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THE STRUCTURE AND BEHAVIOUR OF IMPORT DEMAND IN ETHIOPIA

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THE STRUCURE AND BEHAVIOUR OF IMPORT DEMAND IN ETHIOPIA

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The Structure and Behaviour of Import Demand in Ethiopia

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Abstract

This study attempts to investigate the structure and behavior of import demand in Ethiopia. To do this both descriptive analysis and an error Correction Model(ECM) are utilized.

The results drawn from the applied Eclectic model, show that the price elasticity of the demand for import, though large for some import categories in the long -run [-1.23 and -1.8 for fuel, and manufacturing, respectively] is considerably small, and is statistically insignificant both in the short and long-run.

The income elasticity of demand for some categories of imports (Fuel, MTE and FBT) is found to be insignificant .On the other hand, all categories of import demand were found to be strongly responsive to foreign exchange availability. Another important point observed from aggregate import demand model is the positive time coefficient.

The non- significant relative prices and real income elasticities suggest that devaluation and stabilization policies may not improve the balance of payments position of the country. Moreover, the positive time coefficient implies deepening import dependency of the economy as a whole. In general, the results suggest that policies that directly broaden export base, increase export earnings(supply side) and access to external capital inflows are likely to have a considerable impact on imports than those which concentrate exclusively on aggregate demand and exchange rate management.

In view of the country's narrow export base coupled with the increasing need for essential imports, which were at the level of irreducible minimum, devaluation, and aggregate demand management policies may not improve the balance of payments position of the country. But rather the country needs to implement other supply side policies so as to diversify its export base, to promote its exports and reduce cost of production of exportable at large.

Thus, inorder to have smoothly growing economy in general and in order to achieve external balance in particular the results suggest that policy makers need to adopt other non-price supply side polices.

CHAPTER - 1

INTRODUCTION

1.1 Statement of the Problem

The poor economic performance of less developed countries, both in absolute terms and relative to that of other developed countries is the result of a number of factors. Such factors include structural constraints, adverse external shocks, policy weaknesses and acute civil strife. This is true for Ethiopia. Ethiopia is one of the lowest income countries and least developed in the world. Decisively, the country's economic evaluation has been closely tied to its political regime.

Under the leadership of Emperor Haile Selassie, which was characterized by a period of relative political stability and prudent macroeconomic policies, the county's overall economic development was quite impressive. Between 1965 and the overthrow of the emperor by the Dergue in 1973, the economy expanded at an annual average rate of over 4 percent. When we see the resource gap, it moved into surplus during 1972/73 and was accompanied by the export boom that began in 1972/73. During 1967/68 - 1971/72, exports of goods and non-factor services grew at an average rate of 4.7 percent per annum. On the other hand, imports of goods and non-factor services grew, on average, at 3.4 per cent per annum. Overall, their rate of growth was lower than that of exports and Ethiopia had a comfortable balance of payments position and low inflation (Eshetu and Mekonnen, 1992:6).

However, the economy has changed its picture during the Dergue regime. In 1975, two years after its taking of power, the Dergue undertook a comprehensive nationalization of private assets, including financial sector, major manufacturing enterprises, commercial farms, trade, transport and tourism sectors, brought under the state control. It is obvious that all economic dislocation (outright transfer of ownership of private assets) which accompanied these radical measures were massive.

Between 1974 and 1990, real GDP growth averaged just 1.9 per cent per annum, falling far short of the estimated annual population growth rate of 2.7 per cent. There was a systematic deterioration in the growth rate of most macroeconomic indicators. In 1988/89, real GDP grew by 0.2 percent, undermined by a broad based stagnation /contraction in sectoral economic activity; the agricultural sector was expanded by 0.5 per cent, while industry and distributive services actually contracted by 3.5 per cent and 6 per cent respectively (UNIDO, 1996:1).

Contraction in the real sector was aggravated by fiscal deficit, with government increasingly resorting to deficit financing from central Bank. By 1990, aggregate fiscal expenditures had reached 46 per cent of GDP (which was 10 percent in 1974), while revenues were less than 25 per cent of GDP. The result was that the overall deficit, excluding grants. amounted to just over 20 per cent of GDP for that year. Moreover, in 1989/90, export receipts have fallen by 17 percent import contracted

by over 12 per cent in the same comparative basis (Ibid.). Every year since 1973/74, the trade balance has not only been negative but also widening, reaching a peak of Birr 1.5 billion in 1987/88. The major reason for this development has been the very fast growth in imports (largely dominated by fuel and capital goods) in the face of a sluggish growth in export earnings, itself caused by a decline in the volume of exports and low prices for some of major export commodities (Eshetu and Mekonnen, 1992:20). In summary, the general deterioration of the domestic economy during the 1970s and 1980s can be explained by the combination of several internal and external factors, including:

- The implementation of misguided policies which had the effect of discouraging efficiency (centralization of economic management and suppression of market forces, fixed administered prices, maintenance of overvalued exchange rate etc.)
- devastating prolonged war and drought,
- volatile primary products' prices in the world market,
- oil crisis.

Given that, the economy is structurally dependent on exports of primary products and imports of intermediate as well as capital and final consumer goods, all the above factors affect the economy adversely. Because of this, the economy's growth rate was very low for the last two decades.

By admitting this situation, when the Dergue regime was overthrown in 1991 and the present government took power, it undertook a major political and economic transformation. In doing so, the present government has launched and implemented Structural Adjustment Programme (SAP) since 1992 to ameliorate the persistent economic crisis. The objective of this programme is to promote economic growth mainly by raising efficiency and external competitiveness. Trade liberalization policies are major components of SAP. These policies have typically include: the adoption of a new industrial development strategy, input and output market liberalization, domestic tax reforms, trade tax reforms, devaluation, introduction of foreign exchange auctions and tariff reforms.

In an attempt to transform the economy and reduce the government's involvement in economic activities, in line with SAP's proposed objective, government owned enterprises were restructured and some of them were privatized. With regards to external sector, the government has introduced many important economic policies to lessen country's balance of payment deficit in general and negative trade balance in particular. Under the auspices of the SAP, the economic reform have been implemented including liberalization of prices, devaluation of the Birr, the enactment of a new more liberal investment strategy, an auction market for foreign exchange and so on. Moreover, with regard to taxes on international trade, the reform removed all export taxes and duties except those collected from coffee. To give exporters access to good quality raw materials and intermediate inputs at world

market prices, duty drawback and duty-free import scheme was introduced. In addition to this, automatic granting of export licenses was introduced in early 1992 to promote and diversify exports. With respect to imports, the comprehensive process of import liberalization pursued by the government has led to the rationalization, as well as the reduction in the rate of effective protection. Thus, these reforms are expected to help bring efficiency and improve productivity domestically as well as promote external competitiveness.

Theoretically there is evidence that relative prices play an important role on the determination of trade flows (see for example, Khan, 1974; Bond, 1987; and Marquez and McMeley,1988). Furthermore, devaluation and other trade liberalization policies were suggested as a means of correcting trade deficit. Some of the latest literature also support this scenario (see, for instance, Reinhart ; 1995). She found empirical evidence that relative prices and income are important determinants of the demand for imports and export (Reinhart, 1995: 309).

It is also argued that, in the presence of foreign exchange constraint, the volume of imports normally depends on the amount of foreign exchange importers can get and the priority attached to the various imports in forex allocation (Hemphill, 1974:639). When we see Ethiopia's previous import policies, the country has widely applied import restrictions and protective tariffs to bridge the gap between the demand for imports and the availability of foreign exchange so as to protect domestic industries

since the early 1960s (MEDaC, 1993; Alem, 1996:2).

In relation to these several empirical studies of import demand for both developed and developing countries have been undertaken. Recent studies on developing countries have explicitly included forex reserves held by monetary authorities as a determinant of import demand in their traditional imports demand model which relate real imports to domestic output and relative import prices (Mwega, 1993; Moran, 1989; Muluneh, 1982; Lopez and Thomas, 1990; Alem, 1996).

When we see empirical studies focusing on these issues in Ethiopia, Muluneh (1982) had estimated the demand for imports and found demand for imports to be responsive to foreign exchange availability. He, however, didn't consider the importance of relative prices. It is also observed that, as the time coverage of his study didn't go beyond 1980, the stability of demand for imports was not checked. The other study is that of Haile (1992). Based on his OLS estimation he concluded that the demand for imports in Ethiopia was fairly responsive to relative prices. This study also did not take into account the role of the availability of forex in determining demand for imports. The main problem that the two works have in common is that they didn't analyze the time-series property of the data in the model, (i.e. they didn't identify short-run dynamics and long-run relationships). Later on, Alem (1996) took into account these points in his work and suggested that a move towards greater use of market forces induced by devaluation is likely to lead to an

increase in imports. However, he did not look into the behavior of disaggregated import demands. Moreover, the presence of a long-term relationship (co-integration) among a set of variables included in import demand functions was not analysed in the empirical studies mentioned above. The unit root problem was also not mentioned at all.

In this respect, undertaking a relatively comprehensive empirical investigation of the behaviour of demand for imports in Ethiopia is of a particular interest. Moreover, the new economic policy measures (SAP) especially devaluation and liberalization of trade regimes require, among other things, to have a knowledge of how import behaves in order to design a suitable economic policy.

1.2 Objective and Significance of the Study

The general objective of this study is to bring to the fore the salient features of the demand for imports and to address possible impact of the prevailing devaluation and trade liberalization (components of SAP) processes based on a specified import demand functions. The specific objectives of this study are: -

1. To estimate and identify stable parameters of import demand functions.
2. To assess the extent to which the prevailing policy arrangements done thus far with regard to imports have been helpful in improving external balance in particular and in promoting economic growth in general.
3. To draw some policy implications based on the results.

With respect to its significance, it is important to understand how import demands behave in response to changing economic conditions, in designing successful macroeconomic policies, particularly exchange rate management and trade policies.

Comprehensive estimation and accurate prediction of import flows can help policy makers assess more confidently the overall sustainability of proposed policies. This can be manifested through devaluation and liberalization of the trade regime. In addition, it helps to determine the appropriate speed of trade liberalization and avoid the possibilities of unexpected foreign exchange constraints.

Moreover, although more comprehensive and timely literature on the behavior of import demand is immense on other countries, the literature on Ethiopia is limited. Thus the significance of this study lies in narrowing this gap and in broadening policy-makers insight in this regard.

1.3 The Hypotheses to be Tested

Given the objectives of this study, the following hypotheses will be tested;

i. Import demand in Ethiopia is determined by relative prices (the ratio of import prices to domestic prices), real income /absorption/ and quantitative restrictions (proxied by foreign reserves and foreign exchange earnings).
ii. There is a shift in the import structure of Ethiopia along with change in regime (polices).

1.4 Organization of the Study

The study is composed of 5 chapters including this chapter (Introduction). Chapter 2 gives a possible summary of the burgeoning literature on import demands and analyzes the behavior of import demand in Ethiopia. Chapter 3 provides a background information on the Ethiopian Economy in general and the external sector in particular and review of policy instruments which govern external sector during the past 2 decades. Chapter 4 describes the methodology, the data and specifies the models, explaining the rationale for including the variable chosen, time series data analysis and empirical results. Chapter 5 concludes and draws some policy implications of the results.

CHAPTER - 2

LITERATURE REVIEW

When we assess the literature on external sector in general and import behaviour in particular, most of the literature available is applicable to the economies where free market forces determine the overall economic activities. However, recently there are many works on the analysis of imports of less developed countries. As indicated in the introductory part, the purpose of this section is to survey the available materials so as to get ways and means to analyze the behaviour of import demands in Ethiopia.

2.1. Theoretical Framework

One of the basis for the development of the theory of imports behaviour is a product demand theory which is derived from the utility maximization concept of the general Hicksian demand model. Product demand functions may be viewed as a relationship under which the level of buyers' utility is as high as limited incomes and given prices permit. Therefore, demand functions can be derived by maximizing utility subject to a budget constraint.

In line with this, Armington (1969a) had derived a country's product demand functions in the following form:

Utility is expressed as a function of all products, (Xi);

$$U = U(Xi) \text{ ---------- (i)}$$

Then, given a corresponding price vector,

$P = P_{11}, P_{12}, \ldots P_{1m}; P_{21}, P_{22}, \ldots P_{2n}; P_{n1}, P_{n2}, \ldots P_{nm}$ .... (ii) or

$$\begin{pmatrix} P_{11} \ldots\ldots P_{1m} \\ P_{21} \ldots\ldots P_{2m} \\ P_{n1} \ldots\ldots P_{nm} \end{pmatrix}$$

And national money expenditure, D, U(X) is maximized subject to budget constraint D= PX. Once utility, U, is specified, the first order conditions, together with budget constraint imply country's product demand functions. Furthermore, Armington (1969b) stressed that price elasticities of substitution in various markets are important in determining coutnry's export and import flows.

The other angle from which the theory of import demand was formulated based on the scarcity of foreign exchange in less developed countries (LDCs). As Polak and Rhumberg (1962) pointed out the prices of primary products (produced by LDCs) have shown large fluctuations in response to both industrial demand and supply conditions. Thus a decline in primary product prices leads to a decline in export value and then a decline in purchasing power (import) of LDCs.

Under this circumstance, if export earnings of developing countries fall or if capital inflows are reduced, the authorities are forced to tighten restrictions on imports in order to maintain the positive external balance.

Many of the policies used to influence imports are of less direct and less flexible - such as tariffs, surcharges, exchange licence fees, exchange rate changes and so on. All of these policies result in some lags between a change in exchange receipts and in imports. Thus in this approach, the nature of import demand is given as

$$M_t = a + \sum_{i=0}^{n} bF_{t-i} + U_t$$

Where Mt = Import demand

F_t = Foreign exchange receipts

[See the details on the next foreign exchange availability model]

According to the proponents of this approach, the formulation of a country's import demand as a function of income and relative prices is not contravened, if one could measure the scarcity of foreign exchange that varies directly with excess demand for foreign exchange. However, in a situation of very large and changeable rates of domestic inflation and relatively fixed exchange rates, the magnitude of import demand indicated by income and relative prices is highly arbitrary [Hemphil, 1974: 643]

The third theoretical approach/vantage particularly with reference to developing countries, is an intertemporal approach. It treats the current account of the balance of payments as an investment flow, arguing that it is primarily determined by the desire to reschedule absorption relative to income. The proponents of this approach are Sachs (1981) and Dornbusch (1983) who argued that imports are stimulated if their

current price falls relative to either current domestic prices or any future prices. However, the intertemporal nature of the import decision makes the empirical application of the approach highly complicated due to the difficulties to operationally capturing expectation and measuring wealth (Winters, 1985:13). Thus it is hard to get a research work which yielded empirical results constituting a proper test in this regard.

