

**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**Trade Liberalization and Its Impact on Economic
Growth: The Case of Ethiopia**

**By
Zemzem Ahmed**

**May 2010
Addis Ababa**

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**A Project Report Submitted to the School of Graduate Studies of Addis
Ababa University in Partial Fulfillment of the Requirements for the
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Abstract

These days the domestic growths of countries are related to liberalization and international donors are highly preaching its importance for less developed countries in particular. The purpose of this paper is therefore to estimate the impact of trade liberalization on Ethiopian economic growth. The massive reform undertaken in 1992 taken as a structural break, the study uses a time series data ranging from 1970 to 2009. Two-Stage Least Squares (2SLS) regression and Error Correction Method (ECM) methods were used to examine the relationship of trade liberalization with export, import and GDP. The empirical results indicate that the trade reform had positive impact on both imports and exports whereas its impact on imports is faster and higher than that of exports, worsening the trade balances. The result also shows that trade liberalization had negative impact on GDP growth as result of its worsening effect on trade balances. Therefore, the study suggests that the country should increase its exports to reap the full benefit of trade liberalization. Diversifying exportable through incentives, creating enabling environment for foreign direct investment and improving policy and institutions of the country are the policy implication of the study to get out of the worsening trade balance.

Key words: *Trade Liberalization, Economic growth, Export Growth, Import growth, time series analysis and Ethiopia.*

I. Introduction

1.1 Background

International trade in the liberal conception is not only germane to global specialization, but also increases competition, imposes efficiency on local firms; boosts world productivity and increases wealth creation on a global scale (Onimmode 2000, cited in Adejumobi, 20005). It is these benefits of international trade that made a compelling argument for free trade at the global level.

Integration into the world economy has been preached as a powerful means for countries to promote economic growth, development and poverty reduction. According to IMF (2001), no country in recent decades has achieved economic success in terms of substantial increases in living standards for its people without being open to the rest of the world. In contrast, trade opening (along with opening to foreign direct investment) has been an important element in the economic success of East Asia, where the average import tariff has fallen from 30% to 10% over the past 20 years.

However, the progress of integration has been uneven in recent decades. Progress has been very impressive for a number of developing countries in Asia and, to a lesser extent, in Latin America, but less rapid for many other countries, particularly in Africa and the Middle East (IMF, 2001). Africa's share of world trade and global production is not only very low, but has continued to decline in the last two decades (EEA, 20005: 219). Although the share of Africa's trade in the world is extremely low, being about 2% of the world trade, that little amount constitutes a significant proportion, which is about 60%, of its GDP. This is a significant figure compared to that of other regions of the world (Alemayehu, 2009: 25).

Significant reduction of tariff and non-tariff barriers to trade are recommended by researchers to the poorest countries to prevent them from further marginalization and to increase their substantially declining share of world trade. As indicated in most literature (e.g., Rodrik, 1992 and Santos, 2004) trade liberalization embraces all the elements in the opening of markets, including a reduction in tariffs and non-tariff barriers, a relaxation of

investment and capital flows between countries and an enhanced transparency of trade policies and trade facilitation measures. Trade liberalization in a broad sense argues for measures that facilitate an increase in trade by reducing the limits on trade that countries around the world have erected over a number of years.

Trade liberalization and devaluation, including exchange rate unification in the case of multiple rates, are the two important ingredients of most structural adjustment programs (Krueger, 1978 and Rodrik, 1992). Both these measures are believed to be helpful in establishing outward-oriented development policies. According to Krueger's (1998) definition, outward orientation is a trade strategy that is not blessing incentives in favor of import-competing industries and that provides roughly equal incentives to all exporting activities; he also noted that it does not mean more incentives for producing for export than for the domestic market.

Rodrik (1992) states two main reasons for countries to undertake a trade reform. The first reason is that time of crisis occasionally enables radical reforms that would have been even unthinkable in calmer times. The second reason has to do with the role of foreign creditors, IMF and World Bank in particular. From the mid-1980s, most African countries adopted Structural Adjustment Programs (SAPs) with the support of the Bretton Woods institutions.

Ethiopia began the liberalization process in the 1990s for both reasons stated by Rodrik (1992). Since 1992, following current Government's coming to power, Ethiopia has launched a package of reform programs with a clear vision of reversing the socio-economic crisis of the 1970s and 1980s and re-orienting the economy from command to market economy, rationalizing the role of the state and to enhance the private sector development (MFTR, 2006: 9).

As mentioned above, the second reason for trade liberalization is, it is part of World Bank supported SAPs. Measures undertaken under this structural and economic reform program include devaluation of the currency (the Birr), rationalization of public expenditure, introduction of a new investment code, labor and public enterprise laws, removal of subsidies and export tax rebate, liberalization of prices except for petroleum, reduction of the maximum import tariff from 230% during pre-liberalization period to 80% in 1995 and

to 35% in 2002 after liberalization, liberalization of payments for invisible transactions, and easing of market entry for privately-owned banks and insurance companies (MFTR, 2006). Following significant reforms undertaken by the current regime, the annual average growth rates of export and import increased from 5.6% and 7.72% in the pre-reform period to 26.4% and 25.86% in the post reform period, respectively.

There may be other socio-political factors that would have affected these growths other than trade liberalization. In this study, the net effect of trade liberalization on import, export and GDP growth will be empirically analyzed.

The rest of the paper is organized as follows. In section two related theoretical and empirical literatures have been reviewed. In section three, the econometric models have been specified and estimation procedures are presented. Empirical results are presented in section four and the last section concludes the paper and provides policy implications.

II. Review of Related Literature

Trade liberalization can make an economy more competitive; this in return can make the same economy more productive. This is of course a hypothesis rather than a fact (Adnan, 2004). Empirical investigation in this field tends to give conflicting results. Some studies show that the countries which went for liberalization programs have improved their import and export performance. On the other hand, other studies have found little evidence of a relationship between trade liberalization and economic growth. In this section, both theoretical and empirical literatures on these issues have been reviewed.

2.1 Theoretical Literature

Although the origin of the literature on trade liberalization and economic reform goes back to 1970s, the process of the reform started by the introduction of the Structural Adjustment Programs (SAPs) and Stabilization Programs (SPs) of the World Bank and the IMF in early 1980s. Following the 1970's and 1980's economic and debt crisis of developing world, the membership and commitments to the World Trade Organisation (WTO) (formerly General Agreement on Tariffs and Trade, GATT) has also been an important determinant of trade reforms in developing countries (Santos 2000).

Trade liberalization measures, in particular, are believed to be a reaction to the failure of traditional import substitution (MS) policies of the 1950s–1970s (Shafaeddin 2005, Krueger 1998). Shafaeddin (2005) further explained that, the philosophy behind the reform programmes was, the role of government in making decisions on resource allocation should be minimized and the incentive structure should change in favor of exports through import liberalization in order to follow an export promotion (EP) path instead of MS.

Different scholars define trade liberalization differently. According to World Bank analysis (1990) “Trade liberalization is defined as any act that would make the trade regime more neutral nearer to a trade system free of government intervention”.

Greenaway et al (1998) stated three (not unrelated) concepts of trade liberalization, the first is the reduction of import tariffs, a second notion of liberalization is that associated with reducing anti-export bias and the third concept is that of ‘second best’ liberalization (when one instrument of intervention is replaced by another less distorting instrument).

Michealv et al. (1991), cited in Edwards (1993:1367) explained trade liberalization as: "... any change which leads a country's trade system towards neutrality in the sense of bringing its economy closer to the situation which would prevail if there were no government interference."

In general, liberalization refers to all measures taken to reduce anti-export bias and import controls, including non-tariff barriers and exchange rate distortions (Paulino and Thirlwall, 2004).

2.1.1 The Links between Trade Liberalization and Economic Growth

Mainstream economic theory argues that free trade is necessary to maintain the competitiveness of domestic industry (Balassa, 1983). It is also believed that trade liberalization would promote economic growth by capturing the static and dynamic gains from trade through a more efficient allocation of resources; greater competition; an increase in the flow of knowledge and investment and, ultimately, a faster rate of capital accumulation and technical progress (Paulino and Thirlwall, 2004).

There is also a view that trade liberalization can help the economy to avoid macroeconomic instability, through foreign exchange constraints, and particularly in developing countries imported capital and intermediate goods are not perfectly substitutable with their domestically produced counterparts since imported capital and intermediate goods have new technology embodied in them. Therefore, restrictive policies, would lead to a less efficient performance than policies that increase the availability of imported capital and intermediate goods like export promotion policies.

