures 5.1: Poverty and Trade Liberalisation in Sub Saharan Africa region (1996-2008)



Source: Own Computation and African Development Indicator, 2010.

Figure 5.1 above displays the negative nexus between income poverty and freer trade. The nexus is also consistent in both measures of trade liberalisation (openness to trade) used. Accordingly, the left panel of the figure indicates the existence of negative association between poverty and openness to trade measured in terms of the ratio of total value of international trade to GDP. On average, therefore, countries in SSA which trade more internationally have lower poverty rates.

[40] Simple averages for the period 1996-2008 of each series are taken for every individual country studied.

On the other hand, the right panel of the figure shows a positive relationship between higher applied tariff rate and poverty level in the region. This implies that the level of poverty in SSA's countries is higher where the average applied tariff rate is higher. Overall, both correlations suggest that more trade in general and liberal trade policies in particular could reduce income poverty in the region.

However, this could be misleading for various statistical reasons. At the outset, the visual inspection of both correlations is weak. It was also verified by a preliminary simple ordinary least square regression that neither the magnitude of the coefficient of determination was large (less than 12 percent in both cases) nor the estimates were statistically significant at conventional levels. Besides, the simple correlation above may also reflect the effect of other factors which can influence both poverty and trade liberalization simultaneously than the influence of trade liberalisation alone on poverty levels in SSA. Thus, an econometric analysis must at least control for these other factors in order to make sure that the pattern shown by the correlation above is not spurious.

Nevertheless, the attempt to corroborate the correlation above was more demanding than that can be available for econometric analysis. First, the number of observations is limited especially for the poverty series. Secondly, when available, the dataset forms a highly unbalanced and irregularly spaced panel of observations. In addition, the number of observations obtainable by pooling was very small to make realistic inferences. Therefore, the transmission mechanisms approach as has been identified earlier in this study has been employed. Two separate effects are then analysed: effect of trade liberaliation on income inequality and growth.[41] Hence, the overall poverty implication of trade liberalisation will be the sum of these two partial effects.

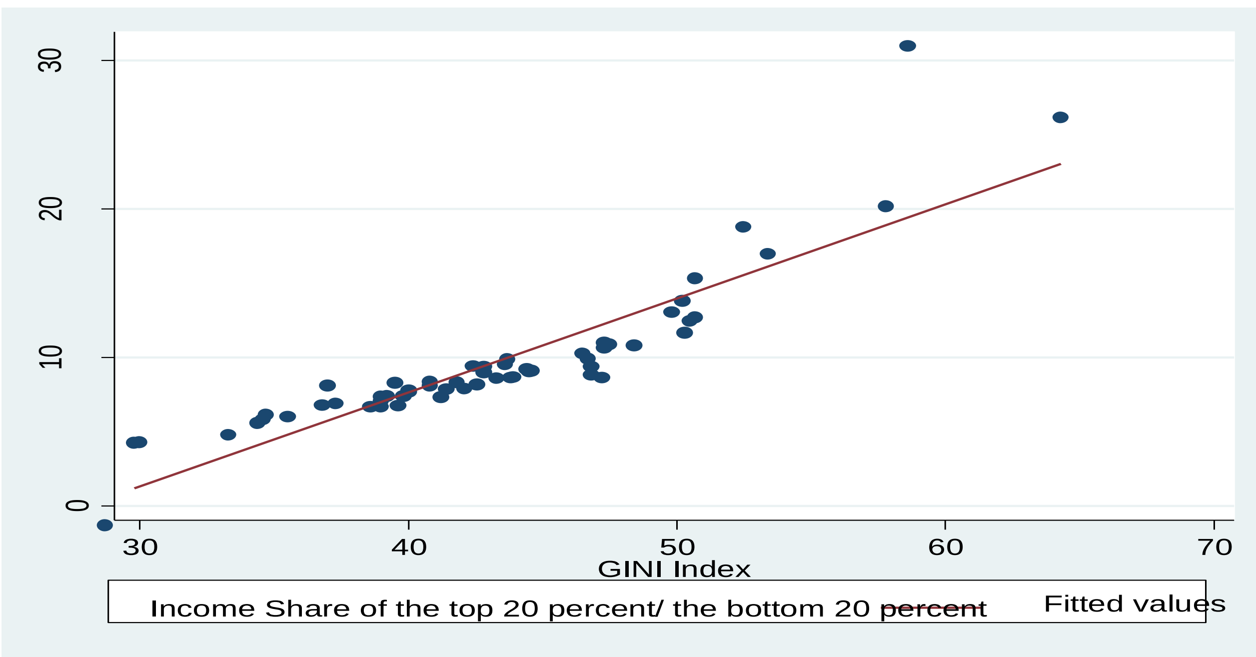
Thus, first attempt is made to examine the income distribution effect of trade liberalisation. But, for data availability reasons again, the study tries to draw inference through an examination of the relationship between average income of the poor (their share) and overall average income controlling for trade liberaliastion together with other explanatory variables. To complete the analysis, the growth impact of trade liberalistion is then tested. Specifically, the two equations estimated here are some variants of equation (29.) and (30.) presented in section 4.2. of chapter 4.

[41] Additional justification can be found from section 3.1.1 of chapter three.

5.2. Trade Liberalisation and Income Inequality in sub-Saharan Africa

One of the transmission mechanisms through which trade liberalisation can affect poverty is through its influence on the distribution of income that accrues to various segments of the society (income inequality). However, GINI index is one of the most widely used aggregate measures of inequality in income distribution. It measures the degree to which income distribution in a given society deviates from absolute equality. But as a measure of inequality, it has a close positive association with the ratio of income going to the top quintile of the population in terms of the bottom quintile.[42] Figure 5.2 below is the relationship between the two that allows for the two to be alternatively used.

Figure 5.2: GINI index and Income Share of the richest 20 percent in terms of the poorest 20 Percent in Sub-Saharan Africa.



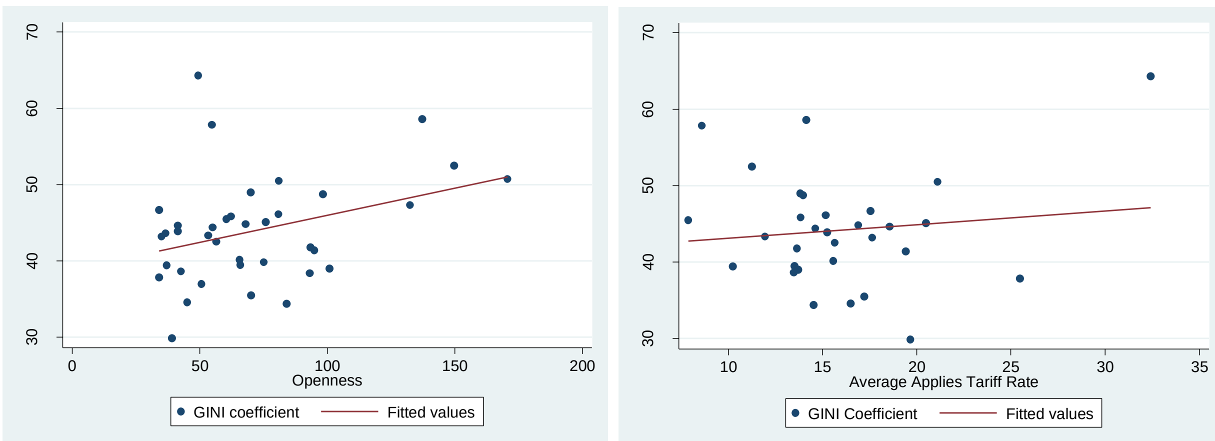
Source: World Bank, African Development Indicator 2010, and own computations.

Figure 5.2 exhibits the close relationship between the ratio of income going to the top quintile of the population in terms of the bottom quintile and the GINI index. Essentially, the higher the inequality the lower will be the share of income that accrue to the poorest segment of the society. Based on

[42] Obviously, the larger the share of the richest 20 percent or the smaller the share of the poorest 20 percent, the higher will be the ratio and the inequality in the distribution of income.

this and since there is smaller number of observations for GINI index, measures of income share to different segments of society is used as an alternative to the GINI index. Nevertheless, the correlation between GINI index and alternative measures of trade liberalisation is presented below.