Given such general theoretical approaches, three approaches to the question of developing countries' imports may be identified.

2.1.1 The Traditional Model

Khan (1974) and Goldstein and Khan (1985) have developed this model. The basic hypothesis of this model is that, there is no delay in the system so that the adjustment of imports and prices to their respective equilibrium values is instantaneous or that importers are always on their demand functions. In an annual model, this hypothesis means that the adjustment is entirely realized within a period of a year.

As indicated by Khan (1974) the simplest formulation of an aggregate import demand equation relates the quantity of imports demanded by a given country to the ratio of import prices to domestic prices (assuming a degree of substitutability between imports and domestic goods) and to domestic real income, all in period t. In log-linear terms the equation has the following form:

$$\text{Log } M^{d}_{it} = \alpha_0 + \alpha_1 \log \left(\frac{P_{mi}}{P_{di}}\right)_t + \alpha_2 \log Y_{it} + U_{it}$$

Where M_i = quantity of imports of country i

P_{mi} = unit value of imports of country i

P_{di} = domestic price level of country i

Y_i = real gross national product of country i

U_t = is an error term, and the subscript d refers to demand.

Since the equation is specified in logarithm, α_1 and α_2 are relative price and income elasticities, respectively. The signs are expected to be: $\alpha_1<0$, $\alpha_2>0$.

The assumptions made in this model are the following (Khan, 1974):

- Standard demand functions are homogeneous of degree zero in price and income which implies the absence of money illusion. This suggests that the demand for imports can be expressed in terms of real income and relative prices (P_{mi}/P_{di}).
- It is implicitly assumed that importers are always on their demand function, i.e. import demand = import supply.
- The price of imports can be properly treated as exogenous.

2.1.2 The Foreign Exchange Availability Models

In less developed countries (LDCs), governments rely heavily on import controls to improve the balance of payment deficits. So these quantitative restrictions can be singled out as one of the factors that can create difficulty in predicting import flows in developing countries based on the estimation of traditional model. According to

Hemphill (1974), the traditional import demand equation is questionable because of the trade and exchange restrictions.

Hemphill (1974) in relation to developing countries first develops this model. Hemphill assumes that a country has an exogeneously given flow of foreign exchange earnings in each year, F_t, and that this flow must be allocated between expenditures on imports, M_t, and additions to reserves, ΔR_t. He further assumes that long-run imports, M*, must equal long-run receipts, F*, and that there is a long-run desired stock of reserves, R*, that is also related to receipts. In addition to this, he assumes that authorities estimate F* (long-run receipts) from recent historical data, in a manner reflecting the notion that the future is likely to be similar to the past in the same degree. If F_t tends to change, the change in receipts influences the authorities' view of the extent to which current receipts are representative of long-run receipts, in a positive or negative direction according to whether change is generally expected to continue or to be reversed in future periods. Thus, given $F^* = F_t - \lambda(\Delta F_t)$, a large absolute value of λ implies that authorities believe the change is likely to accelerate.

Having the above assumptions, Hemphill's basic estimation function is:

$$Mt = \alpha_0 + \alpha_1 R_{t-1} + \alpha_2 F^*_t + \alpha_3 \Delta F_t$$

Where M_t = expenditures on imports

F_t = current receipts

R_{t-r} = last period's reserve

F_t = occurs as part of the assumed function for F*

F* = long-run receipts

Important features of Hemphill's model are that he assumes only financial variables explain imports and further constant parameters for the cost function.

2.1.3 The Eclectic Models

Eclectic models are those which encompass an aspect of those two major models developed and mentioned above. Those broad models thus give guidance on the variables that theoretically should enter the import demand functions. Empirically, however, the selection of variables tends to be *ad hoc* depending on the commodity grouping, the endowments of the country and the structural features of the economy (Agbonyitor, 1986).

Viewed in this way later researches on import demands of developing countries have expanded those aspects of the models mentioned above. Sundararajan (1986), can be singled out as the first who relaxed the assumptions of those models. He assumed that desired imports are determined by a traditional import function, including relative prices, (P_m/P_d), real income, Y, foreign exchange receipts, F_t, and other policy variables. Later on, a number of researchers adopt a similar approach to Sundarajan's (Faint et al, 1988; Moran, 1989; Mazarei, 1995).

2.2. Empirical Studies

In this section empirical studies of import demand for African countries are reviewed. These studies include those by Mwega (1993) for Kenya, Diaw and Gwe'ey (1996) for Senegal, Faini *et al.* (1988) for Sub-Saharan Africa and for other developing countries, Muluneh (1982), Haile (1994) and Alem (1996) for Ethiopia. All the following studies reviewed, except that of Haile (1994), followed the Eclectic /general models which encompass both the traditional and Hemphill's foreign exchange availability model.

Mwega (1993), undertook an empirical analysis of the behaviour of import demand in Kenya using an error correction model to estimate demand elasticities for aggregate imports and components in Kenya over the period 1964 -91. He found that the short-run relative prices and real income aggregate import demand elasticities to be insignificant or weakly significant. On the other hand, aggregate imports were found to be strongly responsive to lagged forex reserves and forex earnings. He concluded that as suggested by the results, devaluation and stabilization policies pursued then did not effectively assist trade liberalization efforts. More generally, he concluded that policies concentrating exclusively on switching expenditures between tradables and non-tradables (devaluation policies) will have a limited impact on import volumes.

Diaw and Gue'ye (1996) have estimated Senegal's aggregate imports demand

coefficients as well as its components' coefficients over 1960-1992. They applied various econometric methods such as error correction model, two-stage least square, and autoregressive distributed lags model which enable them to capture the effects of endogeneity of prices due to the impact of foreign exchange availability. They found that aggregate imports were determined by quantitative restrictions, which, were proxied, by the volume of exports and relative prices. Their results have also revealed that consumer goods are more responsive to relative price movements than the other components of imports.

They concluded that for devaluation policy to be effective, it should be accompanied by subsequent trade liberalization. More specifically, demand management polices should be a key component of any policy package including devaluation.

Faini, *et al.* (1988) have pursued two complementary approaches in modelling and estimating import demands of 50 developing countries including 4 in sub-Saharan Africa. (i.e. traditional import equation and an approach which incorporate quantitative restrictions).

In general, they have shown that measured income elasticities in developing countries are generally higher than one; and relative prices, although they are mostly inelastic, significantly affect demand for imports. When the lack of foreign exchange or, more generally, a restrictive trade regime effectively constrains import flows, the

measured impact of price and activity variables become less pronounced. They concluded that the econometric evidence that does not allow for the impact of import controls cannot be used reliably to assess the effect of devaluation on the trade balance. Indeed, based on the results they got, they pointed out that if devaluation is combined with trade liberalization, it is effective in improving trade balances of developing countries.

When we come to the Ethiopian case, we get first the work of Muluneh (1982) which was specifically found on the analysis of import demands a decade ago. He estimated the demand for imports for Ethiopia for the period 1965 to 1980. He applied simple OLS (Ordinary Least Squares) method and utilized linear and log-linear functions as a tool. He had taken GDP and foreign exchange earnings of the country as factors determining imports. He interpreted the estimates basically depending on their R^2. These results suggest that imports are responsive to the variation of Gross Domestic Product and foreign exchange earnings, though the signs of the parameters are different from what is expected in normal cases. As indicated above, he didn't analyse the significance of relative prices in determining import behavior in Ethiopia. Given the small coverage of the time reviewed by the study, the stability of demand for imports was not checked. Moreover, the stationarity of variables was not analysed. Therefore, the validity of the result he got by employing OLS method could be questionable.

Haile (1994) in his preliminary assessment of Ethiopian birr, using OLS, estimated the price elasticites of import demands to be -0.52 for the period 1961-1975 and -0.36 for 1975-1988. He found that imports in Ethiopia to be fairly responsive to prices. This result suggested that devaluation is effective in tackling the problems of negative trade balance.

Haile's study followed the traditional model, which ignores the impact of foreign exchange constraint on the demand for imports in developing countries. Since, import in Ethiopia has been subject to massive restrictions, it is inappropriate to capture the behavior of imports without incorporating such restrictions as an explanatory variable in the import model. The structural break of import demand function was predetermined without tests for stability and structural shifts, thus concluded as if regime matters. Haile's study also didn't evaluate the time-series property of the data in the model.

The other is the work of Alem (1996). Even though Alem didn't indicate the time coverage of his analysis, he estimated the elasticities of import demands and got, long-run price elasticities to be 0.7, and the elasticities with respect to foreign exchange availability and lagged foreign exchange reserves, to be 0.6 and 0.3, respectively. Indeed, he concluded that a move towards greater use of market forces induced by devaluation and trade liberalization is likely to lead to a boom in imports. So, in order to ease the negative trade balance, import-liberalization should focus on

improving institutional constraints and selective reductions in tariffs rather than across the -board reductions until export incentives initiate a high export growth. However this study didn't look into the behaviour of disaggregated import demands. The new time series technique is also not carried out in estimating the parameters.

Finally, what we can understand from the literature reviewed is that for the analysis of the behaviour of demand for imported goods, we have to look into the structure of the economy. Furthermore, the prevailing trade policies and the endowments of the country, as advocated by the proponents of eclectic import demand models should be analyzed in detail.

CHAPTER - 3

AN OVERVIEW OF THE ETHIOPIAN ECONOMY

3.1. GENERAL PERFORMANCE

During the last two and half decades the pendulum of Ethiopian economic policies have shifted from one extreme to another in accordance with its prevalent political regimes. Prior to 1974 a relatively free market, if not laissez-faire, oriented loose inward looking economic framework was exercised. In contrast, from 1974-1991 a centrally commanded economic management, characterized by an excess government intervention and marginalization of the private sector, was exercised. To date, a transitional free market economic regime is underway presumed to transform the country from command to one of liberalized economy.

During the Imperial regime, the economy performed relatively good. The post second half of the 1950s was one of the periods in which the government attempted to move forward in terms of the general socio-economic developments. This task was accomplished through three sets of Five-Year Development Plans that stretched until the collapse of that regime.

During this period, the Ethiopian economy showed an accelerating GDP growth rate as the result of an increase in investment expansion and foreign trade. In 1965-75(E.C.) the real GDP grew at an average rate of over 4 percent per annum.

However, one can see from Annex 1 that in 1966 E.C the GDP growth rate was 1.39 percent and further declined in 1967 (E.C.) and registered -0.02 percent per annum. The major underlying cause for the down turn of the growth of aggregate output was poor performance of the agricultural sector, which, in turn, attributed mainly to an archaic land tenure system and bad weather condition [Eshetu and Mekonnen, 1992:5]

The industrial sector also revealed rapid growth during 1960-65 (E.C.), its growth rate registered, on average, 5 percent per annum. This was specifically the result of accelerated growth in manufacturing as well as small-scale industries and handicrafts accompanied by supply of facilities such as electricity and water. The other main policy factor, which contributed to such industrial output growth, was import-substitution policy and related incentives. However, during the second half of the 1960s (E.C) the economic performance in general and the Industrial sector in particular also marked the beginning of a slow down which accentuated among other things, by a gradual decline in business confidence engendered by an atmosphere of political uncertainty [Shiferaw, 1995: 19]. On the other hand, during this period it was indicated that the level of consumption (both private and public) had increased averaging about 5.3 percent and 15.7 percent per annum, respectively. Saving and investment also showed a considerable rates of growth of about 9.4% and 9.2%, respectively [Ibid].

During the first half of the 1970s (1966 E.C) the Dergue overthrew the Imperial regime. The economic policies were shifted to a command economy that handed over almost all-economic sectors which activated economic growth, to the government. All banks, insurance companies, industrial and commercial enterprises were nationalized. All urban land and extra houses were also nationalized in 1975. In doing so, the government dismantled the embryonic market forces and replaced them by the 'Socialist' economy. This excessive involvement of the state in nearly all-economic activities with inappropriate policies and regulations has crowded out the private sector. With continued measures and programmes (National Democratic Revolution Programmes and Ten-Year Perspective Plan (TYPP)), the Dergue government have tried to accelerate economic development; to improve the living standard of the population and to insure social justice and equity.

However, the overall economic performance during this period was disappointing. When we look at trends in GDP growth and other macroeconomic indicators, the performance of the economy was very poor. GDP in Ethiopia over the period 1981/82-1991/92 was generally marked a sluggish growth averaging 1.7 percent per annum, which fell considerably short of the population growth rate of 2.7 percent. This led the real per capita GDP to decline to -1.0 per cent per year during the above period (MEDaC,1998).

This declining trend of GDP was attributed, again, to the poor performance of the

agricultural sector, which is the mainstay of the economy. Agricultural performance over the decade since the taking power of the Dergue had been not only very discouraging in terms of magnitude but also characterized by a large degree of oscillations. For example, its growth rate was 1.4 percent in 1981/82 - 1991/92. As a result, the country faced chronic food deficits, export was down, and industrial raw materials fell short of the required quantity thus weakening capacity utilization and increasing pressure on the balance of payments. The main problems confronting the agricultural sector were recurrent drought, inappropriate marketing policies, state determined price policies and establishment of politically forced peasant producers cooperatives [Befekadu, 1990: 61].

Industrial sector is at a low stage of development which, accounts for not more than 11 percent of GDP. Output is characterized by light consumer goods and there was a heavy dependence on imported capital goods, spare parts and raw materials. Its performance during the Dergue regime revealed a low and unstable growth rate, 3.0 percent and nil during the period of 1981/82-1989/90 and 1981/82-1991/92, respectively. The service sector also showed a higher growth rate (4.4 percent per annum in 1981/82/1989/90) as compared to agricultural output growth mainly due to the ever-expanding defense expenditure during the period under review.

Saving and investment were also not only at a low level, but also have declining trend. Gross fixed capital formation shared about 11 percent of GDP. Its financing

has depended on external financing for up to 100 percent of investment costs. What makes such financing a serious problem was that it was accompanied by declining savings in the country. This led the country to debt crisis. Resource gap and fiscal deficit developments also showed an increasing negative trend which attributed to a growing public spending and investment. All these confirm that the Ethiopian Economy Suffered from a growing economic imbalances during the Dergue Regime [Ibid. 1990:72].

When we look at the post 1992 Ethiopian economy, a recovery and stabilization characterized it. One of the major economic aims of the EPRDF regime, which came to power in may 1991, was the stabilization and adjustment of the distorted economic structures. Until 1992, the previous military regime was not successful in turning the economic trend in general as discussed above. But rather its misguided policies together with exogenous external shocks and bad weather conditions as well as domestic civil strife led the economy into the intolerable crisis.

