Institute of
Social Studies

Graduate School of Development Studies

AGRICULTURAL GROWTH IN THE ERA OF STRUCTURAL ADJUSTMENT
A Comparative Study of Cocoa and Food Crop Subsectors in Eastern Region, Ghana

A Research Paper presented by

Amarchey, Christina Antwiago

Ghana

In Partial Fulfilment of the Requirements for Obtaining the Degree of

MASTER OF ARTS IN AGRICULTURAL AND RURAL DEVELOPMENT

Members of the Examining Committee

Dr. Max Spoor
Mr. Paul van der Wel

The Hague, December 1998

Enquiries:

Postal Address:
Institute of Social Studies
P.O. Box 29776
2502 LT The Hague
The Netherlands

Telephone -31-70-4 260 460
Cables SOCINST
Telex 31491 ISS NL
Telefax -31-70-4 260 799

Location:
Kortenaerkade 12
2518 AX The Hague
The Netherlands

DEDICATION

To my dear mother, Rose Boaa Amarchey,
without whose love and support I would not have come this far.

ACKNOWLEDGEMENT

Unto God do I render praise and thanksgiving for providing this wonderful opportunity to further my studies and for sustaining and guiding me throughout the whole programme.

My profound gratitude also goes to my supervisor, Dr. Max Spoor who was ever ready to assist in spite of his tight schedule. With his advice, encouragement and useful comments it has been possible for me to finish this study on schedule. I would like to thank my second reader, Dr. Paul van der Wel, Dr. Haroon Akram-Lodhi (the Convenor) and the entire staff of the Agricultural and Rural Development Programme (ARD) for their help in diverse ways.

I am very grateful to all those who sent me data from Ghana which greatly facilitated this work, particularly, Ms Dzodzi Tsikata, Dr. Oppong and Messrs Yeboah, Agyei and Abuenyi.

My special thanks also go to Mr Martin Blok (the Welfare Officer) and my ARD friends, especially Josephine, for their unforgettable friendship I enjoyed during my stay. Lastly, I would like to extend my appreciation to my family and friends at home, ISS Christian Fellowship, Sister Pam, Pastor Russ and family, Pastor Seth and members of Acts Revival Church International (The Hague) for their unrelenting prayers and support.

TABLE OF CONTENTS

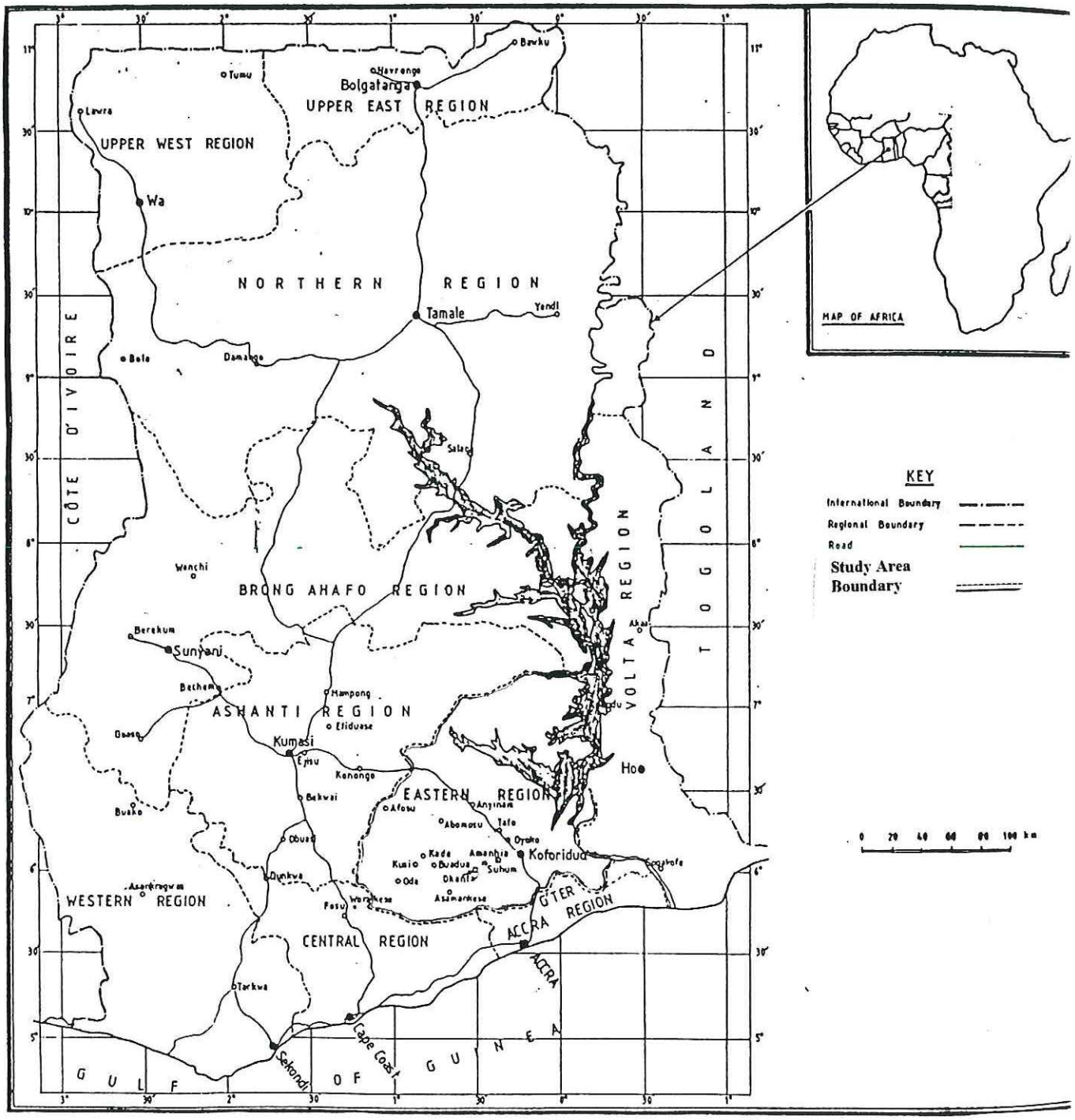
LIST OF ABBREVIATIONS

ADB	Agricultural Development Bank
ASRP	Agricultural Sector Rehabilitation Project
CPI	Consumer Price Index
Cocobod	Ghana Cocoa Board
ERP	Economic Recovery Programme
ESD	Extension Services Department
GCMB	Ghana Cocoa Marketing Board
GDP	Gross Domestic Product
GFDC	Ghana Food Distribution Corporation
FAO	Food and Agriculture Organisation
IMF	International Monetary Fund
MOA	Ministry of Agriculture
NPK	Nitrogen, Phosphorus and Potassium
OFY	Operation Feed Yourself
PPMED	Policy Planning, Monitoring and Evaluation Department
SAP	Structural Adjustment Programme
SOEs	State Owned Enterprises
US	United States

LIST OF TABLES

LIST OF FIGURES

Location and administrative subdivisions (regions) of Ghana



Source : Adapted from Baah *et al*, 1994 : 2

ABSTRACT

The impact of adjustment policy measures on agricultural growth is the main theme of this paper. The paper assesses, in particular, the price and non-price factors in adjustment policies that impact on cocoa and food crop production and the possible tradeoffs that might have been generated. It does this by comparing the period prior to adjustment (1972 to 1982) and that of adjustment (1983 to 1996). The pre-adjustment period was characterised by a decline in agricultural growth resul;ting from a complex mixture of inappropriate government policies, domestic policy mismanagement, adverse climatological conditions and deteriorations of the international terms of trade of agricultural produce. Since agriculture was (and still is) the backbone of the economy, the slump and stagnation in agricultural growth resulted in a near collapse of the Ghanaian economy in the early 1980s after all attempts at reviving the sector by successive governments had proved futile.

To avert an upcoming economic catastrophe, a pragmatic Structural Adjustment Programme (SAP) was adopted in April 1983. The macroeconomic policy measures implemented under SAP included devaluation of the cedi, removal of subsidies, fiscal and monetary reforms, institutional reforms and trade liberalisation. The adoption of these policies has helped to remove the price distortions against cocoa and some structural and financial bottlenecks affecting the efficiency of the Ministry of Agriculture (MOA) in charge of the development of food crop production. Analysing data from MOA and Ghana Cocoa Board (Cocobod) reveals that the cocoa subsector benefited more from the price factors like devaluation while the food crop subsector did benefit more from the non-price factors such as research and extension services. Nevertheless, no clear-cut picture emerges, as the latter seems to have grown much faster, while a limited 'supply price response' approach would have pointed in the opposite direction. It can also not be concluded that there is a simple causal relationship between agricultural growth and market liberalisation. Hence the study makes a plea for specific conclusions and a complex relationship between agricultural (and macro) policies and their impact.

CHAPTER ONE

INTRODUCTION

Agriculture has been the mainstay of the Ghanaian economy and a particular area of concern when efforts on the part of various governments aimed at propelling its growth failed to yield the desired results in the 1970s and the early 1980s. The introduction of Structural Adjustment Programme (SAP) in 1983 was to salvage the whole economy from its crisis with particular attention on the agricultural sector. Doubts have been raised in several quarters as to the effectiveness of the market liberalisation or 'getting the prices right' policies under SAP in allocating resources for the achievement of higher growth rates in the economy as a whole and the agricultural sector in particular. However, there were some expectations of positive effects of SAP policies on cocoa production and possible spill-overs of the policies, such as improved technological change, capital investment and marketing unto food crops as well since intercropping is widely practiced among Ghanaian farmers. Hence, it was envisaged that food crop production could also improve even when much emphasis was placed on the expansion of the main export crop (i.e. cocoa) production and food production was almost neglected during the SAP implementation in Ghana.

Considering the low food supply per head as a result of rapid population growth, equally important concern has also been expressed about the attainment of food self-sufficiency and food security. This concern is based on the effects of deterioration in the terms of trade between food and non-food consumer goods, and the exchange rate and other policies of SAP that promoted tradable agricultural production (Pickett and Shaeeldin, 1990 : 35). The attainment of food security through food self-sufficiency has been seen as a better option for Ghana by various governments even though economically this might seem undesirable as it has comparative advantage in tree crops rather than in food crops. The reasons are mainly political -- to be self-reliant in at least the basic food needs of its people in order to avoid being dependent on other countries for food whose supply may not be guaranteed at all times; and social -- to

improve the income distribution between the northern sector where the majority of food crop farmers are located and the southern sector with mostly cash crop farmers (e.g. cocoa).

The above problem statement forms the basis of the motivation for this paper to analyse possible tradeoffs (in land and labour use) between cocoa and food production (in particular, the non-tradable section). The paper will specifically analyse the impact of structural adjustment on the relative prices of cocoa and food crops and how the new relative price structure affected the reallocation of resources, particularly land and labour in the Eastern Region of Ghana.

To achieve such an objective, the following questions are put forward to guide the study:

a. What effects (either positive or negative) has SAP had on cocoa and food production in the Eastern Region of Ghana?
b. What are the causes and the reasons, of the impact measured?
c. What are the food security implications (limited in this case to domestic food availability) of any changes in acreages and production of both cocoa and food crops?

For this study, the research hypothesis is: Food production shows a tradeoff with cocoa production for the policies implemented under SAP, negatively influencing local and regional food availability.

The type of food production in this study mainly refers to the production of domestic or traditional food which are considered non-tradables. These include maize, cocoyam, yam, cassava and plantain. Food production could show a tradeoff with cocoa production because of their unfavourable relative prices in relation to those of cocoa. In addition, cocoa production received much support in investment while investment in food production continued to be low. The study will concentrate on finding the food security implications, not in terms of access to food but only in terms of food availability caused by any possible tradeoffs between food and cocoa production.

This study of the agricultural sector in the Eastern Region aims at investigating whether there has been any tradeoff between cocoa and food crop sub-sectors. This is

a challenging question as Ghana is one of those countries which have implemented SAP for a long time and also because its economy continues to be agriculture-based. Moreover, the Eastern Region happens to be a strategic area because it has a good blend of both food and cocoa production and could therefore give insights in the consequences of SAP and the dynamics between macro- and micro-levels. Such a contribution to existing findings of studies on the impact of SAP in Ghana could go a long way to redirect policy-making for agriculture to ensure sustained higher growth rates in the sector without compromising food security needs.

The Eastern Region covers an area of about 19,850 square kilometers. It has a population of about 2.5 million and a population growth rate of 2.8% making it one of the densely populated regions in Ghana. The main occupational activity in the region is farming which employs about 50% of the active labour force (ISSER, 1993 cited in Baah *et al*, 1994 : 11). Other economic activities include small scale mining of gold and diamonds and trading which has been booming recently due to the implementation of the trade liberalisation policy of SAP.

The region, lying within the central forest belt of Ghana, has a hot and humid climate with two rainy seasons – May-June (major) and September-October (minor). These seasons dictate the agricultural seasons (major and minor) since agriculture in the region is mainly rain-fed. The average rainfall is about 1550mm/annum, the mean daily minimum and maximum temperatures are 21 and 31 degree celcius respectively (Baah *et al*, 1994 : 10). These prevailing climatic conditions, together with the forest ochrosol soil type in most parts of the region make it particularly suitable for cocoa production. Cocoa production has been an important economic activity since the beginning of the century and Baah *et al* explain that

> Cocoa production in Ghana had its origin in the Eastern Region, where it is still the main cash crop. However, the region has lost its leading role in cocoa production to the Ashanti and Western Regions (Baah *et al*, 1994 : 1).

The other major cash crop in the region is oil palm while the food crops include maize, rice, cassava, cocoyam, yam, plantain, some pulses, vegetables and fruits. These crops compete with cocoa because of the suitable climatic conditions for their production, the location of the region *vis-a-vis* major urban centres and because of problems farmers

face with cocoa production, especially the problem of swollen shoot disease[1] (Rourke, 1974 : 21). Pure stand cultivation of any of the crops is rare, not even cocoa. The practice of intercropping is thus a common feature of crop production which is also dominated by smallholder cultivation.

Land for farming in the Eastern Region can be acquired through inheritance, hiring (cash payment), sharecropping or outright purchase. The land market is particularly developing since the 1980s. There are two main forms of sharecropping found in the region : the *abusa* and the *abunu* systems. The *abusa* system where the sharecropper gets a third of the harvest used to be more common with established cocoa farms. Now, it appears most sharecropping is the *abunu* type (on both cocoa and food crop farms) in which the landowner and the sharecropper equally share the harvest. However, if the sharecropper provides the cash inputs for production, an *abusa* system where the sharecropper gets two-thirds of the harvest is applied.

Farm labour, being an important factor of crop production, often determines the size of farm and/or the timeliness of land clearing to meet the onset of the rains. The main sources of labour are family labour, hired labour and the *nnoboa* which are labour exchange groups usually used for land clearing. Hired labour (daily or annual) is normally used by female headed households for land clearing because land clearing is considered a man's job. Apart from this, hired labour provided by men or women could be used for planting, weeding and harvesting.

The period of study, spanning almost three decades (1970s to 1990s), has been divided into two : Pre-SAP (1972-1982) and Since-SAP (1983-1996) to allow for an in-depth study of the extent of agricultural decline as it started in the 1970s and the impact the policies of SAP have had on it from 1983 up to the middle of the 1990s.

The study of the food crop sub-sector includes only the major staples in the Eastern Region (i.e. maize, cassava, yam, plantain and cocoyam) and therefore does not cover all the food crops. This is due to the fact that these are more important in terms of acreages cultivated and also because data on the rest are difficult to come by. Another limitation of the study is the difficulty in separating the impact of other factors

[1] The cocoa swollen shoot disease is caused by a virus (CSSV) which attacks the stem/shoot, as the name implies.

such as the weather on agricultural production, which in this particular area is very significant, from those of SAP. Moreover, the reliance of the study on secondary data whose reliability cannot be guaranteed introduces another set of errors.

The study relies on the use of secondary data which are obtained from such sources as the Ministry of Food and Agriculture (MOFA), Ghana Cocoa Board (Cocobod) and Food and Agricultural Organisation (FAO). These institutions derive the data (covering cocoa and food crops) directly from field sample surveys. The consumer price indices (CPI) used in this study is from International Financial Institutions Yearbook (its use is further explained in the Appendices).

The methodology employed for the analysis is a descriptive one. The 'before and after' method is used to analyse the impact of SAP on the agricultural sector. The production levels of the two sub-sectors for the periods 1972-1982 (pre-SAP) and 1983-1996 (since-SAP) are examined in relation to the impact of the main policies implemented under SAP, especially price but also non-price policies such as extension, research and marketing. A comparison of the real producer prices (deflated by consumer price indices, CPI) of each sub-sector is done. These trends are correlated with the expansion or reduction of crop areas and yields, taking into account the appropriate time lags.

