LINKING TRADE LIBERALIZATION WITH TOTAL FACTOR PRODUCTIVITY THE CASE OF ETHIOPIA

BY

FITSUM YASABU

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"Linking Trade Liberalization with Total Factor Productivity: The Case of Ethiopia."

By

Fitsum Yasabu Yared

Approved by the Board of Examiners:

Dr. Syed Hasan Jayed **Advisor**	**Signature**
Dr. Shail Singh **Examiner**	**Signature**
Prof. Nizar Ahmad Khan **Examiner**	**Signature**

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ECONOMICS

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DEDICATION

THIS THESIS IS DEDICATED TO MY BELOVED GRANDMOTHER EMAHOYE ZEWDITU MEKONNEN AND HER DAUGHTER W/T NESTANET GEDAMU.

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ABBREVATIONS

DCS	Developed Countries
ECA	Economic Commission For Africa
EX	Export Promotion
EG	Engle-Granger
EGM	Endogenous Growth Models
GDP	Gross Domestic Product
GNP	Gross National Product
ILO	International Labour Organization
IMF	International Monetary Fund
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
MS	Import substitution
NTB	Non Tariff Barriers
SAPs	Structural Adjustment Programs
TFP	Total Factor Productivity
TRI	Trade Restrictivness Index
UN	United Nations
WB	World Bank
WTO	World Trade Organization

ABSTRACT

Supporters of openness, argues that trade liberalization increases productivity through increasing the access to advanced technologies in the form of knowledge and capital. Where as opponents of free trade, argues that it reduces the total factor productivity of a country through exposing domestic economy to stiff competition of foreign industries.

To this effect this paper is intended to show the possible outcome of the foreign trade reform measures of the current Ethiopian government to the country's total factor productivity level using a time series data covering from 1971/72 to 2004/05.The Cobb-Douglas production function, which explains output as a function of labor, capital and productivity is adopted. Moreover, war and weather are incorporated as dummy variables in the estimable model of the paper.

The analysis makes use of Johansen Maximum Likelihood estimation procedure. In this cointegration analysis, two variables (i.e. student index and exchange rate gap) with the exception of capital stock per labor are found to be statistically significant each with a positive sign in explaining the total factor productivity of the country. Where as, capital shows insignificant and negative effect on the dependent variable. The result of the paper support the current trade liberalization measures of the government because the reform measures have positively implying the total factor productivity of the country.

Through applying the Vector Error Correction Model (VECM), it has been found that capital per labor, human capital and weather are significant in explaining productivity per labor in the short run where as openness and war are insignificant in explaining the dependent variable.

CHAPTER 1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Trade liberalization was raised as a solution for the economic crises of least developed countries, which they faced from 1960s onwards due to the strong government intervention and in-ward looking economic policies followed during this period. The different strategies, which were implemented, based on heavy state intervention, have failed to bring positive changes. The traditional aggrarian structures led to heavy external food dependency in many countries. Moreover, its low returns in turn constrained the success of the import-substitution strategies that most African countries adopted in the 1960s and 1970s (ECA, 2004). Despite the existed high rate of unemployment in urban areas high levels of poverty among the rural population generated waves of rural-urban migration.

During that period policy of development through protection was seen as a necessary component in strengthening infant industries in least developed countries in general and in Africa in particular. Regarding this the SSA countries were insulted from world markets by relatively high tariffs, licensing requirement and wealth of other nontariff barriers, as well as highly restrictive exchange control regimes in the early 1980s (Rachel and et.al 1998). But consequences of these inward oriented strategies were negative resulting in weak economic growth, inefficient State Corporation, low yield and productive of investment, and rising external and internal debts. Moreover, long–running agricultural crises contributed to the underdevelopment on economic performance of many African countries.

The Washington consensuses of the early 1980s have sought to tackle the problems of developing countries which is stated above and resolve their debt

crises and heading them towards strong dynamic growth. The structural adjustment programs (SAPs), which was inspired by the consensus and implemented with the support from the Bretoon Woods Institution, were designed for multidisciplinary purposes (ECA, 2004). On one hand it was designed to help countries restore major macroeconomic imbalance. It was designed to carry out structural reform needed in order to reduce distortion and rents that arose in the recent history of the economic development process. Liberalizing external trade was part of the broad set of the reforms that aimed at resorting major macroeconomic imbalances through promoting growth and improving the global integration of developing countries (ECA , 2004). In this regarded Africa Countries have undertaken deeper and faster trade liberalization starting from early 1980s.However, many economists criticized the idea on the ground that it did not delivered the promised results on the economy of developing countries.

> *"Trade liberalization was unsuccessful with respect to employment conditions as it raised unemployment, wage inequality and exploitation of workers in developing countries, moreover it increased marginalization of underdeveloped economies in the global economy, hence result in poverty and global inequality" (ILO, 2001 p.46).*

These views have spread although some economies (for example the eight Asian countries Japan, South Korea, Taiwan, Hong Kong, Singapore, Malaysia, Thailand and Indonesia) have achieved improvements in their internal and external imbalances.

1.2 STATEMENT OF THE PROBLEM

The literature sighted different reasons for low productivity and economic performance of LDCs as compared to the other world. Among which the competitiveness of LDCs in general and African economies in particular is the first to be pointed. Most African countries have not shown an improvement in the international position. On the contrary they have failed to compensate for the growing marginalization of the continent's economies. As a result, its market share has been shrinking. Between 1960-69, Africa's average share of total world export and import was 5.3 percent, and 5.0 percent respectively, however; during 1990-98 these figures dropped to 2.3 percent and 2.2 percent (IMF, 2001).

The second point is related to the consequence of trade liberalization on state revenue. The budgetary income of many African countries is closely tied to customs revenue. Between 1999 and 2001, customs revenue made up about 34 and 22 percent of state revenue of least developed and non-least developed African countries respectively (WB, 2004). Because of the above reasons trade liberalization is found to create a huge gap in revenue and macroeconomic imbalance.

Moreover, despite their commitments made to multilateral trade negotiations developed economies continue to protect their market. These countries are still subsidizing their agricultural sectors mean while LDCs in general and African countries in particular are, under successive structural adjustment programs (SAPs), and have made large cuts in all forms of support to their farmers.

In addition to this, the relatively high state intervention policies of the developed countries also affect the benefits of LDCs. This is due to the tariff peaks and progressive customs duties, which are mostly applied to labour-intensive products exported by developing countries. This shows that even

though, developing countries have implemented major reforms in order to make their economy more open, the issues of access to developed countries' markets are still very limited (ECA, 2004).

Removal of trade barriers is also criticized because of its negative implication on employment. This is because the lower price of imported goods will shift domestic demand to imported items. As a result, there will be a negative effect on the existence of domestic industries (Mark and et.al, 2003).

Moreover, uplifting of all trade barriers of the rich countries' to the merchandise export of developing countries is also questioned for its very little additional income form exports of LDCs. When such changes were fully implemented by 2015,they would add only 0.6 percent of the GDP of low-and middle-income countries (Mark and et.al, 2003). So if LDCs experience a continuing process of marginalization i.e. declining shares in the world trade, increase in global trading opportunities, productivity and economic growth will be a myth. World Bank, (2004) stressed by saying that Least Developed Countries can sustain their share of the world export of goods and services through developments of productive capacities.

Ethiopia has undertaken a series of Structural Adjustment Programs under the regulation and support of international financial institutions, (i.e IMF and the World Bank) since 1992/93. This program incorporates a number of macro and sectoral policies, having absolutely different orientation from the policies prevailed in the previous decades. The reform mainly focus on external sector liberalization, monetary and exchange rate policies, financial sector reform, investment policy, and public enterprise reform .The core idea behind the new policy regime is to increasingly open the economy with a view of benefiting the economy from expanded markets and increasing its efficiency through foreign competition.

So, given Ethiopia's commitment to achieve the Millennium Development Goals (MDGs) and for further opening up the economy through the accession to WTO looking at the linkage between trade liberalization and productivity of the country is very important.

1.3 OBJECTIVE OF THE STUDY

The study mainly aims at analyzing the effect of current trade liberalization measures on total factor productivity of the country. Specifically, this paper aims,

- To show how trade liberalization can be increased through trade liberalization measures
- To show how far the government is successful in achieving positive total factor productivity as a result of the trade policy reforms
- To suggest appropriate policies to overcome the problems

1.4 HYPOTHESIS OF THE STUDY

In accordance with the objective, this study hypothesis that:

- Trade Liberalization as measured by openness of the economy will have significant positive impact on the level of technology; and
- Human Capital as source of improving efficiency is also hypothesized to affect level of technology positively and significantly there by affect output per labor.

1.5 METHODOLOGY OF THE STUDY

The type of data required includes physical capital stock, working-age population, and educated human capital and gross domestic products (GDP) of the country. The data was extracted from secondary sources including books, CD ROMs of the National Bank Of Ethiopia, Central statistic Authority,

Ministry of Trade and Development and Ethiopian Customs Authority. Both descriptive and econometric techniques were used to address the objective of the paper.

Different kinds of production functions can be used for the purpose of growth and computation of total factor productivity. The paper is presented on the assumption that the production function follows a Cobb-Douglas specification with constant returns to scale between capital and labor.

$$Y_t=A_tK_t^{\alpha}L_t^{\beta}$$

Where Y is real income,

A is index of total factor productivity,

K is physical capital;

L is the number of active labor force,

t is time period and α, β are technology parameters.

In order to fit the main objective of the study the paper has used the modified Cobb-Douglas production function. This model is adopted from the methodological approach used by the research under the title Openness and Human capital as a source of Productivity growth conducted by Mans and Francies ,(2003).In this modified model technology is taken to vary across periods. In addition to that other variables, which are expected to be relevant to Ethiopian case, are also incorporated.

1.6 LIMITATION OF THE STUDY

The analysis will limit it self on the availability of data and budget; it might not cover every variable, which will explain the total factor productivity of the country. Trade liberalization has a lot of effects in economic variables of a country but because of the limitation of time and cost the paper is concentrated

on its impact on total factor productivity. Moreover, the paper focused on the total factor productivity of the country, which resulted in not covering the productivity changes, and difference that may arise across industries and plants. The paper uses time series data before and after the trade policy change this might attribute to productivity changes or variations originated from other shocks occurring concurrently with the trade policy reform. As it is stated above the paper totally uses secondary data from different source as basis for the methodology and analysis given. So the finding of the paper is totally dependent on the reliability of the data.

1.7 ORGANIZATION OF THE STUDY

The study is organized in four sections: Section two provides the index used in the literature for measurement and definition of openness, theoretical and empirical literatures of trade liberalization and productivity. Moreover, the link between growth and productivity of the country is reviewed in this chapter. Section three presents the trade reforms of the post Derg regime and the foreign trade performance of the external sector. Section four is all about the methodological and statistical analysis of the paper, this is where the linkage between trade liberalization and total factor productivity of the country is presented. Based on the finding of the study conclusion and appropriate policy recommendation will be presented on last section of the paper.

CHAPTER 2. LITERATURE REVIEW

2.1 THEORETICAL ARGUMENTS

2.1.1 DEFINITION OF TRADE LIBERALIZATION

As it is stated in the introduction part of the previous chapter, trade liberalization measures, were resulted from the failure of high government intervention and import substituting (MS) policies or strategies of LDCs in the 1950s – 1970s. Now a days, many developing economies are liberalizing their domestic and external sectors and the role of the government is being minimized as compared to its state of intervention during the 1960s.The philosophy behind this reform programmes was minimizing the role of a government in making economic decisions and resource allocation (Shafaeddin, 2005). In this regard Terence and et.al, (2003) argues that trade liberalization involves a reduction and unification of tariffs and relaxation of quantitative barriers, and may be accompanied or supported by exchange rate devaluation and domestic tax reforms. By doing these, governments will reduce the devices for controlling patterns of international trade. These measures of the government are believed to move the relative domestic prices of traded goods towards their respective international price levels .This in-turn improves foreign trade performance by altering the product composition of existing production and at the same time promoting the growth of exports (Berhanu and et.al, 2002).

Generally speaking trade liberalization is the process of approaching the state of pure economic freedom with a minimal government interventions. But one should not understate the role of the government insofar as it aids the effective and efficient operation of the market. This could be practical by focusing, preventing and rectifying market failures specific to each sector of an economy.

And this can help in picking the pace to catch up with the industrial countries through increasing the efficiency of capital, labor, and improve their productivity (Barry and et.al, 1995).

2.1.2 ARGUMENTS ABOUT PRODUCTIVITY

Productivity is an important subject of economic study, at least for the following two reasons: at the micro level, an increase in productivity results in reduction of the cost of production which in turn increase in profits. While at the macro level, an increase in productivity boosts the Gross Domestic Product (GDP) of an economy. So ensuring proper measure of productivity is important both at the micro and macro levels. That is because; improper measures will lead to inefficient utilization of resources, sub-optimal investment, wrong policy decisions and low rate of economic growth (Marh and David 2003).

Differentiating between partial and total factor productivity is also an issue of consideration. A partial measure of productivity may show the development of productivity over a period of time as a result of changes of a single factor within a firm or nation, keeping the other factor(s) unchanged. This measure only helps to capture the comparative productivity of a firm or a nation with the presence of only identical production function. But, in practice it is difficult to find firms or nations having identical production function. That is because one may adopt a labor and intermediate inputs-intensive production technique, while the other uses a capital-intensive production technology. Moreover, changing the technological level of a single factor not only affects the productivity level of the same factor but also that of the others. For example Brehanu and et.al, (2002) stated the case of improvements in productivity in equipment, which arises from either better maintenance of the same input or because of advanced skill's of workers in its utilization. Therefore, measuring total factor productivity level, which shows the sum of partial productivity index of inputs in a production process, is essential in order to look at how all inputs

are utilized and combined in a production process.

In the Solow's growth model, total factor productivity is measured as total output growth less the weighted sum of input growth .By definition; this residual growth measures the improvement of productivity. However, the improvement in aggregate efficiency measured in this way can come from various sources, which typically remains unknown inside the residual (Hyeok and Robert, 2005). On micro level Erwin (2002) defined total factor productivity of a firm, industry or groups of industries as the real output produced by the firm or industry over a period of time divided by the real input used by the same set of production unit over the time period. Where as they define total factor productivity growth of a production unit over two-times period as output quantity index divided by an input quantity index. In other terminology total factor productivity is measured as the increase in out put, which is not accounted by increase to total inputs. Regarding this Mark and Robert (1995) defines total factor productivity as the ratio of an index of aggregate output to an index of aggregate inputs or it measures the total factor productivity growth as the growth rate in total output less the growth rate in total inputs. Thus, if output growth is faster than that of the input growth, we can say that there has been a total factor productivity improvement.

2.1.3 TOTAL FACTOR PRODUCTIVITY AND ECONOMIC GROWTH

The question of why rates of economic growth differ across nations has long been a subject of research and policy debates. Some think that physical or human capital accumulation plays the dominant role, others argue that growth in total factor productivity is the factor for economic growth, and still others account research and development as the dominant source of output growth and argue that it provides difference in economic performance across nations.

In the neoclassical growth accounting framework, which are commonly known

as Solow growth model, a production function is specified as a functional relationship where physical capital, labor, and an exogenous technology influence the level of output. Thus, it is called an exogenous growth model, which solely considers the real side of the economy (i.e labor and capital). The Solow's growth model begins with the assumption that capital accumulation is subjected to diminishing marginal returns (Ben and et.al, 2001). It emphasizes factor accumulation and neglects differences in productivity growth and technological changes across countries, which is captured by the large residual. Because of the stated reason Stephen, (2001) argues that in the Solow's growth model it is impossible to sustain long run economic growth on the basis of capital accumulation, since the contribution to total output from further additional stock of capital eventually drops off to zero.

The main problem with the original Solow's model in terms of accounting for international income difference is that it fails to allow for a mechanism by which countries differ in the amount of technology they use (Yasmina and et.al, 2004). This is because as it is stated above the model assumes exogenous and homogenous technology across countries. The same source also indicates that technological change is exogenous and costless in the model. So firms need not do anything from one period to the next to realise an increase in productivity. Because of the argument given above we can conclude that in the Solow's growth model countries accumulate technology at the same rate. So the cross-country difference in output growth rates is as a result attributed to differences in capital accumulation, which is subjected to diminishing marginal returns. Moreover this model is questioned for its inadequacy for explaining the long run-growth of an economy, which is a result of behavioral variables such as the saving rate. In the Solow's model, changes in economic behavior such as rate of saving and hence the rate of accumulation of physical capital, is not shown to have effect on the long run growth rate of an economy (Ben and et.al, 2001).

The failure of the neoclassical model for adequate explanation of output growth

and income difference across countries opens the door for model that focus on analysing the source of output growth of a country and the difference of economic growth across economies. These growth theories consider the effect of different variables such as, human capital, endogenous technology on output growth and the different mechanisms of technology diffusion as a source of growth. In these growth models, sustained growth occurs even in the absence of exogenous technological changes hence these are called endogenous growth models.

Mark and et.al,(2005) defined the endogenous economic growth models in either of the following two ways, which are said not to be, mutually exclusive.

1. An endogenous growth theory is one in which the rate of growth is determined by the equilibrium solution of the growth model itself, rather than being imposed exogenously upon the model; or
2. It is a theory in which technical progress is explicitly modelled, rather than being treated as exogenously given.

Generally speaking the endogenous growth models explicitly introduced imperfect competition, increasing returns to scale, which prevents the theory of diminishing marginal product of capital. By assuming so, they introduce the possibility of differences in economic growth rates across nations (Jesus, 1997). This assumption is justified by relating the process of factors accumulation to technical progress via external economies of scale such as spill over effects and new ideas (Stephen, 2001).

Advocates of endogenous growth theory claim that physical capital growth alone, which is subjected to diminishing marginal productivity, cannot explain per capita output growth.They argues that the neoclassical model fails to capture a number of crucial variables .These are endogenous to the model e.g

endogenous technological changes and human capital accumulation that explain economic growth (Ben and et.al, 2001). In this regard Les and et.al, states the following

> "*Difference in productivity and productivity growth explains the difference in economic performance between countries and it has been a key factor behind the diverging GDP growth rates observed in the main industrial countries in the past few decades, though other structural factors, such as the evolution of labor force, have also played a lot*" (2005: 25).

So through incorporating technological changes, endogenous growth models consider the diffusion of technology across countries from the innovator to the adopters. In developing countries where innovating and acquiring new technologies is challenging, productivity growth depends on the possibility of using imported ones. As per the economic analysis of these models the above two components of total factor productivity growth (i.e innovation and absorption), which explain the total factor productivity across nations, determines the cross-country difference in per capita income and economic growth rates (Yasmina and et.al 2004).

2.1.4 MEASURES OF TRADE LIBERALIZATION (OPENNESS)

How is openness of an economy measured? For this question there is no single answer, because there are many ways of defining openness of an economy. In the literature there are three major indicators of openness of an economy. The first type of indicators is an outcome variables, such as the export–GDP and the trade–GDP ratio, the second type of indicators are based on policy variable, such as tariffs and non-tariff barriers to trade. The third types of indicators are indirect measures, such as non-trade variables or subjective consideration of a

country's trade regime. The following table summarizes various openness indicators found in the literature.

Table 2:1 Measurement of Openness

Measures	Definitions
Trade dependence ratio	The ratio of exports and imports to GDP
Growth rate of exports	The growth rate of exports over the specified period
Tariff average	A simple or trade-weighted average tariffs levels
Collected tariffs ratio	The ratio of tarifff revenues to imports
Coverage of quantitative restrictions	The percentage of goods covered by quantitative restriction
Black market premium	The black market premium for foreign exchange, a proxy for the overall degree of external sector distortions
Heritage Foundation index	An index of trade policy that classifies countries into five categories according to the level of tariffs and other (perceived distortion)
IMF index of trade restrictivness	A composite index of restrictions from scale 0 to 10
Trade bias index	The extent of which policy increase the ratio of importable goods' prices relative to exportable goods' prices compared to the same ratio in world markets.
The World Bank's outward orientation Index	An index that classified countries into four categories depending on their perceived degree of openness
Sachs and Warner index	A composite index that uses several trade-related indicators: tariffs, quotas coverage, black market premium, social organization and existence of export market board.
Leamer's openness index	An index that estimates the difference between the actual trade flows an those that would be expected from a theoretical trade model

Source: Selim, and et al 2004

Sachs and Warner, (1995) index is the most popular of all indexes listed above. As a result of these reasons, the index is used by many trade analysis of the exiting literature. Hall and Jones (1998) and Sala-I-Martin (1997) can be sighted as few examples. The index uses the following items of trade policy aspects in a combined way to measure the extent of trade policy of an economy. As per their measurement index, an economy is categorized as open, if the following policies are observed and closed if the indexes are not implemented.

1. Average tariff rates lower than 40%
2. Nontariff barriers covered on average less than 40% of imports
3. No socialist economic system exists
4. Major exports are not monopolized by a state
5. Black market premium less than 20% of the official exchange rate.

As per the argument given by Sachs and Warner, (1995) the reason behind amalgamating these indicators into a single variable is that each represents different ways in which policy makers can close or open their economy to international market. But Rodriguez and Rodrik, (1999) acknowledges only two of the five Sachs and Warner (SW) indicators, which are the tariff rate and the coverage of quantitative import restrictions, as acceptable indicators of trade policy. And argues the other three indicators (i.e the black market premium on foreign exchange, the state monopoly for major exports and the classification as a social country) reflects policies and institutional characteristics that have nothing to do with trade policy.

