

**REAL EXCHANGE RATES AND  
NONTRADITIONAL EXPORTS  
IN GHANA**

**BY**

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## **Dedication**

This dissertation is dedicated to my parents,  
whose love, encouragement and financial support  
has seen me throughout my entire academic career.

Bless your hearts, Mum & Dad.

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Praise be to the Lord, God almighty, the ultimate source of all knowledge, power and wisdom, and by whose grace, love and mercy this dissertation has been produced.

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## Declaration

With the exception of quotations specifically  
acknowledged in the text, this dissertation  
is entirely my own work, and has not  
been submitted in any other  
University.



Michael K. Kafe

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## Abstract

Exchange rate policy in Ghana was more of a political issue than economic. For fear of the perceived political repercussions of devaluation successive governments in the country did little to maintain the exchange rate at its realistic level. This resulted in an extremely overvalued exchange rate, leading to a complete collapse of the export trade and an extensive expansion of import trade and production for the domestic market. Since April 1983, however, the government of Ghana has embarked on a structural adjustment programme in which exchange rate adjustment has been a major instrument of export promotion, especially for the promotion of nontraditional exports. This study investigates the effects of the exchange rate adjustments on the nontraditional exports supply. The investigation is done on the basis of an estimation of both a macro- and microeconomic models of export supply. The macro-model examines the supply response of nontraditional exports to exchange rate adjustments indirectly through relative prices. The micro-model, on the other hand, investigates the nontraditional export supply response directly by incorporating exchange rate variables in the export supply model. Our results show that the level of the exchange rate had a positive effect on the supply of non-traditional exports during the 1960 - 1993 period while volatility (movements) in the exchange rate had a negative effect. In all cases, however, the supply response was not particularly strong.



## Chapter One

### Introduction

In the early 1960s, Ghana had a vibrant export sector that provided the country about three months import cover and contributed more than one quarter of her total gross domestic product (Huq, 1989). Although the country's export composition showed a high ratio of commodity concentration with primary products, such as cocoa, timber and minerals, accounting for more than three-quarters of her total export revenue, it nevertheless enjoyed a degree of economic prosperity, which was unrivalled in the West African region at the time. The country's annual economic growth rate of about 4% and per capita income level of £50 made it some two and a half times richer than its nearest rival, Nigeria (Roe *et al*, 1992).

The Nkrumah government, which lasted until 1966, sought to reduce the country's dependence on the outside world by embarking upon import substitution industrialisation, increased investment in public activities and expansion and diversification of agriculture and international trade. These policy initiatives underlined the big-push approach adopted by government. The government's programme was to be implemented within a framework of a seven year development plan (1963/64 - 1969/70). This plan, involving a total gross investment outlay of £1016.5 million, sought to shift emphasis away from the provision of social overhead capital towards directly productive activities spearheaded by the state (Kusi, 1991a). The strategy led to a considerable expansion in the size of government, with public investment averaging some 22% of GDP in 1960 - 1965.

The high import requirements of the development plan were to be financed by the country's own foreign reserves which, although substantial, were inadequate. As the foreign reserves became increasingly exhausted, the government resorted to deficit financing by

borrowing from the central bank. The government also sought to mobilise more funds domestically via a *de facto* taxation of cocoa export proceeds by creaming off the difference between the world price paid on the international market and the much lower domestic producer price. As a result, the proportion of the world price of cocoa paid to the domestic producers declined from 72% in 1960 to 44% in 1965, while the index of the real cocoa producer price fell from 100 in 1960 to 37 in 1965 (Killick, 1978; Kusi, 1991a). The excessive taxation of exports and high marketing margins played havoc with producer incentives, causing a sharp decline in the real cocoa export earnings from C94.1 billion in 1961 to less than C50 billion in 1965. Further, the government embarked upon the maintenance of a fixed exchange rate system which together with fiscal and monetary expansions led to an appreciation of the real exchange rate.

The economy began to deteriorate in the 1970s, with increased intensity in the early 1980s. Between 1970 - 1979, for instance, the country's income terms of trade fell by an annual 0.8%, compared to an average growth of 0.6% for the whole of Africa. By 1981, Ghana's exports earnings as a percentage of world exports had declined to 0.05% compared to 0.15% in 1970, while export volumes fell to less than one half of their 1975 levels (World Bank, 1984). The 1980-1983 period in particular was characterised by a grossly imbalanced fiscal account, excessive trade and price controls, an overvalued real exchange rate, severe shortages of food and foreign exchange, a mushrooming black market, poor export performance, declining economic growth, high rates of inflation, a worsening income distribution, growing unemployment and political instability. Discouraged by the economic decline in the country, foreign donors gradually withdrew their support, further worsening the balance of payments problem (Kusi, 1991b).

A major cause of the deterioration of the economy was the firm belief in the efficacy

of state controls as opposed to the free market system. To this end, successive governments, barring one or two, relied excessively on administered allocative mechanisms. The resultant proliferation of state marketing and development boards created serious distortions in the economy, which contributed immensely to the crisis. The need for exchange rate adjustment, for example, had long been apparent but was not undertaken because of the perceived political consequences. In the 1970s, for example, the government refused to adjust the nominal exchange rate to reflect the economy's economic decline. The rate was fixed at C1.15 = US\$1 from 1973 to 1977, and again at C2.75 = US\$1 from 1979 to 1982. Using 1973 as a base year World Bank (1984) shows that the cedi was overvalued by 816% between 1973 and 1981. As the cedi became increasingly overvalued a flourishing black market developed. In 1982, for example, the degree of divergence between the official and parallel exchange rates, expressed as a percentage premium, was 4264% compared to 8% in 1967 (Dordunoo, 1993). By 1983, the market rate of the cedi was 22 times the official rate and 27 times the equilibrium (purchasing power parity) rate, making Ghana the country with the most seriously distorted exchange rate regime on the continent (Stryker *et al*, 1990). The overvalued exchange rate further led to an erosion of comparative advantage in the export sector, especially in the production of cocoa, minerals and timber, by implicitly taxing official exports while making imports cheaper. The black market soon expanded to cover about 40% of the national economy as the divergence of the black market rate of exchange from the official exchange rate widened to such an extent that it became cheaper to import anything than to export through official channels. This made the imports business a lucrative activity vis-a-vis export production since traders could import at the low official prices and sell at the exorbitant black market rate, a practice referred to locally as '*kalabule*' (Kusi, 1991b).

Apart from the overvalued exchange rate and flourishing black market activities, the deterioration in the country's terms of trade, poor pricing policy, declining incentives, lack of export credit and foreign exchange to purchase raw materials and imported capital inputs, a breakdown of the transportation system and the severe drought and bush fires (which hit the nation in 1978/79 and 1982/3) together worked against the export sector. In addition, the domestic inflation rate rose from 3.0% in 1970 to 122.8% in 1983, making it even more profitable to produce for sale on the domestic market rather than for export. The result of all these developments was that the exports trade collapsed and the share of exports in GDP fell from 24% in 1960 to 2% in 1983 (Huq, 1989). The resultant balance of payments difficulties demonstrated the need for a major adjustment programme.

In response to the economic crisis, the government introduced in April 1983 an economic recovery programme (ERP) to reverse the economic decline and lay the foundations for a sustained economic growth and the achievement of external payments viability. The main thrusts of the programme were to re-align relative prices in favour of production and exports, reduce government budget deficits and the underlying pressures and to facilitate the flow of imports to ease the acute shortages in the economy. The policy measures initiated to achieve these objectives included, among others, the exchange rate and trade reform. This was aimed at promoting efficiency in export production, tapping economic rent and improving the country's international competitiveness (Kusi, 1991b). The exchange rate reform was also aimed to attract resources to the official market from the large black market, thereby improving the recorded balance of payments and the tax base. The emphasis at this stage was on export diversification through the promotion of nontraditional exports, such as pineapples, wood and wood products, fish and processed foods.

The exchange rate reform began with a move to rectify the hitherto misaligned

exchange rate through a series of devaluations. The authorities believed that the general public needed some time to understand and accept the implications of a large straightforward exchange rate adjustment. As a transitional arrangement, therefore, the authorities adopted a multiple exchange rate based on a system of bonuses and surcharges on the official exchange rate, which resulted in two rates - C23.375 per US\$1 and C29.975 per US\$1. These adjustments effectively resulted in a devaluation of the cedi, on a weighted average from C2.75 = US\$1 to C25 = US\$1, *i.e.*, by 809% in terms of local currency (Johnson *et al*, 1985). To minimise the administrative problems in operating the system, the bonuses and surcharges were applied to the authorised dealers of foreign exchange.

Another important decision taken by the authorities was to follow an exchange rate policy whereby the two effective exchange rates were adjusted periodically so that the real purchasing power of the weighted average exchange rate in terms of the currencies of the country's major trading partners would be maintained (World Bank, 1984). It was also the intention of the authorities to unify the multiple rates at a realistic level, which was accomplished in 1987. In response to the exchange rate devaluations, the value of total export revenues rose from C6.0 billion in 1983 to C82.2 billion in 1987 and then to 105.9 billion in 1993, after declining slightly to C74.4 billion in 1990. Nontraditional exports also rose from C85.98 million in 1983 to C3.2 billion in 1988 and then to C6.8 billion in 1993. Apart from the recovery of the export sector, the exchange and trade reforms also helped to ease the inflow of imports for the domestic industry. The country's import volumes increased by about 100% between 1984 and 1990, while that of the sub-Saharan African region hardly showed any significant growth pattern (Kapur *et al*, 1992).

The purpose of this study, therefore, is to examine the effects of the exchange rate adjustments on the growth of nontraditional exports in Ghana during the period 1960 - 1993.

The examination is undertaken on the basis of the estimation of both macro and microeconomic models of export supply. In the macro-model, the supply of nontraditional exports is specified to relate to the ratio of the foreign price of nontraditional exports to domestic prices, imports and capacity utilisation in the nontraditional export sector. The model thus captures the effects of the real exchange rate indirectly through the price incentive structure. In the micro analysis, the effects of the real exchange rate on the nontraditional export growth is investigated directly by specifying a model in which the supply of nontraditional exports is related to the level and changes in the real exchange rate, export credit and capacity utilisation.

The study is organised as follows: Following the introduction in chapter one, chapter two presents a theoretical review of exchange rates and its links with the balance of payments. The emphasis here is on the effectiveness of exchange rate adjustments in promoting exports. Chapter three examines the export sector of Ghana, while chapter four deals with export promotion in Ghana. The fifth chapter provides a framework for analysing the effects of exchange rate adjustments on nontraditional exports. The findings of the study and the discussions on them are presented in chapter six. Chapter seven concludes the study with some policy recommendations.



## Chapter Two

### Theoretical Issues of Exchange Rates

#### 2.1 Introduction

The exchange rate of a country's currency is the price of that currency in terms of foreign currencies. This rate may be pegged to a single currency or a basket of currencies, or alternatively, it may be floated independently.

Pegging the exchange rate to a single currency seems suitable for domestic stability in developing countries, especially where that country's currency is pegged to a stable major currency. Apart from boosting foreign confidence, the higher stability of the major currency may also facilitate bilateral trade arrangements by reducing uncertainties. A single currency peg would also allow for discretionary interventions in the foreign exchange market in pursuance of domestic policy objectives (IMF, 1970).

One problem with the single currency peg, however, is that economic stability in the pegging country may be vulnerable to any disturbances which might occur in the country to which its currency is pegged. The disturbances may take the form of unanticipated fluctuations which do not reflect conditions in the domestic foreign exchange market, but which emit counter-productive forces. An exogenous depreciation of the major currency, for instance, may work against the pegging country's commitment to export promotion by lowering the marginal revenues from exports, while an independent appreciation may lead to domestic inflation in the pegging country through higher import costs. In addition, where a developed country's currency keeps fluctuating against that of a smaller country, the developed country, due to its stronger market position, may try to raise prices in order to compensate for the increased uncertainty in trade. This may force its smaller trading partner to pay higher prices for her imports. Again, if sub-regional developing countries peg to

different major currencies, intra-regional trade may be hampered by the intricacies involved in cross-rate transactions. In such cases, foreign exchange arbitrage, rather than trade, may be promoted (Crockett and Nsouli, 1977).

Despite its negative externalities, developing countries may still enjoy the advantages of pegging, by aligning their currencies to a trade-weighted basket of other currencies. Such a composite exchange rate system may be in the form of an export or import-weighted index<sup>1</sup> or a bilateral trade index<sup>2</sup>. Of these indices, the export weighted index allows for the least instability in export prices and earnings because by weighting the shares of the country's trading partners, excessive oscillations in their rates of exchange will to a large extent cancel out, bringing the average spread within a relatively comfortable range. So long as export sales are fairly regular, the country becomes less susceptible to erratic export earnings and a relatively consistent flow of foreign exchange for development expenditures will be forthcoming.

Although these indices do allow for a certain desirable pattern of bilateral trade, they do not ensure a stable equilibrium in the foreign exchange market, hence they may give rise to an excessive use of reserves. To achieve a more continuous adjustment, greater flexibility through a clean float may be recommended. Such a flexible exchange rate regime will not only preclude the need for interventions, but will also obviate the extra adjustment costs associated with discrete changes in the exchange rate as well (Crockett and Nsouli, 1977).

## **2.2 Real Exchange Rates Determination**

The real exchange rate (RER), defined as the relative price of a basket of tradeables to non-tradeables (Hally-Djoussou and Ayemou-Angoran, 1994) is a notional rather than an explicit price. Consequently, its definition and measurement sometimes generates



controversy. Frenkel and Goldstein (1988) have, however, identified three different concepts and measurements of equilibrium RER that have been employed over time.

First is the Purchasing Power Parity (PPP) doctrine. Under this approach, if one can identify a base period in which the country was in external balance, then the equilibrium value of the nominal exchange rate in the current period is given as the base period value adjusted for the inter-country differences in inflation rates between the current and the base period. An immediate drawback to this approach, however, is its contingency upon the identification of an appropriate base period. Another inherent weakness is that the approach considers the equilibrium real exchange rate as fixed. However, in a world in which domestic and foreign goods are imperfect substitutes and there are real shocks to the system, deviations from the PPP may be desirable in order for the real exchange rate to be able to adjust to the shocks. This requires movements in the nominal exchange rate, domestic prices and foreign price levels (Balassa, 1964; Flood, 1981; Mussa, 1982; McGuirk, 1983; Baldwin and Krugman, 1987). In addition to these defects, the PPP doctrine does not seem to hold very well in the short run and probably in the long run too (Dornbusch, 1980a; Dornbusch and Frankel, 1987; Ogun, 1994).

The second approach defines the equilibrium real exchange rate as that rate which makes the underlying current account (*i.e.*, the actual current account adjusted for temporary factors) equal to the normal net capital flows over the next two to three years, given anticipated real output and inflation paths and the delayed effects of past exchange rates. The problem here is in the calculation of normal net capital flows. Since the normal net capital flows of a country are closely tied with the savings and investment trends in its trading partners (such trends are in themselves determined by various economic, social and legal factors), the determination of a general equilibrium rate of the type suggested is quite

daunting. In addition, the current account of the balance of payments does not seem to explain actual exchange rate changes better than the other factors (Frenkel and Goldstein, 1988).

The third approach is the sustainability approach. As explained by Krugman (1985), the idea here is to identify the market's implicit forecast for the future path of the exchange rate, based on the current exchange rate, interest rate differentials and other data, and to assess the consequences of this forecast exchange rate path for the balance of payments and external indebtedness. Thus, if the stabilization lag of the debt/GNP ratio can be established (though the eventual debt-GNP ratio will be high when it does stabilize), then the market's implicit exchange rate forecast is judged to be unsustainable (Ogun, 1994).

The major criticism of the sustainability approach is that it is less ambitious than the others, since it does no more than identifying an unsustainable rate which by implication is the likely future direction of the exchange rate changes. Secondly, the approach disregards the difference between sustainability and optimality and hence, can at best only yield a less than optimal outcome for the domestic economy (Frenkel, 1987).

In his contribution to the literature on equilibrium real exchange rates, Edwards (1989a) advances a profound exposition on the determinants and misalignments of real exchange rates in which he differentiates between equilibrium and non-equilibrium exchange rates. He defines equilibrium real exchange rates as the relative price of tradeables to non-tradeables, which for given equilibrium or sustainable values of other relevant variables, such as trade taxes, international prices, capital and aid flows and technology, results in the simultaneous attainment of both internal and external balance. Further, Edwards explains that equilibrium movements in the real exchange rate could be occasioned by real events, such as technological progress, movements in external terms of trade, changes in taxation

*e.t.c.* in the economy. Such equilibrium movements do not require policy intervention. Contrariwise, non-equilibrium movements in the real exchange rate, which are otherwise known as misalignments, are usually provoked by erroneous policies, such as import tariffs, quotas and export taxes, exchange and capital controls, subsidies and other taxes and the composition of government expenditure. According to Ogun (1994), eliminating the inconsistent policies in this context is a way of returning the real exchange rate to equilibrium.

### **2.3 Theories of Exchange Rates**

It is no simple matter to construct a set of criteria for a consistent taxonomy of exchange rate theories. While some theories distinctly resort to a specific school of thought, others do not readily lend themselves for classification. Despite this, theories of exchange rate can be put into four major categories:

#### **(i) Traditional theories**

The traditional theories, *i.e.*, the elasticity and absorption approaches, are legacies of the fixed exchange rate era. Initially formulated to describe adjustments towards balance of payments equilibrium under fixed exchange rates, the elasticity and absorption approaches were adapted to provide for automatic balance of payments equilibrium (a zero overall balance) under flexible exchange rates (Ogawa, 1987).

The elasticity approach emphasizes the role of goods (domestic and foreign) rather than the asset market, hence the assumption of the absence of international capital flows. The Keynesian multiplier extension of this (elasticity) approach is particularly concerned with the necessary conditionalities for an improvement in the current account of the balance of

payments to be achieved through a currency depreciation. The model is thus set within the framework of a partial equilibrium analysis in which the price elasticity of demand for exports and imports are the two main forces at work. The price elasticity of supply of imports and exports are, however, assumed to be infinite and incomes are also assumed to be constant. Within this scenario, a devaluation could be used to rectify deficits on the current account only if the Marshall-Lerner condition holds, *i.e.*, if the sum of the price elasticity of demand for exports and imports (as measured in a common numeraire) exceeds unity. Ogawa (1987), *inter alia*, adapted the approach for exchange rate determination and arrived at the following equation for the equilibrium exchange rate:

$$E = E(\alpha; \beta; \alpha^*; \beta^*) \quad (2.1)$$

with  $\alpha$  the shift parameter for domestic import demand,  $\beta$  the shift parameter for domestic export supply and the asterisk denoting the foreign counterparts of  $\alpha$  and  $\beta$ . The impact of a change in a shift parameter on the exchange rate depends on the relevant elasticity. But again, exchange rate stability requires that the Marshall Lerner condition holds (Brink, 1993).

The main criticism of this approach is the unrealistic assumptions upon which it is built. First, Thirlwall (1982) argues that devaluation does not only alter the relative price of traded goods, but it also raises income by a multiple of the net expansion of aggregate demand if the devaluation switches domestic demand from tradeable to non-tradeable goods. Second, the model is confined to a partial equilibrium analysis, which focuses on the trade sector alone, thus ignoring the other sectors of the economy. It may be expected, however, that the price changes in the traded goods sector will have spill-over effects on the rest of the economy, which may feed back into the export and import sectors. Third, monetary

consequences of the balance of payments are ignored in this approach.

Due to the weaknesses of the elasticity approach, the absorption approach was developed by Harrod (1947) and expounded by Alexander (1952) and Johnson (1958). The absorption approach is applicable to both the current account (ie. the difference between national income and national expenditure) and the balance of payments as a whole. The basic argument of this approach is that a deficit in the balance of payments can only be rectified by a policy measure which either reduces domestic absorption relative to income (ie. expenditure-reducing policies), or increases national income relative to expenditures (ie. expenditure-switching policies). But expenditure-switching policies are effective only in an economy operating below full employment. Once full employment is obtained a non-inflationary adjustment mechanism does not exist. One then has to complement the expenditure-switching policies with expenditure-reducing policies, which are designed to reduce domestic absorption in order to release more resources to meet the increased demand for tradeable goods (Thirlwall, 1982).

