

IS THE ETHIOPIAN BIRR OVERVALUED?

A PRELIMINARY ASSESSMENT AND POLICY IMPLICATIONS

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1. INTRODUCTION

Due to their vulnerability to external economic shocks, Less Developed Countries (LDCs) have considered the exchange rate as a central policy issue over the years. The external economic shocks, it is argued, contributed to the deterioration of the trade balance, domestic inflationary pressure and the overall competitive position of LDCs. Consequently, the adjustment policies to be followed, and the consequences of such measures have attracted attention and have been controversial policy issues, as exemplified by the IMF-recommended adjustment programs. Ethiopia's exchange rate policy, as in other LDCs, has been subject to such scrutiny. And this scrutiny seems to have gained momentum due to the recent political changes in the country and the renewed interest to liberalize the economy.

The main objective of this paper is to examine the role of the exchange rate in the Ethiopian economy. More specifically, the study attempts to shed some light on the following central questions: (1) is the Ethiopian currency (birr) overvalued? (2) how does the real exchange rate impact the demand for imports and exports? and (3) is devaluation an appropriate policy tool in view of the experiences of other countries and the economy in question? After a brief description of the Ethiopian economy in this section, the second section examines measurement and methodological issues related to the real exchange rate and attempts to answer the first question. That is, it investigates, on the basis of some measures of exchange rate misalignment, whether the existing level of the exchange rate is appropriate or not. The third section will focus on the relationships between the real exchange rate and sector aggregates of the economy in order to establish how the exchange rate affects the behavior of imports and exports. After establishing these relationships in the third section, the paper analyses their policy implications in the fourth section. These include examining the advisability of devaluation on the bases of both the experiences of other countries and the results of this study. And finally, the fifth section summarizes the analyses and attempts to draw some conclusions.

Ethiopia has a predominantly rural subsistence economy and one of the lowest income per capita in the world (Table 1). As could be seen from Table 1, the average share of agriculture in GDP declined from a high of 60 per cent in 1961-1965 to 45 per cent in 1981-1988, while that of manufacturing increased from about 6 per cent to 10 per cent over the same period. What is of interest is the change in the behavior of the aggregates between the periods 1961-1974 and 1974-1988. These periods correspond to the mixed and socialist economic structures, respectively. Compared to 1961-1974, real income per capita declined by 39.4 per cent while public expenditure, budget deficit, military expenditure, imports and money supply grew by 118, 597, 240, 63 and 121 per cent, respectively. This is a significant change because it clearly indicates that supply aggregates fall short of expenditure aggregates following the expensive policy of the 'socialist' government.

The Ethiopian Economy: Problems of Adjustment

Table 1: SELECTED MACROECONOMIC INDICATORS (Period Averages)

VARIABLE NAME	1961 to '65	'66 to '70	'71 to '75	'76 to '80	'81 to '88	'61 to '74	'75 to '88	'61 to '88	61-65 to 66-70	66-70 to 71-75	71-75 to 76-80	76-80 to 81-88	61-74 to 75-88
									Average Growth Rates - %				
Real GDP									22.1	14.9	-25.0	-7.8	-14.4
Real Income per Cap.*	178	199	182	128	99	188	114	154	11.8	-8.5	-29.6	-22.7	-39.4
Agriculture/GDP (%)	60	53	47	47	44	54	45	50	-11.7	-11.3	0.0	-6.4	-16.7
Manufacturing/GDP (%)	6.3	7.9	9.4	9.4	10	7.7	9.8	8.7	25.4	19.0	0.0	5.8	27.4
Investment/GDP (%)	12	13	11	9	14	12	12	12	9.0	-15.3	-20.3	57.3	-2.9
Public Exp./GDP (%)	13	13	14	22	34	13	28	21	3.8	9.2	54.8	52.2	118.5
Budget Deficit/GDP (%)	0.6	1.0	1.7	4.5	7.5	0.9	6.2	3.5	52.2	68.0	169.2	67.7	597.2
Military Exp./GDP (%)	2	2	3	6	9	3	6	5	-51.1	18.0	110.7	48.3	240.3
Export/GDP (%)	9	8	7	10	8	8	9	8	-13.2	20.5	13.3	-17.8	9.7
Import/GDP (%)	10	10	10	14	19	10	17	13	-9.6	-3.7	35.1	41.7	63.4
Money Supply/GDP (%)	12	14	18	25	37	14	32	23	17.3	32.4	35.8	46.1	121.7
Real Exchange Rate **	3.2	3.2	3.6	2.9	2.8	3.3	2.9	3.1	-0.1	12.1	-19.5	-3.1	-12.6

Source: IMF Financial Statistics, various years, with 1985 as a base year.

* US\$ (converted using the real exchange rate)

** Based on US Wholesale Price Index

Corresponding to this misalignment of aggregate demand and supply, the real exchange rate also exhibited a significant appreciation (12.6 per cent) over the same period. Similarly, the external sector was consistently in deficit, mainly due to an increase in imports. This increase in imports occurred despite the government's imposition of import restrictions and foreign exchange rationing. Thus, the increase in imports could be attributed mainly to increases in government consumption which explains why public expenditure, and particularly military expenditure, increased by 118.5 and 240 per cent, respectively. This led to a huge budget deficit which grew by 597 per cent under the 'socialist' regime. Short of suggesting causation, the co-movements of the trade and budget deficits seem to be in line with the 'twin-deficit' proposition.

2. THE REAL EXCHANGE RATE: DEFINITION AND MEASURES OF MISALIGNMENT

2.1 Definitions of the Real Exchange Rate

The real exchange rate is defined and measured in many different ways in the literature. While some of these variations are simply differences in formulations, others do involve conceptual distinctions. Two conceptually distinct measures, according to Edwards (1989), that have been widely used are:

- (a) the real exchange rate, e , defined as the ratio of the prices tradable goods, p_t , to those of non-tradables, p_n , i.e., $e = p_t / p_n$, a measure which reflects resource allocation patterns; and
- (b) the real exchange rate (following the Purchasing Power Parity - PPP) defined as $e = EP^*/P$, where E is either the bilateral or the multilateral (i.e., effective) nominal exchange rate and P^* and P are foreign and domestic price indices, respectively.