The paper is organised into six chapters. The second chapter looks at the theoretical framework which sets forth the various schools of thought concerning adjustment policies and their impact on agriculture, the supply response of agriculture and food security. The third chapter focuses on the period of agricultural decline before the introduction of SAP, bringing out the causes and the attempts made to revive the sector. The fourth chapter discusses the implementation of the adjustment policies with a special attention on the agricultural sector reform policies. Chapter five is where the analyses of the agricultural performance of the periods before and after structural adjustment are done. This includes the examination of the changes in the output (both of cocoa and food crops) and input prices and the impact of these on the production levels of the crops. A further investigation is done to find the underlying causes of the changes in production levels. An attempt to find the food security implications (in terms of food availability) of the changes in production concludes that

chapter. Finally, chapter six presents the summary and concludes the paper by focusing on the main findings (including the contradictory ones) unravelled.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 ADJUSTMENT POLICY : THEORY AND PRACTICE

In general, structural adjustment is an attempt to effect a major change in an economy, often after an external shock. It is specifically the development policy advocated and funded by the International Monetary Fund (IMF) and the World Bank (also known as Bretton Woods Institutions) based theoretically in a neo-classical approach of economics. It emphasises the need for countries in economic crisis to allow a free market mechanism to operate and hence guide allocation of resources as government intervention is reduced to the barest minimum (Lensink, 1996 : 6). It consists of two broad complementary strategies: stabilisation and adjustment policies. Stabilisation policies are primarily designed to reduce short-term imbalances between supply and demand which normally manifest themselves in balance of payments and budget deficits. Adjustment policies are, on the other hand, designed to change the supply-side and shift the structure of the economy and output in such a way as to improve international competitiveness and efficiency in resource use (de Haen et al, 1994 : 196). It is however difficult to separate these two strategies, and there is considerable overlap in the measures normally adopted.

Structural Adjustment Programmes (SAPs), a term first used by the World Bank, usually include exchange rate reforms, reduction of state intervention, monetary and financial reforms, fiscal reforms, removal of subsidies, and market liberalisation. They are seen as the means of achieving the desired reduction in inflation and balance of payments deficit and the adjustment that would foster growth and development in countries in economic crisis.

The agricultural sector in most developing countries (typically agriculture-based economies) is important in several areas of the macro-economy such as GDP, exports

and imports, in inputs for industry, employment and as a source of revenue for the government budget. Often, in these countries agricultural prices have been depressed by state intervention in a way which deters output overall or skews it in favour of some particular crops. This, among other factors, has contributed towards their economic crisis. In view of this, SAP policies for agriculture are mainly concerned with the terms of trade between agricultural and non-agricultural sectors, supply response and efficiency of the sector so as to achieve higher growth rates in the economy as a whole (Johnson, 1989 : 20). The SAP's analytical model in respect of agriculture thus centre on prices - notably exchange rates, producer prices, user prices, taxes, input prices and interest rates (Green, 1989 : 37). Only later did it also seek to include non-price variables to the agricultural policies to enhance agricultural productivity.

Prior to adjustment, exchange rates were fixed by national governments, who also organised foreign exchange allocation on an administrative basis. As a result, local currencies were highly overvalued and exchange rate reforms were thus recommended for the establishment of more competitive exchange rates through devaluations and the eventual liberalisation of foreign exchange markets (CDR, 1995 : 24). The overvaluation of exchange rates by domestic policies served as an impediment to producers of export crops and an implicit subsidy for imports of agricultural and non-agricultural goods and services which devaluation is supposed to reverse. The change from overvalued to realistic and competitive exchange rates has the objective of enhancing the international competitiveness of local production as against foreign production in local as well as foreign markets (CDR, 1995 : 24). The prices of traded goods would increase relative to the prices of non-traded goods and thus enhance relative profitability of the traded sector. However, as Green (1989 : 38) points out, "The direct impact of devaluation on the agricultural sector depends on whether the increased (in local currency) border prices are passed on to the producer". For exports this is usually the case, at least in part in situations where a percentage of export revenue is given to farmers (as small as it may be) as in Ghana. For domestic market crops the results are altogether less certain because these are normally not protected and reductions in official imports may increase grower prices, but the influx of food aid could decrease producer prices considerably. A combination of price -related factors

such as input prices, other domestic costs and the prices of wage goods contribute to give a real incentive for farmers to raise marketed output levels.

On the whole, devaluation can be considered as a necessary condition, for raising export volume - or at any rate the officially recorded volume (Green, 1989 : 38). The intended increases in producer prices for export crop farmers as a result of devaluation could thus check border smuggling and increase official exports as farmers would be encouraged by the better prices to sell their produce in their home country or through 'officialised' marketing channels. Through devaluation, the increase in producer prices contributed to the reversal of the trend of farmers migrating to the cities in pursuit of relatively higher incomes because of low producer prices.

Devaluation also causes increases (in domestic currency) in input prices (e.g., tools, fuel, wages, seed, fertilizer, pesticide, etc). It was however foreseen that devaluation accompanied by foreign exchange liberalisation would lead to increased foreign exchange availability which would mitigate the adverse impact of devaluation on the domestic prices of inputs by increasing their supply (de Haen *et al*, 1992 : 198). Nevertheless, it has been observed that devaluation has enormously increased relative input/output price ratios and made most current extension advice economically unviable because of the higher input prices (especially for fertiliser) and thus negatively affecting yields (CDR, 1995 : 33).

Fiscal reforms address the balance between public revenue and spending. Under SAPs the major concerns have been to reduce the deficits of government and parastatal corporations characteristic of the late 1970s and the early 1980s, thus reducing public borrowing and hence the rate of inflation (CDR, 1995 : 23). High inflation rates have been known to erode much of the increases in producer prices received by farmers and therefore discouraged savings and capital investment in agriculture. As a result of reductions in inflation made possible through fiscal reforms, real producer prices could increase to encourage higher production. Since the means to effect cuts in government expenditure under SAP normally vary, the impact of these reforms on agriculture depends largely on how the reductions are achieved. Within an overall ceiling, "a reduction in government borrowing from the domestic banking system clears space for greater enterprise, including agriculture. If the reduction results from additional soft

external finance or largely non-agricultural taxes, then the net results in respect of agriculture would be positive" (Green, 1989 : 44).

The cuts in government spending are likely to affect both capital and recurrent budgets of many sectors, particularly agriculture. The agricultural sector and farmers are the worst affected when there are cuts in government spending on primary health care, basic education, water supply and road maintenance as is usually the case in recurrent expenditure reduction. Within agricultural spending capital expenditure such as research tend to fare worst.

The fiscal reforms are to benefit the private sector by reducing levels of taxation when reforms are made to widen the tax net. The reconstruction of the indirect tax base could allow cuts in the relatively high export tax rates. Therefore, the traditional taxes on agriculture, such as export taxes, would be reduced in order to prevent the case where they reduce rural incomes and, at least to some extent, either deter agricultural output or divert it to other crops (Green, 1989 : 44).

Fiscal, monetary and interest-rate policies are normally used to bring down inflation rates. Fiscal and monetary restraint cannot be avoided even when devaluation is the major instrument employed to lower the real exchange rate because without that "there will be offsetting increases in the prices of non-traded goods; the currency depreciation will then result in a rise in the absolute price level but the relative price between traded and non-traded goods will not change" (Johnson, 1989 : 26). In such circumstances, the objective of promoting exports for balance of payment deficit reduction would be defeated. Credit ceilings, interest rates and open market operations are the main instruments used to achieve adequate real interest rates and low inflation by regulating the supply of money and credit. Historically, there have been two quite separate credit systems in most developing countries : an official one with low or negative interest rates but reserved mainly for parastatals and 'insiders'; and an unofficial or informal one with real high positive interest rates. A major aim, among others, of the monetary and financial reforms is to unify these credit markets and maintain adequate real interest rates making official credit cheaper and more available, to the productive sector (especially agriculture) (CDR, 1995 : 26).

Accountability, non-interference and responsiveness to market forces (seen as including competition and effective pressure for cost efficiency) are the key themes of the adjustment reforms for agriculture and other sectors. For agriculture, it has concentrated on public procurement/marketing bodies. "The marketing boards, with monopoly control over the sale of exports and over domestic purchases from farmers have reduced the profitability of exporting in many countries by offering export producers low prices"(World Bank, 1994 : 75). In this respect, liberalising the markets for agricultural inputs and outputs is envisaged as an effective way of improving farmers income and ensuring higher production, especially for exports. The objective is 'getting the prices right' as is observed by Green (1989 : 38) as being the main goal of the adjustment policies advocated by the IMF. There is the assumption that a liberalised market is able to allocate resources adequately for the attainment of higher growth rates.

With SAP the public parastatals were abolished altogether in some countries to really liberalise both the input and output marketing they controlled and thus improve the incentive system in agriculture (World Bank, 1994 : 147). SAP measures in input supply have focused on institutional reforms designed to increase the cost effectiveness and efficiency of parastatals, mainly through increased competition with the private sector. However in most cases, the unfair terms of competition favouring the public parastatals has discouraged private sector involvement in input supply (de Haen *et al*, 1992 : 204).

Liberalisation of markets has also taken the form of a gradual move from a general system of import control towards open general licensing and a slowly decreasing 'negative' list of items requiring an import license; a gradual move from non-tariff to tariff controls, a subsequent reduction in effective rates of tariff protection; and the introduction of various forms of export incentives (CDR, 1995 : 25). These strategies are to encourage diversification of export crops. Eliminating foreign exchange rationing and non-tariff barriers, reforming tariffs and removing regulatory barriers have served to improve balance of payment deficits as more exports are promoted, particularly, non-traditional agricultural ones. Import liberalisation has given the private sector more freedom to import, enhancing competition. Closely associated

with the market liberalisation is the removal of all subsidies especially those on food and inputs. Not only is this to allow the free market to operate but also as a means of reducing government expenditure.

The preference of both the World Bank and the IMF is for higher grower prices, allowing, in theory, full cost pricing inputs - implying the removal of all subsidies including those on food and inputs. Green notes that, subsidy programmes, whether on food or inputs, "that eat up high proportions of recurrent revenue are likely to reduce spending on rural health, education, water, road maintenance and extension service to benefit primarily urban consumers" (Green, 1989 : 45). The argument put forward by some authors against input subsidies dwells on the fact that public funds could better be spent to improve returns to agriculture in such activities as rural infrastructure, research and extension. They also maintain that only a limited amount of inputs is available due to the limited funds governments can make available to finance the subsidies. Moreover, subsidies disproportionately benefit well-off farmers who are able to secure rationed supplies leaving out a large number of potential input users. The lower input prices compared to those prevailing in neighbouring countries due to the subsidies tend to encourage border smuggling which further reduces input availability. When input prices are low, particularly those of agrochemicals, there is the tendency of farmers misusing them in ways that could be environmentally unfriendly.

On the other hand, the proponents of maintenance of input subsidies argue that they are necessary to facilitate the adoption of agricultural innovations. The removal of subsidies on inputs would raise their prices and discourage many farmers from using them, thus lowering crop production. They also argue that maintaining subsidies may be more economically rational than full-cost pricing when the use of a particular input by all farmers in an area is crucial for expected results as is the case of combating a contagious disease with a fungicide (World Bank, 1994 : 87 ; Green, 1989 : 45).

2.2 AGRICULTURAL SUPPLY RESPONSE

It is envisaged that the adjustment programme's aim of 'getting the prices right' would produce the right supply response in agriculture. It is based on the premise that the

supply response to price incentives is functional and it will stimulate agricultural growth. In addition to pricing and macroeconomic policies, government expenditure and investment in the agricultural sector can have important effects on farm profits and are critical to long term competitiveness and agricultural growth. The extent of the supply response or the price elasticity of supply depends also on another set of critical variables - the non-price factors including research, extension and transport infrastructure (Chhibber, 1989 : 55).

The non-price factors which also affect the supply response of agriculture are all in fact long-run price-related since they may be the result of long standing neglect of investment. Jaeger (1992 : xiii) points out that the debate on whether price or non-price factors constrain growth most may be misleading. He explains that the distinction between price and non-price factors are sometimes blurred and non-price constraints on agriculture may be seen as price-related (for example, the lack of roads implies high transport costs; the absence of extension services raises information costs of new technology). Secondly, the classification of constraints into price- and nonprice- related is to a large extent analogous to the dichotomy between short-run and long-run response to prices. For instance, bad roads, lack of irrigation, poor institutional infrastructure, and other 'non-price' constrains may be the result of neglected investments which have made socially profitable investments privately unprofitable. Jaegar's last reason is that the relative importance of price and nonprice factors will vary from country to country. Lele reiterates this point by writing that the effect of nonprice factors, especially public infrastructure, on agricultural growth is stronger in countries that "agricultural exports dominated i.e. in low-income (African) countries where accumulated deterioration of physical capital is now acute and a serious constraint to the functioning of factor and product markets" (Lele, 1992 : 18). Where farmers cannot respond adequately to higher prices because of constraints of insufficient irrigation, unimaginative and ineffective research and extension services or poor transport facilities, then improvement of these goods and services may be more beneficial for agriculture than an increase in farm output prices. The supply response is much higher when both price and nonprice factors are combined. Basically, the

magnitude of the supply response to economic incentives is an empirical question (Chhibber, 1989 : 55).

The net increase in return per unit of output which serves as an incentive to producers is achieved by the augmentation of domestic agricultural input and output prices in reducing the price distortions between domestic agricultural producer prices and world market prices. On the whole, the emphasis has been on farm output prices and they are generally recognised as having three main functions in the economic system. These are i) to allocate farm resources, ii) to distribute incomes, and iii) to encourage or retard investment and capital formation in agriculture (Mellor, 1968 cited in Ellis, 1992: 67). These functions have also been described as signals, incentives and instruments of allocation of resources and income (Streeten, 1987 : 11). Farm output prices, according to neoclassical economics, allocate resources through the optimising behaviour of producers in a market system (Ellis, 1988: Ch.2). An increase in the general level of output prices, as Ellis points out,

> "increases return to all inputs, as well as providing higher returns to fixed inputs of land, capital and family labour. A change in the relative price level of one output against another results in substitution between outputs as farm households adjust to the changing relative profitability of different outputs. Although for peasant households that consume a proportion of their own output, these adjustments may be modified by food security and other household goals" (Ellis, 1992: 67).

The change in the general level of output prices or relative prices of one output against another may be due to how the various policies of SAP are implemented in a particular adjusting country.

Government price fixing for products and inputs, or taxation of their trade (the case of most export crops in Sub-Saharan Africa) affect the profitability of farming. The low producer prices of export crops serve as a disincentive to the growth of the sub-sector and result in shifting of resources out of agriculture to other sectors (Jaeger, 1992 : 2). The short run elasticities of supply of export crops in Africa is low due to the fact that most of the crops are tree crops and farmers can respond to changes in pricing and exchange rate policies in the short-term only by rehabilitating existing farms. The long run supply response will include the effect of reallocation of productive resources, labour and capital, among sectors in the overall economy. The supply response of annual export crops such as cotton and tobacco is much higher as

farmers are more able to respond quickly to changes in relative price incentives by altering their cropping pattern (Jaeger, 1992 : 11).

Even though food crop marketing was monopolised later than export crops in most countries, and far less effectively, it appears the dismantling of food crop marketing boards has stimulated food crop production as food producers began to participate freely in the open market. The real effective exchange rate may increase the official price of imported staple food, consequently increasing the domestic price of foodstuffs that can substitute for imports. The effect on domestic prices may be minor and domestic food supply may not increase rapidly in response to adjustment programmes. Binswanger (1992 : 129) offers two explanations for this - first, the decline in real income often associated with adjustment may reduce the demand for food, shifting resources from domestic food sector to exports. Second, in countries that are net importers of staple foods, domestic production of these foods is usually well protected. Therefore, exchange rate and agricultural price reforms may not lead to much higher prices for basic foods and there would be no added incentive to produce food.

Jaeger also asserts that total agricultural production, total food production, and staple food production respond positively to increases in export crop prices and depreciations of the real effective exchange rate. The results he presents suggest no trade-off between food and export crop production which also agrees with other empirical findings of a positive correlation between the growth in export crops and that in food crops (von Braun and Kennedy, 1987 cited in World Bank, 1995 : 148). He attributes this to several reasons.

> "First, food crops can benefit from applications of fertilizer to export crops when they are grown together or in succession. Second, higher income from export crop production can lead to higher investment in food crops. Third, a better policy environment, proxied by higher export prices and more competitive exchange rates, helps both export and food crops by promoting growth and thus increasing aggregate demand" (Jaeger,1992 :16).

The aggregate agricultural supply response in the short run can be very low even if individual crop responses are fairly high. Binswanger explains that in the short run the supply of the main factors of agricultural production tend to be fixed and to get a large response, more of these resources must be devoted to agriculture - something difficult

to do in a short period of time. Therefore, a relative price shift in favour of one crop shifts factors of production into that crop at the expense of another. But over the long run (and long can be ten to twenty years) the supply response can be very large, with less rural outmigration and greater investment in agriculture, roads, markets, education and health (Binswanger, 1992 : 122). The magnitude of the supply response is higher when the price of a particular crop is increased relative to others than when the prices of all agricultural products are raised relative to the prices of industrial products (Streeten, 1987 : 14).