Figures 5.3: Simple Scatter Plot of GINI coefficient against Openness and Trade Liberalisation in Sub-Saharan Africa Region[43]



Source: World Bank -African Development Indicator 2010, and own computation.

It is unclear from Figure 5.3 above that the nexus between trade liberalisation and income inequality is positive or not. The correlations under the two panels in Figure 5.3 are inconsistent with each other. For instance, the left panel of the figure shows the positive correlation between higher level of openness and GINI indexes. Since larger GINI index imply high inequality, it seems that those countries which trade more as a percentage of their GDP have higher inequality. But, in the right panel of the figure, higher barriers to trade through high tariff rates are associated with higher values of GINI indexes (higher inequality). Thus, inequality and trade protection here are directly related. As it stands, therefore, it is unclear whether trade liberalisation increases income inequality or not.

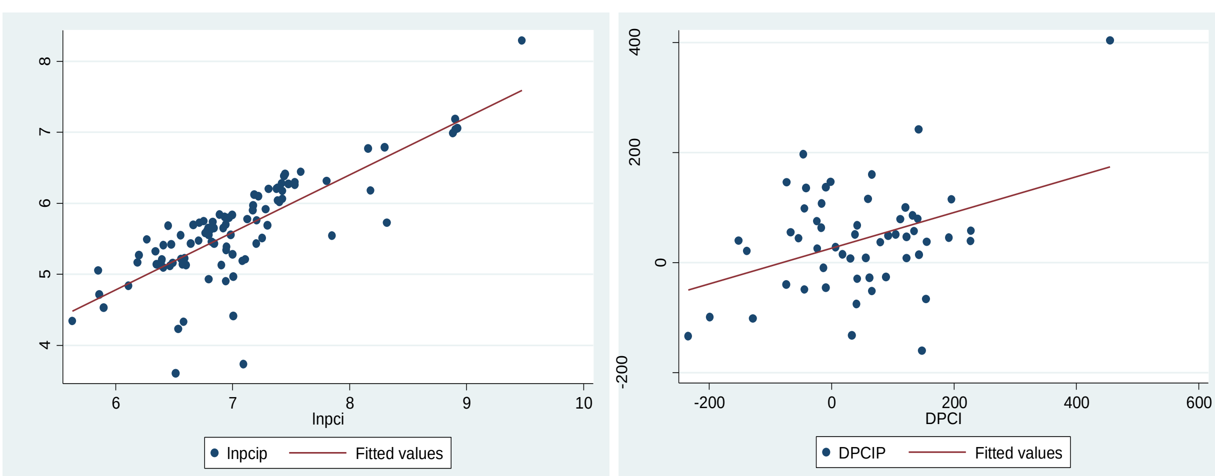
Preliminary simple OLS regression in both cases neither show that the coefficients relating both measures of trade liberalisation to GINI coefficients are significant nor is the said regression robust. With limited number of observations, such results also suffer from the problem of degree of freedom.

[43] The data for the GINI index is obtained from World-Bank CD-Rom, African Development Indicator 2010. Other variables are as taken from the main regression for which data description and sources are provided in the appendix.

Alternatively, therefore, analysis of how the poor's income is related with the overall income in Sub-Saharan African countries is considered. Technically, the effect of a particular policy on inequality should depend on how proportionately the income of different categories of people along the income distribution is affected by it. While the examination of impact of trade liberalisation on overall income is pending, the exercise here tries to verify whether the poor's income is closely related with the overall income and how that is affected by trade liberalisation. This matters since it can address the research question regarding income distribution. Besides, it can tell whether rapid economic growth alone can reduce poverty or not. Given strong positive variation, for instance, policies that increase the rate of income growth are highly likely to reduce income poverty unless they do a severe deterioration on income distribution. Therefore, below the relationship between per-capita income growth and average income of the poor is examined.

Beginning with correlation analysis again, Figure 5.4 below shows that income of the poor across countries is positively correlated with the overall per-capita income. As the left panel of figure 5.4 shows, there is a positive association between the average income of the poor and the overall average income. And, the correlation seems strong as the scatter plots are close to the trend line. However, it is almost a tautology to expect such associations as the poor in poor countries are generally poorer than their counterparts in rich countries.

Figures 5.4: Simple Scatter Plot of per-capita income of the poor against the overall per-capita income (at levels and differences).



Source: Own Computation but World Bank -African Development Indicators, 2010.

More plausible explanations could be derived from the relationship on differences. The right panel of Figure 5.4 shows that changes or growth in the overall per-capita income has generally positive impact on the change or growth of per-capita income of the poor. But, the fit of the line as well as the linear slope parameter are seriously weakened. Nonetheless, both correlations suggest that rapid economic growth can reduce poverty in Sub-Saharan Africa. A major concern with this analysis, however, is that it does not account for the influence of other variables on the income share of different segments of the society. To tackle such problem, equation 29 of section 4.2 where the influence of other factors is controlled for is estimated using OLS regression.

Table 5.1: OLS Regression of growth rate in per-capita income of the poor on overall per capita income

Variables	**Per capita income of the poor**							**Change in poor's income**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Per capita income	**.8091*****	**.7986*****	**0.8578*****	**.8659*****	**.8753*****	**.8241*****	**.8081*****	
	(14.55)	**(127.46)**	**(15.23)**	**(15.79)**	**(16.02)**	**(78.30)**	**(127.84)**	
Change in per capita income								**0.3247****
								(2.12)
Openness			**-0.0020**	**0.0024**				
			(-1.22)	**(0.85)**				
Per capita arable land			**-0.1558**	**.8200**	**.4415**			
			(-0.78)	**(1.63)**	**(1.53)**			
Inflation rate			**-0.0032****	**-0.0030****	**-.0029***	**-.0032****	**-.0035*****	
			(-1.98)	**(-2.13)**	**(-1.99)**	**(-3.51)**	**(-3.91)**	
Openness*land				**-0.0212***	**-0.0134***	**-.0065***		
				(-1.74)	**(-1.89)**	**(-1.88)**		
Constant	**-0.0749**		**-0.1737**	**-.4359**	**-0.3688**			**26.408****
	(-0.19)		**(-0.44)**	**(-1.12)**	**(-0.95)**			**(2.17)**
Observations	**95**	**95**	**95**	**95**	**95**	**95**	**95**	**55**
R-squared	**0.6469**	**0.9942**	**0.7043**	**0.7187**	**0.7158**	**0.9952**	**0.9951**	**0.1568**
F- test	**211.80 (0.0000)**	**16247.06 (0.0000)**	**61.73 (0.0000)**	**56.24 (0.0000)**	**67.03 (0.0000)**	**8188.24 (0.0000)**	**10793.93 (0.0000)**	**9.85 (0.0386)**

*, ** and *** represent significances at 10 per cent, 5 per cent and 1 per cent levels, and values in parenthesis represent t-ratios based on robust standard errors.

At the outset, two points are worth mentioning from the results reported in Table 5.1 above: the sizes of the overall fit (R^2) and the coefficient estimates and their statistical significance.[44] With regard to the overall fit, the coefficient of determination (R^2) could be said large in most cases, even when the other determinants of inequality are unaccounted for. That is, variations in per-capita income levels alone could account for most of the variations in income level of the poor across SSA and that the influence of other factors is small. The linear slope for the relationship between average income of the poor and overall income hovers around 80 percent implying that the poor's income in SSA is positive but less than unitary elastic with respect to the overall income level. Thus, it suggests that income growth benefits the poor but not as much as it benefits the rich. This result is statistically highly significant in all alternative specifications and the overall fit is also large, in some cases more than 90 percent.

However, the fact that elasticity of the poor's income with respect to average income is less than unity signifies increasing income inequality as economies grow. In addition, the share of income that is going to the poor seems to be orthogonal to trade in general. With a magnitude of 0.0024, the coefficient relating the share of income that accrue to the poor and the level of trade openness is not statistically different from zero. This does not seem to support the predictions of the standard argument in trade theories regarding the distributional consequences of trade liberalisation in poor countries like those in SSA. Although with higher inequality, nonetheless, it is apparent from the above table that growth remains to have poverty reducing effect in the region.