In an attempt to cushen the escalating economic problems, the EPRDF led government declared a New Economic Policy and Structural Adjustment Programme components embracing free market and private initiatives, as opposed to command economic system of the previous regime. The private sector is presumed to play a leading role in the growth and development process of the country operating in a free and competitive market system in which the state is to be the

facilitator and regulator of these activities.

Since agriculture has played a dominant role in the Ethiopian economy, it is essential to increase the productivity of the sector so as to guarantee food security. It further activates development in other sectors and provide a domestic market for manufacturing industries, foodstuff for a growing population, row materials for industry, primary goods for the export market, etc. Therefore, it seems logical that the present regime has adopted "Agricultural Development led Industrialization (ADLI)" as a long-term development strategy within the framework of the New Economic Policy and consecutive policy framework papers. These policy Framework Papers show pertinence to the country's reform programme in which policy packages can be categorized under the following main areas:

- Macroeconomic stabilization mainly to ensure price stability and maintain substantial external balance by narrowing fiscal deficits and adjusting the exchange rate;
- Improve production and export incentives by introducing conducive price, tax and trade regimes;
- Creating an enabling environment for the private sector by devising appropriate regulatory framework.

In pursuance of the new economic policy framework and structural adjustment programme, a number of policy measures were presumed to stimulate economic

recovery and growth, among which the following are important(Ministry of Finance, 1998a: 47):

- The national currency (Birr) has been devalued from 2.07 to 5.00 birr (142%) per U.S Dollar in October 1992. As of May 2, 1993 a foreign exchange auction system was adopted which is open equally to both private and public enterprises.
- As of December 1992 all taxes and duties on exports (except coffee) are abolished. Direct subsides to exports and public enterprises are also eliminated.
- An export duty incentives scheme which encourages domestic production of exports through duty draw-back and duty free importation scheme for raw materials imports, exclusively used for that purpose, has been effected as of August 1993.
- The state enterprises are restructured giving them greater management autonomy so that they could successfully operate in a competitive environment. The government also approved the privatization of most state owned trading enterprises.
- A harmonized system of import tariff to narrow the gap between tariff rates applicable to different commodities and to reduce the level of tariff rates applicable to durable consumer goods has placed in force on August, 1993.

Within such changeable policy environments the basic macroeconomic indicators have shown significant improvements during the period 1992/93- 1997/98. During

this period real GDP showed gains with annual average growth rate of 6.4 percent per annum at 1980/81 constant factor cost. The agricultural sector (with 4.3 percent annual average growth rate) benefited from good weather condition) greater use of fertilizers through extension package programmes. The annual average growth rate of industrial output was 9.5 percent as a result of the availability of foreign exchange for imported inputs, which led to a strong recovery in capacity utilization. The annual average growth rate of the service sector also showed an increasing trend, which amounted to 8.4 percent [see appendix 1].

3.2. THE PERFORMANCE OF THE EXTERNAL SECTOR

From what the records of its past and current experiences show, Ethiopia has been involved in the exchange of goods and services with the rest of the world for a very long period of time. In relation to this, this part of study attempts to outline the major characteristics of Ethiopia's exports and imports, balance of payments and terms of trade.

3.2.1. Features of the Export Structure

A comparison of exports of less developed countries (of which Ethiopia is one) with developed countries reveals that less developed countries' export structure is dominated by primary commodities. As table 1 shows more than 90 percent of Ethiopia's exports are composed of coffee, oil seeds, pulses, hides and skins and,

recently, chat. Ethiopian export has been concentrated in few primary agricultural commodities, mainly coffee. Receipts from coffee exports averaged about 58.6% between 1967 and 1983 (E.C.). This export structure remains unchanged till these days, despite various attempts made to shift the structure of exports and diversify them.

With regard to its development trend, the records reveal that economic development in Ethiopia during the Imperial regime had a positive influence on the country's export, as reflected in an increase in the level of exports. Between 1948 and 1967, (E.C) total exports increased at an average annual rate of about 6.89 percent, rising from 153.9 million Birr to 590.9 million Birr in 1966 E.C. During the second half of the 1960s (E.C) exports picked up and continued to rise at an annual average rate of 10 percent . When we see its share of GDP, Ethiopia's merchandise exports constituted only a small amount. In 1953 (E.C) exports were only 3.68 percent of GDP but rose steadily to about 7.28 percent in 1966 E.C resulting mainly from substantial increases in non-coffee exports specially oil seeds and pulses (see, Appendix 2).

During the Dergue regime, it can be observed from the export record that total exports decreased at an average annual rate of about -0.45 percent during the period 1968-1984 E.C. reached the lowest level of 279 million Birr, which was 2.66 percent of GDP during that period [see appendix 2]. Under the military government,

private capital in foreign sector was abandoned and replaced by state owned export and import corporations (monopolization of foreign trade by the government). When we look at the export structure under this regime, it was highly concentrated in few primary agricultural commodities, mainly coffee, which accounted for more than 50 percent of total export earnings.

Table 1: Percentage share of Ethiopia's Major Exports in the Total Value of Exports for Selected Years.

Period	Coffee	Oilseeds	Hides & Skins	Pulses	Meats meat prat.	Fruits & vegt.	Sugar	Oil cakes	Live animals	Chat	Petrol. products	Bees wax	Combined shares
1972/73	44.3	12.8	14.8	9.5	3.6	2.17	2.8	1.26	1.27	0.77	-	0.36	93.63
1973/74	28.11	15.34	9.9	19.6	3.11	1.5	2.04	1.64	2.05	0.81	-	0.49	84.59
1974/75	25.94	19.66	8.22	16.23	2.18	2.16	1.49	1.58	3.72	1.23	-	0.55	82.96
1975/76	56.63	6.74	8.12	10.05	1.3	1.35	1.79	1.38	5.96	0.78	-	0.5	94.60
1976/77	64.34	4.21	8.25	7.61	0.76	1.49	2.18	1.98	0.56	1.25	-	0.51	93.14
1977/78	79.04	1.83	8.90	4.67	0.20	0.62	-	0.7	0.23	1.22	-	0.5	97.91
1978/79	76.18	1.32	14.29	2.45	0.27	0.37	0.04	1.20	0.21	1.02	-	0.6	97.87
1979/80	66.51	1.43	14.93	2.61	0.57	0.73	1.52	0.60	0.87	2.04	-	0.47	92.36
1980/81	62.45	3.38	11.04	2.82	0.75	0.60	1.16	1.05	1.16	2.66	-	0.43	87.49
1981/82	60.13	2.46	11.93	3.88	0.64	0.85	0.83	0.66	1.04	2.67	-	0.18	85.27
1982/83	61.39	1.91	9.50	3.50	12.70	0.58	1.28	0.91	1.97	4.59	-	0.29	98.61
1983/84	63.55	3.23	10.-	2.18	0.63	0.68	1.09	1.75	1.58	3.12	-	0.49	88.30
1984/85	62.69	2.10	12.71	2.30	0.52	0.76	1.25	0.14	2.52	2.14	-	0.42	96.94
1985/86	71.56	0.87	12.58	1.01	0.44	0.68	1.18	0.22	2.14	0.96	5.02	0.14	96.89
1986/87	66.29	1.23	13.62	0.39	0.67	2.08	1.03	0.22	2.07	4.83	3.38	0.09	95.90
1987/88	26.81	2.84	17.12	0.32	0.67	3.26	1.92	0.15	3.82	3.02	4.67	0.30	94.90
1988/89	69.36	1.22	13.68	1.80	0.23	0.99	1.10	0.05	2.60	0.88	2.07	-	93.98
1989/90	54.98	1.14	8.19	4.88	0.155	0.55	5.07	0.06	1.47	2.85	3.56	0.23	93.13
1990/91	49.48	0.66	16.99	2.89	0.187	2.21	3.01	-	0.95	3.76	4.99	0.12	85.25
1991/92	60.32	0.13	21.01	0.13	-	2.29	0.63	-	0.16	1.81	6.74	0.23	93.45
1992/93	67.05	0.15	16.79	0.50	0.05	0.34	0.63	-	0.16	8.20	3.78	0.24	97.39
1993/94	57.96	3.56	16.43	2.23	0.05	0.55	2.07	-	0.86	8.71	5.84	0.44	98.70
1994/95	65.85	1.83	13.67	3.78	0.22	0.64	0.08	-	0.28	6.30	3.48	0.24	96.37
1995/96	67.89	1.65	12.19	3.04	0.48	0.83	-	-	0.03	6.87	2.44	0.31	95.73
1996/97	66.44	2.13	10.72	2.22	0.69	1.32	0.13	-	0.32	6.27	2.39	0.26	92.89
1997/98	69.77	7.59	8.39	2.48	0.70	0.76	-	-	0.25	6.57	2.45	0.25	99.21

Source: Computed from Data Obtained from NBE, Quarterly Bulletin Various Issues

3.2.2. The Import Structure

While Ethiopia's exports were composed of a handful of primary products, the bulk of imports comprised finished goods including capital and intermediate goods for industry and consumer goods. During the1950s and 1960s(E.C) imports remained low, reflecting the low level of economic performance. Imports began to grow more steadily with economic expansion, the growing demand for capital, raw materials and intermediate goods as well as the rising demand for consumer goods with rising income.

The growing importance of imports was reflected in a steady increase of imports as a proportion of national output. Imports accounted for a modest share of GDP amounting to 4.67 in 1953 E.C. During the decade of the 1960s (E.C), however, imports averaged about 6.6 percent of GDP (see Appendix 2). Over 60 percent of the value of imports was made up of capital and intermediate goods as well as raw materials for industry [See Table 2]. This shows the extent to which the country's industry remained dependent on imports.

During the military regime, this steadily increasing trend of imports and its proportion of GDP was continued reaching 23 percent in 1978E.C. This trend further continued until now reaching 52.23 percent in 1987 [See Appendix 2].

Table 2: The Import Structure of Ethiopia and the Importance of Import Items in Total Imports (Average Percentage Share).

Period [G.C]	*Import Categories (by SITC)*					
	Food Beverage & Tobacco (SITC;0+1+4)	*Crude Materials (SITC;2)*	*Fuel (SITC; 3)*	*Chemicals (SITC;5)*	*Machinery Transport and Equipment (SITC;7)*	*All other Manufacturing (SITC; 6+8)*
1953 - 1955	9.40	3.87	9.20	3.96	23.54	50.04
1956-1960	8.80	3.28	10.53	5.11	23.59	48.65
1961-1965	6.20	3.61	7.97	7.05	29.53	43.92
1966-1970	7.50	4.77	7.37	9.97	35.39	33.45
1971-1975	5.88	4.23	12.25	14.66	32.88	30.06
1976-1980	6.00	3.51	17.54	14.20	31.89	26.72
1981-1985	14.38	2.87	20.08	11.04	33.22	18.43
1986-1990	17.10	2.46	10.17	11.30	40.75	18.09
1991-1995	18.62	1.59	11.99	12.61	31.98	21.09

Source:- Calculated by the author form the import data of ECA's African Statistical Year Book various issues 1967 - 1996 and from the import data of CSO's statistical abstract (1965).

Two facts immediately become apparent in any analysis of Ethiopia's foreign trade. First like many other less developed countries, Ethiopia's exports were composed of primary products, mainly coffee. There was no structural shift in the composition of the export trade during all the periods under review. Secondly, imports comprised capital and intermediate goods as well as raw materials and consumer goods. In all cases, of the Ethiopian economy remains entirely at the mercy of developments in the global economy. Lower prices for the country's exports and high prices for the imports of industrial manufactures, intermediate inputs and raw materials greatly affected economic activities (Shiferaw, 1995: 46).

A second fact that may be observed from the trend rate of growth of Ethiopia's foreign trade is that, while both exports and imports grew faster than GDP, imports rose more rapidly than both the rates of growth of exports and GDP.

Another dimension in which we look at the performance of external sector is the structure of balance of payments and its components in general. When we look at the current account of the balance of payments of Ethiopia for the period under consideration, it is not only in persistent deficit, but also its deficit balance has widened over time. This worsening current account deficit was attributed to the stagnant export earnings vis-a-vis the tremendously rising of imports, despite positive non-factor services receipts. It was only in 1972/73 and 1973/74 (G.C) that positive current account was registered owing to the then export boom. The source

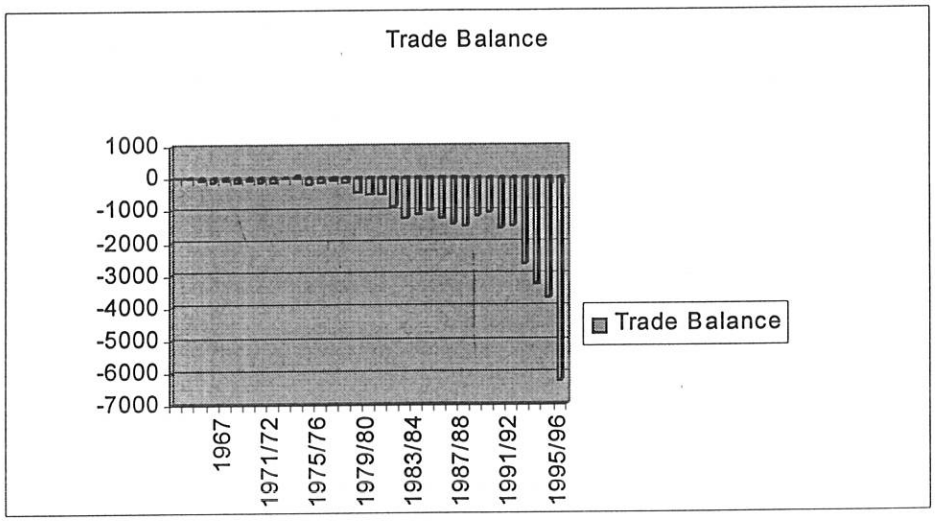
of the balance of payments deficit in general and the current account deficit in particular, (as can be observed from figure 1 and appendix 3) is the foreign trade imbalance. It seems natural for Ethiopia to have a trade balance deficit, even, for that matter, on the balance of current account.