The supply response of agriculture is also affected by exogenous factors but it is particularly difficult to isolate the structural adjustment impacts on agriculture from these factors. One of such is the demand for a country's export crops which is important because of the emphasis on the trade liberalisation policy of structural adjustment programmes and the fluctuating nature of the world market prices of agricultural commodities. The other, the weather, is an exceptionally significant factor in the mainly rainfed Sub-Saharan African agriculture (Jaeger, 1992 :31; de Haen et al, 1992 : 195).

2.3 FOOD SECURITY

Generally, macro-economic reforms under structural adjustment cover only tradable commodities and exclude the food sub-sector since food is treated as a non-tradable commodity. The low public investments in agriculture and in particular the food sub-sector results in limited technological research in crops for higher yields. The full benefits of the research results have not been realised in most of Africa because the research agenda centred on biological aspects and neglected the equally important policy, storage, agro-processing and marketing problems. The issue of food insecurity is thus becoming increasingly important and more so because of the rapid population growth in developing countries (Asenso-Okyere *et al*,1997 : 3).

Food security is defined as "the ability of countries, regions or households to meet their requirement levels of food consumption at all times" (Siamwalla and Valdes, 1981 quoted in Asenso-Okyere *et al*, 1997 : 2). The three distinguishable elements of food security are: i) seasonal, when food becomes scarce each year during pre-harvest

periods; ii) transitory when a temporary decline in access to food arising from instability in food production and food prices occurs; and iii) chronically when food availability is persistently insufficient to supply an adequate diet or when pervasive poverty precludes access to sufficient amounts of food (Okai, 1997 : 24).

National food security may be achieved by the ability of a nation to produce domestically all the food supplies it requires or by importing food (commercial or food aid) without undue supply risks. Risks may include inadequate foreign exchange earnings, possibilities of untimely deliveries and interference of foreign suppliers for political and other reasons. Asenso-Okyere *et al* (1997 : 6) argue that food aid could be used to meet transient shortfalls in food supplies due to unforeseen circumstances but reliance on food aid to supplement domestic supplies is risky in view of the decreasing food aid around the world. In addition, when food aid forms an appreciable part of total food imports, it can have a dampening effect on local prices and therefore reduce the incentive for domestic production. Consequently, national governments have almost always considered attaining a fairly high level of food self-sufficiency as a better route to reaching food security and sometimes working towards it at almost any cost.

Since the main objective of food security is for the individual is to be able to obtain adequate food needed at all times, and to be able to utilise the food to meet the needs of the body, food security can be seen as having both physical (i.e. supply) and economic (i.e. effective demand) aspects. Donovan (1992 : 49) notes that food security is an income problem and is not best served by a 'food fundamentalism' manifested in an all out drive for food self-sufficiency. At the individual level, food security cannot be improved without reducing the incidence of poverty. He also points out that if the flow of food production technology is maintained, in the context of other good policies, food will be produced alongside the export crops and the more so as export crops generate a good cash flow, especially among smallholders.

Besides natural disasters like drought, bush fires and floods, one of the threats to food security is conflict or war. Food production has declined drastically and in some cases it has not been possible to get food aid to the people because of armed bandits who often ambush personnel of aid agencies (Asenso-Okyere *et al*, 1997 : 5). Higher food prices result in reduced food security for those poor who do not derive

their income from food production, i.e. the urban and many of the rural poor. Pinstrup-Anderson suggests that a change from the goal of maximising agricultural output in SAPs to that of maximising real incomes of the poor can improve food security (Pinstrup-Anderson, 1989 : 101).

It could be concluded that agricultural growth is an outcome of a process in which farmers respond to improved profits. The changes in profits come about by the interplay of prices (both input and output), improved infrastructure and better research and extension services. All these can effectively propel agricultural growth when good macro-economic policies which aim at removing the existing distortions are put in place. This paper is of the stance that both price and 'non-price' factors combined give a greater stimulus for higher growth rates in agriculture than any one of them alone. The changes observed in the price factors generated by reforms in exchange rate, fiscal (especially concerning removal of subsidies), monetary and trade (international and domestic) have got different impact on the traded and non-traded agricultural products in Ghana. A rough estimation of the relative magnitude and direction of changes in the production of these agricultural products would be done based on the above framework. In addition, an attempt would be made to analyse the changes that occurred in the non-price factors like research and extension services and their impact on both food and cocoa production. This paper also argues that increased agricultural growth, in both export and food sub-sectors, almost certainly ensures a high degree of food security (national, regional and local) as food security could be obtained through improved domestic food production and/or availability of foreign exchange earnings from export crops for food imports.

CHAPTER THREE

TRENDS IN AGRICULTURAL PRODUCTION AND POLICIES BEFORE STRUCTURAL ADJUSTMENT IN GHANA

This chapter discusses the situation of the agricultural sector during the two decades preceeding the implementation of SAP in Ghana (in 1983). Beginning with the analysis of the trends in the production of food crops and cocoa, it continues analysing the factors found to be responsible for the decline and concludes by focusing on the attempts made by successive governments to revive the food crop and cocoa subsectors with some specific policies and programmes.

3.1 TREND IN AGRICULTURAL PRODUCTION IN PRE-SAP PERIOD

The agricultural sector in Ghana (including fisheries and forestry) is dominated by the production of crops and livestock, the former being by far more important in terms of its contribution to national economic growth than the latter. The crops produced are of a variety of food and cash crops. The main cash crops include cocoa, oil palm, coffee, cotton and shea butter while those among the food crops are maize, rice, millet, sorghum, cassava, cocoyam, yam and plantain.

The production of the cash crops has been a very important source of foreign exchange earnings and government revenue, particularly that of cocoa. However, the production of cocoa which forms the largest percentage of agricultural exports started declining in the mid-1960s and along with it the decline in foreign exchange earnings. Table 3.1 below indicates that the annual rate of growth of agricultural production decreased from 4.5% in the 1965-73 period to 0.0% in the 1973-83 period. For the same periods, food production decreased from 2.0% to -2.7% while that of cocoa decreased from -1.2% to -7.1%. It could be deduced from these figures that the decline in the growth of agriculture accelerated during the period 1973-83 and cocoa

production fared worse than food production. Even so, the rate of decrease in food crop production per capita got worse from -0.3% to -5.9% with a corresponding decrease in calorie availability per capita from 1.3% to -3.9%. This shows a worsening food insecurity situation during this period.

Table 3.1:

Average annual growth rates of selected basic indicators - 1965-1983 (%)

	Item	1965-73	1973-83
1.	Population	2.2	3.1
2.	Domestic production		
	(a) GDP	3.4	-1.3
	(b) GDP per capita	1.2	-4.4
	(c) Agriculture	4.5	0.0
	(d) Industry	4.3	-7.0
	(e) Services	1.1	-0.3
3.	Merchandise trade		
	(a) Exports	3.5	-6.4
	(b) Imports	-3.3	-8.0
	(c) Terms of trade		-6.5
4.	Cocoa production	-1.2	-7.1
5.	Food sector		
	(a) Food production	2.0	-2.7
	(b) Food production per capita	-0.3	-5.9
	(c) Calorie availability per capita	1.3	-3.9
	(i) from cereals	3.8	-3.3
	(ii) from roots and tubers	-2.0	-1.8
	(d) Protein availability per capita	4.1	-4.0
6.	Inflation		
	(a) Consumer prices	6.3	49.9
	(b) Food (local and imported) prices	6.6	53.2
	(c) Non-food prices	5.8	46.5

Source: Tabatabai, 1986 : 4

3.2 FACTORS RESPONSIBLE FOR THE DECLINE

The decline in agricultural growth that chararacterised the two decades before the implementation of SAP has been traced to both internal and external factors. A number of such factors considered responsible for the decline as government policy, migration of labour, drought, terms of trade and others will be discussed in this section.

3.2.1 Government Policy

The nature and mode of implementation of the development strategy of import-substituting industrialisation adopted by the Ghanaian government immediately after independence in 1957 are often seen as the root cause of the decline in agricultural growth (Pearce, 1992 : 14). The development strategy "urged that state-led industrial growth would be more fruitful than reliance on static comparative advantage, and hence agriculture" (Pickett, 1993 : 52). It involved the continuous squeeze of agriculture through overtaxation especially of the main export crop.

Table 3.2 : Index numbers of Ghana Government expenditure on cocoa sector, 1960/61 to 1968/69

Year	Government expenditure in real terms, 1960/61=100
1960/61	100
1961/62	70
1962/63	16
1963/64	20
1964/65	18
1965/66	30
1966/67	39
1967/68	26
1968/69	31

Source: Manu, 1974 : 269

In spite of its economic importance, cocoa was not given the necessary assistance and government expenditure on the cocoa subsector began to dwindle in the early 1960s. Table 3.2 shows clearly that government expenditure on the cocoa subsector in real terms was only a third in 1968 of what it was in 1960/61. The shift in policy towards the cocoa industry was also reflected in the abandonment in 1962 of the anti-swollen shoot disease[2] campaign started in the 1940s and 1950s to combat diseased trees and this had both short and long term adverse effect on cocoa output. In addition, farmers' incentive for good husbandry practices was further reduced when the supply of subsidised pesticides used for the control of capsids and other pests and diseases was practically abandoned in 1965/66 (Manu, 1974 : 269).

[2] See foot note in page 5.

Another factor which caused decreased agricultural growth especially that of cocoa was inadequate price incentives. As a tree crop, cocoa has a low short run price elasticity. The impact of current producer price (which is announced before the crop season starts) influenced the efforts put into harvesting and also in farm management practices so that in years of low producer prices many farmers stopped harvesting or weeding and maintaining marginal farms. The low producer prices also discouraged farmers from establishing new farms as well as replanting old trees. By 1982 cocoa farmers were receiving less than 17% of the 1960/61 price in real terms and only 20% of the price at the world market. These were below 50% of the producer prices in Togo and Cote d'Ivoire. (Commander *et al*, 1989 : 108 ; Pickett, 1993 : 67). The price differential thus encouraged smuggling of cocoa across to these countries during the period under review. Even though there are no official records of the magnitude of border smuggling, "conservative estimates put the figure at between 10 - 20 thousand tons per year" (Manu, 1973 : 271). One estimate suggests that between 8 and 12 per cent of cocoa output was marketed outside of Ghana through the 1970s (Commander *et al*, 1989 : 108).

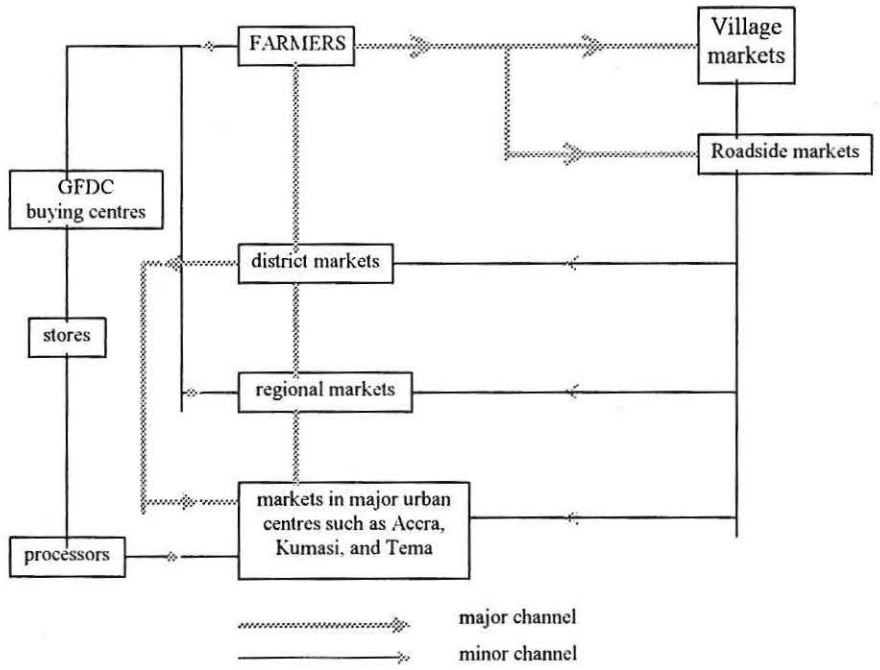
Table 3.3 : Trends in producer prices (in cedis) of cocoa and competitive crops in Ghana

YEAR	Cocoa per headload (Pco)	Maize per 220 lbs (Pm)	Cassava per 200lbs (Pca)	Plantain per bunch (Pp)	Pco/Pm	Pco/Pca	Pco/Pp
1960/61-64/65	5.4	8.6	2.5	0.4	0.63	2.16	13.50
1965/66-69/70	7.0	8.3	3.7	0.5	0.84	1.89	14.00
1970/71-71/72	8.0	14.6	4.5	0.8	0.55	1.77	10.00
1972/73	9.2	18.4	6.0	1.1	0.50	1.53	8.36
1973/74	0.5/12.0	20.0	7.2	1.1	0.56	1.56	10.23
1974/75	15.0	24.9	11.0	1.5	0.60	1.36	10.00
1975/76	16.0	53.1	20.7	2.8	0.30	0.77	5.71
1976/77	20.0	99.0	65.0	5.0	0.20	0.31	4.00
% Change of price ratios	[a comparison of cocoa prices with each of those of the food crops]						
60/65-76/77					-68.3	-85.6	-70.4

Source : Compiled and/or computed from Konings, 1986 : 120

There are indications that many producers of cocoa shifted increasingly to the production of food partly because the producer prices of food crops were rising faster than that of cocoa (refer Table 3.3). Another reason for this shift is the better and numerous marketing channels available to food producers where they were assured of ready payments than what was being provided by the monopsonic Cocoa Marketing Board. An example is given of the food crop marketing channels in the Eastern Region in Figure 3.1. As a result of the terribly reduced foreign exchange earnings there were abnormally low investment levels which affected all sectors by the early 1980s. Instead of increasing, the production of food also suffered reductions but with lower rate of decline in the 1970s (-2.7) than cocoa (-7.1) as shown in Table 3.1 because transportation and other infrastructural constraints resulting from the low public investments allowed only low marketed output of food crops. Moreover, the supply response of the food crop subsector was hindered by other factors like the unavailability

Figure 3.1: Food crop marketing channels in the Eastern Region of Ghana



Source: Baah *et al*, 1994 : 57

of inputs (particularly labour) rather than government pricing policies (Tabatabai, 1986 : 21). This is particularly because food crop marketing has never been controlled fully

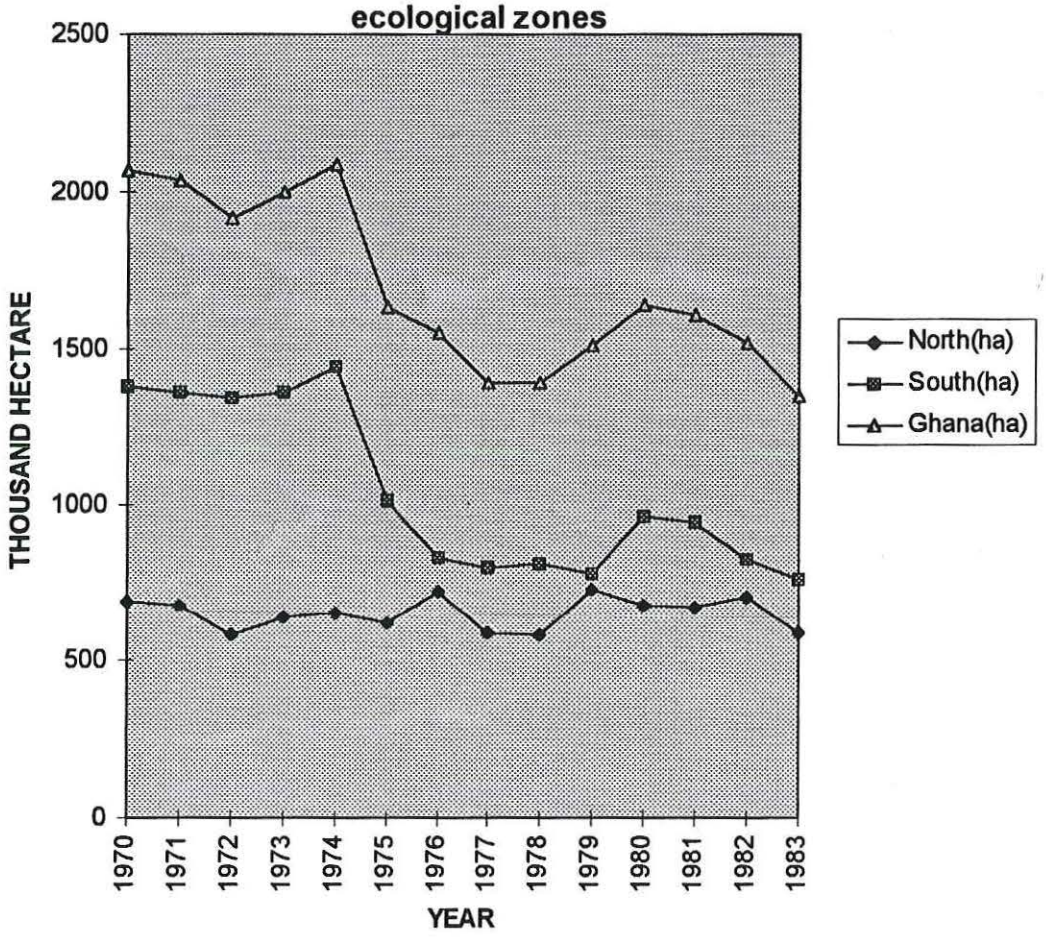
in Ghana but is largely a private business. The Ghana Food Distribution Corporation (GFDC) involved in food crop marketing only acts as a buyer of last resort to farmers handling less than 10% of the total produce (MOA, 1990 : 42).