Despite that, it is also good to see the results for the other variables. These include inflation and socio-political factors which determine the distribution of asset in a society. The analytical discussion in previous sections has indicated the conditionality on these factors of the effects freer trade has on the distribution of income. The cross country regression result for the regression on income share of the poor controlling for the other factors is also reported in column 8 of Table 5.1.

Results in column 8 (and also column (3)) of Table 5.1 above show that resource wealth alone does not affect the share of income that accrues to the poor there. Despite being positive, the related

[44] Due to Dollar and Kraay (various publications) the dependent variable used in all the specifications is per-capita income of the poor. This is calculated by multiplying the income share of the poorest 20 percent of the population in each country by the product of 5 times the overall per-capita income in the respective countries. At levels, it gave 95 country-year observations since the year 1990 based on World Banks' online data base on income distribution. And, 55 country observations were obtained at differences. The corresponding series on per-capita income is extracted from the African Development Indicators (2010) CD-ROM.

coefficient in both regressions has been statistically insignificant at all conventional levels. However, when it occurs with openness to international trade, it tends to reduce the level and share of income that is going to the poor in SSA region, albeit by small margins. It suggests the potential for trade liberalisation to worsen the distribution of income in resource rich countries in the region.
Besides the level of per capita income, an important factor affecting the level or share of income that is going to the poor in SSA is inflation. Unlike per-capita income, however, the influence of inflation on the level or share of the poor's income from the overall income is negative and statistically significant. This shown by results reported in column 3, 4, 5 and 8. In addition, the results in Table 5.1 also suggest that relatively richer countries in SSA tend to have higher inequality as the elasticity of the poor's income to average income is less than unity.

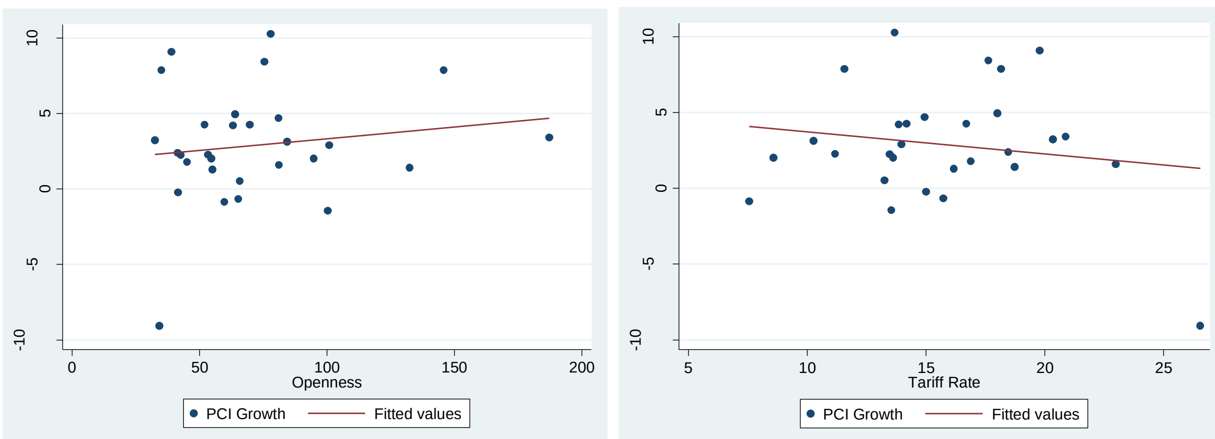
Summing up, the overall result from the examination of how freer trade may affect income distribution in SSA only showed weak relationship between freer trade and income inequality in general. Besides being not significantly different from zero, the effects of trade liberalsiation on income distribution are very small. If anything, freer trade in resource rich countries may increase income inequality that may cause poverty. In addition, inflation is distributionally adverse against the poor in the region. Despite the possibility for income inequality to grow overtime, however, economic growth could still reduce income poverty. That is, except that the poor benefits less than proportionately from income growth, both the rich and the poor benefit from it. This result is robust with high R^2 and statistically significant estimates in all the performed regressions.

Therefore, we must then check whether the earlier correlation that more liberal trade is associated with less poverty is due to the strong positive association of trade with income growth. If yes, it may be said that subsequent to its effect on income growth trade liberalisation reduces poverty. To complete the analysis and check whether indeed the positive correlation between poverty and trade liberalisation is borne out by the data from Sub-Saharan economies, econometric analysis of the impact of trade liberalization on per-capita income growth follows.

5.3. Trade Liberalisation and Income growth in Sub-Saharan Africa

Now that although less proportionately, it is confirmed in this study that the poor's income on average is closely related to per capita income growth in SSA but not systematically related with trade liberalisation per se. Next, it is important to find out how income growth in SSA is related to freer trade. Most of the literature supports the notion that trade liberalization or openness is good for economic growth. Such aggregate relationship can also be drawn from Figure 5.5 below where a proxy for openness (exports and imports as the share of GDP) and average applied tariff rates are cross plotted.

Figure 5.5: Simple Scatter Plot of Openness to Trade and Per Capita Income growth in Sub-Saharan Africa Region During 1996-2008.



Source: Own Computation.

The Figure above consistently shows a weak but positive association between economic growth and measures of trade liberalisation. Thus, the left panel of the figure displays a weak positive correlation between per-capita income growth and the volume of international trade. The right panel, on the other hand, displays negative though still weak correlation between per-capita income growth and average applied tariff rate. Since lower tariff rate or higher trade volume imply freer trade, both correlations seem to suggest that trade liberalisation is good for income growth in SSA. However, such association may also pick other aspects of countries that are central for growth, but not strictly linked to trade reforms.

Besides, it could be biased for several other reasons: endogeneity, unobserved heterogeneity and country specific terms to say the least. If one were to ignore these issues, the conclusion would be tariff reductions and/or more trade increases economic growth. But, the result can be biased and inconsistent. Therefore, to corroborate these simple results through econometric analysis, the relevant variables explaining growth have to be included. As a first step of the econometric analysis, the fixed effect and random effect estimators are applied on the panel data using equation 30 presented in section 4.2 of chapter four. The estimation results found are reported below.

Table 5.2: Regressions of Growth Rate of Per-Capita Income on Trade Liberalisation and other Relevant Variables.

	Random Effect				**Fixed Effect**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Initial Per-capita Income	-1.5574**	-1.7223**	-1.4388***	-1.2982**				
	(.7846)	(.8330)	(.5687)	.5683				
Investment physical capital	3.5781***	3.2716**	4.3596***	3.7519***	2.6401**	2.6656	2.8007**	4.4485***
	(1.3268)	(1.4076)	(1.1237)	(1.1687)	(1.5904)	(1.7731)	1.392176	(1.4177)
Investment human capital	-.1160	.6119			-1.1483	.5118		
	(.9431)	(1.0188)			(1.3874)	(1.5803)		
Imported Capital	1.8852	1.0201			.6960	3.0554*		
	(1.4274)	(1.3165)			(1.8219)	(1.7946)		
Manufacturing Value Added	3.8688	4.1208			-1.9864	12.0405		
	(7.9386)	(8.2465)			(12.9711)	(13.458)		
Openness	-2.4545		-.8398		27.6625***		20.7665***	
	(4.1407)		(3.1697)		(7.9321)		(5.6464)	
Tariff rate		-7.6409		-5.6471		-13.7656		-11.2048
		(7.8101)		(7.055)		(9.6523)		(8.2774)
Financial Development	-.1238**	-.1711***	-.1189***	-.1504***	-.2449***	-.1757**	-.2704***	-.1669**
	(.0529)	(.0578)	(.0424)	(.0428)	(.0690)	(.0787)	(.0639)	(.0704)
Inflation Rate	-.0095	-.0233			.02487	-.0087		
	(.0317)	(.0335)			(.0339)	(.0383)		
Institutional Quality	1.4695	1.4415	1.5202*	1.7188*	6.4620***	5.2986**	5.8946 ***	4.7860**
	(.9362)	(1.0288)	(.8308)	(.9135)	(1.8861)	(2.0850)	(1.8233)	(1.9646)
Population Growth	-11.8592**	-11.5670**	-13.338***	-12.66***	-14.9757**	-16.93**	-14.7655**	-14.4802**
	(5.4498)	(5.8460)	(4.5445)	(4.8742)	(7.3694)	(8.5732)	(6.0020)	(6.6154)
Constant	25.2407*	29.2849**	30.2130***	30.7095**	19.9254	25.5857	23.0815*	25.9953 *
	(14.1010)	(14.9142)	(11.7968)	(12.6671)	(16.0615)	(19.0718)	(12.9329)	(14.3972)
Observations	196	170	212	184	196	170	212	184
R-squared	0.3211	.3238	.3377	.3602	0.2457	0.1650	.2007	.1920
No. of countries	24	24	24	24	24	24	24	24

*, ** and *** represent significances at 10 per cent, 5 per cent and 1 per cent levels, and values in parenthesis represent t-ratios, whereas values in parenthesis are standard errors.