The other pro trade liberalization argument is scale economies. It is argued that more open trade regimes are conducive to lower average costs since domestic firms will take advantage of larger levels of outputs by participating in the world markets. The hope for liberalization is that the ensuing competition and shake-up of the industry will lead to a more rational resource use, with fewer firms operating at larger levels of output and therefore higher levels of productivity (Adnan, 2004). According to Adnan (2004), rationalization requires free entry and exit.

However, the connection between trade policy and economic performances became one of the controversies among scholars, which lived for a century, continues today even as the world is experiencing an unprecedented period of trade liberalization. Almost all economists think that international trade should be free according to Rose (2004), but there are some analysts who have argued that protectionism may help economic performance.

According to Edward (1997), two issues have been at the core of these controversies: first, until recently theoretical models had been unable to link trade policy to faster equilibrium growth. Second, the empirical literature on the subject has been affected by serious data problems. Recently, however, some studies have made the link between trade liberalization and its dynamic benefit.

Weisbrot & Baker (2003) provide three reasons for countries not to necessarily benefit from trade liberalization, even in the most basic models. The first is the “terms of trade effect”. This means that trade liberalization affects the relative prices of various goods. A second reason that countries could lose by trade liberalization is that many countries can directly benefit from protection in their export markets. Specifically, if import quotas restrict a nation’s exports to another country, it implies that they are able to sell their exports at above-market price. A third way that countries could be losers as a result of trade liberalization is that they may be large consumers of subsidized exports. If a country eliminated its subsidies on these exports, then in standard models it could lead to a loss to the importing nation.

In addition to the above mentioned reasons, there are two possible sources of large economic losses particularly to developing countries, if they follow the sort of liberalization path currently being advocated by the World Bank, the IMF and others, international economic institutions (Weisbrot & Baker 2003). Specifically, it notes the transfer of income to industrialized countries in the form of royalties and licensing fees- which would result from the application of US-style patent and copyright laws. It also notes the potential costs of increased reserve holdings. In recent years, developing countries have felt the need to maintain very large reserves of foreign exchange money that gets very low returns in order to maintain the stability of their currencies.

Many scholars (e.g., Weisbrot & Baker 2003; Shafaeddin 2005, Sachs 1987, Ravallion, 2008) share the view that trade liberalization is not the key to major success stories in the developing world- most notably South Korea and Taiwan, which now have income levels comparable to the poorer industrialized countries but also countries that have more recently experienced accelerated growth rates, such as China and India, have not followed a simple path of trade liberalization. In all of these countries the government has played an important role in guiding the economy. This guidance has included subsidies and protection for favored industries and restrictions on capital flows, policies generally opposed by the leading proponents of trade liberalization. In many respects, the path of trade liberalization currently promoted by the World Bank and others can be seen as directly opposed to the development strategies that have proven most successful in the postwar period (Shafaeddin, 2005).

In its different studies, the World Bank also lists reasons for the failures of the liberalization program in low-income countries. Some of the reasons are insufficient liberalization and inappropriate implementation of liberalization and adjustment programs. Though governments are blamed for lack of appropriate sequencing & speed of liberalization or inappropriate macroeconomic policies, some scholars criticize the program itself, particularly recommended under the Washington Consensus is more likely to lead to the destruction of the existing industries, particularly of those that are at its early stages of infancy without necessarily leading to the emergence of new ones.

In the particular case of low income countries, it would imply that they would be locked in production and exports of primary commodities, simple processing and at best assembly operation or other labor-intensive ones with little prospect for upgrade, and subjecting them to the fallacy of composition (Shafaeddin, 2005).

Lall et al. (1994) is among those who distinguish four groups of activities within a country as far as the impact of trade liberalization is concerned. The first group includes those with strong resource advantage or well-developed capabilities so they are already competitive internationally, and those that benefit from natural protection because they are heavy and difficult or expensive to transport, or require close producer-buyer interaction. They benefit from liberalization. The second group consists of those which are in “a short distance from the technological frontier”, i.e. those which are near the stage of maturity. They may also

benefit from liberalization. The third group includes activities that are potentially viable, but require time to learn, i.e. are still at the stage of infancy. Sudden liberalization of imports will hurt them. Finally, there are activities, which are not economically viable currently, or potentially, so they suffer from liberalization but they should be allowed to die. This categorization implies that, the specific situations of the country should be considered to undertake liberalization.

Rodrik (1992) also warned not to oversell trade reform as cure-all for economic problems. He alerted strongly the danger of the mainstream economic theory arguments that free trade will be seen as the answer to the economic crisis of the 1980s. Rather he hypothesized that trade policy plays asymmetric role in development: an abysmal trade regime can perhaps drive a country into economic ruin: but there is no guarantee that good trade policy can make a poor country rich. He concludes therefore, claims on behalf of liberalization should be modest lest policy-makers become disillusioned once again.

2.1.2 Measures of liberalization

In spite of advancement in theory about trade liberalization, the empirical literature has continued to be affected by some serious limitations. In particular, researchers have been unable to generate satisfactory indices of trade policy orientation. According to Rodrik (1995), in most studies on openness and growth “the trade-regime indicator used is typically measured very badly”, and “openness in the sense of lack of trade restrictions is often confused with macroeconomic aspects of the policy regime.” The lack of high quality comparative data on total factor productivity (TFP) has complicated things further, impairing the analysis of the connection between openness and productivity growth (Edward, 1997).

Santos (2000) lists some common elements that can be regarded as characteristic of developing countries prior to trade liberalization. They are: (1) Import substitution industrialization (ISI) strategy, and its intrinsic policies (high tariff barriers, import controls, credit and exchange rate subsidies to ISI industries, protection of specific commodities via complex tariff structures); (2) Tariffs as the main source of fiscal revenues, the use of import tariffs and exchange rate controls, mainly to cope with balance of payments crises during the 1970s and 1980s, where external negative shocks resulted in

the fall of commodity prices; and (3) A reduction of aid flows and general world recession. Also, exchange controls were used to preserve fixed exchange rates and the coexistence of an anti-export bias and export-promotion, mostly in the form of infant industry protection of the manufacturing sector, overvalued exchange rates, tax and credit concessions, etc.

Therefore, the reform packages typically include: import liberalization through tariff reduction or tariff structure unification, reduction of duty rates and removal of non-tariff barriers (mainly import licensing). Export liberalization consisted of the reduction of export duties and simplification of the administrative procedures for exporting. Payments liberalization was linked to the elimination of exchange rate controls. Prices and market regulations were also widely abolished.

There are also five famous criteria of trade liberalization developed by Sachs and Warner (1995): the coverage of non-tariff barriers, average import tariffs, black market premia, existence or absence of state monopolies in the export sector and whether or not the economy in question is socialist. Although these indicators are an improvement over previous attempts, Edward (1997) criticized these indicators because they only provide a binary classification- a country is either open or closed. As a result, countries with different degrees of trade intervention are equally classified as open. He also added, many of the underlying data used by Sachs and Warner (1995) to construct their index are only available at one point in time.

Since the measurement of liberalization is controversial, the practice has varied somewhat from one study to another. Broadly speaking, analysts have identified episodes using one or more of the following policy accounts: relative price changes, output-based measures, multiple criteria measures (Greenaway et al, 1998). It is further noted that although policy accounts are an obvious starting points, they must be complimented with more robust/more objective measures.

Clearly, there are no straightforward indicators of liberalization. For these reasons a number of analysts have used multiple criteria to identify liberalization episodes, some formulaically and others judgmentally. The great advantage of using multiple criteria is the additional richness it brings to the identification of what can in practice be a somewhat amorphous phenomenon. This richness comes at a price, however, because as the criteria

are not straightforwardly additive an element of judgment is required in both the scaling of individual indicators and the relative weight to be attached to each (Greenaway et al, 1998).

2.2. Empirical literature

The evaluation of trade policy reforms in different regions of the world suggests that there is a diversity of experience regarding trade liberalization. Therefore empirical works on openness and growth has looked suspicious. This is mainly because of serious measurement and endogeneity problems (Rodrik, 1995).

Despite the wide range of techniques used, the broad country coverage and the wide range of liberalization experiences examined to see the connection between trade reforms and growth acceleration, there is no consensus among different studies. In some cases there is a positive correlation, in some negative, in others no clear correlation.