Rolf and et.al, (2003) opposes the definition given by Rodriguez and Rodrik (1999), and says tariff and nontariff barriers are very important determinants of openness but are very narrow. They emphasizes by saying that tariff and nontarrif barriers are the major determinants of openness but only part of incentive or disincentive to free trade. And conclude that trade shares may also be influenced by other policy variables and institutional settings other than tariff and nontariff barriers.

On the other hand, IMF developed its own index in 1997 on the review of Trade Liberalization in IMF-Supported Programs (IMF, 2004). The index was particularly developed to provide a baseline of each country's overall trade policy position as a source for its fund release. Moreover, the index allow for measuring the significant changes to those policies over the program period Rolf and et.al, (2003) .The IMF's indexes are divided in-to two restrictive

subsections and both of which are used together to measure the openness of the economy.

The IMF's Trade Restrictiveness Index (TRI) consists of three components. Which are the Tariff Restrictiveness Rating, the Nontariff Restrictiveness Rating and their combined index, which is called the Overall Trade Restrictiveness Index. The tariff index consists of the following 5-scale based points on the sample-unweighted average of country's most favored-nations (MFN).

Table 2.2.Classification Scheme for the Tariff Restrictiveness

Rating	Simple Average Tariffs + Surcharges
1	$0 \leq t < 10$ percent
2	$10 \leq t < 15$ percent
3	$15 \leq t < 20$ percent
4	$20 \leq t < 25$ percent
5	25 percent $< t$

Source IMF, 2005 and et.al

The following table shows the IMF's non-tariff restrictiveness index, which evaluates a country's non-tariff restrictiveness variables (Such as quotas, restrictive licensing requirement, ban state trading or exchange restrictions) based on their trade or production effects.

Table 2.3 Classification Scheme for the NTB (Non-tarrif Barriers) Restrictiveness

Rating	Incidence Of Nontariff Barriers
1	NTBs are absent of minor. Less than one percent or Production or trade is subject to NTBs
2	NTBs are significant applied to at least one important Sector. Between one and 25 % of production or trade is affected by NTBs
3	Many sectors, or entire stages of production are covered By NTBs. More than 25 percent of production or trade is affected.

Source IMF ,2005 and et.al

The overall trade restrictiveness rating, which is shown in the table below consists of ten-point scale which are resulted from combining the Tariff Restrictiveness Rating with the Nontariff Rating tabulated above,

Table 2.4 Classification Scheme for Overall Trade Restricteveness Index

		Non Tariff Barriers		
		1	**2**	**3**
Tariff barriers	1	1	4	7
	2	2	5	8
	3	3	6	9
	4	4	7	10
	5	5	8	10

Source IMF, 2005 and et.al

The result assigns a one overall rating to countries that have the most open trade policies, and ten overall rating to the most restrictive. The index was calculated on an annual basis to assess whether the results of the review would be significantly affected by changes in the tariff or nontariff barriers classification (IMF, 2004).

2.1.5 THE LINK BETWEEN TRADE LIBERALIZATION AND PRODUCTIVITY

In the neoclassical growth accounting framework, improvement in productivity or efficiency were taken as exogenous in the growth models. This simply means that government policies cannot affect the steady state, and the engine of growth of an economy (Anthony, 2005). Even if the model is widely used as a baseline model of economic growth, it is still considered by many to be insufficient as a description of the process of economic growth. As it is clearly stated in previous section of the chapter, Solow's model assumes that improvement in total factor productivity is exogenously determined. However, the emergency of the new endogenous growth theories in the mid 1980s has reviewed the conventional neoclassical theory to formally incorporate the technical progress and to account for what may be called the non-traditional determinants of economic growth.

> " *The endogenous growth models have brought to focus the role of endogenous policy changes such as trade policy reforms, in affecting the efficiency of factors of Production, through allowing for transfer of technology and knowledge across nations" (Anthony, 2005: 2)*

To this effect the economic literature provides two opposing argument on the link between trade liberalization and productivity. Both of these arguments acknowledge the potential effect of government policies such as trade reforms

on total factor productivity of a country. One-angle states that trade liberalization will suppress productivity by exposing the domestic economy to superior foreign products and industries. In other words supporters of inward trade policies question the ability of domestic firms for adopting new technologies. They warn that domestic firms may not be able to realize efficiency gains. One explanation to this incapability is that local firms are unable to successfully adopt foreign technologies to local methods of production. The other reason is that domestic firms face binding constraints such as credit constraints and other facilities, which prevent them expanding into efficient industries as well as investment in new technology (Petia, 2003). Lack of human capital and infrastructure, which is in short supply also, constrained the adoption and utilization of new technologies. Moreover, if trade liberalization reduces domestic market shares of domestic producers, their incentive to invest in superior technologies might decrease as protection is lifted. In this respect Nina argues that,

> *"Gains from scale economies from openness are very unlikely, where the effects are usually associated with the import-competing industries whose output is likely to be tight as a result of intensifying foreign competition, even if; trade liberalization enhances productivity, such improvements do not occur without costs associated with the exit of plants and large reallocation and displacement of labor and capital " (2002:3).*

The other, arguments holds that outward-oriented trade policy will produce overall industrial efficiency in the economy by exposing local firms to competition and thereby improves the allocation of resource across sectors as result increase total factor productivity. According to this theory opening up the economy for external market is believed to help the country allocate its resources more efficiently activities where the country has a comparative advantage more over the country would be benefited from openness through

increasing technical efficiency or productivity. Advocates of free trade points out the following reasons for the positive result of free trade on productivity,

The first reason is that greater competition from abroad forced domestic producers or consumers to have access to low priced import item and enable efficient utilization of domestic resources. Trade can enable more efficient use of country's resource by enabling imports of goods, which would be less efficient and more costly in domestic production, and creates the access to less costly foreign produced low priced items (World Bank, 2004). For most LDCs, primary sector, particularly agriculture dominates production and employment in the economy, and productive capacities are weakly developed. In this situation, opening up the economy to the international market, increase the possibility of importation, which are not produced domestically but are necessary for economic growth and poverty reduction (UN and et.al, 2005).

The second argument is that free trade eases the constrains of developing countries in importing foreign goods that embody a more advanced technology through increasing access to foreign exchange. These imported inputs embody technologies that are unavailable to domestic producers, which can only be obtained through imports (Berhanu, 2003). Through exports foreign currency is generated, which can be used to import new technologies and international inputs. This raise domestic productivity further, may led to economies of scale and thereby, a reduction in cost production, thus making the country more competitive (Berhanu,and et.al 2002). They categorize this case as the dynamic efficiency gains or productivity growth, which is obtained through stimulating greater capacity utilization, learning by doing with and absorption of new technologies.

According to promoters of free trade, the third reason is that opening up local markets to foreign competition and foreign direct investment will improve the productivity of domestic industry through more efficient allocation of domestic

resource and greater overall output. This is in the literature called to be the x-efficiency argument. In short *Mona stated*

> *"In markets characterized by entry barriers, the dearth of foreign competition allows domestic producers to have monopoly power and excess profits so trade liberalization minimizes the opportunity cost of leisure in such a way that owners of firms, mangers and laborers work harder so the return to entrepreneurial efforts will be increased by exposure to foreign competition, inducing manger to make an extra effort for eliminating inefficiency" (1993:23).*

Berhanu (2002), characterizes this as one of the static benefits of free trade, which can occur through allocative efficiency gains.

The other argument is that production costs will decline when markets are widened as a consequence of free trade. Free trade can improve the returns on investment by reducing production costs or enabling economies of scale. As sited by Berhanu (2002), this is the second static benefits of lowering protection levels, which confront domestic producers with increased actual or potential competition from imports. This has the effect of stimulating the domestic manufacturers to lower their costs and prices and/or improve quality.

Consequently, as to the supporters of free trade, polices that control the availability of such imports or make them more expensive will lead to low productivity as a result lower growth rate.

2.2. EMPIRICAL ARGUMENTS

Researchers works have been done in the past that attempt to qualify the effect of trade liberalization on total factor productivity. This section briefly discusses some insights from the literature. The empirical literature provides two opposing arguments on the effect of trade liberalization on productivity.

In this regard Petia, (2003) find that trade liberalization in India has increased efficiency among firms. The Paper shows that a 10 percent decrease in tariff leads to about 5 percent increase in total efficiency. The effect of the reform were observed to vary across industries with different characteristics and located in different economic environments. Even if the total productivity has improved, results indicate that the publicly owned firms, which are less productive than privately owned firms, were not reactive for reform of the period. The whole paper was interested in finding the magnitude and sign of the coefficient on lagged trade protection, which captures the percentage changes in firm-level productivity with industry level differences in trade protection. The paper used a public available firm-level data on India's corporate sector from 1989 to 2001.The databases contain information primarily from the income statement and balance sheet of 4,062 manufacturing companies from which the study took 116 Sample elements.

The same result with Petia ,(2003) was observed on the study conducted by Satish and et.al (2002) on Indian manufacturing sectors ,by using panel data on 30 industries over the period 1973-88. The paper employs two methods of arguments to explore the effect of trade liberalization on productivity. The first method is the standard x-efficiency argument, which relates import competition to work efforts on the part of workers where trade brings about a reduction in labor input. And the second is trade acting as a means for access to specialized inputs, including capital for production, which will increase total factor productivity. The two mechanisms are incorporated in the standard

neoclassical production function to show the effect of trade liberalization on growth. As it is stated in the paper the unique features of the period (i.e 1973-88) is almost exclusively focused on the intermediate and capital goods sectors with little change in controls of import of consumer goods. The reform of the period was not complete and its progress has differed widely across different industrial sectors. Moreover, the late 18 th were considerably more liberal than that of the early 17th which showed us that the reform was made step by step through the period under consideration. Satish and et.al (2002) indicates that this case helped them for testing the role of intermediate–goods liberalization on productivity growth. Trade liberalization of the intermediate goods sector has a larger favorable impact on total factor productivity growth than that of the final goods sector.

On the other, hand Andrew and et.al (2006) examined the response of U.S manufacturing industries and plants to change in trade cost using industry-level tariff and transportation rates. The analysis was prepared based on a dataset that tracks average tariffs and transportation costs across United States manufacturing industries from 1977 to 2001 by developing its own model. Through linking this database to census of manufacturing industries, the researchers were able to examine the power of declining trade costs on U.S manufacturing industry and plant outcomes.

Based on the methodology and data used, Andrew and et.al (2006) showed that the reduction of tariff rates and transport costs reveals high gains in overall productivity growth of US manufacturing industries. Moreover, the result indicates that the gains are derived by reallocation of activity towards more productive plants within industries. Falling trade costs increase the probability that low-productivity plants fail and raises the probability that higher-productivity plants expands through joining export markets or increasing their sales to foreign countries.

Cobb-Douglas production function is used as a methodological approach for the study conducted by Nina, (2002) on Chilean plants. It uses the variation of productivity over time and across industries for both traded and non-traded goods. The Cobb-Douglas model defines output as a function of intermediate input such as labor, technology, material, and capital. And all the variables were used in their logarithmic forms. Panel date, which extends from 1979 to 1986, was used for the analysis. The result of the paper shows that trade liberalization enhances plant productivity. According to the result of the study, productivity of import-competing firms were improved on average by 3 to 10 percent more than the productivity of non-traded goods sector. Which shows that the import competing firms were in a position to adopt new technologies and improve their production efficiency.

Based on data covering form 1962 to 1985 Abdeoal and et.al, (2002) examined the productivity and market structure effects of trade liberalization on Nigeria. Time series data of capital stock, employment, wages and salaries of industrial level was used in the analysis. The result of the paper indicates that in general the sectors that are less dependent on the external sector for raw material requirement recorded higher total factor productivity. Those sectors generally have higher capacity utilization (i.e sectors which are highly dependent on domestic raw materials), implying a positive relationship between capacity utilization and productivity performance. Those sectors, which are highly dependent on imported raw material, such as fabricated metals, machinery and equipments recorded lower productivity performance. The study also shows that those sectors with high export performance achieve well in total factor productivity, which demonstrates the notion that firms selling in the export market have the potential to increase their productivity. The other result of the paper is that, import policies have a negative effect on productivity at list in the short run because domestic firms may not be able to compete with the high efficient foreign industries, thus the efforts of the government to promote manufactured exports was suggested for protecting the domestic industries in

order to avoid the negative growth implication of import trade policies. Regarding this, ECA, made the following remark,

> *" Maintaining dynamic non-linear, and differentiated trade policies between sectors is important to minimize the negative effect of trade liberalization on economic performance in general and domestic industries in particular " (2004: 56).*

At the national level Mans and et.al (2003), confirms the same result with the above researches and argues that trade liberalization has a significant positive effect on productivity growth. The research was conducted using panel data on 93 countries covering the period from 1970-2000.Cobb-Douglas production function, which defines output as a function of physical capital, technology and number of labor, was used for the analysis. Where as, the economic reform effect of Latin America and the Caribbean countries on total factor productivity was examined by (Pablo and Daniel, 2002). The research compares the average rate of growth of total factor productivity in the period in which the economies were reformed to that of the periods when they were not reformed. This paper also uses a Cobb-Douglas production function with the assumption of constant return to scale between capital and labour. And productivity growth was explained as the residual in a growth accounting exercises with the above two factors of production. The source of the data is physical capital stock using the perpetual inventory stock, working-age population of aged between 15 to 60, and gross domestic product (GDP). This data covered the period 1950-1990 which was updated till 1995 using World Bank's database on World Development Indicators. The paper found that on average the countries were observed to show a higher productivity growth in the reform period than that of the non-reform period.

Johannes, (2005) has found a positive productivity impact of trade liberalization on exporting industries on nine sub-Saharan Africa countries.

The result indicates that exporters in those countries are more productive than domestically oriented firms in the same location and industry. Exporters were able to increase their productivity advantage after entry into the export market. Those countries did not only show post-entry growth in productivity levels, but the growth rate of productivity is higher after the reforms were introduced.

2.3 PRODUCTIVITY AND ECONOMIC GROWTH IN ETHIOPIA

Sustainable growth in per capita income of an economy is usually resulted from investment in physical and human capital and growth in total factor productivity. This total factor productivity, which is one of the sources of growth, can be affected by: availability of good governance, education and nature of economic policies. With this basic understanding Ethiopian government had introduced different market oriented and liberalized policies since 1992 to ensure sustainable growth as a means of pulling millions out of poverty. This is expected to be practical through, increasing accesses of farmers (which account for the highest share of the population) for new technology and raw materials, opening up the economy to the external world and increases the participation of the private sector in different economic activities of the country. As part of this liberalization process fertilizer supply and marketing strategies were gradually made less restricted and the monopoly supply of government fertilizer were reduced. In addition to that, a lot of policy changes and trade reforms were introduced for increasing the participation of Ethiopia in world trade for providing additional opportunities to transform its resource and address economic growth and poverty reduction.

Since then the economy has shown a moderate rapid growth. For example the average per capita growth rate of 1992-2001 is estimated at about 1.1 percent per annum, which is explained, by total factor productivity rather than capital deepening (William, 2006). He argues that this total factor productivity changes

are resulted from the policy reform variables such as, the participation of private agents, the level of infrastructure, and trade liberalization measures initiated by the current government.

As opposed to William, (2006), Alemayehu and et.al (2002), explains that the Ethiopian source of GDP growth for the past forty years (including the period 1960-2000), were due to the more intensive use of resources (primarily capital and labor) and less of contributions of total factor productivity. Moreover, it argues that this total factor productivity contribution is negative for all this years. As per the analysis made in the paper the difference of growth across the past three regimes were, results of the major factors including natural factors, international commodity price and risk related to war and security. These factors in-turn mediated and transmitted through institutions and polices, and believed to affect the utilization of available resource and the magnitude of total factor productivity.

But generally speaking the lessons of past experience show that, the market-oriented policies provide the best opportunity for growth than the more market is tuned to local conditioned and capacities. The better outcome were shown by the experience of the post Military and Imperial period than the Derg period (Alemayehu and et.al, 2002). The paper used Collins and Bosworth growth accounting framework, which decomposes the output as a function of physical capital, labor and a residual. The residual, which is observed to be negative through out the period, is taken as the effect of total factor productivity on the GDP growth of the economy. And this total factor productivity may be determined by the weather outturn and policies variables.

Most policy and macro-economic decisions of the country have been on growth models that assume rainfall is consistently at historical average levels and these models do not take into account shocks to the economy caused by extreme water events, such as flood and drought Caluda, (2006). WB, (2006) as

quoted by Caluda, (2006) estimated the impact and magnitude of high water variability on growth and poverty of the country. This helps the government for managing and reduce the negative effects of water on the performance of the economy .The study found that water variability, reduces projected rates of economic growth by 38 percent per year and increased projected poverty rates by 25 percent over the past twelve year period (i.e 1993-2005). It stressed by saying that the development of water infrastructure is an imperative for effective and sustainable economic growth in Ethiopia. Mulat,(1999) also found that annual growth rate of the Agricultural sector drooped by 13 and 21 percent during the drought years of 1982/83 and 1984/85 respectively . Favorable rains of 1980/81 and 1990/91 on the other hand resulted in growth rate exceeding 14 percent per annum. This is the outcome of subsistence-oriented production system of the sector. Because of the dependency of the economy on the Agricultural sector, one can easily understand that this will highly affects the growth rate and GDP/L of the economy. Moreover, the impacts of severe and prolonged environmental degradation, shortage of arable land in the highlands and protracted civil war are also some of the factors, which determine the performance of the economy.

CHAPTER 3.CURRENT FOREIGN TRADE POLICY REFORMS AND ITS PERFORMANCE IN ETHIOPIA

3.1 INTRODUCTION

Ethiopia is a poor developing country in transition from a centrally planned to a free market economy. It has an agricultural-based economy, dominated by smallholder households, which produce more than 90 percent of the agricultural output and cultivate more than 90 percent of the total cropped land (Multa and et.al, 2005). The Agriculture sector, which employs the large share of the population, is characterized by low productivity growth; as a result it has not yet provided enough employment opportunity and income security to the population. The sector has been highly dependent on the political, economic situations of the country and the exogenous natural factors. In this regard the three distinctive periods in the last four decades, has been associated with different policies and political orientation of their own, which have an obvious effect on economic performance of the respective periods.

3.1.1 THE IMPERIAL REGIME

The imperial regime was characterized by a political system dominated and ruled by power structure of a king. The period was largely pursued by a market based economic policy; the average growth rate performance of GDP during that period (1960-1974) was 4 percent per annum (Alemayehu, and et.al 2002). The same source indicated the observation of Economic modernization, includes Building of infrastructure and emergence of modern commercial firms. Various measures including establishment of chamber of commerce, facilitation of the role of private and public was made practical for controlling the quality and quantity of import and export. Regarding import items capital and raw materials were imported free of duty tax while other were entitled to import tariffs (Befekadu and et.al, 1999). This period was ended after the revolution in 1974.

3.1.2 THE DERG REGIME

This period was characterized as socialist based economy where, the government was highly interventionist in all-economic activities of the country. Economic management had been characterized by resource allocation and distribution through central planning, socialization of productive sectors coupled with strict control of markets, prices and private sectors participation (Alemayehu, 2002). The entire private owned firms were nationalized. The land reform proclamation of 1975 nationalized all land, abolished landlordism, and tenancy and redistribute land to peasant. And the land, which was previously owned by landlord, was redistributed to small farmers proportionally to their family size. This proclamation gave provision for establishment of peasants' association and service cooperative, and subsequent formation of state farms, and marketing parastatals (Multa and et.al 2006).

During this period the Ethiopian economy rapidly become one of the most regulated and inward oriented than other developing countries (Bayissa, 2005). Most sub-Saharan African countries had been following import substitution strategic before the early 1980s and Ethiopia had been no exception to this. Unaffordable tariffs rates, wide-ranging quotas and elongated licensing procedures heavily limited foreign as well as domestic trade. At those times import tariffs were used as the main source of government revenue where as, the import barriers were implemented with the assumption of preventing domestic industries from stiff competition of foreign industries. The exchange rate of Birr 2.07 for a dollar had been in operation for about two decades. This overvalued exchange rate was used as an instrument for maintaining a sustainable balance of payments.

As a result, the exchange rate regime operation since then had more favourable to import than to domestic production and significantly more to domestic

marketing and import than exports (Israel, 2006). Regarding participation in export and import the lion share was left to the government and the participation of the private sector was minimized.

The government has introduced the ten-year perceptive plan (1984/85-1993/94) with the aim of transforming the agriculture-based economy and to increase the real growth rate of GDP to 6.9 percent per annum during the target period. But the annual growth rate remained at 2 percent and the sectoral share remained fairly stable and in general by 1990,all economic indicators deteriorated (Alemayehu and et.al 2002). Moreover, the same source indicates that the GDP growth rate of the period (1974/75-1989/90) was registered to have an average value of 2.3 percent, which is much less than that of the pervious period. After the dawn fall of the Derge regime the current government has took over the power in 1991.

3.1.3 THE EPRDF REGIME

The current government has started its relation with the IMF since the introduction of the IMF and World Bank supported structural Adjustment Program (SAP) in 1992/93. With the support of the Bretton Wood Institutions' (i.e IMF and World Bank) the first phase of structural and economic reforms program was commenced during 1992/93-1994/95 by introducing different measures from which the following are the major once.