It is worth noting that despite the theoretical appeal of the first, the second definition has been widely used by policy makers. This choice is due to lack of disaggregated data (especially in LDCs) for traded and non-traded goods, while consumer price indices are easily available. Availability of data aside, whether to use consumer price index (CPI) or wholesale price index (WPI) and what such a choice represents have also been unsettled issues. Some argue, Harberger (1986) for instance, that the WPI is a good proxy for the price of tradables and the CPI for that of non-tradables. If this argument holds, which ever way it is measured, the real exchange rate is simply the relative price of tradables in terms of non-tradables. In this paper both indices (the CPI and WPI) will be used for comparison purposes.

The Ethiopian currency (birr) is pegged to the US dollar at Birr2.07 per dollar for at least the last 18 years. Therefore, given the fixed nominal exchange rate, the sources of fluctuations in its real and effective values are changes in domestic and foreign price indices and changes in the floating exchange rate of its trading partners. Its trading partners include mainly the major industrialized countries. And since their currencies have been floating against each other since the early seventies, the relative prices (values) of the Ethiopian birr have also been fluctuating. Needless to say, fluctuation per se does not indicate misalignment of the exchange rate. Whether the value of a given exchange rate is appropriate or not has to be judged on the basis of its impact on the sustainability of external and internal balance of the economy in question.

2.2. Selected Indicators of Exchange Rate Misalignment

Given the above definitions of the real exchange rate, what measures are available to judge its appropriateness? Or more specifically, in a fixed exchange rate regime like that of Ethiopia where market forces do not determine the actual rate, what indicators are available to gauge whether the prevailing rate is appropriate or not? Ideally, the appropriateness of the prevailing exchange rate should be judged by comparing it to the equilibrium rate determined by using a well-specified dynamic macroeconomic model. Unfortunately, unavailability of data precludes such analysis. Short of such a general equilibrium approach, economic theory provides partial measures of both backward-looking and forward-looking approaches to assess the appropriateness of a given exchange rate. Backward-looking approaches (as outlined by Mansur, 1983) include: relative competitiveness of tradables (relative profitability, price/cost structure), real and effective exchange rate movements, the degree of spread between the official and the parallel exchange rate markets, and the patterns of past fiscal and monetary policies and their impact on aggregate demand and hence on balance of payments. Forward-looking approaches, on the other hand, forecast and compare the behavior of balance of payments and domestic economic aggregates with and without changes in the exchange rate.

In line with the above approaches, the purpose of the remaining paragraphs of this section is to use various indices that help assess, as a group, the appropriateness of the Ethiopian exchange rate. To this end, the following selected measures will be used: movements in the real exchange rate, relative appreciation of the exchange rate, the behavior of the parallel (black) market, relative export competitiveness, and the behavior of past fiscal and monetary policies relative to output growth. A study related to the forward-looking approach will be discussed in the fourth section in relation to the impacts of devaluation.

2.2.1 Movements in the Real and Effective Exchange Rates

On the basis of the movements of the real exchange rate, as defined earlier, the sample period could be broadly grouped into four distinct time periods, as can be seen from Fig. 1. The real exchange rate declined from a high of 3.4 in 1961 to 2.9 in 1965 and hence was below the trend for this sub-period. Beginning 1966, it started increasing (depreciating) and was above

the trend. Between 1976 and 1985 it declined and was less than the trend. And finally it slightly increased (depreciated) during the last three years of the sample period (1985-1988). As can be seen from the fitted linear regression, however, the line exhibited a downward trend indicating a slight net appreciation of the Ethiopian birr over the sample period. Probably what is of great interest is that the broad movements of the real exchange rate captured the structural break in the economy. Corresponding to the socialist economic system and expansive economic policies introduced in 1974/1975, the real exchange rate started decreasing (appreciating) until the famine of 1984. Between 1985 and 1988 it increased (depreciated) presumably due to a decrease in imports and hence the demand for foreign exchange and/or the increase in foreign exchange via foreign aid.

The movements in the nominal and real effective exchange rates (Fig. 1b) also confirm the above trend. Note that these measures are defined as the inverse of the real exchange rate discussed above. Therefore, an increase in the effective exchange rates indicates appreciation and vice versa. Following the expansive policies of the socialist government in the mid-seventies, both the nominal and the real effective exchange rates started appreciating until the trend was slightly reversed in the early eighties, possibly for the reasons cited above.

2.2.2 The Parallel (Black) Market

One of the obvious indicators of exchange rate misalignment is the behavior of the black market rate. In the absence of free play of market forces in determining the value of an exchange rate, the parallel market is probably the closest indicator of the real value of the exchange rate, allowing for risk premium. Like in many LDCs, due to its scarcity, foreign exchange is both controlled and rationed in Ethiopia, especially since 1976. Consequently, the nominal (official) exchange rate was about half or less of the black market rate, at least since 1976. According to Edwards (1989), the black market rate is a multiple of the official rate (see Fig. 2). This indicator, therefore, clearly shows that the Ethiopian birr is overvalued.

2.2.3 Relative Appreciation of the Exchange Rate

A more direct approach to determine whether an exchange rate is appreciating or not was suggested by Dornbusch. Dornbusch (1988:81) defines appreciation as "an increase of domestic prices relative to import prices". It has to be noted that this definition, in addition to using import price index for comparison instead of other price indices, is also an inverse of the earlier definition and hence helps interpret an increase in the index as appreciation and vice versa. Using this definition, the Ethiopian birr exhibited two distinct patterns over the sample period. It appreciated (Fig. 3) between 1964-1971 and then depreciated until it hit bottom in 1974 coinciding with the oil price increase (a significant import item in Ethiopia). Since 1974 it started appreciating, again coinciding with relatively higher budget and trade deficits associated with the expansive policies of the socialist government of the day.

2.2.4 Measures of Competitiveness

As suggested earlier, one of the consequences of exchange rate misalignment, say overvaluation, is a deficit in the trade balance because exports are not competitive in the world market and imports are relatively cheap. And Ethiopia has had a trade deficit over the entire sample period. To examine to what extent Ethiopian export prices are competitive, an exchange rate adjusted relative price of exports is calculated. This relative price is calculated in terms of the price of coffee (which accounts for 65-75 per cent of total Ethiopian exports) and compared to that of Kenya, a country with a similar export structure.¹ Following Maciejewski (1983), the formula used to calculate the export price is the following:

$$P = (p_2/E_2)/(p_1/E_1)$$

where P is the exchange rate adjusted price ratio of Kenyan to Ethiopian export price, p_2 and p_1 are the respective export price (for coffee) indices of Kenya and Ethiopia, and E_1 and E_2 are the dollar values (dollar/currency) of one unit of the Kenyan shilling and the Ethiopian birr, respectively.