Results reported under columns (1), (2), (3) and (4) are obtained from random effects model, while (5), (6), (7) and (7) are obtained from the fixed effects model. Starting with column one, there is evidence of per capita income convergence in SSA. Investment in physical capital significantly and positively affects per capita income growth. Capital goods import, industrialization and better institutional quality are also positive determinants of income growth. On the other hand, the level of financial development (M2) and population growth rates are negatively and significantly correlated with per capita income growth. But, openness to international trade and investment in human capital appear to be negatively associated with per capita income growth, albeit statistically insignificant. Macroeconomic stability as proxied by inflation rate negatively affects per capita income growth. Rapid population growth is also a negative significant determinant of per capita income growth.

Column two uses applied tariff rate in place of openness to account for trade liberalisation. Similar results are obtained except that the influence of investment in human capital appears to be positive now. In addition, the coefficient relating tariff rate with per capita income growth is negative. This is despite the same sign for openness.

The corresponding results for the fixed effects model are also reported in columns 5 and 6 of the table. Again, investment in physical capital is a positive and significant determinant of per capita income growth in both column 5 and 6. So is openness in column 5 and institutional quality in column 6. Though statistically insignificant, capital goods import and inflation rate also appear to have positive effect on growth here. The effect of financial development (M2) on growth remains to be negative and highly significant. Although statistically insignificant, investment in human capital and the share of manufacturing sector in total GDP appear to be negatively associated with per capita income growth.

In column 6 the liberalisation measure considered is the average applied tariff rate. Some of the findings here differ from that of column 5 in terms of both sign and statistical significance. For instance, though positive, investment in physical capital is an insignificant determinant of per capita income growth now whereas imported capital turns out to be significant determinant at 10% level. In addition, though still insignificant, investment in human capital is now a positive determinant. But, the findings on similar other variables remain to have the same sign and significance as in column 5. The alternative measure to openness, tariff rate, has a negative but insignificant relationship with growth.

Yet, the problem of multicollinearity may be common in the kind of regressions conducted above. To diagnose the problem the correlation matrix was examined. As could be refereed from the correlation matrix reported in the appendix section, the variables capital goods imports, the share of manufacturing sector in the overall economy, saving on human capital and initial per-capita income were highly correlated with each other and many other explanatory variables. For instance, the variable for capital goods imports was highly correlated with openness (+), physical capital accumulation (+) and Human capital accumulation (+). Initial per-capita income, was highly correlated with the share of manufacturing sector in the overall economy (+), population growth as in the capital deepening requirement (-), investment on human capital (+) and institutional quality (+). Therefore, the variables with high correlation were alternatively dropped and the regressions were preceded as reported in columns (3) and (4) for the random effect and (7) and (8) for the fixed effects models.

Based on such diagnosis, the results reported in columns (3) and (4) show that both measures of trade liberalisation used, initial level of per capita income, financial deepening and population growth rate are negative determinants of per capita income growth. While the estimates for initial level of per capita income and financial deepening are statistically significant, both trade liberalisation measures used are insignificant. On the other hand, investment in physical capital and institutional quality are positive and statistically significant determinants of income growth. Thus, it is difficult to judge from this that trade liberalisation has either positive or negative effect on income growth. Only the fixed effect estimates reported in column (7) and (8) give some evidence that it may be. Despite similar results in other variables, openness is now a significant positive determinant of growth while tariff rate, although insignificant, is a negative determinant.

Still, this cannot be counted as strong evidence. Sign and statistical significance of most results are sensitive to the inclusion or exclusion of variables. Only those results on income convergence, population growth rate and financial deepening remain fairly robust in alternative specifications. Besides, statistical problems that may bias these results remain including endogeneity, unobserved heterogeneity due to country specific terms, omitted variable bias and persistence. Indeed, excluding highly correlated variables could be a source of omitted variable bias that we tried to avoid in the first place. On top of that, there are problems of dynamic bias in per capita income growth. Though both the random effects and fixed effects estimators are subject to these problems, the case is even stronger for the fixed effects estimator (Nickel, 1981). Therefore, nothing concrete can be drawn from results in the two models as the coefficient estimates are potentially biased.

Nevertheless, two essential points were drawn. First, as shown by the random effects model, the positive association between liberal trade and economic growth suggested by the correlation analysis may fail to hold when other omitted variables are included. Secondly, though not reported here, another interesting regularity revealed by preliminary exercises was that the lagged dependent variable is a positive and statistically significant estimate. This confirms the dynamic nature of economic growth. Therefore, the results given in table 5.2 may still be considered as preliminary ones that can be used for comparison. Despite that, a proper technique of analysis dealing with the problem of dynamic bias and endogeneity is necessary.

The problem of endogeniety could be tackled by use of instrumental variables. These could take two types: external and internal. The ideal solution is to use external instruments. Nevertheless, coming up with external instruments is a difficult task. Besides, the problem of dynamic bias remains. A pragmatic solution treating both problems simultaneously is to use the General Method of Moments (GMM) technique. The technique provides internal instruments while at the same time taking care of dynamic panel bias. This is especially suited here for this panel has larger N (24 countries) and small T (13 years).

Therefore, after including the lagged dependent variable, the difference GMM estimator is conducted using openness and applied tariff rates, respectively. This estimation technique is intended to take care of the endogeneity problem that primarily emanates from the lag per capita income growth in the regression and hence the 'dynamic panel bias'. Fortunately, it also has another advantage in that it could control for the problem of endogeneity that is possible in other variables included in the regression. The result is reported in table 5.3 below.

The main results below show that income growth is negatively determined by initial per capita income level, the level of financial development, inflation and population growth rates while increases in physical, human and imported capital, manufacturing value added, openness, applied tariff rate and institutional quality are positive determinants of income growth. The coefficients from the Difference GMM estimator, however, cannot be relied upon due to the built-in mechanism of this estimator to take first differences of all the variables expunging the fixed effects and hence may still cause endogeneity problem. Although the second order test for no autoregression condition is met, Sargan test of over identification is only marginally met only in one of the regressions. Therefore, the coefficients obtained are potentially biased

Table 5.3: Difference GMM Regression of Economic Growth on Openness and Tariff Rate

VARIABLES	DIFFERENCE GMM	DIFFERENCE GMM
Lagged Per-capita Income Growth	-.2217 *	-.3051
	(.1299)	(.1395)
Investment in Physical Capital	.2072	.9464
	(1.5192)	(1.2574)
Investment in Human capital	-2.3745*	-2.3658
	(1.2760)	(2.0432)
Imported capital	5.5658***	7.2130***
	(1.8021)	(2.6806)
Manufacturing Value Added	9.280395	30.8048**
	(12.2462)	(12.9581)
Openness	13.8950*	
	(8.2010)	
Tariff rate		.6643
		(16.8484)
Financial development	-.3127***	-.2408***
	(.0680)	(.0733)
Inflation	-.1261***	-.1292 **
	(.0399)	(.0604)
Institutional quality	2.0512	5.0790
	(2.6251)	(3.3286)
Population Growth	-38.5207	-59.7821*
	(24.2127)	(31.8241)
Observations	106	78
Arellano-Bond Autocorrelation test p-value	0.573	0.837
Sargan Over-Identification test p-value	0.012	0.009

Note: values in parenthesis are *robust* standard errors, while *, ** and *** represent significances at 10 per cent, 5 per cent and 1 per cent levels, respectively. Physical, human and imported capital, are all expressed in natural logarithms. Openness, tariff rate and population growth are also expressed in natural logarithms where the first two are 1+ the ratio of openness and 1 + tariff rate, and the last one is the sum of depreciation, technological growth and population growth rates in which only population growth rate is variable across countries and over time. Null of no first order autocorrelation has been rejected. Hence, Autocorrelation tests reported are for second-order and consequently the instrument vector starts from lag 2. The independent variables used to create instruments are population growth and the level of initial per capita income, whereas the remaining independent variables are included in the GMM matrix. Although not reported here, time dummy variables have also been included.