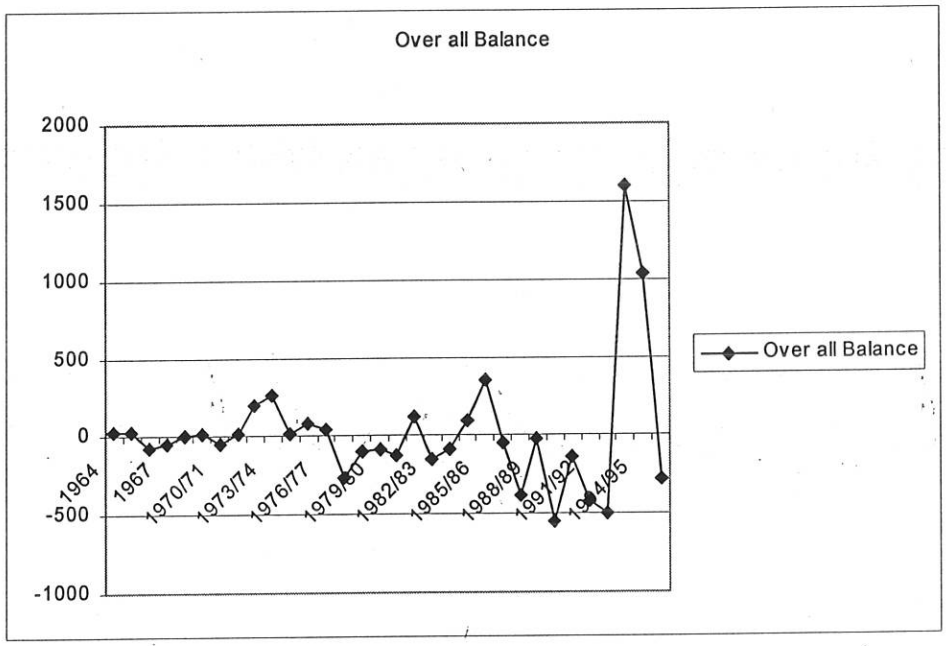
Given the exports of primary product which are subject to a wide world price fluctuation and discouraging policy environment related to its supply side, and a continuous and rising demand for import of capital goods, intermediate goods and even those of consumer goods, it is expected that the resource gap is so widen reaching 7.6 percent of GDP in 1988/89.

This picture of the balance of trade was seen to continue after the adoption of successive liberalization and other SAP components. Trade deficit and current account deficit were so widely grown due to further rising of imported capital goods and others for rehabilitation and reconstruction of those war evicted areas and thus for recovery of the economy through bringing up the capacity utilization of industries.

However, the overall balance of payment was not so bad in some years, which was attributed to an increase in debt relief cancellation and rescheduling of debt, which increases foreign reserve.

Figure 1:- Balance of payment deficit in Ethiopia

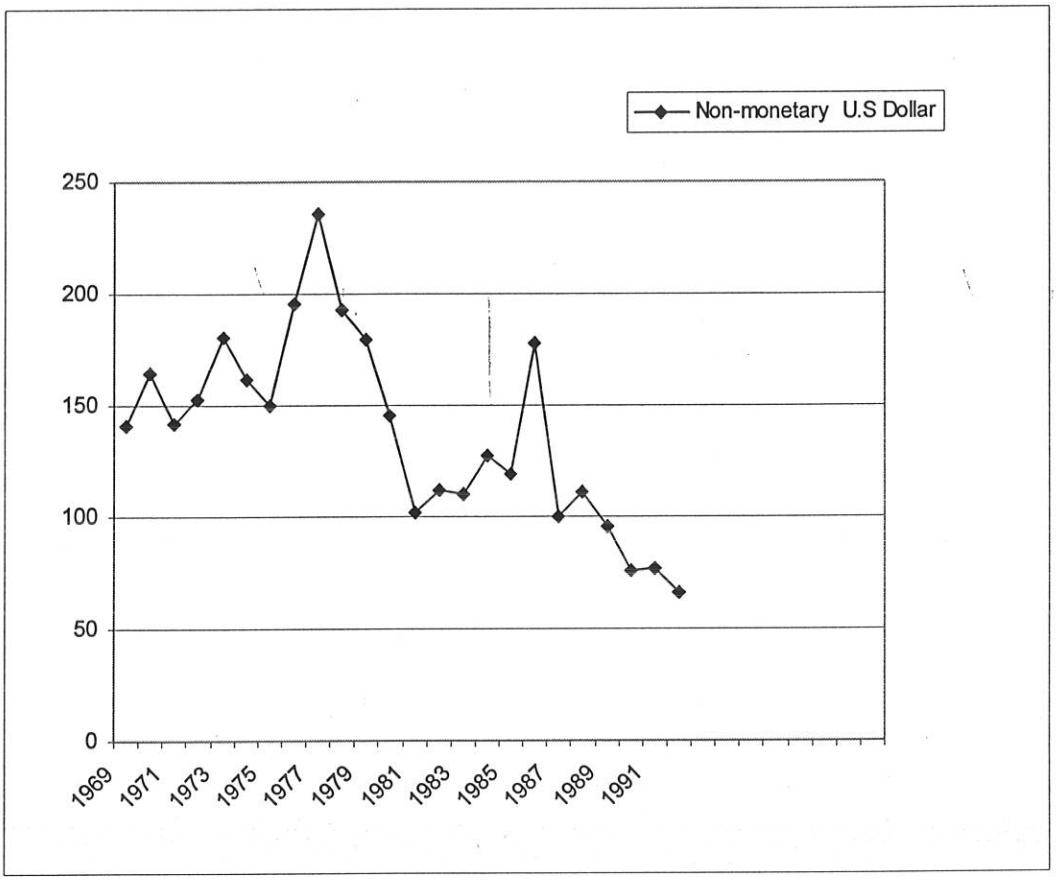




Source :- NBE Quarterly Bullentins Various Issues

The other point that one should give attention in evaluating external sector is the terms of trade of a given country. The prices of exports and imports are what constitute the terms of trade; it is important to look at the movements of these prices. When we observe the Ethiopian case, it shows a declining trend [see figure 2]. This will also be major factor contributing to deficits in the balance of trade which would force the economy to depend on other source of financing, mainly external loans and running down of foreign exchange reserves.

Figure 2: Terms of Trade of Ethiopia (1987 = 100)



Source:-World Bank, World Tables 1995

3.3. Review of the Evolution of Trade Policy

The evolution of economic policy formulation in general and trade policy in particular, in Ethiopia, was passed through a number of strategies starting from the three consecutive Five Years economic plans stretched from (1958-73.G.C). For about the last two and half decades, Ethiopia pursued an import-substitution industrialization strategy (during the Imperial and Derg Regimes) [The FFYDP 1957 - 1961, 1961:145; The TYP plan 1984:112]. The main argument for import-substitution strategy was that the earnings of the primary products that poor countries, like Ethiopia, export are not only highly unstable, making macroeconomic management difficult, but their terms of trade also tend to have a long-run declining trend. These countries were therefore advised to diversify their economies away from primary products towards the production of industrial products with the help of appropriate trade policies.

Trade policy comprises commercial policies and exchange rate policy affecting the export and import regimes and the domestic sector. Thus, here, we attempt to look into the evolution of trade policy in Ethiopia for the past decades.

3.3.1. Tariff

Customs tariff is a payment duty levied on imported goods based on their weight, volume, content, value, etc. and is conditionally imposed on some exportable. The

main goals of customs tariff are:

- To protect domestic industries,
- To provide domestic producers and investors price signals,
- To encourage those the production of imported goods domestically,
- To ease external trade balance deficit,
- To prohibit those socially undesirable goods from import,
- To serve as a source of government revenue.

On the basis of these goals, customs tariff regulations are subject to change in comparison with the relation it has, to national economic conditions, to the effectiveness of protection, to the degree of competitiveness of exportable products, to the efficiency in resource allocation and finally to the problems that could encountered in its application.

The history of tariff setting in Ethiopia dated back to the early 1940's. The first proclamation on customs duties with detailed coverage of goods was issued in 1943 (1935 E.C) and came in to force on the last of April 1944 (Melisachew, 1984:40)

Since then a number of amendments and changes in the rates of import duties have been made. During the Imperial regime, as stressed in the First Five Year Development Plan; tariff policy should be adjusted to facilitate the import of capital goods and intermediate goods. However, with regard to consumer goods, tariff policy should be directed towards protection of home industries, especially new

enterprises (Imperial Ethiopian Government Five Year Development Plan, 1957 - 61: 149-150). Although tariff protection had a revenue and other effects which were important as mentioned above, one can observe that the tariff in Ethiopia during the 1950s and 60s was enacted more for protection since 1951 and particularly after 1969. This can be seen from the fact that the custom duty on textile products showed a leap from a low of 35 percent in 1953 to a high of 100 percent in 1969.

After 1974, the tariff structure remained in use with some minor changes in tariff rates of the same items. The regulation that was operational during the Dergue regime had a total of more than 1800 chapters. Seventy-three percent of these groups paid ad-valorem tariff, 9 percent paid specific duties, while the remaining 18 percent were duty free. The ad-valorem tax schedule had a 24-band tariff with rates that range from 10 to 230 percent (Alem, 1996: 2). This reveals that the Ethiopian tariff structure was too complex and characterized by high tariffs during the Dergue regime with a wide dispersion.

In relation to its protective role empirical findings showed that tariff systems in Ethiopia favoured some of the inefficient and disadvantageous industries in Ethiopia which are unlikely to stand on their own feet even after passing through a long period of time in operation, thus, it led to wasteful allocation of resources (Melisachew, 1984; World Bank, 1985;1988[1], Abraham, 1995).

[1] Cited by Alemu Mekonnen "(1992)" "Efficiency of Ethiopian public Manufacturing Enterprises and the Policy Environment" in Mekonen's (Ed.). The Ethiopian economy: Structure Problems and policy issues, AAU Printing Press.

Theoretically, it is expected that widely dispersed customs tariff structure leads to a rise in government revenue, equitable income distribution and protect domestic industries efficiently. However, practically such tariff structures have a negative effect on the economy of the country. First, it makes resources to be misallocated by distorting the price system through which the true costs and opportunity costs of production are reflected. Secondly it creates anti-export bias in such a way that it increases the cost of production of exportable goods. It also discriminates individual preferences by restricting imports of consumer goods, which are highly demanded by the public. The other problems related to this unsatisfied demand of the public are inflation and black market. Inflation could result from high tariff when it makes import prices artificially high by imposing tariffs or by creating shortage of goods in the domestic economy. In Ethiopia the problem of illegal trade (Smuggling) was enormous during the Dergue regime [Befekadu, 1994: 414].

In addition to this, a large volume of duty-free import leads to the loss of government revenue by narrowing the tariff base. Having a large number of specific rates also lower the tariff revenue, since this tariff structure is not sensitive to the change in the price of imported goods overtime (Alem,1996: 3).

Tariff reform was, therefore, initiated to solve these problems under the general guideline of successive Policy Framework Papers. Up to December 1998 customs tariff was revised for the 5th round since 1993. The reform has changed the customs tariff and commodity classification system (CCCN) in to one of the Harmonised

system. Now, the highest customs tariff rate is 40 percent and the weighted average tariff rate is reduced to 19.5 percent. The 5th round customs tariff reform has taken into account the effective rate of protection studies, which were undertaken, on 31 enterprises. According to this reform, the ad-valorem tariff band was reduced to 6, the number of commodities subject to specific rates is 3, and the number of commodities prohibited from import is 2 (Ministry of Finance, 1998: 47).

3.3.2. Quantitative Restrictions

Import quantitative restrictions comprised import licensing and import bans. Before 1974, only export permits were needed, no import licenses were required, but payments abroad for imports require exchange licenses. These licenses were generally granted freely in the currency that was requested. But after the revolution of 1974 things were changed, and on January 5th, 1977 the National Bank of Ethiopia issued new foreign exchange regulation. The regulation requires importers or exporters to produce valid foreign trading licenses issued by ministry of foreign trade, in order that the exchange control division of the National Bank of Ethiopia approve an application for foreign exchange[NBE, F.E Regulation,1977:17].The other thing is that the approval is given only when the goods to be imported are free from any prohibition. Import prohibitions were made now and then for some items and finally on January 9th, 1978, the Bank issued a notice, which prohibit totally or ban the imports of some 400 items. Foreign exchange will not be provided at any time for imports of these goods [NBE, Notice No.1/978 and No2/1978].

The other method of trade regulation related to these quantitative restrictions is state trading. During the Derge regime there were a number of government owned enterprises which were engaged in foreign trading activities such as Coffee Marketing Corporation, Agricultural Inputs Supply corporations, Ethiopian Import-Export Trading Corporation, Ethiopian Domestic Distribution Corporation, Oilseeds and Pulses Export Corporation, to mention a few. This led the government to monopolize foreign trade sector to the extent of managing 86 percent of exports and 90 percent of imports at the end of 1986/87 fiscal year [Befekadu, 1994:405].

3.3.3. Exchange Rate Policy

For nearly half a century Ethiopia adopted fixed exchange rate policy in which the official exchange rate with U.S. dollar was only adjusted occasionally: for the first time the official exchange rate of Birr was fixed to 2.45 per U.S dollar in July 23, 1945. After two decades, on January 1,1964, it was slightly devalued to 2.50 Birr per U.S dollar. In December 21, 1971, the Birr was revalued to 2.30 Birr per U.S dollar, following the collapse of the Briton Woods system in 1971. The Ethiopian Birr was again revalued to 2.07 Birr per U.S. dollar in February 1973. This fixed official exchange rate was left unaltered until the drastic devaluation of October 1992 and the adoption of foreign exchange auction system in May 1993 (Derrese, 1996: 43). Many observers generally agreed that the Birr was over valued during the 1960s - 80s, which underlies the poor performance of the Ethiopian economy in general. In general, among the other factors rigidities of the exchange

rate regime restrains a sustained development by making Ethiopian export less competitive in international market and broadening balance of payment deficit.

The other important policy related to trade policies is exchange control policy. The exchange control policy is administered by The National Bank of Ethiopia that regulates the total inflow and outflow of foreign exchange. Although the control of foreign exchange in Ethiopia dates back to 1942, it became more important instrument of trade regulation in post 1974. As indicated above, before 1974 only payments abroad for imports require exchange licenses. These licenses were generally converted freely into the currency that was requested.

To sum up, the past observed experiences of trade polices in Ethiopia signifies that excessively overvalued exchange rate policies coupled with restrictive trade polices triggered the development of the parallel markets and probably the balance of payments deficit in the country.

Given the level of exports, and further worsening of balance of payments, the phenomenal growth in imports represents a serious drain on the country's external reserve. A major concern of policy makers has to be how to reduce the ever-growing trend of trade balance deficit. The appropriate formulation of policies in this regard requires among others things a proper knowledge of the proximate underlying determinants of import demand.