Whereas the elasticity approach focuses on the domestic and foreign goods markets, the absorption approach relies on total expenditure (absorption capacity) of the economy as a whole. But both approaches, however, ignore capital transactions - perhaps understandably, since they were developed in a period when international flows were subject to severe controls. Besides, neither the elasticity nor the absorption approach allows for an explicit involvement of the monetary sector, although Johnson (1958) tries to incorporate the stock market in his exposition.

According to Johnson's analysis, a stock deficit exists where there is an excess of payments by residents to foreigners for foreign assets such that the stock of privately held money balances diminishes. Assuming away any monetary expansions, an automatic

stabilization process is triggered off by a rise in interest rates, leading to a fall in the demand for loanable funds and, consequently, a fall in domestic absorption. Equilibrium is restored as domestic absorption falls by the extent of the excess payments to foreigners. Johnson thus assumes stock deficits to be temporary phenomena. Thirlwall (1982), however, argues that this might not well be the case if the demand for foreign assets is prolonged, or if the monetary authorities respond to the depletion of stocks by extending credit to residents. In such cases, a payments deficit will persist. Secondly, even if the self-correcting mechanism does work, there may be a severe loss of resources before the deficit is rectified. There could also be unemployment if the deficit was not caused by excess money supply.

## **(ii) The monetary model**

There are three versions of the monetary model. First, is the flexible price version of the monetary model (FLPM). This model is in many ways an extension of the purchasing power parity (PPP) view of exchange rates. Essentially, the model links the theory of price determination with a PPP equation to explain the behaviour of the exchange rate. The main features of the FLPM are summarised as follows: The country is assumed to be small and faces an exogenously determined foreign interest rate and price level. A tradeable good, which is a perfect substitute for the foreign good, is produced, thus preserving the PPP. The central bank issues money (a non-traded good) and domestic bonds, which are perfect substitutes for foreign bonds. Asset holders adjust their portfolios instantaneously after a disturbance, maintaining capital mobility and uncovered interest parity (UIP). The money supply is exogenously determined and the money market constantly clears. A set of equations reflecting the above characteristics leads to a reduced form of the exchange rate equation, which may be written as:



$$s = m - \alpha y + \beta i \quad (2.2)$$

with  $m$  denoting the natural logarithm of the domestic money supply,  $y$ , the natural log of income, and  $i$  the interest rate. According to equation (2.2), the full extent of an increase in  $m$  is reflected by an exchange rate depreciation: an increase in income appreciates the exchange rate (an apparent contradiction of the results of the traditional models) and a rise in the interest rate leads to an exchange rate depreciation (once again conflicting with the traditional balance of payments models).

The second version of the monetary approach is the sticky price monetary model, which is attributed to Dornbusch (1976). The sticky price model is similar to the FLPM except for the relaxation of the PPP assumption in the short-run. The original Dornbusch work has been summarised by Brink (1993) as follows. Product markets adjust sluggishly while financial markets do so almost instantaneously. Consequently, financial markets have to over-adjust to disturbances to compensate for the sluggishness of prices in the goods market. Given that prices are initially fixed, changes in the nominal money supply amount to changes in the real money stock. The demand for real balances has to adjust instantly to clear the money market (a liquidity effect) - an adjustment which could only be effected by a movement in interest rates. Domestic interest rates can revert to world levels as product prices start their lagged response (uncovered interest parity is maintained via changes in exchange rate expectations). The change in the real money stock reverses itself, driving interest rates, aggregate demand and the real exchange rate back towards initial values. Ultimately, the real variables conclude the process at exactly the levels from where they commenced, with the nominal exchange rate moving to a new long term level to reflect the proportionate change in the money supply. According to Copeland (1989), the performance

of the model in explaining the facts is undeniably poor, spurring on a number of derivatives and extensions of the model as well as the development of other approaches to exchange rate modelling.

The third version of the monetary model is the portfolio balance model. The portfolio balance model (PBM) adopts the assumption of the Dornbusch model, *i.e.*, that the real sector adjusts more gradually than the financial markets, but departs from the Dornbusch approach in a number of respects. First, uncovered interest parity is assumed to be inoperative: investors are predominantly motivated by risk aversion in their choice between domestic and foreign bonds. Financial markets will therefore be characterised by large risk premiums. Second, the financial sector is modelled in much greater detail than in the Dornbusch model.

Under the PBM model, it is assumed that domestic residents hold only three types of assets, viz. domestically issued bonds and money, and foreign currency bonds issued by a foreign government or central bank. Goods prices are regarded as fixed in the short run. Assuming that financial markets clear at all times, short run equilibrium is established when the exchange rate and the domestic interest rate are at such levels that demand equals supply for two out of the three assets. Long run equilibrium is characterised by a zero balance on the current account, static prices, interest rates and exchange rates.

The portfolio balance model is difficult to apply and has been unsuccessful in explaining the facts. Nevertheless, the model has been influential in shaping the thought on asset markets, "not least because it is the most general model of exchange rates - by comparison, most other models can be regarded as 'special cases'" (Copeland, 1989).



**(iii) The Mundell-Fleming model.**

The origin of the Mundell-Fleming (M-F) model coincides with the Bretton Woods era of fixed exchange rates. The model is distinguished from the traditional theories in its recognition of an interaction between the real and monetary sectors (Ogawa, 1987).

The M-F model adheres to the Keynesian tradition that the price level is fixed by the horizontal aggregate supply curve, whilst the role of income determination is arrogated to the aggregate demand schedule. A distinctive feature of the model is its specification of the external sector: the current account is determined independently of the capital account, with the determinants being the real exchange rate and real income (Copeland, 1989). According to this model, the key variable determining the capital account is the interest rate differential. Two versions of the role of interest differentials emerge from the literature. Copeland (1989) suggests that capital mobility is less than perfect due to both limited availability of arbitrage funds and risk-averting behaviour - the flow of funds into a country is an increasing function of the risk premium offered on securities denominated in the country's currency. Interest rate differentials could in this case provoke finite flows of capital. Ogawa (1987) and MacDonald and Taylor (1989), however, maintain that perfect capital mobility is a characteristic of the M-F model. According to MacDonald "the integration of ...capital mobility into open economy macroeconomics was a major innovation of the Mundell-Fleming model. ..."

Whatever the position regarding capital mobility may be balance of payments equilibrium should hold at all times under a flexible exchange rate regime, thus the capital flow should just finance the deficit on the current account, or absorb the surplus. An increase in income deteriorates the current account, necessitating a capital inflow to be brought about by an increase in the domestic interest rate to preserve overall balance of

payments equilibrium. A depreciation in the exchange rate improves the current account and lessens the burden on the capital account.

**(iv) Asset market approach**

The asset market approach was proposed by Frankel (1983). The most important issue here is whether or not domestic and foreign bonds are regarded as perfect substitutes in the portfolios of asset holders. The proponents of the asset market approach argue that the exchange rate should be viewed as an asset price, since it is by definition the price of one national money in terms of another. An exchange rate is therefore determined by the intersection of the Marshallian demand and supply schedules.

Regarding the exchange rate as an asset price clarifies a number of empirical regularities observed. For example, due to the role of expectations, it could be expected that the spot rate and contemporaneous forward rate will be closely linked (MacDonald, 1988). Asset markets are generally viewed as efficient markets in the sense that participants exploit every profitable trading opportunity, forcing the current price to reflect all available information. This implies that exchange rates could, under specific circumstances, follow a random walk. Given the role of the forward rate as the expected future spot rate in an efficient market, any actual divergence is labelled as the unexpected change in the exchange rate. Should a great deal of new information become available within a period, the spot exchange rate could move dramatically with a corresponding increase in the unexpected change in the exchange rate (Brink, 1993).

**2.4 Exchange Rate Policy and Balance of Payments Adjustments.**

Balance of payments crises have been a major motivating factor in the macroeconomic

adjustment programmes undertaken in many countries in the sub-saharan African region. Maintaining balance of payments deficits indefinitely or for very long periods of time is impossible. The economy has to adjust in some way to the deficits. The adjustment process can come about automatically through direct income effects (reduced real income and spending) and indirectly through monetary effects (loss of foreign exchange reserves reducing the monetary base, thus causing a fall in the money supply and an increase in interest rates, which in turn produces a decline in investment and consumption expenditures). This automatic adjustment process may work, but very slowly, and a protracted recession may be required to achieve the necessary reduction in income and absorption (Kusi, 1993). Alternatively, deliberate policy measures can be carried out to move the economy rapidly towards the desired balance. One major policy initiative that can be pursued in this direction is the exchange rate policy. Others include expenditure-reducing (or demand management measures) and supply-side (or structural) policies.

The expenditure-reducing policies are mainly designed to restore balance between demand and supply by reducing aggregate domestic absorption. By reducing domestic expenditure, demand for imports and tradeable goods (exportables and import substitutes) will fall. This will simultaneously reduce outlays on imports and free domestically produced goods for export, thereby improving the trade balance. Even if total domestic output can be sustained, cuts in domestic real expenditure (real consumption and investment) would have to be made in a way that responds to the deficit and the characteristics of the economy. The two main instruments for controlling aggregate domestic demand are monetary (or domestic credit) policy and government tax and expenditure policies.

Expenditure-reducing policies have the advantage of producing relatively immediate effects. However, to the extent that domestic demand is cut, costs are involved. While

output in the tradeable goods sector of the economy might not decline as domestic absorption is reduced (since tradeable goods freed by the decline in domestic demand can be exported), output in the non-tradeable goods sector will fall if prices are inflexible downward. The result will be excess capacity, unemployment and in most cases, reduced investment and growth (Kusi, 1993). The adverse impact of expenditure-reducing policies implies that they should be resorted to as a short term measure pending a more fundamental adjustment in the structure of the economy.

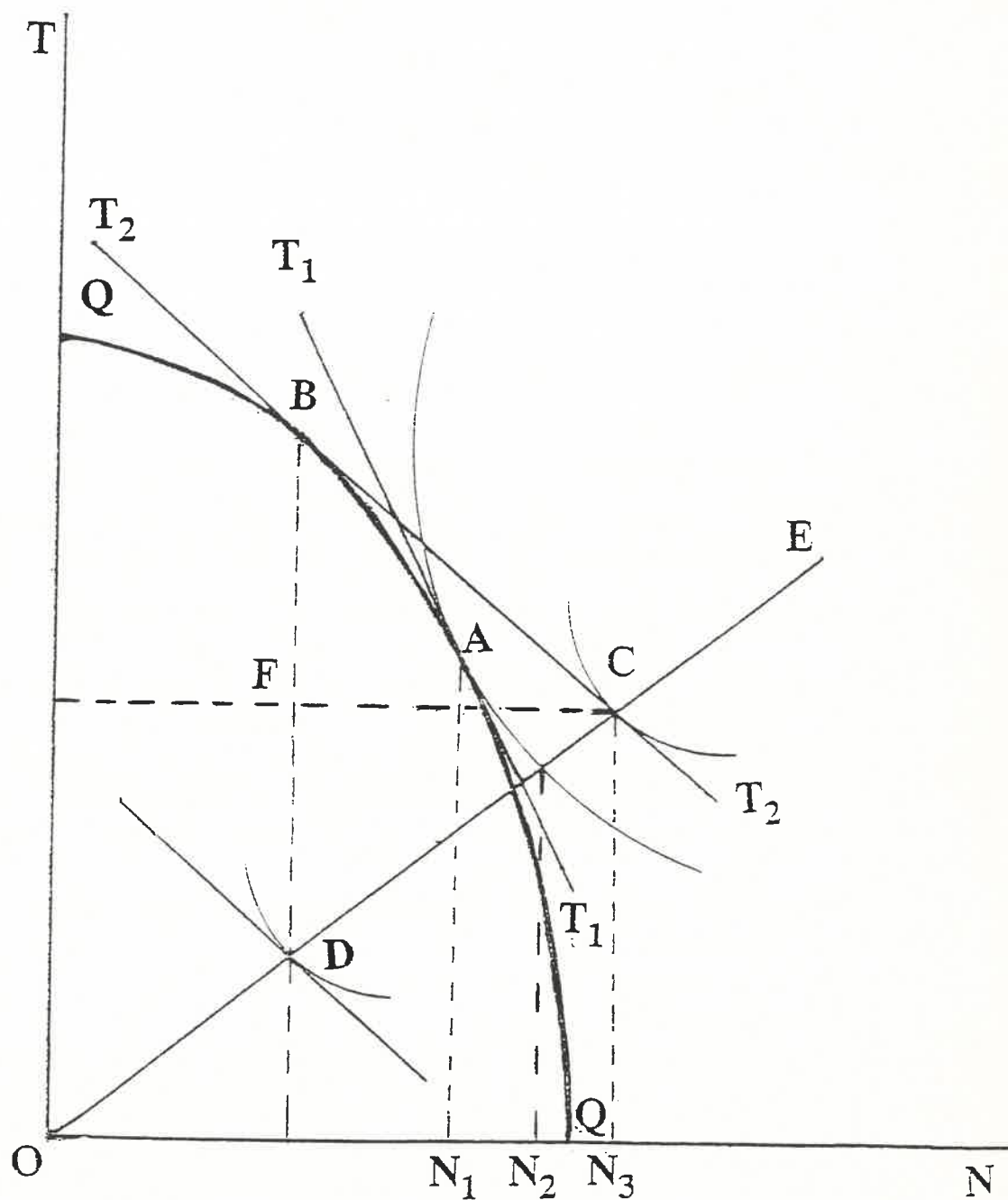
The supply-side policies are mainly directed at increasing the supply of goods and services, particularly tradeable goods and services, by either improving the efficiency of resource allocation and/or increasing the level of the economy's productive capacity. Supply-side policies thus put more emphasis on investment incentives and growth. If output can be expanded more rapidly than domestic demand, and if the structure of growth favours exports or import substitutes, the external position will improve. Prominent among the supply-side policies aimed at improving the efficiency of resource allocation include the various measures to remove market distortions caused by price controls, taxes, subsidies and trade restrictions. The removal of such distortions is seen as a way of shifting the aggregate supply schedule outwards and increase output without reducing consumption through reductions in the incremental capital-output ratio (Tarp, 1993). Supply-side policies aimed at expanding the productive capacity of the economy, on the other hand, focus on the balance between savings and investment as well as on the nature and quality of the capital stock added. Such policies include interest rate adjustments, granting of incentives for investment in new capacity for export and import substitutes production, changes in the composition of public investment towards directly productive activities in the traded goods sector and infrastructure/services which complement expansion of these activities.

The transmission mechanisms through which exchange rate changes may be used to effect changes in the balance of payments can be analyzed within the framework of the monetary and real theories of the balance of payments. The real theory reveals how flow equilibria can be influenced within the fabric of a set of output and expenditure switching policies. From this viewpoint, exchange rate adjustment as a policy response to balance of payments crises has both demand as well as supply-side effects. By increasing the prices of tradeable goods relative to the prices of nontradeable goods, exchange rate depreciation can cause resources to be reallocated or switched from the nontradeable goods sector (where there is excess supply resulting from the reduced aggregate demand) to the tradeable goods sector where increased production for export and import replacement are needed. Similarly, there will be a shift in domestic demand away from the higher priced tradeable goods to non-tradeable goods. With complete switching, the decline in output in the non-tradeable goods sector will be fully offset by the increase in output in the tradeable goods sector (Kusi, 1993).

Figure 2.1 illustrates the effects of exchange rate adjustments on the balance of payments. In this figure, we assume a small developing country that produces and consumes homogenous tradeables (exportables and importables) and nontradeables (all goods and services whose prices are determined by domestic market forces). Measuring tradeables on the vertical axis and nontradeables on the horizontal axis and assuming increasing costs of production, the country's transformation curve may be presented as QQ, together with the tangential social welfare curves at A, C and D.

An initial general equilibrium situation exists at point A, reflecting productive and consumptive efficiency, together with internal and external balance. An exchange rate depreciation, which switches prices in favour of tradeable goods, can be shown by a change

**Figure 2.1 Effects of Exchange Rate Depreciation on the Balance of Payments.**



Source: Strydom *et al* (1987)



in the terms of trade from  $T_1T_1$  to  $T_2T_2$ . The new terms of trade will give rise to production substitution in favour of tradeables, towards point B. Unilateral income and substitution effects in consumption, shown as  $N_1N_2$  and  $N_2N_3$  respectively, lead to an excess demand for nontradeables, of the order FC. The real balance effect of the exchange rate depreciation will reduce real incomes along the Engel curve OE to point D, leading to a trade surplus of the order BD in the short run. In the long run, however, the receipts from exports will raise incomes and subsequently aggregate demand. The price of non-tradeables will also rise in response to the increased demand to restore the terms of trade and finally bring the economy back to initial real equilibrium at A, a higher price level proportional with the rate of devaluation.

Monetary pessimists such as Robinson (1937), Alexander (1952), and Johnson (1958) are sceptical about these innate adjustments. They believe instead in economic re-stabilization through output and expenditure switching mechanisms which direct the economy towards equilibrium. According to them, output switching forces, for example, would be released with the change in the terms of trade. These would exert pressure on resources to be transferred from the relatively less profitable nontradeable goods sector to the tradeable goods sector. Such a transfer will continue for as long as the relative price differentials exist, and this would ultimately result in a continued rise in export production. They further believe that the export expansion could also take place through enhanced capacity if the devaluation induces foreign capital inflows, a higher national savings rate or improved efficiency in investment. The use of extra capacity would not only provide a vent for extra production but would also provide opportunity to overcome technical indivisibilities. This would allow for the exploitation of scale and scope economies which could lead to lower domestic costs and prices relative to those abroad. Domestic nontraded goods would thus become cheaper

than internationally traded goods and this would enhance the relative profitability of production for export.

Switching would, however, be affected by the degree of prolongivity of the relative price changes. Since the movement of resources from the non-tradeable sector to the tradeable sector involves "Penrose effects" and other re-allocation costs and risks, exporters will only respond if they are assured of a reasonable degree of commitment to the exchange rate policy. Response may therefore be sluggish if exporters have reason to believe that such incentives are only ephemeral (Fosu, 1992). Where exporters operate cartels, or international price agreements specified in domestic currency terms, the fear of a loss of market shares may compel them to avoid incessant price vacillations and instead maintain sticky prices despite the scope for discretionary pricing provided by the exchange rate changes (Dohner, 1984; Kravis and Lypsey, 1978). Also, where export prices are controlled by marketing boards, the exchange rate depreciation pass-through will be limited to the extent to which the regulated export prices are revised by government. If government guaranteed prices remain invariant albeit a devaluation, or where they are revised by an insignificant margin, export response may be quite poor. To realise the full effect of the exchange rate adjustments, in this case, will require that direct pricing policies be employed to raise the producer price of the affected export commodities by the full extent of the devaluation. In other words, the responsiveness of exports to exchange rate adjustments would be determined by the extent to which the nominal devaluation alters the real exchange rate.

The success of the switching effect thus depends on a series of critical price and wage relationships, which are in themselves the product of complex economic and political forces and institutional constraints. According to Corden (1985), where there is "cost plus" pricing



in the nontradeables sector together with capital immobility and rigid wages in the economy as a whole, the devaluation will raise per unit profits in the tradeable goods sector by the full margin of the depreciation in local currency, while profits in the nontradeable sector remain unchanged. These higher profits will draw labour from the nontradeables sector, leaving capital in that sector with less than optimum levels of labour to work with. Both profitability and prices of nontradeables will fall, and this will reinforce the price disparities to the advantage of tradeable (export) goods, ultimately increasing their production, and hence incomes in that sector.

The scenario outlined above would, however, be slightly different if the capital immobility assumption is relaxed, and instead, we assume perfect factor mobility, a labour intensive nontradeable sector, a capital intensive tradeable goods sector, and factor price equalities between both sectors. Here, a devaluation may be accompanied by a transfer of capital to the tradeable goods sector to increase profits and prices in that sector. However, because factor prices are equal for both labour and capital the rate of profit per unit capital may rise by similar margins in both sectors; but since the non-tradeable goods sector is less capital intensive, the price rise in that sector will be less. Relative price disparities due to the devaluation are, therefore, reduced and so will be the switching effect and the relative profitability of export production (Tarp, 1993).