- Devaluation of the local currency; In October 1992 the currency was devalued and fixed at Birr 5 to a US Dollar from Birr 2.07/Dollar.
- Rationalization of public expenditure
- Introduction of a new investment code, labor and public enterprise laws;
- Reduction of the maximum import tariff from 230 percent to 80 percent
- And Liberalization of payment for invisible transactions and allowing entry for privately owned banks and insurance companies. These reforms witnessed a market-oriented system both in the domestic and foreign

market strategies. But much of the policies adopted by the new government in 1991 have been proposed by the Derg regime at the end of its reign but was overtaken by events before its implementation (Alemayehu and et.al, 2002).

In its second reform program period of (1994/5-1996/97) the government adopted Agricultural Development-led Industrialization (ADLI). ADLI, which is taken as the central base for the government's development program, has focused on the productivity growth of small farm households and labor-intensive industrialization. Moreover, mobilization of external resource rehabilitate and reconstructing of economic and social infrastructure, and pursuing a more liberal external trade and foreign exchange policies were also part of the reform program (Israel, 2006). This strategy aims at improving the production and productivity of smallholders agricultural through generation, adoption and diffusion of new farm technologies in the form of improved inputs and farming methods (Mulat and et.al 2006). With the above basic objective a new extension system known as Participatory Demonstration and Extension Training (PADETS) has been put in place for mobilizing small farmers and introducing better farming practices. These strategies were believed to address the serious challenges, which prevails in the country, such as poverty and food insecurity, by efficiently utilizing relatively abundant resource (i.e. labor and land).

On its third arrangements with IMF during the period (1996/97-1998/99) the Ethiopian government entered a tree-year Enhancement Structural Adjustment Facility (ESAF). In this arrangement the government has committed it self for broad-based economic growth (Isreal, 2006) .To this effect, the maximum import tariff rate was further reduced to 50 percent; fertilizer price control was suspended; liberalization of the foreign exchange system was further strengthened and exporters foreign exchange retention scheme was also introduced.

During the period 2000/01-2002/03 the government has prepared the country's PRSP, which is called Sustainable Development Poverty Reduction Program (SDPRP). In this strategy paper the government has stated its dedication towards reducing poverty through linking it with growth process, which is said to be fast, broad-based, equitable and sustainable. The core objective of the strategy paper is to reduce poverty and ensure food security through rapid economic growth, via free market economic system (Tassew, 2004). With a view towards meeting the Millennium Development Goals (MDGs) by 2015,the target was to reduce poverty by 10 percent at the end of the program period while maintaining an average real GDP growth rate of 7 percent (Abebe, 2002). These policy reforms, the good weather condition and active participation rate of private agents were the major factors that the government has sighted for the good economic performance it has achieved for the past three consecutive years.

Ethiopia was categorized among the top performing economies in sub-Saharan Africa countries for the economic performance registered in the past there years. The economy has registered a GDP growth rate of 8.9 percent at constant prices during the fiscal year 2004/05.This was achieved on top of the double-digit (11.1 percent) growth performance of 2003/04.NBE, (2005) indicated that the largest share of the growth was contributed by the agricultural sector which account for about 6 percent from the overall growth rate of the GDP during 2004/05.ECA, (2005) sighted Ethiopia as one of the only six countries of Africa realized a 7 percent and higher growth rate in 2004/05.This growth rate is the requirement for achieving the Millennium Development Goals for halving poverty by 2015.The other five good performing countries are Chad (39.4 percent), Equatorial Guinea (18.3 percent), Liberia (15 percent), Angola (11.5 percent) and Mozambique (8.3 percent).

3.2 TRADE REFORMS OF THE CURRENT REGIME

As it is stated in the above section the current government has announced a comprehensive and far-reaching reform programs starting 1992. The program has focused on re-orienting the economy through market reforms and privatization. Regarding trade the reform measures include reduction of the maximum tariff, removal of import quotas, simplifying licensing procedures, and devaluation of the local currency. The reform measures are presented in the following section of the paper and particular attention is given on the major trade reforms of the period.

3. 2.1 TARIFF REFORMS

A series of Customs tariff amendments and measures have been taking place since 1993. The reformed tariff rates narrowed down from 0-230 percent of the pre-reform rates to 0-80 percent in 1993 and then, in various steps, to 0-35 percent in 2003. The existing customs tariffs amendments have been done in January 2003 (MIT, 2004) based on the Harmonized[1] System. Currently there are five import tariff bands excluding zero rates, which are 5,10,20,30,and 35 percents. Both import and export tariffs are advalorem[2]. There are no preferential tariffs except for imports from COMESA[3] member countries, for which a 10 percent tariff reduction of most favored nations (MFN) is applied. In other words Ethiopia has provided a preferential access to all COMESA free trade area members equaling 90 percent of the applied tariff rates.

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[1]The Harmonized System is a standard code for importer and exporter used by international trade and developed under the auspices of the Customs Cooperation Council. The Harmonized Code consists of 10 digit numbers.
[2]ad valorem, (calculated as a percentage of the value of the goods),

[3]COMESA: Common Market For East And South African Countries, Member countries are Angola, Burundi, Comoros, D.R. Congo, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles, Sudan, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe

Table 3.1: Distribution of Tariff Bands (2003)

Tariff bands (Percent Ad Valorem)	Number of Tariff lines	Share of Tariff
0	179	3.2%
5	1391	24.8%
10	1370	24.4%
20	1004	17.9%
30	725	12.7%
35	934	16.7%
Total	5608*	100.0%

* Including 5 tariff lines of prohibited products that could not be allocated among the bands

Source: Ministry of Finance & Economic Development and Ethiopian Customs Authority

Most of the items, which are under zero tariffs, comprise fertilizer, articles of wood, railway or tramway locomotive, rolling-stock and parts thereof, aircrafts, spacecrafts and parts thereof, etc. Within the 5 and 10 are raw materials and machineries, which are used by manufacturing industries. Items within the 20 percent band include organic chemical, carton, boxes, envelopes, sacks and bags, thread, synthetic filaments, artificial filaments, yarn and synthetic monofilament staple fiber. Items within the 30 and 35 percent bands include perfumes, soaps, tiles, transmission belts, ornaments, silk, cotton, Jewelry, footwear, motor vehicles, textile products and toys. The negative list, which is used to determine eligibility for imports through the foreign exchange access, was reduced significantly. Currently import is prohibited for five items only, including opium, ethyl alcohol and other similar spirits and worn clothing and textile articles or rags. These prohibitions are put in place for health reasons and for preventing illegal traders from importing contraband classified as used clothing and rags.

Table 3.2: Overview of Tariff Reforms

Descriptions	Pre-reform Period	Aug.'93 Amend. (1st)	Jan.'96 Amend. (2nd)	Dec.'96 Amend. (3rd)	Jan.'98 Amend. (4th)	Dec.'98 Amend. (5th)	Jan.2003 Amend. (6th)
Maximum Tariff Rate(%)	230	80	60	50	50	40	35
Number of Tax Exemption	327	138	169	170	168	167	179
Simple Aver.Tariff Rate	79.1	35.0	28.8	24.3	24.3	20.0	20.0
Weighted Aver.Tariff Rate(%)	41.6	29.6	24.6	23.6	21.5	19.5	17.5
Number of Tariff Bands(%)	23	9	8	7	7	7	6
Tariff Dispersion***(%)	225	75	55	45	45	35	30
Prohibited Items	2	2	2	2	2	2	5
Specific Items	157	4	4	4	4	3	-
Total Number of Items	1821	5332	5294	5295	5486	5426	5608

***Tariff dispersion is the difference between the highest and the lowest tariff rate.

Source: Ministry of Finance and Economic Development (2003)

The average weighted tariff rate declined from 41.6 percent prior to the reform to 17.5 percent in 2003.

Presently no export tariff is levied on exports from Ethiopia, more over; quantitative restrictions and quotas do not exist. Duties on all exports other than coffee (the main export product) were removed. The coffee export duties were initially unified at 6.5 percent, but eliminated in 2002. An export tax was originally imposed on coffee export but this has also been eliminated.

3. 2. 2 EXCHANGER RATE REFORMS

One of the most delicate macro-economic reform initiatives, which require special attention, among others, is the devaluation of the over-valued currency of the Ethiopian Birr against the US dollar.

- The devaluation was started in October 1992 for which the local currency was devalued at 5 Birr to a Dollar.

- In May 1993,the system of Retail Foreign Exchange Auction was introduced paving the way for a system of market-based operation on bi-

weekly auction bases. This auction system has introduced a mechanism for licensed traders and production operators to compete on foreign exchange allocation. The results had been the exchange rate of Birr rose from 5 Birr in October 1992 to 6.33 Birr for a Dollar in July 1995.

- In September 1998 the government introduced the wholesale auction to replace and improve the retail auction system, which was in place for almost five years. Banks and investors were, the only participants in the market. This weekly wholesale auction market was operational until October 2001;

- NBE finally introduced the Inter-bank Foreign Exchange Market in October, 2001.This enabled banks to have daily access to the forex market and freely bid their own rates for buying and also accept offers of foreign exchange. The marginal exchange rate is fixed after the close of the market every day. Institutions whose functional activities involve foreign exchange payments use the marginal exchange rate as reference rate and freely fix their own cash note and transaction rates.

3.2.3 NON-TARIFF REFORMS

Non-tariff reforms were also made as part of trade reform program of the current government. The government of Ethiopia abolished bureaucratic licensing procedures and amendments were made on charges of foreign trade. Currently there is no quantitative restriction, quotas and Ethiopia does not apply export subsidies. There is however, prohibition on export of raw hides and skins. One of the measures taken by the current government is supporting exporter through allowing them to retain part of their export proceeds. Now exporters are allowed to retain 10 percent of their export proceeds in the form of foreign currency.

On the other hand, Ethiopia has made agreements with different economic institution. From which COMESA, and IGAD[4] are the most to be sighted.

Ethiopia is currently engaged in trade negotiation with European Union (EU) through the framework of African Caribbean and Pacific (ACP) countries. Moreover, the government is approaching the WTO for Ethiopia to be member and it is currently an observer. These agreements are believed to expand intra-regional trade by gradually removing tariffs and non-tariff barriers and then free movement of goods, services, and factors of production across national borders.

3.3 THE FOREIGN TRADE PERFORMANCE OF THE CURRENT REGIME

3.3.1 THE EXPORT TRADE PERFORMANCE

The export sector of the country has shown a better performance after the reform period. This can be clearly seen from graph 3.1 and tables shown in Appendix A of page 82. Both the value and type of export items has started improving immediately after the government has introduced the reform during the year 1992. The export earning has shown a growth rate of more than 66 percent per annum and increased from its value of Birr 279 million in 1991/92 to 828 million during 1992/93. Regarding commodity share Coffee has been the prime foreign exchange commodity of the country for the past three decades. Moreover, it explains the earning position and export sector performance of the country.

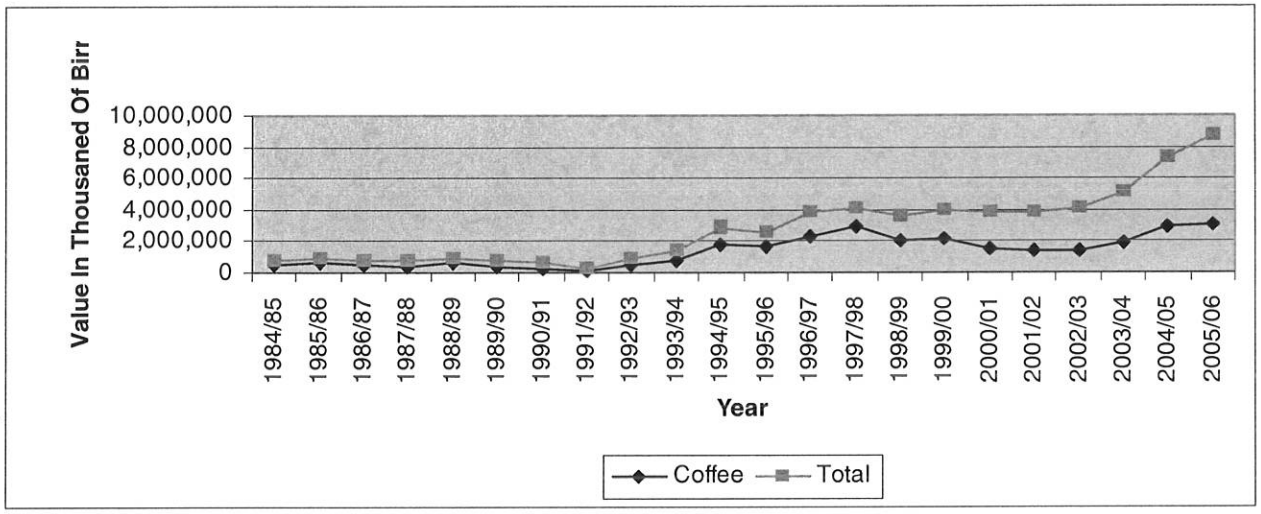
The positive relationship between coffee earning and the total export could be clearly seen in the graph shown below. The graph indicates us that the two lines are moving in the same direction. The higher the coffee earning the

[4]IGAD's current membership includes seven countries: Djibouti, Ethiopia, Eritrea, Kenya, Sudan, and Uganda

higher will be the total value of export and the opposite holds true for declining earning of coffee. This signifies the dependency of the economy on Agricultural sector in general and this single item in particular. But the gap between the two lines, which shows the contribution of other export commodities, has stared to increase immediately after the introduction of the trade reform. Coffee had been contributing more than 50 percent of the total earning at least for the past fifteen years. But the share has declined over time and it is currently contributing less than 40 percent of the total export earning of the country. The export charts depicted in appendix L on page 103 revealed that the Products like Chat, Oil seeds, Flowers, Gold and Pulses are increasingly contributing to the export earning after the reform period. Where as the contribution of Hides and Skins have declined overtime. We can also learn from appendix B on page 84 that the percentage share of these items is fluctuating. For example Oil seeds and Chat, accounts for 14.76 and 11.82 percent from the total export earning of the country during the fiscal period ended 2004/05 and 21.13 and 8.9 percent during 2005/06. These shares were 13.66 and 14.77 percent respectively during 2003/04.

Appendix A on page 82 which shows major export items, reveals that the total earning of the country has show a sharp fall for the consecutive three years starting from 1999/00 to 2001/02. This in turn was mainly attributed to the decline of coffee price from birr 18.31/kg in 1999/00 to Birr 12.63/kg during the fiscal year 2001/02 (for Price list of major export items please refer appendix D on page 88). But the improvements on coffee price to Birr 12.32/kg in 2003/04 from the international price of Birr 11.25 in 2002/03 has contributed for higher export earning of the country for same fiscal period. Further positive international price changes helped the country for registering a better export earning for the next two consecutive years (i.e. year 2004/05 and 2005/06). But the unfavorable international market conditions and fluctuation of international price, has not yet affected the export share of coffee and it still accounts for the lion share of the export earning of the country.

Figure 3.1 Trends in Total Export Value and Coffee



Regarding the major export market, Germany has been the main and leading destination of the country for the past twenty years. But China has recently overtaken the market share and contributes about 13.43 percent of the total export earning during the fiscal year 2005/06.This share was followed by German, Japan, Saudi Arabia, Djibouti, Italy and USA. And these countries accounted for a market share of 10.09 percent, 7.79 percent, 6.11 percent, 5.74 percent, 5.46 percent and 4.81 percent respectively during the same period. Thus there is a clear need to diversify the destination and type of exports.

3.3.2 THE IMPORT TRADE PERFORMANCE

After the introduction of the trade reforms measures, volume of imports has increased dramatically as compared to the export volume of the country. As a result the export earning is not in position to finance the import payment of the country. This is reflected by the decline in export/import ratio of 8.5 percent in 1984/85 to 4.6 percent in 2005/06.

Both the increasing domestic demand and international price of the major import items of the country could be sighted as few of the main reasons for the increasing import bills of the country. NBE (2005), indicated that the move of

the country in capacity enhancement which resulted in large imports related to education support, infrastructures, telecommunication facilities and power construction works have led to a drastic jump of the import bills during the fiscal year 2003/04. The import bill of the country, which was Birr 15,936 million during 2002/03, was raised to Birr 22,297 million in 2003/04 (i.e increased by 39.91 percent in the review year). The increasing international price of oils and metal products such as iron sheet and steel has also its own say for increasing import payment. Moreover, the major import items of the country are relatively high priced goods such as petroleum and capital goods, which contribute to the increasing import bill of the country.

Regarding the major import items, petroleum products are leading the ladder followed by capital goods like machineries and both their shares are increasing overtime. Road motor vehicles, metal and metal products are also contributing to the increasing import bills of the country. These import items contributes about 14.70 percent, 13.94 percent, 10.99 percent and 10.92 percent respectively during the fiscal year 2005/06.If we consider the import items of the country by end use, Ethiopia imports 33.15 percent in the form of capital goods followed by 29.24 percent of consumer goods. Industrial goods, Consumer non-durable, Semi-finished and fuel account for 22.45 percent, 19.76 percent, 18.74 percent, and 14.86 percent respectively. Capital goods have been the major import items of the country both in the pre and post reform periods. In the Derge (i.e 1982/83 to 1989/90) and the current regime (i.e 1990/91 to 2005/06) capital goods on average accounts for 38.51 percent and 32.87 percent respectively. During the period 1982/83 to 1989/90 consumer, Industrial, consumer non-durables and transport goods on average contributes about 30.13 percent, 22.12 percent, 22.04 and 14.58 percent respectively. Where as in the period 1990/91 to 2005/06 the share was contributed by consumer goods, consumer non-durables, industrial goods and fuel each contributes on average 30.07 percent, 20.82 percent, 19.06 percent and 15.98 percent respectively. Generally speaking the largest share of the

countries import are semi-finished and finished goods. The county's patter and volume of import reflects the economy's inability to produce capital goods and its heavy reliance on imported consumer goods.

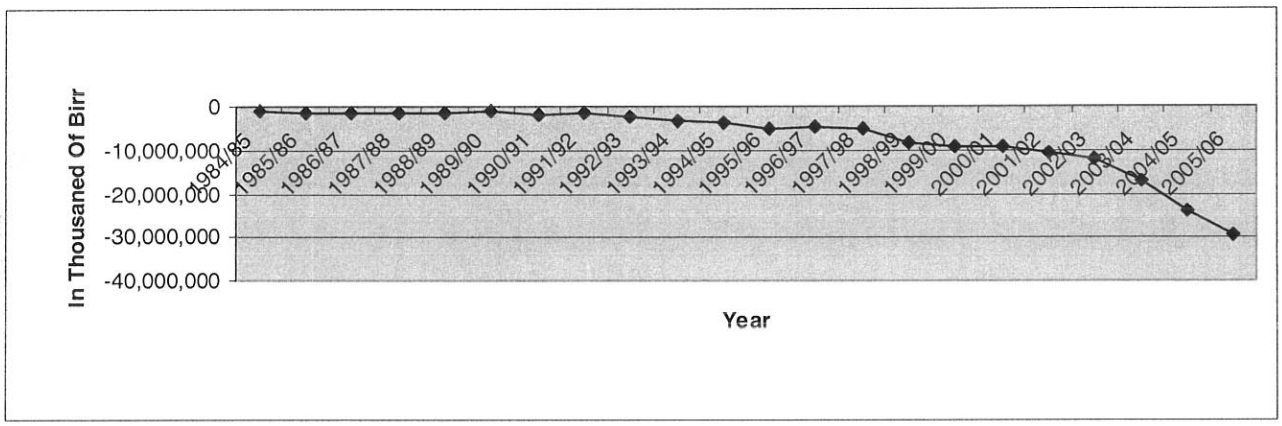
The country's import originates mainly from Saudi Arabia, China, USA, U.A.R and Italy. Import form these countries accounted for 14.90 percent, 13.16 percent, 8.36 percent, 6.67 percent and 5.78 percent respectively during the year 2005/06.U.S.A, Germany and Italy has been the major import partners of the country before the reform period. Even if the volume of import from these countries has increased overtime their respective share has declined. Currently the major import partner of Ethiopia is Saudi Arabia followed by the Republic of China and these countries individually contributes about 14.90 and 13.10 percent respectively. One can learn from the import table that China has been contributing less than one percent of the volume of import before the reform period. But now the country is one of the leading few major import partners of the country (for detail information please refer appendix F on page 92).

3.3.3 PERFORMANCE OF THE TRADE BALANCE

Ethiopia's trade balance is generally negative over the period covering from 1984/85 to 2005/06 this can be seen from the graph shown below (please also refer appendices I and J on page 98 and 100). Moreover, one can clearly observe from these tables that Ethiopia had maintained a trade surplus with its few partners before the reform period. But after the introduction of the reforms the deficit has observed almost with all its trading partners. The probable explanation for this murky trade performance is the import and export structure of the economy. This in-turn could be explained by the price, type and volume of the respective sectors. The fluctuation of the international price of coffee (i.e the major export item of the country) and increasing price of the major import items has induced for the deterioration of the trade balance. Trade reform measures such as reduction of import tariffs,

reduction/elimination of non-tariff barriers and devaluation of country has resulted in increasing the import volume to that of the export earning of the country. The deterioration of the trade balance is also affected by supply side shock, which increases the international price of the major import items of the country. The continuing average price increase of petroleum can be sighted as an example. Generally speaking the increasing value of the trade deficit indicates the incapability of the export earning in order to finance the import payment of the economy. The average growth rate of exports and import sectors of the country for the past three years (2002/03-2004/05) is 23 and 29 percent respectively (AFROAD, 2005).

Figure 3.2 Trend of Trade Balance



The above graph shows trade balance of the country for the period covering from 1984/85 to 2005/06. We can learn from the graph that the line was moving slowly and fluctuating in a small range before the reform period. After the trade reform has introduced the line started to move fast. In absolute figure the deficit shows a value of Birr 29,368 million during 2005/06 from its value of Birr 1,632 million one-year immediately before the reform is introduced.