In addition, differencing is not something desirable with many of the variables changing very little over time or often remaining constant.[45] In general, the System GMM approach generally produces more efficient and precise estimates compared to Difference GMM by improving precision and reducing the finite sample bias (Baltagi, 2008).The results from the system GMM estimator are thus reported in table 5.4 below. It is from this result that the conclusions regarding the nexus between trade liberalisation and per-capita income growth in this thesis are drawn.

[45] See appendix for statistical summary of the each variable.

Table 5.4: System GMM Regression of Economic Growth on Openness and Tariff Rate

VARIABLES	SYSTEM GMM	SYSTEM GMM
Lagged Per-capita Income Growth	.2551*	.3013**
	(.1319)	.1593
Initial Per-capita Income	-3.3309***	-2.2915 ***
	(1.1152)	.4860
Investment in Physical Capital	2.9706*	3.8183***
	(1.5518)	(.8681)
Investment in Human capital	-1.0634	.7510
	(2.3436)	(.5228)
Imported capital	.9577	1.4040*
	(1.7363)	(.7258)
Manufacturing Value Added	3.3003	4.6361
	(14.8750)	(4.4798)
Openness	21.2513*	
	(11.9909)	
Tariff rate		-11.6798**
		(4.5108)
Financial development	-.2169***	-.2041 ***
	(.0642)	(.0320)
Inflation	-.1265**	-.0860 ***
	(.0598)	(.0279)
Institutional quality	1.4795	1.6365 ***
	(1.9440)	(.5492)
Population Growth	-17.1232*	-17.9420 ***
	(10.2607)	(3.3350)
Constant		45.5791 ***
		(8.6155)
Observations	177	154
Arellano-Bond Autocorrelation test p-value	0.743	0.540
Sargan Over-Identification test p-value	0.149	0.536

Note: values in parenthesis are *robust* standard errors, while *, ** and *** represent significances at 10 per cent, 5 per cent and 1 per cent levels, respectively. Physical, human and imported capital, are all expressed in natural logarithms. Openness, tariff rate and population growth are also expressed in natural logarithms where the first two are 1+ the ratio of openness and 1 + tariff rate, and the last one is the sum of depreciation, technological growth and population growth rates in which only population growth rate is variable across countries and over time. Null of no first order autocorrelation has been rejected. Hence, Autocorrelation tests reported are for second-order and consequently the instrument vector starts from lag 2. The independent variables used to create instruments are population growth and the level of initial per capita income, whereas the remaining independent variables are included in the GMM matrix. Although not reported here, time dummy variables have also been included.

The main findings in the system GMM estimation are that income growth is positively related with its past, investment in physical capital, higher share of imported capital from GDP, manufacturing value added, openness to international trade and high level of institutional quality. Of these, the coefficient on manufacturing value added is statistically insignificant while the coefficient for imported capital is only marginally significant in one of the two regressions. On the other hand, initial level of per capita income, tariff rate, level of financial development, inflation and population growth rates are negatively related with per capita income growth. Thus, one can see here that trade liberalisation is good for income growth. What is more, the System GMM estimators passes the over-identification test with a much superior p-value of 0.536 (0.743) and the null of no second order autocorrelation cannot be rejected with p-value of 0.540 (0.149), in the regressions where tariff rate and openness are alternatively used.

5.4. Discussion of the Main Results

Technically, poverty in SSA has been reduced to inequitable distribution and/or meagerness of overall income. Thus, identification of the poverty implications of trade liberalisation has been left to examination of the same through two separate channels of transmission. Specifically, this study aimed at investigating what impact trade liberalistion has on the distribution of income and its evolution over time. The tentative hypothesises at the beginning of the study has been that by liberalizing to international trade, Africa's growth will be slower and the income equalizing effect of trade liberalisation in SSA could also be nullified by market imperfections and natural resource abundance. Thus, trade in general and its liberalisation in particular has been postulated to explain the slow trend in SSA's poverty reduction.

Further identification of the first of the two has been dealt theoretically without resolve to the specific effects. Thus, an empirical investigation was conducted. The actual finding from that exercise revealed that the distributional consequences of trade liberalsiation in SSA are generally small and not significantly different from zero. Something has to neutralize the effects projected under the neoclassical comparative advantage theories. Perhaps a combination of political economy factors including the initial distribution of assets, natural resource aboundance and market imperfections may be operating here. Evidence has also been established with regard to natural resource abundance in which higher openness in resource rich countries is related with higher income inequality.

This is consistent with the literature which suggests that the initial distribution of assets in resource rich countries tends to be highly asymmetric and openness in such economies may also exacerbate inequality in income distribution (see Fisher, 2000). Controlling for that through per capita arable land and an interaction term with openness, it was found that resource richness or openness by themselves does not have statistically significant impact on income distribution in SSA region. But, resource rich economies in the region tend to have higher income inequality when they trade more internationally. That is, natural resource wealth tends to reduce the level and share of income that is going to the poor in SSA region when it interacts with openness to international trade. In general, however, the effect of trade on income distribution has not been statistically different from zero.

Secondly, the growth impact of trade liberalisation in SSA was expected to be negative due to dynamic factors that affect the long term productivity of economies. That is, as comparative advantage which SSA currently possesses lies in areas of traditional goods production and export, the opportunities for technological advancement are narrower. Controlling for such factors, however, this study has found that trade liberalisation in SSA has been good for income growth. In light of these two findings, the recent trade liberalisation in SSA should have been behind the contemporary reduction in poverty. Besides, it was found that capital goods imports and structural transformation of economies seems to improve economic growth in the region, albeit the latter is not statistically significant. In this regard, selective protection of commodities that are imported to these countries is an important consideration. However, this is not borne out by the gross measure of protection that is used in this study.

Most of control variables remain well-behaved and enter with the 'right' sign. There is evidence of conditional convergence and also investment in physical capital and improved institutional quality are significant determinants of growth. Besides, past growth is significantly positively associated with current level of growth that the growth history of these countries is an important variable. In that, the possibility of developmental/growth trap is evident. Moreover, there is also a tendency for conditional convergence in the region.

Despite the fact that strong domestic financial markets could lead to more efficient allocation of capital and higher growth, the finding here is contrary. This may be caused by distortions such as weak institutions and non-transparent financial systems that financial institutions could be high-jacked by special interest groups investing in less efficient activities. Besides, human capital investment's relationship with income growth has been either negative or statistically insignificant. A possible explanation to this might be because of low variation in the data or because investment in human capital takes time before the return is due. Indeed, in the period in which it is spent it mostly involves opportunity costs in terms of lost output.

Chapter 6: Conclusion and Policy Implications

Over the years, Africa has seen many trade policy shifts which did not contribute to its poverty reduction. However, it is now continuing to free its trade with the rest of the world. At the same time, economies are growing again after decades of stagnation and deterioration, and poverty is falling, albeit meagerly. There are many theories supporting the positive association between income growth and freer international trade and its distributional merits in terms of poverty reduction in poor countries. Therefore, the implication for poverty reduction of recent measures of trade liberalsiation has been examined empirically while trying to answer the following questions:

- What is the differential impact of openness on the real income of the poor vis-à-vis the non-poor in the Sub-Saharan Africa region?
- Has trade liberalisation increased income growth in the Region?
- What are the key factors underlying recent improvements in the region's economic performance?
- What was the influence of Africa's economic structure, composition of imports and production structure on current economic performance?

