

The parallel foreign exchange market and macroeconomic performance in Ethiopia

By

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Abstract

This paper looks into the changes of the parallel premium in relation to the movements of macroeconomic variables. The parallel foreign exchange market arises as a direct consequence of the adoption of exchange rate controls in many developing economies facing substantial macroeconomic imbalances. I attempt to (1) find out the determinants of the parallel premium based on a stock-flow model. (2) examine the impact of the parallel premium on merchandise exports and (3) investigate whether inflation Granger-causes the parallel exchange rate. The estimation results reveal that the parallel premium has a negative effect on merchandise exports and its long-run determinants are real money balances, the real effective exchange rate and inflow of aid (grants). On the other hand, the terms of trade negatively affects the premium only in the short run. In addition, inflation is found to Granger-cause the parallel exchange rate for the period under consideration.

1. Introduction

The causes, effects and policy implications of the underground economy, in both developed and developing countries, have attracted attention in recent years as the expansion of this economy has been found to have adverse effects on the official economy.¹ These effects are of particular concern to policy makers in developing economies, who are confronted with growing informal employment, parallel markets in goods and financial assets, specifically in foreign exchange, and capital flight.

The parallel market for foreign exchange has reached a remarkable size in some developing countries. The existence of a large parallel foreign exchange market in developing countries is attributed to the deficiency of the legal institutions, which make operating in the formal sector excessively expensive.

It is argued that a large parallel market for foreign exchange with a high premium indicates of a basic disequilibrium in the foreign exchange market and trade regimes (Dordunoo, 1994) and, hence, involves substantial social and economic costs.² The expansion of the parallel market for foreign exchange leads to the loss of government control over the economy as more and more of the official transactions are diverted to the parallel market. At the same time, the parallel premium for foreign exchange functions as an implicit tax on exports, serving at once as a disincentive to export production and a source of hidden fiscal revenues (Pinto, 1988). According to Elbadawi (1994: 488):

...the parallel premium is an important relative price influencing key macroeconomic variables. Furthermore, the parallel market premium acquires importance not only from this direct linkage, but also as an important indicator of inconsistency between macroeconomic policy and the foreign trade and exchange rate regimes; this signalling role is likely to feed back into macroeconomic outcomes by influencing government policy and private sector expectations of such policy (e.g. expectations of devaluation). In addition to the often-cited efficiency costs associated with the dual regime, a high and persistent parallel market premium can substantially undermine the allocational role of the real exchange rate in the economy by exposing the credibility problem of macroeconomic policy.

In light of this general picture of the linkages of the parallel market premium to macroeconomic variables, Elbadawi (1994) arrived at the following conclusion:

... a rising premium is shown to have negative impacts on official exports and foreign trade taxes, as well as a positive effect on capital flight. Therefore, a rising premium and expanding black market could have serious fiscal and commercial policy implications by squeezing the tax base in foreign trade transactions and by expanding the opportunities for large scale rent seeking activities. A high premium also aggravates the debt problem and the foreign exchange constraint through its effects on capital flight and the recorded current account balance. ... controlling inflation could become more difficult under high premium regimes.(p.508)

Kiguel and O'Connell (1995) agree that the parallel exchange rate feeds back into the economy through illegal trade and prices.³ Besides these authors conclude that large premiums have detrimental effects on official exports and hence on growth while providing only limited insulation from external shocks. Rough estimates indicate that a 10% premium is likely to reduce GDP growth by 0.4 percentage points a year. While the impact wanes as the premium goes up and a 100% premium cuts GDP growth by 2 percentage points a year (World Bank, 1994), a high parallel premium for foreign exchange nevertheless has an adverse impact on economic growth.

It is also important to note that authorities of some developing countries argue that parallel foreign exchange markets may be socially desirable because these markets accommodate transactors whose demand for foreign exchange is not met by the official market or they increase employment by increasing the domestic availability of imported inputs. But this line of argument has little empirical support (IMF, 1993), however.

Ethiopia's parallel premium for foreign exchange had been among the highest in Africa.⁴ However, two years after a massive devaluation and a year following the introduction of the foreign exchange auction system, the premium drastically reduced to a moderate level in 1994 with a declining trend over time. Despite the attempts made to unify the official and parallel foreign exchange markets, parallel marketing still exists. The persistence of the premium is indicative of disequilibrium in the foreign exchange market and, hence, has the tendency to (a) cause the auction exchange rate to rise, (b) induce a seepage of foreign exchange from the auction to the parallel market, (c) reduce the incentive to produce for export, (d) encourage smuggling or contraband activities, and (e) propel capital flight (Dordunoo, 1994).

In response to the adoption of the Dutch auction system (DAS) in the official foreign exchange market, the official exchange rate has been approaching the parallel exchange rate after a long period of time. But it may diverge again due to the nature of the DAS itself⁵ since it involves price discrimination and fails to capture the main forces of demand and supply that operate in the determination of exchange rate.⁶ It may diverge again if the Internal Monetary Fund (IMF) or the World Bank withdraw their foreign exchange backup. Besides, unification may lead to higher inflation, as Pinto (1991) found in Sierra

Leone and Zambia. Therefore, identifying the determinants of the parallel premium is an important step in examining the success of unification.

Although the general behaviour of the parallel foreign exchange market is similar within developing economies, there are differences among countries regarding the relationship between the size of the parallel market for foreign exchange and the macroeconomic variables. According to Ghei and Kiguel (1992), the relationship between the parallel premium and the fundamental factors that affect it are expected to be clearer in high premium countries than in low and moderate premium countries. Besides, they argue that high premium countries are also subject to macroeconomic imbalances.

Ethiopia is among those countries that had high parallel premium for foreign exchange for 20 years, 1973–1993. Despite the maxi-devaluation of October 1992, which was followed by mini-devaluations, adoption of an auction system for foreign exchange in May 1993 and gradual trade liberalization reforms, the parallel premium remained high in 1992 and 1993 before dropping to the range of moderate premium in 1994, 1995 and 1996 and then to the low level afterwards. The rationale behind these policy reforms is to achieve unification of the official and the parallel exchange rates so as to integrate the parallel market into the formal economy.⁷

In view of the foreign, then, the principal objectives of this study are:

- To identify the determinants of the spread between the parallel and the official exchange rates in Ethiopia by adapting stock-flow model. In relation to this, the impact of the parallel premium for foreign exchange on official merchandise exports is also examined using both monthly and annual data..
- To examine whether inflation causes the parallel market exchange rate or vice versa, using Granger causality test.

In order to overcome the impact of an active parallel foreign exchange market on economic growth and in an attempt to finally unify the official and the parallel exchange rates, many sub-Saharan African countries have been trying to reduce the parallel premium through devaluation and the adoption of auction exchange rate systems. Similarly, Ethiopia started implementing a foreign exchange liberalization programme with the massive devaluation of exchange rate of the birr in October 1992 and the establishment of the auction system (which has been mainly financed by the inflow of foreign grants and loans) in early 1993. The objective was to integrate the illegal parallel market for foreign exchange into the formal economy. To provide further evidence on the impact of the parallel premium on merchandise exports, this study also attempts to examine whether the fall in the spread between the parallel and the official exchange rates has improved merchandise exports by using monthly data of 1993(5) to 1997(12).

Despite the importance of the parallel foreign exchange market in Ethiopia, there has not been any formal study to characterize this market. This study is thus the first of its kind. As such, it contributes to the literature that focuses on the dynamics of parallel foreign exchange markets of developing countries in general and those of sub-Saharan African countries in particular.

The presentation of this study takes the following form: The first section is introductory. The second part deals with monetary and exchange rate development, the characteristics of the parallel market for foreign exchange and the macroeconomic performance of the country. The third section is devoted to the specification of the model and is followed by analysis of data and discussion of empirical results of the estimations in part four. Part five concludes the paper.

2. General background

Monetary and exchange rate development in Ethiopia

Monetary developments

The legal tender currency of Ethiopia was issued on 23 July 1945 by defining the monetary unit as the Ethiopia dollar (E\$) with a value of 5.52 grains (equivalent to 0.355745 grams) of fine gold.⁸ The linkage with fine gold was in accord with the monetary system established by the Bretton Woods Agreement of 1944.

For the five years following the proclamation of the national currency (1945–1950), money supply of the country was determined by the balance of payments (reflected in the volume of currency issued) and the supply of domestic credit.⁹ However, the impact of domestic credit on money supply was small as the government was running a budget surplus; private credit was limited to trade (particularly external trade), consumer credit was unknown and other users of credit (such as manufacturing industries) were virtually nil.

Following the introduction of saving deposit, broad money (M2) came to the scene in 1946 with growth rate of 8.8% as compared to 17.3% growth rate in M1 during the 1945–1950 period. This is due to the substitution of the national currency during the early years of the period particularly in 1945 and 1946. Nevertheless, the expansion of money supply during 1945/1946 had to be explained more by exogenous factors vis-a-vis domestic needs.

During the 1950–1963 period, money supply was explained by balance of payments and domestic credit. The impact of domestic credit on money supply was enhanced in response to growing economic activities.¹⁰ Thus, domestic credit came to play the dominant role in determining the growth rate of money supply in the 1950s and early 1960s.¹¹

Money supply increased from E\$259.6 in December 1963 to E\$694.3 million in December 1974. Broad money also increased from E\$306.6 million in 1963 to E\$1,075 million in 1974. The main factor behind the expansion of money supply during 1964–1975 was again the expansion of domestic credit to both the private sector and the government.

The drastic increase in broad money supply during the Derge regime and the 1993–1996 period was mainly attributed to domestic deficit financing (which mainly took the form of borrowing from the banking system) and the domestic credit expansion to the private sector specifically during the latter period.

Exchange rate developments

Ethiopia's trade policy, which became increasingly inconsistent with some of the macroeconomic policies especially during the Derge regime, has long been characterized by controlled foreign exchange allocation, import quotas, high tariffs, state-owned marketing exports, export prohibitions, export subsidies and export taxes (Naude and Abu Girma, 1994). For nearly half a century up until October 1992, the exchange rate of Ethiopian currency against its reference or reserve currency, the US dollar, was determined by government decree.

The currency Proclamation of 1945, as noted above, defined the monetary unit of the country as the Ethiopian dollar (hereafter Ethiopian birr as it replaced the Ethiopian dollar in September 1976) with a value of 0.355745 grams of fine gold. The linkage with fine gold, which was in accord with Bretton Woods Agreement of 1944, automatically established the exchange rate between the national currency and other currencies with the same arrangement. Accordingly the official exchange rate of Ethiopian currency with US dollar was created (with the official exchange rate of 2.48 birr per US dollar) on July 23, 1945. After almost two decades, that is, on 1 January 1964, the Ethiopian birr was slightly devalued to 2.50 birr per US dollar.

