

Chapter 1: Introduction

1.1 Background

There is a general agreement amongst economists on the importance trade plays in economic growth. It is widely accepted that without trade developing countries are likely to find that their national income is too low to afford savings and investment at levels that allow for a satisfactory rate of growth (Riendel 1988). An expansion of the export base contributes to economic growth directly by raising national income and indirectly by providing foreign exchange for the import needs of the domestic economy (Balassa 1971).

The issues of trade strategy and of growth and development in less developed countries (LDCs) have been the subject of exhaustive empirical and analytical investigation in recent decades. The trade policies that a developing country may pursue have a significant effect on the pattern and pace of economic growth and development, by influencing either directly or indirectly the allocation of resources between sectors and between industries (Milner 1988).

Nurkse (1961) concluded that increases in exports of countries like USA, Canada, Argentina and Australia in the nineteenth century were mainly due to favourable demand conditions. However, he was pessimistic about the possibility of trade serving as 'an engine of growth' to developing countries as the demand conditions in the industrialised world were no longer favourable. While this trade pessimism has been increasingly challenged (Kravis 1970; Diaz-Alejandro 1975; Bhagwati and Srinivasan 1979) it still survives. Because of a long-standing primary export pessimism, many developing countries still place overwhelming emphasis on the promotion of manufactured exports, while neglecting opportunities for continued development and diversification of agricultural and other primary products. These countries leave little room for supply-side policies to achieve export success (Athukorala 1991). Diaz-Alejandro (1975) attributes this partly to widespread tendency to repeat dogmatically the pessimists *a priori* arguments without reference to any arguments and evidence to the contrary.

Kravis (1970), Love (1984) and Athukorala (1991) have all pointed out that the growth of export earnings depends both on external market conditions and domestic supply conditions. The relative importance of the supply-side and demand-side factors vary among countries due to differences in the nature of national incentive systems, the structure of production and other relevant supply-side factors (Athukorala 1991). Consequently there would appear to be a need for systematic comparative analyses of the export behaviour of individual countries which links the varied domestic supply conditions with the external market situation. The purpose in this study is to undertake such an analysis for Tanzania. In this chapter the need for this study is detailed and objectives refined so that a set of testable hypotheses are defined. Initially, the situation in Tanzania is discussed.

1.2 The economic situation in Tanzania

Tanzania, a developing country in East Africa, is classified by the World Bank as the second poorest country in the world. The GNP per capita for 1991 was only \$US 100 with an average annual growth rate of - 0.8 percent for the period 1980-91 (World Bank 1993). Exports are dominated by agricultural commodities that comprise 84 percent of total exports. The main agricultural commodities exported are coffee, cotton, sisal, tea, tobacco and cashew nuts. Food crops include maize, rice, wheat, sorghum, millet and cassava. Apart from being the source of food and raw materials for the small but expanding modern sector, agriculture is the major source of government revenue. Agricultural led growth could be crucial in achieving overall economic growth.

Economic problems were mainly experienced from 1973 when export volumes stagnated or declined. According to the World Bank (1992) the average annual growth rate of exports between 1965 and 1980 was - 4.2 percent and declined further to -7.4 percent between 1980 and 1990. Between 1970 and 1985 total export earnings from coffee increased from 23 to 35 percent while that of other crops stagnated or declined. Tobacco remained steady at around ten percent but cotton declined from 20 percent to 14 percent, sisal from nine percent to four percent. Only coffee and tea exports grew, but by only 0.8 percent and 1.9 percent respectively. Export volumes of all other major crops showed a decline, tobacco by 4.7 percent, cotton by 2.3 percent, sisal by 5.9 percent and cashew nuts by 6.8 percent (Lele and Meyers 1989).

Being a small country Tanzania is a price taker. As a consequence, the country is highly exposed to external demand conditions. Tanzania can however improve performance through more competency in supply, quality of exports and export diversification. This could be achieved by implementing policies that encourage production for the export market.

1.3 The research problem

Ideally, export growth in Tanzania is constrained by both external demand and internal supply conditions. In recent years, more attention has been given to demand-side effects with the adoption of domestic policies that either neglected or taxed the agricultural export sector. Export pessimism in 1970s led the government to embark on capital intensive import substituting industrialisation that undermined the broadly based agriculture-led growth that was occurring. An acute overvaluation of exchange rate and the coffee boom in mid-1970s imposed an implicit tax on the exports of agricultural products and an explicit tax on coffee, the country's main export commodity. In 1986 the government embarked on macro economic reforms which resulted in a more liberal trade regime, by employing policies that included more flexible exchange rates, the removal of price controls, real increases in producer prices for export crops and reduced public sector involvement in the economy (Lele 1991).

Lele (1984), an observer of Tanzania's economic performance, argued that the deterioration of the Tanzania economy is not a result of declining prices for exports in relation to imports, but of the decline in agricultural export volumes and the deterioration in quality. This in part is due to various inappropriate domestic policies which support agriculture. The author further argued that Tanzanian exports have an advantage over many other developing countries in that the export sector is highly diversified and reflects country's substantial physical potential. Therefore, an aggressive export crop strategy could lead to substantial economic growth which would compensate for the limited control that the country has over the price of exports. Other critics, notably local economists and politicians (see Ellis 1988), argue that the external strains have been the most significant factors in constraining the country's efforts to improve its export performance. Among other things these include two oil crises, in 1974 and 1979, the rise in coffee prices in 1976 and 1977 and changing trade arrangements.

The relative importance of the aggregate supply and demand factors in influencing the export performance of the country is yet to be determined. Such an evaluation could provide some implications for the selection of the appropriate export policies to be pursued. The aggregate supply factors are domestic issues, both spontaneous and policy induced, that affect export performance. The aggregate demand factors are the external trade issues that affect the ability of the country to export. In this study the effects of the supply factors are expected to be reflected in the country's ability to expand its export share in trade and in diversifying the export base. On the other hand, the aggregate demand factors are assumed to be reflected in the world export prices of the relevant commodities. These are discussed in detail in section 4.3.1.

1.4 Objective of the study

In view of the above problem, the objective pursued in this study is to assess the relative importance of aggregate supply and demand factors in influencing the export performance in Tanzania. The aggregate supply factors, sub-divided into competitiveness in traditional exports and diversification of the agricultural exports, potentially capture the net impact of the internal domestic policies. Therefore, by determining the importance of the supply factors an attempt is made to analyse the importance of internal domestic policies in improving the export performance of the country. As mentioned above, the aggregate demand factors are the world market conditions reflected in terms of prices that a country receives for its exports. Thus the relative importance of aggregate demand factors in influencing the export performance would give a strong indication for policy choices.

Other objectives are to:

- assess the effects of different trade regimes on export performance in Tanzania;
and
- draw inferences from the study for both domestic agricultural production and for export policy.

1.5 Significance of the study

Relevant policy recommendations which may encourage an expansion of agricultural exports can only be made if the causes of poor performance are well understood. An assessment of the relative importance of the supply and demand-side factors in influencing export performance should provide some idea of why export performance is so poor and some appropriate domestic agricultural production and export policies. An analysis of whether a liberal trade regime has influenced export performance will provide valuable lessons and directions for future policy implementation.

1.6 Hypotheses and decision criteria

On the basis of the problem and objectives set out above, the study is guided by the following hypotheses:

- (a) Supply-side factors are no more important in determining the export performance than demand-side factors.
- (b) Of the supply-side factors, competitiveness has no greater influence on export performance than diversification.
- (c) A liberal trade regime has no significant effect on export performance.

A time series regression model is employed in the analysis and standard significance tests are performed on the variables within this model to either reject or not reject the hypotheses. If supply factors, which are subdivided into competitiveness and diversification, are relatively more important than demand factors they should have more weight in explaining export performance. This would imply that the country's export policies should be geared more towards export promotion. The relative significance of the supply factors, that is, competitiveness and diversification, is compared to determine which of the two contributes more to export performance. If competitiveness is relatively more significant, policies aimed at increasing shares of commodities in trade should be stressed. Otherwise the country should consider diversifying the export base to increase export earnings. In regard to assessing which trade regime might be best, tests are performed to see whether the restrictive trade regime followed before 1980 had detrimental effect on export earnings.

In this study an examination of factors influencing the performance of exports in Tanzania is restricted to the export of primary agricultural commodities, excluding forestry and fisheries.

The period of study is 1962 to 1992 which includes the whole period since the country achieved independence.

1.7 Outline of the study

The study is organised into seven chapters. In chapter two a review of relevant literature on export performance in LDCs is undertaken. Both theoretical arguments and some empirical findings are discussed. The emphasis is placed on developing countries that rely on the export of primary products. In chapter three the growth of agricultural exports of the country together with the demand and supply factors that have played a role in influencing the export performance are examined.

The econometric method employed to conduct the empirical analysis and which support the subjective analysis undertaken in chapter three, is described in chapter four. In chapter five an analysis of the results of the empirical analysis is presented. The respective economic interpretations that could be made and policy recommendations in relation to the findings, are discussed in chapter six. Finally, in chapter seven a summary and conclusion on the study is presented.

Chapter 2: Literature review on export performance

2.1 Introductory remarks

In this chapter literature on various issues surrounding export performance in less developed countries is reviewed. To begin with, the relationship between export performance and economic development is discussed. Then factors influencing the export performance of LDCs are discussed in some detail in section 2.3. This is followed by a brief account of the export performance in Tanzania in section 2.4 and a summary on the issues raised in the chapter is presented in section 2.5.

2.2 Export performance and economic development

Many believe that the rate of growth of developing countries depends directly on their ability to export and import (Riendel 1988). Various studies undertaken on LDCs export performance notably by Balassa (1978 and 1988), Tylers (1981), Wheeler (1984), Otani and Villanueva (1989) and Svedberg (1991) found a significant and positive relationship between economic growth in developing countries and their exports. Balassa (1988) noted that economic growth was correlated with the expansion of exports for both manufactured and non-fuel primary products. Otani and Villanueva (1989) argued that expansion of exports was a major determinant of long term growth in LDCs, regardless of the income level of the countries. In a study of 55 developing countries, over the period 1970 to 1985, Otani and Villanueva (1989) noted that expansion of exports accounted for more than 95 percent of the average growth rate of per capita GDP. Furthermore, they noted that the contribution of exports to national income was substantially more for low income countries rather than high income countries.

There is general agreement that the link between exports and economic growth is mainly indirect, affecting economic efficiency (Balassa 1988; Riendel 1988). Increased exports will:

- permit resource allocation to take place according to the principals of comparative advantage;
- allow for the exploitation of the economies of scale;
- ensure fuller use of capacity; and

- provide an incentive for technological change,

all of which results in improvements in the efficiency of investments. Export expansion also tends to lead to a higher rate of domestic savings, as greater proportion of incomes derived from exports can be saved.

2.3 Factors influencing export performance in LDCs

Export performance in LDCs is influenced by a number of internal and external factors. In this section the role of internal and external factors which influence a country's export performance are reviewed. However, before a more thorough discussion of these issues, the trend in the export performance in LDCs is briefly examined.

2.3.1 Performance trend in exports

Less developed countries have not participated fully in the booming world markets of the post war period. Their share of world exports declined from 26 percent in 1953, to 16 percent in 1966. The share in primary exports (excluding fuel) fell from 47 to 35 percent between 1953 and 1966 (Kravis 1970). Svedberg (1991) noted that between 1975 and 1990 the share Sub Saharan Africa had of world trade has decreased dramatically, with export growth dropping in absolute terms. Export earnings have remained stagnant or declined significantly since the early 1970s. African countries experienced the largest decline in agricultural exports as a proportion of world exports of agriculture of all countries in the world. Africa's share in world imports of food fell from 5.3 percent in 1965 to 2.8 percent in 1980, while imports of beverages and tobacco fell from 18.2 percent to 12.3 percent and agricultural raw materials fell from 7.6 percent to 3.4 percent over the same period (Bond 1987). The issue of trade performance in LDCs has received wide attention in the literature. Much of this literature is summarised in Nurkse (1961), Kravis (1970), Love (1984), Wheeler (1984), World Bank (1987), Macbean (1989), Svedberg (1991) and Athukorala (1991). Much of this debate has centered on whether the external environment, working through international trade, determines the performance of the domestic economies of developing countries.

2.3.2 Internal versus external factors

During the post war period prior to 1960s, it was widely accepted that export performance in LDCs was influenced by external factors. These factors were also referred to as demand factors. Various authors, notably Kravis (1970), Love (1984), Riendel (1988), and Athukorala (1991), refer to Nurkse's (1961) views on the role of trade to growth during the nineteenth century. Nurkse argued that countries that managed to grow faster did so because of the favourable external demand of their exports. However, based on factors such as low income elasticity's of demand, the rise of synthetics and the importance of primary products output in the advanced countries, he held a pessimistic view on the adequacy of external markets to take the exportable surplus of developing countries. Kravis (1973) noted that while a booming market for a product in which a country is well established is a great aid to export performance, no country could rely upon the market to buy more and more of the goods that it has always exported. As a consequence, a country in this situation is unlikely to enjoy a relatively high rate of export growth for a long time. Growth requires mobility of resources and an adaptation to the changing production and marketing opportunities that is largely a matter of internal policy.