3.2.2 Migration of Labour

In the 1960s there were a number of foreign workers from neighbouring countries providing labour in the cocoa farms in Ghana. The Aliens Compliance Law of 1969 sent away many of this farm labour and this has been cited by Tabatabai (1986 : 6) as producing or intensifying a labour crisis in the cocoa industry. He writes that the cocoa farmers reacted partly by importing labour from the northern part of the country and partly by abandoning portions of their farms. The north-south migration of labour caused labour shortage and consequently a decline in acreage of food crops in northern Ghana in the early 1970s as is shown in Figure 3.2. The net effect was a decline in both cocoa and food crop acreages since the northern part mainly produces food while only the southern part produces cocoa.

It has been estimated that between 1974/75 and 1981 some "2 million Ghanaians had left for Nigeria and Ivory Coast alone" (UNICEF, 1984 quoted in Tabatabai, 1986 : 22). This was the period when the harsh economic conditions in Ghana were having their toll on almost every household and many 'bread-winners' of households were forced to seek 'greener pastures' elsewhere, especially in the neighbouring countries. Nigeria had just been opened up by the discovery and mining of oil at a time when the world oil situation was in a crisis. The second oil shock in 1979 triggered off another wave of migration to Cote d'Ivoire where economic conditions were better. Since the estimated two million international migrants were mainly from the working age, the fall in the labour force due to the migrations might well be more than one-fifth of the population which was about 10 million at that time (Tabatabai, 1986 : 22). Ghanaians from all walks of life were among these migrants. Tabatabai (1986 : 26) suggests that a large number of the international migrants might have come from the rural areas and also that "some of these rural migrants may have gone to towns and replaced the urban people who left the country". It appears the rural workforce did decline and so did the cultivated area of food crops.

Figure 3.2
Total area under the eight major food crops by agro-ecological zones



Source: Adopted from a figure (without the use of a table) in Tabatabai, 1986 : 10

Considering the fact that the substantial decline in acreage started in 1975 (see Figure 3.2) and as soon as the migrants returned and were settled the cultivated area did increase greatly (in 1984), give an indication of the impact of the migration of agricultural labour on agricultural growth. Tabatabai also points out that the loss of labour appears to have affected only the southern part of the country, a fact which is suggested by the more sharp decline in acreage in the south as compared to that in the north clearly shown in Figure 3.2 (Tabatabai, 1986 : 27).

3.2.3 Drought

Ghanaian agriculture being rainfed is highly susceptible to changes in rainfall amounts and patterns. Agricultural growth was adversely affected by droughts which occurred in the mid-1970s and the early 1980s (Pickett, 1993 : 74). Throughout the 1970s, agricultural growth has been declining but the food crop subsector fared less badly than the cocoa subsector as has already been discussed above. However the drought of the 1980s (1981 - 1983) which was more devastating (the worst for many decades) and ended in widespread bush fires left the country with very little food supplies. Large tracts of cocoa farms were also burnt down. The drought and fire damage contributed to agricultural output decline of over 6% for 1982 and 1983 (Pearce, 1992 : 15 ; Commander *et al*, 1989 : 108). Adverse weather conditions thus aggravated the already declining agricultural production.

3.2.4 Terms of Trade

The decline in agricultural terms of trade of Ghana's agricultural exports caused primarily by falling world cocoa prices is one major external factor that has contributed to the poor agricultural growth in the 1970s and the early 1980s. Between 1970 and 1984 the terms of trade declined by 1.1% per annum (Commander *et al*, 1989 : 108). Because the nation depended so much on cocoa for foreign exchange it is sometimes suggested that its economic problems started with a fall in the terms of trade of cocoa in the early 1960s.

The reduction in government revenue resulting from the unfavourable terms of trade, together with economic mismanagement, discouraged the production of tradables as the currency became highly overvalued. In the process rent-seeking by traders and others became more attractive than direct production so that agriculture and in particular cocoa production fell sharply (Pickett, 1993 : 55).

3.3 POLICIES OF GOVERNMENTS TO REVIVE THE SECTOR

Following from the above analysis of the poor state of the agricultural sector, it was obvious that something had to be done and various governments took up the challenge

to design and implement programmes to revive the sector. The factors they identified as being responsible for the decline in growth were different for the food and cocoa subsectors and so were the programmes to resuscitate each of the subsectors. We shall look at these in turn.

In order to arrest the situation of declining agricultural production, three main programmes were implemented during the 1970s and the early 1980s. These were the Comprehensive Rural Development (1970-71), the Operation Feed Yourself/ Operation Feed Your Industries (1972-74 & 1975-78) and the Crash Agricultural Programme or New Deal Plan (1980-81). All these programmes sought to improve the output of agriculture in general (including raw materials for industries and export crops) but they emphasised on the production of food crops since the decline in food supplies had particular political implications and thus of much concern to policy makers during this period.

3.3.1 The Food Subsector

The policy instruments relating to the development of the food subsector in the Comprehensive Rural Development Programme included a) the disengagement of state controlled production; b) the redirection of financial savings into the official credit channels; c) the establishment of the Agricultural Task force in March 1970 to work alongside the Food Marketing Corporation in the marketing of food; and d) improvement in feeder road network to ease transportation problems facing farmers in food marketing. Unfortunately, appropriate steps were not taken to redirect resources (such as credit) to small scale farmers who form the backbone of the food subsector in Ghana. The result was that state production and large scale farmers many of whom were absentee farmers benefited from the subsidised credit and other incentives offered by the programme to the disadvantage of small scale producers (Beckman, 1981 : 152).

The main aim of the Operation Feed Yourself (OFY) programme was the attainment of food self-sufficiency particularly in maize, rice, cassava, plantain, millet, sorghum and some vegetables while that of the Operation Feed Your Industries was to step up the production of agro raw materials to adequately feed the industries. In this programme, credit channels were expanded by the establishment of regional and district

offices of the development banks, for example, Agricultural Development Bank. The programme also reorganised the old State Farms and Food Production Corporation. The objective of both programmes were not realised because funds continued to be pumped into the mismanaged state production units while small scale farmers were neglected (Bequele, 1980 : 33; Gidner and Olorunsola, 1980 : 234).

The deplorable state of food production by the end of the 1970s called for a crash programme for increased food supply termed the New Deal Plan to be implemented in 1980. Among the policy instruments used are: a) the setting up of farm supply centres at regional and district levels; b) making agricultural extension agents mobile with the provision of vehicles, motor bikes and bicycles to be able to reach more farmers; c) ensuring the efficient channeling of credit to farmers; and d) the improvement of irrigation facilities. A major defect of this programme which militated against its success was that necessary inputs for production like fertiliser, improved seeds and tractors did not go into the identified production potential areas to stimulate the increased production of specific crops. Even the traditional implements of hoe and cutlass were in short supply while huge amounts of money went into the importation of tractors and combines only to be underutilised or broken down within a short time, due to their unsuitability and for the lack of spare parts (Odompleh, 1986 : 35).

3.3.2 The Cocoa Subsector

Among the programmes specifically designed and implemented to save the cocoa industry include:

a) Increases in producer prices as an incentive
b) Rehabilitating and replanting of old cocoa farms
c) Establishment of cocoa plantations under government management
d) Mass spraying of cocoa farms
e) Encouraging the establishment of additional chemical plant to produce insecticides

(Nyanteng, 1980 : 103).

Until 1965/66, the local producer price of cocoa had been falling consistently which, as has been discussed earlier, caused a decline in the output of cocoa. The nominal producer price has since been rising but not the real producer price (see Table

3.4). Thus the prices given to farmers have always been below what could provide adequate incentive to produce in the face of the prevailing inflation. Considering the fact that other competing crops were fetching higher at the market made the low increments in the cocoa producer prices all the more inadequate to encourage farmers to continue using scarce resources to produce cocoa. For instance, in the period 1960/65 - 1976/77 the relative producer price of cocoa with respect to those of other competing crops like maize, cassava and plantain fell by 68.3%, 85.6% and 70.4% respectively as Table 3.3 above depicts. These indicate that the producer prices of the food crops have been rising faster by those percentages than that of cocoa. In 1978/79 when the producer price was increased from 40 cedis to 80 cedis per 30kg the farmers openly protested against the inadequate increment and asked for 150 cedis instead. However the government did not grant that request because of other interests and increases in producer price has not generated the necessary incentive to increase production (Nyanteng, 1980 : 104).

Table 3.4: Nominal and Real Producer Price of Cocoa in Ghana, 1961/62 to 1977/78

Crop Year	Nominal Producer Price (in cedis) per load	Consumer Price Index 1963 =100	Real Producer Price (in cedis) per load	Price (in cedis) that would maintain incentive per load
1961/62	5.40	95.9	5.63	5.40
1962/63	5.40	100.2	5.17	5.64
1963/64	5.00	116.8	4.11	6.58
1964/65	5.00	142.1	3.37	8.00
1965/66	4.00	170.9	2.24	9.62
1966/67	5.00	159.0	3.02	8.95
1967/68	6.50	163.7	3.81	9.22
1968/69	7.00	181.0	3.71	10.19
1969/70	8.00	187.9	4.08	10.58
1970/71	8.00	200.8	3.82	11.31
1971/72	8.00	223.0	3.44	12.56
1972/73	10.00	252.0	3.81	14.19
1973/74	12.00	303.8	3.79	17.11
1974/75	15.00	376.5	3.82	21.20
1975/76	16.00	567.7	2.70	31.97
1976/77	20.00	1169.1	1.64	65.83
1977/78	36.29	2025.4	1.72	114.02

Source: Nyanteng, 1980 : 16

While not guaranteeing cocoa farmers a better selling price, the government still saw the need to increase cocoa output by modernising the production method which would entail higher production costs. Therefore direct state intervention in cocoa production became inevitable in the government's perspective. In 1971, the government began implementing a project whose main aim was the rehabilitation and replanting of old cocoa farms with a loan from the World Bank and other aid organisations. The old cocoa-growing areas of Eastern and Ashanti Regions which had been affected by the swollen shoot disease were chosen in this pilot project. The Eastern Region Cocoa Project (launched in 1971/72) and the Ashanti Cocoa Project (launched in 1975/76) were together to rehabilitate 51,000 acres of existing cocoa land and replant 78,500 acres with high-yielding hybrid varieties by supplying on credit labour services and inputs like seedlings, fertiliser and insecticides. It was also envisaged that in the process farmers would be trained in improved production techniques (Konings, 1986 : 124). However the project was beset with numerous problems such as the bulk of farmer participants being absentee farmers or old in age who appeared to be "finding someone to take care of their farms for them". Some farmers even refused to take over their farms when it was time to do so. Again, the low producer price severely affected the farmers ability to maintain the rehabilitated and replanted farms well enough for higher yields to be realised (Nyanteng, 1980 : 104).

A more direct state intervention in the production of cocoa began in 1975/76 with the establishment of cocoa plantations under the management of the government in various cocoa-growing areas of Ghana. It was started by the Cocoa Marketing Board (CMB) which aimed at establishing 40,000 acres of cocoa plantations and was later (in 1977/78) followed by the Cocoa Production Division of the then Ministry of Cocoa Affairs also acquiring about 19,331 acres for cocoa plantations. The import of this policy was to step up cocoa output as a CMB Newsletter (August, 1977 cited in Konings, 1986 : 128) explained:

> One of the long-term measures to combat the declining trend in production and to maintain Ghana's lead was the Ghana Cocoa Marketing Board itself to embark upon cocoa and coffee cultivation on plantation basis. . . Yield in particular has been quite low on peasant farms.

Currently one acre of a peasant farm produces 300 lbs of cocoa. In contrast, the size of each plantation is expected to be at least 2000 acres while an acre of cocoa plantation is to produce an average of 1000 lbs. The expected increased productivity would mainly stem from the adoption of more scientific method in the establishment and maintenance of plantations.

The plantations were plagued with mismanagement and other problems like land tenure problems and so were not able to make any significant contribution to the recovery of Ghana's declining output. Worse still, in the establishment of the plantations many peasants were driven away from fertile cocoa and food producing lands (Konings, 1986 : 129). Nyanteng (1980 : 106) stresses that individual cocoa farmers would continue to produce the bulk of cocoa output in Ghana, a fact which made squeezing out resources (in terms of land and money) from peasants to set up plantations even more undesirable.

As has been discussed earlier, the low producer price of cocoa left farmers unable or unwilling to properly care for their farms. A number of farms which got infested with capsids were not sprayed resulting in the reduction in yields. The government in 1978 implemented a programme to spray the entire cocoa area in the country at subsidised charges to farmers. Unfortunately, the whole exercise was abandoned not long after it was started because of poor management. Farmers were not willing to pay the fee for spraying because they were not adequately educated on the exercise before it started (Nyanteng, 1980 :105).

In addition to the low price, inadequate supplies of inputs, particularly insecticides, has been identified as being a cause of the decline in cocoa output. To make insecticides more available to farmers in sufficient quantities and right when they are needed, the government started encouraging the establishment of an additional chemical formulation plant (besides the ICI plant at Tema) to produce insecticides (Nyanteng, 1980 : 103).

In the pre-SAP period, starting from the 1960s through the early 1980s, the Ghanaian agriculture was in crisis with stagnation and slump in growth in both cocoa and food crop production. Among the factors which contributed to this state of affairs are those of internal and external nature. The internal factors include labour migration, inappropriate government policies and/or domestic policy mismanagement which

discouraged agricultural production and cocoa production in particular. The agricultural performance declined rapidly as these internal causes combined with such external shocks as droughts and persistent and often sharp deteriorations in the terms of trade during that period.

In an attempt to revive the agricultural sector, various policies and programmes were planned and implemented by successive governments for cocoa and food production. All the programmes, while aiming at resuscitating the food crop subsector through increased smallholder production, directly and/or indirectly emphasised on large scale production instead of developing small scale production and thus ended up not achieving the desired impact on production. Rather, state resources like subsidised credit were diverted to large commercial farmers who were often absentee farmers and small scale farmers became more disadvantaged. The story of the cocoa subsector was not different. Instead of addressing the issue of the non-incentive cocoa producer price and its unfavourable domestic terms of trade, governments sought to improve the subsector by such means as direct state intervention in production, mass spraying of cocoa farms, and small increases in producer price which the government could comfortably allow. All these turned out to do very little to improve the situation of falling cocoa production.

CHAPTER FOUR

INTRODUCTION OF SAP IN GHANA

Ghana was one of the most prosperous countries in Sub-Saharan Africa and was considered a middle income country at independence in 1957 with the highest per capita income in the region (Sarris and Shams, 1991 : 1). Since independence the Ghanaian economy has slowly but consistently shifted from prosperity to decline. The relative neglect of the agricultural sector is seen as a major contributing factor to this process of economic deterioration (Sarris and Shams, 1991 : 2). Since agricultural exports, particularly cocoa was (and has continued to be until recently) the main source of foreign exchange earnings, Pearce (1992 : 14) argues that more than any other factor the taxation of the cocoa sector "initiated and sustained a deteriorating economic cycle, culminating, in the early 1980s, in a major economic crisis". The reduction in the tax base as cocoa production fell severely affected government expenditure on both social and physical infrastructural maintenance which further aggravated the deterioration in agricultural growth.

Toye (1991 : 151) argues that the economy would not have performed so dismally if the surplus created from the overtaxation of cocoa "had been used to create profitable non-traditional export industries, or efficient domestic import-substitution industries". The industries set up were rather inefficient and these, together with numerous inefficient parastatals, were drains on the limited sources of public finances. Considering the extent of economic mismanagement, it is doubtful whether economic disaster would have been avoided even if there had not been droughts (in the mid-1970s and the early 1980s) and also if there were more favourable international terms of trade (Pickett, 1993 : 74).

By mid-1982, it was very obvious that the economy needed a major stabilisation and adjustment measures to save it from total collapse. Consequently in April 1983 the government announced its adoption of a very pragmatic structural adjustment

programme (whose implementation took effect the following year) with financial assistance from the IMF and the World Bank (Pearce, 1992 :15).