CHAPTER FOUR

METHOD, DATA SOURCES AND TIME SERIES ANALYSIS

4.1 Method and Data Analysis

Methods of undertaking an empirical research are concerned with procedures and techniques for undertaking a given research. These procedures and techniques defer in ways in which an empirical study is designed and carried out, the combination of the manipulative and fact- finding operations which are used to yield and analyses data about the economic phenomenon. As Alemayehu noted, there are two main general approaches or methods guiding economic research:

> *Mainstream economists usually follow the Popperian approach of theory-hypothesis-critical test, which has a potential problem of excluding rival explanations ex-hypothesis and the difficulty of getting 'evidence' or facts. The other approach is a realist approach which is a more fruitful avenue of research in developing countries and enable to emphasis & dealing with an aspect of problems which is presumed to fit the overall structure (Alemayehu, 1998:4-5)*

Viewed in this manner, this study follows the latter approach in that theoretical literatures and empirical works reviewed above are in line with the research problem which helps to examine alternative theories. Now, in this part of the study the source and the nature of data will be explained, and the method of analysis will be outlined. Then the data is analyzed using alternative theoretical models. The choice of the variables included in the model and choice of the best representative model for Ethiopian import demand behaviour (among the available theoretical models) is

based on the diagnostic test & the co-integration test through Hendry type of General –to–Specific approach (testing down procedure).

4.1.1 Sources and Nature of Data

Information on basic time series variables such as prices of aggregate imports and exports along with their components, income, domestic prices and so on, of a given country is vital in forming the appropriate macro policy in general and foreign trade policy in particular. This includes setting up the foreign exchange policy and implementation of trade liberalization along with policy formulation of production and distribution of goods and services. In the absence of adequate and reliable data on foreign trade (such as prices of import, and their components), the formulation and realization of foreign trade policy is an arduous task.

In relation to this, one of the major constraints in the process of econometric analysis of a given developing country, like Ethiopia, is the extreme deficiency, inadequacy and inconsistency of available data. The problem of data is particularly significant in Ethiopia in areas of foreign trade in general and price of aggregate imports and their component in particular.

The data problem at times is the absence of price indices of disaggregated imports and, at best, extremely few data points on prices of aggregate imports and exports are obtained. Nevertheless, economic data are measured and proxied with errors.

This problem is acute, and economic researchers generally deal with deficient data on the assumption of the estimation that such measurement errors are stationary process with well-defined variances. Therefore, bearing this in mind, the researcher collected a group of series, which purport to quantify the basic variables.

Initially the following points should be noticed about the Data, however.

1. Some of the basic time series (imports and export) extends from 1957 to 1997. Some of the other time series (domestic prices and scale variable – GDP and its components) however started from 1960. All except aggregate imports and its components extend through 1998. Given this inadequate data, this researcher is forced to utilize only 36 observations (1960-1995).
2. In order to assure the maximum reliability and comparability among the data, all the data should have ideally come from the same sources, preferably domestic data sources. However, domestic data are inadequate, inconsistent and some of the basic data like the prices of import components are absent. Thus, the researcher is obliged to use different international sources such as ECA's African Year Book Statistics, IFS, UN's International Trade Statistics, World Bank's Price Prospects for Major Primary Commodities, various issues, UNCTAD and National Accounts Statistics of MEDaC and Quarterly Bulletin of the National Bank of Ethiopia (NBE) from domestic sources.

3. Because the study focuses on the real import demand, all monetary values are deflated by appropriately proxied price indices.

4.1.2 Method of Analysis

Given the available data series, its evaluation will start with descriptive analysis. Descriptive analysis refers to the evolution of the nature of distribution of basic variables. Thus, it is hoped that, this descriptive analysis may show a realistic picture of different categories of import demand and other relevant variables.

In the second phase of the analysis, the recent econometric technique is employed to estimate the magnitude of the effect of each determinant factors of both aggregate and disaggregated import demands in Ethiopia.This analysis encompasses establishing the time series properties of the variables (Unit Root Test) included in the analysis and then applying the co-integration tests of both Engle-Granger (1987) procedure and Johansen's (1988) procedure to determine if the specifications suggested by theory adequately explain the long-run behaviour of aggregate import and its components [2]. Then, once the time series properties of the variables are known (stationary or non-stationary) and co-integration test is undertaken, an ECM (Error Correction Model) is applied to evaluate the immediate impact effect (short-run dynamics) on imports of a change in relevant variables (i.e relevant income,

2.A brief discussion of these co-integration methodologies can be found in Annex 4.

relevant prices and financial holdings) on the one hand and the proportion of previous periods disequilibrium error that is rectified in the import demands of the current period (long-run relationships)[3].

4.1.3 Model Selection and Specification

The literature based on theoretical discussion, as we have seen in chapter 2 gives guidance on the variables that should enter the import demand functions. A country's commercial policies and economic conditions also play a significant role in the selection of variables and model specifications in import demand analysis. The study follows an approach indicated in methodology part (i.e. testing all available theoretical models and select the best).

The study presents the empirical tests and estimates all three models outlined in chapter 2 using the available data. Then the best representative model for Ethiopian import behaviour is selected on the available relevant criteria i.e. diagnostic tests and co-integration tests. Thus, these tests incorporate the necessary criteria that a satisfactory model should satisfy such as, theory consistent model, data coherence and admissibility ($R,^2$,DW),parsimony[4], and parameter constancy (Thomas, 1993:148).

3.A brief discussion of ECM (Error Correction Model) is given in Annex 4.

4. Parsimonious model in an econometric context means that, a model which represents only its most relevant and important aspects (Thomas, 1993;149).

4.2 Time Series Properties and Results.

4.2.1 Descriptive Analysis

The distribution of the data is shown in Table 3 below. The measure of standard deviation indicates that all the data series except FBT (Food, Beverage and Tobacco),MTE (Machinery, Transport and Equipment), Aggregate Import and NFEH.

(Net Foreign Exchange Holding) exhibit a reasonable degree of being normally distributed. Most categories of imports, except FBT, mineral and fuel are negatively skewed. With respect to relative prices, all are skewed negatively, whereas domestic prices (CPIG and CPIF)are positively skewed. With regards to scale variables, except agricultural production (AGDP),others are skewed negatively. When we see the financial variables except exports NFEH is skewed positively. Positive and Negative skewnesses suggest that the values of the relevant means of the series are affected by few extremely large values and few unusually small values respectively.

A time series which grows at roughly positive constant rate of growth will produce a set of data points which are skewed to the right and a time series which grows at roughly negative constant rate of growth will produce a set of data points which are skewed to the left.

This skewed distribution implies that the data service have no clear center. In this case the sample means are no longer an attractive estimators of population means since the normality assumption is not satisfied. To satisfy the properties of the classical model based on the normality assumptions in working with data which is derived from a skewed distribution like this Logarithmic data transformation is needed. Logarithmic data transformation shrinks the right tail of a positively skewed distribution proportionally to its left tail. Thus, a skewed distribution may be rendered more symmetrical.

Table 3 Summary 0f Distribution of Data Series

Variables	*Sample size*	*Mean*	*St. Devn.*	*Skewness*	*Kurtosis*	*Mini.*	Maxi.	Norm. (χ^2)
Real Imports								
FBT. (Food Beverage & To bacco).	36	3.935	1.012	0.4017	-13243	2.61	5.88	9.8134 [0.0074]
Mineral & fuel	36	4.92	0.396	-1.3078	3.120	3.513	5.64	9.5797[0.0083]
Crude(raw) Material	36	3.09	0.3488	-1.0057	3.0987	1.852	3.819	11.636[0.003]
Chemicals	36	4.431	0.5535	-0.3477	-0.7328	3.3351	5.308	1.7209[.423]
Manufacturing	36	5.8988	0.1944	-1.91135	4.6874	5.15879	6.189	17.903[.001]
Machinery Transport & Equipment	36	6.219	0.3373	0.48999	-0.9069	5.7449	6.913	5.2597[0.0721]
Total Imports	36	7.5269	0.36978	1.1813	1.9229	6.78	8.628	7.5916[00.22]
Relative Prices								
Food	36	4.098	0.4506	-0.6124	-1.0032	2.94	4.94	7.8845[0.0194]
Fuel	36	3.447922	0.692278	0.2347	-1.423369	2.3636	4.4867	7.8845[0.0194]
Minerals	36	3.9307	0.36066	-0.42639	-0.6796	3.107016	4.5175	2.3573[3085]
Manufacturing	36	3.22155	0.204445	0.635262	0.783624	2.8402	3.7927	3.5695[0.1678]
Total Imports								
CPI General	36	5.6893	0.67788	0.06778	-1.3757	4.7484	6.81234	5.2105[0.0739]
CPI Food	36	5.816345	0.735236	0.026024	-1.429559	4.8323	7.015263	6.024[0.049]
Scale Variables								
Agdp	36	8.57028	0.1189	0.307826	0.124054	8.313656	8.882697	1.3728[0.5034]
Ingdp	36	6.870927	0.296436	-0.25178	-0.90922	6.2172	7.30794	1.7529[0.4163]
Energy	36	4.691158	0.465463	-0.31301	-0.89297	3.712596	5.39044	2.2374[0.3267]
GDP	36	9.101988	0.214076	-0.047569	-0.713742	8.686169	9.5461	0.20294[0.9035]
Other Financial Variables								
Exports	36	6.920127	0.369594	-0.694297	0.834055	5.8628	7.633039	3.766[0.1521]
Net foreign exchange holding	36	5.634377	1.133497	0.761356	0.826833	3.135494	8.422883	3.9228[0.1407]

4.2.2 Test for Stationarity of the Data Series

Tests are conducted to detect non-stationarity and determine the order of integration of the variables included in the model using unit root test. Among different ways of testing the presence of unit roots, the most popular method-the Augmented Dickey Fuller (ADF)[5] statistics is utilized. ADF is selected among the other tests (i.e. DF & SBDW tests) on the ground that it helps to guard against serial correlation in the error term; if it exists.

The null hypothesis under the ADF statistics is that a series contains a unit root i.e it is non-stationary against the alternative that it is a stationary series. Failure to reject the null hypothesis indicates that the variables to be random walk. Therefore non-stationary series implies that its moments are no longer time-dependent. Non-stationary series can be made stationary by taking the difference, only if it is a difference stationary process. The procedure requires differencing the series a given number of times. Testing for order of integration after differncing the series in levels also involves testing the null hypothesis of unit roots. If the null hypothesis is rejected, then the series is stationary in first difference and therefore, it is integrated of order 1 denoted as I(1).

The test statistics and the corresponding Mackinnon Critical values for the ADF test are reported in Table 4[6].

5.A brief discussion of ADF tests can be found in Annex 4

6.This study utilizes the critical values computed by Mackinnon (1991) for these tests. It is chosen because it linked the critical values for particular tests to a set of parameters of an equation of the response surface. Note also , the critical values calculated for single variable will be the same as those critical values given for the univariate DF test [Harris, 1995:54].

Table 4: Test of Data Stationarity Using Mackinnon Critical Values for the ADF Test.

Series (all in Logarithms) Annual Data	With Constant & Trend Order of the Null (Hypothesis)		With Constant only Order of the Null (Hypothesis)	
	I (0)	I (1)	I (0)	I (1)
Real Imports				
FBT (Food Beverages & Tobacco)	-3.0929	-4.928465	-0.6989	-4.96315
Minerals and Fuels	-3.09118	-4.93764	-0.6939	-4.96837
Crude materials	-3.09118	-4.9376	-0.6939	-4.96837
Chemicals	-3.05666	-4.997848	-1.4885	-5.084838
Manufacturing Goods	-3.05666	-4.9978	-1.4885	-5.084838
Machinery, Transport & equipment(MTE)	-2.1181	-7.49743	-0.8422	-7.62447
Aggregate Imports	-2.8448	-5.299148	-0.5833	-5.400126
Relative Prices				
Food	-3.09118	-4.939739	-0.6939	-4.96837
Fuel	-3.0566	-4.997848	-1.488	-5.0848
Minerals	-1.64966	-3.9574	0.8765	-3.696838
Manufacturing	-2.7532	-4.19979	0.0097	-4.16264
Aggregate Imports	-2.8894	-3.748157	-0.50203	-3.83406
Scale Variable				
Agricultural GDP	-2.118	-7.497429	-0.842	-7.6244
Industrial GDP	-4.4477	-5.9449	-2.11387	-5.85663
Energy	-2.1181	-7.497429	-0.8422	-7.62447
Aggregate GDP				
Financial Variables				
Real Exports	-2.2868	-4.6548	-0.9622	-4.7405
Real Net Foreign Holding	-3.0929	-4.92846	-0.6989	-4.96315

Table 5: Mackinnon Critical Values for the ADF Test

With Constant and Trend			With Constant Only		
1%	5%	10%	1%	5%	10%
-4.25	-3.55	-3.21	-3.64	-2.95	-2.62

The decision criteria for ADF tests is that when the absolute value of the calculated statistic exceed the absolute value of Mackinnon critical value for the ADF test, one can conclude that a given series is stationary (failure to reject the alternative hypothesis i.e. non stationary). The critical value of the tests depends on whether a test was done with or without a trend.

Table 4 reports the results obtained using the above test statistics and differencing process for the tests of stationarity. The null hypothesis that the series are I(0) in first difference cannot be rejected even at 5% level of significance and the null hypotheses that the first differences of the variables are I(1) are rejected. The test of determining the orders of integration of the variables is conducted first by including both the constant and trend, and then the constant only. One can see from Table 4 that the inclusion of a trend doesn't affect the result. Hence it can be concluded that all series can be considered as I(1) variables, and therefore, these series imply that any dynamic specification of the model in the levels of the series is likely to be inappropriate, and may be plagued of problems of spurious regression. However, one may be guided towards an ECM (Error – Correction Model), if the models of the series are co-integrated.

4.2.3 Test For Co-integration

In all of the literature on import demand reviewed in Ethiopia, estimates of the parameters [i.e. Income and foreign exchange holding elasticities (Muluneh 1982), income and relative price elasticities (Haile, 1994), and income, relative price and export elasticity (Alem 1996)] were frequently obtained by applying the ordinary least squares (OLS) method to a specification that is often very similar to the traditional import demand model (for the first two) and an eclectic import demand model in Alem's case. These specifications of the demand for imports in Ethiopia

usually yielded parameters in accordance with the models' a prior specification; the scale and

financial variables entering positively while relative prices enter negatively. Most often, the estimates were statistically significant. However, as Granger and Newbold (1974) first showed, two non-stationarity variables may appear to have a relationship only because they have similar time series properties. Indeed, this could be the case here, since as reported in the above stationarity analysis (Table 4) all variables of interest are non-stationary in levels. This finding casts serious doubt over the validity of the results of all empirical works mentioned above on import demand analysis of Ethiopia since they might well be spurious.

To address this issue, prior to running regression, a co- integration analysis has to be conducted which tells whether the long-run behaviour of implied theoretical import demand models are valid and then use an Error - Correction Model (ECM), if they are so.

To this effect co-integration analysis is conducted to establish the existence or non-existence of long-run relationship among the variables in all three implied theoretical import demand models [7]. The co-integration tests most commonly employed in the literature are Engle and Granger-two-step procedure (1987) and the

7. These three models refer to the models cited under the review of literature (Chapter 2), i.e. the' traditional model', the 'Foreign exchange availability Model' and the 'Eclectic (general) model'

most powerful test that allows for the detection and estimation of the number of co-integration vectors -Johansen procedure (1988) which is used in the context of a Vector Autoregression model (VAR). These are the test employed here and the result are reported in Table 6 below.