Using experiences accumulated since the Second World War, Kravis (1970) assessed the relative roles of demand and supply factors in influencing export performance of LDCs. He concluded that while external demand provides a stimulus to exports and growth, in countries where growth occurred it was mainly a result of the country's increased share in the market and in the diversification of their exports. Kravis implied that it is the internal factors influencing the mobility of resources, rather than external demand conditions that account for good export performance. Internal problems of supply inherent in underdevelopment, particularly when biased against trade by policy measures, cannot be automatically resolved even by extraordinarily favourable external demand conditions.

Wheeler (1984) examined the sources of stagnation in Sub Saharan Africa during the 1970s by considering several policy variables as well as a set of exogenous factors including climate, violence and export prices. He noted that, several states including Tanzania, could have grown much faster in the 1970s under different policy regimes, even if nothing in their environment changed. This, however, should not imply that external factors are not significant in the region. Svedberg (1991) observed that the export performance of all Sub Saharan African countries, with the exception of oil exporting countries, were affected negatively by external forces in the form of stagnant or deteriorating barter terms of trade over the years 1954 to 1985.

Most of the available empirical studies on the relative importance of internal and external market conditions for developing countries are based on a global approach. These studies focus on total agricultural exports of given commodities from all countries or broad groups of developing countries (World Bank 1987; Islam 1988; Koester and Valdes 1989; Macbean 1989). It must be asked whether the problem of internal and external factors should be assessed in aggregate or not. If they are assessed in aggregate (i.e. over a number of countries) then cross sectional data is used. However if a particular country is chosen then time series data can be employed.

According to Athukorala (1991) the aggregate evidence is not adequate. Differences among countries with respect to nature of national incentive systems, the structure of production and other relevant supply side factors requires a systematic comparative analysis of the export behaviour of individual countries linking their domestic supply conditions with external market situations.

Love (1984) and Athukorala (1991) developed the method used by Kravis (1970) to analyse individual countries. They differentiated the internal or supply factors into competitiveness and diversification. Both studies further confirmed Kravis's (1970) findings that export performance in most countries are relatively more sensitive to internal factors. While external demand plays an important role, a country can expand its exports under given world market conditions by improving upon its market share in its traditional exports and diversifying into new product lines, provided it pursues appropriate domestic economic policies (Athukorala 1991). Countries with faster growth rates were found to be those with the greater sensitivity of exports to the competitiveness variable than to diversification.

2.3.3 Diversification

Diversifying the commodity composition of developing countries' exports is one of the main policy measure used in an attempt to reduce the instability of exports (Love 1992). By definition, diversification involves changing the composition of a country's export mix (Ali, Awang and Siegel 1991). All these factors would promote growth. However, there is some debate on whether diversification improves export performance. In their study on Malawi, Tanzania and Zimbabwe between 1961 and 1987 period, Ali *et al* (1991) concluded that there is no clear relationship between the degree of export diversification and export performance in these countries. Love (1992) argued that diversification is not necessarily a desirable policy option and may produce differences in the impact on export instability and export growth between a large and a small exporting country.

The cost of diversifying the export base of a country depends on those factors which govern the country's comparative advantage. In other words, the endowment of resources a country has will determine what a country can produce a surplus of. The costs of diversification are large if it involves a shift of resources into less productive uses (Massel 1970). According to Lele (1989b) the comparative advantage a country has is based on the costs of the alternative production possibilities and can be mostly confused with the separate issue of the country's domestic costs relative to those of other competitor countries.

2.3.4 Trade policies

Trade policies can be classified into two major regimes. Those that are oriented towards export enhancement and those that promote import substitution. In the former case policies are directed towards the production of goods for external markets (outward-oriented), while in the latter case policies promote production for the domestic market which replace previously imported goods (inward-oriented). The choice of trade strategy is likely to be influenced by empirical evidence, as well as beliefs and *a priori* reasoning (Milner 1988). Kravis (1970), Diaz-Alejandro (1975), and Bhagwati and Srivivasan (1979) argued that, as a consequence of trade pessimism, LDCs adopted inward oriented policies which stressed import substitution. As a result domestic supply problems were aggravated and export performance was inhibited. On the basis of the perceived failure of import substitution policies, from mid-1960s onwards, an increasing number of LDCs adopted more outward looking export promotion policies (Milner 1988). Studies by the World Bank (1981) have concluded that as a group, those countries which have resisted the temptation to adopt inward looking trade policies have been more successful than those who have not.

Balassa (1985) conducted a study of 43 developing countries, over the period 1973 to 1978, to assess the effects external shocks had on them. He showed that inter-country differences in the rate of growth are affected by the initial trade policy stance and by the adjustment policies that have been applied. An outward oriented stance at the beginning of the period of an external shock, as well as a reliance on export promotion in response to these shocks, appears to have favourably affected growth performance. Balassa concluded that it was possible for low income countries to accelerate their economic growth through the application of an appropriate policy framework.

According to the World Bank (1987) there are three reasons why export promotion strategies are believed to be superior to import substitution. These are the allocative efficiency of export promotion over import substitution, more rapid growth in export earnings and a greater exposure to the discipline of international competition that results from greater exports. The allocative gains from policies which promote exports are expected, not only from the realignment of the economy toward areas of comparative advantage, but also from the redirection of resources from rent-seeking to productive activities. More rapid growth of exports under export promotion policies provide firms with better access to technology, thereby improving their ability to meet international competition (World Bank 1987). However, it is generally agreed that the link between trade policies and growth is difficult to establish (World Bank 1987; Alam 1991; World Bank 1991). Alam (1991) argued that inward oriented countries are more likely to attempt the transition to export oriented policies where the potential for successful export growth is signalled by rapid productivity growth induced by internal factors. He further argued that countries that are more likely to be successful in the transition to outward oriented strategies are those that are well endowed with conditions favouring internally generated export growth. The World Bank (1987) noted that trade policy reform is complicated and is closely linked to liberalisation in capital, labour and domestic product markets and to macroeconomic policy. Therefore, feasible policy changes may differ from country to country and the reforms may be vulnerable to changes in the international environment. Due to this there is no single optimal path. Success of trade reform hinges on the ability of firms to expand export production and meet the challenge of increased import competition. Outward oriented trade strategies and government policies encouraging domestic competition tend to be complementary. Government policies can aid flexibility by removing barriers to resource reallocation and by encouraging competition in the domestic economy.

2.3.4.1 Policy choices for LDCs

There appears to be differing views on whether LDCs should opt for outward or inward oriented trade strategies and also on whether a single strategy can be applied at all times. There are the export pessimists, who believe that relying on exports as the engine of growth will not necessarily be conducive to growth because external factors can or will exert constraining influences. Consequently, they believe that it is wiser for a country to develop inward oriented strategies to avoid dependence in an uncertain world.

Conversely, there are export optimists who have faith in world demand and emphasise trade liberalisation and move towards outward oriented policies as the best strategy for promoting growth. A survey of literature indicates that there appears to be no single recipe for all or individual LDCs.

Kavoussi (1985) analysed the correlation between export orientation and growth for 52 developing countries over the periods of 1967 to 1973 and 1973 to 1977. His results showed that for the first period, 1967-73, when market conditions were generally favourable, there was a strong positive correlation between export orientation and growth performance. However, for the second period, 1973-77, when world market conditions were more unfavourable, the correlation was weaker and doubtfully significant. These results implied that when external demand is weak gains from export orientation are likely to be offset by its negative effects. On the other hand, when world demand is strong, the benefits of openness clearly outweigh its dangers. The World Bank (1987) advocates outward oriented policies as the best strategy for growth in developing countries even under unfavourable market conditions. Gray and Singer (1988) extended the analysis by Kavoussi (1985) to cover the period 1977-83, when world market conditions were even more unfavourable. They found that both outward and inward oriented countries experienced negative growth rates of export earnings during this period. They concluded that countries achieved high growth rates of export earnings only when external demand is strong. The correlation between export orientation and growth appears stronger only under favourable market conditions. Hence it can be concluded that outward orientation cannot be considered as a universal recommendation for all conditions and for all types of countries. Empirical studies by Hellenier (1986) concluded that for the low income countries there is no evidence to support the proposition that the degree of export orientation is associated with growth performance either in Africa or poor countries generally. Thus governments of low income countries in Africa and else where have grounds for caution as they consider advice based upon evidence from samples of countries that do not look or behave like theirs.

One of the conclusions made by Havrylyshyn (1990) in a survey of literature on trade policy and productivity gains in developing countries is that there is a need to recognise and accept that protection can and does generate some benefits to an economy, at least temporarily. However, this does undermine the argument for liberalisation and outward orientation, for the critical issue is whether the benefits of a given policy exceed its costs.

2.3.5 Foreign exchange and pricing policies

Trade and exchange rate policy measures applied by governments have an interdependent effect (Balassa 1988). Import protection will result in the appreciation of the exchange rate in order to maintain balance of payments' equilibrium, while the overvaluation of the exchange rate generates pressures for further import protection.

The shift in policies from inward to outward orientation in the mid 1960s was accompanied by the deregulation of exchange rates to varying degrees in Korea, Singapore and Taiwan, as well as in the Latin American countries of Brazil, Mexico and Argentina. The effects of these deregulating measures were apparent in the growth performance of these countries between 1963 and 1985, although they did experience deceleration following exposure to external shocks in the form of successive increases in oil prices and the world recession (Balassa 1988). Therefore, as Milner (1988) has argued, the issue of export performance is not only about the choice of an appropriate trade strategy, but also an issue of the appropriate role for government policy.

Bond (1987) has shown that the export supply in developing countries does respond to improved price incentives. Consequently, the use of the exchange rate as a policy tool to improve trade may be a viable option. However, institutional rigidities contribute to a low own-price elasticity of supply for traditional exports. As a result, policy instruments such as exchange rate will have little impact on the supply of exportables (Diaz-Alejandro 1975).

2.3.6 The role of governments

Reynolds (1983) argued that the political organisation and administration competence of governments is a dominant influence on economic development. Many authors argue in favour of trade liberalisation to reduce trade distortions and policy imposed distortions in domestic markets. They claim that domestic distortions, induced by government policies, interfere with the exploitation of the opportunities offered by international markets isolating domestic economies from foreign influences (Bhagwati 1972; Balassa 1988).

The success of outward oriented strategies depends on the unhindered operations of the market, which enhance the role of private firms that are profit minded and more flexible than public enterprises and hence can better exploit possibilities available in external markets. Balassa (1988) notes that most public enterprises that have been established in developing countries to control the repatriation of profits by private firms, do not have well-defined economic objectives. The government's use of non-economic criteria have increased in importance and is embodied in the management of policies. The result has often been the establishment and maintenance of inefficient high cost operations that reduce the efficiency of resource allocation and contribute to public sector deficits. This has specially been the case for marketing institutions in Africa (Harvey 1988).

When intervention in the economy is undertaken with the clear intent of strengthening the ability of the economy to take advantage of market forces, it can work well. When it is undertaken in contravention of market forces, it appears to work poorly. Policies such as export orientation, competitive exchange rates, state enterprises and industrial and agricultural policies are all important as they are measures that the state can take to assist the economy in taking advantage of market forces (Macomber 1987).

Price controls give rise to distortions in product markets, inducing arbitrariness in government decisions, and thereby creating uncertainty for private firms (Balassa 1988). However, studies by Hezell, Jaramillo and Williamson (1990) argue that the combined influences of real exchange rate movements, government policies and market intermediaries, has a stabilising effect on producer prices. They found that although world agricultural commodity price's variability was prevalent during the late 1970s and early 1980s these variations were fully transmitted to developing countries in the dollar values of their export unit values and yet were not fully transmitted to average producer prices. In LDCs lowest variations in producer prices were found in Africa, where there is a strong tradition of government intervention in the pricing of export crops. Thus the authors were sceptical of attempts by governments in African developing countries to reduce their regulation of domestic markets as this could result in significant increases in variability of their export prices that could become an impediment to the expansion of agricultural exports.

2.4 Export performance in Tanzania

Differences in the export performance of East African countries is reflected in differences in the macroeconomic policy environments and agricultural policies in each country (Lele 1989b). Tanzania and Kenya had more or less similar resource endowments at independence and faced similar external shocks. However, despite Tanzania receiving more external aid, the macroeconomic environment in Kenya that broadly favoured agriculture allowed the agricultural sector to be the best performer in the economy. As a consequence Kenya's agricultural sector performed better than Tanzania's and exports and income from Kenya was greater than in Tanzania.