As it is shown in Appendix I on page 98 Ethiopia maintains a trade deficit almost with all its trading partners for the past twenty years. The major import partners (Italy, Germany and U.S.A) are also the major countries for

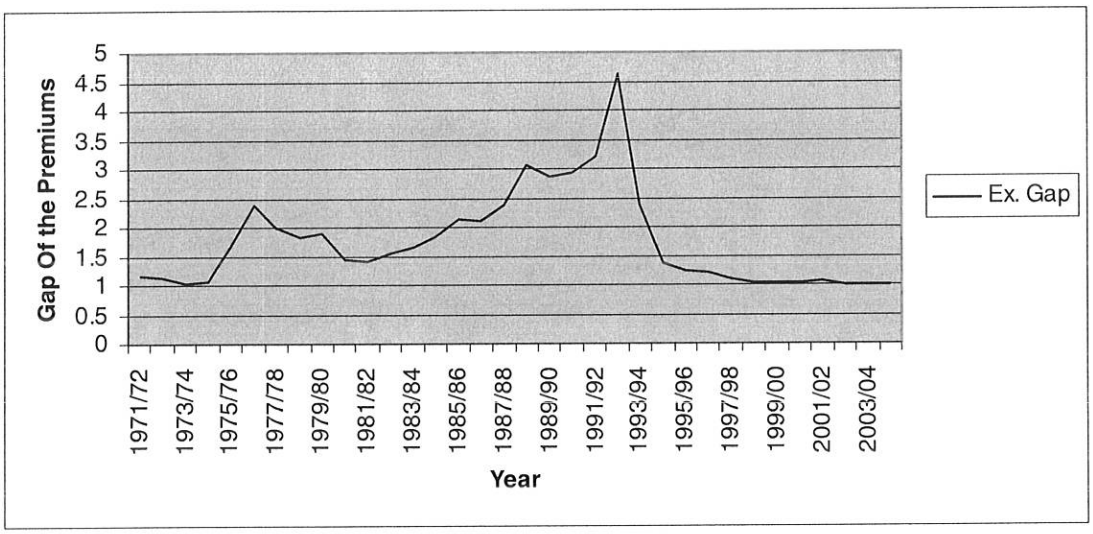
contributing to the deficit of the country in the pre-reform period. During this period Ethiopia on average had maintained a trade surpluses with Saudi Arabia, which is now the major trading partner of the country and contributes the highest share in the increasing deficit of the country. For the year 2005/06 Saudi Arabia, China, USA, U.A.R and Italy has contributed the largest percentage share in the trade deficit of the country. These countries accounted for 17.50 percent, 13.07 percent, 9.41 percent, 7.79 percent and 5.87 percent respectively for detail information please refer Appendix J.

3.3.4 EXCHANGE RATE GAP BETWEEN THE OFFICIAL AND BLACK MARKET PREMIUMS

As it is indicated in section 1.4 of chapter two one of the measures of openness of an economy is the gap between the official and black market premium. The lower the gap between the two values explains the fact that the foreign sector of an economy is more liberalized and the reverse holds true if the gap between the two premiums is higher. Appendix K on page 102 and the graphs provided below indicates that the gap between the two values is declining overtime since the introduction of the reform. The difference between the two values showed a sharp fall after the foreign trade is liberalized on 1992.The successive devaluation of the official exchange rate has resulted in declining its difference with the black market premium.

The Derg's regime strengthened protectionist policy through exchange rate pegged to US dollar for a long period of time and with other tariff and non-tariff barriers. In this kind of economy where the exchange rate is relatively over-valued the official rate is lower than the black market premium. But if the value is devalued its demand will increase and that of the black market decline in between the gap will be minimize overtime.

Figure 3.3 Exchange Rate Gap between the Official and Black Market Premiums



The devaluation was started in October 1992 for which the local currency was devalued at 5 Birr to a Dollar from its fixed rate of Birr 2/USD. After successive measures of exchange rate operations NBE finally introduced the Inter-bank Foreign Exchange Market in October 2001.This system enabled banks to have daily access to the forex market, and freely bid their own rates for buying and also accept offers of foreign exchange. The marginal exchange rate is fixed after the close of the market every day. As one can clearly see from the graph above the trade reforms made has contributed for declining the gap between the two rates.

CHAPTER 4.DATA DESCRIPTION, MODEL SPECIFICATION AND METHODOLOGY

4.1 THE DATA: DEFINITION AND SOURCE

The data used in this paper are secondary in nature and comes from different source. Data on GDP, Import, and Export were collected from CD ROMs of National Bank of Ethiopia (NBE), Ethiopian Customs Authority (ECA), and Ministry of Finance and Economic Development (MoFED), including their different periodical publications.

In addition to this, human capital is measured based on the secondary and tertiary School enrolment data from the Ministry of Education. This is the student index variable in the model which is used for representing the human capital of the country. Active labor force ranging from age 15 to 64 is taken for measuring the labor force component of the model. Where as, capital stock is taken for measuring the physical capital variable of the production function. Openness is measured as the gap between the official and black market exchange rate premiums (EXGAP). Considering their possible effect on productivity of the country drought, and war are introduced as dummy variables of the model.

To estimate the model used in the paper and examine the statistical significance of the explanatory variables, econometric analysis is employed using time-series data. The data covers macro variables of the period covering from 1971/72 to 2004/05.

Key words of the paper are GDP, human capital, physical capital productivity and trade liberalization or openness.

4.2 MODEL SPECIFICATION

I adopted methodological approach used by Mans and Francies (2003). Their paper was presented on the assumption that the production function follows a Cobb-Douglas specification with constant returns to scale (CRS) between capital and labor, with $\alpha+\beta=1$. Despite its limitation in terms of its restrictive properties imposed on the production structure like fixed returns to scale the model is chosen and used in the literature. The original version of Cobb-Douglas production function has the following form. In this model A, α and β are taken to be constant parameters.

$$\underline{Y}_t = AK_t^{\alpha} L_t^{\beta}$$

The more important problem with the original Cobb- Douglas functional relationship is its assumption on the omission of technical changes across periods. It is feasible to assume variation in technology over time and across period and then re-estimate the data with additional explanatory variables (Iain 2002). So for our specific case the logarithm structure of the original Cobb-Douglas production function equation with assumption of variation of technology across periods will have the following form.

$$\ln Y = \ln A_t + \alpha \ln K_t + \beta \ln L_t \quad \text{.....4.1}$$

Where:

t refers time period

Y refers real income

A refers index of total factor productivity

K refers physical capital

L refers the active labor force

And α, β are technology parameters.

Mans and Francies (2003) used the model for their cross-country study and

here the model is modified in such a way that it could fit the basic objective of the study [i.e. to show the link between trade liberalization and total factor productivity of Ethiopia]. With the assumption of endogenous growth accounting framework we hypothesize that technological is defined as a function of openness, the average level of human capital and a set of time varying factors symbolized by a residual v_t (Mans and Francies, 2003) :

$$\mathbf{lnA_t = w_1 ln\ T_t + w_2 lnh_t + v_t} \quad \text{.....} \quad \mathbf{4.2}$$

Where:

A_t denotes level of technology in a given time period

T_t denotes openness

h_t the average years of education

and w_1- w_2 are coefficients of the variables.

As it is shown above, technological is defined as a function of level of openness and human capital. The coefficients on $\mathbf{T_t}$ and $\mathbf{h_t}$ are interpreted as the effects of openness and human capital on the level of technology.

The model specification, which will be used for the empirical analysis, will have the following form, where it is resulted from substituting equation [4.2] in to [4.1] and rewriting the equation in per capita terms,

$$\mathbf{ln(Y/L)_t = \alpha ln(K/L)_t + w_1 lnT_t + w_2 ln\ h_t + v_t} \quad \text{.....} \quad \mathbf{4.3}$$

Where:

$ln(Y/L)_t$ is the natural logarithm of per capita productivity

$ln(K/L)_t$ is the natural logarithm of per capita capital formation

V_t the error term assumed to be normal

Yet, studies by Alemayehu, (2002) and others noted that in a country like Ethiopia unpredictable weather condition and prevalence of war has significant influence on productivity. Accordingly, this paper includes proxies, which

account for weather condition and war in a given time period in its estimable model.

Then, in terms of the variables definition of the data set and including other variables that might affect productivity, the paper's estimable model will take the following form:

$$\mathbf{LRGDP/L_t = \alpha_1 LKstock/L_t + \alpha_2 LEXGAP_t + \alpha_3 LSIndex_t + \alpha_4 Dwar_t + \alpha_5 Dweather_t + \nu_t} \quad \mathbf{4.4}$$

Where,

$LRGDP/L_t$ is natural logarithm of real GDP per labor at time t

$LKstock/L_t$ is natural logarithm of capital stock per labor at time t

$LEXGAP_t$ is natural logarithm of the gap between the official and black market exchange rate, which is used to measure level of openness of the economy.

$LSIndex_t$ is natural logarithm of the index of number of students in secondary and tertiary education[1], which is used to measure human capital

$Dwar_t$ is dummy for war, which takes value of 1 for war year and 0 otherwise

$Dweather_t$ is dummy for weather, which takes value of 1 for drought year and 0 otherwise

α_1- α_5 are coefficients of the variables.

And, V_t the error term assumed to be normal

[1] Where the Student index is calculated by dividing number of students in secondary and tertiary education by the base year (1980/81).

4.3 ECONOMETRIC PROCEDURE

4.3.1 STATIONARY AND NON-STATIONARY SERIES

Stationary time series is the main instrument for constructing economic model between variables. But most of time series data are non-stationary by nature and one needs to change those kinds of data to stationary for utilizing them to construct economic model. A time series data is said to be stationary if its mean and variance are constant over time and the value of the covariance between the two time periods depends only on the distance of the lag between the two time periods and not the actual time at which the covariance is computed (Gujrati, 1995). In other words if a time series is stationary its mean variance, and auto covariance remain the same no matter at what point we measure them. These kinds of series will tend to return to its mean and fluctuation around this mean (measured by its variance) will have broadly constant amplitude. Where as, non-stationary time series will have a time varying mean or variance or both.

As it is stated above, most of time series data are non-stationary for which their mean and variance change over time and no tendency for them to hold back to a given value. As a result modeling non-stationary time series leads to spurious and inconsistent regression. The spurious regressing demonstrates the result of high R^2 without having meaningful relationship between two variables. This is because variable share a trend it will be difficult to disentangle the true relationship from trend influence (Alemayehu and Et.al, 2003). So stationarity need to be tested, using Dickey-Fuller (DF) or Augmented Dickey-Fuller (ADF) tests.

A stationary series is an integrated series of order 0 or I (0). Where as, a non-stationary time series variables could be stationary after differencing. Such a variables is said to have differenced stationary process (DSP). And if a series has to be differenced d times to induced stationarity, it is said to be I (d) series,

or integrated of order d. For example a first–differenced, which produce a stationary series, is called I (1). But, estimates using differenced variables give only the short-run dynamics while; one's interest may be in determining the long-run parameters. That is because a differenced process will result in a loss of long run information regarding the variables, which are the center of our theoretical model. To avoid this kind of pitfalls one has to demand for a test of co-integration between variables. Economically two variables are called co-integrated if they have long–term, or equilibrium, relationship between them (Gujirati, 1995). For testing the co-integration, the Engle –Granger two-step procedure or the Johansen's maximum likelihood estimation procedure are usually used.

4.3.2 TESTING FOR UNIT ROOTS

A test of stationary (or non-stationarity) that has become widely popular over the past several years is the unit roots tests (Gujrati, 1995). This is because most macroeconomic time-series have a unit roots and that regressing non-stationary series on each other is bound to yield spurious regression results. If a time series has a unit root it is non-stationary. A time series with a unit root has a long-term component that is purely non-predictable. Thus, we first test the nature of the time series to determine whether they are stationary or not and also their order of integration. There exist a number of techniques to undertake unit roots tests. Among these the most widely used are Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) unit roots tests. ADF test attach lagged values (p) of first differenced of the dependent variables as supplementary regressors, which are required for the possibility of existence of autocorrelation. These methods are formal tests of stationary through checking either a time series contains a unit root or not. The tests are estimated in three different null hypotheses of the following forms;

$$\Delta Y_t = \delta Y_{t-1} + \sum_{i=2}^{p} \Delta\omega_i Y_{t-i+1} + \mu_t \quad \text{.....} \quad \mathbf{4.5}$$

$$\Delta Y_t = \beta_0 + \delta Y_{t-1} + \sum_{i=2}^{p} \Delta\omega_i Y_{t-i+1} + \mu_t \quad \text{.....} \quad \mathbf{4.6}$$

$$\Delta Y_t = \beta_0 + \delta Y_{t-1} + \sum_{i=2}^{p} \Delta\omega_i Y_{t-i+1} + a_2 t + \mu_t \quad \text{.....} \quad \mathbf{4.7}$$

Testing for unit root using equation 4.5 assumes a data generating process without intercept and trend. Equation 4.6 assumes existence of intercept term. The function in 4.7 assumes the inclusions of intercept and deterministic term for testing unit root. In all these cases if $\delta=0$, indicates the existence of a unit root. In this study the augmented Dickey Fuller test is applied for all the above possible regressions with lag of one and two, where this test of our empirical data is summarized in section 4.1 of the chapter.

4.3.3 COINTEGRATION ANALYSIS

As it is stated in the previous section regression of a non-stationary time series on another non-stationary time series may produce a spurious regression. When evaluated against standard distribution, the correlation coefficients and t statistics for a spurious regression are likely to show that there is a significant relation between the variables when in fact none exists (Robert and et.al, 2003). But the linear combination of the two non-stationary time series may cancels out the stochastic trend of the two series and results in a stationary series, which may be interpreted as the long run relationship between the two series. This phenomenon, which is the elimination of a stochastic trend by an

appropriate linear function, is known as cointegration. Where as the linear function that represents the cointegrating, relations among the variables are termed as cointegrating vectors (CV).

As it is stated above two time series are called co-integrated if they have a long-term, or equilibrium, relationship between them. In other words, cointegration is a concept of modeling equilibrium of long-run relationship between economic variables. This kind of equilibrium relationship among a set of non-stationary variables implies that the variables cannot move separately of each other. For this reasons, the knowledge that some variables are cointegrtaed can have a significant impact on the analysis of the long and short run dynamics of economic variables (Elena, 2004).

In case where cointegration does not exist, it means that their linear combination is not stationary and the variable does not have a mean to which it returns. So testing the assumption of the model (testing for cointegration) has become an important step in any empirical analysis of economic data.

There are two types of testes proposed in the literature to test for cointegration between variables. One is Engle Ganger (1987) or EG test and the other is Johansen (1988). The Johansen maximum likelihood estimation procedure is considered as superior to the former since it corrects some of the shortcomings, which the first test suffers from. The difference in the performance of the two methods is due to the fact that they are based on different principles. Johanesen produced is based on maximizing correlation (canonical correlation) while Engle–Granger minimizes variance (in the sprit of principal components (Jesus and et.al 2000).

Engel and Grager (1987) presents a two-step cointegration technique for determining whether a long run relationship exit among two or more non-stationary variables. The first step in the EG technique is to determine the

order of integration of the variables through unit root tests. After establishing the order of integration of the variables, then testing whether the OLS residual of this regression have a unit root, using Augmented Dickey-Fuller (ADF) tests will be conducted. If this residual is stationary the variables are said to be cointgrated that is they do have long-run relationship. The second step is estimating the error correction model (ECM) from the residual. Which is, the first difference of the dependent variable is regressed on the first difference of the explanatory variables with their appropriate lags, and the first lag of the residual obtained in the first step. Even if this technique is easily implemented it maintains its own limitations. One of the limitations is that it does not have a systematic procedure for estimating for multiple cointegrating vectors. It simply assumes a unique cointegrating vector, which is a linear combination of the independent cointegrating vectors. Which does not put invariant choice of the variables for normalization. At the matter of fact, there may be *n* or less cointegrating vectors in *n* variable model. The second limitation is that it uses the error series generated in the first step for estimating the second step. By doing so it transferred the error obtained in the first to the next step using the residual. The third limitation is that it allows only a single cointegrating equation, which limits the availability of more than one equation for more than two variables.

On the other hand Johansen (1988) describe a full information maximum likelihood procedure and avoid the use of the two-step Engel-Granger procedure. Its procedure can test for the number of cointegrating relations among a group of time series variables and estimate vectors autoregressive models under restrictions, which impose the accepted number of cointegrating vectors. And the approach proposes an ingenious and practical full maximum likelihood estimation based on Error Correction Model (ECM).

The Johansen (1988) is taken to be superior than the EG test because it tries to overcome the limitations of the EG technique that we have stated above. The

approach allows us estimating and testing multiple cointegrating relationships in a single step process .The Johansen's approach introduced the notion of correction, called Error Correction Model (ECM). It is conducted based on the Engle Granger (1987) error correction representation theorem for cointegration system. By doing so, the model supplies additional channel for which causality in the Granager testes, would be examined. In this regard the EG test may provide invalid casual information due to the omission of error correction terms from the tests. If the error-correction term is excluded from causality tests when the series are cointegrated, no causation may be detected when it exists, i.e when the coefficient of the error correction term is statistically significant. Moreover, as opposed to the EG test it does not set a priori endogenous-exogenous distinction between variable, so it identifies multiple cointegration vectors. To this effect the Johanesen's procedure estimate and determines the presence of cointegrating in VAR system through the maximum likelihood procedure. VAR is a system of multivariate modeling in which no prior exogenous-endogenous between variables is assumed.

The Johansen' approach shows that the Maximum Likelihood (ML) estimators of the cointegrating vectors can be derived from the eigenvectors of a generalize eigenvalue problem (Herman, 1996). In this approach we can consistently estimate a basis of the space of cointegrating vectors, using the eigenvectors of the generalized eigenvalue problems involved. That is why, the Johansen maximum likelihood estimation procedure is said to be superior. Hence, the proper econometric analysis of this paper follows this procedure.

4.3.4 SHORT RUN MODEL

Finding the long –run estimation results of the time series data are only the first step in economic analysis. So one should give information about the short-run results of the series. This analysis is usually done after differencing the variables. But differenced variables give only the short-run dynamics. So there

will exist a loss of potential long run information regarding the differenced variables, which is the source for economic theories to formulate economic model.

Thus, the most appropriate technique is to change the dynamic into an error-correction model (ECM), which contains both the short-run and long run properties of the model, with disequilibrium as a process of adjustment to the long-run model. The speed of adjustment parameter is represented by the coefficient in the lagged residual of the error correction model. The higher the coefficient, the higher will be the response of the variables to the previous period deviation of the long-run equilibrium.

4.4 EMPERICAL ANLAYSIS AND RESULTS

4.4.1 RESULTS OF UNIT ROOT TESTS

The variables entering the cointegration analysis in this paper are tested for their order of integration using ADF tests. The test result shows that LRGDP/L, is stationary with drift at lag one, this is the only variable which is stationary at level. The other three variables, which are LKstock/L, LSIndex and LEXGAP are non-stationary at level. And they could be stationary after differencing in other words these variables are I (1). The three variables except LKstock/L index become stationary without drift and trend. Where as LKstock/L which becomes stationary only at lag two, when drift and trend is included. The results of the test for the variables at level and differenced are presented on Table 4.1.

Table 4.1 Unit Root Tests

Variables	AUGMENTED DICKEY FULLER TEST RESULTS					
	Without drift and trend with lag of		With drift lag of		With drift and trend with lag of	
	1	2	1	2	1	2
LRGDP/L	-0.0241	-0.157	-3.076*	-1.699	-2.987	-1.422
LKstock/L	1.938	1.631	1.566	1.323	-1.360	-1.407
LSIndex	2.107	2.375	-1.240	-1.337	-1.729	-1.392
LEXGAP	-1.196	-0.899	-2.008	-1.523	-2.388	-1.860
DLRGDP/L	-7.052**	-3.764**	-6.907**	-3.697**	-6.885**	-3.758*
DLKstock/L	-0.488	-0.8604	-1.5883	-2.224	-2.612	-4.219*
DLSIndex	-3.182**	-1.979*	-4.857**	-4.416**	-4.570**	-3.086
DLEXGAP	-4.299**	-2.801**	-4.223**	-2.749	-4.523**	-3.037
Critical values 1%	-2.639		-3.657		-4.283	
5%	1.952		2.959		-3.561	

*Denote rejection of null hypothesis of existence of unit root (non-stationarity) at 5% level of significance

**Denote rejection of null hypothesis of existence of unit root (non-stationarity) at 1% level of significance

After testing stationarity of the variables and identified the order of integration the next step in the Johanesen procedure will be testing the cointegration of variables.

4.4.2 COINTEGRATION ANALYSIS ADOPTING THE JOHANSEN PROCEDURE

Regression of a non-stationary time series on another non-stationary time series may produce a spurious regression so some form of cointegration test is mandatory. The basic idea behind contegration is that, if time series process have a unit root, or have a multivariate process of I (1), there may exist linear combination without a unit root. This linear combination could be interpreted as long-term relationship between the components or in economic terms as static equilibrium relationship. In this paper VAR- based cointegrate tests using the methodology applied by Johanson is adopted. It has been pointed out earlier that, in the Johansen procedure, there is no a priori categorization of variables as exogenous and endogenous. Hence given the variables $\ln RGDP/L_t$, $\ln Kstock/L_t$, $\ln EXGAP_t$, $\ln SIndex_t$ it is possible to represent these variables by a vector Y_t which is modelled as an unrestricted vector auto regressive (VAR) involving up to k-lags :

$$\mathbf{Y_t = A_t Y_{t-1} + A_2 Y_{t-2} + \ldots + A_k Y_{t-k} + \varepsilon_t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{4.8}$$

Where: Y_t is the (n×1) vector of non stationary I (1) variables, (Y_{t-1} , $Y_{t-2},\ldots Y_{t-k}$) and A_t is an (n×n) matrix of parameters. The error term ε_t is n-dimensional independently distributed vector with zero mean and variance matrix.