Following the collapse of the Bretton Woods System in 1971, the birr was revalued to 2.30 birr per US dollar on 21 December 1971. The subsequent 10% devaluation of the US dollar had temporarily brought about undervaluation of the birr. To realign the Ethiopian birr, it was again revalued to 2.07 birr per US dollar in February 1973. From then on, the Ethiopian currency was pegged to the US dollar at the rate of 2.07 birr per dollar until massive devaluation of October 1992.¹² This fixed official exchange rate was left unaltered for two decades despite the floating of the major world currencies including the US dollar. In effect the birr became over-valued in terms of the US dollar as well as many other foreign currencies.

According to Haile Kibret (1994), all the relevant indicators of exchange rate misalignment, particularly the prevalence of a significant parallel premium, and the fact that the real exchange rate is consistently higher than the nominal exchange rate, suggest that the Ethiopian birr has been over-valued since the mid-1970s.¹³ By considering export weighted index, import weighted index, and trade weighted index, Asmerom Kidane (1994) also arrived at the conclusion that whether we use the nominal, real or parallel exchange rate index, all results asserted the continuous appreciation of Ethiopian birr; the extent of appreciation, according to him, was higher during the 1980s than the 1970s. The over-valuation of the birr may be portrayed by the continuous appreciation in real official exchange rate prior to huge devaluation of the birr in October 1992 contrary to that of the parallel exchange rate (see figures in Appendix A).

Among the factors that underlie the poor performance of the Ethiopian economy in general and that of the export sector in particular, the over-valued exchange rate of the birr is considered to play a significant role (see Gashaw, 1992; Asmerom, 1994; Haile, 1994; Befekadu and Kebe, 1994). Alem Abreha (1995) has also shown this using theoretical and empirical models. Over valuation of the exchange rate causes misallocation

of resources in production and promotes investment of resources in rent-seeking and socially unproductive but privately profitable activities and, hence, reduces the growth rate of output. In line with this argument, Stefan Dercon and Lulseged Ayalew (1994) attested that over-valuation of Ethiopian birr also reduced the competitiveness of legal exports and led to significant smuggling.¹⁴

In the Imperial era, except for some essential consumer items, imports were free from licensing or other quantitative restrictions and exporters were required to surrender their foreign exchange to commercial banks at the prevailing official exchange rate. The existence of macroeconomic stability and a relatively liberal trade regime probably reduced misalignment of the actual exchange rate from its equilibrium in this regime (Tameru Kifle, 1994). However, the Derge regime was characterized by persistent fall in real official exchange rate and steadily rising real parallel exchange rates, signifying the over-valuation of the currency. With an over-valued exchange rate, exports have been stagnating while imports have been rising over time since 1975/76.

The Derge regime responded to the falling competitiveness of legal exports and to smuggling by tightening its control regime through stricter rationing of foreign exchange, by prohibiting the domestic trade of many exportables (notably coffee) and by providing export subsidies for loss-making state-owned exporters. In the history of the Derge regime, significant changes occurred in the exchange and trade system during 1977.¹⁵

Realizing the negative effect of an over-valuation of the birr on the country's trade balance and, hence, on balance of payments, the Transitional Government of Ethiopia (TGE) devalued the birr seven times with an official exchange rate gradually reaching 6.25 birr per US dollar before the date of unification in the late 1995. The TGE also introduced the auction for foreign exchange in May 1993 in an effort to liberalize the foreign exchange market so as to achieve market determined exchange rate. The belief at the centre of successive devaluations of official exchange rates and the adoption of the auction system is to attract foreign exchange in the parallel market back to the official line and thereby strengthen official reserves.

From May 1993 up to the unification of the official and the auction exchange rates on 25 July 1995, the exchange rate was partly determined by government decree (applicable to the official rate) and partly by quasi-market forces (applicable to the auction rate) as represented by auctions. Since the date of unification, the exchange rate of the birr against the US dollar and the resultant cross-rates have been determined only through the auction system. From the date of unification up to the present day, we have a quasi-market determined exchange rate.

As components of the stabilization-cum-liberalization programme adopted in 1992, the government of Ethiopia abolished

- Taxes on exports (except coffee) in December 1992, and in August 1993 reduced differences between tariff rates.
- All export subsidies to Ethiopian industries in December 1992 by replacing them with an incentive that allows duty-free importation of raw materials.
- Negative list imports of the National Bank of Ethiopia on February 3, 1995.
- Franco valuta imports in July 1996.

The total demand for US dollars in the auction system excludes those demanders of foreign exchange who do not fulfil the requirements set by the National Bank of Ethiopia for participation in a bid. The requirements include: a permanent import license, supplementary documents such as a copy of registered trade balance, the birr equivalent of the foreign exchange, and pro forma invoices indicating the price as well as transport expenses from at least two suppliers. The minimum bid allowed for participation in the auction was US\$5,000 for the first three years after the adoption of the auction system, which was then raised to US\$10,000 on 1 December 1995. All these and other restrictions together discourage potential participants in the auction system, and partly stimulate demand for foreign exchange in the parallel market.

As of 26 July 1996, the following reforms were made: (a) The 25% auction cover was reduced to 2%, (b) commercial banks were allowed to bid in the auction system, (c) foreign exchange auction was conducted every week, (d) importers who wish to acquire foreign exchange for imports outside the auction market were allowed to obtain from the domestic commercial bank bureaus at freely negotiated rates, (e) eligible exporters of goods gained the right to retain 30% of their export earnings and use the same in accordance with the conditions and guidelines of exporters retention scheme. As of 1 October 1996, however, 50% of the export earnings or remittances has to be surrendered to the National Bank of Ethiopia via local banks at the prevailing marginal exchange rate within five days of the receipt while eligible customers (eligible exporter or recipient of regular foreign exchange remittances) have the right to retain 10% and 40% percent of their export earnings or remittances in foreign currency in retention Account A and retention Account B, respectively.

Upon request of a beneficiary, the 10% of the inward foreign exchange remittances that is deposited in Account A of the beneficiary may be debited with business related current payments, while the 40% of the forex earnings or inward remittances that is deposited in forex retention Account B will have to be offered for sale by the account holder not later than 21 days from the date of entry to commercial banks at negotiated rates, or to the foreign exchange auction market through their bankers.

In order to further liberalize current external transactions and decentralize import and export licensing procedures, the measures taken by the National Bank of Ethiopia and put onto effect as of 31 August 1998 with the establishment of wholesale foreign exchange auction are:

- The commercial banks are empowered to handle the licensing of foreign exchange for merchandise imports and the issuance of export permits with the exception of that for coffee, which remains with the NBE.
- There is automatic provision of foreign exchange for merchandise imports by commercial banks for an amount not exceeding \$500,000 US dollars.
- The surrender of foreign exchange proceeds from exports to commercial banks is subject to the following procedures: 10% of export proceeds may be indefinitely retained in the exporter's own foreign currency account in a domestic bank while the remaining 90% may be converted into local currency at any legal exchange deemed favourable by the exporter within a period of 28 days.
- With the exception of a US\$1,200 limit on the purchase of foreign exchange for

holiday travel abroad, clients may purchase any amount of foreign exchange at the forex bureaus for educational, medical, business travel and other similar expenses abroad.

- Foreign employees working in Ethiopia may transfer abroad any amount of foreign exchange up to an individual's net salary earnings.
- The weekly retail foreign exchange auction is replaced by the weekly wholesale foreign exchange auction for participants bidding not less than US\$500,000.
- The commercial banks are allowed to handle automatically amounts less than US\$500,000.

Exchange rate regimes in Ethiopia

Prior to the adoption of the auction market system for foreign exchange in Ethiopia there were two foreign exchange markets: the official and the parallel markets. However, from May 1993 to July 1995, three foreign exchange markets were in operation: two of them were legal and one was illegal. The two legal foreign exchange markets were the official rate and the auction marginal rate while the illegal rate is the parallel market rate. Besides, we had what is called the weighted average rate, which was in force between February 1995 and the date of official and auction marginal rates of unification in July of the same year.

The official exchange rate regime¹⁶ in effect from the date of unification up to the present time can be described as a single quasi-market determined rate system. Thus, after the date of unification, the exchange rate of the birr against the US dollar and the resultant cross-rates are being determined through the auction system only. Of course, as pointed out earlier, the parallel market for foreign exchange continues to function despite the efforts of the government to abolish it.

Thus, the four dominant exchange rates that were applicable in Ethiopia prior to the date of unification of the official and the auction exchange rates in July 1995 were: the official rate, the parallel rate, the auction marginal rate and the weighted average rate. The official and the weighted average rates were determined by administrative means, while the parallel and the auction exchange rate are determined by market and quasi-market system, respectively.

Particularly after the adoption of the auction system, the official exchange rate was applied to essential imports such as imports of petroleum products, pharmaceuticals and fertilizers, and for the government's foreign exchange contributions to international organizations and official debt service payments. Before 1 May 1993, the official exchange rate was applied to all necessities that include the above and other imports that had been financed at the auction exchange rate between 1 May 1993 and 25 July 1995.

The Ethiopian auction market for foreign exchange was established on 1 May 1993. Although there are two ways in which the exchange rate can be determined through the auction system, i.e., discriminatory or 'Dutch' auction and a competitive or 'marginal pricing' auction system, the government of Ethiopia chose a discriminatory or Dutch auction system in which foreign exchange is allocated to winners of bids at their respective

bid prices until the total foreign exchange made available is exhausted.

The lowest winning bid price in the auction system (which is known as the marginal rate) serves as the official exchange rate on what might be called the "second foreign exchange window"¹⁷ for the next 14 days. This auction exchange rate is applied to all current and capital account transactions. In other words, all imports that are not on the negative list and are not financed at the first or soft window are eligible for the foreign exchange auctions.¹⁸

The major imports that are financed at the marginal auction exchange rate or at the second (or *ihardî*) window are spare parts, chemicals, various raw materials, machinery and equipment, and non-durable goods. Besides, export proceeds and inward and outward foreign exchange remittances are handled at the auction exchange rate. It is also applied for the government's foreign exchange contributions to international organizations and official debt service payments and for all imports except secondhand goods. The weighted average rate was applied to foreign exchange that is allocated between auctions for imports of investment goods.

Prior to February 1995, foreign exchange was not made available through official markets for negative list imports, which include wild animals, meat, butter, fish, oilseeds, sugar and honey, coffee, tea, spices, alcoholic beverages leather, chat, beeswax, cotton based fabrics, TV sets, radios, private autos, shoes, watches, and jewellery. Those who have smuggled these goods into the country used the parallel foreign exchange market. Moreover, licensed importers whose demand for foreign exchange was not met in the official market at the prevailing official auction exchange rate use the parallel foreign exchange market.