The effects of wages on the real exchange rate cannot be over-emphasised either. *Ceteris paribus*, the more real wages rise in response to a devaluation the less will be the export supply response. A devaluation may, therefore, back-fire if wage-earners, for example, gear their wage demands to anticipated progressive tax rates or inflationary expectations over and above their actual levels (Thirlwall, 1982). However, if wages in all sectors rise equally by a margin less than or equal to the rise in consumer prices, then the

real wage may fall by a greater margin in the tradeable goods sector, since relative prices in that sector would have risen. Consequently, resources may move into export production. Nevertheless, in an economy characterised by active income bargaining and mark-up pricing policies, the rise in wages coupled with higher import costs could generate an inflationary spiral, leading to a vicious circle of real exchange rate re-appreciations. In addition, imported inflation, following a devaluation, may spark off contractionary shifts in aggregate supply.

A devaluation can also compound fiscal problems such as debt servicing, especially where the said debts are to be paid in foreign currency terms, as is often the case with most developing countries. (More domestic currency is required to purchase the necessary foreign exchange for the amortization of public loans). Market penetration may also dampen the extent of export expansion. Within a highly competitive market, a devaluing country may gain by price-shaving. If, however, her rivals also adopt "beggar-thy-neighbour" policies, such as competitive devaluations or *ad valorem* subsidizations, then the effective price advantages that the initial devaluing country had would be eroded, leaving the real exchange rate unchanged (Caves and Jones, 1981).

The main dichotomy between the real and monetary theorists is that, while the monetary approach purports an automatic compression in domestic absorption, the real theorists believe that (especially in an economy where resources are fully employed) stabilization could only be achieved by the use of complementary expenditure-reducing instruments, such as export subsidies, import tariffs and quotas, and other price and quantity adjustment mechanisms in order to reduce imports, eliminate some domestic consumption of tradeable goods, and free more resources for export production. The efficacy of these expenditure-switching policies would, however, be subject to the magnitude of the marginal

propensity to absorb in the devaluing country. Where the extra consumption and investment per unit increase in income (marginal propensity to absorb) is greater than one, a devaluation may worsen the trade balance instead. Equally plausible is the argument that the effect of a devaluation on the trade balance would be dependent on the arithmetic sum of the price elasticities of demand for exports and imports in the devaluing country, *i.e.*, on the Marshall-Lerner condition. The immediate implication of this condition is that, if the country exports raw materials and other primary goods for which the elasticity of demand is close to zero, then devaluations will improve the trade balance only if her demand for imports is of at least unitary elasticity. Similarly, where the country is virtually dependent on imports for the smooth running of the economy, then the demand for her exports would have to be very elastic if the balance of payments position is to be improved (Thirlwall, 1989).

The Marshall-Lerner condition has, however, been criticised on the grounds that the elasticities refer to long term responses, which allow for long run adjustments. In the short run, export supply elasticities, for instance, may be smaller, especially for the agricultural and other sub-sectors which face capacity constraints, rudimentary technology, poor extension services and lengthy gestation periods. Marketing constraints (*e.g.* storage bottlenecks), recognition, decision, production and delivery lags as well as forward contracts may also drive a wedge between the desired and actual responses to price increases in the short run. Similarly, the highly open and import dependent nature of many developing countries may reduce the elasticity of demand for imports, leaving import levels undeterred by a devaluation. These dual effects could lead to stagflation in the devaluing country, forcing the current account to worsen in the short run, but improve as the economy adjusts in the long run. The current account may thus experience the J-curve effect. Within such a scenario, exchange rate depreciation is recommended only for long term export promotion

targets (Kenen, 1985; Thirlwall, 1982). In general, the short-term impact of exchange rate adjustment on output hinges on whether its negative effects on aggregate demand outweigh its positive impact on supply. As Corden (1985) and Tarp (1993) have pointed out, this depends on whether output is close to full capacity or not, the short term constraints, the relative price elasticities of imports and exports, and the shares of tradeable and non-tradeable goods in total production.

## Chapter Three

### The Ghanaian Export Sector

#### 3.1 Introduction

Ghana's exports accounted for some 24% of GDP in 1960. This figure rose to nearly 27% in 1961 before declining steadily to 12.2% in 1966. Thereafter, the share of exports in GDP rose steadily, averaging some 18.5% in 1971 - 1975. The period between 1975 and 1983, however, witnessed a precipitous decline in the exports share in GDP. During this period, exports as percentage of GDP declined from 14.5% in 1976 to 2.1% in 1983. The rising cocoa prices in the late 1970s could not even stave off the decline in exports relative to GDP. Between 1980 - 1982, for example, the value of exports declined by almost 15% per annum. In response to the adjustment measures initiated by the government in 1983, exports resumed growth, with its share in GDP jumping to 7.2% in 1984 and averaging 15.3% in 1984 - 1993 (Table 3.1)

#### 3.2 The Composition of Exports

Ghana's exports consist of both agricultural and semi-manufactured goods, which may be classified as traditional and nontraditional export commodities, respectively. The traditional export commodities are those which have been produced primarily for the export market and for which a formal government policy existed in terms of their production and marketing. They comprise agricultural produce, such as cocoa beans and timber; minerals, such as gold, diamond, manganese and bauxite; and forestry products, including logs and sawn timber. Others include aluminium<sup>3</sup>, coffee and sheanuts. Of the traditional exports, cocoa alone accounts for more than 60% of total export earnings. Together with the other

traditional exports they contributed over 96% of total export receipts in the first half of the 1960s, 95% in the 1970s and about 98% in the 1980s. Their share however, declined to about 93% in the early 1990s. Despite their dominance in the export trade, the share of traditional exports in GDP declined steadily from an average of 20% per annum in the 1960s to 2.5% in 1982. The share ranged between 14% and 22.5% of GDP in the early 1990s.

Like the traditional exports, nontraditional exports also suffered from a serious decline for most part of the 1960 - 1983 period. The share of nontraditional exports in GDP increased from 0.7% in 1960 to 2.7% in 1969. Thereafter, the share declined steadily, reaching under 0.1% in 1983. After 1983, however, nontraditional exports resumed growth, with its share in GDP increasing to 1.6% in 1993.

The decline in the exports/GDP ratio during the 1960 - 82 period was due to several factors. Prominent among these were the unattractive producer price paid to cocoa farmers, high domestic costs of production, a breakdown in the road and transport network and the maintenance of an overvalued exchange rate. The extremely overvalued exchange rate of the cedi served as an implicit tax on all exports, especially those that could be sold on the domestic market at a relatively higher price. In addition, exporters were often required to pay various kinds of levies by the marketing boards and other authorities. Timber exporters, for example, were required by the Ghana Timber Marketing Board to pay a 3% levy on all export consignments, a 2% *ad valorem* fee for the running of the Board's London office and another 4% agency commission payable to foreign agents in respect of the value of any export consignment. These charges, regardless of how necessary they might have been, raised the costs of production to high levels and tended to discourage exports. Apart from these policy-induced disincentives, other external factors such as the declining world

Table 3.1. Exports of Domestic Produce, 1960 - 1993

Year	In Million Cedis			As Percentage of GDP			As Percentage of Total Exports	
	Traditional	Non-Traditional	Total	Traditional	Non-traditional	Total	Traditional	Non-Traditional
1960	222.50	6.30	228.80	23.27	0.66	23.93	97.25	2.75
1961	265.00	6.70	271.70	25.93	0.66	26.59	97.53	2.47
1962	258.80	9.20	268.00	23.66	0.84	24.50	96.57	3.43
1963	207.80	6.00	213.80	17.20	0.50	17.70	97.19	2.81
1964	217.90	8.50	226.40	16.06	0.63	16.68	96.25	3.75
1965	217.00	6.40	223.40	14.80	0.44	15.23	97.14	2.86
1966	178.30	7.50	185.80	11.74	0.49	12.23	95.96	4.04
1967	222.50	17.10	239.60	14.79	1.14	15.93	92.86	7.14
1968	301.20	36.10	337.30	17.72	2.12	19.84	89.30	10.70
1969	337.10	53.70	390.80	16.85	2.68	19.53	86.26	13.74
1970	417.30	42.90	460.20	18.47	1.90	20.37	90.68	9.32
1971	318.90	44.20	363.10	12.75	1.77	14.52	87.83	12.17
1972	530.20	19.20	549.40	18.83	0.68	19.51	96.51	3.49
1973	666.90	30.90	697.80	19.05	0.88	19.93	95.63	4.43
1974	876.60	40.30	916.90	18.81	0.86	19.67	95.60	4.40
1975	941.70	53.30	995.00	17.83	1.01	18.84	94.64	5.36
1976	899.50	48.70	948.20	13.78	0.75	14.53	94.86	5.14



1977	1155.10	54.10	1209.20	10.35	0.48	10.83	95.53	4.47
1978	1513.80	46.00	1559.80	7.21	0.22	7.43	97.05	2.95
1979	2644.10	75.90	2720.00	9.37	0.27	9.64	97.21	2.79
1980	3072.60	31.30	3103.90	7.17	0.07	7.24	98.99	1.01
1981	2622.38	11.45	2685.63	3.68	0.02	3.70	99.57	0.43
1982	2158.00	53.73	2211.73	2.50	0.06	2.56	97.57	2.43
1983	3838.22	55.80	3894.02	2.09	0.03	2.12	98.57	1.43
1984	19327.33	68.67	19396.00	7.14	0.03	7.17	99.65	0.35
1985	33370.51	119.29	33489.80	9.73	0.03	9.76	99.64	0.36
1986	76059.24	2109.56	78168.80	14.87	0.41	15.28	97.30	2.70
1987	139111.67	4192.23	143303.90	18.65	0.56	19.21	97.07	2.93
1988	170941.29	7329.11	178270.40	16.26	0.70	16.96	95.89	4.11
1989	209447.10	8685.90	218133.00	14.78	0.61	15.39	96.02	3.98
1990	275503.61	17148.64	292652.25	13.65	0.84	14.39	94.14	5.86
1991	345991.80	20992.20	366984.00	13.44	0.82	14.26	94.28	5.72
1992	403355.40	27746.47	431101.87	15.08	1.04	16.12	93.56	6.44
1993	630861.10	43702.21	674563.31	22.46	1.56	24.02	93.52	6.48

Source:

Huq, (1989)

Government of Ghana (1985)

Jebuni *et al* (1994)Ghana Statistical Service *Quarterly Digest of Statistics*, (various issues)

Ghana Export Promotion Council, (various issues)

GATT (1992a, 1992b)



prices and unfavourable weather conditions also had a detrimental effect on export production.

The recovery in exports after the mid-1980s was mainly the result of the structural adjustment programme which sought to remove the structural and other bottlenecks that were responsible for the dismal performance of the export sector and of the economy as a whole in the 1960 - 1982 period. The economic policies which had direct positive effects on export performance included changes in exchange rate, restructuring of the marketing boards including the upward revision of cocoa producer prices, and the granting of various fiscal, financial and other incentives to encourage producers to move back into the official exporting activities. Other factors included the rehabilitation of the existing feeder roads, ports and harbours, improvement in the information network, renovation of existing mines and the sinking of new ones as well as the inculcation of an export awareness in the general public.

### **3.3 Traditional Exports**

As mentioned earlier, cocoa is the most important traditional export crop, accounting for about two-thirds of the total export proceeds and almost 30% of total government tax revenue. In spite of the role of cocoa in the country's development it was this sector that suffered the most decline. Cocoa exports' contribution to GDP fell from more than 16% in 1961 to 1.3% in 1982 (Table 3.2). In volume terms, cocoa exports declined from some 500,000 tonnes in 1965 to just under 150,000 tonnes in 1984 (Kafe, 1993). The main reasons for the decline in cocoa production and exports in the 1970s and early 1980s include the low producer price paid by the Cocoa Marketing Board to cocoa farmers, absence of important inputs such as machets, insecticides, spraying machines and fertilizers, lack of efforts at replanting to replace the ageing stock of cocoa trees, drift of the youth from the cocoa

Table 3.2. Traditional Exports of Ghana, 1960-1993

Year	In Million Cedis					As Percentage of Total Exports					As Percentage of GDP				
	Cocoa	Timber	Minerals	Others	Total	Cocoa	Timber	Minerals	Others	Total	Cocoa	Timber	Minerals	Others	Total
1960	134.9	31.8	55.8	0.00	222.50	58.96	13.90	24.39	0.00	97.25	14.11	3.32	5.84	0.00	23.27
1961	169.8	36.6	58.6	0.00	265.00	62.5	13.47	21.57	0.00	97.53	16.61	3.58	5.73	0.00	25.93
1962	169.9	29.3	59.6	0.00	258.80	63.40	10.93	22.24	0.00	96.57	15.53	2.68	5.45	0.00	23.66
1963	143.5	26.00	38.3	0.00	207.80	67.12	12.16	17.91	0.00	97.19	11.88	2.15	3.17	0.00	17.20
1964	145.5	29.50	42.8	0.10	217.90	64.27	13.03	18.90	0.40	96.25	10.72	2.17	3.15	0.01	16.06
1965	148.8	24.70	43.5	0.00	217.00	66.61	11.06	19.47	0.00	97.14	10.15	1.68	2.97	0.00	14.80
1966	115.8	20.90	41.6	0.00	178.30	62.33	11.25	22.39	0.00	95.96	7.63	1.38	2.74	0.00	11.74
1967	155.7	22.40	44.4	0.00	222.50	64.98	9.35	18.53	0.00	92.86	10.35	1.49	2.95	0.00	14.79
1968	214.2	28.60	58.1	0.30	301.20	63.50	8.48	17.23	0.09	89.30	12.60	1.68	3.42	0.02	17.72
1969	245.9	39.10	51.5	0.60	337.10	62.92	10.01	13.18	0.15	86.26	12.29	1.95	2.57	0.03	16.85
1970	331.6	37.00	48.7	0.00	417.30	72.06	8.04	10.58	0.00	90.68	14.68	1.64	2.16	0.00	18.47
1971	237.0	32.70	49.2	0.00	318.9	65.27	9.01	13.55	0.00	87.83	9.48	1.31	1.97	0.00	12.75
1972	328.6	63.50	81.7	56.40	530.20	59.81	11.56	14.87	10.27	96.51	11.67	2.26	2.90	2.00	18.83
1973	397.0	130.40	93.1	46.40	666.90	56.93	18.70	13.35	6.65	95.63	11.34	3.72	2.66	1.33	19.05
1974	535.4	106.10	138.4	96.70	876.60	58.39	11.57	15.09	10.55	95.60	11.49	2.28	2.97	2.08	18.81
1975	637.2	83.70	121.4	99.40	941.70	64.04	8.41	12.20	9.99	94.64	12.06	1.58	2.30	1.88	17.83
1976	593.1	80.00	118.9	107.50	899.50	62.55	8.44	12.54	11.34	94.86	9.09	1.23	1.82	1.65	13.78
1977	797.3	92.20	109.2	156.40	1155.1	65.94	7.62	9.03	12.93	95.53	7.14	0.83	0.98	1.40	10.35
1978	1110.1	96.90	152.5	154.30	1513.8	71.17	6.21	9.78	9.89	97.05	5.29	0.46	0.73	0.74	7.21

1979	2029.8	124.60	279.4	210.30	2644.1	74.63	4.58	10.27	7.73	97.21	7.19	0.44	0.99	0.75	9.37
1980	2002.2	99.40	600.9	370.10	3072.6	64.51	3.20	19.36	11.92	98.99	4.67	0.23	1.40	0.86	7.17
1981	1183.9	99.00	487.3	903.98	2622.4	44.08	3.69	18.14	23.66	99.57	1.63	0.14	0.67	1.24	3.68
1982	1118.6	44.00	344.2	651.20	2158.0	50.58	1.99	15.56	29.44	97.57	1.29	0.05	0.40	0.75	2.50
1983	2437.1	132.45	986.13	282.56	3838.2	62.59	3.40	25.32	7.26	98.57	1.32	0.07	0.54	0.15	2.09
1984	13582.8	446.50	4092	1206.03	19327.3	70.03	2.30	21.10	6.22	99.65	5.02	0.17	1.51	0.45	7.14
1985	21844.6	1510.20	5927.2	4088.51	33370.5	65.23	4.51	17.70	12.21	99.64	6.37	0.44	1.73	1.19	9.73
1986	44876.1	4943.80	13918.6	12320.7	76059.2	57.41	6.32	17.81	15.76	97.30	8.78	0.97	2.72	2.41	14.87
1987	75076.7	13747.6	26958.1	23329.3	139111.7	52.39	9.59	18.81	16.28	97.07	10.06	1.84	3.61	3.13	18.65
1988	93384.5	21489.6	37981.11	18086.1	170941.3	52.38	12.05	21.31	10.15	95.89	8.88	2.04	3.61	1.72	16.26
1989	110106.0	21654.0	50220	27467.1	209447.1	50.48	9.93	23.02	12.59	96.02	7.77	1.53	3.54	1.94	14.78
1990	117674.6	38506.9	79135.03	40187.0	275503.6	40.21	13.16	27.04	13.73	94.14	5.79	1.90	3.90	1.98	13.56
1991	128262.3	45684.5	129623.3	42421.7	345991.8	34.95	12.45	35.32	11.56	94.28	4.98	1.77	5.03	1.65	13.44
1992	132224.1	49784.6	169896.9	51449.9	403355.4	30.67	11.55	39.41	11.93	93.56	4.94	1.86	6.35	1.92	15.08
1993	179474.9	91589.1	305575.2	43702.2	630861.1	26.61	13.58	45.30	6.48	93.52	6.39	3.26	10.88	1.56	22.46

Source:

Huq, (1989)

Government of Ghana, (1985)

Jebuni *et al*, (1994)Ghana Statistical Service *Quarterly Digest of Statistics*, (various issues)

Ghana Export Promotion Council, (various issues)

GATT (1992a, 1992b)

**Table 3.3. Cocoa Producer Price as a Proportion of Export Prices, 1985/86 - 1992/93**

Year	Volume (tons)	Export Price (cedis/ton)	Producer Price (cedis/ton)	Proportion of export price paid to farmers
1985/86	193000	208240.4	56000	26.89
1986/87	203000	313716.7	85000	27.09
1987/88	155000	431512.6	150000	34.76
1988/89	270000	411511.0	165000	40.10
1989/90	227000	418788.1	174000	41.55
1990/91	295000	487445.8	224000	45.95
1991/92	243004	515198.9	251200	48.76
1992/93	223077	560081.1	258000	46.06

Source: Economist Intelligence Unit (1993)  
Jebuni *et al*, (1994)

farming regions to the urban centres in search of white-colour jobs, breakdown in the road and railway network and shortage of haulage services.

Efforts to address the numerous problems that beset the cocoa sector began in 1983. The most significant of these included the revision of the cocoa producer pricing system. To begin with, the nominal producer price was almost tripled between 1983 and 1985. This was further increased by almost 200% from C56,000 per metric ton in 1985 to C165,000 per metric ton in 1988 (Table 3.3). Since then, cocoa producer prices have been raised upwards annually. As Table 3.3 shows, the proportion of world prices paid to farmers was increased from 26.9% in 1985 to nearly 50% in 1991. The increases in producer prices coupled with the government's encouragement to farmers to replant ageing cocoa farms through the provision of seedlings and other subsidised inputs did not only re-attract farmers to cocoa production but also discouraged cross-border smuggling of the crop to neighbouring countries. By 1990, the volume of cocoa exports through official channels was nearly twice the volume exported in 1983. Despite this impressive recovery in the cocoa sector, its relative contribution to total exports has declined from 70% in 1984 to 26.6% in 1993, due mainly to the remarkable performance of the minerals sector, especially gold.

Mineral exports from Ghana include gold, diamond, manganese and bauxite. Of these, gold is the most important, accounting for about 45% of total mineral exports in the 1960s, 67% in the 1970s and over 85% in the 1980s. In 1993, more than 90 percent of total earnings from mineral exports was from gold. As a share of total exports, gold accounted for about 8 - 10% in the 1960s, 7.4% in the 1970s and more than 23% in the 1980s. In fact, by 1991, gold had overtaken cocoa as the country's leading foreign exchange earner. The sharp rise in the share of gold exports in total exports since the early 1980s was due to the relative decline in cocoa and nontraditional exports and the reopening of many of the gold

mines that were closed down in the 1970s.