4.1 OBJECTIVE AND POLICY INSTRUMENT OF SAP

The economic reform was in two phases. The first phase termed Economic Recovery Programme I (ERP I) ran from 1983 to 1986 and the second termed ERP II covered the period 1987 - 89 with a more sectoral focus (Pearce 1992 : 16 ; Toye, 1991 : 159). The specific objectives of the ERP I were to

a. stimulate higher outputs and increase exports especially for agricultural produce
b. reduce the level of inflation and improve international creditworthiness
c. rehabilitate the ruined productive and social infrastructure such as education and health

For the ERP II, the objectives were principally to

a. sustain the progress made in the ERP I
b. raise savings and investment rate
c. upgrade the quality of management in the public sector

(Toye, 1991 : 159; Pearce, 1992 : 16)

The key policy instruments of the SAP include

i) Progressive exchange rate adjustment and liberalisation to reduce the price distortion in both the productive sectors and the market for consumer goods.
ii) Liberalisation of both domestic and international trade
iii) Financial reforms to encourage savings and investment
iv)Adoption of measures of fiscal and monetary discipline to reduce inflationary pressures
v) Privatisation and state enterprises reform

The Ghanaian government embraced these policy reforms and implemented them in ernest. In the early stages of the ERP, most of the external financial support came from the IMF and the World Bank but the seriousness with which the policies were implemented attracted the support of other bilateral and multilateral donors (Pickett, 1993 : 76). The success of the structural adjustment programme evidenced in

the impressive macroeconomic performance "has been acclaimed as the most remarkable in recent years" (Frimpong-Ansah, 1991 :148).

4.2 AGRICULTURAL SECTOR REFORM POLICIES

The policy instruments implemented during the SAP effected agriculture immensely, especially the exchange rate, removal of subsidies and the fiscal and monetary reforms. In addition to these, specific agricultural sector reforms carried out were in the areas of trade (external and domestic) liberalisation and institutional reforms. During the first phase of SAP (i.e. ERP I), the cocoa subsector received much attention while reforms were later implemented in the rest of the agricultural sector during the second phase (ERP II).

4.2.1 Devaluation of the Cedi

In an attempt to correct the distortion in the agricultural sector, the government carried out a massive initial 89% devaluation of the cedi[3] in April 1983. This was followed by a series of devaluations such that within a month the cedi had devalued from 2.75 (a rate that had been kept constant for four years) to 30.0 to the US dollar. Further devaluations brought the currency down to 90 cedis to the US dollar by January 1986. In September the same year, a 'two-tier' or two-window system was introduced of which the officially administered rate continued to be used for cocoa sales, petroleum purchases and debt service. In February 1987, the dual exchange rate was unified and about 50% of goods and services imported under Special Import Licence were funded through the auction for foreign exchange (Toye, 1991 : 177). The result was that it became possible for more goods, especially spare parts, to be imported, as Sarris and Shams (1991 : 6) put it "alleviating some of the supply constraints responsible for strangling developments in the industrial and agricultural sectors".

Following the exchange rate devaluations, the prices of many goods, particularly those which are administered such as petroleum products increased, affecting the transportation of agricultural inputs and outputs. The exchange rate

[3] The cedi is the local currency of Ghana.

reforms also included the introduction of incentives for exporters. Exporters of non-traditional exports were allowed to retain a proportion of their foreign exchange earnings for their own use as an incentive which was later extended to cocoa producers (Pearce, 1992 : 16). The devaluations made it possible for increases in the producer price of cocoa every year because of the increasing cedis export prices received by the Cocobod. For instance, nominal prices rose from 5,333.50 cedis in 1982 to 224,000 cedis in 1990 as shown in Table 4.1. In US dollar terms, there were rather decreases in the producer prices due to the devaluations i.e. from 1939.45 in 1982 to 686.53 in 1990. However, the producer share of the world market prices after it had fallen from an all-time high of 111.3% in 1982 and 96.4 in 1983 (as a result of excessive overvaluation) to 34.5% in 1984 rose gradually to 54.0% in 1990 during a period when the world market prices were falling. These increases substantially improved the incentive to produce cocoa in Ghana. Coffee, cotton and tobacco prices have also been increased considerably (Sarris and Shams, 1991 : 6).

Table 4.1 : Producer share of world market cocoa prices in Ghana, 1972 - 1996

Year	Producer Price* (cedis/mt)	Exchange Rate (cedis/US$)	Producer Price* (US$/mt)	World Price (US$/mt)	Producer Price as a % of World Price
1972	406.80	1.28	317.81	638	49.8
1973	481.40	1.17	411.45	1122	36.7
1974	611.20	1.15	531.48	1562	34.0
1975	761.20	1.15	661.91	1254	52.8
1976	951.60	1.15	827.48	2046	40.4
1977	1,206.00	1.15	1048.70	3784	27.7
1978	1,726.60	1.75	986.63	3388	29.1
1979	1,601.40	2.75	582.33	3278	17.8
1980	3,308.10	2.75	1202.95	2603	46.2
1981	3,936.30	2.75	1431.38	2077	68.9
1982	5,333.50	2.75	1939.45	1742	111.3
1983	20,000.00	9.79	2042.90	2119	96.4
1984	30,000.00	36.25	827.59	2396	34.5
1985	56,000.00	54.37	1029.98	2255	45.7
1986	85,000.00	89.21	952.81	2068	46.1
1987	150,000.00	162.37	923.82	1996	46.3
1988	165,000.00	202.34	815.46	1589	51.3
1989	174,000.00	270.01	644.42	1248	51.7
1990	224,000.00	326.28	686.53	1271	54.0
1991	163,200.00	367.73	443.80	1195	37.1
1992	224,000.00	437.09	512.48	1078	47.5
1993	251,200.00	648.98	387.07	1100	35.2
1994	308,000.00	956.73	321.93	1386	23.2
1995	700,000.00	1200.40	583.14	1430	40.8
1996	840,000.00	1637.24	513.06	1452	35.3

Source : Cocoa Services Division (CSD), Accra; Bank of Ghana ; and International Statistics Yearbook, 1997

* Nominal producer price

4.2.2 Removal of Subsidies

The government agreed with the World Bank to undertake a programme of gradual removal of subsidies on fertilisers and eliminate them completely by the end of December 1989. This was partly to reduce fiscal imbalances and partly to help reduce wastage in consumption. The gradual subsidy removal agreed upon started in 1983 (after it has been kept constant at 45% for three years) resulting in increases in fertiliser prices which could also be a reflection of the declining value of the cedi (Table 4.2). In April 1984, the removal of the subsidy on fertiliser appeared to be complete and final only to resurface with a level of 60% the following year while the nominal price was still being maintained. Even by the end of 1986 a subsidy element still remained to cover handling and distribution costs. The removal of subsidy on fertiliser which has only been partial until 1990 has caused a considerable reduction in its consumption because of its high cost (Sarris and Shams, 1991 : 6; Toye, 1991 : 175).

Table 4.2 : Fertiliser Price and Subsidy levels, 1970 - 90

Year	Current Prices (cedis per 50 kg bag)		Average Subsidy Level (in %)
	15-15-15	Ammonium Sulphate	
1970	2.80	2.00	50
1971	2.80	2.00	54
1972	2.80	2.00	65
1973	2.80	2.00	72
1974	2.80	2.00	85
1975	2.80	2.00	86
1976	2.80	2.00	82
1977	6.50	5.00	62
1978	7.50	6.00	--
1979	10.00	8.50	80
1980	15.00	12.00	65
1981	30.00	25.00	45
1982	30.00	25.00	45
1983	58.00	45.00	45
1984	440.00	295.00	0
1985	440.00	295.00	60
1986	700.00	490.00	56
1987	1380.00	820.00	42
1988	2300.00	1600.00	30
1989	3350.00	2350.00	15
1990	4200.00	3100.00	0

Source: Ministry of Food and Agriculture, Accra

The withdrawal of subsidies on other farm inputs like insecticides was complete in 1987 and this, together with devaluations to a large extent, led to a 400% increase in price. Subsidies on petroleum products were also removed for the prices to be raised in line with exchange rate depreciations in spite of public protests (Toye, 1991 : 191).

4.2.3 Fiscal and Monetary Policy

An important aspect of the economic reform was to bring down fiscal deficits which had risen to unprecedented levels of between 10-12% of GDP per year (World Bank, 1984 : 4). In this connection, tax reforms were employed including the widening of the tax net, increasing petrol duties and the elimination of subsidies on various commodities and services such as water and electricity. Government revenue was improved due to higher export duties in the wake of the devaluations. To rejuvenate the physical and social infrastructure, the restructuring of key public sector expenditures including agriculture was undertaken involving the increase in capital as well as operations and maintenance expenditures (Pearce, 1992 : 16).

The controlled government spending combined with exchange rate policies to give a net result of 84% fall in the money supply in dollars in 1984 with further reductions in succeeding years (Appleton and Collier, 1990 : 31). Efforts were made to set ceilings on monetary expansion. Moreover, the negative interest rates prior to SAP were also allowed to reflect the market value of borrowing and thereby encourage domestic savings (Pearce, 1992 : 17). The government in 1986, launched a three year Public Investment Programme (PIP) "in order to promote economic development and production capacity without setting off inflationary spirals" (Sarris and Shams, 1991 : 7).

4.2.4 Institutional Reforms

Major reforms took place in the cocoa subsector bringing all cocoa-related activities under one umbrella - the Ghana Cocoa Marketing Board (GCMB) which became the Ghana Cocoa Board (Cocobod). Beginning in November 1985 substantial employment cuts took place to reduce the workforce from about 92,000 in 1983 to just under 50,000 by late 1988. This was an attempt to reduce the marketing margin of about

37% to a recommended level of about 15%. Other state-owned enterprises (SOEs) like the State Fishing Corporation, the State Farms Corporation and the Food Production Corporation also had appreciable numbers of their staff retrenched while attempts were made to improve the management of these public institutions. Some of the SOEs (about 32) were put up for divestiture initially and the list expanded to cover another 46 while others such as the Ghana Airways were considered as 'strategic' and were never to be sold (Gyimah-Boadi, 1991 :199).

During the implementation of ERP I, the Ministry of Agriculture (MOA) was found to be too ineffective to handle the new agricultural policy drawn up in 1986. The emphasis of this policy was on small scale farmers for the desired increased production, as a departure from the emphasis of previous governments on large scale capital-intensive modes of production. To ensure agricultural development on a sustainable basis, the Agricultural Sector Rehabilitation Project (ASRP) was launched in 1987 during ERP II to strengthen the MOA. The project was to "initiate a self-sustaining process of rehabilitation so that MOA could give a more effective support to agriculture through an improved implementation capacity" (Sarris and Shams, 1991 : 14). The three main components of the project included the divestiture of state-owned agricultural enterprises; the privatisation of certain MOA services like fertiliser supply and tractor hire; and the reorganisation of extension services. Additionally, financial commitments were made to new policy and planning units, agricultural research, veterinary and irrigation services (Commander, 1989 : 115). The departments under MOA were restructured into specialised units. For instance, the Economic Research and Planning Service was turned into Policy Planning, Monitoring and Evaluation Department (PPMED) and a new Extension Services Department (ESD) was created out of the old Extension Services Unit of the Crop Services Division (Pearce, 1992 : 21).

4.2.5 Trade Liberalisation

Liberalisation policies consisting of "removing controls and regulations in factor, commodity and foreign exchange markets; deregulating domestic commodity markets; reducing tariff and non-tariff barriers; elimination of price controls, non-price allocation

of credit, interest rate ceilings; and reducing restrictions on financial intermediation" were carried out (World Bank, 1984 : 68). Many of these measures were taken under exchange rate adjustments, fiscal and monetary policy reforms as steps towards full liberalisation. Further external trade liberalisation besides the exchange rate adjustments involved the elimination or reduction of tariffs to levels that would encourage domestic production. The government minimised its administrative controls on international trade and liberalised import prices. However, the prices of some selected items like imported rice, maize, sugar and textiles remained controlled even though the restriction on their importation reduced (Pearce, 1992 : 20).

Since the domestic marketing of food crops have never been effectively controlled, domestic market liberalisation under SAP did not involve much. It mainly concentrated on promoting the production of certain strategic crops by increasing their guaranteed minimum prices. These crops include maize, rice, oil palm, cotton and tobacco. Essentially, only the industrial crops among them (i.e. oil palm, cotton and tobacco) had effective price guarantees since the prices of the food crops are largely market-determined (Pearce, 1992 : 20).

It could be concluded that the implementation of the agricultural sector adjustment policies in Ghana went a long way to remove some structural bottlenecks in the cocoa and food crop subsectors being handled by Cocobod and MOA respectfully. In particular, the price distortion against cocoa (the main export crop) caused by the overvaluation of the cedi has effectively been reduced by the bold devaluations carried out. This, coupled with the reduction in taxation and marketing margin of the Cocobod, has provided increased price incentives to cocoa producers. Food crop producers have also benefited from the improved research and extension services as a result of the restructuring of the MOA and the implementation of the ASRP.

CHAPTER FIVE

IMPACT OF ADJUSTMENT POLICIES ON THE PRODUCTION OF COCOA AND FOOD CROPS

In the previous chapter, the introduction of SAP and the policy measures implemented in Ghana were discussed with an emphasis on the agricultural sector policies. In this chapter, an examination of the impact of these policies at the meso-level (in the Eastern Region of Ghana) will be done focusing on the changes that have taken place in the incentive structures for food crop and cocoa farmers and how these have affected the production levels in each subsector. Particular attention will be paid to the changes in the output prices of cocoa and the major food staples which are considered non-tradables and also the changes in the prices of inputs such as fertiliser and labour. In addition, an analysis of the changes in production of cocoa and the selected food crops will be done to find out whether these are due to yield or acreage changes. Finally, the food security (only in terms of food availability and not access to food) implications of the changes in production will be considered.

5.1 CHANGES IN PRICES OF FOOD CROPS AND COCOA

The real producer price indices of five major food staples (non-tradables) and cocoa in the Eastern Region for the period 1972 to 1996 are presented in Table 5.1. The period under consideration has been divided into two: Pre-SAP (1972-1982) and Since-SAP (1983-1996) for a proper analysis of the impact of SAP policies by a 'before and after' comparison for both food crops and cocoa.

An examination of the table reveals that the percentage changes between the Since-SAP and Pre-SAP periods for all the food crops are negative ranging between -3 and -31 for plantain and yam respectively. This indicates that the average real producer prices are less in the Since-SAP period than in the Pre-SAP period in spite of the increases in the nominal prices of all the food crops (Table A 2). This could largely

be due to the fact that general increases in consumer prices resulting from the devaluations have eroded much of the gains in the rise in prices to farmers as has been

Table 5.1 : Real Producer Price Indices of major food crops and cocoa, Eastern Region, 1972 -1996 (1980=100)

Year	MAJOR FOOD CROPS					COCOA
	Maize	Cassava	Cocoyam	Yam	Plantain	
Pre-SAP						
1972	126	157	136	169	117	344
1973	134	175	172	203	176	407
1974	69	95	89	121	93	259
1975	92	134	115	182	88	322
1976	138	215	149	179	136	268
1977	136	142	173	151	202	146
1978	75	112	162	104	182	122
1979	66	99	108	97	17	71
1980	100	100	100	100	100	100
1981	86	180	104	81	76	54
1982	72	121	95	99	76	61
Since-SAP						
1983	165	225	213	132	144	103
1984	77	93	91	75	121	110
1985	61	79	50	110	85	187
1986	85	126	131	104	65	227
1987	89	217	157	115	124	287
1988	83	119	127	98	129	240
1989	51	83	120	95	118	202
1990	69	135	122	95	127	190
1991	58	82	101	85	94	117
1992	63	78	96	83	106	146
1993	51	97	108	86	152	131
1994	53	84	104	84	142	128
1995	52	80	87	70	169	168
1996	48	58	61	66	107	150
Averages						
Pre-SAP	99	139	128	135	124	196
Since-SAP	72	111	112	93	120	170
% Change b n Since-SAP & Pre-SAP	-27	-20	-13	-31	-3	-13

Source : Author's own computations using Table A2 and data collected from Cocoa Services Division, Accra

discussed in Chapter 4. A striking feature of the trends in real producer price indices is the unprecedented sharp increases in the indices in 1983 over those in 1982 for all the food crops. This is accounted for by the severe drought and the accompanying widespread bush fires in 1982 and 1983 (Chapter 3) which reduced food supplies so much so that the excess demand for them forced prices to rise. It was followed by two years of generally lower price indices than the normal trend as food production

increased remarkably in those years due to favourable weather, among other factors (discussed in Chapter 3). The 'abnormal' trend in price indices for the early years of structural adjustment is not related to adjustment policies but rather due to changes in weather conditions which is consistent with Jaeger's (1992 : 31 quoted in Chapter 2) assertion that such exogenous factors can also affect agriculture and the impact of the weather on the mainly rainfed agriculture in Ghana, and the Eastern Region for that matter, has been significant.