To empirically answer these questions, this thesis has used some Sub-Saharan African countries for which adequate data was available in the period from 1996 to 2008. Both descriptive and econometric techniques were used. Among other things, the recent trends in GDP growth, trade liberalisation and poverty were highlighted. Econometrically, the ordinary least squares and Arellano-Bond's (1991) and Blundell-Bond's (1998) dynamic panel data techniques have been used.

The descriptive analysis in chapter two has shown the revival of growth in SSA after decades of stagnation and deterioration. With more than half of the region's population still in deep poverty, however, recent reductions are meager. Meanwhile, the region's economies continue to open-up their international trade affecting the volume of international trade and structure of their economy. However, two concerns were raised: the increasing concentration of world poverty in the region and the concentration and deepening of SSA's commodity exports. While the concentration of global poverty could be due to the depth of SSA's poverty which seems to make the recent growth inadequate; dependence in commodity exports and the increasing concentration of it, puts the mere sustainability of the recent growth performance at risk.

Two major findings were also borne out by the empirical analysis. First, there is a close but less than proportionate relationship between income of the poor and overall income. On average, the poor has benefited from income growth. However, the poor in the region has benefited less proportionately than the non-poor. Thus, from already high level of income inequality, the region is going for more inequality lest growth becomes more favorable to the poor. The role of trade libearalisation in that is not promising with only very small but statistically insignificant positive effect on the poor's income in general and negative when it occurs in resource rich SSA (though only marginally statistically significant).

This contradicts the prediction of the dominant trade theories regarding the distributional implication of trade liberalsiation in poor countries. Thus, it is necessary to have redistributive policies alongside polices which enhance growth. The case is even more important in resource rich countries. As the findings in this study show, opening up to international trade without an accompanying redistributive measure can hurt the poor in resource rich countries despite its effect on income growth. Perhaps, the distribution of resources or the proceeds from it must be examined. Nonetheless, the influence of income growth on the poor's remains positive.

Therefore, the income growth impact of trade liberalisation has also been the subject of this enquiry. Theories exist that show how trade liberalisation may have both negative and positive effects on income growth. Hence, it is possible for trade liberalisation to accelerate or hamper income growth. The empirical results found out show that trade liberalistion and income growth are positively related in SSA. This is found to be true for both measures of trade liberalisation used.

However, while opening up to international trade countries expect to alter the structure of their production and volume of international trade. Specifically, the volume of trade is more likely to be increasing with the structure of production and trade becoming more in line with static comparative advantage that is current. Accordingly, although there is positive relationship between trade liberalisation measures and income growth in the region, the increasing concentration of exports into primary commodities, as borne out by the descriptive analysis, may still undermine the future growth prospect of the region.

In this regard, the finding of the study is that both the share of the manufacturing value added to the domestic economy as well as capital goods imports are positive determinants of income growth, albeit only the later is statistically significant. The result on the structure of economy in the region (GDP share of manufacturing value added) may have been weakened by that fact that the period under investigation is all but the momentum for commodity demand booms created by the emerging economies has been sustained. Nevertheless, that should not deter policy makers from acting. In the absence of a more benign structural transformation, it seems that it is important to look into innovative ways to achieve structural transformation.

Since trade liberalisation is generally neutral with respect to income distribution and it has been positively related with income growth, it may be said to have helped the recent reduction in SSA's poverty. Hence, the meager reductions in SSA's poverty must have been in spite of the trade liberalisation measures. However, trade liberalsiation may not be an efficient target to reduce poverty in the long term. Despite very weak distributional impact, if not negative, as in resource rich countries in the region, its influence for structural transformation is negative. This may engender the recent improvement unsustainable. Besides, the increasing concentration of world poverty in SSA implies other policy targets must also be considered. Like trade liberalisation, there were many variables that were driving income growth in the region. Unlike trade liberalisation, however, these other variables may have better implications in terms of structural transformation of economies in the region as well as equity in income distribution.

Leaving aside the distributional implications, it was found out in this study that other determinants of growth such as investment in physical and human capital, macroeconomic stability as well as institutional quality have been significantly affecting growth in the region. Investment in physical and human capital is also important determinant of structural transformation. In addition, the growth process in SSA depends positively on its past trends. The inertia to strengthening growth enhancing policies in SSA could be an important source of poverty reduction. Maintaining macroeconomic stability through lower inflation rate could also be a powerful tool to reduce poverty in SSA as it is positively related with both income growth and distribution. Together with trade liberalisation, policy makers in the region have to give more importance to these factors in order to continue reducing poverty even more.

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Appendix

Appendix A: Sub-Saharan African Countries Included in Regressions 1 (40)

Angola; Benin; Botswana; Burkina Faso; Burundi; Cameroon; Central African Republic; Cape Verde; Chad; Comoros; Congo, Dem. Rep.; Congo, Rep. Of; Cote d'Ivoire; Djibouti; Ethiopia; Gabon; Gambia, The; Ghana; Guinea; Guinea-Bissau; Kenya; Lesotho; Liberia; Madagascar; Malawi; Mali; Mauritania; Mozambique; Namibia; Niger; Nigeria; Rwanda; Senegal; Sierra Leone; South Africa; Swaziland; Tanzania; Togo; Togo; Uganda; Zambia.

Appendix B: Countries Included in Regressions 2 (24)

Benin; Burkina Faso; Burundi; Cameroon; Cote d'Ivoire; Ethiopia; Gambia, The; Ghana; Guinea; Kenya; Lesotho; Madagascar; Malawi; Mali; Mauritania; Mozambique; Niger; Nigeria; Rwanda; Senegal; Sierra Leone; South Africa; Tanzania; Uganda.

Appendix C: Variables and Data Sources

Variable	Description	Source
	Per-Capita Income measured by real per capita GDP at purchasing power parity in constant 2000 US$.	World bank, African Development Indicators 2010 (CD-ROM).
	Per Capita Income of the Poor is calculated by using above and income share of people in the poorest quintiles.	World bank, African Development Indicators 2010 (CD-ROM) and own computations.
	is Per Capita Income Growth rate at constant 2000 US$	World bank, African Development Indicators 2010 (CD-ROM).
	Lag dependent variable	World bank, African Development Indicators 2010 (CD-ROM).
	Initial income measured as log of real GDP per capital at the beginning of the study period (1996)	World bank, African Development Indicators 2010 (CD-ROM).
	Gross Fixed capital Formation (% GDP)	World bank, African Development Indicators 2010 (CD-ROM).
	Saving rate on human capital, real spending on education as % GDP.	World Development Indicators 2010, World Bank on line Data Set
	An index of production structure built using value added of the manufacturing sector for .	World bank, African Development Indicators 2010 (CD-ROM).
	An index built using the two alternative measures of trade liberalisation for τ.	The data source for openness is World bank, African Development Indicators 2010 (CD-ROM) whereas the applied tariff rate is accessed from world bank using the link http://siteresources.worldbank.org/-INTRANETTRADE/Resources/tar2009.xls.
	The sum of population growth, technical progress and depreciation parameters	Following Mankiw, Romer and Wiel the sum was assumed to be 5 while population growth figures are from World bank, African Development Indicators 2010 (CD-ROM).
	Average Per-Capita arable land, averaged for the study period (hectares per person)	World bank, African Development Indicators 2010 (CD-ROM).
GINI	Income distribution measured as inequality between 0 (everyone has the same income) and 100 (richest person has all the income).	World bank, African Development Indicators 2010 (CD-ROM).