As could be seen from Fig. 4, the ratio of Kenyan export coffee price to that of Ethiopia has increased over the sample period. This indicates that Ethiopia is competitive at least in the export of coffee compared to Kenya, assuming, of course, Kenyan and Ethiopian coffee are homogeneous products. One could conclude, therefore, that it is unlikely for Ethiopia to increase its market share by decreasing the price of coffee, say via devaluation, assuming inelastic world demand for coffee.

2.2.5 Macroeconomic Imbalances

One of the stylized facts of open economy macroeconomics is that, given a fixed nominal exchange rate regime, a 'high' fiscal deficit is an indicator of inconsistency between exchange rate and macroeconomic policies. And since deficits in most underdeveloped countries are financed by money creation, Edwards (1988:10) suggested a measure of 'inflation tax' required to finance the government deficit' as follows:

$$IT = GD/HM$$

where IT = inflation tax required to finance a deficit

GD = ratio of government deficit to GDP

HM = ratio of high-powered money to GDP

The rationale of this measure is that, if the required rate of inflation to finance the deficit is high and increasing, the price of non-tradables increases faster than the world price of tradables and this leads to appreciation of the domestic real exchange rate. Therefore, there will be

inconsistency between the fiscal deficit and maintaining a fixed nominal exchange rate. As Fischer (1988: 108) put it, "overvaluation occurs when the nominal exchange rate is held fixed, or adjusted too little, in response to overexpansion of the domestic money supply or to increases in import or domestic costs."

This proposition was examined for the entire sample period and for the sub-period 1975-1988, representing the socialist economic policies introduced after the 1974 'revolution'. As is clear from Fig. 5, the required inflation to finance the deficit was high and increased over the years. The average for the entire sample period was 12.3 per cent while it grew to 20 per cent for the sub-period 1975-1988. Admittedly, in the absence of any standard of how high is high, it is difficult to judge the absolute values but the trend seems to suggest the inconsistency proposed above. This is especially true for the sub-period 1975-1988 in which the average required inflation rate significantly grew to 20 per cent while the nominal exchange rate remained fixed at the same rate.

Another related indicator of this inconsistency is the growth of domestic credit to the public sector. As a ratio of total credit, domestic credit to the public sector from the central bank averaged 54.7 per cent in 1983-1988 compared to only 36.2 per cent in 1973-1978. Therefore, both these measures suggest the apparent inconsistency in macroeconomic policy, namely overexpansion while maintaining a fixed exchange rate.

The attempt thus far has been to examine whether the above measures as a group would be able to shed some light on the appropriateness of the prevailing level of the Ethiopian birr. Needless to say, any single measure is inadequate to determine the appropriateness of the prevailing exchange rate. And as briefly described above, the movements of the real exchange rate, the black market premium, and the measure of inconsistency between the exchange rate and macroeconomic policies (the inflation rate required to finance a deficit) clearly suggest that the Ethiopian birr is overvalued. The measure of export competitiveness, on the other hand, indicate that Ethiopian coffee is competitive in the world market compared to that of Kenya and hence no exchange rate change seems necessary for that purpose. The measure of appreciation, as defined above, is inconclusive over the entire sample period and seems to be heavily influenced by the price of oil. What is interesting to note is, however, all the measures indicated an appreciation of the Ethiopian birr since the mid-1970s. This coincided with the socialist policies of the Ethiopian 'revolution' which led to a significant increase in government expenditure and resulted in huge budget and trade deficits. This brings us to the next question of how responsive exports and imports are to changes in the exchange rate. If in fact the Ethiopian birr is overvalued, devaluation would have a positive impact on the trade balance if only imports decrease and exports increase by a significant margin (i.e. if the Marshall-Lerner condition is satisfied). This issue will be dealt with in the next section by estimating 'standard' import and export demand functions.

3. DETERMINANTS OF IMPORT AND EXPORT DEMAND

The purpose of this section is to examine the impact of the real exchange rate on import and export demand. The elasticity approach to the balance of payments hypothesis suggests that the impact of changes in exchange rate on trade balance is dependent on elasticities of import and export demand. To examine the impact of the real exchange rate on quantities imported and exported, and to infer policy implications, therefore, the following import and export demand functions are estimated. The estimated equations correspond to conventional specifications (for instance, Bahmani-Oskooee, 1986; Warner and Kreinin, 1983; and Khan, 1974). All variables in both equations are in logarithms.

3.1 Estimation of Import Demand

As was indicated earlier, there was a structural shift in the economy beginning 1975 due to the introduction of socialist policies. And this affected both the volume and composition of imports, as exhibited by the growth of total imports by 63 per cent and military expenditure by 240 per cent in 1975-1988 compared to an average growth in 1961-1974. Therefore, two separate equations are estimated for the two sub-periods to account for the break. Further, to correct for serial correlation, a separate equation using the Cochrane-Orcutt (C-O) method is estimated and the results are reported below. In all the equations the dependent variable is quantity imported and the total sample period covers 1961-1988.

Table 2: Results of the Estimation of Import Demand Functions

CONSTANT	+ Y	- MPI/CPI	- MPI	+ CPI	- ER2	R	D.W./ RHO
1961-1975							
OLS 1) 0.83 (2.08)	2.35 (8.77)	-0.52 (6.05)	-	-	-1.59 (4.63)	0.93	2.9
2) 0.12 (0.21)	1.77 (3.24)	-	-0.72 (5.54)	0.96 (2.54)	-1.17 (2.71)	0.94	2.8
C-O 3) 0.38 (2.10)	2.16 (16.10)	-0.66 (10.69)	-	-	-1.37 (7.39)	0.96	-0.54 (2.4)
1975-1988							
OLS 1) 0.90 (1.43)	2.14 (5.18)	-0.36 (2.99)	-	-	-1.45 (2.71)	0.83	2.1
2) -0.38 (0.70)	0.93 (2.01)	-	-0.80 (5.38)	1.48 (4.32)	-0.69 (1.57)	0.91	2.6
C-O 3) 0.72 (2.13)	2.39 (9.75)	-0.34 (4.48)	-	-	-1.71 (5.13)	0.86	-0.52 (2.3)

(t-values in parenthesis)

R = R^2 adjusted for degrees of freedom

DEPENDENT VARIABLE = quantity imported (value deflated by unit value)

Y = domestic GDP in millions of birr

ER2 = real exchange rate (based on US WPI)

MPI/CPI = ratio of import price index relative to domestic CPI

All variables (except the constant in some equations) are statistically significant and have the expected signs. That is, an increase in domestic GDP increases aggregate demand and hence quantity imported. Similarly, a decrease (appreciation) of the real exchange rate makes the relative price of imports lower and therefore increases quantity imported. The ratio of import price index to the CPI is negatively related to quantity imported, as expected.