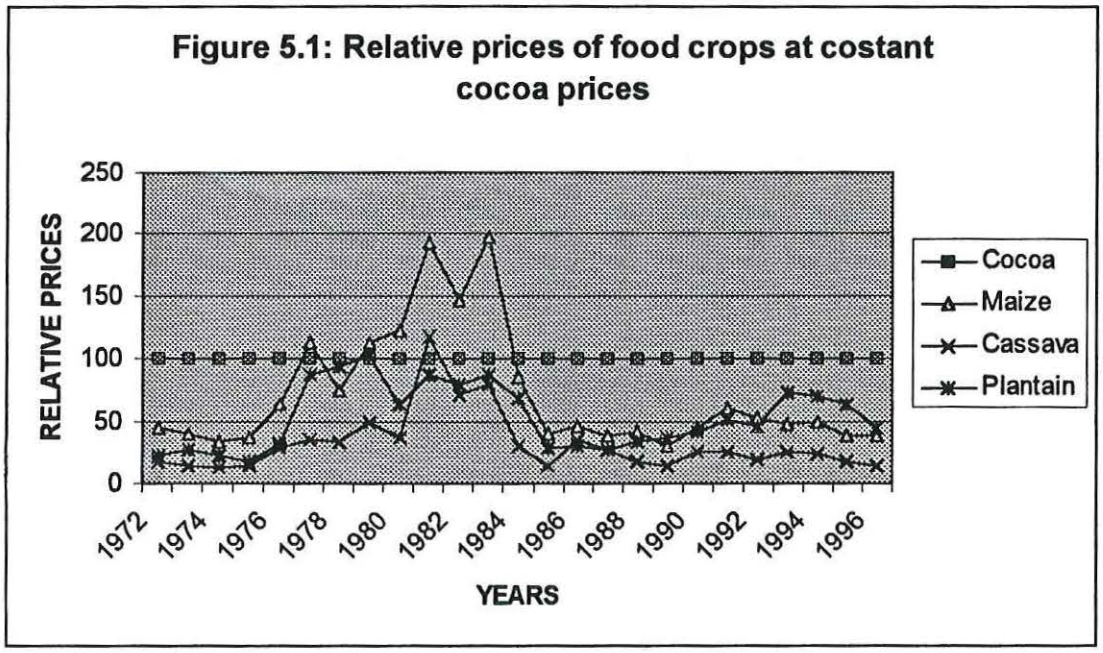
Cocoa also has a negative percentage change in real producer price indices between the two periods (i.e. –13). At a glance, this appears to be a contradiction of the result of the work done by the World Bank on export crops of 27 adjusting countries in Sub-Saharan Africa in which Ghana has the highest positive percentage change of over 90 (World Bank, 1994 : 78). The discrepancy arises from the different lengths in the periods considered. The 1981-83 period used by the World Bank happens to have the lowest real producer price indices in the history of the cocoa industry while the period of structural adjustment up till 1991 also covers the better years since the introduction of SAP in terms of favourable producer price indices. The low real producer price indices in 1979 to 1982 are a reflection of the impact of worsening overvaluation coupled with over-taxation of cocoa at the time. However, in the early 1970s are found the highest real producer price indices ever to be recorded.

The indices began to rise in 1983 following the devaluations of the cedi and a reduction in taxation (as discussed in Chapters 2 & 4). Green (1989 : 38 cited earlier in Chapter 2) argues that "The direct impact of devaluation on agriculture depends on whether the increased (in local currency) border prices are passed on to the producer". In this case, a large portion of the impact of devaluation was passed on to the producers because reforms were made in the Cocobod to reduce its marketing margin and thus increase producer share of world market prices (see Chapter 4). The real producer price indices after rising to the all-time high of 287 in the Since-SAP period begins to fall in 1988. The fall in world market price of cocoa since 1986 (Table 4.1) could be the main reason behind the reducing real producer price indices.

The 'fallacy of composition' phenomenon resulting from the emphasis of export crop production under SAP is a major contributor to the depressed world market prices

of cocoa. While competing producers have been increasing their cocoa exports to increase the supply at the world market, "international cocoa users have also been finding ways to substitute more cocoa butter with cheaper vegetable oils" reducing the demand and consequently the price (Raikes, 1997 : 70). It goes to confirm that other exogenous factors (and in this case, world market prices of cocoa) can influence agriculture, particularly export crops as Jaeger (1992 : 31) points out (quoted earlier in Chapter 2).

Figure 5.1 shows the relative prices of some representative food crops (maize, cassava, and plantain) at constant cocoa prices. The figure indicates that cocoa prices have always been higher than those of food crops except between 1977 and 1983 when some food crops enjoyed better terms of trade than cocoa. As has been explained earlier, those were years of overtaxation of the cocoa subsector coupled with worsening overvaluation of the cedi which affected only tradable goods. The devaluations and decreases in taxation have helped to restore cocoa prices to their lead of a clear 50% and above over those of food crops in the Since-SAP period except for plantain in three consecutive years (1993-95) and maize in 1991 and 1992. Maize prices far outstripped those of cocoa prices because while cocoa suffered under heavy taxation, domestic cereals including maize enjoyed some protection from international competition (MOA, 1990 :19).



Source: Constructed using data from Ministry of Agriculture and Cocoa Services Division

5.2 CHANGES IN INPUT PRICES

Crop farmers are concerned with the availability and affordability of such inputs as suitable land area, labour, cutlass, hoe, seeds (planting material), agro-chemicals, tractors and their accessories, credit, fuel for transportation as well as management. The majority of farmers in the Eastern Region employ traditional methods of farming and as such tend to use little of the modern inputs like improved seeds, tractors and agro-chemicals. However, most cocoa farmers use agro-chemicals but these are limited to insecticides and fungicides and not fertilisers (until recently) while the little amount of fertilisers used are applied on food crop farms. Occasionally, farmers benefit from credit which is normally subsidised. Due to lack of data, this paper will not be able to examine the changes in prices of other important inputs in terms of their usage (for example, insecticides, cutlass and hoe) but only those of labour and fertilisers.

In Table 5.2, the trend of labour cost per manday from 1980 to 1996 is given. While the nominal cost has been rising consistently every year, the real cost and the corresponding indices have fluctuations but generally with a downward trend. It is reported that agricultural labour in the country increased from about 56% in 1980 to over 66% of the total labour force in 1987 (MOA, 1990 : 29) which could be the main

reason why real labour cost indices reduced from 100 to 26 for that period. The increase in agricultural labour might have been as a result of increasing population growth rate and the return of about one million Ghanaians from Nigeria in 1983 most of whom settled in the rural areas (discussed earlier in Chapter Three). The rise in the indices in the early 1990s could be due to reductions in the labour supply and/or increase in labour demand for farming particularly as some farmers began to adopt better management practices and high yielding varieties of crops especially the food

Table 5.2 : Cost of farm labour per manday in Eastern Region, 1980 - 1996

Year	Nominal Cost (in cedis)	Real Cost (in cedis)	Indices (1980=100)
1980	60	2143	100
1981	75	1230	57
1982	92	1243	58
1983	117	709	33
1984	150	649	30
1985	170	669	31
1986	220	694	32
1987	250	564	26
1988	300	515	24
1989	500	686	32
1990	700	700	33
1991	1000	847	40
1992	1200	923	43
1993	1500	924	43
1994	2000	987	46
1995	2500	707	33
1996	3000	633	30

Source: Ministry of Agriculture

crops as extension services improved. This is evidenced in the higher yields obtained for the crops since 1991 (see Table 5.5). As labour in the agricultural sector is "demonstratably mobile, and responsive to quality of life in rural areas as compared to job markets available elsewhere" (MOA, 1990 : 22), the low labour cost indices in mid-1990 could be attributed to increase in agricultural labour resulting from reductions in the rate of rural-urban migration as a response to the improvements in rural infrastructure such as road network and electrification.

Table 5.3 presents the information on the real price indices of two types of fertilisers – i.e. NPK 15-15-15 and ammonium sulphate for the Pre-SAP and Since-SAP periods. The trends of real price indices of both types of fertilisers decrease from 1973 to reach their troughs in 1983 and then begin to rise in 1984 to their peaks in 1989 after

which time they begin to fall again. An analysis of the real price indices for the two periods shows that the real prices of both fertilisers increased tremendously having positive average percentage changes of 173.3 and 152.9 for NPK 15-15-15 and ammonium sulphate respectively.

Table 5.3 : Real Price Indices of Fertiliser in Eastern Region, 1973 – 1990 (1980=100)

Year	NPK 15-15-15	Ammonium Sulphate
Pre-SAP		
1973	505	466
1974	253	233
1975	253	233
1976	168	155
1977	168	166
1978	113	117
1979	100	104
1980	100	100
1981	90	96
1982	74	79
Since-SAP		
1983	64	64
1984	344	298
1985	313	271
1986	399	360
1987	563	431
1988	715	640
1989	831	752
1990		
Averages		
Pre-SAP	182.4	174.9
Since-SAP	498.5	442.4
% Change b/n Pre-SAP & Since-SAP		

Source: Computed from data collected from Ministry of Agriculture

The factors responsible for the high increases in real fertiliser prices include the devaluation of the cedi. As the implicit subsidy on imported goods (in this case fertlisers) due to overvaluation began to be removed by the devaluations of the cedi in 1983, fertiliser prices started rising in 1984. This is consistent with the observation of de Haen *et al* (1992 : 198) quoted in Chapter Two, that devaluation causes increases in input prices. In addition to devaluation, the government abolished the explicit subsidy on fertilisers in 1984 (see Table 4.2) in line with the recommendations of the IMF and the World Bank which support higher grower prices, allowing in theory, full cost

pricing of inputs – implying the removal of all subsidies on inputs, points out Green (1989 : 45). This accelerated the price hikes already started by the devaluations resulting in a jump of about 500% increase between the 1983 and 1984 price indices but more gradual removal of the subsidies was applied afterwards until all subsidies got removed in 1990. Another factor behind the price hikes is the privatisation of input marketing (started in 1988) hitherto done by the Ministry of Agriculture. Until after 1990 the privatisation of input supply achieved was almost insignificant but this contributed in a way to the high fertiliser prices because of the removal of subsidies on fuel which increased transportation costs encountered by the few private retailers.

5.3 IMPACT OF CHANGES IN INPUT AND OUTPUT PRICES ON THE PRODUCTION OF FOOD CROPS AND COCOA

As has been shown in sections 5.1 and 5.2, there have been increases in the prices of both crop outputs and inputs such as fertiliser since the inception of the structural adjustment in 1983. The structural adjustment analytical model which hinges on prices further postulates that getting the prices right would stimulate agricultural growth as Green (1989 : 37 cited in Chapter Two) points out. How far agricultural production has been stimulated or supply response generated by the changes in input and output prices shall be examined in this section. It is important to note that among the factors of production employed by farmers in Eastern Region, fertiliser is the least common and thus the changes in its prices could be expected to have little influence on production. Indeed, it is only the food crop production, particularly maize for which some amount of fertiliser is used. Conversely, there is widespread use of hired labour but the amount used depends on its availability and the profitability of the agricultural enterprise in the previous year. The emphasis would be on the impact of changes in output prices (which Streeten, 1987 : 17 quoted earlier in Chapter Two, describes as performing the functions of signals, incentives and instruments in the economic system) on the production decisions of farmers.

In Table 5.4, a comparison of Pre-SAP and Since-SAP production indices of the major food crops and cocoa are presented. All the food crops show positive average

percentage changes between the two periods while cocoa has a negative average percentage change of –45.3. On the whole maize, cassava and yam registered remarkable percentage changes of 114.6, 99.0 and 114.4 respectively but cocoyam and plantain experienced only moderate increases in the Since-SAP period over the Pre-SAP period (i.e. 22.6% and 36.2% respectively). It appears the production indices of the food crops have a positive correlation with the trends of their nominal prices (see Table A2). While the real producer price index percentage changes are negative (Table 5.1), the corresponding production index percentage changes are positive. A lot of factors may be hiding behind this seemingly 'irrational' behaviour of food producers. One factor may be that the general price hikes which eroded the increases in nominal producer prices in the whole economy did not adversely change relative prices or terms of trade against food crop production. Another could be that farmers had no choice but to produce more to earn enough for their living under the circumstance of general high prices of consumer goods.

There was a general reduction in the production indices from the mid-1970s for all the food crops culminating in their troughs in 1983. These trends are attributed to the reduction in farm labour due to migrations coupled with the effects of droughts as was discussed in Chapter Three. The second of the two droughts (the more severe one), accompanied by widespread bush fires, did a lot of damage to crop production in 1983 which explains the low production indices for all the crops in that year. The combination of good weather, increase in farm labour due to the return of about one million Ghanaians from Nigeria and the high food prices in the previous year generated sharp increases in the production of all the food crops in 1984. It was followed by general reductions in production of the food crops in 1985 because of depressed prices in the previous year. Table 5.4 also reveals another deviation from the general trend of increases in production indices in 1990 as a result of bad weather. The results support Jaeger's (1992 : 31) argument that supply response of agriculture depends also on other exogenous factors like weather.

Table 5.4: Production indices of major food crops and cocoa in Eastern Region, 1973 – 1996 (1980=100)

YEAR	MAJOR FOOD CROPS					COCOA
	Maize	Cassava	Cocoyam	Yam	Plantain	
Pre-SAP						
1973	120	86	206	105	127	176
1974	137	86	235	131	136	151
1975	97	102	171	109	170	168
1976	80	98	120	88	171	159
1977	87	98	112	82	126	117
1978	76	102	113	83	113	95
1979	87	95	117	92	107	115
1980	100	100	100	100	100	100
1981	96	111	98	91	113	112
1982	75	107	97	90	104	83
Since-SAP						
1983	39	85	76	75	100	59
1984	162	118	124	180	168	66
1985	111	124	140	151	184	78
1986	158	155	156	161	148	78
1987	169	147	158	160	147	66
1988	169	150	173	138	155	95
1989	201	179	187	164	141	78
1990	86	139	157	64	107	73
1991	249	220	176	191	263	61
1992	228	237	196	241	106	78
1993	310	257	173	225	138	49
1994	315	303	194	294	236	68
1995	324	313	216	359	248	71
1996	365	333	219	417	278	61
Averages						
Pre-SAP	96	99	137	97	127	128
Since-SAP	206	197	168	208	173	70
% Change b/n Pre-SAP & Since-SAP	114.6	99.0	22.6	114.4	36.2	-45.3

Source: Author's own computations using data from Ministry of Agriculture and Ghana Cocoa Board (COCOBOD)

Contrary to expectations of increases in export crop production due to devaluations during SAP, the percentage change in production indices of cocoa is negative indicating a substantial reduction in production in the Since-SAP period from the Pre-SAP period of 45.3%. Critically analysing the trend in production indices reveals that the early part of the Pre-SAP period (1973-76) has the highest indices and this corresponds to the years of highest producer price (Table 5.1) when cocoa farmers had better incentives to produce. Cocoa production indices started declining from 1977 till the adoption of SAP and its consequent exchange rate reforms in 1983. The

declining cocoa output was basically due to the overvaluation of the cedi serving "as an impediment to producers of export crops and an implicit subsidy for imports of agricultural and non-agricultural goods and services" (CDR, 1995 : 24 cited earlier in Chapter Two), taxation and to some extent, adverse weather conditions. One would have expected a shift from cocoa production to food crop production, but Table 5.4 indicates that there was a general reduction in food crop production also during this period (as has been discussed above) because the change in relative price level of food crops against cocoa was not high enough to induce a major "subsitution between outputs as farm households adjust to changing relative profitability of different outputs" (Ellis, 1992 : 67 quoted in Chapter Two). From 1983, there has been a gradual rise in production indices as the real producer prices began to increase due to the devaluations carried out which improved the incentive to produce.

Though a perennial crop, cocoa production increased modestly within the first few years of devaluations and the subsequent improvements in real producer prices partly because farmers began to take better care of their farms in line with what Jaeger (1992 : 11) observed in his study of African agriculture that the short-run supply response of export crops is low due to the fact that most of the crops are tree crops and farmers can respond to changes in pricing and exchange rate policies in the short-term only by rehabilitating existing farms. Another reason is that border smuggling of cocoa output to neighbouring countries was curtailed which is also consistent with Green's (1989 : 38) assertion that devaluation can be considered a necessary condition for raising export volume, or at any rate, the officially recorded volume as it happened in this case. It is, however, unlikely that a substantial part of these increases was due to a recovery of what would have been lost through border smuggling considering the fact that Eastern Region lies well away from any of the international borders unlike other cocoa-growing regions like Brong Ahafo, Western and Volta where cocoa smuggling was rampant.

By 1989 all the growth in cocoa production had already occurred and the trend since shows a gradual and steady decline. Since adequate price incentives have not been provided over the years to encourage investment in new plantings and even where they were done under the Eastern Region Cocoa Project in the 1970s, most of the

rehabilitated and replanted farms were not properly managed (discussed earlier in Chapter Three), a large proportion of existing farms have trees too old to expand output. The introduction of SAP has not changed the situation much because the increases in producer prices have not been high enough to provide the incentive to plant new high-yielding varieties on a large scale. Worse still, the real producer price has been falling since 1986 due largely to the declining world market prices as discussed earlier.