The eclectic model passes both Engle -Granger (1987) and Johanson (1988) Procedure tests excepts for M.T.E(machinery, transport and equipment imports . In other words the Engle-Granger (1987) test fails to reject the null of co-integration under each models of MTE import demand. However, Johanson (1988) test rejects the null of co-integration under the eclectic model (of import demand). This may be due to the fact that under the Johanson procedure one of the explanatory variables could be used as the dependent variable (since the combination of variables can be reversed under this procedure). As a result co-integration could exist among the set of variables used in reverse order in which one of the explanatory variables is considered as the dependent variable. This means the import demand may not necessarily be used as the dependent variable. Consequently, one can not say there exists long run relationship among the explanatory variables used to estimate MTE import demand in general terms. Therefore an auto-regressive distributed lag (ADL) in the difference form is adopted and short-run dynamics regression result is reported in Table 7 and 8 .

Table 6: Co-integration Test for Aggregated and Disaggregated Components of Import Demand in the Three Models .

Import Demand Function	Engle -Granger ADF statistics		Mackinnon critical value at 5%		Johansen's Likelihood Ratio	Mackinnon Critical Values	
	Constant only	Constant & Trend	Constant Only	Constant & trend		5%	1%
FBT							
Model I(n=2)	-3.46*	-4.092*	-3.34	-3.78	23.137	29.68	35.65
Modes II (n=2)	-1.38	-3.89*	-3.34	-3.78	N.C	N.C	N.C
Model III (n=4)	-3.95^	-4.19^	-4.1	-4.43	86.36	68.52	76.07
Mineral & Fuel							
Mode I (n=2)	-5.8**	-5.69**	-3.34	-3.78	23.37	29.68	35.65
Model II (n=2)	-3.9**	-4.37**	-3.34	-3.78	31.13	29.68	35.68
Model III (n=4)	-3.89^	-4.37^	-4.1	-4.43	101.28	94.15	103.18
Crude material							
Mode I (n=2)	-2.64	-2.72	-3.34	-3.78	24.98	29.68	35.65
Model II (n=2)	-3.25*	-3.64^	-3.34	-3.78	26.82	29.68	35.65
Model III (n=4)	-4.03^	-4.01	-4.1	-4.43	53.25	47.21	54.46
Chemical							
Mode I (n=2)	-3.4*	-3.46	-3.34	-3.78	22.09	29.68	35.65
Model II (n=2)	-3.27	-3.24	-3.34	-3.78	22.09	29.68	35.65
Model III (n=4)	-3.64	-3.6^	-4.1	-4.43	69.29	68.52	76.07
Manufacturing							
Mode I (n=2)	-3.55*	-3.622^	-3.34	-3.78	34.68	29.68	35.65
Model II (n=2)	-3.23	-3.17	-3.34	-3.78	22.09	29.68	35.35
Model III (n=4)	-3.91^	-3.83^	-4.1	-4.43	78.59	68.52	76.07
Machinery,Transport & Equipment							
Mode I (n=2)	-2.97	-3.02	-3,34	-3.78	34.68	29.68	35.65
Model II (n=2)	-2.06	-2.17	-3.34	-3.78	21.22	29.68	35.65
Model III (n=4)	-2.35	-2.37	-4.1	-4.43	78.59	68.52	76.07
Aggregate mports							
Mode I (n=2)	-3.86*	-3.9*	-3.34	-3.78	N.C	N.C	N.C
Model II (n=2)	-3.74*	-3.03	-3.34	-3.78	N.C	N.C	N.C
Model III (n=4)	-3.16*	-3.04	-4.1	-3.43	52.51	47.21	54.46

*(**) are Mackinnon-critical value at 5% (1%) level of significance(other ^ at 10%). The Johansen test used assumes linear deterministic trend in the data with intercept no trend, in the test VAR (i.e the co-integration equation (CE)as an indicator of long-run equilibrium relation, has no trend).n refers tot he number of regressors.

Note : N.C refers No co- integration.

Thus, co-integration analysis has provided valuable clues as to which explanatory variables are likely to have long-run influences on aggregate imports as well as its components. In addition, it also gives an insight as to which variables are likely to have effect, if any, which are purely short run or transitory. Specifically, co-integration analysis has provided information about which of the models satisfy the import models are relevant for Ethiopia and the type of ECM (Error Correction Model) that prove a satisfactory special case of the general ECM Model.

4.2.4 An Econometric Model and Estimation Results.

As noted earlier, explanatory variables along with the dependent variable are selected according to economic theory, unit root tests, co-integration test and diagnostic tests. From the unit root tests undertaken above, it is found that all series are I(1) and thus applying OLS to its difference will only describe the short run behavior of import demand. To capture the steady-state information (long-run relationship), variables must be co-integrated on theoretically acceptable way.

Out of the three competing models of import demand behavior, the *Eclectic Model* (or *General model*), which expresses import demand as a function of relative prices, real activity level (or income) and quantitative restrictions (proxied by foreign reserve and export) (i.e. Model III) passed the co-integration test (see Table 6).This confirms the conclusion given by Moran (1989:288) that this model dominates the first two models (i.e. the traditional and Hemphill's foreign exchange availability model).

To incorporate both short-run dynamics and long run relationshiops of import demands, a one period lag ECM (Error Correction Model) was adopted based on the Wickens and Breusch (1988) procedure [8].

A general-to-specific testing down procedure is adopted in which insignificant variables are dropped and the representatives parsimonious functions are derived for the components of import and aggregate import demand.

Thus, the following general error correction model of both aggregate import demand and its components is specified. While in estimating disaggrgated import demand functions the same procedure is, in general, employed by modifying the following general structural form.

$$\Delta M_t = \alpha_0 + \alpha_1 M_{t-1} + \alpha_2 \Delta Rp_t + \alpha_3 Rp_{t-1} + \alpha_4 \Delta Y_t + \alpha_5 Y_{t-1},$$
$$\alpha_6 \Delta Fx_t + \alpha_7 Fx_{t-1} + \alpha_8 \Delta Ex_t + \alpha_9 Ex_{t-1} + u_t$$

Where:

M_t = represents imports, alternative 7 import categories which contain fairly homogeneous commodities, were derived from a one digit SITC categories published by the ECA'S African Statistical Years Book.

These are: 1 Food Beverages and Tobacco (SITC ; 0+1+4)

2.Mineral fuel and Lubricants (SITC:3)

3. Primary crude materials (SITC:2)

4. Chemicals (SITC:5)

[8]A brief discussion of the procedures of ECM estimations can be found in Annex 4.

5. Manufactured goods (SITC :6+8)
6. Machinery, transport and equipment (SITC: 7)
7. Total imports (SITC: 0-9)

These are fairly independent import categories, so that it was assumed that the cross-elasticity of import demand is zero.

RP_t= represents relative prices, which this study has found difficult to get with reasonable degree of confidence because of the absence and inaccuracies in unit value indices which are commonly used as price indices in international trade. In this study, a price deflator for each import series was obtained from the World Bank's Primary Commodity Price Perspectives (various issues) and this was converted to domestic currencies and divided by a relevant price index for a domestically competing group of goods. It generally proves impossible to obtain domestic price index that corresponds precisely to the commodity groupings in the SITC system of classification and thus the closest available approximation (i.e. CPI general and food CPI) has been used.

Y_t = represents real income; alternatively, income variable that relate more closely to the import categories being considered has been used depending up on the test criteria in estimation.

Ex_t = represents the export receipts of the country as a variable to

represent capacity to import in the case of Ethiopia (i.e. nominal export deflated by import price index).

Fx_t = represent net foreign exchange holdings as a variable since Ethiopia obtains a balance of payments loans received from different multilateral organizations (IMF, OECD,WB, etc) as well as from different countries. In addition to this, there maybe a significant amount of foreign currency as a remittance transfers and there are also foreign aid transfers to increase the capacity to import. In view of this, it is intended to use foreign exchange reserve as a variable.

It was concluded that log-log functional forms are the most appropriate for estimating the import demand functions, since, it greatly simplifies the interpretation of the estimated coefficients-as they represent elasticity, (Khan and Ross: 1977) and it corrects skewed distribution. Therefore, the log-linear form of functional relationship is adopted in this study.

A testing down procedure is adopted, to permit an adequate exploration of model dynamics involving estimation of over-parameterized models, which are then simplified until theory-consistent, and data coherent results are obtained. Thus, the finally preferred estimation results along with their diagnostic tests are presented in Tables 7and 8. The general error correction models of both aggregate import demand and its categories are reported in Annex 4.

Table 7: An ECM Estimation Result of the Model: Coefficients are Elasticities (Long run values after transformation, See Appendix 4)

Commodity Category by SITC	Short Run Values					Disquilibrium Error Term	Long Run Values t-1						R^2 adj	DW	Diagnostic tests				
	ΔMt-1	Δ RP	Δ Yt	ΔFx	ΔExp		Rpt -1	Yt-1	Fxt-1	Ext-1	T_{t-1}	Dummy			JB	BG	ARCH	RESET	*Multc
ΔFBT		-0.63			0.57	-0.67	-0.52			-0.5		.001	0.50	1.6	0.32	1.94	0.01	1.37	Low
(t-values) and		(-2.50)**			(2.48)**	(-4.43)**	(-0.99)			(-1.46)^		(3.7)**			0.85	.38	0.93	0.24	
(p-values)																			
ΔCM			0.66	2.12		-0.71	-1.4	1.66	6.04		2.14		0.62	2.02	1.63	0.41	0.87	0.04	High
(t-values) and			(5.86)**	(1.82)*		(-3.68)**	(-0.73)	(5.75)**	(1.84)*		(4.86)**				(0.44)	0.82	0.35	0.83	
(p-values)																			
ΔFuel				1.02		-0.48	-1.23	0.39	4.44		1.62		0.55	1.96	0.26	2.00	2.86	1.56	High
(t-values) and				(4.25)**		(-3.68)**	(-2.6)**	(0.78)	(4.77)**		(5.55)**				0.87	0.36	0.09	0.21	
(p-values)																			
Δ Chem.	0.39		0.69	0.21		-0.44		2.77	1.16	2.5			0.53	2.00	1.51	0.17	0.46	0.12	High
(t-values) and	(2.15)*		(4.84)**	(1.13)		(-2.86)**		(5.16)**	(1.37)^	(3.14)**					0.47	0.91	0.50	0.72	
(p-values)																			
Δ MAN				0.41		-0.37	-1.8	0.75	1.95				0.50	2.17	0.81	1.18	0.84	0.80	High
(t-values) and				(2.64)**		(-2.6)**	(-3.88)**	(2.04)*	(2.21)*						0.66	0.55	0.35	0.39	
(p-values)																			
Δ MTE	-1.01		0.98	0.63									0.63	2.01	2.3	3.2	0.02	0.13	Low
(t-values) and	(-7.1)**		(6.2)**	(5.9)**											0. 3	0.2	0.88	0.72	
(p-values)																			
Δ IM			0.23	0.56		-0.48	0.22	0.86	3.56		1.44		0.34	2.05	1.28	2.2	0.01	2.05	High
(t-values) and			(2.25)*	(3.41)**		(-3.44)**	(0.66)	(2.09)*	(4.1)**		(4.38)**				0.52	0.32	0.93	0.15	
(p-values)																			

Listing of Variables

IM real aggregate imports ; CM Crude (Raw) Materials ; MTE imports of material , transport and equipment; MAN Real import of manufacturing goods ; FBT real import of food, beverage and tobacco; RP relative price of corresponding import categories; Yt income (represented by GDP except for CM, Chem and MAN which is represented by industrial production ; Fx real net foreign exchange holding ; EXP real export.

Note : ^ Significant at 10%; * at 5% and ** at 1% and less.

* To examine the degree of multicolinearity simple correlation among regressors i.e. between Yt-1 and Fxt-1 = 0.86. However, a dropping one of the variable from the model to alleviate this multicollinertiy lead to specification bias. So it is better to tolerate precision problem rather than omitting the true estimates (Gujarati, 1995:342).

Table 8. Summary of Elasticities :The Eclectic(General) Models of Ethiopia's Disaggregated and Aggregate Import Demand (1960-1995 G.C)

No	Import Items	Relative Prices		Income		Export		Net Foreign Ex. Reserve		Time	
		Short Run	Long Run	Short Run	Long Run	Short Run	Long Run	Short Run	Long Run	Short Run	Long Run
1	FBT (t-Values)	-063 (-2.50)*	-0.52 (-0.99)			0.57 (2.48)*	-0.5 (-1.46)^				
2	CM (t-Value)		-1.4 (-0.73)	0.66 (5.86)**	1.66 (5.75)**			2.12 (1.82)*	6.04 (1.84)*		2.14 (4.86)**
3	Fuel (t - value)		-1.23 (-2.6)**		0.39 (0.78)			1.02 (4.25)**	4.44 (4.77)**		1.62 (5.55)**
4	Chemical (t - Value)			0.69 (4.84)**	2.77 (5.16)**		2.5 (3.12)**	0.21 (1.13)	1.16 (1.37)^		
5	Manufacturing (t - value)		-1.8 (-3.88)**		0.75 (2.04)*			0.41 (2.64)**	1.95 (2.21)*		
6	MTE (t - Value)			0.98 (6.22)**				0.63 (5.98)**			
7	Aggre. Import (t-Value)		0.22 (0.66)	0.22 (2.25)*	0.86 (2.09)*			0.56 (3.41)**	3.56 (4.21)**		1.41 (4.38)**

Note: ^ Significant at 10% ;* 5% and ** at 1% and less

Table 7 and 8 Show the estimated result of the Eclectic type ECM for import demand of six commodity categories and an aggregate import.

To test for the validity of the parameters, the stability of the parameters in aggregate as well as the disaggregated import demand models are examined. The CUSUM (Cumulative Sum of Recursive Residuals) and CUSUM SQ (Cumulative Sum of Squares of Recursive Residuals) tests were employed for this purpose.

Since Ethiopia's economy has been subject to internal as well as external shocks, the country has experienced changes in policy regimes in 1973 and in 1992. An exogenous shock related to the severe drought of 1984/85 has also affected the country's economy and, hence, the demand for import has changed.

Taking into account these structural shifts using dummy in the CUSUM/ SQ tests, the null hypothesis of parameter stability can not be rejected for aggregate import,Crude (Raw) material imports, Fuel imports and chemical imports since the plots were within the 5% critical boundaries. However, the graphical plots for FBT imports, import of manufacturing goods and MTE imports show the presence of outliers.