Like cocoa, gold production also experienced some structural and other bottlenecks in the 1960 - 1982 period. Foreign exchange constraints, in particular, and high domestic inflation rates affected adversely the operations of several mining companies. These problems were compounded by the shortage of both skilled and unskilled labour, absenteeism and the illegal mining of gold. This led to a fall in both production and exports to the extent that in 1980 gold exports were only half of their 1970 volume (Kafe, 1993). The rise in gold export earnings in 1980 was due to substantial capital gains from the 1980 gold price boom rather than any increases in export volume. The rehabilitation of existing mines and the establishment of new ones, such as the Teberebie Goldfields Ltd, Bogosu Resources and Goldenrae Mining, the provision of better drilling facilities, improvements in protection and security services and the rehabilitation of the road and transport system to link the mining areas to the sea ports after 1983 were largely responsible for the surge in export volumes in the 1984 - 1993 period.

The timber industry, dominated by log and sawn timber products, is the country's third largest foreign exchange earner, employing over 15% of the entire labour force (Economist Intelligence Unit, 1990). Timber exports are mainly in the form of unprocessed logs, though efforts are being made to add more value through further processing into sawn wood, plywood, veneer and finished products, such as knock-down furniture and parts, doors, and flooring. The exports of timber increased in the 1960 - 1961 period but declined thereafter, except for the 1977 - 1979 periods. The decline in timber exports in 1961 - 1966 and 1973 - 1982 was a direct result of the overvalued exchange rate, high domestic resource and wastage costs, deteriorating port, railway and harbour facilities, shortages of imported inputs and operational problems, such as the frequent breakdown of obsolete log processing



and industrial machinery. The modest growth in the 1967 - 1973 period was a direct result of the effects of the 1966 devaluation and the 1968 export promotion measures. The sharp recovery in timber exports in the early 1990s was due to the disbursement of the World Bank's Timber Sector Rehabilitation Credit, which was used mainly to finance imports of logging equipment, spare parts *e.t.c.* (Economist Intelligence Unit, 1990).

### 3.4 Nontraditional Exports

Nontraditional exports are broadly categorised into agricultural products, processed and semi-processed products and handicrafts. In the 1960s, nontraditional exports were mainly spill-overs from existing import substitution industries, such as simple leather and rubber products, heavy iron and non-ferrous base metals, chemical, pharmaceutical and petroleum products, textiles and miscellaneous manufactures (Ansah, 1979; Kusi, 1980). With the collapse of import substitution industrialisation in the 1970s, nontraditional exports production was shifted into the agricultural sector and by the mid-1980s agricultural exports had assumed a dominant position in the non-traditional exports sector. The early 1990s witnessed a reverse shift in the composition of the nontraditional exports from agriculture to processed and semi-processed manufactured exports. Unlike the traditional exports, non-traditional export commodities are produced for both the domestic and export market. They are, therefore, very sensitive to relative price incentives and opportunities for profit.

#### Agricultural exports

Table 3.4 shows that there were 197 exporters exporting 49 different non-traditional agricultural exports in 1986, 708 exporters exporting 65 products in 1988, and 1270 exporters exporting 53 products in 1990. The number of agricultural exporters, however,



Table 3.4. Nontraditional Exports of Ghana, 1986 - 1993

Year	1986	1987	1988	1989	1990	1991	1992	1993
	<u>In million cedis</u>							
Agriculture	1589.5	2888.6	5475.6	5715.9	9391.8	12149.0	9633.4	16771.0
Manufacturing	517.4	1294.4	1839.4	2918.7	7610.0	8518.9	17475.0	25346.0
Handicrafts	2.7	9.2	13.6	52.7	146.9	323.7	633.8	1655.9
	<u>As % of Total Exports</u>							
Agriculture	2.03	2.02	3.07	2.62	3.21	3.31	2.24	2.49
Manufacturing	0.66	0.90	1.03	1.34	2.60	2.32	4.05	3.75
Handicrafts	0.00	0.01	0.01	0.02	0.05	0.09	0.15	0.26
	<u>As % of GDP</u>							
Agriculture	0.31	0.39	0.52	0.40	0.46	0.47	0.36	0.60
Manufacturing	0.10	0.17	0.17	0.21	0.37	0.33	0.62	0.90
Handicrafts	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.06

Table 3.4 (cont.)

	<u>No. of Exporters</u>					
	197	377	708	627	666	1214
Agriculture	197	377	708	627	666	1270
Manufacturing	152	284	473	448	806	1711
Handicrafts	24	64	150	306	257	207
						893
						943
						144

	<u>No. of Items</u>					
	49	55	65	61	50	58
Agriculture	49	55	65	61	50	53
Manufacturing	44	65	82	85	95	100
Handicrafts	6	12	19	21	19	11
						9

Source: Ghana Export Promotion Council *The Exporter* (various issues)  
I.M.F. *International Financial Statistics* (various issues)

fell to 893 in 1993, while the number of products exported rose to 60. These non-traditional agricultural exports include marine and fish products, game and wild life products, horticultural products, medicinal plants and seeds and other products such as kola, cotton, groundnuts and assorted food items.

Table 3.4 also shows that nontraditional agricultural export receipts rose steadily from C1.6 billion in 1986 to C12.2 billion in 1991. The receipts fell to C9.6 billion in 1992 but rose again to C16.8 billion in 1993. As proportion of GDP, however, nontraditional agricultural exports receipts have remained at less than 1% through to 1993. The share of nontraditional agricultural exports in total non-traditional exports, however, declined from 74.8% in 1986, reaching 36% in 1993. Of these agricultural exports, fish and fish products, such as tuna, frozen fish, lobsters, shrimps, shark fins and aquarium fishes are the leading export commodities. Closely following the fish and fish products are horticultural products, such as pineapples, yam and cocoyam, whose export values rose consistently from C94.55 million in 1986 to C3.1 billion in 1991, but declined to C2.8 billion in 1993. Other important nontraditional agricultural products include kola and cotton exports, which continue to show remarkable improvement in their export earnings.

### **Processed and semi-processed products**

In 1986, there were 152 exporters dealing in 44 manufactured items. In 1993 the number of exporters had increased to 943, dealing in various commodities including wood products, canned foods and beverages, natural rubber products and other processed products, such as air conditioners and parts, computer stationary and common salt. Other exports include natural rubber, salt, metal scraps, canned foods, pharmaceutical products and footwear. The exports of these products earned C517.4 million in 1986, C7.6 billion in

1990 and C25.3 billion in 1993. As a share in total export earnings, the processed and semi-processed export products rose from under 1.0% in 1986 to 1.03% in 1988 and then to 2.6% in 1990. By 1992 export commodities in this category had become the most important nontraditional export earner, contributing as much as 4.1% of total exports compared to 2.2% by the nontraditional agricultural exports. The improved performance of the manufactured exports was also accompanied by less commodity concentration and higher intra-sectoral diversification compared to the nontraditional agricultural exports.

### **Handicrafts.**

The number of handicraft items exported rose from 6 in 1986 to 21 in 1989, showing an increase of about 250% in the period. The number of items fell by almost 50% to 10 in 1991, and then to 9 in 1993. On the other hand, the number of handicrafts exporters rose from 24 in 1986 to 306 in 1989 before declining to 144 in 1993. Among the important handicraft exports are straw products, rattan and cane products, *adinkra* and *kente* products, ceramics products and traditional musical instruments. Despite the decline in both exporters and exported products, revenue from these handicraft items more than tripled from C2.7 million in 1986 to C9.2 million in 1987. By 1991, the total value of handicraft exports had risen to C323.7 million. The figure for 1993 was C1.7 billion.

Generally, the recovery of the nontraditional exports after the mid-1980s was due to the trade and exchange rate reforms, which together with the reorganisation of the Ghana Export Promotion Council, the establishment of export production villages and the increased publicity of the export promotion incentives, such as the export retention scheme, the duty drawback system, the export credit guarantee schemes and the abolition of export duties gave renewed and sustained attractiveness to the export business.

## Chapter Four

### Export Promotion

#### 4.1 Introduction

Export promotion in Ghana has involved the use of the exchange rate, institutional reforms and financial and fiscal incentives as the major instruments. In what follows, we discuss these instruments and how they have been used to promote exports.

#### 4.2 Exchange Rate Policy

Until 1983, exchange rate policy was not used as an export promotion tool. This was because at the time of independence in 1957, the country had foreign exchange reserves, which were relatively enough to provide it with, at least, three years import cover (Roe *et al*, 1992). With such substantial reserves, the government sought to make the country less dependent on the rest of the world by embarking upon a massive import substituting industrialisation programme in which the public sector played a dominant role. By 1961, the rising import requirements of the import substitution programme had depleted the nation's reserves, while export revenues remained stagnant. The government responded to the foreign exchange crisis by introducing import controls and a fixed exchange rate regime. The Exchange Control Act (Act 71) was also passed as part of the measures to control the use of the scarce foreign exchange and to stabilise the exchange rate of the domestic currency (Huq, 1989). Despite these measures, it became clear in 1965 that the foreign exchange costs of the industrialization drive were more than what the nation could afford, requiring both foreign sources of funds to be sought and adjustment in the exchange rate. Meanwhile, the adverse effects of the fixed exchange rate system had begun to be felt in the export

Table 4.1 Nominal and Real Exchange Rate in Ghana

Year	Nominal Exchange Rate		Real Exchange Rate	
	Actual	Index	Actual	Index
1960	0.71	1.31	4217.62	43.01
1961	0.71	1.31	4791.70	48.86
1962	0.71	1.31	4836.91	49.32
1963	0.71	1.31	7395.53	75.41
1964	0.71	1.31	7505.96	76.54
1965	0.71	1.31	5176.86	52.79
1966	0.71	1.31	5415.10	55.22
1967	1.02	1.88	6557.68	66.87
1968	1.02	1.88	7603.12	77.53
1969	1.02	1.88	6542.33	66.71
1970	1.03	1.89	7426.76	75.73
1971	1.17	2.15	10280.67	104.83
1972	1.17	2.15	8803.20	89.77
1973	1.15	2.12	6712.56	68.45
1974	1.15	2.12	6509.90	66.38
1975	1.15	2.12	5089.68	51.9
1976	1.15	2.12	3953.96	40.32
1977	1.15	2.12	2390.59	24.38
1978	2.75	5.06	2115.87	21.58
1979	2.75	5.06	2191.09	22.34
1980	2.75	5.06	1638.50	16.71
1981	2.75	5.06	1807.24	11.09
1982	2.75	5.06	1149.08	11.72
1983	8.83	16.24	1942.18	19.80
1984	35.99	66.19	6795.26	69.29
1985	54.37	100.00	9806.83	100.00
1986	89.20	164.06	10157.36	103.57
1987	153.73	282.75	10703.25	109.14
1988	202.35	372.17	10617.36	108.26
1989	270.00	496.60	12038.29	122.75
1990	326.33	600.20	8962.86	91.39
1991	367.83	676.53	8765.14	89.38
1992	437.09	803.92	8981.60	91.59
1993	641.83	1180.49	11476.26	117.02

Source: I.M.F. *International Financial Statistics* (various issues)

sector. A proposal for a stabilization programme, involving a devaluation and more outward-oriented policies put forward by the IMF and the World Bank in 1965, was rejected by the government. Instead, the government continued to maintain its overvalued exchange rate and stuck to such palliatives as quotas, import licences and duties, price and other administrative controls to reduce imports of consumables, which had become cheaper on the domestic market. The cumbersome and inefficient import licensing system led to massive corruption and complicated access to critical imported inputs, forcing many industries to operate under capacity. The price controls and overvalued exchange rate, for their part, encouraged smuggling of cocoa and other goods to neighbouring countries (Stryker *et al*, 1990; Roe *et al*, 1992). With the agricultural sector stagnating and the industrial sector operating far below installed capacity, shortages of all commodities, including foodstuffs were common. This exerted tremendous pressure on domestic prices, causing the inflation rate to rise to 40% in 1965. The higher inflation rates forced the real exchange rate to appreciate from an index of 76.5 in 1964 to 52.8 in 1965 (Table 4.1), aggravating the bias against exports.

The new government which came into power in 1966 introduced some stabilization measures including a devaluation of the domestic currency of about 45%. This devaluation changed the external value of the cedi from C0.71 = US\$1 to C1.02 = US\$1 in July 1967 (Table 4.1). The government also took advantage of the rising external terms of trade and increased the allocation of foreign exchange to the export sector for the purchase of imported inputs. At the same time, import duties on some essential commodities were also lowered. These measures led to an expansion in exports and trade surplus in 1968, thereby reducing the current account deficit from 10.27% of GDP in 1965 to 2.57 in 1968 (Stryker *et al*, 1990; Roe *et al*, 1992). Despite the declining terms of trade in 1969-1972, the government continued with its import liberalization policy, which caused some 60% of the country's



imported commodities to be removed from the restrictive import licensing list in 1970. This premature import liberalization programme led to a surge in imports. The rising import bills led to an increase in the current account deficit, forcing the foreign exchange reserves to fall to less than half of the trade deficits by the third quarter of 1971 (Leith, 1974; Stryker *et al*, 1990; Roe *et al*, 1992). To correct for the balance of payments problems, the government devalued the domestic currency by 78% in December 1971, bringing the external value of the cedi to C1.82 = US\$1. It is interesting to note that this devaluation was not meant to promote exports since it was not complemented by any other export promotion measure. Instead, it was aimed at reducing the purchasing power, and thus effective demand for imports by the populace. Hence, importers who had already filed in orders for goods were made to pay almost double in domestic currency terms for their orders (Ansah, 1979; Kusi, 1995).

On the assumption of power in 1972, the National Redemption Council government revalued the currency by about 70% and committed itself to reducing the country's overdependence on imports through a strict import licensing system. The strict reliance on restrictive import licensing system and exchange controls caused the import bill to reduce by about 43% within less than a year. However, these measures found expression in higher domestic prices and together with the sharp expansion in money supply the domestic inflation rate accelerated, reaching 116.5% in 1977. With the exchange rate fixed at C1.15 = US\$1 since 1973 (Table 4.1), the real exchange rate appreciated by some 76.7% between 1971 and 1977. The spread between the official and black market rates also rose to more than 250%, making Ghana the country with the most seriously distorted exchange rate in the whole of sub Saharan Africa (Stryker *et al* (1990); Kusi, 1991b). This affected adversely the comparative advantage in the productive sectors of the economy, creating a major

disincentive to export and thus reducing the country's foreign exchange earnings. The ensuing scarcity of foreign exchange had severe repercussions on imports, which in turn reduced the productive capacity of the traded goods sectors. To reverse this undesirable trend of affairs, the government introduced a flexible exchange rate system in June 1978. Under the system, periodic adjustments were to be made to the exchange rate in line with the underlying economic, financial and balance of payments situation. Upon an advise by the IMF, the currency was devalued in August 1978, bringing the exchange rate to C2.75 = US\$1. This devaluation was accompanied by a restrictive monetary policy and stricter price controls, which together helped reduce the inflation rate to 54.4% in 1979. The new exchange rate of 2.75 cedis per US dollar remained in force until April 1983. During this period, the domestic inflation rates rose again to 117%, forcing the real exchange rate to appreciate significantly. According to the World Bank (1984) and Dordunoo (1994), the exchange rate in 1982 was overvalued by 816%, while the divergence between the official and black market exchange rate had widened to more than 4000%.

The exchange rate policy adopted in the 1960 - 1982 period had adverse implications for the trade sector. First, the overvalued exchange rate reduced drastically the cost of imports, causing the demand for imports to far outstrip the available foreign exchange. Second, the relatively sharp rise in domestic prices eroded the profitability of exporting through official channels. Third, the large premiums offered by the parallel market rates of exchange provided irresistible incentives for smuggling of exports to neighbouring countries. The combined effects of all these developments was the drastic decline in exports, both traditional and nontraditional in 1975 - 1980 and their eventual collapse in the early 1980s. Although the need for large exchange rate adjustments had long been apparent, this was not undertaken because of the perceived political consequences. As the economic situation

steadily deteriorated, the resistance was finally overcome in 1983 through efforts of the government to initiate a major adjustment programme designed to lay the foundations for sustained economic growth and the achievement of external payments viability. A major element of this programme was the exchange rate reform to encourage production and exports.

The exchange reform, which commenced in April 1983, was to be pursued simultaneously with the removal of all quantitative restrictions on imports. However, considering the low level of foreign exchange reserves and the import-dependent nature of the economy's productive base, it was thought that a large once-and-for-all devaluation, would stifle the domestic industry, while an indiscriminate liberalization of imports, for its part, would also result in a recurrence of the import surge experienced in the early 1970s. The government also believed that the general public needed some time to understand and accept the implications of a large straightforward exchange rate adjustment. The government, therefore, adopted a gradualistic approach, which allowed for a continuous adjustment in the real rate of exchange over time. As a transitional arrangement, the government adopted a multiple exchange rate, based on a system of bonuses and surcharges on the official exchange rate, which resulted in two rates - C23.375 per US\$1 and C29.975 per US\$1 - and a weighted average rate of C25 per US\$1, representing a depreciation of 89% in foreign currency terms. The authorities intended that the real effective exchange rate index remain constant and that ultimately the two rates would be unified. To this end, the less depreciated rate was expected to be adjusted more quickly than the more depreciated rate (Kapur *et al* 1991; Dordunoo, 1994; Kusi, 1995). The unification was effected in October 1983, resulting in a rate of C30 per US\$1. One of the major objectives of the exchange rate adjustment during this period was to attract resources (foreign exchange, exports and

imports) to the official market from the large parallel market, thereby improving the recorded balance of payments and the tax base. The parallel market exchange rate, which was approximately C80 per US\$1 at the beginning of 1983, was not considered to represent the equilibrium rate because of that market's risk premium and imperfections. However, in view of the size of the parallel market activity and the need to divert it into official channels, a progressive reduction in the spread between the official exchange rate and the parallel exchange rate was considered appropriate. Therefore, developments in the parallel market rate were taken into consideration in determining the appropriate official exchange rate.

To accelerate the move towards a market determined exchange rate, an independent float system operated by an active foreign exchange auction market was adopted. Essentially, the auction market was expected to facilitate the allocation of foreign exchange, improve financial intermediation by re-attracting foreign exchange transacted outside the banks into the banking system and to replace the bureaucratic administrative mechanisms involved in the allocation of foreign exchange under the import licensing scheme.

The foreign exchange auction was an integral part of a two-window exchange rate system under which Window 1 rate fixed at C90 = US\$1 covered service payments for all official debts, receipts from residual oil and cocoa exports and the imports of pharmaceuticals, petroleum and other inputs considered essential for the recovery of the productive sectors of the economy. The second window rate, which was determined on the foreign exchange auction market, covered other transactions involving almost two-thirds of all external payments. The two windows were unified in February 1987, following the transition from the marginal pricing auction to a Dutch Auction System (DAS) under which payments of foreign exchange were made beginning from the highest bidder until supply was exhausted (Kapur *et al.*, 1991). The auctioning of foreign exchange helped to reduce the

spread between the official and parallel rates to about 24.3% in 1988.

In 1988, foreign exchange bureaux were established as a means of ensuring small allocations of foreign exchange. Although the bureaux were required to submit records of their monthly volume of sales and purchases of foreign exchange to the Central Bank, they were neither required to divulge their sources of foreign exchange nor to ask their customers to do so. This was an important concession, which brought increased transparency into the operations of foreign exchange transactions and led to the proliferation of foreign exchange bureaux in the country. The bureau proliferation soon resulted in increased competitive pressure within the foreign exchange market and eventually succeeded in absorbing the black market. The admission of forex bureaux into the auction market in December 1989 allowed for the attainment of an integrated exchange rate within a composite exchange rate arrangement (Kapur *et al*, 1991). Essentially, the role of retailing foreign exchange was thus shifted from the Central Bank to the bureaux, though the Central Bank supervised the auction operations in order to prevent capital flight and collusive practices by the commercial banks. By 1989, the cedi had depreciated to C270.0 = US\$1 on the wholesale auction, bringing the real exchange rate index (1985 = 100) to 122.75.

The exchange rate reform has succeeded in restoring profitability in the export sector, especially in the nontraditional exporting activities. The broadening of the export base due to the exchange reform has also helped to reduce export earning instabilities and cushioned the impact of the continuous deterioration in the country's terms of trade (Kapur *et al*, 1991).

### 4.3 Institutional Reforms

There is no single central authority in Ghana for the organisation, co-ordination and marketing of all exports. Individual exporters are responsible for the organisation of their

exports, although various marketing boards, such as the cocoa and timber marketing boards and other state corporations, such as the Ghana Export Promotion Council, handle the export of certain major commodities.