Appendix D: Summary Statistics for Variables Used Under Regression One

i. Simple Statistical Summary

Variable	Obs	Mean	Std. Dev.	Min	Max
lnpcip	95	5.632603	.7285553	3.610877	8.287451
lnpci	95	7.053897	.7241974	5.630495	9.474895
Yshare poor	96	5.229167	1.775501	.7	9.3
openness	96	68.82708	32.05746	25.4	192.3
Inflation	95	18.79895	46.37305	-3.4	418.2
land	96	.2916667	.235603	0	1.6

ii. Correlation Matrix

	lnpcip	lnpci	Yshare poor	openness	Inflation	land
lnpcip	1.0000					
lnpci	0.8043	1.0000				
Yshare poor	0.2176	-0.3787	1.0000			
openness	0.2023	0.3888	-0.3307	1.0000		
Inflation	-0.1514	0.0893	-0.3465	0.2509	1.0000	
land	-0.1143	-0.0903	-0.0199	-0.2239	0.0329	1.0000

Appendix E: Summary Statistics for Variables Used Under Regression One Two

i. Simple Statistical Summary

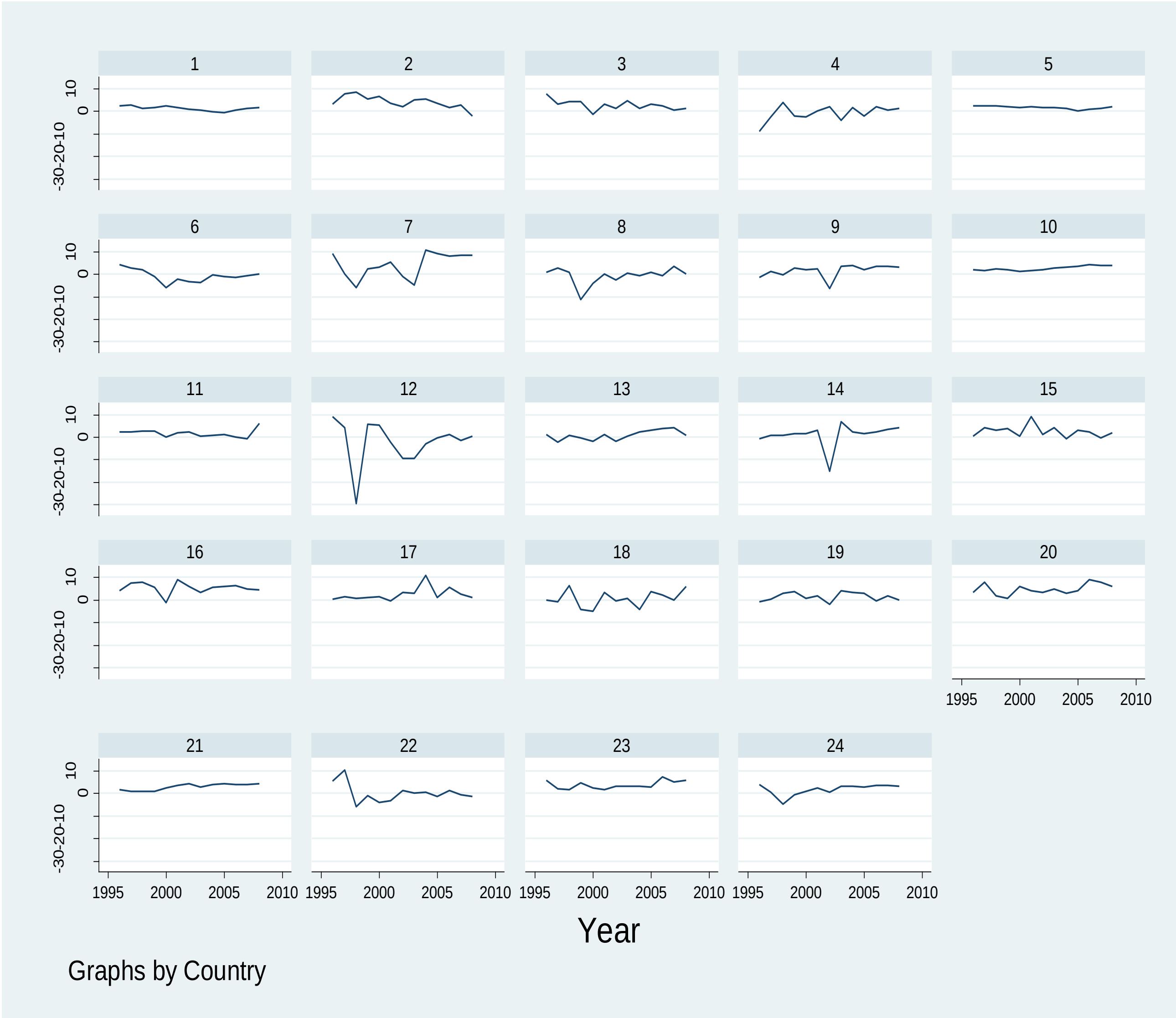
Variable	Obs	Mean	Std. Dev.	Min	Max
country	312	12.5	6.933307	1	24
year	312	2002	3.747668	1996	2008
Gpci	312	1.769872	3.832949	-29.6	10.8
$Gpcii_{-1}$	311	1.649518	3.875946	-29.6	10.8
Ln(pci(0))	312	7.051829	.8390372	5.880533	9.616459
LnS_k	292	2.893924	.3271871	1.667299	3.648372
LnS_h	312	1.08403	.466059	-.141015	2.13697
Ln(ex)	288	2.80814	.360983	1.920678	3.60489
Ln(1+w)	293	.0867253	.0401572	.0256677	.1963888
Ln(1+indu)	293	.2029121	.0862141	.0944007	.5521595
Ln(1+open)	299	.4795378	.1424554	.1643155	.7703324
Ln(1+tarrif)	274	.1388378	.0467457	.0372958	.3435897
FinDeepening	305	23.77279	8.897055	5.6	55.2
inflation	312	8.677885	9.41608	-17.8	64.9
Institution	238	-.5609244	.5190824	-1.783333	8333333
Ln(n+g+δ)	312	2.0263	.0782749	1.740466	2.174752

ii. Correlation Matrix

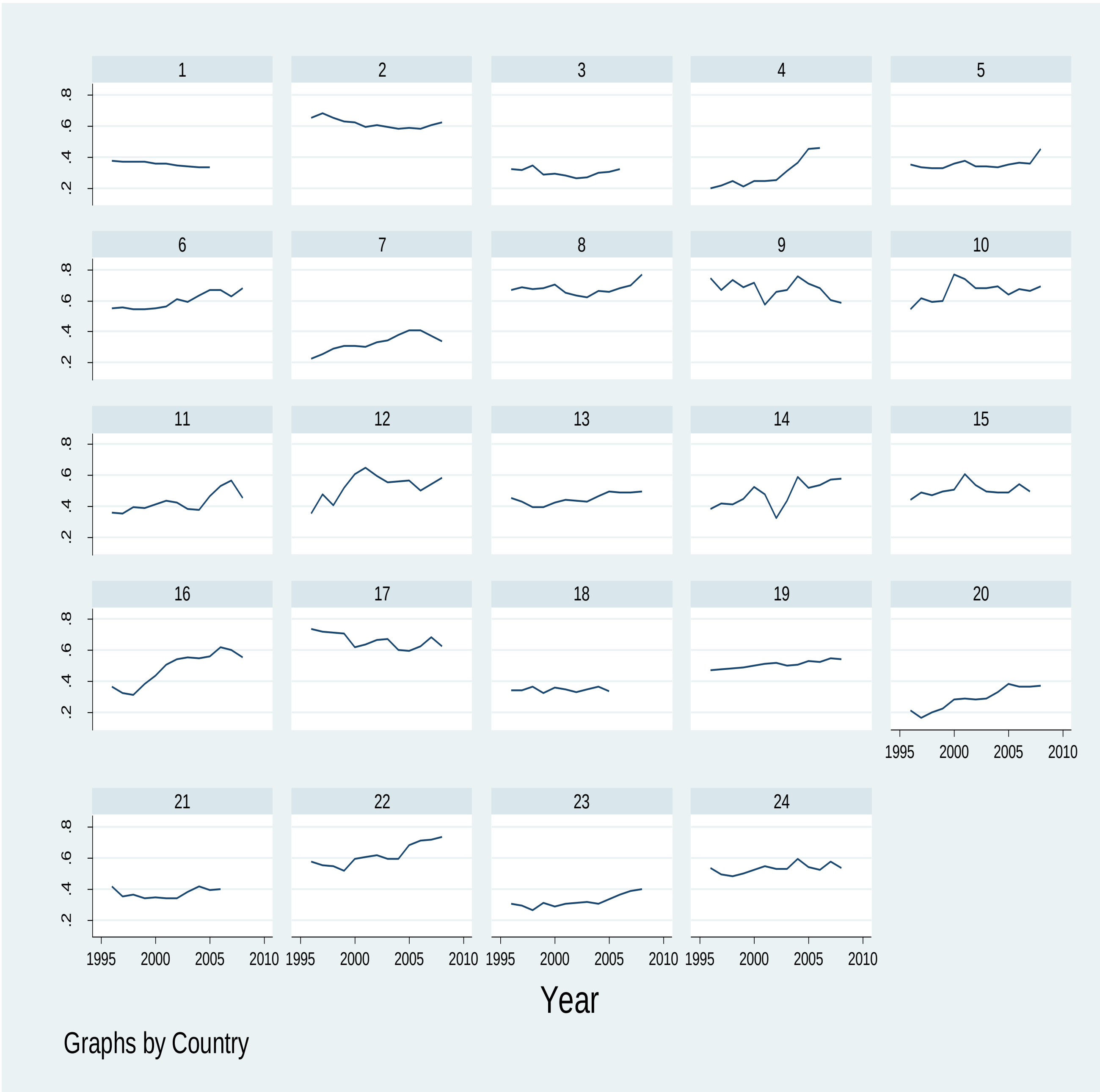
	Gpci	Gpcii-1	ln(pci(0))	lnSk	lnSh	ln(ex)	ln(1+w)	ln(1+open)	findev	infl	instn	ln(n+g+δ)
Gpci	1.0000											
Gpcii-1	0.2632	1.0000										
Ln(pci(0))	-0.0411	-0.0856	1.0000									
lnSk	0.2580	0.2541	0.1908	1.0000								
lnsh	-0.0615	-0.0521	0.3529	0.0648	1.0000							
lnex	0.1104	0.1399	0.0780	0.4582	0.3130	1.0000						
Ln(1+w)	0.0841	0.0383	0.7734	0.1822	0.1767	0.0019	1.0000					
Ln(1+open)	-0.0774	-0.1130	0.4664	0.3044	0.4297	0.6082	0.3662	1.0000				
findev	-0.1101	-0.0085	0.0288	0.2097	0.5116	0.5066	-0.2355	0.3899	1.0000			
inflation	0.0596	-0.0090	-0.0515	-0.0081	-0.0744	0.1969	-0.0113	0.0580	-0.0852	1.0000		
institquali	0.1551	0.1404	0.4214	0.5067	0.4719	0.3867	0.3071	0.4172	0.2549	0.0241	1.0000	
ln(n+g+δ)	-0.0988	-0.0646	-0.4973	0.0249	-0.2594	-0.2029	-0.5396	-0.2855	-0.1636	-0.1020	-0.1613	1.0000