For FBT and manufacturing imports, an outlier for the period in the late 1980s show an increase in an import of food grain (due to bad weather conditions and inconvenient policy regime and a declining trend in import of manufacturing goods due to a declining trend of the economy (see Appendix1). Concerning crude (raw) material and MTE imports, the outlier in 1990/91 may show the change in policy regime in addition to the reason that a decline in economic growth that attributed to a decline in the imports of these categories. Dummies are used to capture these outliers were not significant except for FBT and did not substantially change the trend of the parameter stability. In general, it could be concluded that the parameters of import demand models analyzed, and then selected, are quite stable.

4.2.5 Discussion and Further Interpretation of Results

I. Food, Beverage and Tobacco (FBT) Import

The FBT import function exhibits a (1 percent level) statistically significant negative coefficient with respect to relative price in the short run. With respect to the long run elasticity value, it has an expected negative sign. However it is statistically insignificant.

The other important variable that determines FBT import demand is export earning. The short run elasticity of FBT import demand with respect to export earning is 0.57 which is statistically significant at 1 percent level. The sign of long run coefficient is negative and statistically significant (at 10 percent level) contrary to expectation, and its magnitude is -0.5. This is perhaps because of the likely negative correlation between agricultural export and food imports. Weather conditions that cause an increase in agricultural export also cause an increase in domestic food production and then a reduction in food import. With respect to the coefficient of disequilibrium term (-0.67) , with t- value of -4.43, it is highly significant at 1 percent level; it confirms earlier finding of co-integration among the variables. This coefficient shows the fast adjustment (67percent) of the import of FBT to the policy taken with regard to relative prices, foreign exchange receipt and weather conditions represented by dummy.

II. Crude (Raw) Materials Import

The regression result of this commodity group shows the expected positive coefficient for income and foreign exchange holdings in the short run. The values are 0.66 and 2.12 statically significant at 1 percent and 5 percent level respectively. Lagged crude material import also has a positive coefficient (0.26) and is statistically significant at 5 percent. This may show the tendency of importers to accumulate as much stock as possible when import conditions permit and smaller amount of imports in subsequent periods when the condition is not favorable.

This import category has a fairly elastic positive income and foreign exchange holding in the long run. It has an elastic but insignificant price elasticity. It also has a positive and significant (2.14 significant at 1 percent level) time coefficient which reflect the country's import dependency on this category. The error correction term reflects the import's speed of adjustment from disequilibrim level in the previous period.

III. Fuel Import

Import demand for fuel respond positively to the availability of foreign exchange reserve in the short run. In the long run fuel import demand is fairly and significantly elastic to relative prices and foreign exchange holding with the expected direction. The negative impact of relative prices could be through lower foreign exchange holdings, i.e. as relative prices increases, the limited amount of

foreign exchange holding could be run down to import a lesser amount of Fuel import which implies a decline in an import of fuel. The significant positive time coefficient also reflects the reality of import dependency of fuel. The speed of adjustment to disequilibrim is 48 percent.

IV. Chemical Import

In the short run import demand for chemical responds to the change in its own lagged value, (its elasticity coefficient is 0.39 which is highly significant at 2.5 percent). This is similar to that of crude materials import, i.e. the tendency of importers to accumulate as much stock as possible when import conditions permit and smaller amount of import in subsequent periods when the condition is not favorable. It also has a positive coefficient (0.69 significant at 1 percent level) with respect to income represented by industrial production. In the long run it responds significantly to income, foreign exchange holding and export receipts 2.8 significant at 1 percent level, 1.2 significant at 10 percent level and 2.5 at 1 percent level, respectively. There is also a feed back of approximately 44 percent of the previous year's disequilibrium from long-run value of the models.

V. Manufacturing Commodities Import

In the short run manufacturing goods import demand is sensitive only to the change in the amount of foreign exchange holding significantly (0.41 significant at 1 percent level). In the long run an import demand of manufacturing goods respond only to the

level of income represented by industrial production (positive elasticity coefficient of 0.75 significant at 1 percent level). Manufacturing import demand respond to the relative prices and foreign exchange holdings significantly. The magnitude of the coefficient is also considerable. It is highly elastic to prices and foreign exchange holdings (it was -1.8 significant at 1 percent level and 1.95 significant at 5 percent level respectively).The sensitivity of manufacturing goods imports to relative prices could be through the points indicted in the case of fuel import , not substituting it domestically. 36 percent of the previous year's *disequilibrium* from steady-state is corrected in the current period.

VI. Machinery Transport and Equipment Import

The result of ADL model indicate that import of Machinery, Transport and Equipment(MTE) is associated, in the short run negatively with its own lagged volume and the lagged volume elasticity of such goods is highly significant at 1percent level. Import of MTE is associated, in the short run, with the level of income at the first lag and is highly significant. MTE import has significant and positive lagged in come elasticity (0.98 at 1 percent level) in the short run. Foreign exchange reserve has a positive impact on MTE imports (0.63 at 1 percent level of significance) in the short run.

VII. Aggregate Import

There are several important points to be drown from the result of aggregate import demand.

1. Income and foreign exchange holdings have a considerable influence on current demand in the short run. In the long run as well these factors affect import demand significantly both in terms of magnitude and statistical significance.
2. Imports have a real income elasticity of 0.86 (which is significant at 5 percent level) in the long run, and 0.22 (significant at 5 percent level) in the short run.
3. The result also shows that the significant responsiveness of import to foreign exchange holdings i.e. (0.56 Significant at 1 percent in the short run and 3.56 significant at 1 percent level)in the long-run).
4. The result indicates a positive time coefficient which is highly significant in the long-run (1.41 significant at 1percent level) which shows the country's deepening import dependency. The critical dependence on imported commodities to sustain local production and consumption is also reflected in a relatively high income, quantitative restriction(forex and/or export receipts) and low and insignificant price-elasticities of import demand for these goods.
5. Lastly the disequilibrium term coefficient is significant, validating the ECM model specification. It also indicates the speed of adjustment of About 48

percent from deviation from equilibrium value is adjusted in the current period.

In general, these regression results carry some important policy implications. The price elasticity of the demand for import, though, large for some import categories in the long run (1.23 and 1.8 for Fuel and Manufacturing), is considerably less, and is statistically insignificant both in short and long-run; i.e. import demand is significantly less responsive to change in prices. This result is not surprising, rather could be expected, since most of Ethiopia's import items consists of what it needs as a matter of necessity. Haile (1994) and Alem (1996) have also found price inelastic import demand in Ethiopia in their simple OLS estimations. Therefore, policies to improve the balance of payment position of the country such as devaluation may not be expected to work.

The relatively low long-run income elasticity of demand for some categories of imports (Fuel, and manufacturing goods and statistically insignificant for FBT) which together account, on average, for about 62.59 percent of Ethiopia's import in 1991-1995 (see Table 2), shows that stabilization policies or aggregate demand policies may not improve the balance of payment position of the country.

Another important implication of the results drawn from the applied eclectic import demand model is the findings of satisfactory and significant elasticity coefficients

for foreign exchange availability. Thus, in the analysis of import behavior of developing countries like Ethiopia, foreign exchange constraint plays a critical role in determining imports.

The last important point observed from aggregate import model is the positive time coefficient which implies deepening import dependency of the economy as a whole. This makes the effect of previous import-substitution efforts questionable.

CHAPTER 5

5.CONCULUSION AND POLICY RECOMMENDATION

Imports continue to play an important role in the Ethiopian economy. This is indicated by the Import-GDP ratio [see, Appendix 2]. Nevertheless one of the sustainable source of financing this increasing import demand is the export sector. As can be observed from Appendix 2, the export-GDP ratio is so small that the gap between export earnings and import requirement is wide. This reality is observed when one looks at the structure of balance of payments and its components. When the current account of the balance of payments of Ethiopia is considered it can be observed that Ethiopia has been suffering from a chronic trade deficit (see, Appendix 3).

Given this objective conditions, to assess the possible effect of the proposed structural adjustment programme (of which devaluation and trade liberalization are the main) on such chronic trade deficits, it is indispensable to have a clear image of the structure and behaviour of import demands. To put it differently, it has to be clear for policy makers that a reliable, stable and comprehensive estimated parameters of imports demand, which indicate the extent and the direction in which those proposed policy programmes affect imports demand, have to be evaluated.

In this regard, besides their limited number, the previous studies on Ethiopia have a limitation of not taking into account the time series characteristics of data. In addition to this, they were looking only at an aggregate imports and some of them omitted important factors (i.e quantitative restrictions) which determines import demand.

Therefore, the reliability of their results might be ambiguous; analysis suggests that the variables in various categories of import demand equations are not only I(1) but also co-integrated at levels. This indicates that those previous results might be spurious results.

The approach that this study follows, (i.e. recent econometric technique) may have an upper hand in this regard. Because it adopts an error correction model (ECM) to incorporate both the short-run dynamics and long-ran relationships of import demand and its determinants. Import demand models are estimated for six different import categories, which previously had been estimated in one-total import. This may broaden the insight of the possible users of this study (policy makers). Above all, this study tried to test the applicability of those available imports demand models in the literature in the Ethiopian context. Thus, an Eclectic (general) import demand model is chosen as the best fit for Ethiopian import demand behaviours based on co-integration tests and various diagnostic tests.

The fitted results of ECM models are reported in Table 7 which provides the expected signs except for Crude materials and Fuels for relative prices. The diagnostic tests for all of them is quite acceptable. Apart from using known method, the model result provides an additional insight about the degree to which Ethiopian Economy depends on imports.

Specifically, the following concluding remarks can be underlined from the finding. The price elasticity of import demand is less than unity in both the short and long-run. The numerical magnitude of import price elasticity is important and related to the effectiveness of exchange rate policy. To favour the effect of devaluation on the quantity of import demand as expected, export price elasticity of demand should be large to satisfy Marshal-Lerner condition. However, it is doubtful to expect a fast policy response of Ethiopia's export supply to devaluation given the long history of policies that discouraged investment in export production and poor infrastructure. This places doubt on the effectiveness of devaluation in substantially reducing the demand for imports to support in improving current account deficit in the short-run (see Table 2, the trend and structure of Ethiopian imports).

Imports have a significant real income elasticity, though it is less than unit. Its numerical magnitude did not suggest fully the effectiveness of stabilization policies in assisting the attempts to reduce import volumes. Furthermore, eclectic import demand model results imply that different categories of import demands in Ethiopia

have in the past been significantly constrained by the availability of reserves.

The other important point to stress at this juncture is the finding of positive time coefficient, which indicates unhealthy import dependency of the economy.

Even though the country imports industrial products, fuel and chemicals because of say, the absence of resource, technology and lack of skilled manpower, the continued import dependency on food and beverages can hardly be explained by scarcity of good farm lands and agro-industries in Ethiopia. But rather, the finding revealed that the agricultural sector unable to feed the growing population due to the problems it faces i.e. recurrent drought and traditional agricultural production technique. Thus the country is forced to import food to fill the gap.

The study concluded that the underlined hypotheses that " import demand in Ethiopia is determined relative prices, real income and quantitative restrictions (proxied by foreign exchange availability)" some what does not hold i.e. import demand in Ethiopia is irresponsive to relative prices. The second hypothesis is rejected owing to the fact that the import demand in Ethiopia is found to be stable irrespective of change in regimes (policies). This is because economic authorities are presumed to devise various strategies that minimize deviations of current imports from the long -run equilibrium level (in the presence of foreign exchange constraints) as well as the deviation of actual imports from the short run desired level of imports.

To sum up, the critical dependence of the economy on all imported categories of commodities to sustain local production and local consumption is reflected in a relatively high income, foreign exchange reserve and low price elasticity of import demand for these goods.

Some cautions are in order with regard to the findings of this study: (i) as pointed out earlier, the available data specially, data on import prices didn't represent strictly true import price data of Ethiopia, that might place suspicion on the efficiency of parameter precision. Thus, the availability of this data in the future may improve the results of future research on import behaviour. (ii) the sample size of 36 which is relatively small to use the recent econometric technique may create a small sample property bias on the estimation. However, it is far better to apply this new techniques on available data than the classical OLS which results in spurious regression estimation (Alemayehu, 1998:162.) Regardless of these limitations (which are beyond the researcher's control) the finding has indicated the picture of import behaviour of Ethiopia and it still could give more insights for policy makers who are responsible in drawing policies on external sector in general. Having this in mind, some policy recommendations are given as follows.

These results have two major policy implications. First the insignificant and / or weak relative prices and real income elasticities in terms of its numerical magnitude suggest that devaluation and aggregate demand policies could not effectively help

the efforts to improve the balance of payment deficient in general and current account deficit in particular in Ethiopia by reducing imports and /or increasing exports. Secondly, in more general terms (Moran, 1989:289) policies concentrating exclusively on aggregate demand (fiscal and monetary policies) or on switching expenditures between tradable and non-tradable (exchange rate policies) will have a limited impact on import values.

So, in addition to a policy of SAPs (of which Devaluation is one), Ethiopia needs to implement other policies so as to diversify its export base, to promote its exports and reduce cost of production of exportable. In the absence of such supply side policies as required for increasing international competitiveness, devaluation and trade liberalization *per se* may be counter-productive in terms of curing balance of payments problems.