Perhaps the most important export promotion organisation established in the country is the Ghana Export Promotion Council (GEPC). Like the Ghana Export Company (GEC), which was set up in 1968 as a subsidiary to the Bank of Ghana and charged with the responsibility to purchase and export nontraditional export commodities, the GEPC was established to develop and promote nontraditional exports. The Council, in conjunction with the Export Promotion Division of the Ministry of Trade and Tourism provides professional advice, technical assistance, extension and information services on export development, regulations and opportunities for small exporters. The Council also offers minimum price guidelines on a wide range of commodities for exporters. Other functions of the Council include the recommendation of trade agreements and pacts that seek to promote the country's exports overseas and the organisation of credit insurance for exporters dealing in non-traditional exports.

Although established as far back as 1969, the first comprehensive export development plan of the GEPC was launched in 1988. The plan, which was to run for three years, was aimed at harnessing the uncoordinated supply sources of rural nontraditional export activities through the development of "export production villages" (EPVs) in five regions - Central, Brong-Ahafo, Western, Eastern and Greater Accra - of the country. The plan also sought to expand and improve the nontraditional exports production base and marketing facilities. An "export promotion school" was also set up under the plan to train exporters in marketing techniques and provide them with support services. In addition, an annual award for the best nontraditional exporter was established (GEPC, 1975, 1987 & 1990; Ahwoi (1987); Mantey,



1991; GATT, 1992a). The three-year nontraditional export development plan was followed by a five-year medium-term plan to run from 1991 to 1995. This plan, which was part of the government's commitment to an accelerated export-led growth strategy, sought to raise nontraditional exports earnings from C39.8 billion in 1990 to about C200 billion in 1995<sup>4</sup>, representing an increase of over 400% (GEPC, 1990). The target was to be achieved through an enterprise-based development approach, involving research in new products and new capacity creation, maintenance of existing markets and the development of new ones.

#### **4.4 Financial incentives**

The GEPC also coordinates the disbursement of certain financial incentives, such as the export production credit guarantee scheme and the export retention scheme, designed to promote non-traditional exports. The export production credit guarantee scheme provides low interest working capital to exporters, with the central bank providing a 90% indemnity against default payment (Kusi, 1980). In the early 1990s, the coordination of this scheme, together with the export refinance scheme, the export insurance scheme and the export support infrastructural development scheme were handed over to the Export Finance Company (EFC), which derives its funding from the capital market (through Export Finance bills guaranteed and issued by the Bank of Ghana) and equity contributions by share holders (GATT, 1992a). The export retention scheme, for its part, enables exporters to retain part of their foreign exchange earnings in order to facilitate quick disbursements against expenditures on raw materials and spare parts imports, travel expenses, expatriate staff salaries and other recurrent expenditures. The scheme, which became operational in 1982, allows any exporter to retain up to 20% of his/her export proceeds in foreign exchange in an interest-free retention account overseas. The retention rate was increased to 35% in 1983



(Dordunoo, 1994). Until the abolition of import controls in 1989, the retention account assisted exporters to circumvent the cumbersome procedures involved in the processing of applications for foreign exchange and import licences. The retention accounts also offer the extra advantage of being able to be used as a collateral against commercial bank loans.

## **4.5 Fiscal incentives**

The major fiscal incentives introduced by the governments to promote exports include:

### **(i) The customs duty drawback system**

The customs duty drawback system, which entitles exporters to a 95 % refund of all duties paid on export-producing imported inputs, was first introduced in 1965. This system provided for both a material drawback scheme and arbitrageur. The former entitles exporters to a refund of the duties paid on raw and intermediate materials imported for export production, while the latter allows arbitrageurs who are engaged in re-exporting to also tender claims for the refund of import duties paid on the re-exported goods. The material drawback scheme was meant to circumvent the high tax margins on imported inputs in order to ease the flow of imported raw materials considered essential for the smooth-running of export activities. The system was abolished in the 1972/3 fiscal year, but was re-introduced in the 1974/5 budget. In 1991, the drawback was raised to 100%. The scheme is currently supported by an upfront duty drawback system, which also enables exporters to enjoy a 100% duty exemption on imports intended for export production.

### **(ii) The income tax relief scheme**

The income tax relief scheme was introduced in 1969. Under the scheme, all companies exporting at least 5 % of their own produce were to benefit from a differentiated income tax concession. For firms exporting between 5 - 15 %, the applicable rate was 10%,

while those exporting 15 - 25% of their total produce were eligible for a 33.3% rebate. The tax rebate was as high as 50% for firms who exported at least a quarter of their output. Exports of services and merchandise by non-producers were, however, excluded. In 1974, the tax rebate for the lowest category was raised to 25%. The rates were further revised upwards during the adjustment period of 1983 - 1993. For the agro-based industries, for example, exporting up to 15% of total production qualifies for a tax rebate of 40%. The rebate for exporting between 15-25% of total output was 60%. In the manufacturing sector, a new rate of 30% income tax rebate was made applicable to firms in the lowest category, while those exporting between 15 - 25% of total production were entitled to a tax rebate of 50%. Any company which succeeded in exporting more than a quarter of its output, however, could claim a 75% tax rebate, irrespective of the sectoral origin of the commodity (GATT, 1992a).

### (iii) The special import licensing scheme

Since some of the country's exports depend heavily on imported inputs (Tutu *et al*, 1991), the government sought to give preferential treatment to the imports of raw materials for export producing units. A Special Import Licensing scheme was, therefore, introduced as part of the export promotion strategy in 1969. Under this scheme, import licences for exporters with pending orders were to be renewed on request. Nevertheless, to continue to enjoy this privilege, the manufacturer had to prove that he did export the final goods for which the previous raw material imports were used, and that the foreign exchange receipts of the exported commodity was more than the foreign exchange cost of the inputs. He/she also had to provide evidence that the repatriation of the foreign exchange had been effected (GEPC, 1975). These requirements were necessary to avoid an abuse of the package by non-exporting producers. Beginning in 1987, import restrictions were gradually phased out and

all imports were rendered eligible for funding through the foreign exchange auction. In January 1989, the import licensing system was abolished. Currently, importers are only required to fill an import declaration form, mainly for import monitoring and statistical reasons (Kapur *et al*, 1991; GATT, 1992b).

**(iv) The export bonus scheme**

Due to high production, packaging and freight costs, as well as the high tariffs in trading countries, a 30-35 percent subsidisation was deemed necessary to raise the profitability of Ghana's exports in the late 1960s (Ansah, 1979). The export bonus scheme was, therefore, introduced in 1970. The scheme was, however, revoked a year later and re-introduced in 1973. Initially, the scheme provided that any person engaged in the export trade, and who surrenders to the central bank any foreign currency, which is convertible and received by him in payment for exports, be entitled to a bonus of 20 percent of the cedi equivalent of the foreign exchange proceeds. The scheme did not apply to the exports of timber, including sawn timber, cocoa and cocoa products, all minerals and primary metals other than diamonds bought from local winners (GEPC, 1975). In the 1977/8 budget, different bonus rates of 20 and 30 percent were made applicable to traditional (except cocoa) and nontraditional exporters, respectively. Following the 1978 devaluation, the export bonus was unified and reduced to a flat rate of 10%. It was raised again to 20% in 1982 for all export products, except cocoa (Huq, 1989).

One major advantage of the export bonus scheme was that it served as an implicit devaluation, partially offsetting the negative effects of the over-valued exchange rate on export production. However, since the fixed exchange rate regime held down the effective exchange rate below its equilibrium level for the greater part of the pre-adjustment era, this advantage was gradually eroded by the rising domestic prices, which forced the real exchange

rate to appreciate. This turned the domestic terms of trade against tradeables (exports) to the extent that the revenue incentive offered by the export bonus scheme was no match with the attraction offered by the high profit margin in the domestic market. This attraction diverted the attention of many of the country's exporters to the domestic market, as most of them found it more lucrative to engage in the import trade than in the export trade (Kusi, 1980; Killick, 1978).

**(v) The bonded warehouse facility**

The bonded warehouse facility was introduced in 1974, and was meant to reduce the financial burden of the manufactured exports sector in order to improve their competitiveness abroad. This facility allows exporters to hold imported raw materials meant for exports under customs control in a designated place (a customs bonded warehouse) without payment of any duty for a maximum period of two years, subject to annual renewals thereafter. Such imports are stored safely until transportation and other arrangements have been made, after which the goods may be cleared and conveyed to the production site. Import taxes on these goods are completely waived if the imported goods are re-exported, though the exporter may be required to pay rents, interests and/or handling charges. If goods originally intended for exports are sold on the domestic market, however, then the affected importers will be made to pay the applicable import duties and taxes (Kusi, 1980).

The immediate advantage of this facility is that it allows exporters to put into productive use, part of their working capital, which would otherwise have been transferred to the owners of private warehouses. Secondly, the facility allows exporters to enjoy the flexibility of deferring duty payments until a more convenient date.

The review in this chapter has shown that until 1983, export promotion did not feature prominently in the government's development programmes. The emphasis at that time was

on import substitution industrialisation. However, this does not mean an absence of export promotion altogether, since the plans did at least mention the need to maximise export earnings and diversify the export base. The real problem with export promotion was the absence of a coherent export promotion programme. In the late 1960s and 1970s, for example, the government initiated some export promotion programmes which included the provision of fiscal and financial incentives and establishment of new export promotion organisations, but this was short-lived. Since 1983, however, a consistent export promotion programme involving the use of exchange rate policy, has become an important element in the country's structural adjustment programme.

## Chapter Five

### Analytical Framework

#### 5.1 Introduction

A variety of models, ranging from the standard trade models of Bond (1985), Moran (1989) and Khan and Knight (1988) to microeconomic models of De Grauwe (1988), Caballero and Corbo (1989) and Newman *et al* (1990) have been used to analyze the effects of exchange rate movements on export growth. In our investigation of the impact of the real exchange rate on non-traditional exports growth in Ghana, we use versions of both the standard trade models and the micro-models. This is because each of the two models investigates the same issue but from a different perspective. While the standard trade models examine the effects of real exchange rate on export supply indirectly through the impact of the ratio of foreign prices of tradeables to domestic prices on export growth, the micromodels examine the export supply impact of the real exchange rate directly by incorporating the levels and movements of real exchange rate in the specification of the export supply models.

#### 5.2 The Micro Model of Export Supply

Operating upon the assumption that exchange rate movements involve risks, the model posits that sufficiently risk averse export producers interpret exchange rate movements in terms of greater risk and hence divert resources from export activities to the production of domestic substitutes. Such a substitution effect is reflected in declining export volumes. Conversely, risk-neutral exporters interpret adverse movements in the exchange rate as being permanent and hence export more in the current period in order to protect their income levels. The overall macroeconomic effect of exchange rate movements and their associated

risks can thus be ascertained by comparing both the substitution and income effects.

The version of the microeconomic models we review here is based on De Grauwe (1988). The principle is as follows: Assume an individual producer with a fixed amount of resources which he allocates between productive activities in the domestic and foreign market. For this producer, the only source of risk is the exchange rate movements associated with the output he sells on the foreign market. His total profit ( $\Pi$ ) from these activities can therefore be defined as:

$$\Pi = (P_f q_f - w X_f) + (P_d q_d - w X_d) \quad (1)$$

where

$P_f$  = foreign price of output measured in domestic currency (defined as  $P_f = P^* \epsilon$ , where  $P^*$  is the foreign currency price of output sold on foreign market and  $\epsilon$ , the nominal exchange rate)

$P_d$  = price of output sold on domestic market

$q_f$  = quantity of output produced for the foreign market

$q_d$  = quantity of output sold on the domestic market

$X_f$  = units of resources (labour) used in production for the foreign market

$X_d$  = units of resources (labour) used in production for the domestic market

$w$  = unit resource cost (wage rate)

In this model, wage rate and technology are assumed to be the same in both sectors.

Output is defined by the production function  $q(X)$  so that

$$\begin{aligned} q_f &= q(X_f) \\ q_d &= q(X_d) \end{aligned} \quad (2)$$



and

$$\begin{aligned} X_d + X_f &= X, \\ q_d + q_f &= q. \end{aligned}$$

Using equation (2) and the definitions of  $X$  and  $P_f$ , equation (1) can be re-written as:

$$\begin{aligned} \Pi &= P^* \epsilon q(X_f) - wX_f + P_d q(X_d) - wX_d \\ &= P^* \epsilon q(X_f) + P_d q(X_d) - wX_f - wX_d \\ &= P^* \epsilon q(X_f) + P_d q(X - X_f) - w(X_f + X_d) \\ &= P^* \epsilon q(X_f) + P_d q(X - X_f) - wX \end{aligned} \tag{3}$$

Dropping the term  $wX$  in equation (3) enables us to express the total revenue ( $Y$ ) as:

$$Y = P^* \epsilon q(X_f) + P_d q(X - X_f) \tag{4}$$

The choice problem of the producer is now reduced to selecting an  $X_f$  that maximises the expected utility of his total income ( $Y$ ). That is,

$$\max EU(Y)$$

where  $U$  is a concave function of income (i.e. the producer is assumed to be risk averse).

Using equation (4), one obtains:

$$\max EU[P^* \epsilon q(X_f) + P_d q(X - X_f)] \quad (5)$$

The analysis is simplified by assuming that the utility function is separable in the two terms within the brackets. This amounts to assuming that the marginal utility of export revenue is independent of changes in domestic revenue. That is:

$$\max \{EU_f[P^* \epsilon q(X_f)] + U_d[P_d q(X - X_f)]\} \quad (6)$$

The first-order condition for a maximum is given as:

$$EU'_f P^* \epsilon q'(X_f) = U'_d P_d q'(X - X_f) \quad (7)$$

where

$$\begin{aligned} U'_f &= \text{marginal utility of export revenue} \\ U'_d &= \text{marginal utility of domestic revenue} \\ q' &= \text{marginal productivity of labour} \end{aligned}$$

The optimum condition, equation (7), can be written as:

$$EU'_f \epsilon = U'_d \frac{P_d q'(X - X_f)}{P^* q'(X_f)} \quad (8)$$

To determine the influence of an increase in the variability of the exchange rate  $\epsilon$  on the optimal allocation of resources to the export sector ( $X_f$ ), we require a prior determination of the effects of a "mean preserving" spread in  $\epsilon$  on  $EU'_f \epsilon$ . If such an increase raises  $EU'_f \epsilon$ , then the right hand side of equation (8) must also increase, and this will occur only if  $X_f$

increases. That is to say, if exchange rate volatility increases the expected marginal utility of income from exports, then such movements will lead to more export activity and *vice-versa*. The question then reduces to the issue of the shape of the utility function  $U'_f \epsilon$  (i.e. whether the function is concave or convex). If it is concave (convex), then the expected marginal utility of income will be lower (higher) for every mean preserving increase in the spread of  $\epsilon$ . To find the conditions under which the function  $U'_f \epsilon$  will be convex or concave, we differentiate equation (8) twice with respect to  $\epsilon$ . This yields after some manipulations,

$$\frac{\partial^2 U'_f \epsilon}{\partial (\epsilon)^2} = \frac{1}{\epsilon} [R(1-R) + R' Y_f] \quad (9)$$

where

$$R = U''_f Y_f / U'_f \quad (\text{coefficient of relative risk aversion})$$

$$Y_f = P^* \epsilon q \quad (\text{export revenue}).$$

If equation (9) is positive (negative), then the function  $U''_f \epsilon$  is convex (concave). It follows then that convexity or concavity depends on the degree of risk aversion. If we assume conventionally that the coefficient of relative risk aversion ( $R$ ) is constant, then  $R' = 0$ . By implication, convexity holds if  $R > 1$  and concavity holds if  $R < 1$ . Thus, if producers are sufficiently less risk averse ( $R > 1$ ), an increase in exchange rate risk raises their expected marginal utility of export revenue and therefore induces them to increase their export activity. If however, producers are not less risk averse ( $R < 1$ ), a higher exchange

rate risk reduces their expected marginal utility of export revenues, which leads them to produce less for export.

In our empirical application, changes in the demand for Ghana's exports ( $\Delta X^d$ ) are specified to relate negatively to changes in relative prices in importing countries:

$$\Delta X^d = X^d(\Delta P_f^*) \quad (10)$$

where

$P_f^*$  = relative price of exports abroad (defined as  $P_f^* = P_x/P_f\epsilon$ ; where  $P_x$  is the export price in domestic currency,  $\epsilon$  is the unit price of US dollars in domestic currency, and  $P_f$  is the consumer price index of trading partners).

$\Delta$  represents a change.

Changes in the volume of export supply, on the other hand, are assumed to depend positively on changes in domestic relative prices, exchange rate movements and other exogenous factors:

$$\Delta X^s = X^s(\Delta P_d^*, MVT, EXOG) \quad (11)$$

where

$X^s$  = export volumes

$P_d^*$  = the domestic relative price of exports (defined as:  $P_d^* = P_x/P_d$  where  $P_x$  is the price of exports in domestic currency and  $P_d$  is the domestic price level).

$MVT$  = movements in the exchange rate.

EXOG = exogenous determinant(s) of export supply.

The relative price of exportables abroad can be expressed as:

$$P_f^* = P_d^*/\text{RER} \quad (12)$$

where  $\text{RER} = P_f\epsilon/P_d$  (the real exchange rate)

Taking account of equation (12), equations (10) and (11) can be written in logarithmic form, as:

$$\Delta x^d = \alpha_0 + \alpha_1 \Delta p_d^* - \alpha_2 \text{rer} + \delta \quad (13)$$

$$\Delta x^s = \beta_0 + \beta_1 \Delta p_d^* - \beta_2 \text{mvt} + \beta_3 \text{exog} + \mu \quad (14)$$

where  $\delta$  and  $\mu$  are random error terms.

Assuming that the market equilibrates, i.e.  $x^d = x^s = x$ , then, solving for  $\Delta p_d^*$  from equation (13), one obtains

$$\alpha_1 \Delta p_d^* = -\alpha_0 + \Delta x + \alpha_2 \text{rer} - \delta$$

or

$$\Delta p_d^* = -\alpha_0/\alpha_1 + (1/\alpha_1)\Delta x + (\alpha_2/\alpha_1)\text{rer} - v \quad (15)$$

where  $v = (1/\alpha_1)\delta$

Substituting  $\Delta p_d^*$  from equation (15) into (13) and solving for the reduced form of  $\Delta x$  gives:

$$\begin{aligned}
 \Delta x &= \beta_0 + \beta_1 \Delta p_d^* + \beta_2 mvt + \beta_3 exog + \mu \\
 &= \beta_0 + \beta_1 \left\{ -\alpha_0/\alpha_1 + (1/\alpha_1)\Delta x + (\alpha_2/\alpha_1)rer - v \right\} + \beta_2 mvt \\
 &\quad + \beta_3 exog + \mu \\
 &= \beta_0 - \alpha_0\beta_1/\alpha_1 + (\beta_1/\alpha_1)\Delta x + (\alpha_2\beta_1/\alpha_1)rer + \beta_2 mvt + \beta_3 exog \\
 &\quad + \gamma
 \end{aligned}$$

$$\text{where } \gamma = \mu - \beta_1 v$$

$$\Delta x - (\beta_1/\alpha_1)\Delta x = \beta_0 - \alpha_0\beta_1/\alpha_1 + (\alpha_2\beta_1/\alpha_1)rer + \beta_2 mvt + \beta_3 exog + \gamma$$

$$\Delta x(1 - \alpha_1/\beta_1) = \beta_0 - \alpha_0\beta_1/\alpha_1 + (\alpha_2\beta_1/\alpha_1)rer + \beta_2 mvt + \beta_3 exog + \gamma$$

$$\begin{aligned}
 \Delta x &= (\alpha_1\beta_0 - \alpha_0\beta_1)/k + (\alpha_2\beta_1/k)rer + (\alpha_1\beta_2/k)mvt + (\alpha_1\beta_3/k)exog \\
 &\quad + \alpha_1\gamma/k
 \end{aligned} \tag{16}$$

$$\text{where } k = \alpha_1 - \beta_1$$

Equation (16) states that exports growth depends on the level of the real exchange rate, movements in the real exchange rate and other exogenous factors that affect the supply of exports. Decomposing the exchange rate movements into its volatility (or instability) and misalignment, and using domestic credit to the export sector (DCX) as a proxy for the exogenous variable, equation (16) becomes:

$$\Delta x = \lambda_0 - \lambda_1 rer - \lambda_2 dcx + \lambda_3 vol + \lambda_4 mis + \omega \quad (17)$$

where

$vol$  = exchange rate volatility

$mis$  = exchange rate misalignment (i.e; deviation of actual exchange rate from its equilibrium level).