Warner and Kreinin (1983) noted that there has been some scepticism in the literature regarding the appropriateness of using the import to domestic price ratio. The argument questions the validity of the implicit assumption that, when using this ratio, the influence of each price index is, though opposite in sign, equal in magnitude. To accommodate this scepticism, an alternative equation is estimated for each sub-period (Equation No. 2) that account for the specific influences of each price index. The import price index and the domestic CPI are both statistically significant and have the expected signs.

3.2 Estimation of Export Demand

In estimating the export demand functions both OLS and Cochrane-Orcutt methods are used, as was done for import demand. But since the export sector was relatively stable, the equations are estimated over the entire sample period for which data was available (1965-1987). The results are reported in Table 3.

Table 3: Results of the Estimation of Export Demand Functions

Constant	+ WGDPI	+ ER3	- XPE	+ XPK	R	D.W./RHO
<u>OLS</u> 1) 13.82 (19.7)	0.88 (3.7)	0.20 (2.2)	-1.01 (27.4)	0.54 (5.8)	0.98	1.8
2) 14.57 (22.7)	0.67 (3.0)	-	-0.96 (30.9)	0.54 (5.4)	0.97	1.9
<u>C-O</u> 1) 13.90 (21.9)	0.85 (3.9)	0.20 (2.5)	-1.01 (30.7)	0.56 (6.4)	0.98	0.56 (3.2)
2) 14.7 (23.3)	0.65 (2.90)	-	-0.97 (32.4)	0.56 (5.7)	0.97	0.15 (.73)

DEPENDENT VARIABLE = quantity exported (coffee in tons)

WGDPI = world GDP index

RE3 = real exchange rate (based on world commodity WPI)

XPE = export price per unit of Ethiopian coffee

XPK = export price per unit of Kenyan coffee

All variables are statistically significant and have the expected signs in all the estimated equations: quantity of coffee exported is positively related to the index of world GDP and the coefficient is consistently less than unity. This indicates that the demand for coffee exports is income inelastic as is usual for primary commodities such as coffee. The price of coffee is negatively related to quantity exported, as expected, with elasticity close to unity in all the equations.

About 60 to 70 per cent of Ethiopia's export revenue comes from coffee. Coffee, being a primary product, is relatively less differentiated. Therefore, each country's volume of exports will be sensitive to price differences between competing exporters. To capture this sensitivity, the unit price of Kenyan coffee (XPK) is included as a proxy for competing exports. As expected, the unit price of Kenyan coffee is positively related to quantity exported indicating that Ethiopian coffee and Kenyan coffee are close substitutes.

Similarly an increase in the real exchange rate (depreciation) increases quantity exported. As is clear from the respective coefficients (elasticities), quantity exported responds more to price changes than it does to changes in the exchange rate. This result is in conformity with Tegegne's (1991:1373) findings, with respect to the Ethiopian trade flows, that "the responses of both imports and exports to innovation in prices are greater than to innovation in exchange rates". It should be noted that this was not true in the case of imports. This is probably due to the fact that military equipment accounts for a significant share of imports. And since it could be purchased via barter-type commodity exchange from the then Eastern-block countries or obtained through loans it probably is more sensitive to exchange rate changes than to prices.

The attempt thus far has been to evaluate whether the Ethiopian birr is overvalued or not using some simple partial indicators (Section 2) and to examine the impact of exchange rate changes on imports and exports using simple import and export demand functions. As stated earlier, the measures as a group indicate that the Ethiopian birr is overvalued and, therefore, misaligned. The next logical and important question is what are the policy options facing a country like Ethiopia to deal with overvaluation of its currency. This brings us to the next section which attempts to examine the appropriateness of devaluation for an economy like that of Ethiopia.

IV. POLICY IMPLICATIONS

Economic theory provides various tools to correct currency misalignment. These tools include: currency devaluation, multiple nominal exchange rates, disinflationary policies and income policies (control of wages and prices). The focus here would be on the feasibility of devaluation in countries like Ethiopia. That is, is devaluation a right prescription when ever the diagnosis is overvaluation? This question will be examined based on both the particular Ethiopian economic conditions and the experience of other countries. According to 'Orthodox'

economic theory² a devaluation is expected to have an expenditure-switching (from foreign to domestic goods) and an expenditure-reducing (decrease in aggregate demand) effects. Both effects work to improve the current account position of a country by making imports relatively more expensive and by reducing purchasing power, respectively. Devaluation, therefore, decreases aggregate demand (especially for foreign goods) and increases aggregate supply by stimulating the production of tradables. For devaluation to be effective, of course, it must be accompanied by appropriate macroeconomic policies. These policies include restrictive monetary and fiscal policies such that the increase in the real exchange rate due to the devaluation is not neutralized or nullified by an increase in the domestic price level. But in addition to these caveats, for a devaluation to be effective, the demand for exports and imports must be sensitive to price changes (i.e., the Marshall-Lerner condition must be satisfied). Before drawing some inferences on the feasibility of devaluation in the Ethiopian case on the bases of the above analysis, a summary of other countries' experiences will be briefly sketched.

It should be emphasized from the outset that the evidence to date regarding the net effect of a devaluation on macroeconomic performance is inconclusive and that there seems to be no consensus as to which approach is most appropriate in evaluating such programs. It is popular in evaluating the effects of stabilization programs such as devaluation to use one or a combination of the following four approaches.³ The first approach referred to as the "before-after" method compares relative economic performance before and after the currency is devalued to capture the effects of the change on economic aggregates. The second approach, known as the "with-without" or "control-group" approach, compares the economic performance of devaluing countries with non-devaluing countries. The third, "actual-versus-target" approach, focuses on evaluating actual performance of some macroeconomic aggregates compared to their prespecified targets using econometrics models. And the fourth approach uses simulation technique to examine the impact of changes in the exchange rate on economic activity.

Various studies have been carried out using the above approaches to evaluate the effects of devaluation in particular and stabilization programs in general mainly in relation to the less developed countries. In most cases the analyses focused on the impact of changes in the exchange rate on output growth, inflation, balance of payments, and the current account. Among such studies, Edwards (1989) examined 39 devaluation episodes using the "with-without" approach and regression analysis and found that in many cases devaluations have negatively affected the growth of output (at least, in the short-run) and real wages but improved the current account. A survey of other studies (Khan, 1990) also indicates that, even though the results are mixed, most of them support Edwards' findings. In addition to these multi-country studies, other country-specific studies (Agenor, 1991) that analyzed the impacts of devaluation on the above macroeconomic aggregates also find mixed results but most correlate the above results that devaluation may be contractionary (at least in the shortrun) while it improves the external balance.