Ethiopia's parallel market for foreign exchange and the premium

Development of parallel foreign exchange market

The parallel foreign exchange market, which is usually created in response to foreign exchange scarcity in the formal economy, is common in most developing countries. If the supply of foreign exchange in the official market is insufficient to satisfy the demand for it at the official exchange rate, excess demand for foreign currency is created in this market. If the concerned body of the government does not react to this excess demand, it will result in the emergence of the parallel foreign exchange market.

When faced with foreign exchange constraints, governments of developing countries often prefer foreign exchange controls to devaluations or tighter macroeconomic policies in their attempt to protect their international reserves. Extensive controls on foreign exchange limit the accessibility of foreign exchange demanders to the official market, i.e., tighter foreign exchange controls throw an increasing number of foreign exchange demanders out of the official market. This leads to the emergence of an illegal market for foreign exchange, which then grows and becomes macroeconomically important as the

concerned authorities respond to deteriorating balance of payments by tightening and extending controls on foreign exchange to maintain an over-valued exchange rate.

Although the control of foreign exchange in Ethiopia dates back to 1942, the parallel foreign exchange market did not develop until the 1970s, perhaps because of the due to stable macroeconomic environment.¹⁹ Naude and Abu Girma (1994) asserted that Ethiopia's illegal parallel market for foreign exchange developed in the 1970s and expanded considerably during the 1980s in response to import controls and foreign exchange rationing implemented by the Derge regime.²⁰ Befekadu Degefe (1994) noted that the emergence of parallel foreign exchange market antedated the 1974 revolution. To him, what differentiates the pre and post 1974 period is the motive, intensity and magnitude of the market as the factors that are responsible for the development of parallel foreign exchange market in Ethiopia were at minimum during the pre-1974 period as compared with the post-1974 period.

According to Befekadu Degefe (1994), current account transactions, currency substitution and capital flight motives of the demand for foreign exchange by the private sector increased over time in the parallel market. However, the most crucial force in the expansion of the parallel foreign exchange market in the post-1974 Ethiopia stems from current account transactions. He further noted that the significance of the illegal parallel market for foreign exchange grew to the extent of impairing the operations of the official foreign exchange market during the post-1974 years, and particularly since 1981.

It is also argued that the parallel foreign exchange market activities in Ethiopia have been important at various times in attracting traders, dealers and others who wish to export funds in excess of permitted limits. Parallel market dealings became hectic, as the intensifying political instability pushed money out of the country following the replacement of the Ethiopian dollar by Ethiopian birr in September 1976 (World Currency Yearbook, 1989).

The parallel premium increased rapidly over the period 1972–1991, rising from 21.74% in 1972 to 238 in 1991 and then dramatically fell to 45% in 1992 due to the maxi-devaluation in that year. The premium further fell to about 15.59% in 1996, largely in response to the operation of the auction system. The rapid expansion of the parallel market for foreign exchange particularly after 1974 and before 1992 may be mainly attributed to the serious economic crisis that partly emanated from acute foreign exchange constraints during the Derge regime. Official receipts from the major exports remained almost stagnant during the regime mainly due to an internal production crisis and the over-valuation of official exchange rate.

A new exchange rate regime was introduced with the massive devaluation of the birr by about 142% in October 1992 and the foreign exchange auction system (which has been mainly financed by inflows of grants and loans) was adopted in May 1993. As a result, the parallel exchange rate fluctuated within the range of 7.75 and 6.80 birr per US dollar, while the annual parallel premium fluctuated within the range of 45 and 15.59% until 1996.

Although the current border dispute with Eritrea exerts an upward pressure on the parallel exchange rate through capital flight owing to uncertainty, the banning of franco valuta imports and the implicit administrative controls on bidding for foreign exchange

by NBE, hand-in-hand with the gradual policy reforms, have depreciated the auction rate and then brought down the premium to the level below 5%.

Characteristics of the parallel foreign exchange market

Sources of supply and demand for foreign exchange

The sources of supply and demand for foreign exchange in the parallel market differ from country to country and depend on the nature and effectiveness of exchange restrictions imposed.

The supply of foreign currency in the parallel foreign exchange market generally has five principal sources: smuggling of exports, underinvoicing of exports, overinvoicing of imports, foreign tourists and the diversion of remittances from abroad into unofficial channels. Besides, government officials may also divert foreign currency from official to the parallel market through corruption.

Notwithstanding this variety of sources of supply of foreign exchange in the parallel market, there is, in general, a dominant source at each time and in each country. In Ethiopia, the dominant sources of supply of foreign exchange for the parallel market are largely contraband exports (smuggled exports) of goods and services and unofficial private transfers. On the other hand, legal and illegal imports, portfolio diversification motive and capital flight, and residents' travel abroad are generally the principal sources of demand for foreign exchange. Contraband importers (who want to escape import taxes as long as the risk of engaging in illegal import is a worthwhile venture) and invisible payments such as payments for medical, educational and travel services abroad are the dominant sources of demand for foreign exchange in the parallel foreign exchange market of Ethiopia. Also, a large portion of franco valuta imports was financed with the foreign exchange obtained on the parallel foreign exchange market before it was banned by the government in July 1996.

Entry and Exit

Due to high costs of enforcement, governments typically tolerate a substantial amount of illegal parallel foreign exchange market activity (see Kiguel and O'Connell, 1995). Ethiopia's parallel foreign exchange market, in which mainly current account transactions are conducted, has never been tolerated and the government has tried to eliminate the possible sources of supply by intensive policing and controls.

When government fails to react to the excess demand created in the official foreign exchange market in response to foreign exchange scarcity stemming from the limited foreign exchange earning capacity of the economy, a chain reaction sets in. Frustrated demanders of foreign currency in the official foreign exchange market enter the parallel foreign exchange market to acquire foreign exchange by their willingness to pay higher

prices depending on the intensity of demand. Buyers enter the parallel forex market to get around

- High customs duties
- Limitations on the acquisition of forex for invisible payments
- The ban on the importation of used clothes
- Inefficient working system of the official forex market

In an attempt to enter the market, the buyers weigh the benefits of acquiring foreign currency in the parallel forex market against all costs including the risk of participating in an illegal activity. For instance, if goods are to be smuggled with the foreign currency obtained from the parallel forex market, buyers of forex in the parallel market weigh the benefits from smuggled imports with the costs involved in smuggling. These include clandestine transportation, payoffs to officials, risk of confiscation, and other legal penalties associated with both smuggling and acquiring foreign currency in the parallel forex market.

Similarly, the suppliers of foreign exchange would also calculate the advantages of selling forex in the parallel market relative to the official forex market. The supply of forex to the parallel market is a function, among other factors, of the spread between the parallel exchange rate and the official exchange rate and the risk involved in illegal transactions. The higher the premium and the lower the risk, the larger would be the supply of foreign currency to the parallel foreign exchange market. The risk associated with selling forex in the parallel forex market in turn depends on the effective enforcement of government policing activity. If borders are relatively open and if officials who are in a position to collect rents are subject to self-interest optimizing behaviours rather than enforcing rules and regulations prohibiting illegal activity, the larger would be the supply and vice versa.

Therefore, as long as the benefits of the parallel forex market outweigh the costs for buyers and sellers of forex, the two parties will continue to enter the foreign exchange market and use all available information to establish the parallel market exchange rate.

Foreign currency composition and its nature

One of the structural characteristics of Ethiopia's foreign exchange market is that the forex composition is dominated by the US dollar while other currencies are almost unknown in the market (see Befekadu Degefe, 1994). Even with the US dollar, larger denominations are preferred, for instance, the 100-dollar note is preferred to smaller denominations of an equivalent amount. This is so perhaps because of the inconvenience of carrying smaller denominations of an equivalent amount in large quantities and the risk involved for an equivalent but large number of transactions. So, smaller and smaller denominations of dollars of an equivalent amount are exchanged at lower and lower rates as the risk and inconvenience of carrying them increase with the decrease in denomination.

An overview of macroeconomic performance: 1965–1996

Although dealing with Ethiopia's macroeconomic performance requires detailed presentation of the movement in all economic variables, trends in those macroeconomic indicators that have close relationship with the parallel premium for foreign exchange can be briefly discussed as follows:

Real GDP

Ethiopia, like any other developing country, has been characterized by both internal and external imbalances. Although growth was satisfactory in the late 1960s and early 1970s, the country's economy suffered from severe internal and external shocks particularly during the 1974–1991 period. The average growth rate of real GDP at constant market prices was negative 0.95% per annum during the Derge regime (1974–1990), compared with 4.20% per annum for the last nine years of the Imperial era (1965–1973). In particular, during the first six years of the military regime, the average growth rate of real GDP was 5.68% per year below zero (see Table 1). The major contributor to the decline in the real GDP during the Derge regime was the poor performance of the agricultural sector which registered an average decline of 0.18% per annum for the period in question.²¹ However, since the overthrow of the military rule, real GDP has shown recovery.

Table 1. Average annual growth rate of macroeconomic indicators

	1965-1970	1971-1973	1965-1973	1974-1979	1980-1985	1986-1990	1974-1990	1991-1996
Real GDP	4.86	3.11	4.2	-5.68	-0.40	4.07	-0.95	5.3
M2	6.63	14.74	9.67	-0.99	4.04	11.05	4.33	-14.43
Fiscal Deficit	12.46	6.03	10.05	5.29	21.40	4.95	10.88	4.11
Inflation	2.27	1.06	1.82	15.13	7.21	1.56	8.34	10.39
REER	.59	-0.62	0.14	-5.69	-2.12	4.42	-1.46	16.81
TOT	1.61	0.18	1.07	5.91	-3.72	-7.81	-1.53	-7.71
M2/Oe	6.69	22.07	12.46	-0.98	4.04	11.06	4.33	-1.80
Parallel Premium	0.00	15.49	5.81	1.12	8.29	7.77	5.61	-12.53
ITR	0.25	6.14	2.46	0.20	-8.92	7.65	-0.83	4.23
ETR	7.14	-5.68	2.33	28.30	1.33	-16.15	5.71	104.87
Grant	-1.50	0.76	-0.65	-24.55	82.85	23.46	27.48	104.48
Mx	-0.93	25.00	8.79	-6.50	-4.93	1.21	-3.68	30.33
IR	-3.10	42.90	14.15	-1.45	-4.53	-15.87	-6.78	138.07
Fx	0.56	6.98	2.97	5.81	-8.44	0.69	-0.73	25.30
Fxy	-3.99	4.14	-0.93	12.04	-7.63	-3.77	0.45	21.17

Note: REER = real effective exchange rate; TOT = terms of trade; ITR= import tariff rate; ETR = export tax rate; IR = international Reserve; Fxy = ratio of foreign trade tax revenue to GDP; M2/Oe = real money balance; Mx = Merchandise exports; and Fx = foreign Trade tax revenue.