$\lambda_0$  =  $(\alpha_1\beta_0 - \alpha_0\beta_1/k)$

$\lambda_1$  =  $(\alpha_2\beta_1/k)$

$\lambda_2$  =  $(\alpha_1\beta_3/k)$

$\lambda_3 + \lambda_4$  =  $(\alpha_1\beta_2/k)$

$\omega$  =  $\beta_1\gamma/k$

and all other variables as defined earlier.

In equation (17) the sign of  $\lambda_1$  is expected to be positive since depreciation in the real exchange rate would shift relative prices in favour of tradeable goods, serving as an incentive for exporters to expand their output. The sign of  $\lambda_2$  can not be determined *a priori*. Domestic credit to the export sector may positively affect export supply through two channels. First, expansions in export credit lead to increases in money supply, which may reduce the domestic interest rate vis-a-vis foreign rates of interest and would lead to capital flight. This will force the real exchange rate to depreciate, leading to a positive growth in exports. Second, increases in export credit may lead to increases in non-traditional export supply if such credit is used for the purchases of machinery, capital inputs, raw materials and other intermediate inputs used in export production, thus increasing capacity in the sector. If, however, the increase in credit exerts an upward pressure on domestic inflation, while the nominal exchange rate is fixed, then the real exchange rate will appreciate, affecting exports



negatively. For the null hypothesis that exchange rate misalignments and volatility adversely affect the growth of exports to be rejected,  $\lambda_3, \lambda_4 \neq 0$ .

Literature on the measurement of exchange rate volatility and misalignments is dense (see, for example, Dornbusch, 1980; Edwards, 1987 & 1989a, De Grauwe, 1988; Cottani *et al*, 1990; and Elbadawi, 1992 & 1994). In most of these studies, real exchange rate volatility is measured in terms of standard deviations or the coefficient of variation of the real exchange rate around its mean for a sample period. But since only one figure for the standard deviation or coefficient of variation can be obtained for a country over a given sample period, time series data for the exchange rate volatility cannot be generated. To overcome this problem, we measure the real exchange rate volatility in terms of its instability, i.e; deviations from the trend value of the actual real exchange rate.

Two measures of real exchange rate misalignment are usually employed in the literature. First is the PPP approach, which takes an average of the three highest real exchange rate values recorded during the review period to represent equilibrium real exchange rate and then proceeds to measure misalignment as the deviations of the actual exchange rate from the equilibrium level. That is:

$$MIS_{it} = \left[ \frac{(\sum_j \max RER_{ij})/3}{RER_{it}} - 1 \right] * 100 \quad (18)$$

where  $MIS$  = exchange rate misalignment and  $[(\sum_j \max REX_{ij})/3]$  is the arithmetic mean of the three highest values of real exchange rate for the country. According to Cottani *et al* (1990) and Ghura and Grennes (1992), the three highest real exchange rate values appear to be the standard.

The second approach, which is adopted in this study uses the fitted values of a

regression involving the determinants of the real exchange rate. The real exchange rate misalignment (MIS) is then measured as the difference between the fitted real exchange rate (FER) and the actual real exchange rate (see Cottani *et al*, 1990; Edwards, 1989b; Ghura and Grennes, 1992; Elbadawi, 1992, 1994; Mwega, 1993; Ogun, 1994 and Mbet and Madeleine, 1994).

That is:

$$\text{MIS} = (\text{FER} - \text{RER}) \quad (19)$$

### 5.3 The Macro Model of Export Supply

The macro model we adopt in this study is based on Khan and Knight (1988). The model is a variant of the "imperfect substitutes" models, which assume that neither imports nor exports are perfect substitutes for domestic goods (see also Goldstein and Khan, 1985; Khan, 1974; Bond, 1985; Marquez and McNeilly, 1985; Balassa *et al*, 1986). On the demand side, the model assumes that consumers maximise their utility subject to a budget constraint. Accordingly, imports are specified as a function of import prices, prices of domestic substitutes and the level of incomes in the importing country. Similarly, the demand for exports is assumed to depend on export prices, prices of foreign substitutes and the level of income in the rest of the world. On the supply side, the producer is assumed to maximise profits subject to a cost constraint. Hence export supply is assumed to depend positively on export prices and productive capacity but negatively on input prices. The supply of imports is assumed to be perfectly elastic.

Khan and Knight (1988) extend this imperfect substitutes model by incorporating two additional factors that are thought to be very important in developing countries. First, the import demand function is extended to take account of the fact that the exchange authorities,

in their desire to increase or restore foreign exchange reserves, may allow the domestic currencies to depreciate or embark upon protectionist policies, which serve to compress imports to the level below what would be considered as optimally desirable by private economic agents. Second, unlike the other standard trade models, which treat imports and exports as being effectively independent of each other (eg. Bond, 1985; Moran, 1989) Khan and Knight's model assumes that, since imports of intermediate and capital goods are themselves critical inputs in the production of exports, import compression could be detrimental to export performance. This in turn would affect the availability of foreign exchange, thereby constraining imports even further. Their model, therefore, accommodates for the possible feedback relationships between imported inputs and exports. The export supply function is thus nested within an import compression model, which incorporates the effect of import compression. The model specifies the production function of the export sector in a log-linear Cobb-Douglas form given as:

$$\log x_t^s = \alpha_1 + \eta \log mx_t + (1 - \eta) \log vx_t \quad (21)$$

where

- $x^s$  = gross exports (including imported inputs)
- $mx$  = volume of imported inputs
- $vx$  = value-added by domestic factors in the production of exports.
- $\eta$  = elasticity of supply of gross exports with respect to imported inputs
- $(1-\eta)$  = elasticity of supply of gross exports with respect to domestic inputs.

Due to paucity of data on imported inputs used by the export sector in many developing countries, including Ghana, the price elasticity of demand for imported inputs is assumed to be the same as that for total import volumes ( $m$ ), such that:

$$\log m x_t = \alpha_2 + \log m_t \quad (22)$$

Exp ( $\alpha_2$ ) is the ratio of imported inputs to total imports. Substituting (22) into (21) gives:

$$\log x_t^s = (\alpha_1 + \alpha_2 \eta) + \eta \log m_t + (1 - \eta) \log v x_t \quad (23)$$

Also, given that import compression causes the volume of imported inputs available to domestic export producers to be below their unconstrained levels, exporters are expected to maximise their profits on gross exports by minimizing the costs of their domestic value-added. The supply function for the domestic value-added by the export sector thus depends positively on export prices relative to domestic prices. That is:

$$\log v x_t = \alpha_3 + \beta_1 \log (P_x / P_d)_t \quad (24)$$

where

$P_x$  = price of exports

$P_d$  = domestic price level, measuring the domestic costs of production  
(and to a certain extent the domestic price of exports).

Finally, it is assumed that export supply ( $x$ ) adjusts to its optimal level according to a partial adjustment process:

$$\Delta \log x_t = \gamma_1 (\log x_t^s - \log x_{t-1}) \quad (25)$$

$0 < \gamma_1 < 1$ ;  $\gamma_1$  = adjustment co-efficient and  $(1 - \gamma_1)$  = speed of adjustment.

Substituting equations (23) and (24) into equation (25) and solving for the level of

exports, we obtain after some manipulations:

$$\begin{aligned} \log x_t = & \gamma_1[\alpha_1 + \eta\alpha_2 + (1-\eta)\alpha_3] + \gamma_1\eta\log m_t + \gamma(1-\eta)\beta_1\log Px_t \\ & - \gamma_1(1-\eta)\beta_1\log Pd_t + (1-\gamma_1)\log x_{t-1} \end{aligned} \quad (26)$$

Equation (26) can be written as:

$$\log x_t = \Psi_0 + \Psi_1\log m_t + \Psi_2\log Px_t - \Psi_3\log Pd_t + \Psi_4\log x_{t-1} \quad (27)$$

where

$$\Psi_0 = \gamma_1[\alpha_1 + \eta\alpha_2 + (1-\eta)\alpha_3]$$

$$\Psi_1 = \gamma_1\eta$$

$$\Psi_2 = \gamma_1(1-\eta)\beta_1$$

$$\Psi_3 = \gamma_1(1-\eta)\beta_1$$

$$\Psi_4 = (1-\gamma_1)$$

The parameters  $\Psi_1 - \Psi_4$  represent elasticities. The import elasticity of export supply ( $\Psi_1$ ) is expected to be positive since imported inputs are complements in the domestic production for exports. The size of  $\Psi_1$ , however, depends on the degree of importance of imported inputs in the production process. Where such inputs are absolutely important, export supply will be elastic with respect to imports and  $\Psi_1$  will have a value of greater than one. The value of  $\Psi_1$ , however, approaches zero as the import/output ratio declines. Increases in the price of exports is expected to produce a positive response from exporters since they reflect the relative profitability of export production. The price elasticity of exports supply ( $\Psi_2$ ) is, therefore, expected to have a positive sign. In contrast, a rise in domestic prices ( $Pd$ ) shifts the domestic terms of trade against tradeables, causing the real exchange rate to appreciate. Exporters respond by shifting resources away from export production,

causing export supply to fall. The expected sign of the price-cross elasticity of supply parameter ( $\Psi_3$ ) is thus negative.

**Table 4.2: Model Specification**

1. Micro model

$$\Delta x = \lambda_0 - \lambda_1 rer - \lambda_2 dcx + \lambda_3 vol + \lambda_4 mis + \omega$$

2. Macro model

$$\log x_t = \Psi_0 + \Psi_1 \log m_t + \Psi_2 \log Px_t - \Psi_3 \log Pd_t + \Psi_4 \log x_{t-1}$$

Definition of variables.

$x$	=	non-traditional exports
$rer$	=	real exchange rate
$vol$	=	real exchange rate volatility
$mis$	=	real exchange rate misalignment
$dcx$	=	domestic credit to the export sector
$m_t$	=	imports
$Px_t$	=	non-traditional export price index
$Pd_t$	=	consumer price index in exporting country

## Chapter Six

### Results and Discussion

#### 6.1 Introduction

The results of the estimated export supply functions are presented and discussed in this chapter. The functions were estimated using time series data for the period 1960 - 1993. All the equations were estimated in logarithms of levels using the ordinary least squares (OLS) technique. The computer package used in estimating the models is SHAZAM version 6 (White, Haun and Horsman, 1987). The test of significance of the estimated coefficients of the variables was undertaken at the 10% level using the two-tail test procedure.

#### 6.2 Data Sources and Reliability

Data used for this dissertation was obtained from secondary sources. This includes the Ghana Statistical Services, the Ghana Export Promotion Council, the World Bank and the International Monetary Fund (IMF).

The Ghana Statistical Services publishes the *Quarterly Digest of Statistics* and the annual *Economic Survey*. From these publications, we obtained data on exports, domestic credit to the export sector and export tax revenues. Data on exports and import tax revenues published in the *State of the Economy* by the Ghana Institute of Social Statistical and Economic Research (ISSER) and Huq (1989) were used to supplement those obtained from the Ghana Statistical Services quarterly economic digests and annual economic surveys.

The Ghana Export Promotion Council publishes quarterly *the Exporter* together with other *mimeographs* by the Research Department of the GEPC. Data on the breakdown of non-traditional exports by commodity groups for the period 1987 -1993 were obtained from



these publications.

The International Monetary Fund publishes the *International Financial Statistics*. This annual publication contains time series data on nominal exchange rates, consumer price index, producer price index, etc. for all member countries. From this publication, we obtained data on exchange rates, money supply, domestic credit, gross domestic product, imports, exports and consumer price index for Ghana. We also obtained data on producer price index and nominal exchange rates of her trading partners, which were used to compute the foreign price index. Time series data on the price index of non-traditional exports was not available, and we had to compute it by using data on the prices of the various commodities obtained from the IMF *International Financial Statistics*. The World Bank publishes annually the *World Tables* from which data on terms of trade was obtained.

All data in nominal values that had to be converted into real values was done using the consumer price index with 1985 as the base year. Due to the lack of a reliable time series data on the volumes of non-traditional exports, especially for the 1960 - 1987 period, we had to use as a proxy variable, the real non-traditional export values. Admittedly, this may not be a good proxy for export supply in a country like Ghana where high inflation rates were very common for most part of the period under study. Also, given the high level of smuggling, especially in the 1970s and the early 1980s, the export figures used might not reflect the true figures. For these reasons, our results must be interpreted with some caution. The variables used in the analysis are defined as follows:

NTX	=	Nontraditional Exports
RER	=	Real Exchange Rate
MIS	=	Exchange Rate Misalignment

VOL	=	Exchange Rate Volatility
DCX	=	Domestic Credit to the Export Sector
Pd	=	Domestic Consumer Price
Px	=	Nontraditional Exports Price
IMP	=	Real Imports

### 6.3 Results

#### (i) The micro model

The result of the micro-model of export supply is presented in equation (1). The *t*-ratios of the individual estimates are reported in brackets below the coefficients.

$$\begin{aligned}
 (\text{NTX})_t = & -1.64 + 0.82(\text{RER})_t - 0.38(\text{VOL})_t + 0.14(\text{MIS})_t + 0.10(\text{DCX})_t \\
 & (-2.73) \quad (5.72) \quad (-2.41) \quad (1.07) \quad (1.19) \\
 & + 0.70(\text{NTX})_{t-1} \\
 & (9.06)
 \end{aligned} \tag{1}$$

$$\text{Adj. } R^2 = 0.85$$

$$\text{DW} = 2.0$$

$$\text{SEE} = 0.59$$

In equation (1), the  $R^2$  adjusted for the degrees of freedom is 0.85, indicating that the model explains at least 85 % of the variations in the growth of non-traditional exports. The Durbin-Watson statistic is 2.0, suggesting the absence of serial correlation. The coefficient of the real exchange rate variable has the expected positive sign and is significant. This implies that changes in the supply of non-traditional exports are positively associated with movements in the real exchange rate. A 10% depreciation of the real exchange rate, for example, causes an 8.2% expansion in the supply of non-traditional exports.

Apart from the level of the real exchange rate itself, the deviations of the real exchange rate from its trend value i.e. exchange rate volatility, was also found to affect the

supply of non-traditional exports. For this variable, a 10% change in it, for example, leads to a 3.8% change in the growth of non-traditional exports. Unlike the volatility in the real exchange rate, exchange rate misalignment was not found to have a significant effect on the supply of non-traditional exports. The coefficient of the misalignment variable, in fact, had a wrong sign and was not statistically significant. The domestic credit variable had the correct sign but was not significant. The lagged exports variable had the expected sign and a coefficient of 0.7, which was significant at all levels.

To investigate why the exchange rate misalignment variable had the wrong sign and was also not significant, we computed the correlation matrix of the coefficients. The results provided in Table 6.1 show a 68% correlation between exchange rate volatility and misalignment, 58% between domestic credit and real exchange rate and a 56% correlation between domestic credit and the lagged exports variable. To test whether these high correlation coefficients, particularly between exchange rate volatility and misalignment, affected the performance of the model, the misalignment variable was deleted and the model re-estimated. The result is shown in equation (2).

$$(NTX)_t = -1.63 + 0.79(RER)_t - 0.26(VOL)_t + 0.86(DCX)_t + 0.73(NTX)_{t-1} \quad (2)$$

(-2.72)
(5.61)
(-2.29)
(1.01)
(10.52)

$$\text{Adj. } R^2 = 0.86$$

$$DW = 2.1$$

$$SEE = 0.59$$

In equation (2), the adjusted  $R^2$  improves by one percentage point, while the standard error of the estimates is unaffected. The Durbin Watson statistic, however, rises to 2.1. The value of the coefficient of the real exchange rate drops slightly to 0.79 but is still significant at the 10% level. For this result, a 10% depreciation of the exchange rate leads to a 7.9%

Table 6.1. Correlation matrix of coefficients\*

	RER	VOL	MIS	DCX	NTX <sub>t-1</sub>
RER	1.000				
VOL	-0.339	1.000			
MIS	0.159	-0.681	1.000		
DCX	0.576	-0.119	0.176	1.000	
NTX <sub>t-1</sub>	-0.393	0.366	-0.427	-0.560	1.00

\* for equation 1

Table 6.2. Correlation matrix of coefficients\*

	RER	VOL	DCX	NTX <sub>t-1</sub>
RER	1.000			
VOL	-0.319	1.000		
DCX	0.306	0.888	1.000	
NTX <sub>t-1</sub>	-0.364	0.114	-0.545	1.000

\* for equation 2

growth in the supply of non-traditional exports. The exchange rate volatility variable also has the right sign and is significant. However, the coefficient declined from 0.38 to 0.26, indicating a reduction in its impact on the supply of non-traditional exports. The lagged exports variable has an elasticity co-efficient of 0.73 and a t-value of 10.52, making it again the most significant of all the explanatory variables. The domestic credit variable is again not significant. Since the domestic credit variable is still correlated with both the real exchange rate volatility and lagged exports variables (Table 6.2), we dropped it and re-estimated the model.

$$(NTX)_t = -1.36 + 0.80(RER)_t - 0.35(VOL)_t + 0.11(MIS)_t + 0.76(NTX)_{t-1} \quad (3)$$

$(-2.43) \quad (5.60) \quad (2.27) \quad (0.87) \quad (11.63)$

$$\text{Adj. } R^2 = 0.86$$

$$DW = 2.1$$

$$SEE = 0.60$$

The results presented in equation (3) show no change in the adjusted  $R^2$  and the Durbin-Watson statistics. The standard error of the estimates, however, increases by one percentage point, while the coefficients of the real exchange rate, volatility and lagged non-traditional exports all have the expected signs and are significant. One also notices some slight increases in the coefficients of the variables. Again, the exchange rate misalignment variable has the wrong sign and is not significantly different from zero at the 10% level of significance.

To further investigate whether the exchange rate misalignment variable truly has no significant effect on non-traditional export supply, we re-estimated the model without it and the export credit variables. The results are presented in equation (4). In equation (4), the adjusted  $R^2$  declines to 0.77, while the standard error of the estimates rises to 0.75, thus reducing the predictive power of the model. Also, both the coefficient of the exchange rate

$$(NTX)_t = 4.03 + 0.84(RER)_t - 0.14(VOL)_t + 0.58(NTX)_{t-1} \quad (4)$$

(2.14)      (1.87)      (-1.21)      (0.71)

$$\text{Adj. } R^2 = 0.77 \quad DW = 1.99 \quad SEE = 0.75$$

volatility and lagged exports variables become insignificant.

As a final step of our empirical estimation, we omitted the exchange rate volatility variable from the model, since the misalignment and volatility variables were found to be highly correlated and re-estimated it. Equation (5) shows the results.

$$(NTX)_t = -1.48 + 0.71(RER)_t - 0.58(MIS)_t + 0.93(DCX)_t + 0.76(NTX)_{t-1} \quad (5)$$

(-2.10)      (4.43)      (-0.56)      (0.93)      (8.99)

$$\text{Adj. } R^2 = 0.83 \quad DW = 2.11 \quad SEE = 0.64$$

In this equation, both the misalignment and domestic credit variables have the expected signs but are still not significantly different from zero. The coefficients of the real exchange rate and lagged non-traditional exports, although significant, have reduced t-values. Compared to the results in equation (2), the standard error of the estimates is high and the adjusted  $R^2$  is low.

On the whole, equation (2) provides the best results in terms of the signs and significance of the coefficients, the levels of the standard errors of coefficients and the adjusted  $R^2$ .

#### (b) The macro model

The results of the standard model of export supply are presented in equations (6) and (7). The price ratios were included in this model to capture the effects of the exchange rate adjustments on the supply of non-traditional exports. The effects of the real exchange rate are captured through changes in the relative prices, i.e., changes in the nontraditional export

prices ( $P_x$ ) and domestic prices ( $P_d$ ). This is because adjustments in the nominal exchange rate will be reflected in the relative prices of the nontraditional exports.

$$(NTX)_t = -0.95 - 0.54(P_d)_t + 0.51(P_x)_t + 0.40(IMP)_t + 0.52(NTX)_{t-1} \quad (6)$$

$(-0.16) \quad (-1.01) \quad (0.99) \quad (0.70) \quad (4.23)$

$$\text{Adj. } R^2 = 0.83 \quad DW = 2.1$$

In equation (6), the value of the adjusted  $R^2$  shows that some 83% of the changes in the supply of nontraditional exports is explained by the model. The Durbin Watson statistic of 2.1 suggests the absence of any autocorrelation. All the variables have the expected sign, but it is only the lagged exports variable (the proxy for capacity utilisation in the nontraditional exports sector) that is statistically significant. The value of the coefficient of this variable is 0.52, giving a mean time adjustment lag of 1.8 years. The nonsignificance of the import variable suggests that most of the nontraditional export commodities are concentrated in activities with low import content.