The model imposes no strong a priori restriction (such as exogeneity or endogeneity of variables), by assuming so it serves to estimate dynamic relationship among jointly endogenous variables .The system is in reduced form with each variable in Y_t regressed on lagged values of both itself and all other variables in the system.

The vector error correlation model (VECM) counterpart of the VAR model in 4.8 can be formulated as:

$$\Delta Y_t = \sum_{i=1}^{k-1} \Gamma_i \Delta Y_{t-1} + \Pi_i Y_{i-k} + \Phi D_t + \varepsilon_t \quad \text{.....4.9}$$

Where $\Gamma_i = -\sum_{j=i+1}^{k} A_j$, containing information of the short –run adjustment to changes in Y_t and (i= 1,...k-1)

$\Pi_i = \left(\sum_{j=1}^{k} A_j - I \right)$, containing information of the long –run information to changes in Y_t. And D_t, represent vector of dummies, intercepts and predetermined exogenous variables.

This VECM contains information both on the short run and long run adjustment to changes in Y_t through the estimates of Γ_i and Π_i respectively. Π can be represented by equation $\Pi=\alpha\beta$, where α, is an nXr matrix represents the speed of adjustment to disequilibrium, while β, which is nXr matrix is a long run coefficient in the case of reduced rank of ($0<r<n$). Where r and n are the rank of a matrix that is going to be determined and number of variables entering the cointegration space respectively. The term βY_{t-1} included in equation 4.9 represents up to (n-1) linear combination (cointegrating vectors) that ensure convergence of the vector Y_t to their long-run steady-state path (Harris, 1995). The variables can be represented as a matrix form in a vector auto regression (VAR) as:

$$\begin{pmatrix} \Delta \text{LRGDP/L}_t \\ \Delta \text{LKstock/L}_t \\ \Delta \text{LSIndex}_t \\ \Delta \text{LEXGAP}_t \end{pmatrix} = \Gamma_i \begin{pmatrix} \Delta \text{LRGDP/L}_{t-1} \\ \Delta \text{LKstock/L}_{t-1} \\ \Delta \text{LSIndex}_{t-1} \\ \Delta \text{LEXGAP}_{t-1} \end{pmatrix} + \alpha\beta \begin{pmatrix} \text{LRGDP/L}_{t-1} \\ \text{LKstock/L}_{t-1} \\ \text{LSIndex}_{t-1} \\ \text{LEXGAP}_{t-1} \end{pmatrix} \quad \text{...4.10}$$

After establishing this matrix the next step is to determine the number of cointegrating vectors. For determining the number of cointegrating vectors the rank of a matrix is the important feature. For this purpose the null hypothesis of no cointegration between variables is tested against the alternative hypothesis that there exists at least one cointegration vector between variables. If there is a full rank, that is if r=n, it implies that each variable is co-integrated to itself, and each variable is I (0) which is indication of stationerarity of variables. This implies no problem of spurious regression and the appropriate modelling strategy is estimated using standard VAR at level (i.e equation 4.8). If the rank of (Π) is equal to 0, then the matrix is null, which implies that no long-run relationship between variables involved and estimation by differences would be appropriate. The rank of (Π) is termed as reduced rank when, it ranges between 0 and *n*. So if the rank of (Π)=1, then there is a single cointegrating vector or there will exist a single linear combination of the level of endogenous series of βY_{t-1}, which should be added to each equation in the VAR. The term $\alpha\beta Y_{t-1}$, which is the multiplication of the endogenous series and the coefficient, is termed as an error correction term. The more cointegrating equations we have, there will be additional error correction term, which involves a different linear combination of the levels of the series. This is the case where the rank of (Π) lies between 1 and *n*, which implies that there is more than one or multiple cointegrating vectors. Testing *n*-1 cointegrating vectors is equivalent to testing that the first r (=*n*-1) eigenvalues are non-zero while the remaining (*n*-r) eigenvalues are zero. Which is the same as testing the last (*n*-r) columns of the α-matrix is effectively zero.

For finding the vector of cointegration between variables Johaneson (1988) estimation technique uses the maximum likelihood approach, which is available in PC Fiml version 9 software package. λ_{trace} statistics are used to test the null hypothesis that there is at most one cointegrating vectors. Where as the maximal λ_{max} test statistics is used to test the null hypothesis that there

is no cointegrating vector against the alternative hypothesis of at least one cointegrating vectors. The procedure helps us to check the possibility of having more than one cointgrating vector, for more than two variables. For our data covering 1971/72 to 2004/05 PcFiml version 9-estimation software is used for which the result is tabulated in Table 4.2 and 4.3.

Table 4.2 Tests for the Number of Cointegrating Vectors

Ho:rank=r	**_Tlog(1-λ_{r+1})**	**λ_{max} 95%**	**T\sumlog (1- λ_i)**	**λ_{trace} 95%**
r= =0	37.47**	27.1	66.38**	47.2
r <=1	15.62	21.0	28.91	29.7
r <=2	12.18	14.1	13.29	15.4
r <=3	1.109	3.8	1.109	3.8

*Denote rejection of null at 5% significance level
**Denote rejection of null at 1% significance level

The presentation in table 4.2 indicates, the rejection of null of no cointegration at 1% significance while the alternative hypothesis that at leastone cointegration vector is not rejected by both λ_{max} and λ_{trace} statistics. For the null hypothesis of (no cointegrating vector), the value λ_{max} 37.47 and λ_{trace}66.38 are greater than their respective critical value of 27.1 and 47.2 at 1% level of significance, respectively. We fail to reject the alternative hypothesis because the existence of one cointegrating vector is supported by both λ_{max} and λ_{trace} statistics.

We can then conclude that there exists exactly one cointegrating vector in the estimated model. Which implies a single linear combination of I (1) vector that cointegrated the given variables in a stable long-run relationship. But these steps do not yet tell us which vector is the cointegrating vector.

This is because we have four row of β matrix and four column of α matrix; so it is possible to write four equations using the four variables involved. But, since our model considers LRGDP/L as endogenous variable we could take the first vector as the integrating vector. This vector is the one in which LRGDP/L is explained as a function of the other three variables. But so as to satisfy the linear regression assumptions and take the above function as our long-run relationship the explanatory variables are required to be weakly exogenous. To this effect the α-coefficients of the three variables should be statistically insignificant or they need to be weakly exogenous. This step will help us to identify which variables, are exogenous and endogenous. Rejection of the null of weak exogeneity implies that the variables under consideration are endogenous. Our next step will be taking only the first row of β-matrix (the long-run coefficients of the variables) and first column of α-matrix (the speed adjustment coefficient matrix) of table 4.3 which are the important entries of the long-run relationship. The result of this test is presented on table 4.4.

Table 4.3 PC Film Output of Standardizes Beta Eigenvectors and Standardized Alpha Coefficients

Standardized \beta' eigenvectors			
LRGDP/L	**LKstock/L**	**LSIndex**	**LEXGAP**
1.0000	0.10928	-0.12677	0.22860
12.014	1.0000	0.49713	1.3733
-0.10415	-3.3325	1.0000	-4.6694
0.38681	3.2250	-1.9333	1.0000

Standardized \alpha' coefficient				
LRGDP/L	-0.25487	-0.049213	-0.0034955	0.0040994
LKstock/L	-0.30686	0.0098127	-0.00098382	0.0047669
LSIndex	0.30768	-0.011869	0.0089234	0.0345530
LEXGAP	0.14496	-0.026126	0.0698140	-0.0266320

Variables entered unrestricted: Dwar, Dweather, Constant

The test for weak exogeniety, which is conducted by imposing a zero restriction on the speed of adjustment of the parameter help us to construct the relevant dependent variable as a function of the remaining explanatory variables. Table 4.4 summarized the test result of zero-restriction on α-coefficient.

4.4 Tests for zero restriction on α-coefficient test

Variables	α-Coefficient	LR test,chi^2(1)	P-value
LRGDP/L	-0.25487	4.3896	[0.0362]*
LKstock/L	-0.30686	1.8260	[0.2800]
LSIndex	0.30768	2.0889	[0.1484]
LEXGAP	0.14496	0.1348	[0.7135]

*Denote rejection of null at 5% level significance

If weak exogeniety is rejected this implies that the variable are endogenous. For our variables the test for Zero-restriction on α-coefficient is rejected for only LRGDP/L but cannot be rejected for the rest of the variables at 5% level of significance. So the statistical procedure also supported us the very existence of a single cointegrating vector. Thus we can conclude that there is a single linear relationship which explain their long-run dynamics between variables which is described by I(1) variables. Here we have got the important β column for further interpretation. This result indicates that the LRGDP/L is endogenous while the remaining variables are weakly exogenous. The validity of having only a single equation is verified by the test of weak exogeneity condition established for all the independent variables. So, according to the above result the relevant single equation model with the estimates of the long-run coefficients can be give as follows;

LRGDP/L=-0.10928LKstock/L + 0.12677LSIndex-
0.22860LEXGAP 4.11

At this point it is important to say something about the sign and significance of α_{11}. The sign and values of the α_{11} coefficient tell us the magnitude and direction of adjustment towards the long-term path. The higher the value the faster is the speed of adjustment and the reverse holds true for a lower value but in both cases the sign of the coefficient should be negative. But if the sign of the coefficient is positive it indicates that the dependent variable would deviate from the long-run steady-state path after certain shocks.

For our case the coefficient of α_{11} or (-0.25487), has the expected sign and statistically significant. This implies that LRGDP/L would adjust to its long-run steady state path. And the magnitude measures the speed of adjustment of the variable LRGDP/L towards its long run path per year after certain shock of a given period. Which implies that the variable LRGDP/L will adjusts for about 25.48 % of the shock in the system. Our next step is to test the significance of coefficients of the above cointegrating vectors. For this purpose imposing zero restriction on β-coefficients help us to identify unique variable among the cointegrating vectors, which are significant in explaining the long-run relationship. The result of the LR-statistics is summarized in table 4.5.

Table 4.5 Tests for Zero Restriction on the Long-run Parameters

Variables	β -Coefficient	LRtest, chi^2(1)	P-value
LKstock/L	0.10928	1.7326	[0.1881]
LSIndex	-0.12677	6.7070	[0.0096]**
LEXGAP	0.22860	7.6822	[0.0056]**

*Denote rejection of null at 5% level of significance

**Denote rejection of null at 1% level of significance

As it is hypothesized in the first section of this paper the table shown above indicates that the two variables, which are LSIndex and LEXGAP, are both significant at 1% and has the expected sign in explaining the dependent

variable. As it is shown in equation 4.11 the sign of the LEXGAP, which is measured by the gap between the official and black market premium is negative. This result implies that increasing in the gap between the two values, (i.e sign of closed economy), deterred RGDP/L and the reveres holds true for decline in gap between the two exchange rates. This result is in line with both the theoretical and empirical arguments give on chapter two. The sign of the student index is positive and significant in explaining the RGDP/L of the country. This signifies the dependency of the endogenous variable on human capital of the country. This could be supported by the dependency of the agricultural sector and the economy at large on labor-based production techniques. But LKstock/L, which is used as a proxy for physical capital, is observed to be insignificant in explaining the dependent variables. The result indicates that physical capital per labor of the country is insignificant and negative in explaining the dependent variable. So for our case capital per labor has shown to have negative but lower effect to explain RGDP/L in Ethiopia. This could be true probably because the country is endowed with less stock of capital relatively to labor, to trigger positive and higher result on RGDP/L of the economy. The low level of the industrial sector of the country in general and capital-intensive technologies in particular also supports the relationship given in the long run equation.

4.4.3.ESTIMATION OF THE SHORT-RUN MODEL

We have so far presented the regression of the variables, which obtained the long run model and estimate the coefficients. But to complete the Johansen procedure one-step remains, which is estimating the short-run dynamics of the variables, represented by Γ_i in equation [4.9]. So, here vector error correction model (VECM), which incorporates the short–term interaction and the speed of adjustment towards the long-run equilibrium is estimated. In the error correction model, the short–run disequilibria are approximated by the first lag of the estimated long-run linear combination. This procedure used for

estimation is the Hendry's general to specific modelling approach. Table 4.6 gives estimates of the conditional PVECM for our variables with lag two of the variables.

Table 4.6 Result of the General Parsimonious Vector Error-Correction Model (PVECM)

Variable	Coefficient	Std.Error	t-value	t-prob
Constant	-0.039274	0.019376	-2.027	0.0655
DLRGDP/L_1	0.65024	0.25919	2.509	0.0275
DLRGDP/L_2	-0.36606	0.18175	-2.014	0.0670
DLKstock/L	0.62914	0.39736	1.583	0.1393
DLKstock/L_1	-0.21758	0.30915	-0.704	0.4950
DLKstock/L_2	-0.17667	0.34179	-0.517	0.6146
DLSIndex	0.051823	0.059090	0.877	0.3977
DLSIndex_1	0.060978	0.069904	0.872	0.4002
DLSIndex_2	0.24759	0.075441	3.282	0.0066
DLEXGAP	-0.077704	0.050996	-1.524	0.1535
DLEXGAP_1	-0.022097	0.044007	-0.502	0.6247
DLEXGAP_2	0.040611	0.047833	0.849	0.4125
Dwar	0.049585	0.023930	2.072	0.0605
Dwar_1	-0.018067	0.030526	-0.592	0.5649
Dwar_2	-0.033963	0.026060	-1.303	0.2169
Dweather	-0.033884	0.023366	-1.450	0.1727
Dweather_1	0.082641	0.036128	2.287	0.0411
Dweather_2	-0.066538	0.029444	-2.260	0.0432
VECM_1	-1.7410	0.38201	-4.557	0.0007
Diagnostic Tests				
R^2=0.919709				
DW=2.53				
F(18,12)= 7.6365 [0.0005]				

All the insignificant explanatory variables will be dropped out step-by-step till a parsimonious model with few significant, economically interpretable and diagnostic valid variables are left. Table 4.7 summarizes a specific parsimonious vector error correction model (PVECM).

Table 4.7 Short-run Dynamics Specific Model (PECM)

Variables	Coefficients	Std.Error	t-values	t-prob
Constant	_0.028494	0.012953	_2.200	0.0373
DLRGDP/L_2	_0.52397	0.13796	_3.798	0.0008
DLKstock/L	0.54910	0.17489	3.140	0.0043
DLSIndex	0.082202	0.058795	1.398	0.1744
Dweather	-0.061656	0.022559	-2.733	0.0114
VECM_1	-0.59512	0.19374	-3.072	0.0051
Diagnostic Tests R^2=0.731542 DW=1.94 F(5,25)= 13.625[0.0000]				

Regarding the coefficient of the short-run dynamics, capital stock, student index and weather are found to be the significant variables. Where as exchange rate gap and war are not significant in explaining the dependent variable in the short run. It is to be recalled that capital stock has a negative effect on RGDP/L in the long-run dynamics. But it is significant and positive on explaining real RGDP/L in the short run. This implies that capital stock might have a short-run shock in RGDP/L but cannot be so in the long run dynamics because of the reason stated in the previous section. The student index is shown to be significant in affecting RGDP/L both in the long run and short-run. This implies that the productivity of the country is dependent on human capital, for which the country is highly endowed. But the EXGAP, which has a significant long run effect on RGDP/L, does not have significant effect on productivity in the short-run. Moreover, the weather dummy variable has a negative relationship with RGDP/L. This is because when there is drought the productivity of RGDP/L will decline and the reverse holds true when there is no drought. This is because of the high dependency of the economy on natural

factors. War, which was taken as the second dummy variable, does not have a significant effect on short run RGDP/L of the country. This might be because war is measured as dummy variable.

In the short run estimated model, D denotes the first difference of the variables. Where as VECM_1 represents the first lag cointegrating vector of LRGDP/L specification, and the other variables are as defined earlier. The sign and value of VECM_1 capture the long-run dynamic between the cointegrating series. Its negative sign, which is statistically acceptable, indicates that any short-run shock of the system adjusts towards the long-run path. If it were positive this implies that LRGDP/L would deviates from its long-run path after a certain shock. Where as its value reveal the speed of adjustment of productivity per labor of the previous year to equilibrium rate of productivity per labor. For this study the coefficient of the vector error correction term has the expected sign and it is significant. The coefficient for the speed of adjustment of 59.51 % implies that a given shock in the current period will disappear after two years and the trend of the variables will return to its LRGDP/L long-run path.

The goodness of fit which indicates the overall significance of the model, measured by R^2, indicate that the explanatory variables jointly explain about 73.15% of the variation in the dependent variable (RGDP/L). The test for overall significance of the model indicates that the explanatory variables jointly are statistically significant.

CHAPTER 5.CONCLUSION AND POLICY IMPLICATIONS

5.1 CONCLUSION

There are large numbers of empirical studies and findings, which identify the key features that differentiate countries with high and low rates of economic growth. These studies consider the effect of different variables such as, human and physical capital, endogenous technology and the different mechanisms of technology diffusion as a source of growth. To this effect trade liberalization was raised as a solution for the economic crises of least developed countries, which was resulted from inward looking, polices adopted by these countries.

The literature also shows that nature of economic policies, which determine the utilization and access of economic resource, has a great role on the level and growth of productivity. Especially in the histories of developed countries sustainable productivity growth has resulted in higher economic growth. This was made practical through evolution of subsistence-oriented household-level production, toward an integrated and advanced production system. The history of economic development also indicates that reliable markets (which can be initiated by both local and foreign market policies) provides the means of utilizing available resources and cost-reducing imported technologies as a result increase total factor productivity of a country.

Having this basic understanding the current government of Ethiopia has introduced different policy reforms and strategies since inception of relation with IMF and World Bank in 1991. The program focused on re-orienting and restructuring the economy through market reforms, privatization and reducing the role of the state in economic activities. With regard to foreign trade, reforms were made on reduction of the maximum tariff, removal of import quotas, simplifying licensing procedures, and devaluation of the local currency. After the introduction of these policy reforms the economy has shown a better GDP

growth than its growth rate registered both during the Derg and Imperial periods. Some argues that total factor productivity has explained this growth and other attributes this growth rate to the contribution of human and physical capital of the country.

Regarding sectoral contribution, Agriculture has been the major supplier to the export earning and growth of economy. And the contribution of this sector has been mainly explained by the contribution of the single export item, which is coffee. This item has contributed more than 50 percent of the export earning of the country for the past three decades. But the figure has recently declined to 40 percent. Coming to the import sector, the country has been dependant on the import sector especially for high priced goods. The major import items of the country is petroleum products, followed by capital goods like machineries and their shares has increased overtime. The growth of the export volume is not in a position to finance that of the import volume .As a result of this trend the trade deficit of the country is increasing alarmingly.

Taking these issues into consideration, I have tried to answer the possible effect of trade liberalization on total factor productivity of the country. A Cobb-Douglas production function used in Mans and Francies,(2003) is adopted for this paper. But as opposed to the original Cobb-Douglas production function, productivity is allowed to vary across periods. As basis for our methodology, data from different source covering the period 1971/72-2004/05 has employed for the analysis. Pre-estimation tests of statistical behavior of this time series data are conducted using Augmented Dickey-Fuller unit root tests. The result of the test showed that all variables except LRGDP/L are integrated of order 1, I (1).

As growth is a long run trend analyses, cointegration test between variables is important. To this effect, the cointegration analysis of Johansson Maximum Likelihood Estimation procedure is used. In this analysis it is found that there

is a single cointegrating vector, which implies the existence of long-run relationship between the variables employed. Natural Logarithm of RGDP/L is found to be the only endogenous variable. While natural Logarithm of EXGAP/L (which is taken as proxy of openness), capital stocks per labor and student index (which measures human capital variable of the model) are found to be the exogenous variables. In applying the Johansen procedure on the above variables, both the λ-max and λ-trace statistics of the likelihood ratio test supported the existence of one cointegrating vector. Considering the significant influence of weather condition and war on productivity and growth of the country, these variables are incorporated as dummy variables in the estimable model of the paper.

The estimation result of the long-run model shows that human capital, which is represented; by SIndex and openness measured by EXGAP have positive effect on RGDP/L of the country. Where as capital stock per labor which is the index for physical capital has shown insignificant but negative effect on RGDP/L of the country.

The vector error correction counterpart of the long-run model is estimated using the general to specific modeling approach of David Hendry to determine the parsimonious vector error correction model (PVECM). This short run estimation result indicates that human capital, Kstock per labor and weather are found to be significant while variables, openness and war are not significant in affecting the dependent variable. The coefficient of the vector error correction term has the expected sign and it is significant. The coefficient indicates a speed of adjustment of 59.51 %, which implies that a given shock in the current period will disappear after two years and the trend of the variables, will return to its LRGDP/L long-run path.

5.2 POLICY IMPLICATIONS

The results of the paper have their own policy implications. According to the finding of the study the country could benefit from further trade liberalization measures. This is implied from the positive and significant relationship between openness and RGDP/L of the country. But here Policy makers are advised to make an extensive research about the policy implications of trade liberalization to the various sectors of the economy. This will help the country to exploit the maximum benefit from further trade liberalization measures and avoiding the possible pitfall of the external market pressures.