Given the specific economic conditions examined and the experience of other countries, to what extent will the performance of the Ethiopian economy improve by devaluing the currency? The answer to this question partly depends on the following conditions: first, whether the Marshall-Lerner (M-L) condition is satisfied or not; and, second, on the impact of devaluation on GNP, employment, wages and the current account. The M-L condition states that if the absolute values of the sum of marginal propensity to import and the marginal propensity to export is greater than one, then depreciation will improve the trade balance. As is clear from the estimates of the import and export demand functions reported in Tables 2 and 3, this condition is satisfied. To the extent that a simple Keynesian open economy model is applicable to Ethiopia and one has faith in the elasticity approach, therefore, a devaluation will improve the trade balance. This result supports Tegegne's (1991: 1373) earlier suspicion regarding this point. Based on a simulation exercise on Ethiopian quarterly data, he claimed his results suggest that the M-L conditions are likely to be met for Ethiopia.

In a similar line of enquiry, Gylfason and Radetzki(1991) attempted to examine the impact of devaluation on the current account, GNP, real wages, employment and real profits in a group of least developed countries. Their simulation results that are relevant to Ethiopia are summarized in Table 4 below. As is clear from the table, a devaluation would improve the current account whether nominal or real wages are held constant. Therefore as was suggested above on the basis of the elasticity approach, the impact of devaluation on the trade balance of Ethiopia seems clearly positive.

Table 4: Effect of 10% Devaluation on Current Account, GNP, Real Wages, Employment, and Profits in Ethiopia

	Constant Nominal Wages	Constant Real Wages
1. Effect on C/A (% of GNP)	0.9	1.1
2. Effect on GNP	-1.0	-1.6
3. Effect on Real Wages(%)	-2.9	-
4. Effect on Employment (%)	0.0	-2.8
5. Effect on Real Profits (%)	-0.4	-3.4

Source: Gylfason, T. and M. Radetzki, Does Devaluation Make Sense in the Least Developed Countries? *Economic Development and Cultural Change*, 40 (1), 1991, Table 3, p. 13.

Except its impact on the external sector, its effect on the other variables is however negative. For a country like Ethiopia with a subsistence level wage rate and high unemployment, the opportunity cost of improving a current account balance seems high. A 10 per cent devaluation improves the current account, holding real wages constant, by about 1.1 per cent but decreases GNP by 1.6 per cent, employment by 2.8 per cent, and profits by 3.4 per cent. For a country with subsistence level of wage income, high unemployment and low economic growth, a negative effect in such aggregates is an important policy concern.

Further, an improvement in the current account while GNP and employment are decreasing seems to suggest that the improvement is due to the expenditure-reducing rather than the expenditure-switching effect of a devaluation. If this interpretation is correct, in essence it means reductions in imports of military equipment and production inputs, which are the two main import items as was discussed earlier, will improve the current account balance. And one suspects when imports are reduced, the reduction will weigh heavily on inputs as the demand for military equipment is less likely to be determined by price factors, if at all. Thus ultimately, the reduction in inputs will have negative impacts on output if one accepts the low elasticity of substitution (0.3) between domestic and foreign inputs that was used by Gylfason and Radetzki.⁴ The above interpretation that the effect of devaluation in the Ethiopian case weighs heavily on expenditure-reducing seems to have support from the above estimated equations. The elasticity of demand for imports with respect to changes in the exchange rate is strongly elastic while that of exports is very inelastic (0.2). This suggests that any improvement in the trade balance due to devaluation mainly comes from a decrease in imports and not an increase in exports. The implication of this result on imports of intermediate inputs and economic growth are therefore clear, as was discussed earlier.

On the basis of available evidence, therefore, the net effect of a possible devaluation on the performance of the Ethiopian economy is not clear. First, as was argued above, one doubts the existence of any feasible margin for a real wage reduction in such an economy where wage income is at its subsistence level. Second, despite the above preliminary indications that a devaluation may improve the current account in the case of Ethiopia, the overall empirical literature seems to suggest ambiguous results. The conclusions of the following authors highlights this ambiguity. Based on his survey of the literature, Blackhurst (1983: 81) concluded that, "Direct empirical tests have failed to uncover any statistical support for the claim that a change in a country's exchange rate has a predictable and significant independent impact on the current account balance". Gylfason and Radetzki (1991: 19), on the other hand, concluded that, "*Devaluation can be an efficient and appropriate method of reducing a current account deficit* (emphasis added) in the least developing countries, provided (a) that it is accompanied by domestic monetary restraint; (b) that real wages are permitted to fall at least enough to prevent employment from declining; and (c) that at least sufficient foreign capital is procured (preferably on concessional terms) to avert a reduction of GNP". These ambiguous results seem to warrant at least two important conclusions: (a) the need to undertake a more elaborate study both with respect to the effects of a devaluation on specific policy targets and its overall net effect on the

economy; and (b) the need to explore alternative policy measures (as stated above) and compare the relative merits according to specific policy priorities.

5. SUMMARY AND CONCLUSIONS

In summary, first, an attempt was made to examine whether the Ethiopian birr is overvalued or not using some partial indicators. Second, conventional import and export demand equations were estimated to investigate how imports and exports respond to exchange rate and price changes. Third, on the bases of these findings and the experience of other countries, the impact of devaluation on the performance of the Ethiopians economy was briefly outlined.

On the basis of this study the main conclusions might be summarized as follows:

- 1) All the relevant indicators as a group, but particularly the prevalence of a significant black market premium for foreign exchange, and the fact that the real exchange rate is consistently higher than the nominal exchange rate suggest that the Ethiopian currency (birr) is overvalued.
- 2) The chronic trade and budget deficits and the overvalued currency suggest the need for a devaluation or an alternative policy tool to correct the existing disequilibrium; the preliminary evidence indicate that such a policy would help improve the current account balance, but would probably also have negative impacts on the growth of GNP, employment and profits.
- 3) The results of the estimated import and export demand functions are similar to previous studies both in sign and order of magnitude of the coefficients; probably the important points worth noting from a policy stand-point, in addition to the condition stated earlier, is the difference in elasticities between the demand for imports and exports; quantity imported is elastic with respect to income and the real exchange rate but inelastic with respect to import prices; quantity exported, on the other hand, is inelastic with respect to world income and real exchange rates but close to unity with respect to price in all the estimated equations; therefore, devaluation affects imports more than exports; and hence the decision to devalue the currency must take into account the response of these and other aggregates in weighing the net and the specific effects of such a policy.
- 4) The specific results outlined above related to Ethiopia and the experience of other countries with devaluation suggest that the overall evidence regarding the effectiveness of devaluation in improving the performance of an economy is mixed; therefore, policy makers have to explore other alternative policy tools (cited earlier) to improve the macroeconomic performance of the economy before using devaluation for this purpose; a related issue which this study failed to address is the appropriateness of multiple nominal exchange rates and comparing the relative impact of each exchange rate regime on the Ethiopian economy.