Edward (1997) investigated the relationship between openness and total factor productivity (TFP) growth of 93 countries by using weighted and instrumental weighted least squares regression. He used nine alternative indices of trade policy to investigate whether the evidence supports the view that, with other things given, TFP growth is faster in more open economies. His finding suggests that more open countries have indeed experienced faster productivity growth.

Though Grossman and Helpman (1991) are among those who have argued that countries that are more open to the rest of the world have a greater ability to absorb technological advances generated in leading nations, they present a model where openness affects growth negatively.

Morley and Perdakis (2000) investigated the combined effects of growth in government expenditure, exports, investment and labor supply on economic growth in Egypt between 1955 and 1996. They used co-integration and error correction models and found a long-run relationship between the variables, but less evidence of one in the short run. They added dummy variables to account for the important policy reforms in 1974 and 1991, which show the reforms, have significantly affected the relationship between government expenditure and growth in a positive direction, but have had a negative effect on exports and growth.

Parikh and Stirbu (2004) also investigated the impact of trade liberalization on economic growth, investment share of GDP, openness, trade balance and current accounts (as percentages of GDP) for 42 developing countries of Asia, Africa and Latin America over the period 1970-1999. They used both panel data and country-by-country data to measure the impact of liberalization on domestic economic growth measured in PPP terms from the data available in Heston, Summers and Aten (2001) study. Their analysis indicates that domestic economic growth is often positively related to liberalization for many countries of their sample.

They used Thirlwall and Hussain's (1982) growth equation in the first part as a behavioral equation and established that liberalization promotes growth and such output growth in pre-liberalization period is lower than that in post-liberalization period. Panel data of 42 countries, regional panel for three regions (fixed effect and random effect models) and country-by-country analysis (OLS regression) were conducted. Their finding concludes that, these relationships suggest that liberalization promotes growth but growth itself has negative effect on trade balance for a large majority of countries.

One unit change in liberalization index leads on average to 1.62 percentage point change in growth rates on average, *ceteris paribus* (Parikh and Stirbu 2004). They explained that their conclusions are very tentative since their model is static and lags in economic behavior are not considered in the study. However, it is probable that real output growth will respond to liberalization with a lag, the length of which will depend upon the overall structure of countries' economy in addition to the nature of the liberalization so if the dynamics are not modeled the result becomes more dependent on the sample.

However, Greenaway et al (1998) investigated the effect of liberalization on growth by modeling the dynamics of several samples and, more importantly, using several measures of liberalization. They argued that their report is a consistent set of results both qualitatively and quantitatively. Their findings suggest that liberalization and openness do impact favorably on the growth of GDP per capita. They have clear evidence of a J-curve effect, evidence which is consistent across samples and measures of liberalization. They conclude that, the growth enhancing effects of liberalization is unlikely to be instantaneous: as theory suggests the response is in all probability lagged.

Pacheco-López (2004) studied the effects of trade liberalization during the mid-1980s from the liberalization involved in the North American Free Trade Agreement (NAFTA) on exports, imports and the balance of payments in Mexico. Their main empirical results suggest that the trade reforms during the mid-1980s had a significant impact on trade, exports and imports; however, the effects of NAFTA are negligible. He argued that, since the mid-1980s, the propensity to import has exceeded the propensity to export and this has worsened the growth rate consistent with balanced trade, and this is a major explanation of the slowdown of Mexico's growth in recent years.

Paulino (2000) examined the impact of trade liberalization on export growth for a sample of developing economies using the export demand function approach. The research applied dynamic panel data models based on fixed effects and generalized methods of moments (GMM) estimators. In addition, heterogeneous panels for the complete sample, as well as for different regions, are estimated using a time-series/cross-section technique. The main findings are that exports react negatively to an increase in relative prices, and positively to world income growth. Furthermore, export duties have a detrimental effect on export growth, though the impact is relatively small, while trade liberalization emerges as a significant positive determinant of export performance.

The extended work of Paulino and Thirlwall (2004) also support that trade liberalization has positively correlated with export performance. They estimated the effect of trade liberalization on export growth, import growth, the balance of trade and the balance of payments for a sample of 22 developing countries that have adopted trade liberalization policies since the mid-1970s. They tested the impact and significance of liberalization using different techniques including dynamic panel data analysis based on fixed effects and generalized method of moments (GMM) and time series/cross section analysis. They finally find that liberalization stimulated export growth but raised import growth by more, leading to a worsening of the balance of trade and payments. To the extent that this has constrained the growth of output and living standards, the findings have important implications for the sequencing and degree of liberalization.

The different projection results of Uruguay and Doha using CGE also hold up the argument about the doubtfulness of empirical works on liberalization and growth. It is very striking

feature of trade models that they project madly different outcomes when modeling an identical policy. For example, in 1994 the President's Council of Economic Advisors projected that the Uruguay Round of the GATT, which created the WTO, would add \$100-200 billion annually to GDP in the United States (1% to 2%) when fully phased in (*Economic Report of the President*, 1994, p. 234). By contrast, a model developed by Brown, Deardorff, and Stern (BDS), all prominent supporters of recent trade pacts, shows that the Uruguay Round would add just \$12.9 billion to GDP, less than one eighth as much (BDS, 2001 cited in Weisbrot and Baker, 2003).

Staff of the WTO Secretariat (2005) surveyed the following papers of CGE simulations of the Doha negotiations in the WTO discussion paper: Anderson et al (2005), Anderson et al (2003), Brown et al (2003), Cline (2004), Francois, et al. (2003), OECD (2003), UNCTAD (2003) and World Bank (2003). They experienced different outcomes of Doha as it has happened in projection of Uruguay.

There is a large range in the estimated welfare gains of Doha, which is between US\$2.2 trillion and US \$117 billion in 1997 dollars (Piermartini and Teh, 2005). These figures range between 7.2% and 0.4% of world GDP in 1997. Different reasons, like the coverage of the simulation (merchandise trade, services, facilitation), the depth of the liberalization, whether all countries contribute to liberalization, whether dynamics are included and the structure of the models themselves considered for why these differences arise.

However, Weisbrot and Baker (2003) argued that this source of differences across models is comparatively small. Rather there are many different effects of trade, which are less well understood that economists have sought to model according to them. These include the possibility that many industries have increasing returns to scale, which will magnify the effects of any trade-induced growth; that increased trade will lead to more rapid capital accumulation, and that expanded trade can increase productivity throughout the affected industries. These secondary effects are poorly understood and lead to widely divergent estimates of the gains from expanded trade. As the World Bank commented on the impact of expanded trade on productivity, much more work needs to be done in this area" (World Bank, 2002, cited in Weisbrot and Baker (2003).

In addition to total welfare gain difference, there are differences about the distribution of

gains from trade policies among different modelers' estimation. Some simulations (ADFHHM (2003), Cline (2004), OECD (2003) and World Bank, (2003) produce results that show a hefty share of the welfare gains of Doha going to developing countries. It amounts to about 40% in the ADFHHM and Cline simulations and slightly more than half in the case of the OECD and World Bank studies. Developing countries' share of the welfare gains exceeds their average share of world trade. Note that the models in these simulations are more conventional, with no dynamics and with constant returns to scale (Piermartini and Teh, 2005).

In contrast, the BDS (2003), AMV (2005) and FMT (2003) simulations give the lowest share of the gains to developing countries at just about a fifth, smaller than developing countries' share in world trade, even though the simulations involve the removal of all barriers, which means that developing countries have to liberalize the most given their higher average tariffs. In the studies by BDS and FMT, a major reason for this difference has to do with the assumption that there are increasing returns to scale in manufacturing and the presence of dynamics (Piermartini and Teh, 2005).

In some studies, (AMV), the relative low share of gains accruing to developing countries compared to other studies is in part due to the inclusion of preferences in the database. Preference erosion following multilateral liberalization is, for some countries, a source of welfare losses (Piermartini and Teh, 2005).

Agricultural liberalization is one of the areas in which greatest variance in simulation results demonstrated. Some papers simulated by BDS and UNCTAD (2003) generate results, which show welfare losses from agriculture liberalization. One other paper (FMT) shows that trade reform can have quite opposite welfare effects on developed and developing countries. However, in the three other simulations (ADFHHM, Cline, World Bank) surveyed in this study, agriculture is the sector where the greatest welfare gains are derived.

The assumptions and modeling are different in all the above papers, which suggest that differences in assumption and the presence of scale economies are important in determining whether the world gains from liberalization in agriculture or not. Similar to some of the results of CGE simulations of the Uruguay Round, net food importing

developing countries are vulnerable to a deterioration in the terms of trade, if food prices rise in world markets as agricultural subsidies are reduced in industrial countries.