Source: International Financial Statistics, World Tables, World Currency Yearbook, Annual Bulletins of the National Bank of Ethiopia, unpublished documents of the Ministry of Finance and the Ministry of Economic Development and Cooperation.

Fiscal Deficit, Money Supply and Price

In a developing country like Ethiopia, fiscal deficit has important linkages with the balance of payments and the money supply process. On one hand, when fiscal deficit is financed through discretionary bank borrowing, it usually results in increased money supply. On the other hand, an excessive resort to foreign borrowing leads to over-valued real official exchange rate, deteriorating current account deficit, higher external debt and declining foreign exchange reserves.²²

Fiscal deficit over the period 1965–1973 was, on average, about 5% of GDP per year, compared with 14.14% and 8.64% per annum during 1974–1990 and 1991–1996, respectively. The rise in fiscal deficit during the Derge regime is explained by the rapid increase in government expenditure relative to tax revenue. The high fiscal deficit after the overthrow of the military rule is mainly due to the pervasive effects of devaluation, a dramatic fall in revenue collection and the introduction of regional states that led to the duplication of bureaucracy.

Over the period under consideration, money supply has been continuously increasing. Broad money (M2) went up from 422 million birr in 1965 to 15,972 million birr in 1996, about a 38-fold increase in money supply. Its share to GDP, on average, was 12.33, 25.93 and 43.8% for 1965–1973, 1974–1990 and 1991–1996, respectively. Money supply drastically increased, particularly during the last five years of the Derge regime and the 1991–1996 period, in response to domestic deficit financing through discretionary bank borrowing and domestic credit expansion, respectively. Also, real money balance (defined as $M2/O_e$ where O_e is nominal official exchange rate) continuously from US\$168 million in 1965 to US\$4052 million in 1991, before it sharply dropped to US\$2515 million in 1996. This represented an average annual growth rate of 12.46, 4.33 and -9.09% for the 1965–1973, 1974–1990 and 1991–1996 periods, respectively.

Despite an alarming rise in budget deficit and fast increase in money supply, inflationary pressure was low in Ethiopia compared with other developing countries. Average inflation rate was about 1.82, 8.34 and 10.39% for the periods 1965–1973, 1974–1990 and 1991–1996, respectively. Inflation was relatively higher during the Derge era in spite of serious price controls throughout the country.

Real exchange rate

A real exchange rate index has often been used to determine the appropriateness of an exchange rate policy.²³ Although a variety of somewhat different indexes of the real exchange rate can be obtained by using different series for the indexes, usually the relevant one is the real effective exchange rate (REER) as defined by Edward (1989): The nominal exchange rate is measured against a basket of the currencies that are most relevant for the country's own trade. Following Edward's (1989) definition, an increase in the value of REER implies real depreciation whereas a fall implies real appreciation of domestic currency, which in turn implies loss of competitiveness of a country in the world export market. The average annual growth rates of the real official effective exchange rate of

Ethiopia were 0.14, -1.46 and 23.16% for the 1965–1973, 1974–1990 and 1991–1996 periods, respectively (see Table 1). The high and positive real official effective exchange rate during the 1991–1996 period was due to the maxi-devaluation of 1992, which was followed by six mini-devaluations and the adoption of an auction system for foreign exchange. The continued decline in the official REER from 1972 to 1992 reflected the deterioration in the external competitiveness of the country's export products in the world market.²⁴

Terms of trade

Like most developing countries, Ethiopia's exports are largely dominated by primary agricultural products whose demand in the world market has fallen over time. This fall in demand is one of the main reasons for the decline in the world prices of primary commodities. The generally falling export prices especially after 1977 (which was mainly due to the decline in coffee prices) in the face of generally rising import prices resulted in deterioration of the country's terms of trade (see Table 1), which contributed to the foreign exchange crisis.

Foreign trade policy and its effects

Many less developed countries adopted import substitution strategies to promote domestic economic development. Ethiopia was one of these. As such Ethiopia's trade policy has long been characterized by controlled systems of foreign exchange allocation, import quotas, high tariffs, state-controlled marketing of exports, export prohibitions, export subsidies and export taxes. This trade policy became increasingly inconsistent with some of the macroeconomic policies followed by the Derge regime right from the very beginning.

The restrictive trade policy followed by the Derge (which was accompanied by the over-valuation of the official exchange rate, the increase over-time in the parallel premium for foreign exchange and deteriorating terms of trade) led to generally falling real official export earnings which registered an average annual growth rate of negative 4.43%. Export tax followed the route of official merchandise exports mainly due to smuggling. However, real official imports and import trade tax have generally risen at a fast rate despite progressively more restrictive trade policies against imports. This is due to the import dependent nature of the economy. The widening gap between foreign exchange earnings and financing imports led to deteriorating international reserves (see Table 1) and escalating external debt of the country. Although gradual trade liberalization reforms have been undertaken since the overthrow of the Derge regime in 1991, the dramatic increase in international reserves is not due to the performance of the export sector. Rather, it is largely attributed to the inflow of foreign loans and grants in support of the structural adjustment programme.

Export sector performance

Like most developing countries, a large proportion of the country's total exports consists of age-old traditional agricultural exports; in Ethiopia these account for more than 95% of the total foreign exchange earnings. Of the total export earnings, coffee alone accounted for 58% in 1966 and this share has been generally increasing over time, reaching more than 65% in 1997. This clearly indicates that the dependency on a single product for foreign exchange earnings has increased, making the country much more vulnerable to the effects of a monoculture export profile. Despite attempts made to diversify the export mix towards the end of the Derge regime, a single new major export product has not been developed since 1991.

Although exports have generally increased in terms of both volume and value since 1991, the sharp increase in the country's total foreign exchange earnings is largely attributed to: a) the increase in the volume of coffee exports significantly resulting from redirection from smuggling to official channels, b) the favourable world price for exports, c) an improved performance of services, and d) the rise in inward remittances. It is also attributed to the 1992 birr devaluation and subsequent depreciation of the national currency on the auction market vis-a-vis the US dollar as the dollar earnings are converted into local currency at a much higher exchange rate. In general terms, the country's exports (with the exception of gold) have recovered quite remarkably since the initiation of the government's economic reform programme in late 1992.

On the other hand, Ethiopia's imports constitute raw materials, semi-finished goods, fuel, capital goods and consumer goods, with the capital goods taking the leading share although this has been overtaken by consumer goods in recent years. By comparison, the slow response of exports and the substantial increase in imports caused by escalating demand for consumer goods and capital goods imports to rehabilitate the economy since the initiation of the economic reform programme led to an ever widening trade deficit. For instance, trade deficit has grown from 3.3% of GDP in 1991 to 13.4% in 1996.

A deterioration in the trade balance induced by import liberalization calls for increased inflows of aid or borrowing or a combination of both. In Ethiopia, a large portion of the deficit was financed by foreign borrowing in the form of concessional loans from IDA, ADB/ADF, IMF, and the Paris Club rescheduling (Alem, 1996). Although the inflows of loans eased the foreign exchange constraint by facilitating imports when the export sector was extremely weak, it has increased the country's overall foreign dependency and external debt burden that would lead to the dwindling of foreign exchange reserves thereby further depreciating the national currency rapidly.

However, it should be noted that the birr has depreciated on the foreign exchange market even when the amount of foreign exchange supplied to the auction market by NBE exceeds the demand for it. This is because the implicit administrative controls associated with bidding for forex on the market exert an upward bias on the official exchange rate.

3. The model

The premium model

Of the various models²⁵ developed to single out the determinants of the parallel market premium for foreign exchange, the stock-flow model of Kiguel and O'Connell (1994) is adapted.²⁶ In this model the real exchange rate is endogenized and the parallel current account is modelled in more detail so that the variables affecting trade balance like aid inflows and the terms of trade enter the parallel premium determining equation, often with theoretically ambiguous signs.

The explicit specification of the model (with some modification) is:²⁷

$$\begin{aligned} \text{Log}Z = & \beta_0 + \beta_1 \text{Log}REER + \beta_2 \text{Log}(M_2 / O_e) + \beta_3 \text{Log}r^0 + \beta_4 \text{Log}Ad + \beta_5 \text{Log}TOT \\ & \beta_6 \text{Log}ETR + \beta_7 \text{Log}ITR + \beta_8 \text{Log}Y + \beta_9 \text{Log}IR + e_t \end{aligned}$$

$$\beta_2, \beta_3, \beta_7, \beta_8 > 0; \beta_1, \beta_6, \beta_9 < 0; \beta_4, \beta_5 = ?$$

where

Z = parallel premium for foreign exchange²⁸

REER = real effective exchange rate²⁹

M_2 / O_e = real money balance (in which M_2 is broad money and O_e is nominal official exchange rate)

r^0 = official interest parity differential at the official exchange rate³⁰

Ad = aid

TOT = terms of trade

ETR = export tax rate

ITR = import tariff rate

IR = international reserves

Most models predict that the parallel exchange rate depreciates and the parallel premium increases in anticipation of devaluation of the official exchange rate or an increase in the money supply or in the interest rate parity differential in favour of foreign

assets in the short run. This may happen in the long run if the parallel current account includes interest income on foreign assets; otherwise portfolio considerations and expectations have no long-run effect since a rise in the stock of domestic currency at time t , for given expectations, implies a depreciation of the parallel market rate in order to restore portfolio equilibrium.

However, in the long run, flow considerations are emphasized in the determination of the parallel premium as the level of the premium will be influenced by altered profit opportunities for smuggling, faked invoicing of trade, tourism and the remittances of migrants (Aron and Elbadawi, 1992).

Among trade balance determinants of the parallel market premium, a real appreciation of the official exchange rate or a tightening of import restrictions raises the premium in both the short run and the long run. Nominal exchange rate affects the premium only indirectly, through real money balances or the real exchange rate, as a result of which nominal devaluation has no effect on the premium if it is fully offset by money growth and domestic inflation (Kiguel and O'Connell, 1994). A rise in export taxes, however, lowers the premium in the long run by diverting export revenues into the parallel market. The model also predicts that there is a positive relationship between real output and the premium.

Due to government finance conditions, the domestic money stock is endogenized for it plays an important role for the fiscal deficit. The strong link between fiscal deficit and money growth in many developing countries suggests that over-expansionary fiscal policy is often at the heart of parallel markets with high premiums, meaning that high fiscal deficits produce rapid money growth, which produces high parallel premium for foreign exchange.

The directional influences of terms of trade and aid inflow on the parallel premium for foreign exchange cannot be determined a priori. For instance, improvement in the terms of trade can lower the premium through induced liberalization of official import allocations and an increased supply of export smuggling foreign currency; however, it can raise the premium if the income effect is sufficiently strong to appreciate the real exchange rate for imports and lead to an increased demand for smuggling (Kiguel and O'Connell, 1994). The argument for inflow of aid follows the same route. An increase in the level of international reserves reduces the demand for foreign exchange in the parallel market when the supply increases in the official market and thereby ends up in lowering the parallel premium.