The other most important and immediate policy implication is that of increasing the productivity of the Agricultural sector. To this effect dependency of the sector on natural factors in general and rainfall in particular should be minimized. One possible remedy is to increase irrigation or other system of the water sources, which can increase a managed utilization of its supplies. By doing so the government can minimize the crop failure and death of livestock, which will have a negative implication on productivity of the sector and the economy at large. So as to increase market supply of Agricultural product and access to advanced technologies the government also needs to increase market access to rural farmers. Particular needs include policies aimed at the accelerated development of road and transport infrastructure and market access in high potential zones. This will help to open up those areas and integrated them with the rest of the national economy.

Regarding labor, enhancing the human capital of the country is due to be considered. This can help the Government to increase the effective utilization of the second abundant resource base of the country. A literacy campaign especially in the rural areas is also one solution to be considered. To this effect forced education of children of farmers helps to transform, commercialize and increase productivity of the Agricultural sector. Moreover, the government

should try to incorporate the role and mind of individuals in the economic growth of the country. Increasing the participation of the private sector, budgetary support in the education and increase quality of education are the specific measures. These policy measures are believed to help the country get the maximum benefit from this resource base.

The government role should also be extended to the industrial sector, which is historically proved to be the major source of productivity and economic growth of an economy. At this point giving specific policy recommendations for the industrial sector might be difficult but I can recommend for the effort of the government to identify the major problems and take proper measures regarding this sector. But part of the problem could be solved through implementing the recommendation stated above. These measures are expected to increase the capacity of the country for importing new and advanced technologies. This further increases the contribution of the industrial sector to the productivity and growth of the economy.

Diversification of the export sector is also very important. This could be implemented through helping the farmer to access to finance, local and foreign markets of the economy. Moreover, the promotion of the private sector and foreign investors in producing competitive exportable goods is also essential. Non-traditional exports like flower products, which uses advanced technologies, are beginning to show encouraging results. This will contribute to the export earning and capacity of the country for importing new technologies in the form of physical capital and knowledge. This will further increase the productivity and competitiveness of the economy.

Generally speaking the government, which can promote sustainable and equitable development using its policy instruments need to commit it-self for further growth of the economy .It should give focus to identify the market failures in each sector and provide appropriate measures to correct them. A

conducive and coherent policy framework, particularly public investment in infrastructure and institutions, promotion of private investment and commercialising the Agricultural sector, are the central measures to Ethiopia's development and economic growth.

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Appendix A: Value of Major Export Items

In Thousands of Birr

Commodity	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
Coffee	466,269	664,790	524,348	439,181	626,448	405,103	268,451	168,324	536,982	718,019	1,799,034
Oilseeds	15,640	7,686	9,793	22,015	11,029	8,387	3,633	383	1,186	44,187	50,130
Hides & Skins	95,408	119,459	108,291	133,004	123,528	134,049	92,206	58,645	134,515	203,610	373,549
Pulses	16,875	12,635	8,481	16,093	16,317	35,961	15,716	386	4,050	27,704	103,287
Meat Products	3,922	3,866	5,370	5,142	2,089	1,149	1,015	18	418	672	6,073
Fruits & Vegetables	6,015	6,027	12,847	11,787	8,999	4,068	12,001	6,399	2,729	6,864	18,192
Sugar	9,342	10,401	12,629	14,850	10,003	37,409	16,362	1,759	5,090	25,723	2,227
Flower	0	0	0	0	0	0	0	0	0	0	0
Live Animals	19,173	18,908	15,646	32,357	23,539	10,821	5,169	467	1,322	10,757	7,655
Chat	15,903	8,477	28,677	21,323	7,906	21,024	20,422	5,073	65,727	107,932	172,339
Petroleum Products	65,959	44,249	27,294	36,098	18,752	26,238	27,099	18,826	30,308	72,452	95,092
Bee's Wax	3,374	12,721	764	2,469	0	1,700	689	657	1,917	5,514	6,521
Gold	0	0	0	0	0	0	73,899	39,330	148,169	180,739	103,133
Others	26,685	14,095	41,143	39,318	54,133	50,858	77,337	18,089	16,570	15,004	97,946
RE-exports	7	502	1	5	10	39	2,385	0	0	291	0
Total	**744,572**	**923,816**	**795,284**	**773,642**	**902,753**	**736,806**	**616,384**	**318,356**	**948,983**	**1,419,468**	**2,835,179**

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Commodity	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Coffee	1,724,008	2,307,394	2,889,531	2,112,713	2,133,646	1,520,101	1,393,809	1,418,324	1,926,679	2,901,327	3,076,494
Oilseeds	41,938	74,239	314,660	271,462	255,329	269,598	278,738	395,565	712,738	1,082,215	1,835,270
Hides & Skins	309,701	372,253	347,699	243,052	286,459	633,752	474,426	448,003	375,844	585,185	651,333
Pulses	77,224	87,854	102,953	101,658	80,021	72,800	281,409	171,244	194,679	306,609	320,969
Meat Products	12,169	24,175	29,340	31,644	32,708	14,366	9,423	20,781	66,676	126,152	160,842
Fruits & Vegetables	21,029	45,793	31,479	40,564	44,250	45,689	80,114	82,118	109,663	139,053	114,541
Sugar	0	4,735	0	1,241	23,958	68,472	85,106	153,712	88,632	5,277	0
Flower	0	0	0	0	0	0	0	69	19,821	67,808	189,006
Live Animals	770	11,201	10,562	5,724	14,137	1,506	7,132	4,129	16,454	110,875	239,240
Chat	174,444	199,533	272,355	444,988	618,772	510,506	418,674	497,866	758,878	866,803	773,235
Petroleum Products	62,011	83,001	10,193	0	0	0	0	0	0	0	0
Bee's Wax	7,987	9,176	10,514	9,914	5,549	7,247	6,006	4,032	8,280	9,588	12,551
Gold	68,232	416,045	0	174,300	260,044	234,890	300,715	361,026	419,858	513,364	562,141
Others	107,773	266,272	122,295	200,000	202,930	487,680	528,768	585,486	478,442	617,002	749,752
RE-exports	0	0	0	0	0	0	0	0	0	0	0
Total	**2,607,288**	**3,901,671**	**4,141,582**	**3,637,260**	**3,957,802**	**3,866,606**	**3,864,320**	**4,142,356**	**5,176,644**	**7,331,258**	**8,685,376**

Source: Ethiopian Customs Authority

Appendix B: Share of Major Export Items (In Percent)

Commodity	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
Coffee	62.62%	71.96%	65.93%	56.77%	69.39%	54.98%	43.55%	52.87%	56.58%
Oilseeds	2.10%	0.83%	1.23%	2.85%	1.22%	1.14%	0.59%	0.12%	0.12%
Hides & Skins	12.81%	12.93%	13.62%	17.19%	13.68%	18.19%	14.96%	18.42%	14.17%
Pulses	2.27%	1.37%	1.07%	2.08%	1.81%	4.88%	2.55%	0.12%	0.43%
Meat Products	0.53%	0.42%	0.68%	0.66%	0.23%	0.16%	0.16%	0.01%	0.04%
Fruits & Vegetables	0.81%	0.65%	1.62%	1.52%	1.00%	0.55%	1.95%	2.01%	0.29%
Sugar	1.25%	1.13%	1.59%	1.92%	1.11%	5.08%	2.65%	0.55%	0.54%
Flower	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Live Animals	2.58%	2.05%	1.97%	4.18%	2.61%	1.47%	0.84%	0.15%	0.14%
Chat	2.14%	0.92%	3.61%	2.76%	0.88%	2.85%	3.31%	1.59%	6.93%
Petroleum Products	8.86%	4.79%	3.43%	4.67%	2.08%	3.56%	4.40%	5.91%	3.19%
Bee's Wax	0.45%	1.38%	0.10%	0.32%	0.00%	0.23%	0.11%	0.21%	0.20%
Gold	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	11.99%	12.35%	15.61%
Others	3.58%	1.53%	5.17%	5.08%	6.00%	6.90%	12.55%	5.68%	1.75%
RE-exports	0.00%	0.05%	0.00%	0.00%	0.00%	0.01%	0.39%	0.00%	0.00%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

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Type of Commodity	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Coffee	50.58%	63.45%	66.12%	59.14%	69.77%	58.09%	53.91%	39.31%	36.07%	34.24%	37.22%	39.57%	35.42%
Oilseeds	3.11%	1.77%	1.61%	1.90%	7.60%	7.46%	6.45%	6.97%	7.21%	9.55%	13.77%	14.76%	21.13%
Hides & Skins	14.34%	13.18%	11.88%	9.54%	8.40%	6.68%	7.24%	16.39%	12.28%	10.82%	7.26%	7.98%	7.50%
Pulses	1.95%	3.64%	2.96%	2.25%	2.49%	2.79%	2.02%	1.88%	7.28%	4.13%	3.76%	4.18%	3.70%
Meat Products	0.05%	0.21%	0.47%	0.62%	0.71%	0.87%	0.83%	0.37%	0.24%	0.50%	1.29%	1.72%	1.85%
Fruits & Vegetables	0.48%	0.64%	0.81%	1.17%	0.76%	1.12%	1.12%	1.18%	2.07%	1.98%	2.12%	1.90%	1.32%
Sugar	1.81%	0.08%	0.00%	0.12%	0.00%	0.03%	0.61%	1.77%	2.20%	3.71%	1.71%	0.07%	0.00%
Flower	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.38%	0.92%	2.18%
Live Animals	0.76%	0.27%	0.03%	0.29%	0.26%	0.16%	0.36%	0.04%	0.18%	0.10%	0.32%	1.51%	2.75%
Chat	7.60%	6.08%	6.69%	5.11%	6.58%	12.23%	15.63%	13.20%	10.83%	12.02%	14.66%	11.82%	8.90%
Petroleum Products	5.10%	3.35%	2.38%	2.13%	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bee's Wax	0.39%	0.23%	0.31%	0.24%	0.25%	0.27%	0.14%	0.19%	0.16%	0.10%	0.16%	0.13%	0.14%
Gold	12.73%	3.64%	2.62%	10.66%	0.00%	4.79%	6.57%	6.07%	7.78%	8.72%	8.11%	7.00%	6.47%
Others	1.06%	3.45%	4.13%	6.82%	2.95%	5.50%	5.13%	12.61%	13.68%	14.13%	9.24%	8.42%	8.63%
RE-exports	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Own Computation

Appendix C: Value of Export by Country of Destination *

Country Of Destination	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96
Djibouti	34,894	61,188	52,013	30,803	65,185	53,400	8,241	71,949	149,110	192,764	254,387
Kenya	593	1,302	1,238	1,648	3,281	1,809	768	68	2	557	405
Sudan	5,667	127	871	3,061	656	5	2	1,432	29,936	7,225	0
U.A.R	1,884			3				2	1	29,587	19,673
France	33,150	32,175	24,886	43,894	18,547	25,726	20,542	33,709	36,098	165,043	90,681
Germany	284,044	209,307	185,811	209,395	138,487	114,830	49,886	141,225	258,479	873,905	854,536
Italy	71,919	60,968	55,191	58,248	64,420	30,704	23,107	63,553	110,092	215,098	216,971
Netherlands	80,261	27,119	21,353	79,792	10,178	17,629	5,271	19,763	20,416	56,118	38,725
U.K.	16,884	24,821	15,002	13,394	20,856	58,603	18,824	43,419	46,644	100,032	81,550
Russia	39,916	72,983	48,167	57,789	77,718	2,164	189	96	208	129	17
Yugoslavia	565	2,566	67		1,515	834	65			6,657	1,419
U.S.A.	118,622	142,708	107,506	111,972	89,624	27,995	13,519	86,937	97,802	171,372	142,759
China, P.Rep.	2,155	1,218	2,173			1,067	100	83	286	3,250	970
Japan	79,697	66,277	102,023	89,218	96,856	97,739	78,269	159,001	190,843	367,441	329,036
Saudi Arabia	46,543	27,961	57,265	52,848	75,517	38,815	39,954	115,977	110,605	16,758	237,815
Rest of the World	107,054	64,132	100,108	151,170	73,969	26,962	20,289	91,320	388,797	525,818	269,808
Total Export	**923,848**	**794,852**	**773,674**	**903,235**	**736,809**	**498,282**	**279,026**	**828,534**	**1,439,319**	**2,731,754**	**2,538,752**

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Country Of Destination.	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Djibouti	263,627	551,639	394,046	405,400	620,078	272,132	289,825	533,834	359,202	498,349
Kenya	78,538	3,101	252	8,370	15,740	154	134,318	2,360	17,923	21,123
Sudan	0	1,035	300	3,360	5,939	912	77,138	79,410	146,581	219,224
U.A.R	11,822	38,669	30,711	41,313	19,810	20,527	64,582	76,599	230,342	251,161
France	127,131	147,791	150,623	138,268	95,135	111,290	273,552	97,961	127,221	177,958
Germany	927,494	910,880	647,721	711,612	396,380	437,938	352,919	560,332	1,068,688	875,993
Italy	247,560	347,441	246,137	240,722	322,670	391,850	183,166	307,013	384,792	473,896
Netherlands	40,153	79,722	50,810	76,020	48,216	55,202	141,980	79,413	259,359	334,933
U.K.	102,810	107,978	90,455	86,734	114,851	139,814	76,732	182,969	219,673	238,064
Russia	47	528	0	893	1,840	463	431	9,510	17,913	14,396
Yugoslavia	117	0	0	0	0	281	0	0	0	0
U.S.A.	390,281	317,127	145,122	176,132	124,552	165,892	340,060	254,650	389,938	418,041
China, P.Rep.	565	18,202	8,074	6,852	14,700	90,968	22,525	109,600	363,121	1,166,677
Japan	368,632	350,432	563,695	428,979	380,859	294,612	188,440	554,408	554,687	676,177
Saudi Arabia	270,136	275,150	418,329	353,376	295,068	229,476	182,350	293,609	438,190	531,000
Rest of the World	909,917	991,887	891,071	1,279,769	1,410,768	1,652,809	1,814,340	2,034,976	2,753,627	2,788,385
Total Export	**3,738,829**	**4,141,582**	**3,637,346**	**3,957,802**	**3,866,606**	**3,864,320**	**4,142,357**	**5,176,644**	**7,331,258**	**8,685,376**

*Export Value Of Gold is not included in this table for the year before 2003/04
Source: Ethiopian Customs Authority

Appendix D: Unit Value of Export Items (Birr/kg)

Type of Commodity	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96
Coffee	6.32	9.5	6.54	6.17	6.8	4.56	4.61	5.22	7.97	10.38	21.89	17.67
Oilseeds	1.25	1.37	1.19	1.24	2.05	1.21	1.42	2.18	3.03	4.34	4.13	5.35
Hides & Skins	9.4	9.96	10.57	15.44	12.77	15.6	16.29	15.95	24.13	26.08	44.54	41.04
Pulses	0.85	1.67	1.92	1.29	1.37	1.54	1.06	0.28	2.65	2.82	4.01	2.67
Meat Products	4.12	3.37	3.68	2.98	3.58	5.02	3.79	5.63	10.34	13.71	13.79	12.8
Fruits & Vegetables	0.61	0.65	1.06	1.08	0.88	0.47	0.93	0.89	0.45	0.43	0.93	1.11
Sugar	0.22	0.23	0.29	0.53	0.4	0.86	0.53	0.7	0.39	1.69	222.7	
Flower												
Live Animals	2.89	2.57	3.12	2.3	1.74	2.54	2.35	3.75	4.24	4.47	9.93	4.22
Chat	11.52	11.92	9.78	6.34	14.72	11.58	11.25	20.21	33.94	38.43	42.31	47.17
Gold (Birr/gr)												
Petroleum Products	0.34	0.24	0.14	0.17	0.1	0.19	0.19	0.24	0.28	0.35	0.6	0.54
Bee's Wax	7.07	70.67	7.07	5.22		6.49	6.75	7.55	14.63	17.62	21.69	24.22
Spices												

...Continued

Type of Commodity	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Coffee	18.73	24.07	20.87	18.31	15.33	12.63	11.25	12.32	18.01	20.83
Oilseeds	5.28	4.73	5.28	5.92	4.9	3.64	4.78	6.73	6.34	6.91
Hides & Skins	43.04	44.28	41.73	33.29	51.07	45.91	42.49	39.98	37.41	42.3
Pulses	2.88	3.33	3.41	3.4	2.71	2.58	2.59	2.66	2.52	2.91
Meat Products	14.08	19.18	15.23	16.55	16.52	14.22	12.07	16.64	17.34	20.22
Fruits & Vegetables	2.1	1.85	2.09	2.13	2.68	2.7	3.25	2.98	3.67	3.29
Sugar	0.36		0.19	1.39	1.2	1.47	2	5.53	0.35	
Flower										3.33
Live Animals	8.58	7.98	6.23	8	7.03	43.05	6.8	5.24	5.22	7.19
Chat	39.66	45.54	45.87	39.45	42.8	44.65	81.54	40.99	44.7	34.74
Gold (Birr/gr)				103,315.06	49,287.07	63,099.01	72,228.69	93,670.66	85,698.86	112,997.71
Petroleum Products	0.7	0.49								
Bee's Wax	29.25	10.57	28.35	25.58	23.31	21.07	21.91	19.12	25.06	37.48
Spices										

Source: Ethiopian Customs Authority

Appendix E: Values of Major Import Items

In Thousand of Birr

Period	Food & Live Animals	Beverages	Tobacco	Petroleum Crude	Petroleum Prod.	Chemicals	Fertilizers	Medical & Pharm. Prod	Soap & Polish	Rubber Prod.	Paper & Paper Manfc.
1979/80	72,251	1,161	10,745	244,973	94,411	113,242	81,458	68,816	14,318	35,221	22,762
1980/81	88,901	2,470	15,860	287,469	57,853	85,478	3,963	40,901	18,941	38,531	33,352
1981/82	135,534	1,446	21,853	329,322	32,131	89,453	16,211	48,163	26,521	44,430	24,946
1982/83	174,476	1,663	17,017	360,414	36,578	136,636	28,969	38,918	24,246	35,719	16,886
1983/84	168,465	6,449	13,382	325,649	52,739	107,212	26,272	51,615	15,666	38,976	26,071
1984/85	345,020	1,805	12,827	281,751	36,174	76,716	36,103	41,980	6,174	41,477	11,762
1985/86	530,599	4,962	2,835	220,261	32,273	87,935	44,685	58,513	6,683	45,569	34,944
1986/87	320,380	6,157	6,261	163,341	62,483	115,166	29,929	68,638	10,572	60,018	23,909
1987/88	246,454	7,858	11,788	181,842	34,728	110,729	72,521	50,280	10,804	51,106	29,796
1988/89	294,652	21,877	560	175,339	37,512	142,131	69,846	58,440	9,079	46,798	28,094
1989/90	106,320	25,972	6,432	188,581	36,500	124,181	71,893	64,550	19,374	33,342	39,840
1990/91	263,350	16,163	3,564	185,376	25,050	85,072	79,548	36,305	26,013	41,867	27,775
1991/92	14,402	6,291	1,105	92,246	100,907	42,580	150	48,294	14,433	35,740	11,760
1992/93	497,536	20,867	4,845	444,282	376,808	135,269	13,106	131,578	37,490	73,278	30,565
1993/94	574,094	8,581	20,271	406,531	331,036	228,155	89,678	187,200	58,522	156,585	61,251
1994/95	906,743	13,305	10,580	522,564	471,350	179,614	343,947	193,305	30,818	184,843	53,780
1995/96	575,263	21,210	7,241	445,953	485,912	161,265	330,578	165,785	64,023	279,453	81,700
1996/97	37,222	8,590	93	76,900	1,427,200	47,021	173,813	77,317	55,593	188,170	78,351
1997/98	72,853	35,583	18,402	166,469	2,099,046	99,001	51,224	142,163	81,408	274,938	169,841
1998/99	558,422	37,405	26,393	2,281	1,306,707	142,008	377,582	315,940	100,718	345,274	199,440
1999/00	766,560	34,647	27,129	31	2,012,189	140,912	336,379	246,179	92,105	273,429	163,924
2000/01	641,597	34,628	28,561	0	2,151,326	153,782	126,860	293,784	140,236	408,838	217,050
2001/02	1,365,581	35,886	48,550	0	2,202,554	145,066	560,257	358,994	128,513	340,956	269,684
2002/03	1,697,566	33,509	35,614	0	2,463,917	165,902	462,662	352,193	145,207	376,787	218,152
2003/04	1,981,297	36,937	37,348	0	2,608,285	201,668	923,523	636,324	173,378	417,410	329,915
2004/05	1,566,093	52,090	52,034	0	5,736,666	250,951	1,055,294	671,524	240,863	536,827	434,417
2005/06	2,139,779	45,715	77,860	0	5,603,281	348,264	1,180,768	1,212,655	337,445	730,113	517,374