Polaski (2006) is the one who recently analyzing the impact of the Doha Round. This author used Carnegie model, which is the newest in a series of models built for the purpose of analyzing and projecting possible impacts of the Doha Round. According to this author's finding at the aggregate, global level is that any of the plausible trade scenarios will produce only modest gains, about a one-time increase in world income of \$40 to \$60 billion. This represents an increase of less than 0.2 percent of current global gross domestic product (GDP). For her the adjustment costs to which countries expose themselves when they change trade policies may loom larger than in the past. There are both net winners and net losers under different scenarios, and she categorized the poorest countries are among the net losers under all likely Doha scenarios. Among developing countries, about 90 percent of the gains from Doha scenarios would come from liberalization of trade in manufactured goods. Most developing countries gain from liberalization of trade in manufactured goods, with China gaining the most and Asian countries gaining more than Latin American and African countries. The benefits of agricultural trade liberalization flow overwhelmingly to rich countries, while developing countries actually suffer slight losses as a group.

The finding of Polaski (2006) is very pessimistic about the possibility that the poorest countries may lose from any agreement unless additional special measures are taken on their behalf. The results show that Bangladesh, East Africa, and the rest of Sub-Saharan Africa are adversely affected in almost every scenario. Polaski (2006) concludes that it is important not to overstate the possible gains from the Doha Round, as has been done by many political leaders, commentators, and activists. It has been fashionable to state that trade can do more than development aid to lift people out of poverty in developing countries. Though this may be theoretically true, it is clear from the Carnegie model and a close study of most other recent models that trade is not a panacea for poverty alleviation or for development more generally. Trade is one factor among many that can contribute to economic growth and rising incomes, but its contribution is likely to be very modest.

Polaski (2006) also cautioned that changes in existing trade policies can also cause economic contraction and must be designed and implemented with great care. An unrealistic expectation of gains can lead to pressure for inappropriate policies and could create a bandwagon effect where the very legitimate defensive concerns of developing countries are ignored to achieve illusory gains. Errors in analysis can lead to increases in poverty, not the hoped-for reductions, in a broad range of developing countries. For the poorest countries, where there is little margin for error, the risks are particularly acute.

Seid Mohammed (2007) used a dynamic Computable General Equilibrium (CGE) model for quantification of income and welfare effects of Ethiopia's trade liberalization. He simulated alternative policies scenarios and his main simulation result suggest that instantaneous type of liberalization seems performing well in its capacity to increase real GDP, welfare, real output, and real export in the long run.

Ayele Gelan (2002) as cited in Seid Mohammed (2007) employed urban-rural Computable General Equilibrium (CGE) model to examine the impacts of trade liberalization on structural transformation and over all growth of Ethiopian economy. His simulation experiments suggest that the impact of trade liberalization depend on wage setting condition in the urban region. According to his analysis the success of trade liberalization depends on extent to which product and labor market reforms are synchronized.

Seid Hassen (2008) also employed Instrumental Variable (IV) and two stage least square (2SLS) estimation methods to estimate the impact of trade liberalization on Ethiopian export, import and GDP using data from 1960-2006. The study finds that trade liberalization has positive impact on both export and import of the country, its impact is more to import than to exports making the trade deficit of the country worse than before. However, the study finds out no direct significant impact of trade liberalization on Ethiopian GDP growth.

Ethiopia is in the process of accession to WTO and adopted SAP since 1992, trade liberalization is the main component for both, therefore, comparing to the current status of the country regarding trade liberalization, the existing works are not exhaustive.

As it is clear from the above reviewed theoretical and empirical literatures, there is no clear-cut conclusion whether trade liberalization has positive correlation with growth under

all circumstances. Therefore, empirical testing of this relationship for different countries is necessary. In this paper the relationship between trade liberalization and growth of Ethiopia will be tested.

III. Overview of Trade Policy Reforms

During the period before Ethiopia embarked on this serious reform program of the 1992, many forms of trade controls were applied: there were prolonged over valuation of exchange rate (on average 2.44 Birr per US dollar in Imperial and 2.07 Birr per US dollar in DERG regime), high tariff rates (on average 240 % in both regimes), high export tax (7.7 and 10.1 % of government revenue came from export tax in Imperial and DERG regimes respectively), extensive foreign exchange control and other non-tariff barriers. All these indicate both regimes were following a repressive trade policy with the objective of strongly inward oriented development strategy (Seid, 2007). These policies are exposed to the very famous infant industry argument which let industries infant for long period of time. Ethiopia began the liberalization process in 1990s.

Measures undertaken during this period include; devaluation of the currency (the Birr), liberalize its external trade by progressively lowering its maximum import tariffs from 230 % to the current 40 % and now it became 35 %, thereby also lowering the average tariffs from 21.5 % to 19.5 % and now it became 17.5 %. Export taxes, export subsidies and import levies have been also eliminated.

3.1. Research Methodology

In this study two stage least squares (2SLS) and Error Correction Method (ECM) were used to estimate impact of trade liberalization on GDP, import and export for the time series data from 1970 to 2009.

3.1.1 Model Specifications

To see the exact effect of trade liberalization on growth of import, export and GDP we model separately for each variable.

3.1.2 The impact of trade liberalization on export growth

To see the impact of trade liberalization on export, we use a standard export function, specified by Thirwall (2003) in which exports are considered to be a function of price competitiveness, measured by the real exchange rate and international income. By

assuming constant price and income elasticities of demand for exports, the function can be written as:

$$X_t = A \left(\frac{p_d \varepsilon}{p_f} \right)^{\beta_1} W^{\beta_2} \quad (1)$$

where X_t is the level of exports at time t ; A is a constant; P_d/P_f is relative domestic and foreign prices measured in a common currency; W is the level of 'world' income; β_1 is the price elasticity of demand for exports, and β_2 is the income elasticity of demand for exports. Taking logs and differentiating with respect to time gives:

$$x = \alpha + \beta_1(p_d - p_f) - \beta_2 w \quad (2)$$

This traditional export growth function provides a useful framework in which to analyze the responsiveness of exports to price and income variations.

Santos and Thirlwall (2004) made three major modifications to this basic model. First they assume that the adjustment of export demand to changes in prices and income is not instantaneous, so that we have a dynamic specification by including the lag of export as an explanatory variable, the form of equation (2) for estimation (including a constant) became:

$$x_t = \alpha + \beta_1 px + \beta_2 w_t + \beta_3 x_{t-1} + \mu_t \quad (3)$$

Where px is the rate of change of relative prices; w is world income growth; x_{t-1} is lagged export growth, and μ_t is a stochastic error term. This specification allows us to distinguish short and long run elasticities. The short run price and income elasticities are β_1 and β_2 respectively both are expected to be positive.

The second modification is the introduction of our measures of trade liberalization a shift dummy variable (lib) where the dummy variable takes the value of zero for the pre trade liberalization periods (pre-1992) and one after wards. Equation (3) of the form:

$$x_t = \alpha + \beta_1 px + \beta_2 w_t + \beta_3 x_{t-1} + \beta_4 lib + \mu_t \quad (4)$$

The expected sign on the liberalization variable is $\beta_4 > 0$. The third modification is that, trade liberalization can affect the price and income elasticities of demand for exports. Because, liberalization could increase the sensitivity of exports to price and income changes by making it easier for producers to shift resources into the traded sector; by facilitating structural change, and by stimulating efficiency. Such interaction effects can be estimated by including two slope dummy variables, (lib w) and (lib px), to capture the joint effects of the elimination of trade distortion measures on income and price elasticities, respectively. Thus:

$$x_t = \alpha + \beta_1 p_t + \beta_2 w_t + \beta_3 x_{t-1} + \beta_4 lib + \beta_5 lib px_t + \beta_6 lib w_t + \mu_t \quad (5)$$

3.1.3 The impact of trade liberalization on import growth

One of the most common effects of trade liberalization, particularly in developing countries, is that it increases imports by more than exports (Santos and Thirlwall, 2004). We want to examine whether this has been the case for Ethiopia, holding other variables constant. As in the case of exports, we consider a standard import growth function where imports are assumed to be a function of price competitiveness measured by the real exchange rate, and domestic income. Assuming that the price and income elasticities of demand for imports are constant, the function can be written as (Thirlwall, 2003):

$$M_t = \varphi \left(\frac{p_f e}{p_d} \right)^{\delta_1} Y^{\delta_2} \quad (6)$$