Inflation and the parallel exchange rate

Two alternative approaches offer explanation about the causes and consequences of parallel foreign exchange markets: the neo-classical approach and the structuralist approach. The categorization of these two approaches is based on contemporary conflicting ideas about development issues in developing economies and the nature of their external sector crisis (Berge, 1995)

Among other things, the neo-classical argument holds that inflation affects the parallel market for foreign exchange in two ways. First, it causes the fixed nominal exchange rate to become increasingly over-valued, which in turn leads to an expansion in the size of the parallel market. Second, by reducing real domestic interest rates, inflation induces capital flight. In this regard, inflation may cause the parallel exchange rate to rise.

Structuralists on the other hand, assert that if the parallel exchange rate rises or the official exchange rate is devalued, the demand for money increases due to an increase in the domestic currency cost of foreign exchange, which leads to a rise domestic prices.

Therefore, whether parallel exchange rate (H) causes inflation (π) or vice versa in Ethiopia, it is investigated empirically using a Granger causality test that involves estimating the following regression:

$$H_t = \sum \alpha_i \pi_{t-i} + \sum \beta_j H_{t-j} + \varepsilon_{1t} \quad (1)$$

$$\pi_t + \sum \lambda_i \pi_{t-i} + \sum \delta_j H_{t-j} + \varepsilon_{2t} \quad (2)$$

where it is assumed that the disturbance terms (ε_{1t} and ε_{2t}) are uncorrelated ($i, j = 1, 2, \dots, n$).³¹

4. Empirical Analysis

Data description

To estimate the concerned models and examine the statistical significance of the variables that relate to the parallel premium for foreign exchange, this study is based on annual time series data covering 1966–1996. However, the GDP data collected from Ministry of Planning and Economic Cooperation are of two series: the old series running from 1966–1993 and the revised series from 1981–1996. This implies that the GDP series lacks consistency for the period under consideration. To avoid the problem with the GDP data, they are excluded from estimations that involve GDP, in one way or the other, as are independent variable. The same is true with excess output that is computed based on GDP data series.

The impact of the consumer price index on the quality of the data used in this study is not undermined. In the deflation of nominal values of the variables used for analysis and calculation of the real effective exchange rate, the retail price index for Addis Ababa is used with its limitations. The index is limited in geographical coverage and computed on the basis of outdated weights and basket content of the 1963 budget survey, but this does not seem to be a serious problem as it reflects the relative scarcity of resources.

The organization and/or collection of data on the variables used in the computation of the real effective exchange rate such as the official exchange rate, price indexes, imports and exports of Ethiopia and its eight leading trading partners, as well as data on grants (1966–1994), merchandise exports and broad money supply, were obtained from various issues of International Financial Statistics (IFS) of the International Monetary Fund. International reserves and terms of trade were collected from various issues of World Tables of the World Bank. As it measures the degree of competitiveness of a country relative to a group of trading partners in the world market, multilateral real effective exchange rate of Ethiopia was computed following Edward's (1989) definition. Eight major trading partners ó France, Germany, Italy, Japan, United Kingdom, United States of America, Netherlands and Belgium ó are involved in the computation.

Data on import tariffs, export trade taxes and grants (1995 and 1996) were collected from unpublished sources of the Ministry of Finance and the annual reports of the National Bank of Ethiopia (NBE). Import tariff and export tax rates are computed as the respective ratio of import tariff to total official imports and export tax to total official exports expressed in percentage terms. Export price and import price indexes as well as data on terms of trade of Ethiopia were obtained from various issues of World Tables and unpublished documents of NBE.

Finally, the parallel exchange rate data before 1993 were collected from various issues of World Currency Yearbook or Pick's Currency Yearbook, while more recent (after 1993) data on parallel and official exchange rates were obtained from unpublished sources of NBE.

Although theory suggests that the interest rate differential is an important determinant of the parallel premium for foreign exchange, the possibility of using the parallel market of Ethiopia for capital transactions is believed to be relatively small compared with its use for commercial transactions (see Befekadu, 1994). Besides, the availability of data on domestic interest rate and the reliability of such data are problems. As a result, the interest rate parity differential is not included in the estimation of the parallel premium model.

Methodology

The models/equations are estimated by ordinary least squares (OLS) using annual data covering the period between 1966 and 1996. Also monthly data for 1993(5) to 1997(12) are used to investigate the impact of the fall in the parallel premium on merchandise exports.³² The presence of shocks that the country experienced due to a change in government, drought and famine, and severe internal conflict necessitates the structural stability tests to check whether the cointegrated estimations are correctly specified, or whether the regression parameters are constant. The structural stability tests that are adopted in this study are the cumulative sum of recursive residuals (CUSUM), and cumulative sum of squares of recursive residuals (CUSUMSQ), which are, respectively, used for systematic changes and sudden changes in the parameters of the equations.³³

As most time series economic variables are difference stationary, it is necessary to first test for stationarity of the variables to avoid spurious regression problems. Stationarity of the time series economic variables used in this paper is tested by Dickey–Fuller (DF) and Augmented Dickey–Fuller (ADF) tests.³⁴ As presented in Table 2, all variables are found to be non-stationary in levels except percentage change of parallel exchange rate, and inflation rate, which are $I(0)$.³⁵

To single out the relative responsiveness of the parallel premium to the explanatory variables of the premium model and its elasticity with respect to some macroeconomic variables, the long-run static regressions as well as the short-run dynamic specifications are estimated in logs.

In each static regression of annual data, dummies that stand for government changes (D74 and D91) and major policy change (D92 for maxi-devaluation) are introduced based on structural tests (i.e., CUSUM and CUSUMSQ) to capture the effects of structural breaks on the dependent variables.

As the Engle–Granger two-step procedure is biased in small samples, a Hendry one-step methodology is used to test for cointegration.³⁶ With the available data set, all variables of the models/equations are included at the outset. However, following the general-to-specific approach of modelling short-run dynamic equations, variables that are statistically found to have genuine long-run relationships are singled out for further treatment in the long-run static regressions.

Table 2: Unit root tests of variables

Variables	DF test (1967-1996)	ADF(1) test (1968-1996)	Order of Integration
Z	-1.54	-1.70	1
REER	-0.59	-0.99	1
M2/Oe	-1.91	-1.94	1
Ad	-1.66	-1.53	1
IR	-1.49	-2.20	1
TOT	-1.16	-0.90	1
ETR	-1.37	-1.16	2
ITR	-3.39	-2.00	1
FX	-2.03	-2.66	1
Fxy	-2.03	-2.33	1
Mx	-1.84	-2.54	1
H	-7.02	-4.26	0
π	-4.39	-3.49	0
Z*	-0.85	-0.31	1
Mx*	-2.60	-2.16	1

Note: Mx* and Z*, respectively, refer to monthly data on merchandise exports and parallel premium. The 95% critical values for DF and ADF tests are -2.96 and -2.97 , respectively.

Estimation results

The results of selected model runs are presented in Appendix B. Data used are shown in Appendix C.

Determinants of the parallel premium for foreign exchange

As presented in Table 3, the estimation results of the parsimonious single equation error correction model reveal that real exchange rate, real money balance, terms of trade, aid and parallel premium are found to be cointegrated with their expected theoretical signs.

In the long-run static estimation (as shown in Table 4), real money balance, real exchange rate and grants are found to be statistically significant at 5% or better. The elasticity of parallel premium with respect to real money stock, real exchange rate and grants is 0.33, -0.65 and 0.08, respectively.

The dummy for the maxi-devaluation of 1992 (denoted by D92 in the estimated equation) is found to have significant negative effect on the parallel premium. This is so because devaluation of an official exchange rate reduces the impact of exchange rate differential and hence the incentive to under-invoice exports and over-invoice imports.

In this estimation the goodness of fit and diagnostic tests indicate that the model fits the data well. Real money stock has statistically significant positive effect on the parallel premium. Expansionary monetary policy of Ethiopia (which is produced by high fiscal deficit) by depreciating the parallel exchange rate exerted an upward pressure on the parallel premium. This finding is in line with the general conclusion that over-expansionary fiscal deficit is often at the heart of a parallel market with high premiums.

Table 3: Parsimonious single equation error correction model of the parallel premium**Modelling Δ LZ by OLS: 1967-1996**

Regressor	Coefficient	t-ratio	Statistical & Diagnostic Tests
Δ LREER	-0.776	-2.39**	$R^2 = 0.61$, Adj. $R^2 = 0.46$, $F(8,21) = 4.09^*$
Δ L(M2/Oe)	0.469	1.54	$\sigma = 0.06$, RSS = 0.08, DW = 2.1
Δ LTOT	-0.279	-2.26**	Serial Correlation: $F(1,20) = 0.14$
Δ LAd	0.008	0.18	Functional form: $F(1,20) = 0.05$
LREER(-1)	-0.652	-2.39**	Normality: $\chi^2(2) = 1.44$
$L(M_2/O_e)(-1)$	0.107	2.18**	Heteroscedasticity: $F(1,28) = 0.41$
LTOT(-1)	-0.12-2.03***		
LAd(-1)	0.063	1.70***	
LZ(-1)	-0.49	-2.63**	

Note: *, ** and *** stand for significance level at 1%, 5% and 10%, respectively.

The real official exchange rate as one of the long-run determinants of parallel premiums with the elasticity of -0.65 underscores the importance of over-valuation of the real official exchange rate in the persistence of high parallel premiums for the large part of the period considered for this study. The inflow of aid (grants) is found to increase the premium in the long run through income effect.

Table 4. OLS Estimation Results of Long-run Cointegrated Equilibrium Model of the Parallel Premium

Dependent variable: LZ (Sample 1966-1996)

Regressor	Coefficient	t-ratio	Statistical & diagnostic tests
LREER	-0.653	-2.58**	$R^2 = 0.86$, Adj. $R^2 = 0.83$, $F(8,21) = 31.3^*$
$L(M_2O_e)$	0.331	5.00**	$\sigma = 0.07$, RSS = 0.11, DW = 1.29
LTOT	-0.102	-0.74	Serial Correlation: $F(1,24) = 3.25$
LAd	0.077	2.46**	Functional form: $F(1,20) = 2.09$
D_{92}	-0.153	-2.22**	Normality: $\chi^2(2) = 1.65$
Constant	-0.592	-1.19	Heteroscedasticity: $F(1,28) = 1.1$

Note: * and ** indicate significance level at 1% and 5%, respectively.

Effect of parallel premium on merchandise exports

To investigate the impact of the parallel premium on merchandise exports³⁷ of the country, both annual and monthly data are used in this study.