To improve upon the results presented in equation (6), the import variable was dropped because it is the least significant and also because of the low import content in nontraditional exports in the country. The results of the re-estimated model are provided in equation (7).

$$(NTX)_t = 3.12 - 0.89(P_d)_t + 0.84(P_x)_t + 0.55(NTX)_{t-1} \quad (7)$$

$(3.63) \quad (-4.01) \quad (4.15) \quad (4.73)$

$$\text{Adj. } R^2 = 0.84 \quad DW = 2.0$$

In this equation, all the variables are statistically significant at the 10% level. The value of the adjusted  $R^2$  rises to 84%. There is also no autocorrelation, as indicated by the Durbin-Watson statistic value of 2.0. The domestic price variable has an elasticity



coefficient of -0.89, implying that a 10% rise in the domestic prices causes the supply of nontraditional exports to decline by 8.9%. The coefficient of the nontraditional exports price elasticity of supply of 0.84, for its part, indicates that a 10% rise in price is associated with a 8.4% growth in nontraditional exports. The lagged exports variable also has a coefficient value of 0.55, which is statistically significant at the 10% level.

## 6.4 Discussion of Results

The results of our empirical estimation shows that three important factors, viz. the level and volatility in the real exchange rate and lagged nontraditional exports affected the growth of nontraditional exports in Ghana during the 1960 - 1993 period, although the response of nontraditional exports supply to the real exchange rate changes was weak. For example, a one percentage change in the real rate of exchange causes nontraditional exports to expand by about 0.8%. As shown in Figure 6.1, for most part of the 1960 - 1971 period, the real exchange rate of the cedi depreciated. After 1971, the real exchange rate appreciated continuously until 1983. Since 1983, however, the real exchange rate depreciated sharply, except for the small appreciation experienced in the 1990 - 1992 period.

In addition to the levels of the real exchange rate, we also found that the volatility in the exchange rate had a significant influence on the supply of nontraditional exports. Our results indicate that increases in real exchange rate instability had a negative effect on nontraditional exports supply. This could be attributed to the risk and uncertainty that exchange rate instability introduces into the export business. Figure 6.2 shows the exchange rate volatility in Ghana during the 1960 - 1993 period. The figure shows a series of upswings and downswings in the exchange rate during the period. The major upswings occurred in 1963, 1971 and 1984, while the downswings occurred mainly in 1965, 1969, 1972-73, 1977,

Figure 6.1 The Real Exchange Rate

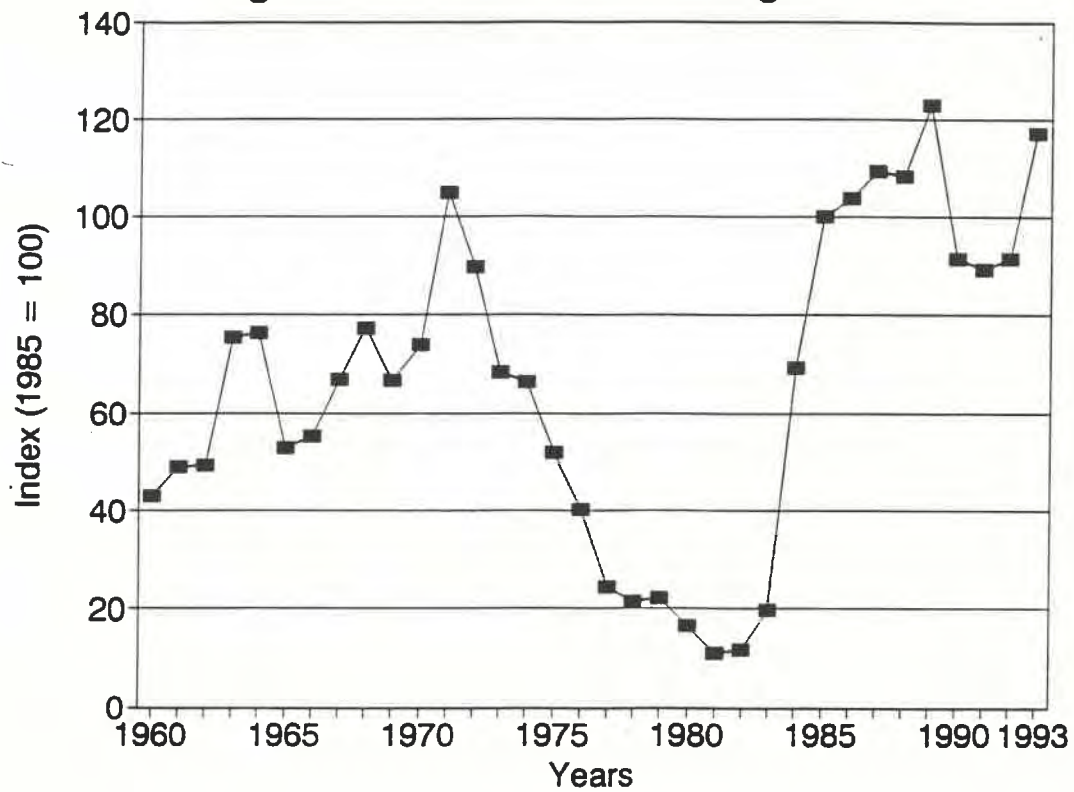
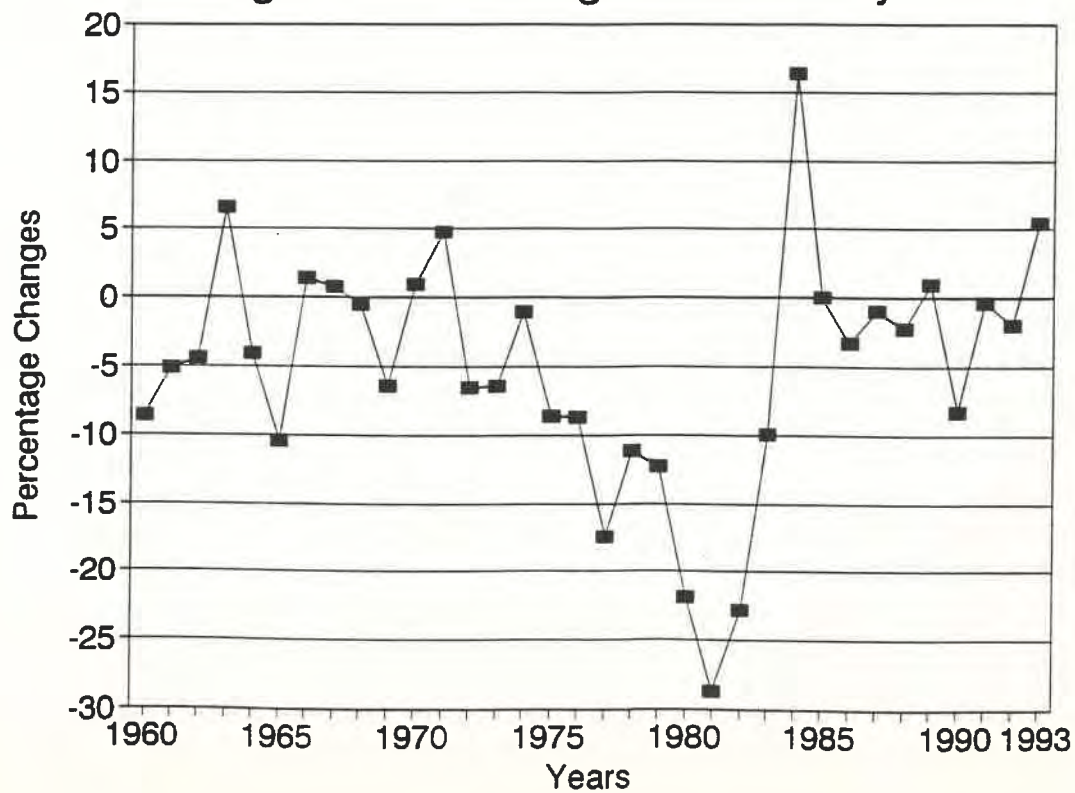


Figure 6.2 Exchange Rate Volatility



1981 and 1990. The estimated coefficient of instability for the whole period was 9.9%, with the highest instability occurring between 1981 and 1984. During this period, the fluctuations in the real exchange rate increased from -28.8% in 1981 to 16.4% in 1984, indicating a period of 'overshooting'. This was the outcome of the sharp depreciation of the nominal exchange rate which took place during that period. The real exchange rate stabilised somehow after 1985, causing its volatility to oscillate between -3.3 and 1%, except for 1990 and 1993.

In 1960 - 1963 when the depreciation in the real exchange rate was first experienced, domestic inflation rates were around some 4.9% per annum. The average inflation rate for the world over the same period was 26.2% per annum. The nominal exchange rates during this period was fixed at C0.71 = US\$1, meaning that the cause of the exchange rate depreciation during this period was due mainly to external factors, taking the form of higher foreign prices. Exporters, therefore, took advantage of the higher foreign prices and increased their supply to the foreign markets. This led to a surge in nontraditional exports from C3500 million in 1960 to over C4000 million in 1963/4 in real terms. The value of nontraditional exports, however, fell sharply to C2133.33 million in 1965 when the real exchange rate appreciated. The main cause of the exchange rate appreciation in this period was the rise in domestic inflation. Domestic inflation rate increased from 15.8% in 1964 to 22.7% in 1965 in response to the 37.2% growth in the money supply. This, together with the growing fiscal deficits led to excessive demand pressures, which the government could not contain by running down on external reserves ( Sowa and Kwakye, 1993).

Between 1966 and 1971, the cedi was devalued two times, leading to a rise in the nominal exchange rate from C0.71 per US dollar in 1965 to C1.33 per US dollar in 1971. Over the same time period, increases in foreign prices of non-traditional exports were much

higher than the domestic price increases. The combined effect of the foreign price increases and the nominal depreciation of the cedi were strong enough to offset the effects of the domestic price increases, thereby causing the real exchange rate to depreciate. Consequently, exports of nontraditional commodities (in constant 1985 prices) rose from less than C2,500 million in 1965/66 to over C11,254 million in 1971. As a percentage of GDP, the share of nontraditional exports rose from 0.5% in 1966 to a peak of 2.7% in 1969, before declining to 1.8% in 1971.

The 1966 - 1971 period was also the period that export promotion first began in the country. As discussed in chapter four, it was during this period that the Ghana Export Promotion Council and the Ghana Export Company were set up to develop and promote nontraditional exports. The policies initiated in this period were the export bonus scheme, the income tax rebate for exporters and the import duty drawback system. The export bonus scheme served as an implicit form of devaluation for nontraditional exporters, thus offering them further increases in the marginal revenue per unit exported. The income tax relief scheme, by discriminating against firms with low export ratios, also encouraged nontraditional exporters to step up their export/output ratios in order to receive the maximum benefits from the scheme.

The real exchange rate appreciated significantly between 1971 and 1981/82. During this period, the exchange rate was used mainly as a policy instrument to control the large and ever-increasing import bills of the country and thus to curtail the excessive demand pressures on the balance of payments. To begin with, the nominal exchange rate was revalued in 1972/73 and fixed at a new rate of  $C1.15 = US\$1$ . This new exchange rate remained in force until mid-1978. In the second half of 1978, the rate was adjusted upwards to  $C2.75 = US\$1$  and this rate existed until April 1983. During this period, money

supply grew at an average rate of 35% per annum. The excessive monetary expansions under a regime of fixed exchange rates, led to excess liquidity in the economy. This, in turn, led to an excess demand for both tradeables and non-tradeables as well as financial assets. The excess domestic demand for tradeable goods led to higher deficits on the trade account and heavy losses in international reserves. The resultant compression in imports effected through quantitative restrictions (import licensing system) by the exchange authorities led to widespread shortages of goods in the domestic economy. The excess demand for non-tradeables, for its part, was translated into higher domestic prices (supported by the widespread shortages) and appreciation of the real exchange rate.

External factors, such as the oil shocks of 1974/5 and 1979/80, also resulted in cost-push inflation. The rising domestic costs of production reinforced the domestic inflation, which exceeded the growth in foreign prices. Since the nominal exchange rate was fixed for the greater part of this period, the real exchange rate appreciated quite significantly. This had a negative impact on the export sector as the relative profitability of export production was completely eroded. The instability in the real exchange rate also caused serious frustrations in the production and distribution plans of nontraditional export producers whose expectations about the real exchange rate were continuously disappointed. By the late 1970s, it had become clear that the failure to adjust the real exchange rate to its realistic level was more political than economic, as governments which attempted to do this quickly found themselves out of office. The appreciating trend of the real exchange rate thus became more permanent than transitory, causing exporters to restrict their supply to the foreign market in order to concentrate on production for domestic consumption. During this period, the fewer administrative barriers, less risk, lower transportation costs and other proximity advantages associated with sales on the domestic market further attracted non-traditional exporters to



produce and sell on the local market. Also, the slow administrative network and the numerous customs registration and other documentation required from exporters by the Ghana Export Promotion Council and the Ghana Customs and Preventive Services Department, as well as the difficulties involved in identifying foreign markets and establishing links overseas were important factors that inhibited the growth of non-traditional exports during this period. The appreciating real exchange rate forced many producers to move out of the export sector into the nontradeable sector, particularly into commerce and trading where prices rose with the rising inflation. As a result of these developments, nontraditional exports in real terms fell from some C11.1 billion in 1971 to less than C50 million in 1982. As percentage of GDP, the share of non-traditional exports fell from 2% in 1970 to 0.02% in 1982.

As part of the government's structural adjustment programme (SAP) which commenced in 1983, the nominal exchange rate was periodically adjusted upwards. Over the same period, domestic inflation declined from 116.6% in 1981 to 10.3% in 1985. The combined effect of these two factors caused the real exchange rate to depreciate significantly between 1983 and 1993, except for a small appreciation in 1990-92 period. Further, the exchange rate reform brought the real exchange rate closer to its long term trend value, thus minimising its volatility and providing some sort of certainty in the foreign exchange market. The impact of the real devaluations were numerous. First, the depreciation in both the nominal and real exchange rates sent positive signals to exporters, which therefore set in motion the output- and expenditure-switching mechanisms as the depreciations were fairly significant and lasted long enough to convince exporters of the government's commitment to addressing the overvaluation problem of the exchange rate. Second, the devaluations enabled existing exporters to receive more of domestic currency per unit of foreign exchange

earned. With the existence of the foreign exchange retention scheme, this permitted an inflow of capital equipment, spare parts, raw materials, etc. to rehabilitate the deteriorated industrial capacity, thereby expanding output. Third, the severe drought and widespread bushfires that hit the nation in 1982-1984 resulted in the destruction of many cocoa farms, thereby forcing many cocoa farmers whose farms were destroyed to convert their farms into the production of non-traditional export crops, such as pineapples, yams, cocoyams and pepper. Fourth, there was the expenditure switching effect in favour of domestic non-tradeables as consumers withdrew from the consumption of the relatively higher-priced nontraditional goods, again freeing more nontraditional goods for exports. According to Kusi (1992), the expenditure switching effect in favour of nontradeable goods and services freed up tradeable goods worth over C140 million between 1983 - 1988 alone.

Generally, the exchange rate reform benefited the nontraditional export sector much more than the traditional export sector. Although all tradeable goods (both traditional and nontraditional) responded to the exchange rate adjustments, there was a shift of resources from the traditional exports sector to the nontraditional exports sector, caused not by the relative price changes, but by nonprice factors, such as the relative degrees of risk between the two sectors, the level of sunk costs required, the existence of monopoly power in the production process and differences in the degree of capital-deepening required in the two sectors. The production of nontraditional exports, which until 1992 was dominated by agricultural products, does not require any heavy capital equipment. Besides, the nontraditional agricultural exports have short gestation periods and are produced for both the domestic and foreign markets. Hence non-traditional export producers were able to switch markets with relative ease and flexibility, by simply reallocating their resources and/or redistributing their output. For the traditional export producers, such as cocoa farmers, gold-



miners and timber companies, however, it was almost impossible to switch production to take advantage of the short-term movements in the real exchange rate due to the relative capital specificity in their sector. Their response to short term fluctuations in the real exchange rate were, therefore, minimal. Further, the resource mobility between the two exports sub-sectors was influenced in part by the relative ease of exchange rate pass-through. The extent of this pass-through effect is in turn dictated to a large extent by the existence or otherwise of trade taxes and other forms of government/marketing boards interventions. In Ghana, the producer price of cocoa is determined by the Cocoa Board, independent of foreign prices and exchange rate movements. As a result, the producer prices are not usually adjusted to reflect the movements in the exchange rate. Besides, cocoa exporters were either completely deprived of certain export incentives, such as the export tax holidays offered to nontraditional exporters, or were entitled to lower benefits compared to nontraditional exporters. For example, cocoa, mineral and timber producers were excluded from the export bonus scheme when it was first introduced in 1973. When they were finally admitted to the scheme in 1977/78, they were eligible to only two-thirds of the bonus offered to the nontraditional exporters (Oduro et al, 1992). These implicit taxes and state interventions were not applied to the nontraditional exports.

Apart from the size of and movements in the real exchange rate, lagged exports was found to be another significant factor which influenced nontraditional export growth in the 1960-1993 period. Capacity utilisation in the nontraditional agricultural export sector may be measured by the area of agricultural land under cultivation. The total area of land under cultivation of non-traditional crops, such as yams and cocoyams, for example, rose from just under 730,000 hectares in 1976 to almost 1.1 million hectares in 1991. The production of pineapple rose from 3,000 tonnes in 1979 to about 10,000 tonnes in 1990 (Ghana Statistical

Service, 1992). Capacity in the nontraditional exports sector was further increased as vast areas of land were cultivated for the production of rattan, wood and pepper at the "Export Production Villages" of Amateng, Juabeso Bia, Okponglo and Aburi. In addition to these, favourable weather conditions, availability of extension services and inputs, such as seedlings, fertilizers *etc.*, also contributed to the expansion in non-traditional agricultural export production.

For the manufactured commodities, growth in capacity may mean an increase in firm/plant size, and/or the increased utilisation of existing capacity. Table 6.3 shows the rate of capacity utilisation for selected nontraditional manufactured exports during the period 1984 - 1989. As shown in the table, the average capacity in the manufacturing sector rose from 18% in 1984 to about 40.6% in 1989, with the highest capacity expansion experienced in the wood processing, tobacco and beverages sub-sectors.

**Table 6.3. Capacity utilisation in selected nontraditional exports**

Sub-Sector	1984	1985	1986	1987	1988	1989
Garments	20.2	25.5	27.0	25.0	35.0	22.0
Pharmaceuticals	-	16.6	-	26.0	33.0	20.0
Tobacco and beverages	19.5	39.6	40.0	45.0	58.0	63.0
Food processing	22.9	31.2	36.0	42.0	60.0	51.0
Rubber	15.0	16.0	23.0	28.0	38.0	40.0
Wood processing	28.1	32.5	-	43.0	70.0	70.0
<b>All manufacturing industries</b>	<b>18.0</b>	<b>25.0</b>	<b>25.0</b>	<b>35.0</b>	<b>40.0</b>	<b>40.6</b>

Source: Ghana Statistical Service *Quarterly Digest of Statistics*, December 1992

Imports were found to have not significantly affected nontraditional exports growth. This could be explained by the fact that until the abolition of import controls in 1989, imports were restricted through the import licensing system, while the little imports that came in were mainly destined for import-substitution production for domestic consumption. There was very little allocation of import licences for imported raw materials (if any) for the nontraditional export sector. The import compression caused by government policies during the 1965-89 period forced non-traditional export producers to concentrate in the production of commodities, such as agricultural products, requiring little or no imports. This explains the dominance of agricultural commodities in total nontraditional exports during this period. Not surprisingly, Kusi (1980) observes that export promotion incentives, such as the import duty drawback and the bonded warehousing facilities, were less significant in explaining the growth of nontraditional export earnings during the 1966-75 period. Other incentives, such as the foreign exchange retention scheme, became operational only in 1982 when import controls were still in existence. So, while the scheme was meant to ease the import constraints facing nontraditional exporters, its effectiveness was slowed down by the quantum restrictions on imports. It is only after the abolition of import controls in 1989 that non-traditional exporters had easy access to imported inputs. Since then, activities in the sector have shifted from agricultural commodities with low import content to the production of processed and semi-processed products with higher import/output ratios. Even then, Oduro *et al* (1992) observe that less than 3% of the firms exporting nontraditional export products have import-output ratios of more than 50%. In addition, over 60% of these industries import less than 11% of their resources.