Where φ is a constant, Y is Ethiopia's income (GDP) and the rest of the variables are as described before; δ_1 and δ_2 denote the price and income elasticities, respectively. Taking logs of the variables of equation (6) and differentiating with respect to time, the rate of growth of imports (including a constant) is:

$$m = \lambda + \delta_1 (P_f + e - P_d) - \delta_2 Y \quad (7)$$

It is expected that the price elasticity (δ_1) is negative and the income elasticity (δ_2) is positive. Considering the lagged adjustment in a disequilibrium model of import demand, it is assumed that imports adjust only partially to the difference between import demand in

period t and the actual flow of imports in the previous period ($t-1$). Thus, the dynamic import function is then expressed as:

$$m_t = \lambda + \delta_1 P_t + \delta_2 Y - \delta_3 m_{t-1} + \varepsilon_t \quad (8)$$

Where, P_t is the rate of change of the real exchange rate ε_t is the error term and t represents the time period. The short run price and income elasticities are given by δ_1 and δ_2 respectively. With the same fashion of export function, trade liberalization dummy variable (lib) and the interaction effects of trade liberalization with relative price of import and income added to the import function. The extended import growth function is expressed as:

$$m_t = \lambda + \delta_1 P_t + \delta_2 Y + \delta_3 m_{t-1} + \delta_4 lib_t + \delta_5 lib P_t + \delta_6 lib Y_t + \varepsilon_t \quad (9)$$

3.1.4 The impact of trade liberalization on GDP growth

To see the impact of trade liberalization on economic growth, we use a standard production function, specified by Santos (2005) and applied to cross-section of developing countries. The model is a function of labor, capital and export. The standard production function is given by

$$Y_t = f(K_t, L_t, X_t) \quad (10)$$

Where Y_t is aggregate output, L_t and K_t are the conventional labor and capital inputs and X_t denotes as before exports, which is introduced as an additional input. Equation (10) can be extended by including import as determinant of aggregate output.

$$Y_t = f(K_t, L_t, X_t, M_t) \quad (11)$$

Where M_t is import and the others are explained before. Equation (11) can be extended further by the same fashion for import and export functions, taking logarithm then adding trade liberalization variable (lib) and one period lag of GDP as follows:

$$y_t = \gamma_0 + \gamma_1 labor_t + \gamma_2 gcf_t + \gamma_3 y_{t-1} + \gamma_4 lib_t + \gamma_5 x_t + \gamma_6 m_t + \pi_t \quad (12)$$

Where y_{t-1} one period lag of logarithm of gross domestic product, $labor_t$ is a logarithm of labor force, π_t the error term, gcf_t is logarithm of gross capital formation as a proxy for capital and all other variables are explained before.

3.2 Data sources and variable definition

In order to have reasonable conclusion from the study, choosing appropriate variables and as many time period as possible is needed. Annual time series data have been taken from 1960-2009 for most of variables under investigation for descriptive analysis while we cover only 1970-2009 for the econometric analysis because of data unavailability for each and every variable under the analysis to the full period used in the descriptive part.

Income (GDP): annual data on GDP (constant 1980, in Birr). Source: NBE (National Bank of Ethiopia), MoFED (Ministry of Finance and Economic Development).

Export (x): Exports of goods and services; annual data on export value; for descriptive analysis from NBE (National Bank of Ethiopia); at constant price for econometric analysis from Ethiopian Economic Association (EEA).

Import (m): Imports of goods and services; annual data on import value; for descriptive analysis from NBE (National Bank of Ethiopia); at constant price for econometric analysis from EEA.

World Income (wy): the average GDP of some selected Ethiopian trading partners taken as world income. The countries are selected based on their being an important partner for long period of time. The source for this data is from world economic outlook data base.

Liberalization (lib): the massive policy reform of 1992 taken as trade liberalization dummy and take one for the years after 1992 and zero otherwise. Source: different publication from MoFED, NBE, MoTI.

Real Effective Exchange Rate (px): the data for REER are from NBE. It is useful measurement of country's international price competitiveness. International price competitiveness is regarded as a key determinant of a country's international trade in goods and services. Following Santos (2000), the REER for country j at time t is defined as:

$$REER = \sum_{i=1}^n \alpha_{ij} \left(\frac{(p_j R_{ji} / p_i)}{(p_j R_{ji} / p_j)} \right) \times 100$$

Where: n is the number of trading partners; p_i (p_j) are prices in country i (j); R_{ji} is the exchange rate defined as number of country i 's currency per unit of country j 's currency; and α_{ij} is the share of country j 's trade with country i where $\sum_{i=1}^n \alpha_{ij} = 1$

Gross Capital Formation (GCF): which is investment and taken as a proxy for capital, from Ethiopian Economic Association (EEA) at constant price.

Labor: The working age (labor force) population from African Development Indicator (ADI) and Central Statistic Agency (CSA) of Ethiopia.

3.3. Model estimation procedure and diagnostic tests

Before proceeding to the estimation stage, diagnostic tests on the data are desirable for the following simultaneous equations. The main tests carried out were stationarity (to avoid spurious regression results), endogeneity (to avoid inconsistency and biased estimation results) and co-integration (to look at whether the variables in the equations have long-run relationship or not).

$$x_t = \alpha + \beta_1 p_t + \beta_2 w_t - \beta_3 x_{t-1} + \beta_4 lib - \beta_5 libpx_t - \beta_6 libw_t - \mu_t \quad (5)$$

$$m_t = \lambda + \delta_1 p_t + \delta_2 y + \delta_3 m_{t-1} + \delta_4 lib_t + \delta_5 libpx_t + \delta_6 liby - \varepsilon_t \quad (9)$$

$$y_t = \gamma_0 + \gamma_1 labor_t + \gamma_2 gcf_t + \gamma_3 y_{t-1} + \gamma_4 lib_t + \gamma_5 x_t + \gamma_6 m_t + \pi_t \quad (12)$$

In contrast to single-equation models, in simultaneous-equation models more than one dependent, or endogenous, variable is involved, necessitating as many equations as the number of endogenous variables. A unique feature of simultaneous-equation models is that the endogenous variable (i.e., regressand) in one equation may appear as an explanatory variable (i.e., regressor) in another equation of the system. As a consequence, such an endogenous explanatory variable becomes stochastic and is usually correlated with the disturbance term of the equation in which it appears as an explanatory variable. In this situation the classical OLS method may not be applied because the estimators thus obtained

are not consistent, that is, they do not converge to their true population values no matter how large the sample size. Therefore Instrumental Variable (IV) or Two Stage Least Square (2SLS) estimation method would be used to get out of this endogeneity problem.

Export and import in the above equations are suspected to be endogenous to GDP function and GDP itself is suspected to be endogenous in the equation of import. Therefore, Hausmann test is used to find out whether this simultaneity problem exist or not in each of the above equations. This test is carried out in two steps. First, apply OLS regression of the suspected endogenous variable on the remaining exogenous variables in the system, not just in the equation. On the second step, the residual of the first step is included as a right hand variable in the original equation and test whether the coefficient of this residual is significant or not. If it is significant, then the dependent variable of the first step regression is indeed endogenous and if it appears as a right-hand side variable in any of the equations, it will result in endogeneity bias.

IV. Results and Discussion

The descriptive and the econometric analysis results of economic performance of export, import and GDP pre and after the massive trade reform briefly discussed below.

4.1 Descriptive results

4.1.1. GDP of Ethiopia before and after the reform

A visual plot of the data is usually the first step in any time series analysis .Fig. (1) below shows the performance of Ethiopian GDP from 1970 -2009.



Source: own computation using data of NBE (National Bank of Ethiopia)

Fig.1: Real GDP from 1970 -2009 (in million birr)

Fig (1) indicates that growth has fluctuated from period to period as the country has lurched from one crisis to another, but on average it can be clearly seen that the average growth of GDP has been greater post-reform than pre-reform. Average growth from 1961 to 1974 was 3.68 %, from 1975 to 1991, it was 1.87 % and from 1992 to 2010 it is 9.3 %.

Different reasons, like drought and border conflicts (war) are main source of fluctuating growth rate in different regimes in addition to the policy reform. For instance in the previous regime the war with Somalia and the severe draught of 1984 and 1985 are reasons for the negative growth rate of GDP.