...Continued

Period	Textiles	Clothings	Glass & Glass Ware	Metal & Metal Manfc.	Machinery & Aircraft	Road Motor Vehicles	Electrical Materials	Telecomm. Appara.	Others	GRAND TOTAL
1979/80	57,367	6,832	5,559	104,162	202,231	135,789	44,976	13,346	103,238	1,432,858
1980/81	59,820	4,315	7,480	100,111	213,390	165,328	35,137	20,114	104,820	1,384,234
1981/82	71,538	6,077	3,464	76,848	227,599	259,372	43,613	29,186	153,954	1,641,661
1982/83	55,213	5,557	4,986	145,946	234,440	164,765	81,786	19,765	168,965	1,752,945
1983/84	58,643	3,810	6,563	162,901	519,770	210,621	97,873	23,204	149,124	2,065,005
1984/85	69,041	7,709	4,195	143,378	225,132	179,589	56,143	30,419	163,038	1,770,433
1985/86	79,186	3,476	3,690	166,878	274,699	287,134	76,691	45,754	194,498	2,201,265
1986/87	58,479	4,558	5,742	156,406	327,659	339,324	102,472	74,507	301,145	2,237,146
1987/88	69,510	2,673	4,563	174,624	465,211	369,944	81,220	88,323	210,677	2,274,651
1988/89	62,156	8,319	2,761	172,831	335,284	279,220	83,705	59,141	222,608	2,110,353
1989/90	55,404	2,742	6,937	212,696	304,650	189,288	101,802	49,759	183,856	1,824,119
1990/91	44,920	14,488	5,180	153,769	562,457	249,844	58,889	48,189	202,486	2,130,305
1991/92	73,571	14,705	3,517	49,487	189,544	177,203	42,756	32,882	859,324	1,810,897
1992/93	130,409	15,514	9,035	172,058	699,420	402,403	97,670	47,669	278,915	3,618,718
1993/94	186,946	34,117	14,809	496,052	367,949	825,890	192,150	25,562	474,589	4,739,967
1994/95	229,950	54,033	24,368	563,219	710,882	1,015,951	286,193	20,677	730,150	6,546,272
1995/96	308,065	76,391	32,944	709,985	854,155	1,393,422	328,577	51,400	1,334,922	7,708,246
1996/97	414,162	69,542	40,789	973,897	1,414,978	1,117,480	636,728	17,108	1,837,538	8,692,494
1997/98	396,757	114,866	41,452	969,100	1,099,417	795,978	776,492	14,950	1,918,519	9,338,459
1998/99	473,804	230,897	69,704	1,416,817	1,375,843	1,390,946	1,032,004	42,305	2,257,512	11,702,002
1999/00	433,134	279,885	58,403	919,528	1,351,512	1,548,459	938,299	32,656	1,783,302	11,438,661
2000/01	461,188	345,433	88,056	1,188,971	1,480,393	1,456,285	782,018	66,419	2,248,531	12,313,956
2001/02	471,499	467,110	72,787	1,359,231	1,667,774	1,435,245	893,039	101,456	3,364,964	15,289,146
2002/03	599,604	478,039	78,075	1,311,504	1,963,002	1,817,630	1,059,754	111,634	2,696,596	16,067,348
2003/04	606,295	601,949	104,362	2,012,945	2,397,183	2,124,501	2,447,540	502,494	4,152,333	22,295,690
2004/05	774,285	836,015	125,294	3,476,768	4,553,244	2,811,972	3,062,726	344,108	4,853,003	31,434,174
2005/06	1,065,381	1,291,287	145,048	4,157,675	5,305,516	4,183,804	2,978,793	365,874	6,366,919	38,053,550

Source: Ethiopian Customs Authority

Appendix F: Values of Imports by Country by Origin

In Thousands of Birr

Country Of Origin	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
Djibouti	4,881	4,519	21,100	21,731	15,129	21,995	36,046	76,721	144,671	240,537	222,795
Kenya	6,068	12,196	16,165	24,619	28,679	43,148	43,567	31,951	102,323	141,761	159,152
Sudan	87	731	173	231	40	71	29	172	2,792	11,719	2,621
U.A.R	1,660	4,818	4,535	67	1,863	5,854	3,503	2,846	6,194	29,528	32,590
France	56,459	51,837	35,477	41,509	36,165	51,622	61,940	21,700	44,512	119,804	168,244
Germany	221,689	269,872	284,104	263,634	234,841	203,936	223,560	84,502	345,521	435,591	625,859
Italy	168,792	213,338	432,079	382,297	331,183	300,044	265,407	82,842	233,323	547,800	729,889
Netherlands	49,921	53,263	47,651	83,644	112,122	51,298	62,566	29,495	144,401	221,583	221,084
U.K.	161,330	151,558	174,284	158,967	198,752	134,051	133,355	76,904	166,490	227,905	319,350
Russia	324,862	354,097	290,466	236,384	274,235	247,541	179,307	1,163	6,600	2,673	14,298
Yugoslavia	24,889	41,470	25,200	16,580	12,182	17,970	17,365	446	2,023	353	362
U.S.A.	167,732	374,047	221,315	266,501	216,804	93,413	316,538	124,270	228,106	484,225	850,332
China, P. Rep.	6,762	7,179	11,353	20,059	6,360	15,901	10,894	6,099	26,387	82,561	127,145
Japan	149,172	151,964	173,699	196,678	144,087	109,659	152,326	92,995	103,540	269,265	397,320
Saudi Arabia	14,884	23,221	34,080	30,299	15,072	34,778	74,841	107,357	749,060	631,784	987,535
Rest of the World	411,245	496,847	465,265	531,463	482,866	492,878	549,091	1,071,437	820,711	1,293,222	1,687,699
Total Import	1,770,433	2,210,957	2,236,946	2,274,663	2,110,380	1,824,159	2,130,335	1,810,900	3,126,654	4,740,310	6,546,275

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Country of Origin	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Djibouti	158,310	171,752	227,739	288,720	167,656	360,275	386,640	570,584	490,147	468,910	725,774
Kenya	209,488	195,746	127,630	133,442	170,174	120,659	137,755	161,019	187,260	220,729	322,435
Sudan	3,833	4,412	5,489	11,370	557	358	12,898	3,119	81,067	433,620	170,340
U.A.R	284,143	81,507	314,844	524,191	545,269	147,903	128,840	1,094,366	1,496,001	1,902,736	2,539,923
France	119,261	137,171	147,520	292,663	439,170	385,892	367,581	224,132	527,871	654,753	772,032
Germany	559,801	720,448	696,447	678,863	636,077	632,430	765,598	690,602	836,194	1,043,711	1,496,743
Italy	932,775	734,334	703,306	905,526	897,030	999,897	1,286,927	1,091,273	1,132,998	1,334,427	2,198,675
Netherlands	175,400	516,921	144,345	203,782	273,116	264,212	326,961	423,628	533,744	461,105	620,921
U.K.	368,234	428,199	438,531	541,740	516,848	487,222	583,688	717,420	766,982	865,102	873,053
Russia	16,630	7,081	48,707	29,942	61,620	129,622	50,752	215,931	218,455	373,248	286,005
Yugoslavia	603	3,677	657	1,191	2,949	30,470	3,604	1,305	7	5,427	1,154
U.S.A.	685,754	440,370	177,516	547,567	742,838	657,940	1,391,542	959,433	2,619,019	3,317,965	3,181,188
China, P. Rep.	186,506	288,875	304,410	454,881	615,028	917,790	1,215,721	1,480,535	2,302,695	3,622,994	5,006,125
Japan	597,860	703,881	589,382	590,828	788,235	651,134	512,631	1,043,226	1,013,957	1,052,279	1,281,164
Saudi Arabia	886,554	513,727	2,138,690	1,160,455	226,078	518,779	1,970,021	1,307,811	1,876,410	5,348,311	5,670,161
Rest of the World	2,523,095	3,557,099	3,273,247	5,336,841	7,033,238	6,663,118	5,344,129	5,945,091	8,214,884	10,329,057	12,907,857
Total Import	7,708,247	8,505,200	9,338,459	11,702,004	13,115,882	12,967,700	14,485,289	15,929,478	22,297,690	31,434,374	38,053,550

Source: Ethiopian Customs Authority

Appendix G: Value of Import by End Use

In Millions of Birr

Type of Goods	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
RAW MATERIALS	60	73	50	83	49	54	55	59	57	28	71	86
SEMI-FINISHED GOODS	252	242	241	258	268	328	357	322	237	159	327	772
Chemicals	84	84	57	80	101	93	125	105	64	26	122	192
Fertilizers	29	20	36	44	30	72	77	72	29	89	13	90
Textile Materials	16	20	15	10	12	17	13	16	13	18	38	68
Others	124	119	134	124	126	146	142	129	130	26	154	422
FUEL	397	379	318	253	226	217	213	225	210	249	821	726
Crude Petroleum	360	326	282	224	163	182	169	189	185	106	485	407
Petroleum Products	37	53	36	28	58	35	38	36	25	143	330	319
Others	0	0	0	0	4	0	6	0	0	1	5	0
CAPITAL GOODS	577	930	515	742	958	1,072	823	707	964	468	1,266	1,386
Transport	168	424	188	300	371	474	355	149	453	337	842	637
Tyres for Heavy Vehicle	16	16	23	61	37	48	22	13	24	17	23	113
Heavy Road Motor Vehicle	139	169	135	197	285	271	214	125	141	86	299	511
Aircraft	9	232	26	33	44	149	111	4	283	233	515	7
Others	4	9	4	9	5	7	8	7	5	0	5	5
Agricultural	36	17	43	75	37	57	14	18	15	2	9	34
Industrial	373	489	285	367	549	540	454	541	496	129	414	715
CONSUMER GOODS	463	434	645	870	730	599	649	515	643	539	1,133	1,665
Consumer Durables	136	112	134	138	172	195	200	220	212	137	262	463
Radio & Television	20	12	17	13	28	19	17	22	14	9	21	35
Tyres, Cars & Other Veh.	8	9	8	4	8	9	8	11	6	6	40	50
Cars & Other Vehicles	53	39	5	61	53	79	79	65	107	91	100	193
Others	56	52	104	60	84	89	97	122	85	32	101	184
Consumer Non- Durables	327	322	512	732	557	404	449	295	430	401	871	1,202
Cereals	124	117	266	403	290	182	210	76	209	193	427	519
Other Food	76	76	136	205	111	102	118	75	104	78	148	215
Medical & Pharmaceutical	39	52	42	59	69	50	60	64	36	34	132	190
Textile Fabrics	31	19	25	26	33	23	25	16	27	71	73	116
Others	58	59	42	40	55	48	36	64	53	25	90	162
MISCELLANEOUS	3	9	2	5	7	6	15	4	19	367	2	106
TOTAL IMPORTS	1,753	2,066	1,770	2,211	2,237	2,275	2,110	1,832	2,130	1,811	3,619	4,740

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Type of Goods	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
RAW MATERIALS	131	180	174	191	204	161	199	254	187	224	425	671
SEMI-FINISHED GOODS	1,113	1,262	1,630	1,527	1,966	1,669	1,970	2,462	2,357	3,751	5,751	7,133
Chemicals	216	285	268	248	349	351	419	358	351	412	572	998
Fertilizers	260	164	179	51	377	336	127	560	462	919	1,055	1,180
Textile Materials	109	119	157	135	121	94	110	67	100	118	204	332
Others	528	695	1,026	1,092	1,119	888	1,313	1,477	1,443	2,302	3,920	4,622
FUEL	993	935	1,569	2,283	1,330	2,037	2,181	2,287	2,468	2,677	5,786	5,653
Crude Petroleum	523	177	77	166	2	1	0	0	0	0	0	0
Petroleum Products	471	487	1,427	2,114	1,290	2,028	2,174	2,281	2,464	2,674	5,774	5,619
Others	0	271	64	2	38	8	7	5	4	3	12	34
CAPITAL GOODS	2,086	2,595	3,303	2,781	3,945	3,831	3,705	4,102	4,715	7,556	10,376	12,614
Transport	877	1,243	1,380	670	1,160	1,141	1,278	1,195	1,493	2,571	3,215	3,733
Tyres for Heavy Vehicle	123	160	233	187	222	189	233	207	246	304	473	424
Heavy Road Motor Vehicle	742	1,065	789	479	886	940	936	885	1,092	1,167	1,509	2,712
Aircraft	9	11	354	2	17	4	105	97	148	1,087	1,207	586
Others	2	7	4	3	35	9	5	6	7	13	25	10
Agricultural	127	77	85	67	112	85	67	59	51	93	211	336
Industrial	1,082	1,275	1,838	2,043	2,674	2,605	2,359	2,847	3,171	4,891	6,951	8,545
CONSUMER GOODS	2,125	2,300	1,754	1,839	3,288	3,469	3,898	5,015	5,615	7,720	8,532	11,128
Consumer Durables	568	720	828	785	1,151	1,101	1,269	1,308	1,575	2,539	2,918	3,609
Radio & Television	61	76	34	0	74	126	176	198	220	636	509	491
Tyres, Cars & Other Veh.	26	47	56	34	39	25	49	39	57	64	110	131
Cars & Other Vehicles	239	305	292	293	403	522	480	509	572	841	1,024	1,232
Others	243	292	446	458	635	428	564	562	727	998	1,275	1,755
Consumer Non- Durables	1,557	1,719	926	1,055	2,138	2,368	2,629	3,707	4,040	5,180	5,613	7,519
Cereals	854	554	15	54	493	698	648	1,325	1,624	1,777	1,383	1,693
Other Food	222	96	93	137	261	250	267	455	365	542	755	1,194
Medical & Pharmaceutical	207	166	157	157	361	278	369	421	419	788	739	1,286
Textile Fabrics	126	698	305	360	573	590	674	817	961	1,198	1,415	1,776
Others	149	216	357	347	450	552	671	688	672	875	1,321	1,570
MISCELLANEOUS	98	144	82	717	969	272	362	365	587	371	565	855
TOTAL IMPORTS	**6,546**	**7,417**	**8,511**	**9,338**	**11,702**	**11,438**	**12,314**	**14,485**	**15,930**	**22,296**	**31,434**	**38,054**

Source: Ethiopian Customs Authority

Appendix H: Value of Import By End Use (In Percent)

Type of Goods	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
RAW MATERIALS	3.42%	3.53%	2.82%	3.75%	2.19%	2.37%	2.61%	3.22%	2.68%
SEMI-FINISHED GOODS	14.38%	11.71%	13.62%	11.67%	11.98%	14.42%	16.92%	17.58%	11.13%
Chemicals	4.79%	4.07%	3.22%	3.62%	4.51%	4.09%	5.92%	5.73%	3.00%
Fertilizers	1.65%	0.97%	2.03%	1.99%	1.34%	3.16%	3.65%	3.93%	1.36%
Textile Materials	0.91%	0.97%	0.85%	0.45%	0.54%	0.75%	0.62%	0.87%	0.61%
Others	7.07%	5.76%	7.57%	5.61%	5.63%	6.42%	6.73%	7.04%	6.10%
FUEL	22.65%	18.34%	17.97%	11.44%	10.10%	9.54%	10.09%	12.28%	9.86%
Crude Petroleum	20.54%	15.78%	15.93%	10.13%	7.29%	8.00%	8.01%	10.32%	8.69%
Petroleum Products	2.11%	2.57%	2.03%	1.27%	2.59%	1.54%	1.80%	1.97%	1.17%
Others	0.00%	0.00%	0.00%	0.00%	0.18%	0.00%	0.28%	0.00%	0.00%
CAPITAL GOODS	32.92%	45.01%	29.10%	33.56%	42.83%	47.12%	39.00%	38.59%	45.26%
Transport	9.58%	20.52%	10.62%	13.57%	16.58%	20.84%	16.82%	8.13%	21.27%
Tyres for Heavy Vehicle	0.91%	0.77%	1.30%	2.76%	1.65%	2.11%	1.04%	0.71%	1.13%
Heavy Road Motor Vehicle	7.93%	8.18%	7.63%	8.91%	12.74%	11.91%	10.14%	6.82%	6.62%
Aircraft	0.51%	11.23%	1.47%	1.49%	1.97%	6.55%	5.26%	0.22%	13.29%
Others	0.23%	0.44%	0.23%	0.41%	0.22%	0.31%	0.38%	0.38%	0.23%
Agricultural	2.05%	0.82%	2.43%	3.39%	1.65%	2.51%	0.66%	0.98%	0.70%
Industrial	21.28%	23.67%	16.10%	16.60%	24.54%	23.74%	21.52%	29.53%	23.29%
CONSUMER GOODS	26.41%	21.01%	36.44%	39.35%	32.63%	26.33%	30.76%	28.11%	30.19%
Consumer Durables	7.76%	5.42%	7.57%	6.24%	7.69%	8.57%	9.48%	12.01%	9.95%
Radio & Television	1.14%	0.58%	0.96%	0.59%	1.25%	0.84%	0.81%	1.20%	0.66%
Tyres, Cars & Other Veh.	0.46%	0.44%	0.45%	0.18%	0.36%	0.40%	0.38%	0.60%	0.28%
Cars & Other Vehicles	3.02%	1.89%	0.28%	2.76%	2.37%	3.47%	3.74%	3.55%	5.02%
Others	3.19%	2.52%	5.88%	2.71%	3.76%	3.91%	4.60%	6.66%	3.99%
Consumer Non- Durables	18.65%	15.59%	28.93%	33.11%	24.90%	17.76%	21.28%	16.10%	20.19%
Cereals	7.07%	5.66%	15.03%	18.23%	12.96%	8.00%	9.95%	4.15%	9.81%
Other Food	4.34%	3.68%	7.68%	9.27%	4.96%	4.48%	5.59%	4.09%	4.88%
Medical & Pharmaceutical	2.22%	2.52%	2.37%	2.67%	3.08%	2.20%	2.84%	3.49%	1.69%
Textile Fabrics	1.77%	0.92%	1.41%	1.18%	1.48%	1.01%	1.18%	0.87%	1.27%
Others	3.31%	2.86%	2.37%	1.81%	2.46%	2.11%	1.71%	3.49%	2.49%
MISCELLANEOUS	0.17%	0.44%	0.11%	0.23%	0.31%	0.26%	0.71%	0.22%	0.89%
TOTAL IMPORTS	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

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Type of Goods	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
RAW MATERIALS	1.55%	1.96%	1.81%	2.00%	2.43%	2.04%	2.05%	1.74%	1.41%	1.62%	1.75%	1.17%	1.00%	1.35%	1.76%
SEMI-FINISHED GOODS	8.78%	9.04%	16.29%	17.00%	17.01%	19.15%	16.35%	16.80%	14.59%	16.00%	17.00%	14.80%	16.82%	18.30%	18.74%
Chemicals	1.44%	3.37%	4.05%	3.30%	3.84%	3.15%	2.66%	2.98%	3.07%	3.40%	2.47%	2.20%	1.85%	1.82%	2.62%
Fertilizers	4.91%	0.36%	1.90%	3.97%	2.21%	2.10%	0.55%	3.22%	2.94%	1.03%	3.87%	2.90%	4.12%	3.36%	3.10%
Textile Materials	0.99%	1.05%	1.43%	1.67%	1.60%	1.84%	1.45%	1.03%	0.82%	0.89%	0.46%	0.63%	0.53%	0.65%	0.87%
Others	1.44%	4.26%	8.90%	8.07%	9.37%	12.05%	11.69%	9.56%	7.76%	10.66%	10.20%	9.06%	10.32%	12.47%	12.15%
FUEL	13.75%	22.69%	15.32%	15.17%	12.61%	18.43%	24.45%	11.37%	17.81%	17.71%	15.79%	15.49%	12.01%	18.41%	14.86%
Crude Petroleum	5.85%	13.40%	8.59%	7.99%	2.39%	0.90%	1.78%	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Petroleum Products	7.90%	9.12%	6.73%	7.20%	6.57%	16.77%	22.64%	11.02%	17.73%	17.65%	15.75%	15.47%	11.99%	18.37%	14.77%
Others	0.06%	0.14%	0.00%	0.00%	3.65%	0.75%	0.02%	0.32%	0.07%	0.06%	0.03%	0.03%	0.01%	0.04%	0.09%
CAPITAL GOODS	25.84%	34.98%	29.24%	31.87%	34.99%	38.81%	29.78%	33.71%	33.49%	30.09%	28.32%	29.60%	33.89%	33.01%	33.15%
Transport	18.61%	23.27%	13.44%	13.40%	16.76%	16.21%	7.17%	9.91%	9.98%	10.38%	8.25%	9.37%	11.53%	10.23%	9.81%
Tyres for Heavy Vehicle	0.94%	0.64%	2.38%	1.88%	2.16%	2.74%	2.00%	1.90%	1.65%	1.89%	1.43%	1.54%	1.36%	1.50%	1.11%
Heavy Road Motor Vehicle	4.75%	8.26%	10.78%	11.34%	14.36%	9.27%	5.13%	7.57%	8.22%	7.60%	6.11%	6.85%	5.23%	4.80%	7.13%
Aircraft	12.87%	14.23%	0.15%	0.14%	0.15%	4.16%	0.02%	0.15%	0.03%	0.85%	0.67%	0.93%	4.88%	3.84%	1.54%
Others	0.00%	0.14%	0.11%	0.03%	0.09%	0.05%	0.03%	0.30%	0.08%	0.04%	0.04%	0.04%	0.06%	0.08%	0.03%
Agricultural	0.11%	0.25%	0.72%	1.94%	1.04%	1.00%	0.72%	0.96%	0.74%	0.54%	0.41%	0.32%	0.42%	0.67%	0.88%
Industrial	7.12%	11.44%	15.08%	16.53%	17.19%	21.60%	21.88%	22.85%	22.77%	19.16%	19.65%	19.91%	21.94%	22.11%	22.45%
CONSUMER GOODS	29.76%	31.31%	35.13%	32.46%	31.01%	20.61%	19.69%	28.10%	30.33%	31.66%	34.62%	35.25%	34.63%	27.14%	29.24%
Consumer Durables	7.56%	7.24%	9.77%	8.68%	9.71%	9.73%	8.41%	9.84%	9.63%	10.31%	9.03%	9.89%	11.39%	9.28%	9.48%
Radio & Television	0.50%	0.58%	0.74%	0.93%	1.02%	0.40%	0.00%	0.63%	1.10%	1.43%	1.37%	1.38%	2.85%	1.62%	1.29%
Tyres, Cars & Other Veh.	0.33%	1.11%	1.05%	0.40%	0.63%	0.66%	0.36%	0.33%	0.22%	0.40%	0.27%	0.36%	0.29%	0.35%	0.34%
Cars & Other Vehicles	5.02%	2.76%	4.07%	3.65%	4.11%	3.43%	3.14%	3.44%	4.56%	3.90%	3.51%	3.59%	3.77%	3.26%	3.24%
Others	1.77%	2.79%	3.88%	3.71%	3.94%	5.24%	4.90%	5.43%	3.74%	4.58%	3.88%	4.56%	4.48%	4.06%	4.61%
Consumer Non- Durables	22.14%	24.07%	25.36%	23.79%	23.18%	10.88%	11.30%	18.27%	20.70%	21.35%	25.59%	25.36%	23.23%	17.86%	19.76%
Cereals	10.66%	11.80%	10.95%	13.05%	7.47%	0.18%	0.58%	4.21%	6.10%	5.26%	9.15%	10.19%	7.97%	4.40%	4.45%
Other Food	4.31%	4.09%	4.54%	3.39%	1.29%	1.09%	1.47%	2.23%	2.19%	2.17%	3.14%	2.29%	2.43%	2.40%	3.14%
Medical & Pharmaceutical	1.88%	3.65%	4.01%	3.16%	2.24%	1.84%	1.68%	3.08%	2.43%	3.00%	2.91%	2.63%	3.53%	2.35%	3.38%
Textile Fabrics	3.92%	2.02%	2.45%	1.92%	9.41%	3.58%	3.86%	4.90%	5.16%	5.47%	5.64%	6.03%	5.37%	4.50%	4.67%
Others	1.38%	2.49%	3.42%	2.28%	2.91%	4.19%	3.72%	3.85%	4.83%	5.45%	4.75%	4.22%	3.92%	4.20%	4.13%
MISCELLANEOUS	20.27%	0.06%	2.24%	1.50%	1.94%	0.96%	7.68%	8.28%	2.38%	2.94%	2.52%	3.68%	1.66%	1.80%	2.25%
TOTAL IMPORTS	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Own Computation