	Gpci	Gpcii-1	ln(pci(0))	lnSk	lnSh	ln(ex)	ln(1+w)	ln(1+tarif)	findev	inflat	instn	ln(n+g+δ)
Gpci	1.0000											
Gpcii-1	0.2880	1.0000										
ln(pci(0))	-0.0086	-0.0457	1.0000									
lnSk	0.2422	0.2794	0.1852	1.0000								
lnSh	-0.0236	-0.0156	0.3757	0.0508	1.0000							
Ln(ex)	0.0611	0.1331	0.1118	0.4556	0.3016	1.0000						
Ln(1+w)	0.1376	0.0853	0.7434	0.1739	0.1907	0.0533	1.0000					
Ln(1+tarrif)	-0.1262	-0.1190	-0.1768	-0.2919	-0.1800	-0.2177	-0.1138	1.0000				
findev	-0.1798	-0.0100	0.0861	0.2022	0.5360	0.5085	-0.1871	-0.1646	1.0000			
infl	0.0343	-0.0316	-0.0085	-0.0297	-0.0607	0.1538	0.0462	-0.0597	-0.0786	1.0000		
instn	0.1957	0.2043	0.4379	0.5292	0.3965	0.3595	0.3291	-0.4565	0.2295	0.0377	1.0000	
Ln(n+g+δ)	-0.0635	-0.0938	-0.4715	0.0559	-0.2902	-0.2282	-0.5134	0.0055	-0.2321	-0.1359	-0.1421	1.0000

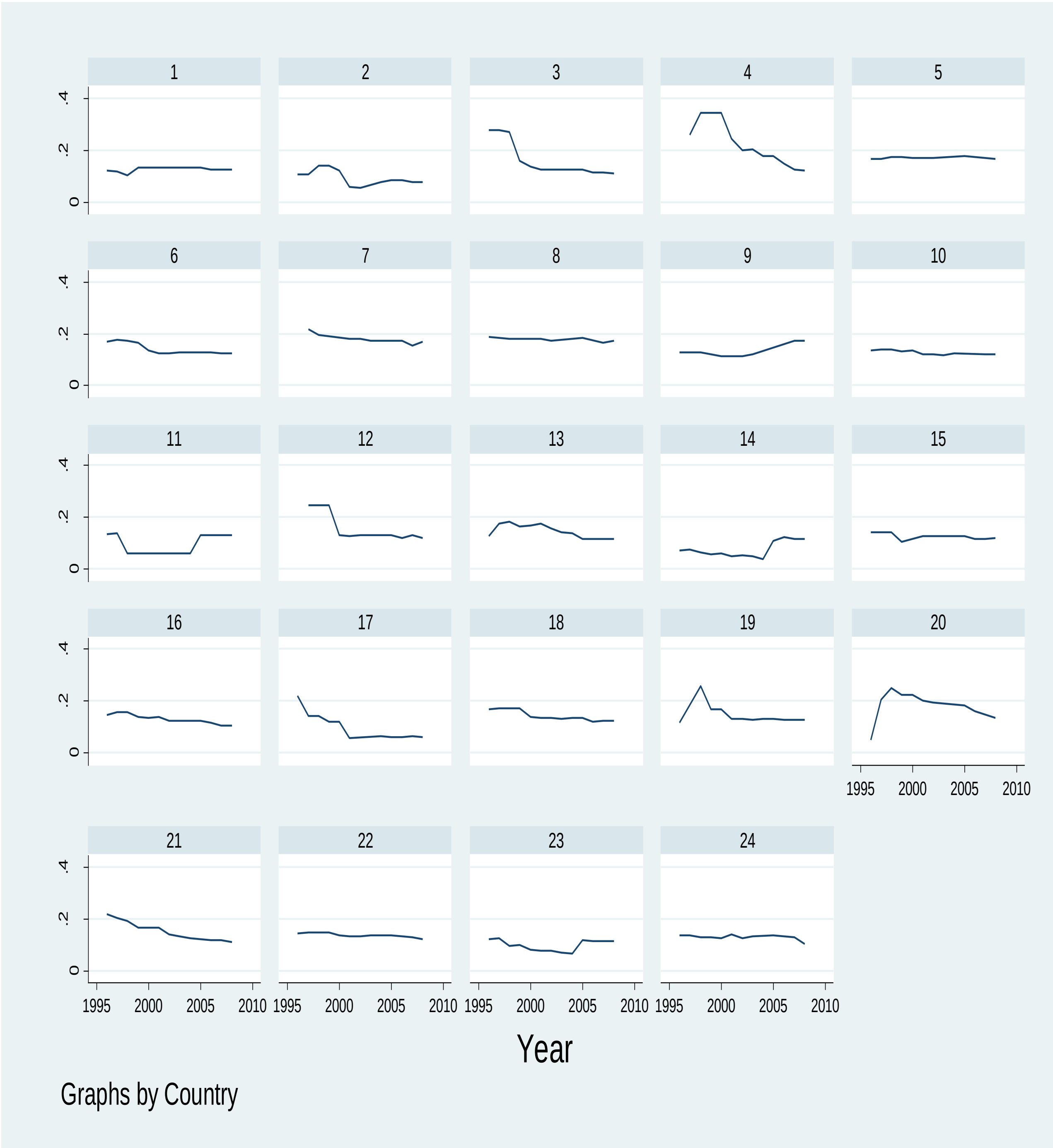
Appendix F: Trends of Per Capita Income Growth Rate by Country



Appendix G: Trends of Openness to Trade by country



Appendix H: Trend of Average Applied Tariff rate by country



Declaration

The thesis is my original work, has not been presented for a degree in any other university and that all sources of material used for the thesis have been duly acknowledged.

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Date: ____________________