Our results show that domestic credit was not an important factor in the nontraditional exports supply equation. Although domestic credit increased significantly during the 1960 -

1983 period, the nominal exchange rate was relatively fixed. Therefore, the increases in money supply, through increases in domestic credit only served to fuel domestic inflation rates, forcing the real exchange rate to appreciate and thus eliciting no significant response from exporters. Besides, during this period, the bulk of domestic credit to the export sector was directed to the traditional exporters of cocoa, timber and minerals, with very little going to the nontraditional exporters. According to Oduro *et al* (1992), 57% of the nontraditional exporting firms were, in fact, self-financing in 1988. It was only after the establishment of the Export Finance Company in 1989 that the government took concrete steps to extend substantial credit to the nontraditional export sector. By December 1991, the Export Finance Company had given out credit to over 230 exporters in more than 400 activities and total disbursements under the Company's pre- and post-shipment financing schemes totalled C6.6 billion in 1989-1991 (GATT, 1992a). This contributed significantly to the sharp rise in the proportion of domestic credit to the export sector from 1.6% in 1983 to 5.0% in 1991. The increased availability of export credit was very instrumental in stepping up the export performance in the early 1990s. It was also one of the reasons behind the intensification of activities in the processed and semi-processed products during the period.

## Chapter Seven

### Conclusion and Policy Recommendations

Ghana's exports consist mainly of unprocessed raw materials, such as cocoa, minerals, timber and fish products, which together constitute over 90 percent of the country's total export revenues. The traditional exports include cocoa, minerals, timber, aluminium, coffee, and sheanuts, while the non-traditional exports are made up of fish and fish products, wood products, salt, cotton, textiles, pharmaceutical, chemical and petroleum products. The traditional exports were dominated by cocoa until the turn of the 1990s when gold took over as the leading export commodity. The contribution of traditional exports to GDP, however, declined throughout the 1960s, 1970s and the early 1980s due mainly to the loss of incentives to export resulting from the overvalued real exchange rate. Nontraditional exports similarly declined during the period, also as a result of the inappropriate exchange rate policy. Nontraditional exports, however, picked up after the 1983 adjustment programme under which special attention was paid to the promotion of exports, including non-traditional exports.

Under the adjustment programme, the real exchange rate of the cedi was used as a policy instrument to restore the attractiveness of export production. The main aim of the exchange rate reform was to rectify the exchange rate misalignment and to divert exports on the black market into official channels. As a result, the real exchange rate of the cedi was allowed to depreciate sharply from an index of 19.8 in 1983 to 122.8 in 1989 (1985=100). This led to the removal of the myriads of distortions and controls, which characterised the previously fixed exchange rate regime, thereby helping to restore profitability in the export sector and also raising government revenue from the trade-based taxes. This study sought to investigate the effects of the real exchange rate adjustments on the supply of non-traditional

exports in Ghana during the 1960 - 1993 period. The major findings of the study include the following:

First, the size of the real exchange rate was found to be the most important variable explaining the growth of non-traditional exports. Although changes in the size of the real exchange rate had positive effects on the supply of non-traditional exports, the response was relatively weak. This is because non-traditional exporters are more sensitive to changes in the domestic price level than to revenues from foreign sales due to the relative ease of distribution in the domestic market. Foreign sales become attractive only when the relative profitability of export production is extremely high and could be sustained for a very long period. The exchange rate reform in 1983 - 1993 caused producers to switch some resources from the traditional exports sector to the non-traditional exports sector, thereby increasing the level of nontraditional output and export supply. Besides, the real exchange rate depreciation led to expenditure switching as consumers shied away from the relatively more expensive non-traditional commodities to the consumption of domestic non-tradeables, thereby freeing more non-traditional export commodities for export. The non-traditional export sector was also more responsive to the exchange rate reform because of the full pass-through effect. On the other hand, the prices of traditional exports, such as cocoa, were being regulated by marketing boards that did not allow for the full effect of the exchange rate pass-through.

Second, exchange rate volatility was found to affect the supply of non-traditional exports. Fluctuations in the real exchange rate lead to unstable incomes and disturb planning arrangements of non-traditional exporters. On the other hand, traditional exporters are insulated against the exchange rate fluctuations since the marketing boards determine the producer prices at the beginning of each season and keep them fixed throughout the season.



Third, domestic credit to the export sector was not found to be a very important factor in explaining the growth of non-traditional exports during the 1960 - 1993 period since most of the credit was channelled to the timber and cocoa producers for the most part of the period. The flow of imports also did not significantly affect non-traditional export supply. The reason for this was that the non-traditional export commodities are mainly agricultural commodities with very low import content. Nevertheless we noted a surge in nontraditional manufactured exports in the late 1980s and early 1990s. Since manufactured exports depend more on imported raw materials than does the agricultural export commodities, this could be attributed to the abolition of import controls in 1989.

On the whole, the governments efforts at stimulating the growth of non-traditional exports through the use of the real exchange rate as a policy instrument, supported by fiscal and financial incentives during the 1983 - 1993 period was quite successful. Nevertheless, the value of non-traditional exports (in real terms) in the 1990s is still below its 1969 level. Nontraditional exports share in GDP is also low, suggesting that there is still more room for improvement. To make nontraditional exports growth rise significantly, a number of issues have to be addressed.

First, the government should continue with the managed floating exchange rate regime in order to 'smoothen' out the adverse effects of excessive fluctuations on the planning decisions of exporters. The real exchange rate of the cedi should either be stabilised at its current value or be allowed to depreciate a fairly constant rate in order to reduce export earning instabilities and maintain certainty in the foreign exchange market. This can be done successfully if domestic inflation rates are reduced and the nominal exchange rate adjusted periodically in line with the differential between domestic and foreign rates of inflation. To this end, the government could set guidelines prescribing lower and upper limits within which the real exchange rate would be allowed to fluctuate over time. This would avoid



unpredicted shocks in the exchange rate, such as those experienced in 1990 and 1993. A fixed exchange rate system should be avoided at all costs, knowing that it makes the real exchange rate highly vulnerable to any given change in domestic and/or foreign prices.

Much as the Central Bank should monitor movements in the nominal exchange rate, the currently liberalised foreign exchange bureaux system should be allowed to operate since the system has greatly improved the availability of the foreign exchange required for financing export requirements.

Second, the Ghana Export Promotion Council should decentralise its operations to encourage its regional branches to be more active, especially in the promotion of nontraditional agricultural exports. The regional branches should be allowed to take up the responsibility of intensifying the export-awareness campaigns of the Council. This would keep both existing and potential exporters well informed about overseas marketing strategies and requirements, existing export incentives as well as the profitability of the nontraditional exports business. A reliable means for the dissemination of vital information to the exporters would be the extension of the national award for export achievement as well as the other awards for selected commodities to the regional and district levels where the actual production of these commodities takes place. The slow administrative network at the GEPC and the Customs Department would also have to be restructured. The Council, as well as the Customs Department needs to computerise their operations in order to hasten the registration, tax filing, retention payments and clearance services offered to nontraditional exporters. A properly computerised databank for exporters would not only reduce the manpower requirements of the Council but will also provide an easier means of monitoring the performance of exporters for the extension of support schemes, and linkages with foreign buyers.

Third, Government should consider further reductions in the tax liabilities of non-traditional exporters since most of their products face high tariffs in the importing countries. In this regard, we propose the establishment of an export processing zone, as is done in Mauritius, where all industries operating within a demarcated area are granted tax holidays on profits, capital allowances on building and plants, exemptions from excise and sales tax on exports. In this regard, we support the import-export law of August 1995, which seeks to scrap the 15% sales tax on non-traditional exports. Although the explicit export taxes on nontraditional exports have been waived, there still remains a host of elaborate requirements for obtaining business licenses and permits, which act as an implicit tax on productivity and increase the effective tax rates on nontraditional exports. According to Mintah (1995), some of these requirements penalise nontraditional exports by between 20% - 25% of the sales value. Such institutional requirements need to be reviewed to reduce the effective tax burden on exporters.

Fourth, as a way of stabilising the earnings of non-traditional exporters, Government could concentrate on the expansion of the non-traditional manufacturing export sector, since the prices of manufactured exports are more stable than that of agricultural exports. In particular, Government may encourage industries in the fishing, beverages, wood processing, rubber and textile industries, where the domestic resource content is relatively high.

Finally, the financial incentives offered to nontraditional exports are still inadequate. Most of the disbursements under the various financial schemes are short term loans to meet working capital requirements. Government should however consider offering substantial long term loans to exporters to enable them expand their plant sizes, replace obsolete technology, upgrade existing equipments and purchase new ones. This would allow for higher capacity utilisation in the sector.

## Notes

1. The export/import weighted index is the arithmetic mean of a country's exchange rate against other currencies, relative to a base period, weighted by the share of each trading partner in the exports/imports of the country concerned.
2. This is the arithmetic average of the import- and export-weighted indices weighted by their respective shares in the sum of total exports and imports.
3. Aluminium appears in the literature as both a traditional and a non-traditional export, but to ensure consistency, we maintain its identity as a traditional export in this study.
4. Figures were converted from US dollars to cedis using current exchange rate.

Appendix 1. Prices and Exchange Rates: Selected Indices

Year	Consumer Price Index	Nontraditional Export Price Index	Foreign Price Index	Exchange Rate		Exchange Control Index*
				Misalignment (%)	Volatility (%)	
1960	0.2	0.5	6.5	-3.0	-8.6	170.1
1961	0.2	0.5	7.4	-2.6	-5.1	202.0
1962	0.2	0.5	7.5	-4.3	-4.5	251.1
1963	0.2	0.5	11.5	5.3	6.6	257.3
1964	0.2	0.5	11.7	-0.3	-4.1	277.9
1965	0.3	0.5	12.1	-4.3	-10.4	331.0
1966	0.3	0.5	12.7	-0.9	1.4	295.8
1967	0.3	0.6	12.5	3.5	0.7	250.2
1968	0.3	0.7	12.4	1.6	-0.5	176.8
1969	0.4	0.7	14.2	-2.6	-6.4	166.1
1970	0.4	0.7	16.0	1.5	0.9	187.9
1971	0.4	0.7	17.1	9.7	4.8	238.4
1972	0.4	1.1	16.7	1.6	-6.5	142.9
1973	0.5	1.5	16.2	1.4	-6.4	133.7
1974	0.6	1.5	18.8	2.9	-1.1	112.2
1975	0.8	1.3	19.6	-2.1	-8.6	105.5
1976	1.3	1.7	24.8	5.8	-8.7	128.2

1977	2.7	1.7	31.1	-3.3	-17.5	184.3
1978	4.7	2.8	31.3	9.8	-11.1	202.7
1979	7.3	6.0	32.2	3.1	-12.2	150.7
1980	11.0	6.5	36.3	-12.8	-21.9	127.5
1981	23.8	5.7	52.2	-9.6	-28.8	195.7
1982	29.1	5.4	67.4	17.5	-22.9	251.3
1983	64.9	17.8	79.1	-1.1	-9.9	125.8
1984	90.7	77.8	94.9	4.3	16.4	112.3
1985	100	100.0	100.0	0.0	0.0	100.0
1986	124.6	166.6	78.7	-0.4	-3.3	100.9
1987	174.2	383.4	67.2	0.1	-1.0	71.7
1988	228.8	544.2	66.6	0.7	-2.3	83.4
1989	286.5	782.4	70.6	4.5	0.9	116.9
1990	393.2	1323.7	59.7	-0.4	-8.2	90.2
1991	464.1	1287.3	61.1	-0.2	-0.3	92.7
1992	510.8	1655.8	58.8	01.0	-2.0	78.5
1993	638.2	2563.5	63.0	6.8	-5.5	72.6

Source:

IMF *International Financial Statistics* (various issues)

Economic Survey (various issues)

Ghana Statistical Service *Quarterly Digest of Statistics* (various issues)  
Brown *et al* (1972)

\* = ratio of import tax to total import revenues.

Appendix 2. Selected Trade Indicators

Year	Gross Domestic Product		Imports		Terms of Trade	Import Tax Revenue	
	Nominal (cedis)	Real (cedis)	Nominal (cedis)	Real (cedis)		Nominal (cedis)	As % of Total Revenue
1960	956	300215.4	259	144000.0	117.6	44.8	16.7
1961	1022	310909.8	286	158722.2	96.9	58.6	20.5
1962	1094	325985.1	238	119100.0	90.6	60.7	25.5
1963	1208	337291.1	261	130500.0	95.0	68.2	26.1
1964	1357	344514.2	243	121500.0	99.6	68.6	28.2
1965	1466.4	352364.2	320	106666.7	77.2	107.5	33.6
1966	1518.4	337359.4	251	83666.7	85.6	75.4	30.0
1967	1504.3	347705.1	262	87333.3	87.2	66.5	2.4
1968	1700.2	348998.4	314	104666.7	133.6	56.4	17.9
1969	2000.7	369977.2	354	88500.0	134.1	59.7	16.9
1970	2259.3	395902.9	419	104750.0	122.1	79.9	19.1
1971	2500.5	416552.3	443	110750.0	93.1	107.2	24.2
1972	2815.3	403986.3	393	98250.0	83.7	57.0	14.5
1973	3501.2	415639.3	526	105200.0	103.5	71.4	13.6
1974	4660.1	446150.5	944	157333.3	117.2	107.5	11.4
1975	5283	386575.3	909	113625.0	110.0	97.3	10.7

1976	6526.2	373068.4	992	76307.7	92.9	129.1	13.0
1977	11163.4	379882.1	1193	44185.2	120.2	223.2	18.7
1978	20986.1	417207.1	1682	35787.2	110.3	346.1	20.6
1979	28221.6	410272.7	2344	32109.6	110.6	358.6	15.3
1980	42853.5	412564.1	3104	28218.2	110.4	401.7	12.9
1981	72626.1	400444.0	3041	12777.3	91.2	603.9	19.9
1982	86450.8	374455.2	1939	6663.2	81.7	494.5	25.5
1983	184038.4	357812.8	1022	16983.1	99.4	1407.3	12.7
1984	270560.6	326457.4	21887	24131.2	107.1	2493.9	11.4
1985	343048.4	343048.4	47155	47155.3	100.0	4785.6	10.1
1986	511372.7	360600.4	93358	74926.2	96.6	9560.9	10.2
1987	745999.8	377343.1	174780	100332.8	94.0	12723.7	7.3
1988	1051196	398233.6	201015	87856.0	94.3	17010.1	8.5
1989	1417214	417808.9	273132	95334.0	73.5	32414.7	11.9
1990	2031686	430606.2	393228	100007.0	49.5	36013.3	9.2
1991	2574774	453014.1	458057	98698.0	47.9	45634.7	9.4
1992	2675190	469503.9	636622	124632.3	42.5	50748.0	8.0
1993	3099064	492012.9	1109082	173782.8	42.2	81769.8	7.3

Source:

IMF *International Financial Statistics* (various issues)

World Bank World Tables, 1995.

Huq (1989)

Kusi (1995)

Ghana Statistical Service *Quarterly Digest of Statistics* (various issues)



**Appendix 3. Export Credit, Money Supply and Net Capital Inflows,  
1960 - 1993 (In Million Cedis)**

Year	Export Credit			Money Supply			Import Tax Revenue			Net Capital Inflows		
	Nominal (cedis)	Real (cedis)	As % of total credit	Nominal (cedis)	As % of G.D.P.	Index	Nominal (cedis)	As % of Total Imports	Index	Nominal (cedis)	As % of G.D.P.	Index
1961	5.8	3222.2	20.0	160	16.7	122.9	44.8	16.7		60.0	6.28	144.5
1961	13.4	7444.4	20.0	174	07.0	125.0	58.6	20.5		-26.2	-3.54	81.6
1962	19.3	9660.0	20.1	200	18.3	134.2	60.7	25.5		55.9	5.11	116.8
1963	29.1	14560.0	20.0	215	17.8	130.7	68.2	26.1		48.8	4.04	93.1
1964	38.0	1890.0	20.0	295	21.8	159.6	68.6	28.2		55.5	4.08	94.1
1965	61.2	20413.3	4.2	301	20.5	150.7	107.5	33.6		175.5	11.97	275.6
1966	16.0	5343.3	4.2	315	20.7	152.3	75.4	30.0		95.6	6.30	145.0
1967	16.4	5473.3	4.2	319	21.2	155.7	66.5	2.4		29.4	1.95	55.1
1968	17.4	5783.3	2.9	352	20.7	152.0	56.4	17.9		40.6	2.39	79.0
1969	4.2	1060.0	2.7	388	19.4	142.4	59.7	16.9		68.6	3.43	113.4
1970	4.7	1175.0	5.8	427	18.9	138.8	79.9	19.1		60.7	2.69	86.4
1971	14.7	3675.0	7.5	475	19.0	139.5	107.2	24.2		156.6	6.3	203.0
1972	19.2	4807.5	6.6	668	23.7	174.2	57.0	14.5		-57.1	-2.0	-65.9
1973	18.6	3724.0	4.1	794	22.7	166.5	71.4	13.6		-60.1	-1.7	-55.7
1974	15.7	2611.7	3.3	1005	21.6	158.4	107.5	11.4		128.2	2.8	89.2
1975	19.1	2387.5	3.0	1386	26.2	192.6	97.3	10.7		-23.2	-0.4	-14.3
1976	22.7	1176.2	2.8	1900	29.1	213.8	129.1	13.0		16.9	0.26	8.4

1977	28.0	1037.0	2.2	3046	27.3	200.4	223.2	18.7	217.6	2.0	63.2
1978	32.5	691.5	2.6	5133	24.5	179.6	346.1	20.6	231.4	1.1	35.8
1979	43.8	6000.0	11.8	5942	21.1	154.6	358.6	15.3	-420.6	-1.5	-48.3
1980	269.4	2449.1	10.3	7951	18.6	136.2	401.7	12.9	-343.5	-0.8	-26.0
1981	339.6	1426.9	7.1	12031	16.6	121.6	603.9	19.9	1057.9	1.6	47.2
1982	263.1	904.1	1.6	14839	17.2	126.0	494.5	25.5	295.4	0.3	11.1
1983	98.5	151.8	2.0	20805	11.3	83.0	1407.3	12.7	-720.5	-0.4	-12.7
1984	192.8	125.6	2.2	31962	11.8	86.7	2493.9	11.4	-1025.7	-0.4	-12.3
1985	490.9	490.9	3.6	46718	13.6	100.0	4785.6	10.1	10580.4	3.1	100.0
1986	1451.2	1164.7	3.1	69000	13.5	99.1	9560.9	10.2	1141.8	0.2	7.2
1987	1658.6	952.1	3.9	106000	14.2	104.3	12723.7	7.3	25011.9	3.4	108.7
1988	2595.6	1134.4	4.0	155000	14.7	108.3	17010.1	8.5	4774.8	4.5	147.4
1989	3169.7	1106.4	4.4	240000	16.9	124.6	32414.7	11.9	69822.0	4.9	159.8
1990	3512.2	893.2	5.0	272000	13.4	98.3	36013.3	9.2	108504.7	5.3	173.2
1991	4733.0	1019.8	1.0	345000	13.4	98.4	45634.7	9.4	202306.5	7.9	254.8
1992	6950.0	1360.6	0.9	526000	19.7	144.4	50748.0	8.0	120156.0	4.5	145.6
1993	9350.0	1463.3	0.9	668020	23.8	174.6	81769.8	7.3	425276.6	15.1	490.9

Source:

World Bank *World Tables* (1991, 1993, 1995)

Killick (1978)

Ghana Statistical Services, *Economic Survey* (various issues)Ghana Statistical Service, *Quarterly Digest of Statistics*, (various issues)I.M.F. *International Financial Statistics* (various issues)Brown *et al.*, (1971)

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