On the other hand, the very highly positive growth rate of GDP has been achieved from 1993-1997 as a result of massive policy reform which increase the foreign investment and both import and export of the country. However, the growth rate became negative, -1.4 percent in 1998 as a result of recurrent strict draught of 1997. The economy rebounded strongly on a catch-up, to record real GDP growth of 5.9 per cent in 1999. Real GDP growth fell again in 2002/03 owing to the negative impacts of the border war with Eritrea. The outlook on growth is a strong rebound as the government shifts attention from the war effort to developmental tasks, the average real GDP growth from 2003-2009 is 11.07 % which places the country among the top performing economies in sub-Saharan Africa.

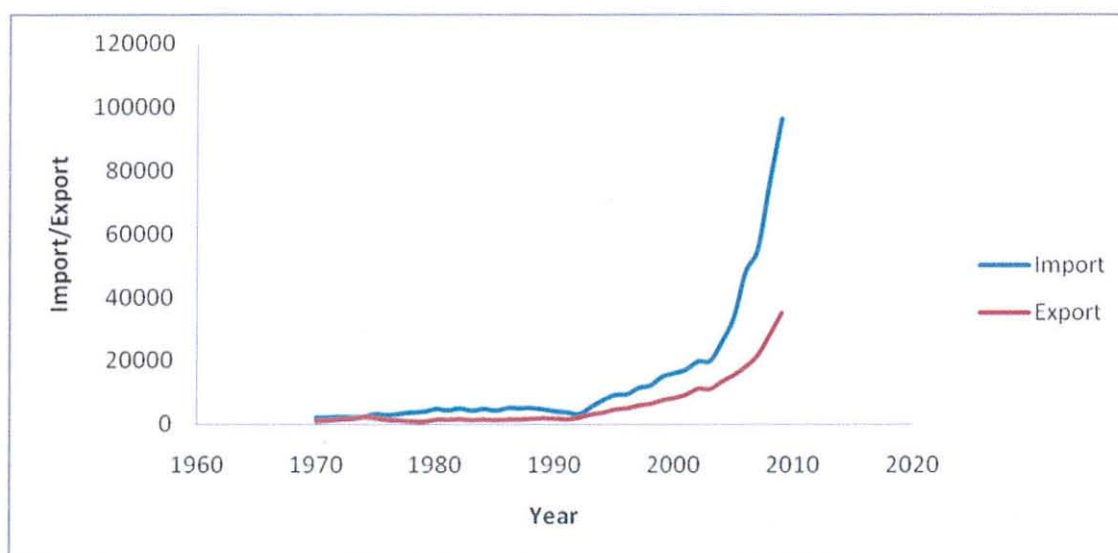
4.1.2 Import and export performance of Ethiopia before and after the reform

Liberalizing trade has a lot of adverse effects on the economy at least in the short run. There will be volatility of income or prices, reduction of government revenue since most of trade liberalizations takes place through reduction of tariff and subsidies, which are source of revenue for most governments (Parikh, 2004). However, trade liberalization will increase trade both in terms of export and import.

Literatures state that countries which mainly export primary commodities have exposure to terms of trade volatility since income elasticity of primary commodities is low and price of these commodities is depreciating over time. Most developing countries are primary commodities exporters when they first open themselves up to trade.

The effect of the trend towards trade policy openness on per capita income growth is one of the most controversial issues as there is a tendency to improve imports more than exports leading to trade deficits and consequently contributing to low economic growth in future (Parikh, 2004).

Ethiopia is one of primary commodities exporter countries, in which trade liberalization adversely affect their economy, at least in the short run. The graph below shows the import and export performance of the economy pre and post trade liberalization.



Source: Own computation

Fig.2 Import & export of Ethiopia (1970-2009) (in million Birr)

As it is shown from the Fig.2 both import and export are increasing for the period after 1990s. During the period before the significant reform undertaken the official exchange rate was; one dollar exchanged only 2.07 birr, which makes the official earning of export low. The heavy tax on export also has an adverse effect on profitability, which discourages increasing export.

The other reason is related to; according to MEDaC (1999), the expansionary fiscal monetary policy of the government during this period. This expansionary macro policy increased the demand for tradable and non-tradable items domestically. However, being the country is small; the domestic excess demand would have no significant impact on the international price of these tradable goods and hence its home price for given exchange rate would be unchanged. However, the excess demand of both tradable and non-tradable increased the price of non-tradable goods in the home country. This causes resources to shift from tradable to non-tradable sector. This process contributed to the decline in the growth of exports since no change in the price of export due to the increased demand (Seid, 2007).

Since the country's economic performance is highly correlated with agricultural goods weather has a big effect in addition to the economic policies. Therefore, as a result of

significant reform undertaken by the current regime and others like good weather, recovery from drought and war, the average growth of export increased from 5.6% in the pre-reform period to 26.4% growth post the reform. This significant reform of the current regime has also been the reason for recognizable increment in import growth rate; it became 25.86% from 7.72 % of pre-liberalization period.

As Fig. 2 shows, both import and export rise after liberalization. However, the external payments situation remained precarious owing poor export performance relative to high imports which led to widening of the trade deficit to 26.6% from 6.6% before the reform.

The reasons for having prolonged and worsening trade deficit are; first Ethiopia is one of the low income countries which are characterized for production and exports of primary commodities; these products are both income and price inelastic. Therefore, neither decreasing the price of such primary product nor increasing the income of importing countries proportionally increases the consumption of these products. So, the export earning cannot finance the import bill.

Second, Ethiopia's economy in general and its export sector specially are highly correlated with agriculture sector. Bringing significant quantitative increase in the supply of these export items in the short run is very problematic due to the fluctuation in agricultural production (caused by weather fluctuation ,pests and disease) and long gestation period of many agricultural products like coffee (Seid, 2007).

It is clear from the above discussion, that all GDP, import and export are rise both in the value and average growth rate after the trade reform of 1992. However, it is not possible to figure out the net effect of the trade liberalization from other factors which affect these variables, based on only on the above averages and graphs. Therefore, this is going to be done in the next part using econometrics analysis.

4.2 Econometric Results

4.2.1 Diagnostic tests

The Hausman test results in Table 1 shows that GDP in the equation of import and exports in GDP equation are endogenous. Therefore Instrumental Variable (IV) or Two Stage Least Squares (2SLS) estimation method should be used to get out of this endogeneity problem.

Table 1. Wu-Hausman test results

Residual included in	Computed F-value	Computed F-probability (Computed P-value)
Equation of import (GDP as endogenous)	177.41**	0.0000
Equation of GDP (import as endogenous)	157.63	0.0000
Equation of GDP (export as endogenous)	236.16***	0.0000

Source: Own computation

*** Significant at 1% level of significance and ** Significant at 5% level of significance.

Having tested the endogeneity, next the stationary test was carried out using Augmented Dicky Fuller (ADF) test. Empirical work based on time series data assumes that the underlying time series is stationary. Therefore, making such test helps to avoid spurious regression.

Table 2. ADF Test of Stationarity

Variables at level	Computed ADF at lag		Variables in Difference	Computed ADF at lag	
	0	1		0	1
lnGDP	1.113	1.580	DlnGDP	-6.513***	-3.750***
lnX	1.576	1.331	DlnX	-4.866***	-3.252**
lnM	2.123	1.938	DlnM	-5.215***	-2.767*
lnREER	0.461	0.460	DlnREER	-5.752***	-4.242***
lnLABOR	2.655*	2.676 *	DlnLABOR	-3.239 **	-2.814*
Lngcf	1.816	2.219	Dlngcf	-6.157 ***	-2.777*
lnRWGDP	-5.336 ***	-2.242	DlnRWGDP	-2.612	-2.996 *
lnGDpt-1	2.463	1.699	DlnGDpt-1	-4.273***	-4.101***
lnXt-1	1.314	1.026	DlnXt-1	-4.875***	-3.247 **
lnMt-1	1.755	1.791	DlnMt-1	-5.269***	-2.859 *
LIB	-0.876	-0.870	DLIB	-6.164***	-4.301 ***

Source: Own computation

Note: ***, ** and * show statistical significance at 1%, 5% and 10% levels of significance, respectively.

It is warned that the regression of a non-stationary time series on another non-stationary time series may produce a spurious regression. When we subject all variables in the above equations individually to unit root test, we found that they all were integrated of order one, I(1), except labor and world income (RWGDP) as shown in Table 2 .