5.4 COMPARISON OF CROP YIELDS AND ACREAGES

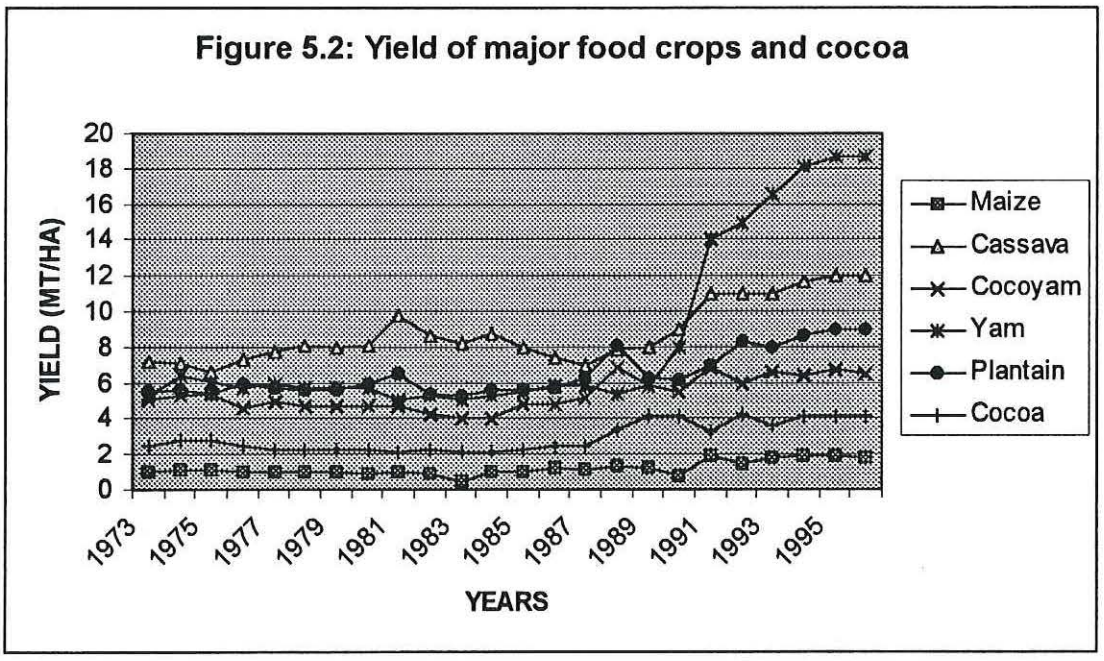
It was established in the previous section that production of all the food crops being studied increased in the Since-SAP period while that of cocoa decreased during the same period. This section will attempt to find out whether the changes in production are due to changes in yield or acreages. Tables 5.5 and 5.6, with the support of Figures 5.2 and 5.3, show the trends of yields and acreages respectively for food crops and cocoa in the Eastern Region.

Table 5.5 and Figure 5.2 indicate that the yields of all the crops including cocoa have been experiencing increases since 1987 from an all-time low point in 1983 (for all the crops except cassava) though with some fluctuations for cocoyam, plantain, maize and cocoa (between 1987 and 1992). In general, the food crops registered higher growth in yields than cocoa, with yam having the highest increases among the food crops and maize the lowest. In contrast, maize had the highest increase in acreage harvested, while cocoa had the lowest among the food crops as Table 5.6 depicts. Cocoa also had a sharp decline in area harvested just when it experienced a significant increase in yield in 1989. It appears for cocoa, the reduction in production since 1989 can be attributed to reductions in area harvested in spite of the modest increases in yields, which started in 1986. For maize, the large increase in production is mainly because of acreage enlargements, and not so much because of improvements in yield. Yam on the other hand, registered a rise in production levels because of remarkable improvements in yield while the area harvested increased only slightly. The other food crops, i.e. cocoyam, cassava and plantain, generally had increases in both yield and

Table 5.5 : Yield of some major food crops and cocoa in Eastern Region, 1973 – 1996 (in metric tonnes per hectare)

YEAR	MAJOR FOOD CROPS					COCOA[4]
	Maize	Cassava	Cocoyam	Yam	Plantain	
1973	1.05	7.14	5.09	5.28	5.47	2.5
1974	1.12	7.10	5.31	6.32	5.62	2.8
1975	1.07	6.67	5.36	6.06	5.42	2.9
1976	1.05	7.28	4.63	5.75	5.95	2.5
1977	1.06	7.81	4.91	6.01	5.74	2.3
1978	1.06	8.06	4.68	5.72	5.63	2.2
1979	1.06	8.03	4.74	5.73	5.64	2.3
1980	0.88	8.08	4.69	5.75	5.95	2.3
1981	1.02	9.83	4.71	5.10	6.48	2.1
1982	0.93	8.71	4.31	5.30	5.42	2.2
1983	0.43	7.50	4.00	5.06	5.26	2.1
1984	0.96	8.80	4.02	5.28	5.61	2.1
1985	1.01	7.93	4.83	5.54	5.61	2.2
1986	1.18	7.43	4.86	5.85	5.69	2.5
1987	1.09	7.00	5.15	5.80	6.34	2.5
1988	1.39	7.88	6.89	5.36	8.05	3.4
1989	1.26	8.02	5.82	5.80	6.32	4.2
1990	0.80	9.00	5.50	8.00	6.19	4.2
1991	1.91	11.00	6.77	14.01	7.03	3.3
1992	1.47	11.02	6.02	15.00	8.34	4.3
1993	1.78	11.04	6.61	16.51	8.00	3.6
1994	1.93	11.65	6.40	18.13	8.60	4.2
1995	1.92	12.00	6.72	18.63	9.00	4.2
1996	1.84	12.01	6.50	18.62	9.03	4.2

Source : Ministry of Agriculture and FAO (Statistics) computer print-outs



Source : Constructed from Table 5.5

[4] The yield figures used for cocoa are the national averages in the absence of reliable yield figures for Eastern Region.

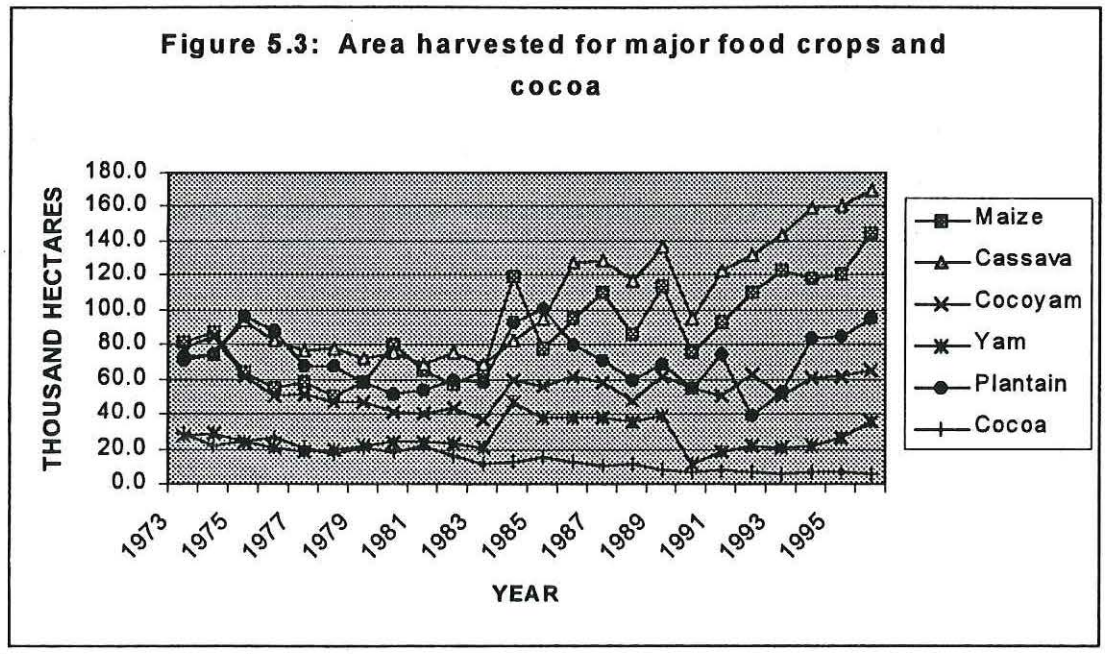
acreage harvested which account for the improvements in the production levels they experienced.

Table 5.6 : Area harvested for some major food crops and cocoa in the Eastern Region, 1973 – 1996 (in thousand hectares)

YEAR	MAJOR FOOD CROPS					COCOA
	Maize	Cassava	Cocoyam	Yam	Plantain	
1973	81.2	73.9	78.1	27.3	71.4	28.8
1974	86.7	74.4	85.3	28.2	74.7	22.1
1975	64.2	94.0	61.6	24.6	96.6	24.6
1976	54.6	82.5	50.1	21.0	88.7	26.0
1977	58.9	76.5	51.7	18.7	67.8	20.9
1978	50.8	77.6	46.5	20.0	67.7	17.7
1979	58.2	72.3	47.4	22.1	58.4	20.4
1980	80.5	75.9	41.1	23.7	51.6	17.8
1981	65.5	69.3	40.2	24.3	53.7	21.9
1982	56.8	75.2	43.7	23.3	59.1	15.5
1983	65.1	69.3	36.4	20.1	58.4	11.4
1984	119.6	82.5	59.7	46.9	92.4	12.9
1985	78.2	95.7	55.9	37.4	101.1	14.5
1986	94.8	127.7	62.0	37.6	80.2	12.8
1987	109.7	128.5	58.9	37.7	71.3	10.8
1988	86.3	116.8	48.5	35.3	59.2	11.5
1989	113.5	136.9	62.1	38.6	68.8	7.6
1990	75.6	95.0	55.0	11.0	55.0	7.1
1991	93.3	122.7	50.0	18.7	75.0	7.7
1992	110.0	132.0	63.0	22.0	39.2	7.4
1993	122.5	143.0	50.6	21.2	53.0	5.5
1994	117.9	159.3	61.0	22.2	84.2	6.7
1995	120.0	160.0	62.3	26.5	85.0	6.9
1996	144.0	170.0	65.0	35.0	95.0	6.0

Source: Ministry of Agriculture, Ghana Cocoa Board and FAO (Statistics) computer print-outs

An analysis of Tables 5.4, 5.5 and 5.6 reveals that for the food crops the improvements in yields and acreages harvested resulting in consistent increases in production all happened after 1989. This could be a result of the institutional reforms and the Agricultural Sector Rehabilitation Project (ASRP) launched in 1987 with the objective of improving research and extension services as discussed in Chapter 4. For instance the adoption of a unified extension system and the provision of vehicles and motor bikes to extension agents have helped to improve the extension staff/farmer ratio from about 1: 4,500 before 1987 to 1: 1,800 in 1997, and extension coverage. The usual problem of scarcity of yam planting material has been partially solved by the yam minisett technique being extended to farmers, making it possible for yam yields per



Source: Constructed from Table 5.6

hectare to increase significantly. The release of the new high yielding varieties of cassava and maize may be the factor accounting for the improvements in the yields of these crops. It is important to note that the supply response of food production to these non-price factors (i.e. research and extension services) has been significant during structural adjustment. This supports Chhibber's (1989 : 55) observation that the extent of the supply response or the price elasticity of supply depends also on another set of critical variables—the non-price factors including research, extension and transport infrastructure.

5.5. IMPACT OF CHANGES OF PRODUCTION ON COMMERCIAL AND FOOD AID IMPORTS

In section 5.3, it was found that production of the major food crops in Eastern Region has been increasing since SAP. The question now is, has the production been increasing high enough to cater for the food requirements of the increasing population? Is SAP helping to improve food security in Eastern Region in terms of food availability? To answer these, trends of food imports, particularly cereals since it forms the largest percentage of imports, for 1973 to 1997 will be examined. Food imported into the

country tends to diffuse quickly to all parts of the country through the free market because food marketing has never been fully controlled in Ghana. It could be assumed that the Eastern Region also receives a fair share of these food imports, because of its closeness to the ports. Thus a comparison can reasonably be made between the trends of food imports and those of production of food crops in Eastern Region. Table 5.7 below gives the trends of cereal imports into Ghana.

Table 5.7 : Cereal imports in Ghana, 1973 – 1996 (in thousand metric tonnes)

Year	Wheat	Rice	Maize	Total Cereal Imports	Total Cereal Aid	Cereal Aid as % of[5] Total Cereal Imports
1973	97.85	53.57	2.41	153.83	36.20	23.5
1974	136.96	39.11	0.29	176.37	32.80	18.6
1975	83.16	0.36	0.04	83.56	32.00	38.3
1976	88.98	4.13	10.57	103.69	54.50	52.6
1977	97.60	8.97	47.00	153.52	112.90	73.5
1978	169.63	45.40	92.00	307.03	82.56	26.9
1979	92.33	36.00	28.00	156.33	114.20	73.1
1980	131.00	65.88	40.00	236.88	100.41	42.4
1981	83.53	31.87	27.00	142.38	46.13	32.4
1982	52.68	16.36	81.71	150.75	70.94	47.1
1983	105.80	32.83	65.80	204.43	95.87	46.9
1984	86.76	50.39	49.34	186.48	106.08	56.9
1985	75.50	60.00	--	135.50	100.23	74.0
1986	75.40	54.00	--	129.40	69.14	53.4
1987	118.00	73.20	10.00	201.20	111.22	55.3
1988	153.20	69.00	17.30	239.50	46.51	19.4
1989	124.70	80.00	--	204.70	73.37	35.8
1990	170.30	113.00	8.00	291.30	76.06	26.1
1991	173.75	178.85	28.01	372.61	214.74	57.6
1992	137.00	216.14	12.10	365.24	75.37	20.6
1993	226.00	121.00	13.20	360.20	126.23	35.0
1994	191.00	281.11	10.40	482.51	100.87	20.9
1995	127.00	200.00	10.00	337.00	44.88	13.3
1996	97.39	99.78	0.28	197.20	62.65	31.8

Source : FAO Statistics computer print-outs

According to Table 5.7, total cereal imports show an upward trend since 1983 suggesting a growing domestic food supply deficit and/or a shift in consumer taste towards these food items. Total cereal aid as a percentage of total cereal imports exhibit a rather fluctuating but generally downward trend. A lower percentage indicates that a higher percentage of the food imports is composed of commercial imports which may show the severity of food deficit as perceived by the government. Table 5.7 also depicts that total cereal aid experienced three peaks for the period under review - in 1977, 1984, and 1991. These correspond to years of poor food crop output (i.e. 1976, 1983 and 1990 as shown in Table 5.7) in Eastern Region. The food aid peaks lagging a

[5] Computed by author

year behind poor food output years indicates the amount of time needed for help to come if there is less food self-sufficiency. From the trends of rising total cereal imports and falling percentage of total cereal aid in total cereal imports, it appears food self-sufficiency has been reducing since the implementation of SAP. Considering the fact that world cocoa market prices have been falling thereby reducing foreign exchange earning capacity of the nation makes food security situation all the more worse since less foreign exchange would be available for commercial food imports.

CHAPTER SIX

SUMMARY AND CONCLUSION

Despite its numerous natural and human resources, Ghana's economy began to deteriorate not long after independence in 1957. Agriculture, which was the backbone of the economy received little support and was rather overtaxed, particularly the main export crop (cocoa) resulting in a slump and stagnation of agricultural growth. The macroeconomic policy distortions continued accelerating the economic decline in the 1970s into a near collapse in the early 1980s. This necessitated the introduction of SAP in April 1983 as a measure to correct the policy distortions and revive the economy.

The decline in agricultural growth (both cocoa and food crop production) in the two decades before the introduction of SAP as shown in Table 3.1 is attributed to internal and external factors. The internal factors include labour migration, inappropriate government policies and/or domestic policy mismanagement which discouraged agricultural production and cocoa production in particular. The agricultural performance declined rapidly as these internal causes combined with such external shocks as drought and persistent and often sharp deteriorations in the terms of trade during that period.

The policies and programmes planned and implemented by successive governments to revive the sector varied for cocoa and food crops. For food crop production, while all the programmes sought to resuscitate the sector through increased smallholder production directly and/or indirectly emphasise on large scale production instead of developing small scale production. State resources like subsidised credit were diverted to large commercial farmers who were often absentee farmers and small scale farmers became more disadvantaged. This rendered the programmes ineffective for the purposes for which they were set up. The programmes ran for the cocoa subsector also achieved little in reversing the falling cocoa production. Instead of properly addressing the issue of a non-incentive cocoa producer price and its unfavourable domestic terms of trade, governments attempted to improve the subsector

by such means as direct state intervention in production, subsidised mass spraying of cocoa farms, and small increases in producer price which could comfortably be accommodated.

Since the adoption of SAP in April 1983, macroeconomic policy reforms have helped to reduce the policy distortions that had crippled agricultural productivity for more than two decades. In particular, the price distortion against cocoa (the main export crop) caused by the overvaluation of the cedi has effectively been reduced by the bold devaluations carried out. This, coupled with the reduction in taxation and the marketing margin of the cocoa parastatal (COCOBOD), has provided increased price incentives to cocoa producers as shown in Table 4.1. Structural bottlenecks were also tackled in the food crop subsector with the implementation of the ASRP affecting mainly the Ministry of Agriculture. Some progress have been made in improving research and extension services for this subsector.