Annual data

The OLS estimation results of both short-run dynamic and long-run static equations disclose that the parallel premium for foreign exchange has significant negative effect on merchandise exports as expected (see Tables 5). This is in line with the fact that a high and rising premium reduces officially sanctioned exports.

Table 5: Parsimonious single equation error correction model and long-run static regression of merchandise exports equation—Annual data

	Modelling Δ LMx by OLS		Long-run Static Regression	
	Δ LMx	LMx	LMx A	LMx B
Δ LZ	-1.07 (-4.35)*			
LZ		-0.62 (-3.47)*	-0.88 (-2.99)	-0.62 (-2.86)*
LZ(-1)	-0.26 (-2.21)**			
LMx(-1)	0.02 (1.95)***			
Constant		3.17 (64.27)*	3.25 (27.55)*	3.17 (79.65)*
R^2	0.42	0.29	0.72	
adj. R^2	.39	0.27	0.70	
F-statistic	F(2,27) = 9.87*	F(1,29) = 2.04*	F(2,27) = 5.29*	
σ	0.1	0.16	0.12	
RSS	0.29	0.78	0.30	
DW	1.45	0.46	1.2	
Serial correlation	F(2,26) = 1.83	F(1,28)) = 6.79*	
Functional form	F(1,26) = 0.78	F(1,28) = 0.12*		
Normality	X2(2) = 0.24	X2(2) = 6.8*		
Heteroscedasticity	F(1,28) = 1.38	F(1,29) = 5.19*		

Note: 1. A represents the column of OLS estimation results based on Cochrane—Orcutt Method AR(1) converged after 2 iterations.

2. B represents the column of OLS estimation results based on adjusted White's heteroscedasticity consistent S.E's

3. *, **, and *** stand for the significance level at 1%, 5% and 10%, respectively.

Monthly data

Table 6 discloses that merchandise exports as a whole and exports of coffee and hides and skins (which are the principal merchandise exports of Ethiopia) are regressed on parallel premium using monthly data (1993(5)-1997(12)). The estimation results suggest that the decrease in the level of parallel premiums (following policy reforms since 1992) is found to increase exports of merchandise in general and that of hides and skins in particular.

Although coffee exports and the parallel premium are found to be cointegrated, the premium is not statistically found to influence coffee export in the long run. This may be

attributed to the very short time period considered for this study. In the short run the increase in the coffee export may be from the redirection of smuggling to the official line.

The point that can be drawn from the two cases (i.e., from using monthly and annual data) is that the parallel premium has a negative impact on merchandise exports. This is in line with the earlier investigations. However, the low coefficients of determination presented in tables 5 and 6 call for additional variables.

Table 6: OLS estimation results of short-run dynamic and long-run static regressions of merchandise exports equation monthly data

[Sample: 1993(5) to 97(12)]

Regressors & Diag. Tests	Dependent Variables							
	▲LMx*	LMx*	▲LCF	LCF	▲LHS	LHS		
C	5.18(3.65)*	12.67(37.18)*	12.46(24.8)*	4.61(3.31)*	11.9(22.6)*	11.72(14.74)*	10.6(29)*	11.35(29.29)*
▲LZ*	0.12(0.45)			0.03(0.07)			0.20(0.50)	
LZ*(-1)	-0.28(-2.4)**			-0.26(1.75)***		-0.48(-2.89)*		
LZ*		-0.38(-3.53)*	-0.30(-1.84)***		-0.31(-1.88)***	-0.26(-0.98)		-0.48(-3.42)*
LMx*(-1)	-0.36(-3.59)*							
LCF(-1)				-0.33(-3.29)*				
LHS(-1)							-0.88(-6.44)*	
D _t		0.67(5.35)*	0.67(3.35)*		0.77(3.95)*	0.80(2.42)**		
R2	0.21	0.56	0.64	0.19	0.37	0.58	0.46	0.18
Adj. R2	0.16	0.55	0.62	0.13	0.34	0.56	0.43	0.16
DW	1.82	1.07	1.82	1.73	0.81	1.71	2.07	1.79
F-test	(3,51)=4.55*	(2,53)=34.2*	(3,51)=30*	(3,51)=3.69*	(2,53)=15.27*	(3,51)=23.94*	(3,51)=14.32*	(1,54)=11.67*
RSS	0.35	0.39	0.35	0.50	0.60	0.49	0.55	0.56
Serr. Correl.	6.31	7.91	6.18	12.81	18.90	12.23	15.58	16.75
Fun. Form	F(12,39)=1.19	F(12,41)=3.71		F(12,39)=1.75	F(12,41)=5.27*		F(12,39)=0.49	F(12,42)=0.59
Heteroscedasticity	F(1,50)=3.41	F(1,52)=0.08		F(1,50)=2.3	F(1,52)=0.002		F(1,50)=0.03	F(1,53)=0.92
	F(1,53)=0.07	F(1,54)=1.51		F(1,53)=0.14	F(1,54)=0.27		F(1,53)=0.01	F(1,54)=1.86

- Note : 1) CF and HS stand for exports of coffee and hides and skins respectively.
 2) The values in parentheses beside each coefficient of regressors are t-ratios.
 3) *, ** and *** indicate significance level at 1%, 5% and 10%, respectively.
 4) Since the sample size used in this study is small, only the F-version of the diagnostic tests is reported for serial correlation, functional form and heteroscedasticity; these are based on Lagrange multiplier test of residual serial correlation, Ramsey's RESET test using the square of the fitted values, and the regression of squared residuals on squared fitted values, respectively.
 5) Estimation results of columns 4 and 7 are based on Cochrane-Orcutt iterative method

Results of Granger causality test

The Granger causality test is used to determine the nature of causality between changes in the parallel exchange rate and inflation rate in Ethiopia. The test is based on annual data for the period 1966 to 1996. The estimation of one to nine lagged values of the two variables in each of the two equations (a) and (b) specified in the previous chapter yielded the results shown in Table 7.

The Granger causality test discloses that the direction of causality is generally from inflation rate to parallel exchange rate for the period under consideration, since the computed F-value exceeds the critical F-value at 5% significant level for the large part of different lags considered from 1-9 (see Appendix B, Table B3).

Table 7. Summary of Granger Causality Test Results

Direction of causality	Levels of lagged values	Result	Decision
$H \rightarrow \pi$	1–9	Computed F-value <Critical F-Value	Reject the H_0
$H \rightarrow \pi$	2–4	Computed F-value <Critical F-Value	Reject the H_0
$H \rightarrow \pi$	1 & 5–9	Computed F-value >Critical F-Value	Accept the H_0

The reason for using different number of lags in this analysis is to develop confidence in the conclusion that inflation causes parallel exchange rate by showing that the results of the Granger causality test are more or less consistent irrespective of the lag length. This is so because when Granger methodology is very sensitive to the lag length used in a model, contrary or conflicting results may arise.

5. Conclusion

Ethiopia had high parallel foreign exchange premium for 1973–1993 and moderate premium for the period 1994–1996. Thus, the country experienced both high and moderate premium even after the massive devaluation of October 1992 and subsequent mini devaluations and the adoption of an auction system for foreign exchange with gradual trade liberalization. The premium fell to 7% in 1997 and is currently below 5%.

In this study, the OLS estimation results based on both annual data (1966–1996) and monthly data (1993(5)–1997(12)) disclose that the parallel premium has significant negative effect on merchandise exports in both the long run and the short run. This implies that the parallel premium has considerable impact on the export sector in general and on merchandise exports in particular. On the other hand, real money balance, real exchange rate and foreign aid (grants) are found to be the main determinants of the parallel premium in Ethiopia in the long run, while terms of trade is found to have a significant negative effect on the premium only in the short run. Furthermore, inflation is generally found to cause the parallel exchange rate for the period under consideration. Therefore, constraints to the functioning of the official foreign exchange market of Ethiopia need to be eliminated through further liberalization so as to avoid the repercussions of the parallel premium on macroeconomic variables that in turn could initiate a chain of further reactions.

Notes

1. The underground economy is variously referred to as the "black", "parallel", or "informal" economy. Following Vito Tanzi (1992), the underground economy is defined as gross national product that because of unreporting or underreporting, is not measured by official statistics.
2. The parallel premium for foreign exchange is the percentage by which the parallel exchange rate exceeds the official exchange rate, i.e., $Z = [P_e / O_e - 1] \times 100$, where Z , P_e and O_e , respectively, stand for parallel premium, parallel exchange rate and nominal official exchange rate. Following the division of Ghei and Kiguel (1992), a country is said to have high parallel premium when the spread between the official and the parallel exchange rates is above 35%, moderate premium when it is between 10% and 35%, and low premium when it is below 10%.
3. In this study exchange rate is defined as the units of domestic currency per unit of foreign currency.
4. Although Ethiopia's parallel premium for foreign exchange had been one of the highest in the developing world (at least for the 1973–1993 period), there is no study on how large the size of parallel foreign exchange market had been in the country except the indirect indicative works of Gashaw Dagnew (1992) and Befekadu Degefe (1994).
5. This case was found in Ghana by Dordunoo (1994).
6. An arrangement based on DAS inhibits entry to the auction market by participants who fear having to pay a price significantly higher than the clearing price for foreign exchange if their bid is successful, leading to the continued existence of the parallel market and collusion before auctions.
7. Unification in sub-Saharan Africa is a substantial reduction of the parallel foreign exchange market so that it is no longer a major signal in the economy (Elbadawi, 1994).
8. Prior to 1945, attempts to issue a national currency of the country proved futile for various reasons; the British effort to include Ethiopia in its currency zone was the main factor (see Befekadu, 1995).
9. Here money supply represent M1.
10. In this period, domestic credit was extended to the private sector involved in (a) trade that was expanding into all the corners of the country following improved transportation and communication, (b) the mushrooming manufacturing industries, and (c) the expanding housing construction industries driven by high demand for houses.