Kenya's production and exports of virtually all major crops increased. Coffee and tea export volumes increased at 3.8 percent and 7.5 percent, respectively in the 1970 to 1985 period (Lele and Meyers 1989). Both large and small farm exports of agricultural products has been poor in Tanzania. Only coffee, which contributed 23 and 35 percent of total export earnings in 1970 and 1985 respectively, increased. The share of tobacco remained steady at around four percent over this period, while sisal fell from 11 percent to six percent and cashew nuts fell from nine percent to four percent. Within the small holder sector, there was a major shift in agricultural production away from exports to food crops, until about 1986, when farmers once again started investing resources in to production of exportable products (Lele 1989b).

Export performance in Tanzania is best reflected in terms of share of trade in GDP, in which agriculture dominates. Lele and Meyers (1989) have shown that the share of trade in GDP in 1982-84 declined to 33.6 percent, over 20 points below its current level of 53.8 percent. Many authors, notably Ellis (1982), Ndullu and Msambachaka (1985), Lele (1989a & 1989b), Christiansen and Lele (1989), Campbell and Stein (1992) and Sepehri (1992) have pointed out that the poor performance of Tanzania is largely a result of internal factors, most of which are policy related. These are discussed in greater detail in the following chapter.

2.5 Summary

The expansion of exports in developing countries is important for economic growth. However, it has been observed that export performance of these countries has been deteriorating. The most affected are non-oil producing countries in Sub Sahara Africa. While external factors prevailing through the world market conditions have an influence on the export performance, internal factors largely related to trade, adjustment and domestic policies are more significant. The capability of the countries to increase their share in world trade through competitiveness factors rather than diversification plays an important role. While export promotion strategies are widely advocated for LDCs there appears to be no conclusive evidence that such policies can be exclusively applied by all individual LDCs regardless of world demand conditions. The choice of policies and strategies need to be carefully considered. Tanzania is not immune to these problems. Its share of trade to GDP has been declining significantly and it appears that internal factors have had a major influence on the country. The choice of policies would appear to be a major problem.

Chapter 3: Issues related to poor export performance in Tanzania

3.1 Introductory remarks

In this chapter many of the demand and supply factors that, in one way or the other, have played a role in influencing the export performance in Tanzania are highlighted. The purpose in the chapter is to present some background information that will assist in understanding the trend in export performance of the country before an empirical analysis on the relative importance of the factors is carried out.

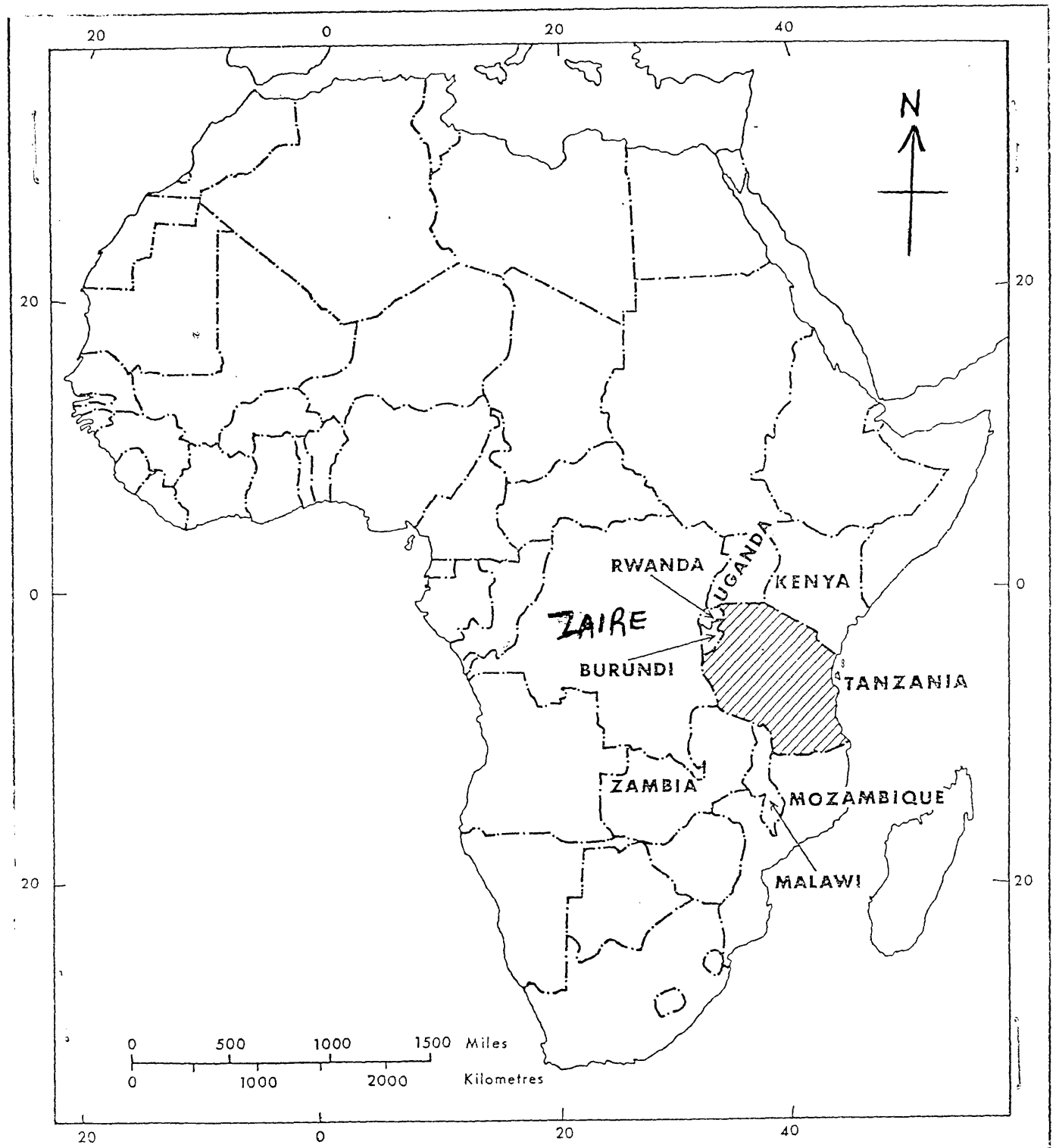
Before discussing the respective factors, some general information on the study area is presented in section 3.2 by describing the country and the nature of its economy. Then the trends in agricultural export earnings for the period 1962-92 are discussed in section 3.3. The demand and supply factors which have influenced the export performance are identified in section 3.4. In the last section a summary on the issues raised in the chapter is presented.

3.2 General information on the study area

3.2.1 Description

The United Republic of Tanzania is a country located on the eastern side of the African continent lying just south of the equator (see Figure 3.1). It covers an area of approximately 945,000 square kilometres with a mid-1991 population of approximately 25.2 million (World Bank 1993). Tanzania consists of both the mainland (formally Tanganyika) and the islands of Zanzibar and Pemba which lie about 32 km from the mainland (Barry 1971). This study covers the Tanzania mainland only which is the shaded area in Figure 3.1.

Figure 3.1: Map of Tanzania in Africa



Source: Berry (1971).

3.2.2 Nature of the economy

Tanzania is the world second poorest country after Mozambique. It is estimated by the World Bank that the per capita income in 1991 was \$US 100. For the period 1980-91, the income level has declined at an average rate of 0.8 percent per annum in real terms. The average annual rate of inflation between 1980-91 has been estimated at 25.7 percent per annum (World Bank 1993).

Agricultural sector is the main stay of the economy. Not only does it directly provide about 90 percent of the economically active population with income and employment, but it is also the largest contributor to national income and foreign exchange generation (Ndullu and Msambichaka 1985; Van Buren 1994). Agriculture's share of GDP in 1991 was 61 percent compared to services at 34 percent, industry at five percent and manufacturing at four percent. In the same year, agricultural primary commodities composed of 84 percent of total exports. Subsistence farming accounts for 50 percent of total agricultural output. No more than approximately eight percent of the country land is cultivated and only about three percent of the cultivated land is irrigated (Van Buren 1994). Hence it would appear that the potential for the expansion of the sector is great.

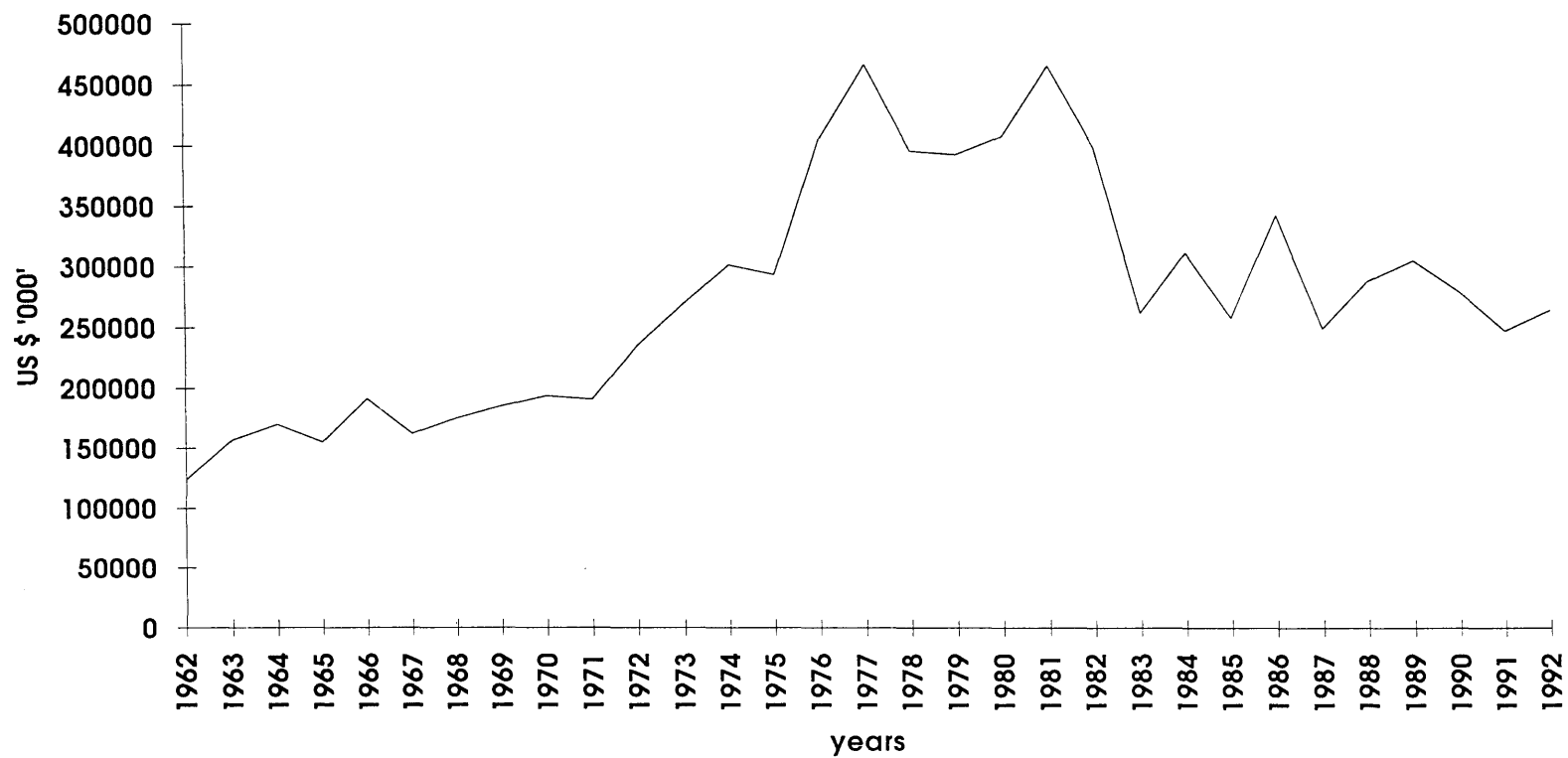
However, the performance of the agricultural export sector has not been good. The average annual growth rate declined by 1.9 percent between 1980-91 (World Bank 1993). Export earnings have been cutting into leaving standards and growth prospects. The effects have been pervasive, not only on incomes of agricultural producers, but also on supplies of raw materials for industry, on employment, savings, government revenues, and on the demand for goods and services produced outside agriculture (Lele 1989b). An improvement in the export performance of the sector can therefore greatly contribute to the growth of the economy.

3.3 Agricultural commodities export earnings 1962-92

The main export crops from Tanzania are coffee, cotton, tobacco, tea, cashew nuts and sisal. These crops contribute more than 70 percent of total agricultural exports. Other export crops include sugar, cocoa, pyrethrum, oilseeds and to a lesser extent fruit and vegetables.