NOTES

1. The share of Kenya and Ethiopia in the total world export of coffee in 1987/88 was 2.6% and 2.07%, respectively.
2. For contrary arguments by the New Structuralist School see Pierre-Richard Agenor, *Output, Devaluation and the Real Exchange Rate in Developing Countries*, *Weltwirtschaftliches Archive*, Vol. 127, 1991.
3. See Khan (1990) and Agenor (1991) for details.
4. T. Gylfason and M. Radetzki (1991) concede that this is probably a conservative estimate, and consequently the decrease in output as result of the devaluation may be exaggerated.

REFERENCES

- Bahamäni-Oskooee, Mohsen (1986). Determinants of International Trade Flows: The Case of Developing Countries. *Journal of Development Economics*, 20, pp. 107-123.
- De Grauwe, Paul and Theo Peeters, (eds.) (1983). *Exchange Rates in Multicountry Econometrics Models*. London: MacMillan Press Ltd.
- Dornbusch, R. (1988). Overvaluation and Trade Balance. In *The Open Economy: Tools for Policymakers in Developing Countries*. Oxford University Press.
- _____. (1982). Stabilization Policies in Developing Countries: What Have We Learned? *World Development*, Vol. 10, pp. 701-708.
- Dornbusch, R. and F.L.H. Helmers, (eds.) (1988). *The Open Economy: Tools for Policymakers in Developing Countries*. Oxford University Press.
- Edwards, Sebastian. (1989). *Real Exchange Rates, Devaluation, and Adjustment: Exchange Rate Policy in Developing Countries*. The MIT Press.
- _____. (1988). *Exchange Rate Misalignment in Developing Countries*. The Johns Hopkins University Press.
- Edwards, Sebastian and Guido Tabellini (1991). Explaining Fiscal Policies and Inflation in Developing Countries. *Journal of International Money and Finance*, Vol. 10, pp. s17-s47.
- Fischer, S. (1988). Devaluation and Inflation. In *The Open Economy: Tools for Policymakers in Developing Countries*. Oxford University Press.
- Gylfason, T. and M. Radetzki (1991). Does Devaluation Make Sense in the Least Developed Countries. *Economic Development and Cultural Change*, Vol. 40, pp. 1-25.

The Ethiopian Economy: Problems of Adjustment

Helmets, F.L.C.H. (1988). The Real Exchange Rate. In *The Open Economy: Tools for Policymakers in Developing Countries*.

Khan, M. S. and M. D. Knight (1983). Determinants of Current Account Balances of Non-oil Developing Countries in the 1970s: An Empirical Analysis. *IMF Staff Papers*, Vol. 30, pp. 819-842.

_____(1982). Some Theoretical and Empirical Issues Relating to Economic Stabilization in Developing Countries. *World Development*, Vol. 10, pp. 709-730.

Krueger, A. (1983). *Exchange Rate Determination*. Cambridge University Press.

Love, James (1975). The Impact of Export Instability on the Ethiopian Economy. *Eastern Africa Economic Journal*, Vol. 7, pp. 35-47.

Mansur, A.H. (1983). Determining the Appropriate Levels of Exchange Rates for Developing Economies: Some Methods and Issues. *IMF Staff Papers*, 30, pp. 785-817.

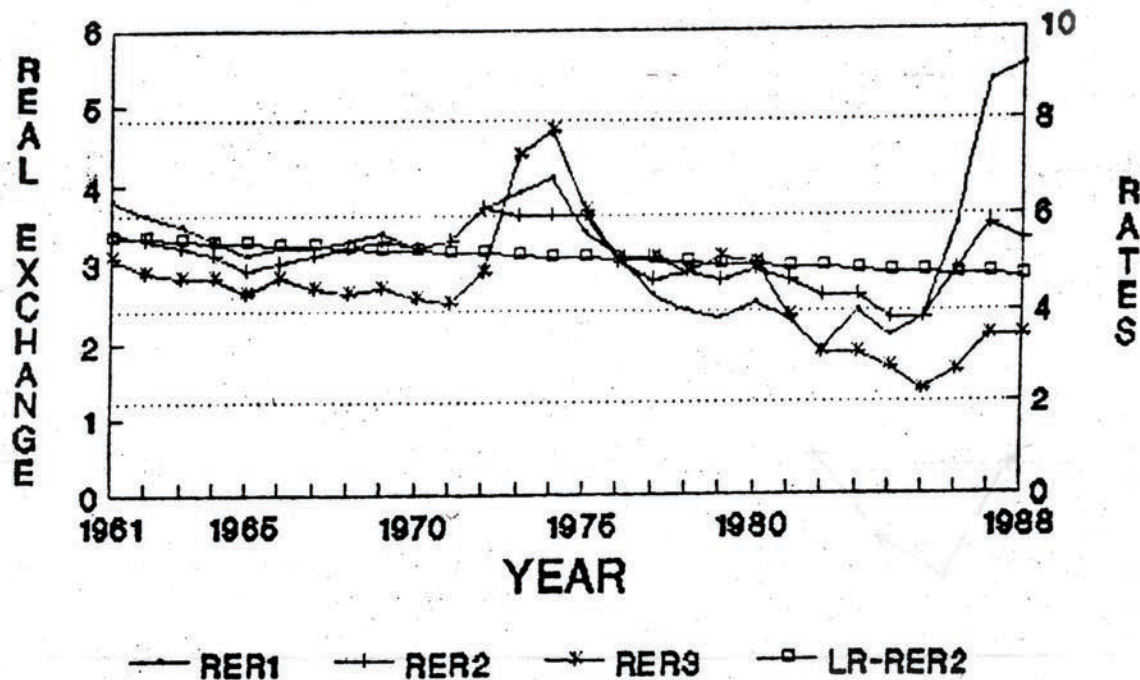
Maciejewski, Edourd B. (1983). 'Real' Effective Exchange Rate Indices: A Re-examination of the Major Conceptual and Methodological Issues. *IMF Staff Papers*, Vol. 30.