Appedix -1-

GDP and its annual Growth by type of economic Activity at 1980/81 basic prices (In millions of Birr)

Period	Agriculture Amount	Annual Growth	Industry Amount	Annual Growth	All service Amount	Annual Growth	Total GDP Amount	Annual Growth
1953	3982.10		360.76		868.85		4890.44	
1954	4051.39	1.74	391.53	8.53	957.83	10.24	5094.56	4.17
1955	4156.73	2.6	415.53	6.13	1016.89	6.16	5785.61	3.75
1956	4253.16	2.32	458.66	10.38	1114.8	9.62	5540.90	4.83
1957	4417.76	3.87	501.32	9.3	12.71.37	14.04	5920.46	6.85
1958	4452.22	0.78	564.79	19.66	1377.53	8.03	6156.69	3.99
1959	4593.35	3.17	623.41	10.38	1421.89	3.22	6412.19	4.15
1960	4634.24	0.89	659.95	5.86	1557.19	9.51	6652.65	3.75
1961	4731.09	2.09	701.32	6.27	1668.48	7.14	6920.75	4.03
1962	4839.90	2.3	720.26	2.70	1784.76	6.97	7171.97	3.63
1963	4936.22	1.99	784.50	8.92	1902.46	6.02	7468.89	4.14
1964	5109.48	3.51	819.34	4.44	2027.93	6.59	7807.98	4.54
1965	5144.23	0.68	845.15	3.15	2143.38	5.69	8004.75	2.52
1966	5111.82	-0.63	839.15	-0.71	2274.71	6.13	8116.01	1.38
1967	5019.81	-1.79	826.65	-1.49	2359.53	3.74	8114.38	-0.02
1968	5171.91	3.03	782.18	-5.38	2428.27	2.91	8255.58	1.74
1969	5176.05	0.08	804.78	2.89	2474.11	1.88	8343.09	1.06
1970	5100.45	-1.46	778.23	-3.3	2440.58	-.35	8202.93	-1.68
1971	5225.45	2.45	892.16	14.64	2682.86	9.93	8746.78	6.63
1972	5474.70	4.77	977.81	9.6	2780.44	3.64	9192.86	5.10
1973	5384.92	-1.64	1011.84	3.48	2871.49	3.27	9268.25	0.82
1974	5189.81	-3.62	1097.56	8.47	3028.10	5.45	9315.47	0.50
1975	5895.30	13.59	1162.26	5.89	3187.25	5.25	10253.80	10.73
1976	5155.85	-12.54	1231.77	5.98	3220.58	1.04	9608.20	-6.29
1977	4079.20	-20.88	1284.78	4.30	3313.11	2.87	8676.90	-9.69
1978	4732.64	16.02	1369.17	6.57	3434.21	3.65	9536.02	9.91
1979	5620.43	18.75	1478.61	7.99	3775.72	9.94	10874.75	14.03
1980	5465.02	-2.76	1422.50	-3.79	3981.46	5.45	10868.97	-0.05
1981	5521.26	1.03	1327.82	-6.65	4056.99	1.89	10906.07	3.47
1982	5814.40	5.31	1265.28	4.71	4269.88	5.24	11349.56	4.06
1983	6114.89	5.16	1024.14	19.05	3729.01	-12.66	10868.16	-4.24
1984	5947.60	-2.73	951.41	-7.10	3572.05	-4.19	10471.56	-3.65
1985	6308.32	6.06	1222.33	2.47	4193.07	17.38	11724.42	11.96
1986	6078.00	-3.65	1307.21	6.94	4525.02	7.90	11910.33	1.58
1987	6284.00	3.39	1414.5	8.05	4834.02	6.83	12644.03	8.39
1988	7206.20	14.67	1492.1	5.63	5282.00	9.26	13990.03	10.64
1989	7453.90	3.43	1609.2	7.84	5704.00	7.98	14767.08	5.55

Note:- Data from 1953-1972 are revised by author an the basis of new revised series by assuming that annual growth rate is the same for both old series and new series for the given year

Source: MEDAC

Appendix 2 : Percentage Shares of Real Sectors and External Sectors to GDP

Percentage Share of Real Sectors /at constant price			Percent share of External sectors	
Period (E.C)	Agriculture	Industry	Import /GDP	Export /GDP
1953	81.42	7.37	4.67	3.68
1954	79.24	7.68	4.5	3.78
1955	78.64	7.86	4.57	3.74
1956	76.76	8.28	5.0	4.03
1957	74.62	8.46	5.19	4.43
1958	72.31	9.17	6.1	4.70
1959	71.63	9.72	6.3	4.33
1960	69.66	9.92	5.37	3.52
1961	68.36	10.13	5.77	3.71
1962	67.48	10.04	5.64	4.28
1963	66.09	10.50	6.07	4.10
1964	56.44	10.49	5.99	4.07
1965	64.26	10.56	5.45	5.6
1966	62.98	10.34	6.44	7.28
1967	61.86	10.18	8.29	6.38
1968	62.64	9.47	7.61	6.36
1969	62.04	9.64	8.99	7.63
1970	62.18	9.48	9.72	7.93
1971	59.74	10.20	13.56	8.20
1972	59.56	10.63	14.90	10.33
1973	58.10	10.92	14.93	9.19
1974	55.71	11.78	17.67	8.38
1945	57.50	11.33	17.05	7.89
1976	53.66	12.82	21.51	9.66
1977	47.01	14.80	20.40	8.58
1978	49.62	14.35	23.18	9.68
1979	51.68	13.59	20.56	7.31
1980	50.28	13.08	20.92	7.12
1981	50.62	12.17	19.35	8.28
1982	51.23	11.15	16.07	6.49
1983	56.26	9.42	19.60	4.97
1984	56.79	9.08	17.29	2.66
1985	58.80	10.42	30.86	6.83
1986	51.03	10.97	39.80	10.39
1987	50.15	11.28	52.23	21.79
1988	51.50	10.66		18.14
1989	50.47	10.89		24.5

APPENDIX 3: BALANCE OF PAYMENTS (1964-1995/96)
(In Millions of Birr)

Year	Trade Balance	Net Services	Net goods & Service	Current Account Balance	Non Monetary capital	Over all Balance
1964	-44.6	-0.3	-44.9	-46.6	49.7	26.2
1965	-85.27	8.6	-76.7	-75.2	71.8	34.3
1966	-123.7	12.2	-111.5	-115.5	72.3	-79
1967	-100.5	6.7	-93.8	-103.9	33.2	-43.4
1968	-157.5	50.3	-107.2	-113.2	75.3	7.8
1969	-86.7	37	-49.7	-57.2	31.7	11.1
1970/71	-140.4	25.3	-115.1	-126.6	72.5	-46.8
1971/72	-144.3	26.2	-118.1	-114.9	76.3	17.4
1972/73	16.9	33	49.9	66.5	63.4	193.4
1973/74	76	65.9	141.9	176.2	65.7	263.1
1974/75	-195.3	13.3	-182	-151	160.1	13.8
1975/76	-140.3	89.6	-50.7	-6.8	71.2	80.2
1976/77	-101.4	43.7	-57.7	-23.4	112.1	49.1
1977/78	-127.1	41	-86.1	-55.4	48.1	-260.5
1978/79	-475.2	42.2	-433	-384.8	111.9	-95.1
1979/80	-517.6	55.1	-462.5	-421.2	169.5	-83.6
1980/81	-532.7	70.3	-462.4	-411.2	322	-123.6
1981/82	-863.5	60.2	-803.3	-709.7	679.4	125.3
1982/83	-1243.4	85.9	-1157.5	-981.7	401.7	-148
1983/84	-1137.4	112	-1025.4	-803.4	395.8	-87.6
1984/85	-1025.8	103.1	-922.7	-622.7	423.7	95.8
1985/86	-1268.3	125.4	-1142.9	-709.3	528.5	347
1986/87	-1427.1	106.3	-1320.8	-1014.4	408.9	-43.6
1987/88	-1486.6	77.5	-1409.1	-1163.8	549.7	-383.3
1988/89	-1192.2	96.5	-1095.7	-706.6	463.3	-23
1989/90	-1067.3	89.2	-978.1	-623.5	237.6	-549.2
1990/91	-1558.2	-62	-1620.2	-1206.3	330.2	-131.2
1991/92	-1491.7	27.4	-1464.3	-810.6	-238.1	-425.8
1992/93	-2669	-36	-2705	-1647.1	-45.4	-499.2
1993/94	-3312.1	173.2	-3147.9	-1713.6	1233.2	1602.9
1994/95	-3711.2	333	-3378.2	-1463.7	186.6	1038.3
1995/96	-6255.5	415	-5840.5	-3860.5	-30.1	-275.2

Note: The years before 1970/71 are in Gregorian calendar
Source:- NBE

Appendix 4: Econometric Approach Followed

Unit Root Tests Determining the Order of Integration of the Variables

In proceeding with preliminary time's series data analysis, the first step to be undertaken is unit root tests. Unit root tests are conducted on all variables in the model in order to determine whether they are stationary or not. To do this, a number of researchers have applied a test proposed by Dickey and Fuller (1981) to test whether a particular time series variables are presented by stationary authoregressive (AR) process.

Given the regression model:

$$Y_t = a_0 + a_1 z_1 + e_t \text{ - - - } \text{(i)},$$

The Dickey-Fuller test begins by generating sequence (Y_t) from (I) as an independent random walk using the formula:

$$Y_t = a_1 Y_{t-1} + E_t \text{ -- - - (ii)}$$

Subtracting Y_{t-1} from each side of the equation (ii) yields the following equivalent form;

$$\Delta Y_t = \delta y_{t-1} + E_t \text{ - - - } \text{(iii) where } \delta = a_1 - 1$$

Of course, testing the hypothesis $a_1 = 1$ is equivalent to testing the hypothesis $\delta = 0$. The parameter that we focus on the regression equation (iii) is if $\delta = 0$ then (Y_t) sequence containing a unit root of the series is said to be non-stationary series. On the other hand if $\delta<0$, Y_t is an I(0) series (stationary). The associated 't-statistics' of δ is tabulated in fuller (1976).

Note that the DF test assume that errors are independent and have a constant variance (white noise) . However, it is not always the case. In this case the Augmented Dickey-Fuller (ADF) test is utilized, which has the following form;

$$\Delta Y_t = \delta Y_{t-1} + \Sigma s \Delta Y_{t-1} + E_t \text{ - - - iv.}$$

Where T is a lag length and selected so that E_t is a white noise. The asymptotic test statistic is distributed as the DF-test. The ADF test is better than the DF-test since the augmentation leads to empirical white noise.

Test For Co-integration

Once non-stationarity of variables has been established, testing for co-integration has to be done. This co-integration test examines whether some linear combination of the non-stationary series in the regression produces a white noise process or not. Although there are several tests that can be used, here it is concentrated on the Engle-Granger (EG)two-step procedure and Johnsen's Multivariate Autoregressive (VAR) approach.

1) Engle-Granger Two-Step Procedure (1987)

According to this procedure, the first step is estimating a static regression for each dependent variable using significant non-stationary independent variables as regressors, and then saving residuals form the OLS applied to the series on levels. In the second step, the estimated residuals have to be tested for stationarity using

DF and ADF tests. If the residual is found to be stationary, then the variables are co-integrated and the residual from this regression can serve as error- correction term. Although the Engle and Granger (1987) procedure is easily implemented, among the other important defects, it has no systematic procedure for the separate estimation of the multiple co- integrating vector (Enders, 1995; 385) To avoid this problem, an alternative procedure of co-integration test which is not based on regression residuals, that has been popular in co- integration literatures, is Johansen (1988) procedure.

2. The Johansen (1988) Procedure

The Johansen (1988) procedure is an alternative to the use of two- step estimators, which enable one to estimate and test for the presence of multiple co- integrating vectors. Consider an unrestricted 4 dimensional vector auto-regression (VAR), which includes" K" lags:

$$Z_t = \delta + \theta_1 Z_{t-1} + \theta_2 X_{t-2} + \ldots\ldots\ldots\ldots + \theta_K Z_{t-k} + V_t$$

Where , Z= [m r y p] , and v1, ... V4 are i.i. $N \sim (0,\sigma^2)$

From the unit root test for each variable, it is clear that all the variables in Z are non stationary and I (1) ; ΔZ_t's are therefore stationary, rewriting the above model, the following error- correction form can be obtained;

$$\Delta Z_t = \sum_{i=1}^{K-1} \Gamma_I \Delta Z_{t-1} + \prod Z_{t-k} + E_t$$

Where ; $\Gamma_I = -I + \theta 1 + \ldots\ldots + \theta i,\ i = 1; \ldots..4$

$\prod = -(I - \theta_1 \ldots., - \theta_k)$

I is identity matrix

Z is a row vector of a variable of intereste,

θ is a coefficient matrix and $E_t \sim N(0, \sigma^2)$

In the long run $\Delta Z_t = 0$; Thus the equation $\prod Z_t = 0$ incorporates the long run relationship between the variable. The rank of $\prod$ determines the number of independent rows in $\prod$, and therefore the number of co- integrating vectors. The test gives three basic conclusions.

1) if rank $(\prod) = 0$, implies that all Z's are stationary
2) if rank $(\prod) = 4$, so $\prod$ has full rank, then the $\prod$ - matrix consists of zero only thus, there is no co- integration and the equation can be estimated in first difference (short run dynamics) only, since there will not be any long- run information in $\prod$.
3) If $\prod$ has reduced rank i.e. rank $(\prod) < 4$, the co integrating vector is given as $\prod = \alpha\beta'$ where β represent the effect of each co- integrating vector on the $\Delta Z_{4,t}$ variables in the model.

Thus, the Johansen's test will help us to determine variables that exhibit long- run equilibrium.

An Error Correction Model

Consider the long run relationship between Y and X_i

$$Y_t = \alpha_0 + \beta_1 X_t + \mu_t \ldots\ldots\ldots\ldots \text{(i)}$$

When disequilibrium errors are observed, the lagged values of Y and X are involved and then the disequilibrium relationship is given as:

$$Y_t = \beta_0 + \beta_1 X_t + \beta_2 X_{t-1} + \alpha Y_{t-1} + \mu_t \qquad 0 < \alpha < 1 \ldots\ldots \text{(ii)}$$

Where μ_t is disturbance term

The problem with (ii) is an equation in the level of variables that are likely to be non stationary. However (ii) can be reparameterized as follows:

Subtracting Y t-1 from either side gives

$$\Delta Y_t = \beta_0 + \beta_1 X_t + \beta_2 X_{t-1} - (1- \alpha) Y_{t-1} + \mu_t$$

$$\text{or } \Delta Yt = \beta_0 + \beta_1 \Delta X_t + (\beta_1 + \beta_2) X_{t-1} - (1- \alpha) Y_{t-1} + \mu_t \ldots\ldots\ldots \text{(iii)}$$

where $\Delta Y_t = Y_t - Y_{t-1}$ and $\Delta X_t = X_t - X_{t-1}$

Then (iii) can be reparemeterized as

$$\Delta Y_t = \beta_0 + \beta_1 \Delta X_t - (1- \alpha) [Y_{t-1} - \gamma_2 X_{t-1}] + \mu_t \ldots\ldots \text{(iv)}$$

and (iv) can be further reparamenterised as

$$\Delta Y_t = \beta_1 \Delta X_t - (1- \alpha) [Y_{t-1} - \gamma_1 - \gamma_2 X_{t-1}] + \mu_t \ldots\ldots \text{(v)}$$

Where the constant term $\gamma_1 = \beta_0 / (1-\alpha)$

The coefficient of exogenous variable $\gamma_2 = (\beta_1 + \beta_2) / (1-\alpha)$

The term in square bracket is *the disequilibrium error from the pervious period* (see Thomas , 1993: 53).

Applying OLS to (iv) directly and hence estimate both long run and short run parameters together is an approach developed by Wickens and Breuch (1988). There is some evidence that the small sample bias is smaller for the long-run parameter estimates than it is with the Engle - Granger (E.G) two - step procedure (see Thomas, 1993: 68).

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DECLARATION

I, the undersigned, declare that this thesis is my original work and has not been presented for a degree in any others university. All sources of material used for this thesis have been dully acknowledged.

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