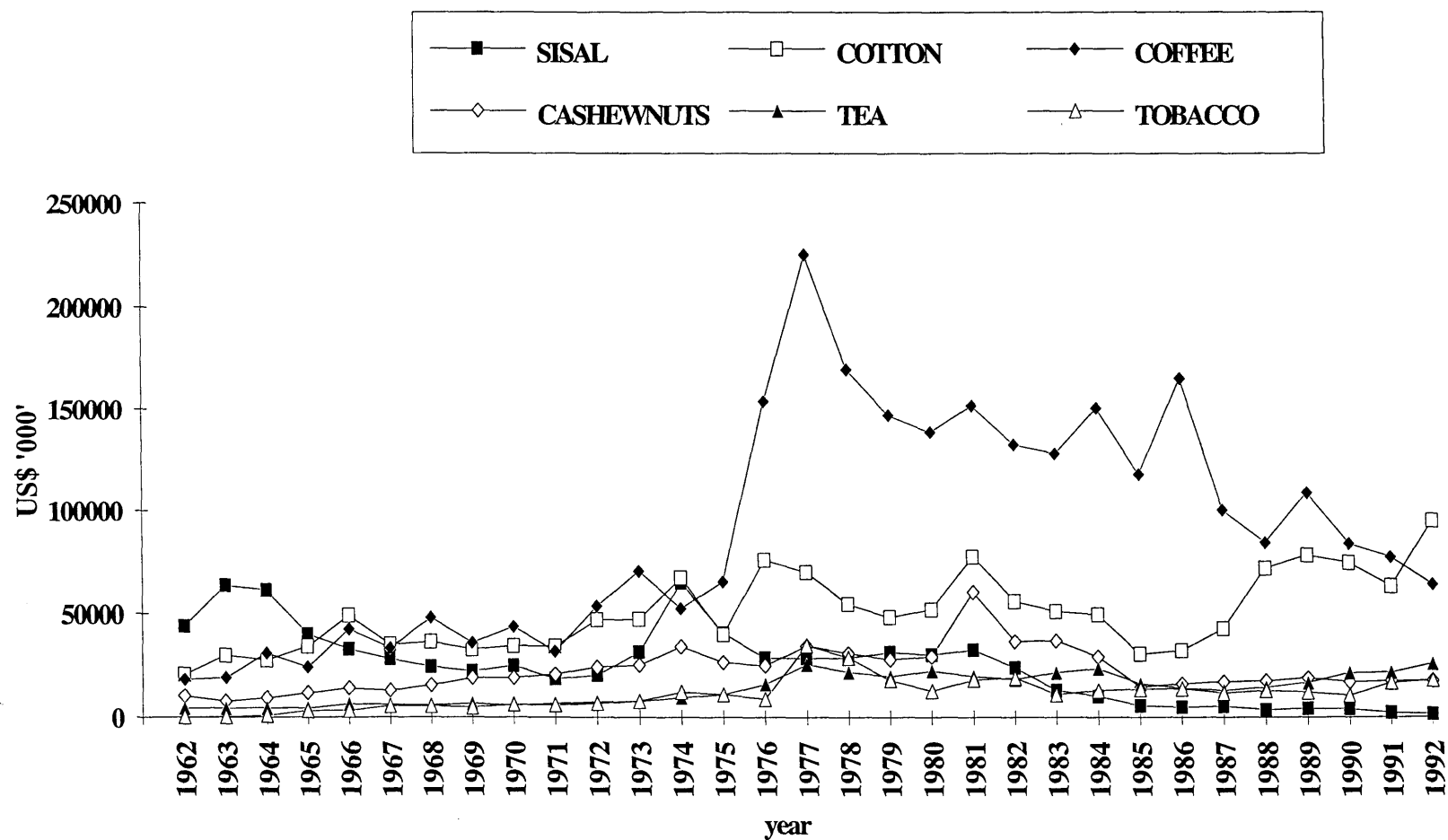
For the period 1962 to 1992 export earnings from agricultural commodities have been fluctuating. Highest earnings were between 1976 and 1982 with a record high in 1981 (see Figure 3.2).

Figure 3.2: Tanzania total agricultural export earnings: 1962 - 92



Source: FAO Tradeyear books (various).

Figure 3.3: Tanzania trend in export earnings from major crops- 1962-92



Source: FAO Trade Yearbooks (various) and IMF Financial Statistics Yearbook (1981)

In Figure 3.3 the trend in export earnings from the major crops are shown. Sisal was the main export earner contributing about 40 percent of the export earnings for the sector in 1963-64. However, its contribution has drastically declined to less than one percent in 1991-92. Its position has been taken over by coffee. The performance of the export sector has been influenced by external and internal factors. These factors are discussed in the following section.

3.4 Identification of factors influencing performance

The aim in this study is to analyse the relative importance of the aggregate supply and demand factors in influencing export performance in Tanzania. In view of this, this section is sub divided into two. First, the major demand factors, also referred to as external factors, are highlighted. These refer to factors in the external environment that have determined the demand for exports and affected the country's ability to increase its export earnings. Second is a discussion on the supply factors, sometimes referred to as internal factors, that have affected the supply of exports from the country. These include both policy issues, that can be controlled by the government, and the spontaneous factors that cannot be controlled.

3.4.1 Demand factors

External shocks, including unfavourable movement in terms of trade, oil price hikes, and world recession, have substantially affected Tanzania's economy with greatest loss in market share (Lele 1989b). Two oil price shocks hit the world economy between 1973-74 and 1978-79. Those hardest hit were low income oil importing countries that include Tanzania (World Bank 1981). This affected availability of imported inputs required for production and transportation (Ellis 1988).

According to Ndullu and Msambichaka (1985) the decline in sisal exports is largely explained by the drastic drop in the world market prices in the 1960s. In 1963 the world price of sisal was \$US 360.60 per tonne but dropped continuously to a low of \$US 146.00 per tonne in 1970. World prices of non-fuel primary exports were both erratic and weak during the 1970s (World Bank 1981). In 1977-78, the export price of coffee increased sharply giving a wrong indication to the government that the economy was recovering (Ellis 1988). During the 1980s prices for many primary commodities fell to their lowest levels since World War II although they recovered a little in 1988 (World Bank 1990). World prices of plain tea that Tanzania grows fell sharply in 1985 and remained at a low level until 1989 when improvements began (Van Buren 1994).

Competition in the world market following the introduction of synthetic fibres is also one of the factors that contributed to the displacement of sisal as Tanzania's leading export crop (Van Buren 1994). Changes in trading arrangements have also affected export earnings. Van Buren notes that with the collapse of the International Coffee Organisation in 1989, world prices of coffee declined. This affected robusta coffee that makes up to 75 percent of coffee produced by Tanzania, more severely than arabica.

3.4.2 Supply factors

Both internal domestic policies and uncontrolled spontaneous factors have influenced export performance in Tanzania.

3.4.2.1 Policy issues

The ability to increase share in world markets has to do with fundamental importance of the commodities exported as well as country policies towards them (Lele 1989a). The Tanzanian agricultural sector economy had done well in the 1960s. However, the country began to experience trade deficit by 1969. Its failure to adjust to the external environment through the use of suitable macroeconomic and sectoral policies are considered to be the main issues contributing to stagnation of export performance (Ndullu and Msambichaka 1985; Ellis 1988; Lele 1989b; Lele and Meyers 1989).

3.4.2.1.1 Exchange rate policy and producer prices

The main policy issue responsible for stagnation in export performance until 1986 is the government's lack of willingness to adjust the excessively overvalued currency in relation to its purchasing power. Ellis (1988) noted that the widening gap between the domestic rate of inflation and the devaluation of the exchange rate had been the critical problem for export pricing in Tanzania. Overvaluation of the currency increased sharply by the end of 1970s and early 1980s resulting into adverse effects on export crop production (Lele and Meyers 1989). The rate of inflation between 1979 and 1984 was 19.6 percent per annum. Minor devaluations made by the government during this period were insufficient to cover domestic inflation (Ellis 1988). By failing to adjust the foreign exchange rate the ability of the government to raise producer prices in face of falling world market prices was limited (Ndullu and Msambichaka 1985).

Low prices of export crops made non agricultural activities, especially commerce, more attractive. It also provided farmers with incentives to shift to production of food crops with high returns that could easily be sold in uncontrolled markets.

In the 1970s to early 1980s, informal maize market prices were 100 to 800 percent higher than official prices, depending on year and location (Ndullu and Msambichaka 1985; Lele 1989b).

Ellis (1988) examined Tanzania agricultural price policy implementation and its strategic impact over the period 1969 to 1980 and found substantial deterioration of real prices and incomes from crop sales during the 1970s. According to Ellis, this had a major adverse impact on economic performance of the country.

The agricultural sector was taxed heavily in the 1970s and early 1980s resulting in a decline of producer shares of export earnings which declined from 70 percent to 41 percent. After 1980 the shares increased to 56 percent in 1981 and to 75 percent in 1983. Changes in the shares are due to implicit taxation following the overvaluation of the currency and direct taxes especially on coffee, the main export crop (Ellis 1988).

Lele (1989b) measured the taxation of agriculture as the differential between producer and international prices. With respect to coffee, Tanzanian farmers received far less compared to Kenyan farmers as prices for the later were determined directly by international prices after processing and marketing costs had been deducted (see. Table 3.1).

Official devaluations of the currency were made in 1983 and 1984 with a major devaluation implemented in June 1986. The government also removed export taxes on most of the crops in 1985 (Ellis 1988). Since then, the correction of exchange rate and producer price distortions has shifted some resources from food to export crops (Lele 1989b).

Table 3.1: Ratio of producer to international prices for coffee: Tanzania and Kenya 1972-86

Year	Kenya	Tanzania
1972	0.98	0.57
1973	1.02	0.44
1974	1.01	0.41
1975	1.02	0.31
1976	0.89	0.29
1977	0.94	0.33
1978	0.90	0.37
1979	0.92	0.29
1980	0.98	0.37
1981	0.86	0.38
1982	0.86	0.28
1983	0.94	0.24
1984	0.77	0.23
1985	0.87	0.23
1986	0.96	0.26

Source: Lele (1989a pp 17).

3.4.2.1.2 Agricultural sector development policy, resource use and planning

Taxation of the agricultural sector may be compensated for by government expenditure that directly or indirectly supports agriculture. Large net transfers extracted by the government from agricultural sector through a policy of maintaining low agricultural prices was not matched by reverse flows to agriculture. Domestic policy systematically discriminated against agriculture in terms of the allocation of public investment and the provision of an adequate producer incentive structure (Sepehri 1992). Tanzania had, in the 1970s, given precedence in its development strategy to equity over growth. Heavy investments in the social welfare programs led to a severe over extension of government resources and the neglect of agriculture. In addition, the 1967-84 development programs focused heavily on industrial promotion. The industrial policy that stressed on intense import substitution was the government's deliberate response to export pessimism. This resulted into a strong competition, between the industrial and the agricultural sectors, for budgetary resources and policy attention (Lele 1989a).

Land and labour policies of the country in the late 1960s and 1970s were detrimental to agricultural production. Following the policy of socialism declared in 1967, the government nationalised many private estates in the 1970s and prevented the development of further private land ownership. By the early 1970s private corporate estates made up to 25 percent of official tobacco procurement but the share had fallen to five percent by 1980s with peasant producers (with holdings of less than 10 hectares) producing 90 percent (Lele 1989b). Van Buren (1994) notes that in 1976 more than half of the sisal estates were nationalised and only on the remaining privately owned estates was production maintained at a fairly steady level.

A Villagisation program, launched in 1973-74, consisted of replacing the traditional system of rural settlements, in which households are allocated in small isolated pockets, with the creation of large villages. This affected production of both food and export crops (Mopolu 1990). The Villagisation policy forced, without the consent of villagers, to the resettlement of over 9.0 million people or about 60 percent of the population into 6 000 villages by mid-1975. Poor citing of villages and their large sizes increased the distances villagers had to walk to farms. Greater walking distances to production units also increased the cost of fuel wood and caused deforestation and a reduction in soil fertility. Deforestation had an adverse effect on small holder tobacco and pyrethrum growers as obtaining fuel wood for curing the crops became more labour intensive (Lele and Meyers 1989).

Before 1986 minimum wage laws, a restriction of labour movement across regional boundaries, the encouragement of trade unions on estates and political pressure that discouraged the use of hired labour by small and medium sized farmers all resulted in labour shortages. This created a disincentive for the production of labour intensive crops such as coffee, sisal, tea and tobacco (Lele 1989b)

With the adoption of Structural Adjustment Programs, there have been changes in policies with more emphasis on agriculture. In 1986 the government began to dispose of many of its 37 sisal estates to private interests. Private sector involvement in agriculture including foreign investors was also encouraged (Van Buren 1994).