Roubini, Nouriel (1991). Economic and Political Determinants of Budget Deficits in Developing Countries. *Journal of International Money and Finance*, Vol. 10, pp. s46-s72.

Tegene, Abebayehu. (1991). Trade Flows, Relative Prices, and Effective Exchange Rates: A VAR on Ethiopian Data. *Applied Economics*, 23, pp. 1369-1376.

Warner, D. and Kreinin (1983). Determinants of International Trade Flows. *Review of Economics and Statistics*.

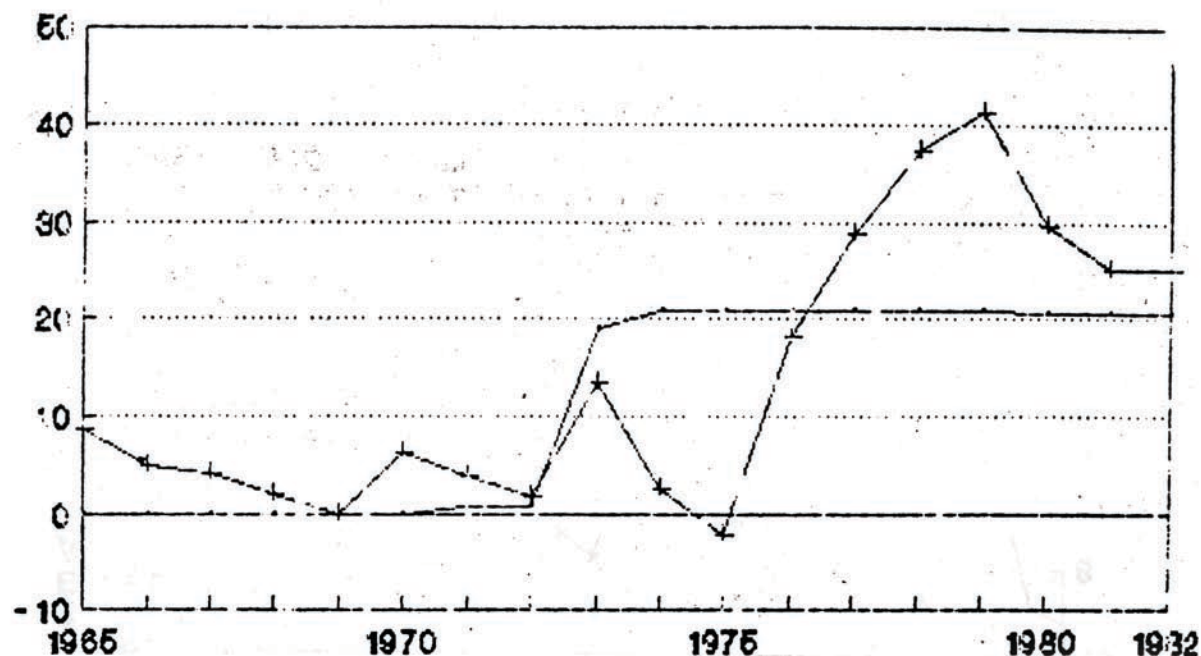
REAL EXCHANGE RATES: ETHIOPIAN BIRR, 1961 -1988



SOURCE: IMF FINANCIAL STATISTICS
VARIOUS YEARS

FIG. 1

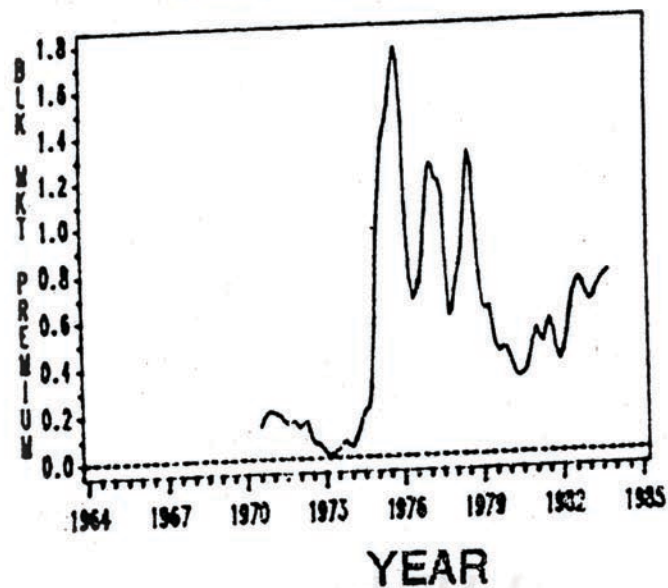
NOMINAL AND REAL EFFECTIVE EXCHANGE RATES



Source: Gulhati, R. et al, — Nominal —+— Real
 World Bank Staff Working Papers
 No. 720, 1983.

FIG 1b

BLACK MARKET PREMIUM, 1964 - 1985



SOURCE: S. Edwards, REAL EXCHANGE RATES,
DEVALUATION AND ADJUSTMENT(1989), P.112.