Having known that regressing the above unit-root variables would possibly lead to spurious regression, the next task was to find a way out of it. There are several lag length selection criteria to avoid the autocorrelation problem but before going to lags Granger (1986) recommends a test for co-integration can be a pre-test to avoid spurious regression situations. Based on Granger's (1986), ADF test was applied in this study. The steps involved in applying this test were to estimate a regression on equations (5), (9) and (12) using OLS, obtain the residuals for each equation, and use the ADF tests whether the residuals were stationary or not.

Table 3. ADF test results

Residuals from	Computed ADF at lag	
	0	1
GDP Equation	-4.536 *** (-2.961)	-3.169** (-2.964)
Export Equation	-4.906*** (-2.961)	-3.097** (-2.964)
Import Equation	-6.800*** (-2.961)	-3.655** (-2.964)

Source: Own computation

Note: *** significant at 1% level of significance and ** significant at 5% level of significance; values in brackets are critical values at 5% level of significance

As shown in Table 3, the computed residuals were stationary, $I(0)$, which means although variables in all equations are individually $I(1)$, that is, they have stochastic trends, their linear combinations are $I(0)$ at 1% level of significance, which implies that there is co-integration among the variables in each equation. Economically speaking, variables are co-integrated when they have a long-term, or equilibrium, relationship among them.

Having checked that the residuals from regression of each equation were stationary, it was possible to use the usual regression methodology even if the data involves non stationary time series. Therefore, equations (5), (9) and (12) were estimated simultaneously by 2SLS estimation method to get consistent estimators.

The simultaneous 2SLS regression results show that each model (12, 9 and 5) has R^2 of 0.97 0.98 and 0.98 respectively. In general, the F-statistics of 162.5, 564.2 and 488.95, respectively, with p-values of zero are significant at 1% level, indicate that overall the variables in each model are jointly significant. It is worth mentioning that both interactive dummy variables (lib px), (liby) were dropped from equations (5) and (9) as a result of their being highly multicollinear with price and income variables, respectively.

Table 4: The export model results derived from the simultaneous 2SLS and ECM regressions

				ECM regression			
Coef.	t	P-value	Var	Coef.	t	P-value	
lib	.1739439*	1.65	0.102	dlnreer	.3469435**	2.15	0.039
lnreer	.2605014*	1.98	0.051	lib	.0855434	0.99	0.329
lnlagx	.772896***	8.06	0.000	dlnlagx	.378157	1.09	0.284
lnwy	.0422688	0.70	0.487	dlnwy	.5479605	0.89	0.379
cons	.2574976	0.37	0.710	μ{t-1}	.4100448	-1.02	0.316
				_cons	-.0417583	-0.57	0.572
Number of observations: 40 R-square: 0.9824				Number of observations: 39 adjusted R ² = 0.2664			
F-statistics: 488.95*** P-value: 0.0000				F(5,33) = 3.76*** p-value : 0.0084			

Source: Own computation

Note: ***, ** and * show statistical significance at 1%, 5% and 10% levels of significance, respectively.

Equation (13) below is the export model derived from the simultaneous 2SLS regression results and the estimated long run coefficients from table (4);

$$x_t = 0.25 + 0.26P_t + 0.04w_t + 0.77x_{t-1} + 0.17lib \quad (13)$$

t-statistic (0.37) (1.98)* (0.70) (8.06)*** (1.65)*

The estimated coefficients of price, income and the *lib* dummy in equation (13) had the expected sign but world income was insignificant, which is consistent with the traditional argument of income inelasticity of LDCs' export items.

The coefficients for both liberalization and price variables are positive and significant at 10% level, this suggests that the measures undertaken to encourage exports/exporters through the massive trade reform by the current regime have had positive contribution for the increased export value of the country after the reform. The coefficient of the lagged export was also significant at 1% level of significance, confirming that Ethiopian exports do not show immediate reaction to changes in factors affecting export.

Since equation (13) shows only the long-run coefficients of the variables, error correction mechanism (ECM) developed by Engle and Granger is a means of reconciling the short-run

behavior of an economic variable with its long-run behavior (Gujarati, 2004). The Model is specified by taking first difference of the variables in equation (5) and including one period lagged value of the residual of the integrating regression equation (5);

$$dx_t = \alpha + \beta_1 dP_t + \beta_2 w_t + \beta_3 dx_{t-1} + \beta_4 lib + \beta_5 \mu_{t-1} + \theta_t \quad (14)$$

Where 'd' refers to first difference and μ_{t-1} is one period lagged value of residual from equation (5). The coefficient of this lagged error term indicates the speed of adjustment towards the long run and was expected to be negative, the result derived from table (4) is

$$dx_t = -0.04 + 0.35dP_t + 0.55w_t + 0.38dx_{t-1} + 0.08lib - 0.41\mu_{t-1} \quad (15)$$

t-statistic (-0.57) (2.15)* (0.89) (1.09) (0.99) (-1.02)

In ECM equation all the short run coefficients of the variables are insignificant except the price (p). The coefficient for the error-correcting variable was insignificant. It means that no significant adjustment is taking place within a year to narrow the gap between the long run equilibrium growth of export and its actual growth rate.

Table 5: The import model results derived from the simultaneous 2SLS and ECM regressions

				ECM regression			
	Coef.	t	P-value	Var	Coef.	t	P-value
Lib	.1859927**	2.05	0.043	dlnreer	.1988927	1.50	0.143
lnreer	-.0015513	-0.01	0.989	lib	-.0050299	-0.09	0.932
lnlagm	.8554115***	15.96	0.000	dlny	.5445427**	2.59	0.014
lny	.4014913**	2.20	0.030	dlnlagm	.656826**	2.28	0.029
cons	-3.076037**	-2.08	0.040	ϵ{t-1}	-.8850122***	-2.73	0.010
				_cons	.0121332	0.42	0.679
Number of obser: 40 R-square: 0.9847				Number of obs :39 adjusted R^2 = 0.4319			
F-statistics: 564.20*** P-value: 0.0000				F(5,33) = 6.78*** p-value : 0.0002			

Source: Own computation

Note: ***, ** and * show statistical significance at 1%, 5% and 10% levels of significance, respectively.

Alike the export, equation (16) below is the import model derived from the simultaneous 2SLS regression results and the estimated long run coefficients from table (5);

$$m_t = -3.08 - 0.001P_t + 0.4y_t + 0.85x_{t-1} + 0.18lib_t \quad (16)$$

t-statistic (-2.08)** (-0.01) (2.2)** (15.96)*** (2.05)**

In equation (16), all variables are statistically significant and have the expected sign except price. Again, the positive and significant (at 5% level of significance) coefficient for the liberalization variable suggests that the measures undertaken to encourage imports/importers through the massive trade reform by the current regime have had positive contribution for the increased import value of the country after the reform. The coefficient of the lagged import was also significant at 1% level of significance suggesting that Ethiopian imports do not show immediate reaction to changes in factors affecting import.

Moreover, the price elasticity of Ethiopian import is insignificant. This implies that even if the price of goods increases, it is not as such significant to decrease Ethiopian import. This, coupled with significant income elasticity of Ethiopian import at 5% level of significance, implies that majority of its import are capital goods, which are vital for the development efforts of the country.

$$dm_t = \lambda + \delta_1 dP_t + \delta_2 dy_t + \delta_3 dm_{t-1} + \delta_4 lib + \delta_5 \varepsilon_{t-1} + v_t \quad (17)$$

Where the letter 'd', in the above ECM equation refers to first difference and ε_{t-1} is one period lagged value of residual from equation (9) which is extracted from table (5). The coefficient of this lagged error term indicates the speed of adjustment towards the long run.

$$dm_t = 0.012 + 0.19dP_t + 0.54dy_t - 0.65dm_{t-1} - 0.005lib_t - 0.88\varepsilon_{t-1} \quad (18)$$

t-statistic (0.42) (1.5) (2.59)** (2.28)** (-0.09) (-2.73)*

In the ECM equation (18) lagged import and income parameters are significant at 5% level of significance while the error correction coefficient was significant at 1% level of significance. The error correction coefficient was statistically significant and has the correct sign even if its speed of convergence towards equilibrium is quiet low (i.e. 88%).

This result compared to the insignificant error correction coefficient of export shows that import growth responded before export growth, and trade liberalization has increased import growth more than it does on export growth.