3.4.2.1.3 Marketing arrangements

Since the 1960s the state became involved in agricultural markets with the mechanisms and institutions of interventions changing from time to time. Prior to 1973 a three-tier cooperative marketing system consisting of primary cooperative societies, regional cooperative unions and marketing boards were in operation. This system was dissolved in 1973, due to inefficiencies and because members of the cooperative societies became scattered following the Villagisation Act. In 1975 the new villages were declared multipurpose cooperatives and the government created ten new parastatal crop authorities, organised on a crop basis, to purchase crops directly from the villages. These were, the Tanzania Cotton Authority, Coffee Authority of Tanzania, Tobacco Authority of Tanzania, Tanzania Tea Authority, Tanzania Sisal Authority, Cashew nut Authority of Tanzania, Tanganyika Pyrethrum Board, Sugar Development Corporation, General Agricultural Products Export Corporation and The National Milling Corporation. These Authorities were responsible for the production, development, procurement, processing and marketing of the crops. Cooperative Unions were officially dissolved in 1976 (Ellis 1988).

However, the Authorities proved inefficient with purchases declining sharply. In 1981 a decision was made to return to a cooperative marketing system (as before) with villages acting as primary societies. Most marketing functions were reassigned to new societies and unions. The crop Authorities reverted to the role of marketing boards. Their crop development functions were recentralised in the Ministry of Agriculture. Unions deal with marketing at regional level and marketing boards at national and international level (Ellis 1988).

The instability in marketing institutions disrupted the marketing and processing of export crops. The quality of tobacco and cotton deteriorated due to poor handling, processing and export arrangements. The environment for small holder production

was destabilised, resulting into reduced production of most critical export crops. The instability also led to the growth of parallel markets in food crops. This coupled with low prices of export crops, made food crops more attractive to farmers (Christiansen and Lele 1989).

Lack of cash and management skills, together with transport problems, still hinder the operations of the Unions. In 1989 the unions purchased only 288,606 metric tons of crops, 38 percent of the target level (Van Buren 1994).

The government is now encouraging private sector participation in agricultural marketing. In 1991 legislation was adopted to end the state monopoly over agriculture marketing, permitting private traders to market crops alongside Cooperatives. However, the implementation has been slow in cotton. Non-traditional trade in fresh fruit and vegetables has been encouraged by private stimulation, but is constrained by a lack of chilled storage facilities and expertise among both growers and exporters regarding matters of quality, standards and packaging requirements (Van Buren 1994).

3.4.2.1.4 Others

Other internal policy factors that have affected export performance include the access or lack thereof of farmers to research, extension and credit inputs. Lele (1989a) noted that these factors can critically affect the willingness of producers to apply their labour in ways that enhance yield. Although the effects are difficult to quantify, Lele argues that the same have had positive effect on agricultural export growth in Kenya compared to Tanzania.

Poor internal transportation, an inadequate flow of timely and reliable market information, together with poor storage facilities, has inhibited the development of local market infrastructure. Tanzania has a poor record of maintenance of newly constructed and existing feeder roads (Lele 1989a).

Fragmentation in policy planning is noted as a widespread problem in Tanzania. Since the 1970s the Party and the Prime Ministers Office have had greater policy influence in agriculture than the Ministry of Agriculture (Lele 1989a).

3.4.2.2 Spontaneous factors

Shocks of a random nature that have influenced the export performance of Tanzania include the effects of droughts, wars, the break up of the East African Community in 1976 and the closure of the common boarder between Tanzania and Kenya in 1977 (Lele and Meyers 1989).

Drought affected the country in the early 1970s. This was the same period that the world oil price shocks occurred resulting in a severe economic crisis. The war with Uganda in 1979 disturbed production at the boarder and affected government expenditure (Lele and Meyers 1989).

With the break up of the East African Community and the closure of the Tanzania-Kenya boarder, Tanzanian export trade, that relied on sales through Kenyan based traders and export markets, suffered heavily. This included coffee and sisal produced by estates. The country's bilateral sales outside the quota market increased in part reflecting a poorer quality crop following poor export arrangements (Lele and Meyers 1989).

3.5 Summary

Tanzania is a low income country. Growth of the economy relies heavily on the development of agricultural exports. For the period 1962-92, agricultural export earnings have fluctuated with high earnings between 1976-81. Several external and internal factors have influenced the performance of the sector. The major demand factors that have been influential are fluctuating world export prices, oil price hikes and changing trade arrangements. Supply-side factors also appear to have had a major influence. An overvalued local currency, government control of the economy and instability in the economic environment have had major impact on agricultural production. The inward oriented policies dominated during 1962-1980 period. During this period the government controlled economic activities and restricted imports. According to the World Bank (1991) such measures are attempts to address the demand-side rather than supply-side factors. However, following the adoption of Structural Adjustment Programs since 1981 Tanzania began to reform the agricultural and trade policies. Major change occurred in 1986, with a massive devaluation. More liberalisation efforts are being made with the withdrawal of government's involvement in the economy and adoption of policies which promote exports.

Chapter 4: Method of analysis

4.1 Introductory remarks

The purpose of this chapter is to describe the method of analysis and the data used in this study. However, in order to provide some background information on the basis for selecting the method, some of the problems associated with the measurement of export performance in general are provided and the two approaches mostly used to analyse export performance are briefly discussed in section 4.2. Then the method adopted for this study is described in section 4.3 and data and its sources in section 4.4.

4.2 Measurement of export performance

As pointed out in chapter two, the export performance of a nation is determined by a multitude of factors. Among other things, these include exchange rate and macroeconomic policies, social and physical infrastructure, the quality of export commodities, diversification together with population and income level of the exporting country. However, growth in exports may also be affected by changes in population, income levels and relative prices in importing countries through the effects that these factors may have on demand for exports. Economic and political relations, together with proximity to the market, may also be important determinants of export performance of a country (Islam 1990). While it is agreed among economists that both internal supply and external demand factors influence export performance, there is a problem associated with the measurement of the performance. This problem is associated with determining the individual factors that influence a country's export performance and how each of them should be measured (Nugent and Yotopoulos 1976). Due to this, many authors notably, Kravis (1970), Love (1984) and Athukorala (1991), have resorted to using aggregate measures.

As mentioned in chapter three, some of the external factors that appear to have influenced export performance in Tanzania include changes in world demand conditions which cause fluctuations in the prices of major commodities, changing trade arrangements and competition from synthetics for the case of sisal. The supply side influences include exchange rate, producer prices and sectoral development policies, together with poor resource allocation and planning.

Other factors, also on the supply side, include inefficiency and instability in marketing arrangements, inadequate incentives to farmers, poor physical infrastructure, drought, war and political issues. Most of these factors are not directly measurable and where measurement is possible there are problems on data availability. In view of this, an aggregate approach in investigating the country's export performance appears to be more appropriate. Next, two such approaches are briefly discussed to help provide background on the logic behind the selection of the appropriate method of analysis for this study. These two are the Market Share Approach and the Econometric or Export Performance Approach.

4.2.1 The Market Share Approach

A country's market share can be defined as the ratio of its exports of a particular group of commodities to those for a region or even the world. The Market Share Approach is also referred to as the Constant Market Share Approach (CMSA) and deals with the study of the factors that may change a country's export share (Nugent and Yotopoulos 1976).

The factors usually considered are the:

- commodity or structural effect, that is, the extent to which a country's exports are concentrated on commodities for which demand is growing faster or slower than average;
- regional market effect, that is, the extent to which exports may be going primarily to rapidly growing or to stagnant regions; and
- competitive effect, that is, the effect of changes in the prices of a country's exports relative to those of a region.

4.2.1.1 Illustrations of the approach

Illustrations used by Nugent and Yotopoulos (1976 pp 315) are adopted here to show the application of the CMSA starting with the competitive effect. An exporting country's share in the total trade of a commodity i by region j is defined as

$$s_{ij} = q_{ij} / Q_{ij} \quad (4.1)$$

where:

s_{ij} = the individual country's share in the total trade of a commodity i by region j ;

q_i = the individual country's exports of commodity i ; and

Q_i = the total (regional) exports of commodity i .

The demand for commodity i being a function of the price of the commodity, we can write

$$\frac{q_{ij}}{Q_{ij}} = \left(\frac{p_{ij}^*}{P_{ij}} \right) \quad (4.2)$$

where:

p_{ij}^* = price of commodity i for the specific country;

P_{ij} = price of the respective commodity in the region as a whole; and

all other variables are as described above.

Multiplying both sides of the equation 4.2 by p_{ij}^*/P_{ij} yields

$$\frac{p_{ij}^* q_{ij}}{P_{ij} Q_{ij}} = \frac{p_{ij}^*}{P_{ij}} f \left(\frac{p_{ij}^*}{P_{ij}} \right) \quad (4.3)$$

This is the constant share norm. It indicates that a country's share of the value of exports of commodity i will remain constant, except if p_{ij}^*/P_{ij} changes. Deviations from the constant share are the result of the competitive effect, that is, changes in the country's price of commodity i relative to the regional average.

In physical terms, the constant share is expressed as:

$$q_{ij} = s_{ij} Q_{ij} \quad (4.4)$$

By differentiating with respect to time, equation 4.4 is expressed in terms of growth rates

$$\frac{dq_{ij}}{dt} = s_{ij} \frac{Q_{ij}}{dt} + Q_{ij} \frac{ds_{ij}}{dt} \quad (4.5)$$

This indicates that growth rate of the country's exports is related to the product of it's (constant) share and the rate of growth of the market for product i plus the product of the (constant) size of the market and the growth rate of the country's share.

Defining

$$q = \sum_i \sum_j q_{ij};$$

$$s = \sum_i \sum_j s_{ij}; \text{ and}$$

$$Q = \sum_i \sum_j Q_{ij},$$

the rate of growth of aggregate exports, dq/dt , is given by

$$\frac{dq}{dt} = \sum_i \sum_j s_{ij} \frac{dQ_{ij}}{dt} + \sum_i \sum_j Q_{ij} \frac{ds_{ij}}{dt}. \quad (4.6)$$

By adding and subtracting terms, equation 4.6 is reexpressed as

$$\begin{aligned} \frac{dq}{dt} = & \left(s \frac{dQ}{dt} \right) + \left(\sum_i s_i \frac{dQ_i}{dt} - s \frac{dQ}{dt} \right) + \left(\sum_i \sum_j s_{ij} \frac{dQ_{ij}}{dt} - \sum_i s_i \frac{dQ_i}{dt} \right) \\ & + \left(\sum_i \sum_j Q_{ij} \frac{ds_{ij}}{dt} \right) \end{aligned} \quad (4.7)$$

The formulation of CMSA allows the overall growth in a country's export trade to be analysed into four components that operate on the demand-side.

- The first term of equation 4.7 accounts for the overall growth of world markets;
- the second term represents the commodity effect, that is, the influence of the world markets for the country's export bundle relative to total world exports;
- the third term accounts for the geographical market effect; and

- the last term is the change in the constant share that, by assumption, represents the competitive effect, that is, the role of the change in prices (Nugent and Yotopoulos 1976 p315).

4.2.1.2 Limitations of the approach

Ideally, the CMSA should be applied as specified in equation 4.7, with aggregation taking place over each commodity, i , and the share being expressed in physical terms. If commodities are not homogeneous, they are not comparable, and aggregation is not possible. On the other hand, if commodities are homogeneous, one would expect to observe perfect world markets with identical prices, and therefore, the last term of equation 4.7 must be interpreted as representing errors in measurement rather than the competitive effect (Nugent and Yotopoulos 1976).

Although the primary agricultural export commodities for the case of Tanzania may be homogeneous, not all the data is available in physical terms. Nugent and Yotopoulos (1976) point out that measuring q and Q in value terms would distort the measurement of competitive effect that is assumed to operate through changes in prices and render its interpretation ambiguous.

Apart from all the above, the fundamental limitation of the CMSA is that it deals mainly with the demand-side factors and the supply factors of a country are disregarded. Only the competitive effect, which incorporates prices, reflects the operation of both supply and demand conditions. The factors that explain the changes in these supply and demand conditions, and which are of major importance to policy purposes, remain hidden. Only the market effect is directly calculated. Other factors are lumped together as residual on the basis of the restrictive assumption that export performance is entirely accounted for by the three factors, that are, the structural effect, the regional market effect and the competitive effect. As a result the approach becomes powerless for policy purposes (Nugent and Yotopoulos 1976; Athukorala 1991).

4.2.2 Econometric or export performance approach

The limitation of the traditional CMSA have led to the development of econometric models in which the components of the CMSA are disaggregated into dependent and independent variables. By introducing into the market share equation additional variables, to reflect supply factors and structural considerations, the econometric approach becomes an analytically powerful tool that makes it possible to test alternative hypotheses and derive policy implications.