FIG. 2

APPRECIATION OF THE EXCHANGE RATE RELATIVE TO FITTED VALUES

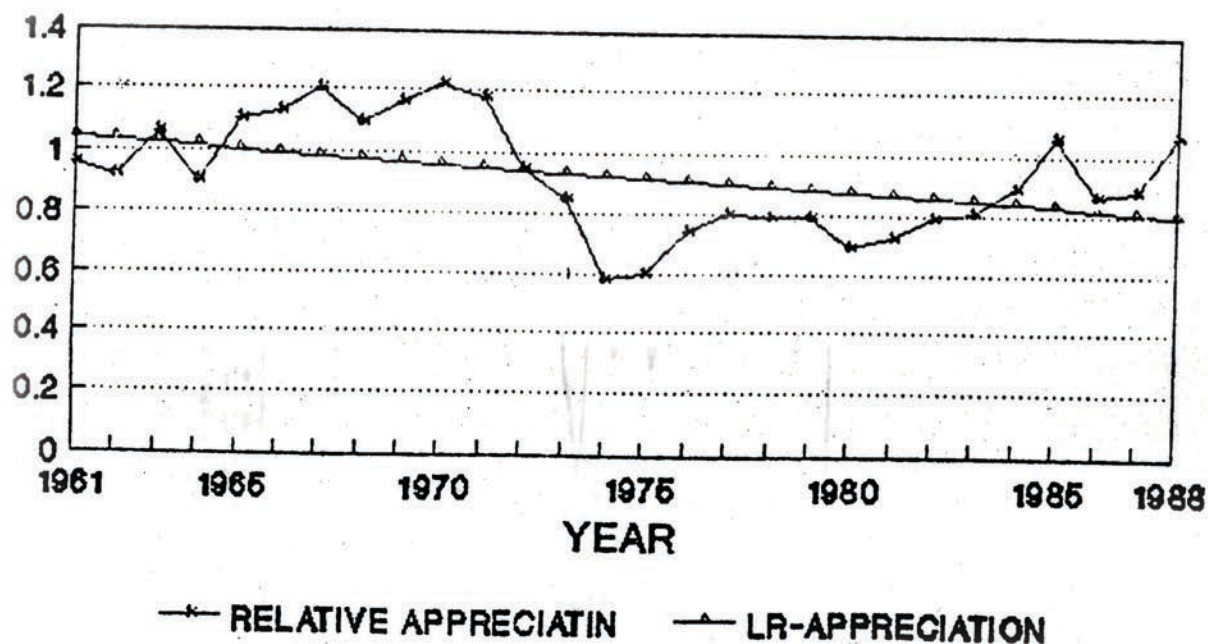


FIG. 3

EXCHANGE RATE ADJUSTED EXPORT PRICES RELATIVE TO FITTED VALUES

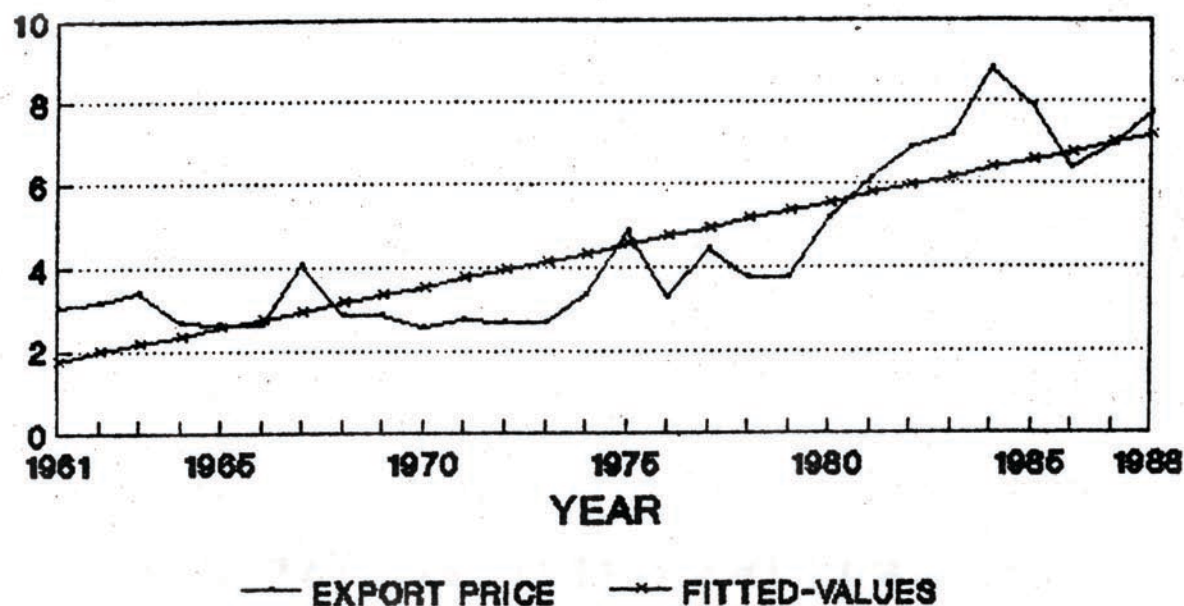


FIG. 4

REQUIRED INFLATION RATE RELATIVE TO FITTED VALUES

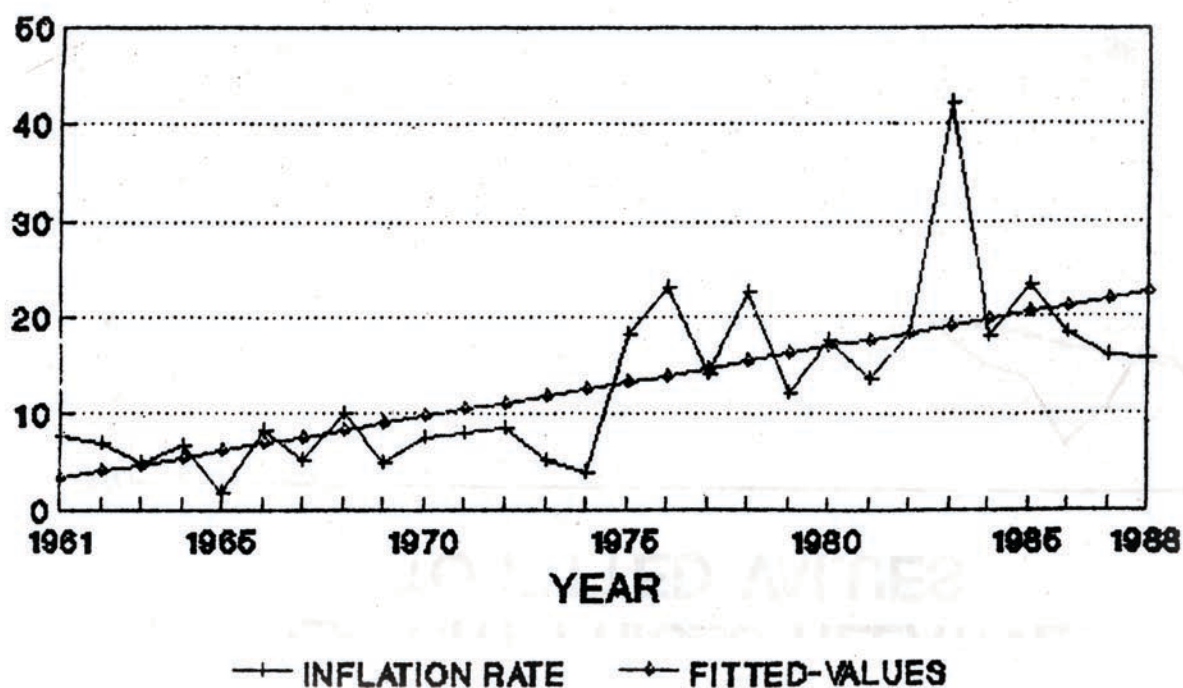


FIG. 5