Appendix I: Trade Balance with Major Trading Partners

In thousands of Birr

Trading Country	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
Djibouti	34,894	30,375	40,088	30,282	15,674	43,190	17,354	-68,480	-72,722	-91,427	-30,031
Kenya	-4,567	-11,603	-14,863	-23,381	-27,031	-39,867	-41,758	-31,183	-102,255	-141,759	-158,595
Sudan	17,493	4,936	-46	640	3,021	585	-24	-170	-1,360	18,217	4,604
U.A.R	-633	-2,934	-4,535	-67	-1,860	-5,854	-3,503	-2,846	-6,192	-29,527	-3,003
France	-41,040	-18,687	-3,302	-16,623	7,729	-33,075	-36,214	-1,158	-10,803	-83,706	-3,201
Germany	-56,511	14,172	-74,797	-77,823	-25,446	-65,449	-108,730	-34,616	-204,296	-177,112	248,046
Italy	-111,335	-141,419	-371,111	-327,106	-272,935	-235,624	-234,703	-59,735	-169,770	-437,708	-514,791
Netherlands	389	26,998	-20,532	-62,291	-32,330	-41,120	-44,937	-24,224	-124,638	-201,167	-164,966
U.K.	-143,827	-134,674	-149,463	-143,965	-185,358	-113,195	-74,752	-58,080	-123,071	-181,261	-219,318
Russia	-319,062	-314,181	-217,483	-188,217	-216,446	-169,823	-177,143	-974	-6,504	-2,465	-14,169
Yugoslavia	-22,578	-40,905	-22,634	-16,513	-12,182	-16,455	-16,531	-381	-2,023	-353	6,295
U.S.A.	-48,004	-255,425	-78,607	-158,995	-104,832	-3,789	-288,543	-110,751	-141,169	-386,423	-678,960
China, P.Rep.	-3,726	-5,024	-10,135	-17,886	-6,360	-15,901	-9,827	-5,999	-26,304	-82,275	-123,895
Japan	-76,410	-72,267	-107,422	-94,655	-54,869	-12,803	-54,587	-14,726	55,461	-78,422	-29,879
Saudi Arabia	24,861	23,322	-6,119	26,966	37,776	40,739	-36,026	-67,403	-633,083	-521,179	-970,777
Rest of the World	-275,805	-389,793	-401,133	-431,355	-331,696	-418,909	-522,129	-1,051,148	-729,391	-904,425	-1,161,881
Overall Trade Balance	**-1,025,861**	**-1,287,109**	**-1,442,094**	**-1,500,989**	**-1,207,145**	**-1,087,350**	**-1,632,053**	**-1,531,874**	**-2,298,120**	**-3,300,992**	**-3,814,521**

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Trading Country	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Djibouti	96,077	91,875	323,900	105,326	237,744	259,803	-114,509	-280,759	43,687	-109,708	-227,425
Kenya	-209,083	-117,208	-124,529	-133,190	-161,804	-104,920	-137,601	-26,701	-184,900	-202,806	-301,312
Sudan	-3,833	-4,412	-4,454	-11,070	2,803	5,581	-11,986	74,019	-1,657	-287,040	48,883
U.A.R	-264,470	-69,685	-276,175	-493,480	-503,955	-128,093	-108,313	-1,029,785	-1,419,403	-1,672,394	-2,288,762
France	-28,580	-10,040	271	-142,041	-300,902	-290,757	-256,291	49,420	-429,910	-527,531	-594,073
Germany	294,735	207,046	214,433	-31,142	75,535	-236,050	-327,660	-337,684	-275,862	24,977	-620,750
Italy	-715,804	-486,774	-355,865	-659,389	-656,308	-677,227	-895,077	-908,107	-825,985	-949,635	-1,724,779
Netherlands	-136,675	-476,768	-64,623	-152,973	-197,096	-215,996	-271,760	-281,649	-454,331	-201,746	-285,988
U.K.	-286,684	-325,389	-330,553	-451,284	-430,113	-372,371	-443,875	-640,688	-584,013	-645,430	-634,989
Russia	-16,613	-7,034	-48,179	-29,942	-60,726	-127,781	-50,289	-215,500	-208,945	-355,335	-271,609
Yugoslavia	816	-3,560	-657	-1,191	-2,949	-30,470	-3,322	-1,305	-7	-5,427	-1,154
U.S.A.	-542,995	-50,090	139,611	-402,446	-566,705	-533,387	-1,225,650	-619,373	-2,364,369	-2,928,027	-2,763,147
China, P.Rep.	-185,536	-288,310	-286,208	-446,807	-608,176	-903,090	-1,124,753	-1,458,010	-2,193,095	-3,259,872	-3,839,448
Japan	-268,824	-335,249	-238,950	-27,133	-359,256	-270,275	-218,018	-854,787	-459,549	-497,592	-604,987
Saudi Arabia	-648,739	-243,591	-1,863,540	-742,126	127,298	-223,711	-1,740,545	-1,125,461	-1,582,801	-4,910,121	-5,139,161
Rest of the World	-2,253,287	-2,647,182	-2,281,360	-4,445,770	-5,753,468	-5,252,350	-3,691,320	-4,130,751	-6,179,908	-7,575,429	-10,119,472
Overall Trade Balance	**-5,169,495**	**-4,766,371**	**-5,196,877**	**-8,064,658**	**-9,158,080**	**-9,101,094**	**-10,620,969**	**-11,787,121**	**-17,121,046**	**-24,103,117**	**-29,368,174**

Source: Ethiopian Customs Authority

Appendix J: Trade Balance with Major Trading Partners (In percent)

Trading Country	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
Djibouti	-3.40%	-2.36%	-2.78%	-2.02%	-1.30%	-3.97%	-1.06%
Kenya	0.45%	0.90%	1.03%	1.56%	2.24%	3.67%	2.56%
Sudan	-1.71%	-0.38%	0.00%	-0.04%	-0.25%	-0.05%	0.00%
U.A.R	0.06%	0.23%	0.31%	0.00%	0.15%	0.54%	0.21%
France	4.00%	1.45%	0.23%	1.11%	-0.64%	3.04%	2.22%
Germany	5.51%	-1.10%	5.19%	5.18%	2.11%	6.02%	6.66%
Italy	10.85%	10.99%	25.73%	21.79%	22.61%	21.67%	14.38%
Netherlands	-0.04%	-2.10%	1.42%	4.15%	2.68%	3.78%	2.75%
U.K.	14.02%	10.46%	10.36%	9.59%	15.36%	10.41%	4.58%
Russia	31.10%	24.41%	15.08%	12.54%	17.93%	15.62%	10.85%
Yugoslavia	2.20%	3.18%	1.57%	1.10%	1.01%	1.51%	1.01%
U.S.A.	4.68%	19.84%	5.45%	10.59%	8.68%	0.35%	17.68%
China, P.Rep.	0.36%	0.39%	0.70%	1.19%	0.53%	1.46%	0.60%
Japan	7.45%	5.61%	7.45%	6.31%	4.55%	1.18%	3.34%
Saudi Arabia	-2.42%	-1.81%	0.42%	-1.80%	-3.13%	-3.75%	2.21%
Rest of the World	26.89%	30.28%	27.82%	28.74%	27.48%	38.53%	31.99%
Overall Trade Balance	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

...Continued

Trading Country	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Djibouti	4.47%	3.16%	2.77%	0.79%	-1.86%	-1.93%	-6.23%	-1.31%	-2.60%	-2.85%	1.08%	2.38%	-0.26%	0.46%	0.77%
Kenya	2.04%	4.45%	4.29%	4.16%	4.04%	2.46%	2.40%	1.65%	1.77%	1.15%	1.30%	0.23%	1.08%	0.84%	1.03%
Sudan	0.01%	0.06%	-0.55%	-0.12%	0.07%	0.09%	0.09%	0.14%	-0.03%	-0.06%	0.11%	-0.63%	0.01%	1.19%	-0.17%
U.A.R	0.19%	0.27%	0.89%	0.08%	5.12%	1.46%	5.31%	6.12%	5.50%	1.41%	1.02%	8.74%	8.29%	6.94%	7.79%
France	0.08%	0.47%	2.54%	0.08%	0.55%	0.21%	-0.01%	1.76%	3.29%	3.19%	2.41%	-0.42%	2.51%	2.19%	2.02%
Germany	2.26%	8.89%	5.37%	-6.50%	-5.70%	-4.34%	-4.13%	0.39%	-0.82%	2.59%	3.09%	2.86%	1.61%	-0.10%	2.11%
Italy	3.90%	7.39%	13.26%	13.50%	13.85%	10.21%	6.85%	8.18%	7.17%	7.44%	8.43%	7.70%	4.82%	3.94%	5.87%
Netherlands	1.58%	5.42%	6.09%	4.32%	2.64%	10.00%	1.24%	1.90%	2.15%	2.37%	2.56%	2.39%	2.65%	0.84%	0.97%
U.K.	3.79%	5.36%	5.49%	5.75%	5.55%	6.83%	6.36%	5.60%	4.70%	4.09%	4.18%	5.44%	3.41%	2.68%	2.16%
Russia	0.06%	0.28%	0.07%	0.37%	0.32%	0.15%	0.93%	0.37%	0.66%	1.40%	0.47%	1.83%	1.22%	1.47%	0.92%
Yugoslavia	0.02%	0.09%	0.01%	-0.17%	-0.02%	0.07%	0.01%	0.01%	0.03%	0.33%	0.03%	0.01%	0.00%	0.02%	0.00%
U.S.A.	7.23%	6.14%	11.71%	17.80%	10.50%	1.05%	-2.69%	4.99%	6.19%	5.86%	11.54%	5.25%	13.81%	12.15%	9.41%
China, P.Rep.	0.39%	1.14%	2.49%	3.25%	3.59%	6.05%	5.51%	5.54%	6.64%	9.92%	10.59%	12.37%	12.81%	13.52%	13.07%
Japan	0.96%	-2.41%	2.38%	0.78%	5.20%	7.03%	4.60%	0.34%	3.92%	2.97%	2.05%	7.25%	2.68%	2.06%	2.06%
Saudi Arabia	4.40%	27.55%	15.79%	25.45%	12.55%	5.11%	35.86%	9.20%	-1.39%	2.46%	16.39%	9.55%	9.24%	20.37%	17.50%
Rest of the World	68.62%	31.74%	27.40%	30.46%	43.59%	55.54%	43.90%	55.13%	62.82%	57.71%	34.76%	35.04%	36.10%	31.43%	34.46%
Overall Trade Balance	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

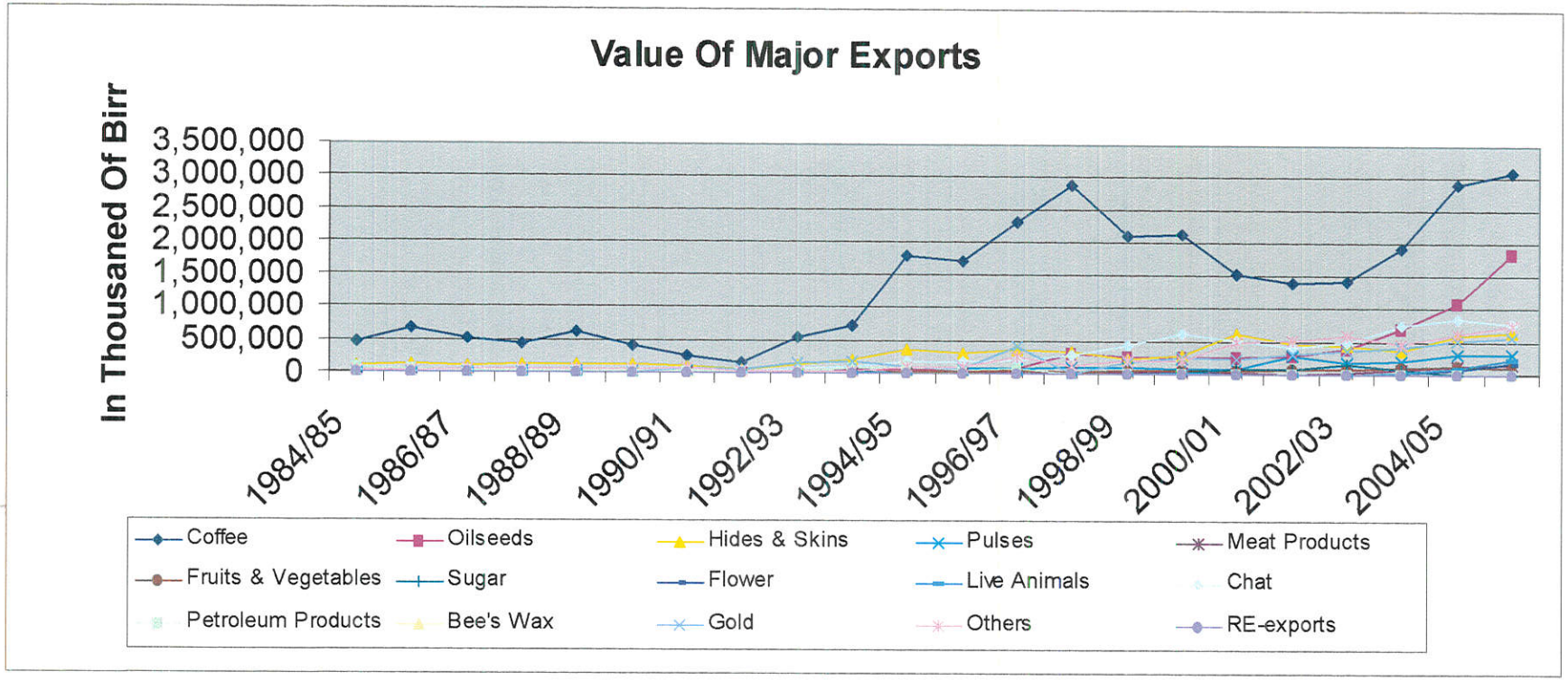
Own Computation

Appendix K. Exchange Rate Gap between the Official and Black Market Premiums

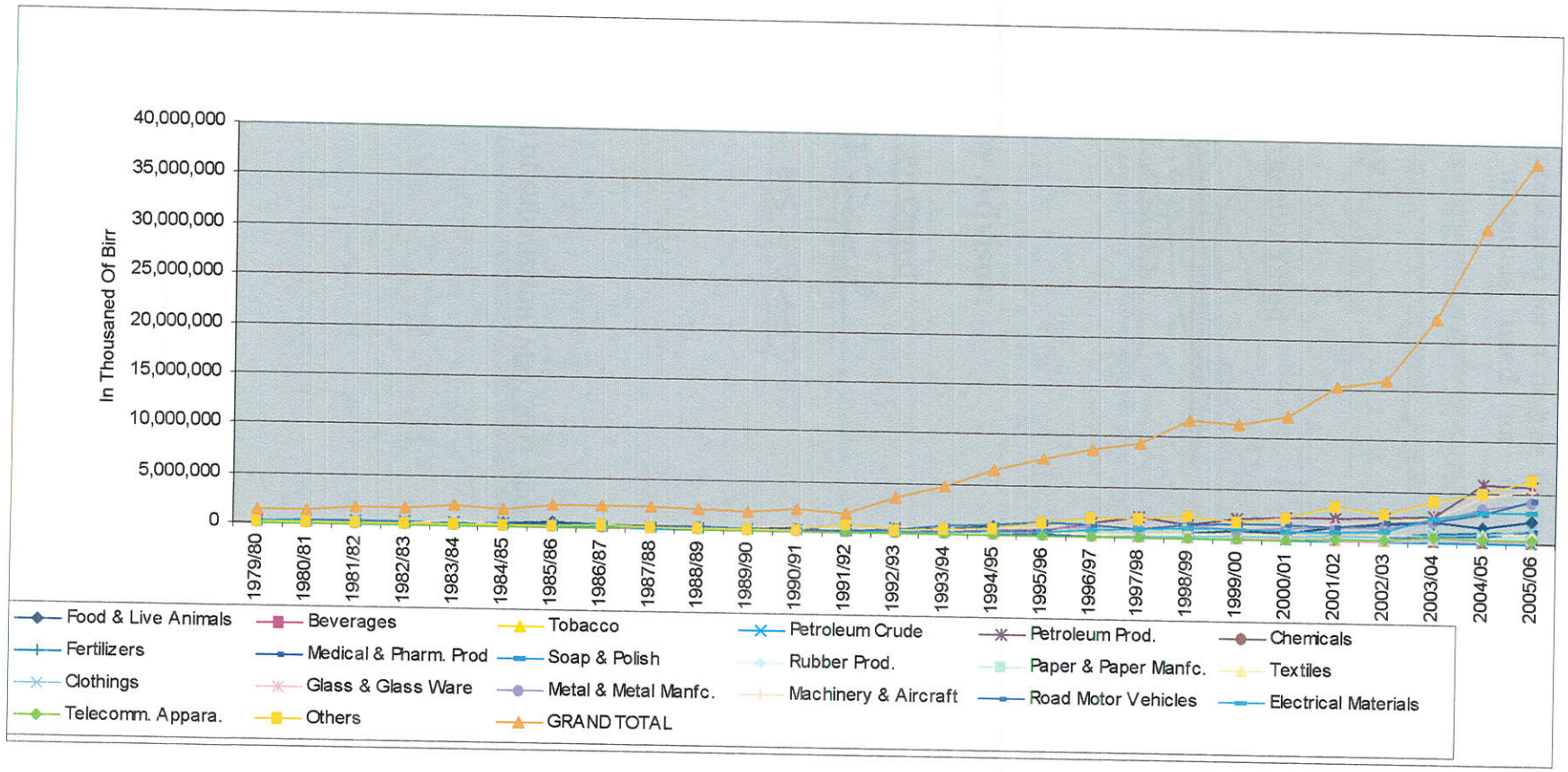
Year	Exchange Rate Gap
1974/75	1.067230
1975/76	1.670290
1976/77	2.366345
1977/78	1.987923
1978/79	1.826006
1979/80	1.892110
1980/81	1.441224
1981/82	1.427536
1982/83	1.548309
1983/84	1.652174
1984/85	1.821256
1985/86	2.142512
1986/87	2.096618
1987/88	2.379227
1988/89	3.053140
1989/90	2.859098
1990/91	2.918277
1991/92	3.220612
1992/93	4.608293
1993/94	2.387383
1994/95	1.379101
1995/96	1.246572
1996/97	1.210320
1997/98	1.102265
1998/99	1.028982
1999/00	1.025269
2000/01	1.019879
2001/02	1.055480
2002/03	1.015018
2003/04	1.014940
2004/05	1.012007

Source: National Bank of Ethiopia

Appendices L: Value of Major Export Items



Appendices M: Value of Major Import Items



DECLARATION

I, the under signed, declare that this thesis is my original work and has not been presented for a degree in any other university .All the resources of materials used for the thesis have been duly acknowledged.

Declared by :

Name Fitsum Yasabu Yared

Signature _____

Date 02/05/07

Confirmed by Advisor:

Name Syed Hasen Qayed

Signature _____

Date 02-05-2007

Place and date of submission: May, 2007 Addis Ababa University