4.2.2.1 Examples of the approach

De Vries (1967) explained the differences in export performance among countries as the percentage deviation of actual exports from those that would have resulted if the country's market share had remained constant. The explanatory variables included the initial share, the sectoral composition of GNP, the rate of inflation and the change in exchange rate relative to domestic prices. To make the export performance approach (EPA) provide more interesting policy implications, Nugent and Yotopoulos (1976) included in their model supply and demand factors as well as non-traditional structural factors and traditional relative price effects. They applied the model to an international cross-section of 38 less developed countries for the period 1949-67. Specifically, export growth for the sample of the 38 countries was expressed as a linear function of the:

- change in the real exchange rate, that is, the change in the domestic price of foreign exchange index relative to that of the domestic price index;
- change in export prices;
- growth in GDP;
- growth in world demand for export, expressed in terms of both geographic composition and commodity composition;
- change in export tax rate, in licencing requirements on exports, and in foreign exchange surrender requirements on exports;
- participation in regional trading arrangement, such as the European Economic Community, Central American Common Market; and

- dummy variables for recovery from the disruptive conditions that may have been existing at the beginning of the time period on account of civil or other wars.

A simpler time series regression model that permits investigation of the relative importance of determinants of export performance for individual countries is that developed by Love (1984) and Athukorala (1991). In this approach the trade performance of a country is determined by external market conditions for traditional exports, the country's ability to compete in world markets and the extent to which the country succeeds in diversifying the commodity composition of its exports.

The external market conditions represent the demand-side factors, while competitiveness and diversification together represent the supply-side or internal factors. Indices are developed for each of the variables that are then used as explanatory variables in a regression model to explain changes in real exports.

4.2.2.2 Limitations of the approach

As noted from the examples of the EPA presented above, some of the variables are common to the CMSA. However, in the EPA greater consideration is given to the supply factors, such as, the influence of relative price changes on composition of output, factors relating to aggregate supply, civil and other disturbances, along with policy variables affecting relative profitability of export activities.

Although the EPA as applied by De Vries (1967) and Nugent and Yotopoulos (1976), results in disaggregated demand and supply factors and may be useful in policy implications, it is based on the utilisation of international and cross-sectional data. Its utilisation is therefore limited to the availability of data and also to the analysis of the export performance of group of countries. Although the procedure was applied by Love (1984) and Athukorala (1991), who tried to overcome the conceptual and practical difficulties of similar time series analyses, the supply factors are not sufficiently disaggregated for policy purposes

4.3 Method adopted

For the purpose of this study, EPA appears to be the best approach for analysing the relative importance of the supply and demand factors in influencing export performance of Tanzania. The selection of the model is, however, limited by availability of data and problems of measurement of individual supply and demand factors. In view of this the time series regression model developed by Love (1984) and Athukorala (1991) is adopted. The model captures the effect of both external demand and internal supply factors on export performance and permits an investigation of the relative importance of the determinants of export performance of individual LDCs. Compared to the CMSA the variables of demand and supply sides are more dis-aggregated. Moreover, the supply-side factors of competitiveness and diversification are directly measurable as compared to the decomposition technique adopted by Kravis (1970) where they are treated as residuals. In this section the theoretical foundation of the model, empirical estimation of the variables and the statistical model adopted for the study are described.

4.3.1 Theoretical foundation of the model

The theory behind the Love (1984) and Athukorala (1991) model was developed by Kravis (1970). The basic foundation of the model is the small country assumption in world trade. Overall, world market conditions for particular products are determined by the interaction of aggregate demand and aggregate supply. With a few exceptions, such as Brazil in the world coffee market, individual developing countries have little influence over events in world markets (Love 1984). Consequently, under given world market conditions for its traditional exports, an individual country can achieve higher export growth compared with the other countries by improving upon its market share of these exports, a factor referred to as "competitiveness" and/or by diversifying its commodity mix into new product lines "diversification" factor (Kravis 1970; Love 1984; Athukorala 1991).

A simple way of identifying the relative importance of domestic supply-related factors as against external demand factors in export expansion is therefore to examine the association between relative export growth on one hand and changes in the commodity composition and market shares of traditional exports on the other. If supply conditions, rather than external demand are the major determinant of export success, then successful exporters should be those that increase their market shares of traditional exports and/or diversified the commodity composition of their exports.

Alternatively, if external demand is the major determinant of export success then increasing market share of traditional exports and/or diversification should have no influence on the export performance. (Athukorala 1991).

The two supply-side variables used in the model namely competitiveness and diversification, potentially capture the influence not only of domestic policy but also of various spontaneous (non-policy) factors operating on the supply-side (Love 1984; Athukorala 1991). However, strong evidence from several studies on trade policy and economic performance in developing countries indicates that both market share gains in traditional exports and export diversification correlate with the nature of domestic policy orientation over and above the influences of non-policy factors (see Kravis 1970; Balassa 1978; Krueger 1978). In view of this, competitiveness and diversification are expected to capture the net impact of domestic policy on export performance.

The use of variables representing domestic policy influences in place of competitiveness and diversification is limited due to formidable conceptual and data problems. Moreover, many components of direct financial incentives to exports and other supply-side initiatives by the government such as infrastructure development, agricultural research and extension services are not directly measurable (Athukorala 1991).

4.3.2 Empirical estimations

From the theoretical background explained above, the factors considered important in influencing export growth in this study are 'world demand', 'competitiveness' and 'diversification'. The main difference between this approach and that used by Kravis (1970) is that Kravis used the decomposition technique in estimating the variables. Only the first variable of world demand is measured directly. Part of the performance of a country's traditional exports that is not explained by growth in world demand is assigned to a competitiveness factor. The difference between the performance of traditional exports and that of total exports is attributed to commodity diversification. In Love (1984) and Athukorala (1991) the same variable set is used but differently defined and estimated in a time series regression model to explain changes in real exports. In particular, specific indices for each of the variables are estimated.

As stated by Athukorala (1991) the model is:

$$EX_t = f(WD_t, CM_t, DV_t), \quad (4.8)$$

where:

EX = index for total export earnings;

WD = index for world demand for traditional exports;

CM = index for competitiveness in traditional exports; and

DV = index for export diversification.

The expected signs for WD and CM are positive, while DV is expected to be negative. In the following sub-sections definitions of each of the variables employed in this study are described.

4.3.2.1 Dependent variable

The dependent variable, EX, is the export growth rate measured as an index representing the value of agricultural export earnings for the country as employed by Love (1984). The index is set to 100 at the base year, 1962, and is derived by summing up constant export earning series of primary agricultural exports.

$$EX_t = \sum_{i=1}^n X_{it}, \quad (4.9)$$

where:

EX_t = index for export growth set to 100 at the base year, 1962;

X_{it} = value of exports of commodity i ; and

n = number of primary agricultural commodities (excluding fisheries and forestry).

4.3.2.2 Independent variables

Of the three independent variables, world demand, WD, represent the demand-side while competitiveness, CM, and diversification, DV, represent supply-side effects.

4.3.2.2.1 World demand

Given that individual developing countries, as Tanzania, have little influence over events in world markets, the value of world trade in a particular product may be taken as an indicator of external market conditions for that product (Kravis 1970; Love 1984; Athukorala 1991). Therefore world demand conditions (export market potential) for agricultural export commodities, WD_t , is measured in terms of a weighted-average index of constant price world exports for the set of commodities a country traditionally exports (Love 1984; Athukorala 1991).

$$WD_t = \sum_{i=1}^n \alpha_{it} WX_{it}, \quad (4.10)$$

where:

α_{it} = share of commodity i in the country's earnings from traditional exports;

WX_{it} = an index of constant price world export of commodity i set to 100 at $t=1$; and

n = number of traditional commodities.

Following Love (1984) an export product is considered traditional if it accounts for at least 5 percent of total export earnings over the first four years of the period covered.

4.3.2.2.2 Competitiveness

Competitiveness is measured in terms of changes in the market shares of traditional exports. It is assumed that internal factors influence export performance through their impact on the country's market shares. For instance, in the case of deteriorating external market conditions, a country may offset, wholly or partially, any resulting decline in earnings and may even raise earnings if improvements in its competitiveness standing enable it to raise its market shares (Love 1984). The effect of 'competitiveness' is reflected in differences between actual market shares and some 'market share norm'.

The definition of a market share norm is inevitably largely arbitrary. Love (1984) defined a country's share norm for a given commodity as the average of the observed market shares in the immediately preceding four years.

In this study the Athukorala (1991) definition is adopted. The norm is estimated by assuming that the country had maintained its 'initial' market share in the exports of traditional commodities but the same is allowed to change with respect to growth in world exports of respective commodities.

Therefore a measure of the country's overall competitiveness for year t , CM_t , is defined as:

$$CM_t = 100 \left[\frac{\sum_{i=1}^n XP_{it}}{\sum_{i=1}^n \beta_i XW_{it}} \right], \quad (4.11)$$

where:

CM_t = index for competitiveness;

XP_{it} = export earnings of each i th traditional commodity;

XW_{it} = world export earnings;

β_i = initial period (1962) world market share; and

n = number of traditional commodities.

4.3.2.2.3 Diversification

Success in reducing a country's dependence on a narrow range of export products may be judged by the extent to which an index for concentration is reduced (Love 1984). Export diversification, DV, is thus measured using the Gini-Hirschman coefficient defined as

$$DV_t = 100 \sqrt{\sum_{i=1}^n \left(\frac{X_{it}}{\sum_{i=1}^n X_{it}} \right)^2}, \quad (4.12)$$

where:

DV_t = diversification index;

X_{it} = value of exports of commodity i ; and

n = number of commodities the country exports.

DV is an indirect measure of diversification. Its highest possible value is 100 that occurs when total export is composed of only one commodity. The increase in the number of goods exported and/or a more even distribution of export among these goods is reflected in a lower value of DV (Athukorala 1991).

4.3.3 Statistical model

As already mentioned, a time series regression model is employed in the statistical analysis. Love (1984) used a linear functional form while Athukorala (1991) used a log-linear form. Since the study is on the relative importance of the supply and demand factors in influencing export performance, the magnitudes of the coefficients are important in interpreting the results. For the estimates to be comparable the variables have to be free of unit of measurements. Statistically, the log model is free of units of measurement (Doran and Guise 1989 p135-6). Thus the linear functional form used by Love (1984) appears not to be appropriate unless the variables were standardised prior to estimation.

In this study both models are initially used to establish which one best fits the data. These are, the linear model with standardised variables and the log model.

The linear functional form is:

$$EX_t = a_0 + a_1 WD_t + a_2 CM_t + a_3 DV_t + u_t \quad (4.13)$$

for $t = 1, \dots, n$

where:

a = unknown parameters;

EX_t = index for total agricultural export earnings;

WD_t = index number for world demand;

CM_t = index number for competitiveness;

DV_t = index number for diversification; and

u = error term.

The log-linear model is:

$$\ln EX_t = \beta_0 + \beta_1 \ln WD_t + \beta_2 \ln CM_t + \beta_3 \ln DV_t + u_t \quad (4.14)$$

where:

β = unknown parameters and all other variables are as defined above.

The above models assume that export performance is totally accounted for by the three variables. In this study a trend variable is introduced in the model to capture the influence of any other factor that might have a role in the relationship. Therefore, the following model is estimated:

$$\ln EX_t = \delta_0 + \delta_1 T + \delta_2 \ln WD_t + \delta_3 \ln CM_t + \delta_4 \ln DV_t + u_t \quad (4.15)$$

where:

T = trend variable;

δ = unknown parameters; and all other variables are as defined above.

This model is used for the analysis of export performance for primary agricultural exports. However, considering that different commodities may respond differently to changes in world demand and or competitiveness and diversification, it is possible to disaggregate the variables to enable analysis of export performance of individual commodities that are of more importance to the overall performance of the sector relative to the others.

For the case of Tanzania the leading commodities are coffee, cotton and sisal. In this case separate equations for the commodities are estimated as part of a 'seemingly unrelated regression model' system.

$$(i) \ln EXC_t = \alpha_0 + \alpha_1 T + \alpha_2 \ln WDC_t + \alpha_3 \ln CMC_t + \alpha_4 \ln DV_t + u_t \quad (4.16)$$

where:

EXC = index for coffee export earnings;

T = trend variable;

WDC = index for world demand for coffee;

CMC = index for competitiveness in coffee exports; and

DV = index for diversification.

$$(ii) \ln EXCT_t = \alpha_0 + \alpha_1 T + \alpha_2 \ln WDCT_t + \alpha_3 \ln CMCT_t + \alpha_4 \ln DV_t + u_t \quad (4.17)$$

where:

EXCT = index for cotton export earnings;

WDCT = index for world demand for cotton;

CMCT = index for competitiveness in cotton exports; and

DV = index for diversification.

$$(iii) \ln EXS_t = \alpha_0 + \alpha_1 T + \alpha_2 \ln WDS_t + \alpha_3 \ln CMS_t + \alpha_4 \ln DV_t + u_t \quad (4.18)$$

where:

EXS = index for sisal export earnings;

WDS = index for world demand for sisal;

CMS = index for competitiveness in sisal exports; and

DV = index for diversification.