Table 6: The GDP model results derived from the simultaneous 2SLS and ECM regressions

Coef.	t	P-value	ECM regression				
			Coef.	t	P-value		
lib	-.1446835**	-2.01	0.047	dlnlabor	-.3477252	-0.47	0.638
lnm	-.1117089	-1.36	0.176	lib	.0146966	0.74	0.462
lnx	.3868407***	5.19	0.000	dlnlagy	.331035**	2.42	0.022
lnlabor	-.6056965***	-4.32	0.000	dlnm	-.0962145	-1.20	0.238
lngcf	.2486018***	3.06	0.003	dlnx	.0097423	0.16	0.873
lnlagy	.2745352	1.50	0.137	dlnlngcf	.4193254***	6.82	0.000
cons	9.695202***	7.95	0.000	π{t-1}	-.6475281***	-4.67	0.000
				_cons	-.003275	-0.13	0.898
Numb of observations: 40 R-square:0.9668				Number of observations: 39 adjusted $R^2 = 0.7853$			
F-statistics: 162.50*** P-value: 0.0000				F(7,31) = 20.86*** p-value : 0.0000			

Source: Own computation

Note: ***, ** and * show statistical significance at 1%, 5% and 10% levels of significance, respectively.

The long-run and short-run coefficients of GDP were estimated in the same way as for export and import. The long run coefficients of GDP variables estimated in 2SLS are;

$$y_t = 9.7 - 0.6lobor_t + 0.2gcf_t + 0.27y_{t-1} - 0.14lib_t + 0.3x_t - 0.11m_t \quad (19)$$

t-statistic (7.95)*** (-4.32)*** (3.06)*** (1.5) (-2.01)** (5.19)*** (-1.36)

In table (6), capital and export are significant at 1% level of significance and had the expected sign. This implies that the higher GDP growth rate after the reform is achieved as a result of higher export and gross capital formation (investment) in these periods.

The liberalization dummy variable was significant at 5% level of significance with negative sign. This implies that trade liberalization adversely affected GDP growth. This may be due to the worsening effect of ‘pure’ trade liberalization on trade balance of the country. If trade liberalization leads to a faster growth of imports than exports, this can have serious implication for the balance of payments of the country that may constrain growth below the growth of productive potential. This goes with the descriptive result that average trade deficit became 26.6 percent in post liberalization while it was 6.6 percent pre liberalization.

Similar to import and export, short run coefficients of the GDP variables are:

$$dy_t = \gamma_0 + \gamma_1 dlabor_t + \gamma_2 dgcfc_t + \gamma_3 dy_{t-1} + \gamma_4 lib_t + \gamma_5 dx_t + \gamma_6 dm_t + \gamma_7 \pi_{t-1} + \rho_t \quad (20)$$

Where π_{t-1} is one period lagged error term and all others are as explained earlier.

$$dy_t = 0.003 - 0.35\gamma_1 dlabor_t + 0.4dgcfc_t - 0.33dy_{t-1} + 0.01lib_t + 0.009dx_t - 0.09dm_t - 0.65\pi_{t-1} \quad (21)$$

t-stat (-0.13) (-0.47) (6.82)*** (2.42)** (0.74) (0.16) (-1.2) (-4.67)***

The error correction coefficient is statistically significant at 1% level of significance and has the correct sign, suggesting a moderate (65%) speed of convergence to equilibrium.

The finding of this study corroborated with the work of Seid (2007) that trade liberalization has greater impact on Ethiopian import than export. However, it differs from Seid’s (2007) conclusion that trade liberalization had no direct impact on GDP growth of the country. The significant negative estimated coefficient of the dummy variable in equation (19), suggesting that trade liberalization has negative significant impact on GDP growth of the country.

V. Conclusions and Policy Implications

Ethiopia launched a package of reform programs in 1992 with a vision of reversing the socio-economic crisis of the 1970s and 1980s. Measures such as devaluation of money, reduction of average import tariffs and elimination of export duties, taken under this reform favored trade liberalization. The argument of trade liberalization is that reduction or elimination of trade policy distortions reduces anti-export and anti-import biases, and therefore improves economic performance of the country.

This study attempted to provide empirical evidence on the premise that trade liberalization has positive impact on Ethiopian economic growth based on annual data for the period 1960-2010 for descriptive analysis and those during 1970-2009 period for econometric analysis. Different estimation methods and tests were carried out to make the estimation results strong and robust.

Results show that: first, trade liberalization had positive significant impact on both import and export performance of the country. However, the impact on import was faster and greater. This might be because most of the time it is easier for importers to import than for producers to reallocate resources to the tradable sector and to capture export markets (Santo & Thirlwall, 2004). Second, the 'pure' effect of trade liberalization on GDP was found to be negative as a result of the worsening effect of liberalization on trade balance. Thus, trade liberalization has resulted in making the balance of payments constraint on Ethiopian long-run economic growth.

The overgrowing average trade deficit of Ethiopia, which is 26.6% post reform compared to 6.6% during the pre-reform period, verifies the worsening impact of trade liberalization on trade balance. Third, it appears that liberalization has had a net positive effect on GDP growth through investment and export growth as shown in table (6) but the balance of trade consequences may have reduced growth below what might otherwise maintain the balance between exports and imports.

The major policy implication of the study is that great care is needed in the sequencing of the liberalization of exports and imports to achieve a better balance between export and

import performance. In other words, the constraint on economic growth would continue unless the production structure and the pattern of trade are changed to increase export expansion relative to imports. In this connection, some scholars (e.g., Rodrik, 1992, Shaffedein, 2005, Santos & Thirlwall, 2004) warn that free trade and flexible exchange rates are no guarantee that unemployed domestic resources are easily converted into scarce foreign exchange. Moreover, many scholars (e.g., Weisbrot & Baker 2003: Shafaeddin, 2005, Sachs, 1987, Ravallion, 2008) share that trade liberalization is not the key to major success stories in the developing world - most notably South Korea and Taiwan, which now have income levels comparable to the poorer industrialized countries- but also countries that have more recently experienced accelerated growth rates, such as China and India, have not followed a simple path of trade liberalization. In all of these countries the government has played an important role in guiding the economy. This guidance has included subsidies and protection for favored industries and restrictions on capital flows, policies which generally seem to be opposed by the leading proponents of trade liberalization.

Relevant policy implications of the study are:

1. Most developing countries are primary commodities exporters when they first open themselves up to trade; the income elasticity of demand for primary commodities is lower than manufactured goods. The Prebisch-Singer hypothesis states that the terms of trade will hurt exporters of primary commodities over time because exporters will not be able to purchase as many imports. The best way to mitigate the terms of trade concern is to diversify away from exporting primary commodities. Therefore, a policy that encourage exporting sector through different incentives, as what China did (creating enabling environment through increasing liberalization and the setting up of various types of Special Economic Zones and Development Zones) would help to increase and diversify exports.
2. Creating Enabling environment for enterprise development is one of the factors for china's success. Since the end of the 1970s, one of the greatest achievements of China's development policy has been the promotion of labor-intensive enterprises and the attraction of foreign investment, which has helped to make China's growth pro-poor (Xiaoyun and Laird, 2009). During the 1980s, the system was reformed

which enabled a private sector to flourish, while state-run enterprises were gradually cut back. Foreign investments were mainly attracted through the creation of the “Special Economic Zones” on some part of the country. In these areas, the rules which applied to the rest of the country were relaxed, in order to encourage foreign direct investment and exports. Such policies would work out for Ethiopia too.

3. It is expected that, less developed countries potentially stand the most gain from their international relationships, since in principle these countries can draw upon the large stock of knowledge capital already accumulated in the industrialized world. But from the poor growth experience of some of these countries it is clear that the technology flows are anything but automatic. Therefore, with this regard a policy that would develop a mechanism by which knowledge and technology diffusion from international borders may support the country to fully utilize the benefit of liberalization in addition to the policy just attracting foreign direct investment.
4. Policies and institutions also have significant impact on the country’s economic performance. If the country has good policies and institutions, trade liberalization would have a net positive impact on the economy. Macroeconomic stability, high investment/GDP ratios, human capital development, infrastructure development, and institutions development are all important economic factors that will ensure that liberalization would lead to growth (Heshmati, 2004, as cited in Pitylak, 2006). Hence the right combination of public policies, laws, institutions, and political environment would lead an economy that benefits the country.

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Declaration

I declare that this Project Report is my original work and has not been presented for a degree in any other University and all the sources of materials used are duly acknowledged.

Name: Zemzem Ahmed Zeinu

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Date: May, 2010

Place: Addis Ababa University

This Project Report has been examined and approved as fulfilling the required standard.

Name: Dr. Hussien Hamda

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