11. The other factor for high monetary expansion (in terms of both currency issued and money supply) during this period was attributed to the federation of Ethiopia with Eritrea.
12. Pegging denotes the fixing of the birr at a given rate to its reserve currency (the US dollar) for any appreciable length of time.
13. These indicators include movements in real and effective exchange rates, the behaviours of parallel exchange rates, and relative appreciation of exchange rate. Following Dornbush relative appreciation of exchange rate is defined as an increase of domestic prices relative to import prices.
14. It was estimated that smuggled exports of coffee and livestock alone accounted for about 45% of official exports during 1990/91 (see Gashaw, 1992).
15. For detailed discussion refer to Exchange Arrangements and Exchange Controls, 29th Annual Report series, IMF publication.
16. In this study, *iregime*, as used in the context of exchange rates, is essentially a reflection of the methods by which the rate of exchange of the birr is determined.
17. There are two official outlets at which foreign exchange transactions may be conducted. At the first or *isoft* window, foreign exchange is sold at the official exchange rate or its cross-rates in other hard currencies. At the second or *ihard* window, foreign exchange is bought and sold at the marginal rate fixed at the last foreign exchange auction.
18. Recall that negative list imports were totally abolished except for second hand goods on 3 February 1995.
19. Article 3 of Currency Proclamation 1942 stated that except with the permission granted by or on behalf of the Ministry of Finance, no person other than an authorized dealer shall, in our empire, buy or borrow any foreign currency, or send or sell any foreign currency, to any person not being an authorized dealer.
20. The Derge regime or the military rule period extends from February 1974 to May 1991.
21. The agricultural sector takes the lion's share in the economy with an average of over 50% GDP. It is said to provide 90% of the country's exports and employs around 85% of the working population.
22. The worsening of fiscal deficit in Ethiopia and the higher external debt finance coexisted side by side with appreciating exchange rate, higher external debt and falling foreign exchange reserves (see Shibeshi Ghebre, 1994).
23. The real exchange rate of a country is an index whose value takes account of movements in the country's nominal exchange rate and also of relative movements of prices vis-a-vis the rest of the world.
24. The country's legal tender currency was issued and the official exchange rate of this currency with the US dollar was specified on 13 July 1945 with an official exchange rate of 2.48 Ethiopian dollars (as it was called then) per US dollar. On 1 January 1964, the exchange rate was slightly devalued to 2.50. Following the collapse of the Bretton Woods System, it was revalued to 2.30 on 21 December 1971. The Ethiopian currency was again revalued to 2.07 per US dollar in February 1973. The birr was then pegged to the US dollar at the rate of 2.07 until it was

massively devalued in October 1992.

25. To capture the impact of parallel premiums on merchandise and foreign trade tax revenue, three equations estimated by Elbadawi (1994) are also used in this study. These equations are the following:

$$F^x = \phi_0 + \phi_1 \text{Log}Y + \phi_2 \text{Log}Z + \phi_3 \text{Log}REER$$

$$\phi_1 > 0; \phi_2 < 0; \phi_3 = ?$$

$$F_{xy} = \beta_0 + \beta_1 \text{Log}Y + \beta_2 \text{Log}Z + \beta_3 \text{Log}REER$$

$$\beta_1 > 0; \beta_2 < 0; \beta_3 = ?$$

$$M_x = l_0 + l_1 Z + l_2 REER + l_3 Y^*$$

$$l_1 < 0; l_2, l_3 > 0.$$

Where

F_x = real tax revenue on foreign trade

F_{xy} = ratio of foreign trade tax revenue to GDP

M_x = real official merchandise exports

Y = real output (GDP)

$REER$ = real effective exchange rate

Z = parallel premium for foreign exchange

Y^* = excess of potential output over current output (or referred to as catch-up effects)

26. This model is modified in the sense that (a) international reserve is included as an explanatory variable and (b) the stock-flow model developed by Kiguel and O'Connell (1994) is stated as a partial adjustment model that has been found to have, among other things, multicollinearity, heteroscedasticity and serial correlation problems. So the static regression model will be considered in order to examine the nature of the relationship between the dependent variable and the regressors in both the long run and the short run, provided that there is cointegration.
27. For detailed presentation of the model see Kiguel and O'Connell (1994); it can be briefly stated as follows:
Assuming that individuals demand domestic (M2) and foreign (F) assets in a proportion determined by the difference between their respective yields, defining the parallel premium by $Z = P_e / O_e$ and noting that the interest parity differential can be written as:

$$d_t = d_t^0 + E_t Z_{t-1} - Z_t$$

where d_t^0 is the interest parity differential at the official exchange rate, and E_t is an expectation conditional on information available at time t , then portfolio equilibrium can be written as a dynamic equation for parallel premium:

$$Z_t = Z_t(EZ_{t+1}, (M_2 / O_e)_t, F_t, d_t^0, X_t^f) \quad (a)$$

Where X_t^s is a vector of portfolio determinants

Furthermore, it is assumed that net capital inflows at the commercial rate are zero, and that the authorities do not intervene at the parallel rate. Letting e_t be the official real exchange rate and X_t^f be a vector of other variables that affect the unofficial current account (e.g., the terms of trade, trade taxes and the enforcement effort), then the evolution of private net foreign assets over time can be expressed as follows:

$$F_{t+1} = i_t^* + h(Z_t, e_t, X_t^f) \quad (b)$$

where i_t^* is foreign interest rates

h is the parallel trade balance.

As the private stocks of foreign exchange are not available, neither the portfolio equilibrium nor the parallel balance of payments condition can be estimated directly. Authors generally handled this problem by using the portfolio equilibrium condition to eliminate the stock of foreign exchange from the balance of payments equation. Under rational expectations, this results in an equation for the parallel premium as a function of its own lagged value and expected future values of the other variables entering equation (a) and (b) by including the variables like the real money stock and the real official exchange rate that are potentially endogenous. Thus, the following equation gives a distributed-lag approximation to the solution to equations (a) and (b).

$$\ln Z = \alpha \ln Z_{t-1} + \beta(B)' W_t + \varepsilon$$

Where $W_t = [e_t, (M_2 / O_e)_t, d_t^0, X_t^s, X_t^f]$ is a vector of the theoretical determinants of Z , $B(L)$ is a vector of polynomials in the lag operator B , and ε is a white-noise disturbance.

28. In the model/equations considered, the premium is defined by Elbadawi (1994) as P_e / O_e where P_e = parallel exchange rate and O_e = official exchange rate.

29. Elbadawi (1994) used two real exchange rate definitions: for the first two equations, he used the real exchange rate that is given by the ratio of official exchange rate to consumer price index. For the third equation he used the relevant real exchange rate for official exports defined as the ratio of the price of exports to the price of non-traded goods. But, due to the unavailability of data on the price of non-traded goods in Ethiopia, I used the real exchange rate for the three models as defined by Edward (1989) as:

$$REER = \sum \theta_i e_{ij} (p_i / p_j)$$

Where $REER$ = multilateral real effective exchange rate

e_{ij} = nominal exchange rate between home country (j) and trading partner (i)

n = total number of trading partners

θ_i = trade-weight corresponding to country i. It is defined as $\theta_i = (\text{value of trade of country i} / \text{total value of trade of all the trading partners of a country}) \times 100$

p_j = price index of home country

p_i = price index of trading partner

30. When found necessary, expectation of devaluation is included in the official interest rate parity differential, as devaluation of the official exchange rate, for a given price and expectation, reduces the impact of exchange rate differential and therefore the incentive to misinvoice exports and imports.
31. The assumption of the Granger causality test is that information relevant to the predication of the change in parallel exchange rate (H) and inflation rate (π) is contained in the time series data on these variables. From the stated equations, equation (a) postulates that current H is related to past values of itself as well as of π and equation (b) postulates a similar behaviour for π . Whether there exists unidirectional causality or bilateral causality or independence between the two variables, the F-test given by

$$F = [RSS_R - RSS_{UR}] / m / [RSS_{UR} / (n - k)],$$

which follows the F distribution with m and (n-k) degrees of freedom, is applied on the two equations. The purpose is to test the null hypothesis that lagged π terms do not belong in regression (a) [i.e., π does not cause H] or H terms do not belong in regression (b) (i.e., H does not cause π). If the computed F value exceeds the critical F value at the chosen level of significance, we reject the null hypothesis.

32. Regression analysis is done using the Microfit 286 version 3.0 statistical and econometric package.
33. The plots of CUSUM and CUSUMSQ are given by Microfit 286 version 3.0 at 5% significance level after running the concerned regression.

34. In terms of the general AR(1) of Dickey–Fuller (DF) test, the series is stationary if the absolute value of a in $\Delta Y_t = aY_{t-1} + \varepsilon_t$ is less than unity. It is non-stationary if the absolute value of a is greater or equal to unity. Stationary time series have time independent value, a finite variance, transitory innovations from the mean, and a tendency to return to the mean value. By contrast non-stationary series have permanent innovation to the series and asymptotically infinite variance, and the series rarely crosses the mean (in finite samples). However, the DF test assumes that the data generating process follows the AR(1), which biases the tests in the presence of serial correlation. But, the Augmented Dickey–Fuller (ADF) test is used to overcome the limitations of the DF test. That is why the ADF test is sometimes viewed as a means of conducting a DF test in the presence of autocorrelated errors. The ADF test is identical to the standard DF test but it is constructed within the regression model of the form:

$$\Delta Y_t = \alpha_- + aY_{t-1} + \sum \beta_j \Delta Y_{t-j}$$

35. For descriptive statistics of the data and correlation matrix of the variables see Appendix B, Table B3.
36. As $\alpha n Y_t = \alpha X_t + e_t$(i) is biased in small samples, Hendry suggested the direct estimation of the following equation to test for cointegration: $\Delta Y_t = \alpha \Delta X_t + (1-r)_{Y_{t-1}} + (1-r)\alpha X_{t-1} + u_t$ (ii). If the lagged values of Y_t and X_t are really cointegrated, then they would be significant in the (ii) estimation.
37. In the two foreign trade tax revenue equations, cointegration is not found between tax revenue and the parallel premium.

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Figure A1: Parallel premium for forex

Figure A2: Nominal official and parallel exchange rates

Figure A3: Inflation rate

Figure A4: Real money balance

Figure A5: Merchandise exports in USD millions

Figure A6: Export tax and import tariff rates

Figure A7: Real effective exchange rate

Figure A8: Real effective parallel exchange rate

Figure A9: Items of trade of Ethiopia

Figure A10: Inflation and parallel exchange rate

Figure A11: Real foreign trade tax revenue

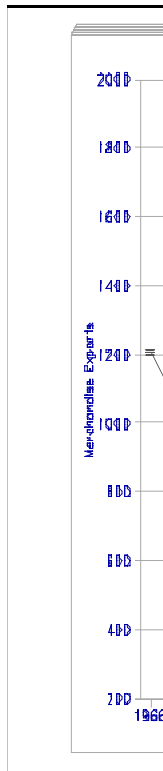
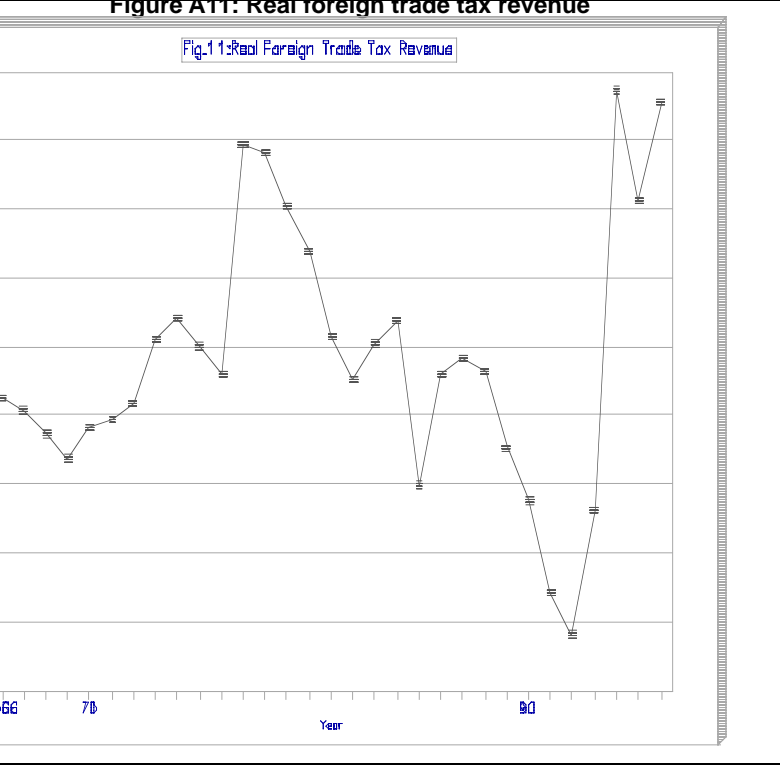