It is worth mentioning that in all the above equations the diversification index, DV, is the same as it refers to diversification of the primary agricultural export sector. However, the respective coefficients may be different.

To examine structural changes within the economy, a dummy variable, can be introduced in the model (Love 1984). For the case of Tanzania, two different trade regimes have been in operation between the period 1962-92. The restrictive regime from 1962 to 1980 and the liberal regime from 1981-92. The restrictive regime is the period when the government was in full control of the economy and the local currency was excessively overvalued. This is also the period when world prices of non-fuel exports were erratic and weak and the world was in recession following oil price shocks of 1973-4 and 1977-8 (World Bank 1981). On the other hand, Tanzania commenced liberalisation in 1981 with the introduction of more flexible exchange rate policies and allowed for more involvement of the private sector in leading economic activities.

To examine whether the liberal trade regime has lead to improved export performance a dummy variable, D^* , is introduced in equation 4.14 and the following equation is estimated.

$$\ln EX_t = a_0 + \beta_0 D^* + a_1 \ln WD_t + \beta_1 D^* \ln WD_t + a_2 \ln CM_t + \beta_2 D^* \ln CM_t + a_3 \ln DV_t + \beta_3 D^* \ln DV_t + u_t \quad (4.19)$$

where $D^* = 1$ for a restrictive regime, 0 otherwise.

Logically, a liberal trading regime within a country can influence export performance through its impact on supply-side variables, CM and DV. However, in the model the dummy is also included for the demand factor, WD, to examine whether slow growth in world demand had an adverse effect on export performance during the restrictive regime. The coefficients on the world demand, competitiveness and diversification variables for a restrictive regime are $(a_1 + \beta_1)$, $(a_2 + \beta_2)$ and $(a_3 + \beta_3)$, respectively. For a liberal regime the respective coefficients are a_1 , a_2 and a_3 (Love 1984).

4.3.4 Hypotheses testing

All three hypotheses stated in chapter one are tested for the significance of variables in equation 4.14 to 4.18. Results are interpreted based on outcome of the statistical tests and by looking at the signs and magnitudes of the respective coefficients. In similar studies by Love (1984) and Athukorala (1991), the coefficients of WD and CM are hypothesised to be positive. Since DV is an inverse measure of diversification, the sign expected for its coefficient is negative. However, in the interpretation the sign is ignored and the coefficient is interpreted as a direct measure of the impact of export diversification (Athukorala 1991). If the demand-side factors are dominant in determining export performance, WD should bear more weight in explaining EX. On the other hand, if supply-side factors are relatively more important EX should be largely explained by CM and DV.

The first hypothesis, that supply-side factors are no more important in determining export performance than demand-side factors, has been set in view of findings from previous similar studies on export performance of LDCs where successful countries have been those that have managed to improve their competitiveness standing and or diversified the export base. (Kravis 1970; Love 1984; Athukorala 1991). This hypothesis is tested using significance tests of the regression coefficients obtained from equation 4.15.

In this respect the hypotheses tested are

$$(a) H_0: \delta_2 = \delta_3$$

$$H_1: \delta_2 < \delta_3$$

$$(b) H_0: \delta_2 = |\delta_4|$$

$$H_1: \delta_2 < |\delta_4|$$

To examine whether the variables have behaved differently with respect to the individual commodities, similar tests are carried out for the respective coefficients in equations 4.16, 4.17 and 4.18.

The second hypothesis, that competitiveness has no greater influence on export performance than diversification is set basing on the traditional trade theory of comparative advantage that advocates specialisation as against diversification.

The specific hypothesis tested is

$$H_0: |\delta_4| = \delta_3$$

$$H_1: |\delta_4| < \delta_3$$

As for the first hypothesis, similar tests are carried out on the relevant coefficients with respect to each of the equations 4.16, 4.17 and 4.18.

To test the third hypothesis that a liberal trade regime has no significant effect on export performance, the significance of the dummy variable coefficients, β_1 , β_2 and β_3 in equation 4.19 are examined. This is complemented by the examination of the signs and magnitudes of the respective coefficients of the variables for the different trade regimes, that is, $(a_1 + \beta_1)$, $(a_2 + \beta_2)$ and $(a_3 + \beta_3)$ for the restrictive regime and a_1 , a_2 and a_3 for the liberal regime.

4.4 Data and sources

In this study the post-independence period of 1962 to 1992 is fully covered in the analysis of export performance of Tanzania. Therefore, the cumulative effect of changes in policies over the period is captured in the analysis. To maintain consistency, annual data on values of the country's total and individual primary agricultural export commodities are obtained mainly from FAO Trade Yearbooks supplemented by the IMF International Financial Statistics Yearbooks and the United Nations Yearbooks of International Financial Trade Statistics only where necessary. The same applies to the world export figures.

The commodity classification system used is the United Nations' Standard International Trade Classification (SITC). For 1962 - 1965 the same is based on SITC Revision 1 and for 1965 - 1992 on SITC Revision 2. The revision, however, did not affect classification of any of the commodities. Data used is thus relatively consistent throughout the period. The respective SITC classification and numbers used for the respective commodities are as shown in Table 4.1.

Table 4.1 Tanzania main exports with UN-SITC classification system

Traditional export	Classification	SITC number Rev. 1 & 2
Coffee	Coffee, green or roasted and coffee substitutes containing coffee	071.1
Cotton	cotton, raw other than linters	263.1
Sisal	sisal and other agave fibre's and wastes	265.4
Cashew nuts	cashew nuts	05773
Tea	tea	074.1
Tobacco	tobacco, unmanufactured	121
Cocoa	cocoa beans	072.1
Sugar	raw equivalent	061.1 + 061.2
Oil seeds (sesame and sunflower)	sesame and sunflower seeds	222.5 + 222.4

Source: FAO Trade Yearbooks.

Figures for world trade in total agricultural commodities exported by Tanzania are provided in Appendix 1. These include only primary agricultural exports excluding forestry and fisheries. Figures for values of the country's main primary exports to the world and their shares in total agricultural commodities exported are as shown in Appendix 2 and 3 respectively. The values are expressed in \$US equivalent 'fob'. Total world export figures used in the estimation of WD for the traditional commodities are provided in Appendix 4.

4.5 Summary

Identification of the specific factors influencing export performance of a country, measuring the respective factors and applying the same in the analysis of export performance of a country is still a major problem facing economists. This is mainly because export performance is influenced by a multitude of factors that also influence each other. Furthermore, most of these factors are not directly measurable. Most analysts of export performance have resorted to using aggregate measures. Due to the same problems the method used in this study is based on aggregate measures as applied by Love (1984) and Athukorala (1991). The model used is a time series regression model with export growth rate as the dependent variable. In addition to the three explanatory variables of world demand, representing demand factors, and competitiveness and diversification representing supply factors, a trend variable is introduced in the model. A dummy variable is used to analyse the effect of different trade regimes. Testable hypotheses are set in line with findings from previous similar studies and standard economic theory. Data used covers the period 1962 to 1992 and is mostly obtained from FAO Trade Yearbooks to maintain consistency. Results obtained through the application of the method and procedures described in this chapter are the subject of discussion in the following chapter.

Chapter 5: Analysis of results

5.1 Introductory remarks

The purpose of this chapter is to discuss statistical results of the study and to provide the statistical interpretations of these results. To begin with, the procedure used in processing the data before carrying out the regression analysis is summarised in section 5.2 followed by the process involved in model selection in section 5.3. Statistical tests and results on the selected models are discussed in section 5.4.

5.2 Data processing

The indices of total export earnings, EX, world demand for traditional exports, WD, competitiveness, CM, and diversification, DV, were constructed based on constant (1985) export prices. In the absence of published export unit value indices for Tanzania, export unit value index for Africa obtained from the IMF (1992) International Financial Statistics Yearbook, were used to deflate the total export series. Individual commodities were deflated using the respective world commodity price indices. As explained in sub-section 4.3.2.2, commodities considered as traditional exports are those that comprise of up to 5 percent of total export earnings over the first four years of the analysis. As seen from Appendix 3, these are sisal, cotton, coffee, and cashew nuts. However, due to unavailability of the corresponding total world export figures for cashew nuts, only the first three were considered as traditional exports in the construction of the WD and CM indices. The indices that have been used as variables in estimating the equations for export performance for the sector are given in Appendix 5. In Appendix 6 indices derived for estimations for export performance of individual main commodities are presented.

The time series characteristics of the variables were examined by obtaining the autocorrelation (ACF) and partial autocorrelation (PACF) functions and conducting the Augmented Dickey-Fuller (ADF) test for the presence of unit roots. For two of the variables, viz CM and DV, the null hypothesis of a unit root was rejected. With the other two variables, EX and WD, we were unable to reject this hypothesis. However, in view of the short series, and consequent lack of power of the ADF test, the analysis proceeded on the assumption that there are no unit roots with these data.

Such an assumption seems to be consistent with the ACF and PACF plots. The basic methodology is therefore conventional regression analysis. This is done by the use of the SHAZAM computer program.

5.3 Model selection

As described in chapter 4 previous analysts have either used the linear or the log-linear models. Furthermore, in this study a trend variable among the common regressors of world demand, competitiveness and diversification was considered. Selection of an appropriate model for the study is therefore based on the selection of a functional form and the appropriate set of regressors. The procedure followed is described below.

5.3.1 Selection of appropriate functional form

The Box and Cox procedure has been used to select between the linear (4.13) and log-linear (4.14) models by testing the following hypothesis (Doran and Guise 1989 135-41).

H_0 : The two models are empirically equivalent.

H_1 : Either the linear or log-linear model fits the data best.

The test statistic ℓ is calculated to see whether the transformed sum of squared errors from the linear model and the sum of squared errors from the log-linear model are significantly different.

$$\ell = \frac{T}{2} \ln \left(\frac{SSE_L / \bar{Y}G^2}{SSE_{LL}} \right) \sim \chi^2_{(1)}, \quad (5.1)$$

where:

SSE_L = sum of squared errors from the linear model;

$\bar{Y}G$ = geometric mean of the dependent variable; and

SSE_{LL} = sum of squared errors from the log-linear model.

According to the method, the null hypothesis is rejected if ℓ exceeds the appropriate value from the $\chi^2_{(1)}$ distribution. The linear model is preferred if $SSE_L/\bar{Y}G^2$ is smaller and the log-linear model is preferred if SSE_{LL} is smaller (Griffith, Hill and Judge 1993, p346).

Following equation 5.1, value of the test statistic obtained is:

$$\begin{aligned}\ell &= \frac{T}{2} \left| \ln \left(\frac{4522800/6.3005^2}{3.2507} \right) \right| \\ &= 15.5 \left| \ln \left(\frac{113924}{3.2507} \right) \right| \\ &= 15.5 \left| \ln 35046 \right| \\ &= 162.2\end{aligned}$$

The critical value of $\chi^2_{(1)}$ with a 1 percent significance level is 6.64. Therefore H_0 is rejected at the 1 percent level and it can be concluded that the models are not empirically equivalent. Because SSE_{LL} (3.2507) is smaller than $SSE_L/\bar{Y}G^2$ (113924), the log-linear model was selected.

5.3.2 Selection of appropriate set of regressors

Selection between model 4.14 and model 4.15 is based on magnitudes of the adjusted coefficient of determination \bar{R}^2 , the Akaike Information Criterion (AIC) together with the hypothesis test on the relevancy of the coefficient for trend variable δ_1 .

The adjusted R^2 does not always increase when additional regressors are added. Consequently, it is often used to compare models with differing numbers of regressors. The model selected is the one with the largest \bar{R}^2 . As for AIC the model selected is the one that minimises the AIC (Griffith, *et al* 1993). Therefore, with respect to \bar{R}^2 and AIC, the model selected is model 4.15 that includes the trend variable in addition to WD, CM and DV as it has the highest \bar{R}^2 and the lowest AIC as shown below.

	\overline{R}^2	AIC
Equation 4.14	0.8833	0.1357
Equation 4.15	0.9312	0.0822

As for the relevancy of the coefficient for trend variable, δ_1 , the hypothesis tested was:

$$H_0: \delta_1 = 0$$

$$H_1: \delta_1 \neq 0.$$

The decision to reject or not reject the hypothesis was based on the calculated t-value for the coefficient as obtained from the SHAZAM computer program. The respective t-value with 27 degrees of freedom was 4.45. Since this is greater than the t-critical value at 1 percent level of significance H_0 was rejected indicating that δ_1 is relevant. Therefore, on the basis of the above tests, model 4.15 was selected as the best model for the study.

5.4 Regression results and statistical tests

Regression results and statistical tests discussed in this section pertain to an analysis of the:

- export performance of primary agricultural export sector;
- export performance of individual commodities, viz, coffee, cotton and sisal;
and
- effects of different trade regimes on export performance, that is, the dummy variable model.