The analysis of the impact of adjustment policies on output prices in the Eastern Region reveals that the average real producer prices of cocoa and the major food crops (i.e. maize, cassava, cocoyam, yam and plantain) all dropped in the since-SAP period as compared to their levels in the pre-SAP period (see Table 5.1). The real producer prices of all the crops experienced a sudden jump in a drought year, 1983 which is incidentally the year of adoption of SAP. Comparing the nominal prices of the food crops with those of cocoa, it was observed that cocoa price recovered its lead over all the food crops in the since-SAP period after a period of six years during which some food crops, especially maize, had better domestic terms of trade than cocoa.

The study also analysed the changes in farm input prices and found out that the real cost of labour per manday showed a decrease in the since-SAP period while those for two types of fertiliser showed substantial increases during the same period as indicated in Tables 5.2 and 5.3. Underlying these changes in input prices are both price and non-price factors. The rise in fertiliser prices are mainly due to price factors (i.e. devaluation and removal of subsidies on fertilisers and fuel) while the decrease in labour cost could mainly be attributed to non-price factors that helped to improve rural social life like better road network and rural electrification.

The response of the cocoa output to the new incentive structure created by the adjustment policies such as devaluation and institutional reforms in the COCOBOD showed a quick increase, quite unlike perennial crops (see Table 5.4). As the producer prices increased, the border smuggling of cocoa minimised and, together with the effects of better farm management practices adopted by cocoa farmers, produced the early increases in cocoa output. However, since the rate of increase slowed down because most of the existing farms have trees too old to expand output, the overall cocoa output in the adjustment period showed a decrease from the average of the pre-adjustment period. The food crops, on the other hand, registered substantial improvements in output in the adjustment period, particularly maize, cassava and yam (also see Table 5.4) in spite of the reductions in real (and relative) prices they experienced for the same period revealed in Table 5.1. It is not clear which factors are responsible for this anomaly, however, it appears that the general increase in consumer prices forced producers to increase production in order to earn enough for their living.

It was found that cocoyam, cassava and plantain among the food crops had increases in production due to improvements in yield and acreage expansion. Yam registered a rise in production levels much more because of remarkable improvements in yield than acreage while that of maize was due to acreage expansions more than yield increases. Conversely, the reductions in cocoa production since 1989 can be attributed to acreage shrinkage in spite of the modest increases in yield (see Tables 5.5 and 5.6).

The study showed that commercial cereal imports have been rising even though domestic food production has also been increasing (Table 5.7). This suggests a growing domestic food supply deficit and/or a shift in consumer taste towards imported food items. It appears, under the circumstance of declining foreign exchange earning capacity as a result of falling world market prices of cocoa (a major export commodity), the food insecurity situation (in terms of domestic food availability) in the adjustment period is worsening. This is in spite of increased domestic food production.

In conclusion, the adjustment policies which were implemented since 1983 under SAP have promoted a general growth in the agricultural sector. Both cocoa and food crop production had received a positive impact from the price and non-price factors emanating from the adjustment policy measures. Of particular importance were

the devaluations which improved price incentives for cocoa production to expand, to some extent. Cocoa, as well as food crop production, also benefited from non-price factors like improvements in research and extension services, road network and rural electrification. It appears these two subsectors did not benefit equally from the adjustment policies. Even though there is insufficient evidence to show any clear tradeoff between the subsectors, the increases in food crop acreages as compared to the decrease in that of cocoa suggest that some amount of resources in the form of land and labour were transferred from cocoa into food crop production to effect the observed growth in food output. It is likely, though, that food production would have performed better if it received as much attention as was dedicated to cocoa at the beginning of the adjustment period. The rate of increase of food production would have kept pace with the rate of population growth to offset any food insecurity (in terms of food availability) situation at both local and regional levels.

The findings in this study portray that simple causal relationships between market and price liberalisation (as part and parcel of economic adjustment), and agricultural growth cannot be made as there is a complex interplay of price and non-price and in particular, institutional factors involved. For instance, applying a 'supply price response' approach alone to food crop production would have indicated a negative response while in actual fact, the inter-relationship of both price and non-price factors contributed for the increases to be realised. The study tries to contribute to an unravelling of some of these, without having the (unrealisable) ambition to give definite answers.

REFERENCES

Appleton, S. and P. Collier, (1990), Agriculture and the Macro-economy - Consequences of negative external shocks in Ghana and Cote d'Ivoire, 1979-87, International Labour Office (ILO), Geneva, World Employment Programme Research Working Paper.

Asenso-Okyere, W. K., G. Benneh and W. Tims (1997), The Status of Food Security in West Africa, in Asenso-Okyere, W. K., Benneh, G. and Tims, W.(eds), Sustainable Food Security in West Africa, Boston : Kluwer Academic Publishers, pp. 2-13.

Baah, F., Y. Baguma, J. Dijkman, A. Karanja, J. Rua, N. Sutrisno and H. Waaijenberg (1994), Perceptions of Agriculture - A study of two villages in Suhum district, Eastern Region of Ghana, International Centre for development oriented Research in Agriculture (ICRA), Wageningen, The Netherlands and Cocoa Research Institute of Ghana (CRIG), Working Document Series 35.

Beckman, B. (1981), 'Ghana, 1951-78 : the Agrarian Basis of the Post-colonial state', in Heyer, J., Roberts, P. and Williams, G. (eds), Rural Development in Tropical Africa, London : Macmillan Press Ltd, pp. 143-167.

Bequele, A. (1980), Poverty, Inequality and Stagnation - The Ghanaian experience, International Labour Office, Geneva, World Employment Programme Research Working Paper.

Binswanger, H. P.(1992), 'Determinants of Agricultural Supply and Adjustment Policies', in Heidues F. and Knerr B. (eds), Food and Agricultural Policies under Structural Adjustment, Frankfurt am Main: Peterlang, pp. 107-136.

Centre for Development Research (CDR) (1995), Structural Adjustment in Africa : A survey of the experience, CDR Report, Copenhagen.

Chhibber, A. (1989), 'The Aggregate Supply Response: A Survey', in Commander, S. (ed), Structural Adjustment and Agriculture - Theory and Practice in Africa and Latin America, London : James Currey, pp. 55-70.

Commander, S., J. Howell and W. Seini (1989), 'Ghana 1983-7', in Commander, S. (ed), Structural Adjustment and Agriculture - Theory and Practice in Africa and Latin America , London: James Currey, pp.107-126.

de Haen H, T. Aldington, R. Saigal (1992), 'The Impact of Structural Adjustment on the use of agricultural inputs in Africa : The case of fertilizers', in Heidues F. and

Knerr B. (eds), Food and Agricultural Policies under Structural Adjustment, Frankfurt am Main: Peterlang, pp.195-210.

Donovan, G. (1992), 'Impact of Structural Adjustment on Sub-Saharan African Agriculture : A progress report', in Heidues F. and Knerr B. (eds), Food and Agricultural Policies under Structural Adjustment, Frankfurt am Main: Peterlang, pp. 37 – 50.

Ellis, F. (1988), Peasant Economics : Farm Households and Agrarian Development, Cambridge: Cambridge University Press.

Ellis, F. (1992), Agricultural Policies in Developing Countries, Cambridge : Cambridge University Press.

Frimpong-Ansah, J. H. (1991), The Vampire State in Africa - The Political Economy of Decline in Ghana, London : James Currey.

Green, R. H. (1989), 'Articulating Stabilisation Programmes and Structural Adjustment : Sub-Saharan Africa', in Commander, S. (ed), Structural Adjustment and Agriculture - Theory and Practice in Africa and Latin America, London : James Currey, pp. 35-54.

Gidner, J. and V. O. Olorunsola, (1980), 'Ghana : Soldiers as Statesmen', in Mowoe, I. J. (ed), The Performance of Soldiers as Governors, Washington D. C.: University Press of America, Inc., pp. 223-264.

Gyimah-Boadi,E. (1991),'State Enterprices Divestiture : Recent Ghanaian experiences" in Rothchild, D. (ed), Ghana - The Political Economy of Recovery, Boulder and London : Lynne Rienner Publishers, pp. 193-208.

International Monetary Fund (1997), International Financial Statistics Yearbook, Volume L, Prepared by IMF Statistics Department, Washington D.C.

Jaeger, W. K. (1992), The Effects of Economic Policies on African Agriculture, World Bank Discussion Papers, Africa Technical Department Series, Washington D. C. : The World Bank.

Johnson, O. E. G. (1989), 'The Agricultural Sector in IMF Stand-by Arrangements', in Commander, S. (ed), Structural Adjustment and Agriculture - Theory and Practice in Africa and Latin America, London : James Currey. pp. 19-34.

Konings, P. (1986), The state and rural class formation in Ghana : A comparative analysis, Monographs from the African Studies Centre, Leiden, London : KPI

Lele, U. (1992), 'Structural Adjustment and Agriculture: A Comparative Perspective on Response in Africa, Asia, and Latin America', in Heidhues, F. and Knerr, B.

(eds), Food and Agricultural Policies under Structural Adjustment, Franfurt am Main : Peterlang, pp. 3-36.

Lensink, R. (1996), Structural Adjustment in Sub-Saharan Africa, London and New York : Longman

Manu, J. E. A. (1974), 'Cocoa in the Ghana Economy', in Kotey, R. A., Okali, C. and Rourke, B. E. (eds), Economics of Cocoa Production and Marketing, Institute of Statistical, Social and Economic Research (ISSER), University of Ghana, Legon, pp. 265-276.

Ministry of Agriculture (MOA) (1990),Ghana Medium Term Agricultural Development Programme (MTADP) – An agenda for sustained agricultural growth and development (1991-2000), A report prepared by the Ministry of Agriculture, Republic of Ghana, February.

Nyanteng, V. K. (1980), The Declining Ghana Cocoa Industry : An analysis of some fundamental problems, Insitute of Statistical, Social and Economic Research (ISSER), University of Ghana, Legon, Technical Publication Series No. 40.

Odompleh, C. T. (1986), An analysis of the effect of agricultural policies on food production in Ghana, An unpublished MA dissertation, Institute of Social Studies (ISS), The Hague.

Okai, M. (1997), 'Agricultural Production, Food security and Poverty in West Africa', in Asenso-Okyere, W. K., Benneh, G. and Tims, W. (eds), Sustainable Food Security in West Africa, Boston : Kluwer Academic Publishers, pp. 14-34.

Pearce, R. (1992), 'Ghana', in Duncan, A. and Howell, H. (eds), Structural Adjustment and the African Farmer, Overseas Development Institute, London : James Currey, pp. 14-47.

Pickett, J. (1993), 'Agriculture, Liberalisation and Economic Growth in Ghana and Cote d'Ivoire', in Goldin, I. (ed), Economic Reform, Trade and Agricultural Development, OECD Development Centre, New York : St. Martin's Press, Inc., pp. 49-90.

Pinstrup-Anderson, P. (1989), 'The Impact of Macroeconomic Adjustment - Food Security and Nutrition', in Commander, S. (ed), Structural Adjustment and Agriculture - Theory and Practice in Africa and Latin America, London : James Currey, pp. 90-104.

Raikes, P. (1997), 'Structural Adjustment and agriculture in Africa', in Spoor, M. (ed), The Market Panacea, London : Intermediate Technology Publications Ltd, pp. 57-76.

Sarris, A. and H. Shams (1991), Ghana under Structural Adjustment : The Impact on Agriculture and the Rural Poor, Published for International Fund for Agricultural Development, New York : University Press.

Sijm, J. (1997), Food Security and Policy Interventions in Sub-Saharan Africa - Lessons from the Past Two Decades, Tinbergen Insitute Research Series, Amsterdam : Thesis Publishers.

Sowa, N. K. (1993), 'Ghana', in Adepoju, A. (ed), The Impact of Structural Adjustment on the Population of Africa - The Implications of education, health and employment, Portsworth (N.H.) : Heinemann, pp. 7-24.

Streeten, P. (1987), What Price Food? - Agricultural Price Policies in Developing Countries, London : The Macmillan Press Ltd.

Tabatabai, H. (1986), Economic decline, access to food and Structural Adjustment in Ghana, International Labour Office (ILO), Geneva, World Employment Programme Research Working Paper.

Toye, J. (1991), 'Ghana', in Mosley, P., Harrigan, J. and Toye, J. (eds), Aid and Power - The World Bank and Policy-based Lending, Volume 2 Case Studies, London and New York : Routledge, pp. 151-199.

World Bank (1994), Adjustment in Africa: Reforms, Results, and the Road Ahead, World Bank Policy Report, Oxford University Press.

World Bank (1984), Ghana : Policies and Program for Adjustment, World bank country study, Washington D. C.

APPENDIX I

INDEXATION AND COMPUTATION OF REAL PRODUCER PRICE INDICES, PERCENTAGE CHANGES AND RELATIVE PRICES

I. The use of consumer price index (CPI) numbers poses the problem of finding the one with the appropriate base year. The availability of an accurate CPI suitable for the analysis of a rural setting (i.e. rural CPI) was a particular problem in this study. The study thus relied on the use of CPI collected from an International Financial Statistics yearbook (in Table A1 below) which does not made clear whether its source is rural or urban.

Table A 1: Consumer Price Index (CPI) Numbers in Ghana, 1970 - 1996 1990=100

Year	Consumer Price Index
1970	0.1
1971	0.1
1972	0.1
1973	0.1
1974	0.2
1975	0.2
1976	0.3
1977	0.7
1978	1.2
1979	1.9
1980	2.8
1981	6.1
1982	7.4
1983	16.5
1984	23.1
1985	25.4
1986	31.7
1987	44.3
1988	58.2
1989	72.9
1990	100.0
1991	118.1
1992	129.9
1993	162.3
1994	202.7
1995	353.4
1996	473.7

Source : International Financial Statistics Yearbook, Volume L, 1997

II. The real producer prices were calculated by dividing the nominal price of the crop for each particular year with the corresponding CPI for that year and multiplying by 100.

That is,

$$\text{Real producer price} = \frac{\text{Nominal producer price of year 1}}{\text{Consumer price index of year 1}} * 100$$

The real producer price indices were then computed by dividing the real producer price of one year by that of the base year (which in this case is 1980).

That is,

$$\text{Real producer price index} = \frac{\text{Real producer price for year 1}}{\text{Real producer price of 1980}} * 100$$

III. The average percentage changes were calculated from the averages of the Pre-SAP and Since-SAP periods. The difference between the averages of the two periods were divided by the Pre-SAP average and then multiplied by 100.

That is,

$$\text{Average \% change} = \frac{\text{Since-SAP average} - \text{Pre-SAP average}}{\text{Pre-SAP average}} * 100$$

IV. Relative prices of the food crops were computed by dividing the nominal price a food crop by the nominal price of cocoa for each particular year and then multiplying by 100.

That is,

$$\text{Relative price of food crop} = \frac{\text{Nominal price of each food crop in year 1}}{\text{Nominal price of cocoa in year 1}} * 100$$

APPENDIX II

Table A 2: Wholesale Prices of Major Food Staples in Eastern Region of Ghana: 1972 - 1996 (in cedis)

Year	Maize (per 100kg bag)	Cassava (per 91kg bag)	Cocoyam (per 91kg bag)	Yam (per 100 av. tubers)	Plantain (per 9-11kg bunch)
1972	18.25	6.04	9.41	56.63	0.87
1973	19.36	6.76	11.88	68.15	1.31
1974	20.05	7.34	12.25	81.36	1.38
1975	26.52	10.41	15.82	122.43	1.31
1976	59.88	24.89	30.85	180.26	3.04
1977	137.38	38.37	83.40	355.80	10.57
1978	129.94	51.67	134.60	417.29	16.30
1979	180.23	73.11	141.18	616.95	16.52
1980	405.22	108.03	193.36	940.12	20.88
1981	758.36	422.80	436.51	1658.03	34.67
1982	775.85	344.45	487.01	2456.80	41.86
1983	3938.00	1430.32	2424.41	4151.81	175.22
1984	2586.00	827.27	1445.79	10199.81	207.63
1985	2258.00	773.37	873.12	9366.67	161.12
1986	3894.00	1545.00	2058.00	11016.50	253.00
1987	5730.00	3704.00	4797.00	17122.00	411.00
1988	7011.00	2670.00	5119.00	19093.00	559.00
1989	5370.00	2338.00	6048.00	23144.00	640.00
1990	9935.00	5197.00	8420.00	31755.00	944.00
1991	9989.00	3732.00	8242.00	33550.00	825.00
1992	11790.00	3901.00	8601.00	36013.00	1029.00
1993	11970.00	6044.00	12104.00	47001.00	1838.00
1994	15526.00	6594.00	14504.00	57384.00	2150.00
1995	26480.00	10955.00	21273.00	83193.00	4460.00
1996	32888.00	10612.00	19947.00	105695.00	3789.00

Source: PPMED, Ministry of Food and Agriculture, Eastern Region.