Figure A12: Real international reserves

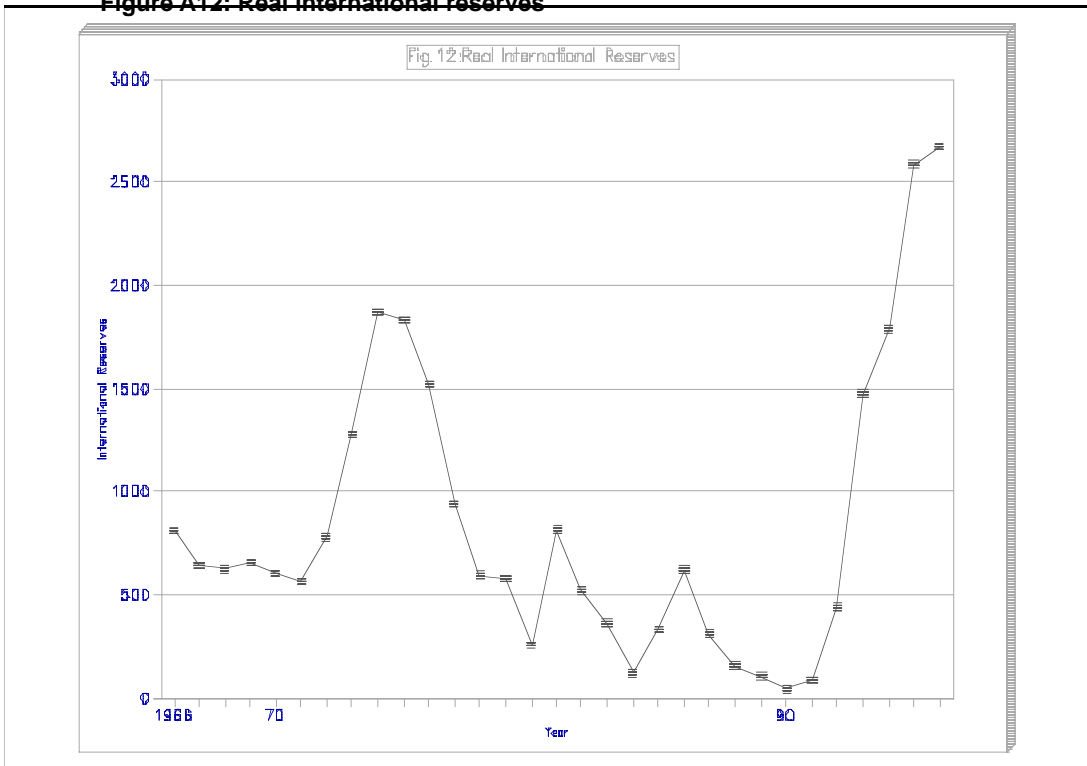


Figure A13: Real merchandise exports in million birr

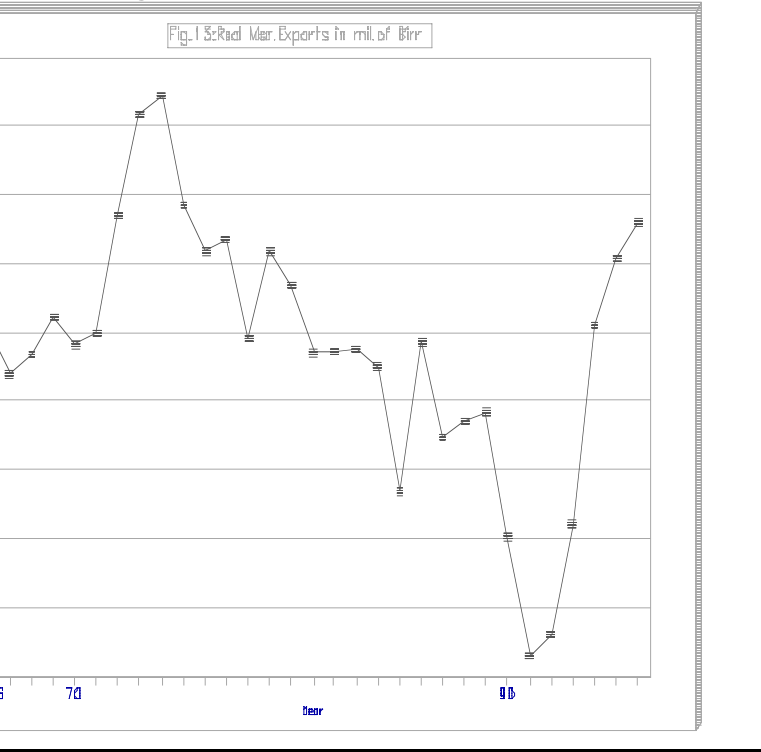


Figure A14: Real grants

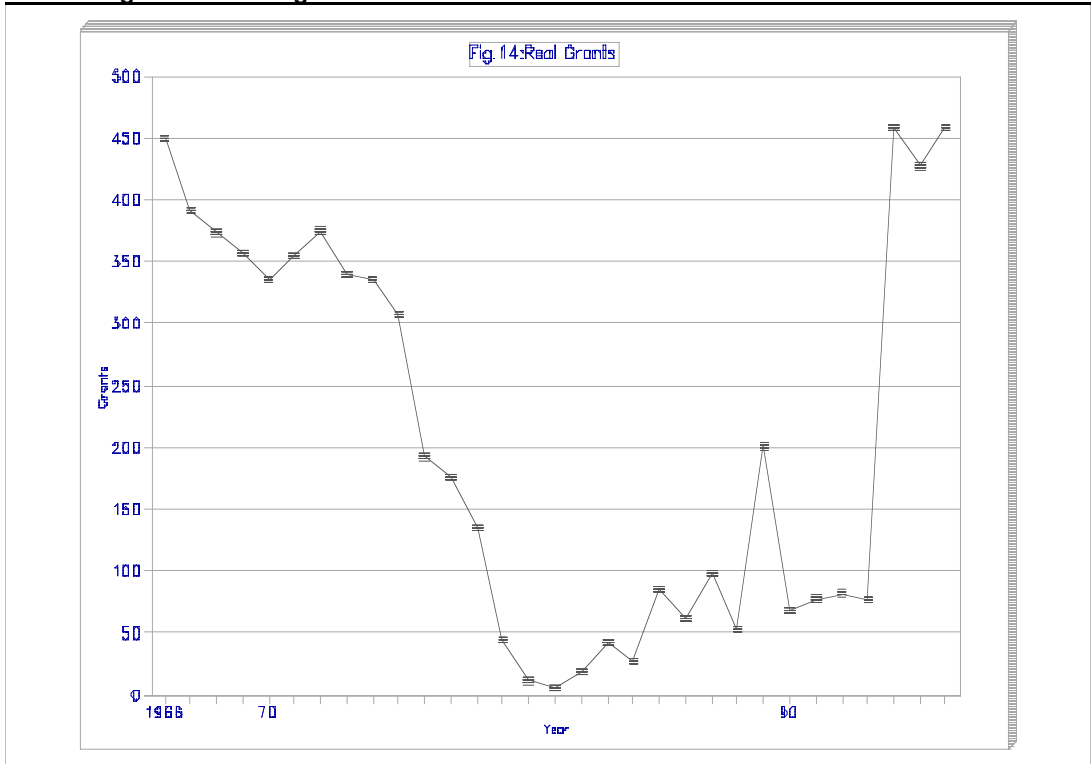
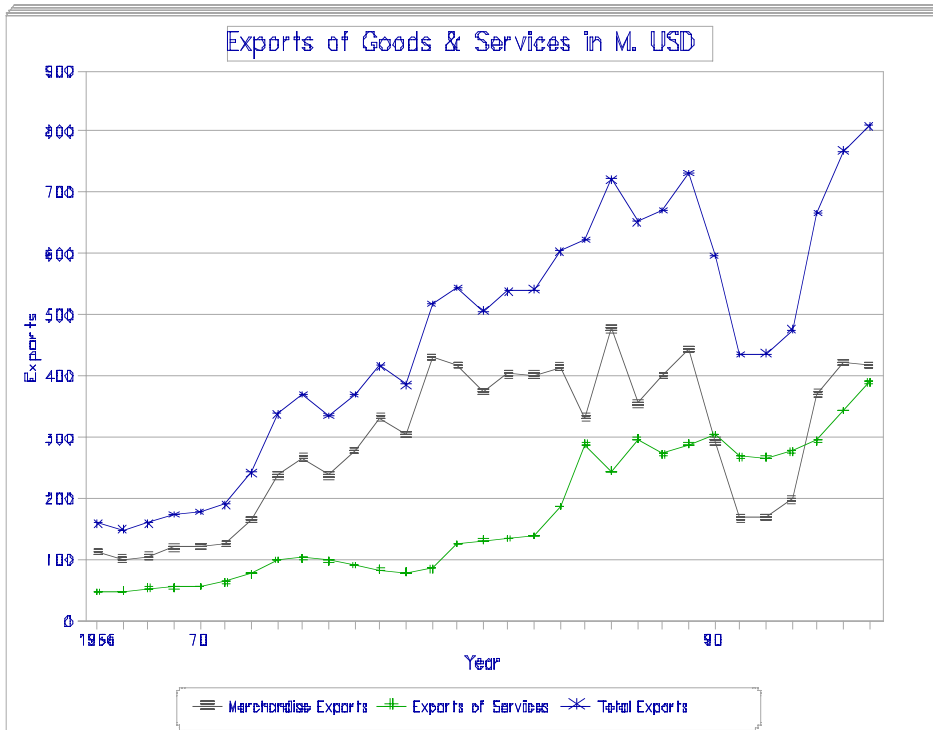


Figure A15: Exports of goods and services in USD millions



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