5.4.1 The export performance of the primary agricultural sector

As described above, the model selected for determining export performance of the country for the period 1962-1992 is specified in equation 4.15 as

$$\ln EX_t = \delta_0 + \delta_1 T + \delta_2 \ln WD_t + \delta_3 \ln CM_t + \delta_4 \ln DV_t + u_t$$

The regression results together with relevant test statistics are reported in Table 5.1.

The Durbin-Watson bounds test is inconclusive in regard to the presence of serial correlation. The high R^2 value of 0.94 supports the goodness of fit of the regression. Furthermore, the regression passes the F-test for overall statistical significance suggesting that the coefficients are not simultaneously zero at 10 percent and 5 percent levels of significance.

All coefficients of the variables, that is, world demand (WD), competitiveness (CM) and diversification (DV), are statistically significant and have the expected signs. The former two are significant at the 1 percent level and the latter at the 5 percent level.

The t-tests for parameter equality indicate that the parameters are not statistically different suggesting that all parameters equally influence export performance. These results may however be influenced by the lack of power of the test due to the short time series of 31 years. However since all the variables have been used in logarithmic form, the estimated coefficients are at least comparable and can be directly interpreted as elasticities giving some interesting results.

In terms of magnitude of the coefficients, diversification is greater than competitiveness and competitiveness is greater than world demand. This suggests that export performance is relatively more sensitive to diversification and competitiveness as compared to world demand.

**Table 5.1: Determinants of export performance of the agricultural sector,
Regression results 1962-92**

Variable	Coefficient ^a
Constant	-0.2315 (-0.5354)
Trend	0.0449 (4.4503)***
World demand	0.6126 (8.3969)***
Competitiveness	0.9391 (4.2517)***
Diversification	-1.1356 (-2.1817)**
<i>Test statistics^b</i>	
R ²	0.9404
SE	1.8116
DW (d _U : 1.650) (d _L : 1.229))	0.9645
F (2.98, 4.64)	30.0591**
<i>T-test for parameter equality</i>	
$\delta_2 = \delta_3$	-1.4430
$\delta_2 = \delta_4 $	-1.0398
$\delta_3 = \delta_4 $	-0.4445

Note: ^a t-ratios are given in brackets with significance levels denoted as: *** =1 percent and ** = 5 percent

^b SE = standard error of the regression estimate. DW = Durbin-Watson test. Figures in brackets are upper and lower critical values at 5 percent level of significance. Figures in brackets for the F statistics are critical values at 10 and 5 percent respectively. **denote significance at 5 percent level.

5.4.2 The export performance of individual commodities

The three equations with respect to the main commodities, that is, equations 4.16, 4.17 and 4.18 were estimated as a system of seemingly unrelated regression (SUR) equations. The results are summarised in Table 5.2.

For each of the commodities the value of R^2 is high, indicating a goodness fit for all three regressions. Overall, statistical significance of the regressions are further confirmed by the F-test results that suggest that the coefficients are not simultaneously zero at 5 percent and 1 percent level of significance.

The coefficients of world demand and competitiveness variables are statistically significant at the 1 percent level and bear the expected signs for all the commodities. As expected, the coefficient for diversification variable is not significant for all the cases and also has an unexpected positive sign.

The Wald Chi-Square statistic has been used to test for parameter equality. From the results it can be seen that for the cases of coffee and cotton, the parameters are not statistically different. However, for the case of sisal, the three parameters are statistically different. Specifically, world demand is significantly different from competitiveness and competitiveness is significantly different from diversification. The difference between world demand and diversification is not significant.

Comparison of magnitudes of the respective coefficients for each of the commodities reveal that the sensitivity of coffee and cotton export earnings with respect to world demand and competitiveness is more or less the same. For the case of sisal export earnings are more sensitive to competitiveness.

**Table 5.2: Determinants of export performance of individual commodities,
Regression results 1962-92**

Variable	Coefficients ^a		
	Coffee	Cotton	Sisal
Constant	-0.3747 (-0.2924)	-3.0651 (-1.5729)	-3.3766 (-3.909)***
Trend	0.0363 (8.1005)***	0.0527 (4.4841)***	0.0849 (19.663)***
World demand	0.6007 (27.32)***	0.5094 (5.9323)***	0.5166 (17.561)***
Competitiveness	0.559 (8.989)***	0.6093 (4.8195)***	0.9304 (14.053)***
Diversification	0.1665 (0.5556)	0.6719 (1.7496)	0.2832 (1.5241)
<i>Test statistics^b</i>			
R ²	0.9776	0.8883	0.9848
SE	0.1891	0.2476	0.1221
F (2.95, 4.57)	175.77***	21.83***	459.67***
<i>Wald Chi-square test for parameter equality</i>			
$\alpha_2 = \alpha_3 = \alpha_4 $	2.9502	0.3537	24.6825*
$\alpha_2 = \alpha_3$	0.4267	0.2767	21.1948*
$\alpha_2 = \alpha_4 $	2.0109	0.1728	1.4978
$\alpha_3 = \alpha_4 $	1.4538	0.2674	10.527*

Note: ^a t-ratios are given in brackets with significance levels denoted as: *** for 1 percent level of significance.

^b Figures in brackets are critical values of the F-test statistic (5 percent and 1 percent). Critical values for Wald Chi-square statistic is 3.84146 with 1 df and 5.99146 with 2 df at 5 percent level. * denote significant results at 5 percent level.

5.4.3 The effect of different trade regimes on export performance

Regression results and relevant test statistics on estimates of equation 4.19 are shown in Table 5.3. The R^2 value is high indicating the high explanatory power of the model. F-test results show that the dummy variable is statistically significant at the 1 percent level. Consequently, there are significant differences in the relationships between the variables for the two periods, that is, the restrictive and the liberal trade regimes. In other words, the regression for the restrictive regime is not the same as for the liberal regime.

The results further show that only the coefficient of the dummy for world demand is statistically significant. Exports responded differently in the two regimes to world demand. Although the coefficient is relatively larger, the change is not statistically significant.

In terms of sign of the coefficients, the coefficient of the dummy for world demand has a negative sign indicating that the restrictive trade regime coincide with the period when the response of export earnings with respect to world demand was low. Since the sign of the coefficient of diversification is negative, a positive sign of the coefficient of the dummy for diversification shows that the value of the coefficient of diversification during the restrictive regime was less than anticipated. However, contrary to expectations, the sign of the coefficient of the dummy for competitiveness is positive indicating that the coefficient of competitiveness during the restrictive regime was higher than that for the liberal regime.

Magnitudes of the respective coefficients for the two periods are summarised in Table 5.4.

**Table 5.3: Effect of structural change (dummy variable), Regression results
1962-92**

Variable	Coefficient ^a
Constant	0.6862 (2.0817)***
Intercept dummy	-0.2451 (-0.376)
World demand	0.8319 (19.988)***
Dummy for world demand	-0.6834 (-2.8063)***
Competitiveness	0.1885 (0.6735)
Dummy for competitiveness	0.6935 (1.6961)
Diversification	-1.8014 (-3.5607)***
Dummy for diversification	0.1874 (0.2237)
<i>Test statistics:</i>	
R ²	0.9694
SE	0.2028
F-test for significance of the dummy	
$\beta_0 = \beta_1 = \beta_2 = \beta_3 = 0$	13.9972***

Note: ^a t-ratios are given in brackets. Level of significance is denoted by *** for 1 percent.

Critical value for F at 1 percent level is 4.26.

Table 5.4: Summary of coefficients, restrictive regime (1962-80) and liberal regime (1981-92)

Variable	Coefficients	
	Restrictive regime (1962-80)	Liberal regime (1981-92)
WD	0.1979	0.8319
CM	0.882	0.1885
DV	-1.614	-1.8014

It can be concluded that for both periods, export performance has been relatively more responsive to diversification. For the liberal trade regime world demand has more influence on export performance as compared to the restrictive regime, but contrary to expectations, the response of export earnings to competitiveness during this period was low.

5.4.4 Summary of statistical results

The statistical results suggest that world demand, competitiveness and diversification together have significant influence on Tanzania's export performance of the primary agricultural export sector. Tests have however not been able to prove that the effect of each of the variables are statistically different. However, in terms of sensitivity, growth in real export earnings is more responsive to diversification and competitiveness compared to world demand. Contrary to expectations, the impact of diversification on total export earnings has been greater than that of competitiveness. A closer examination of the performance with respect to the main commodities within the sector reveal that while world demand and competitiveness together play a significant role in influencing the level of earnings from coffee and cotton, earnings from sisal are mainly influenced by competitiveness as the coefficient of this variable is larger and statistically different from world demand. As expected, diversification has no significant influence on earnings of the individual main commodities.

In addition it was found that there has been significant structural changes affecting the relationship of the variables between the periods 1962-80 (the restrictive regime) and 1981-92 (the liberal regime). However, contrary to expectations, the significant

change has been mainly due to change in response to world demand rather than to competitiveness and diversification. Comparison of magnitudes of the coefficients show that during the restrictive regime export performance was more responsive to competitiveness and diversification than to world demand. For the liberal regime the performance was more responsive to world demand and diversification than to competitiveness.

5.5 Summary

Variables used in the regression analysis have been based on constant 1985 prices. In absence of unit roots in two of the variables and on the strength of the autocorrelation and partial autocorrelation functions, the method employed in estimating the parameters is conventional regression analysis. The model that best fits the data is the log model that includes the trend variable. Results indicate that both external demand factors, represented by world demand, and internal supply factors, represented by competitiveness and diversification, have significant influence on export performance of the agricultural sector in Tanzania. Economic interpretations and policy implications based on these results are the subject of discussion in the next chapter.

Chapter 6: Policy implications

6.1 Introductory remarks

The purpose in this chapter is to draw inferences and implications from the results reported in the previous chapter. These implications relate principally to both domestic agricultural production and export policy. To begin with economic interpretations of the results are provided in section 6.2. In section 6.3 the policy implications drawn from the results are outlined followed by a summary on the issues raised in the chapter.

6.2 Economic interpretation

From an economic perspective, it can be concluded that both demand factors, represented by world demand, and supply factors, represented by competitiveness and diversification, have a significant influence in determining export performance of Tanzania. Considering that competitiveness in traditional exports and diversification of the export base capture the net impact of the internal supply policies, it can be concluded that internal supply policies are significant in determining real export growth of the primary agricultural export sector in Tanzania.

Tests have not been able to show that the effects of world demand, competitiveness and diversification on export performance of the agricultural sector are statistically different. However, based on results from the tests conducted on individual commodities it is clear that export earnings with respect to sisal are significantly determined by competitiveness. Meaningful interpretations can also be made with respect to the relative magnitudes of the coefficients which reflect elasticities. Since the magnitude of the coefficients of the supply factors are larger than those for demand factors, it can be concluded that growth in export earnings is more responsive to the internal supply policies.

Of the supply factors, growth in export earnings appear to be more sensitive to diversification compared to competitiveness in traditional exports. From these results it can be concluded that export diversification has an important role in improving the country's export earnings from the agricultural sector. On the other hand, it appears that some of the effects of competitiveness have been picked up by the diversification factor. This is especially so when cashew nuts are considered.

Cashew nuts, which by definition of this study are a traditional commodity, have been included in the estimation of the diversification factor, rather than competitiveness, due to lack of corresponding world export figures.

Inward-oriented trade policies coupled with strong involvement of governments in the economy are some of the internal policy issues that may not be conducive to greater export orientation (World Bank 1981; Balassa 1988; Milner 1988). In view of this, it is expected that a liberal trade regime would result in improved export performance through the effect policies may have on competitiveness. However, the low magnitude of the competitiveness coefficient for the period 1981-92 (liberal regime), leads to the belief that a shift towards a more liberal regime was not associated with improvement in competitiveness (refer to Table 5.4). However, it can be concluded that the shift in policies allowed for the movement of resources towards more diversification. The evidence is provided by the increase in magnitude of the coefficient of diversification in this period as compared to that during the restrictive regime. A comparison of the magnitudes of the coefficients of world demand for the two periods reveal interesting results. Export earnings during the restrictive regime were less responsive to world demand compared to the period liberal policies were enforced. Considering that world demand in the analysis is representative of the world export market potential of the traditional commodities, the results reveal that the restrictive regime coincided with the period when growth in world demand for Tanzania's traditional exports was low.

6.3 Policy inferences

The main objective of this study was to assess the importance of aggregate supply factors in influencing the export performance in Tanzania and to analyse the effects of different trade regimes on the performance with a view of deriving some implications for government policies on agricultural exports and production.

6.3.1 Agricultural exports

From the results of the study it can be concluded that internal supply factors have a significant influence on the export performance of the agricultural sector. Hence, there may be a need for export promotion policies which improve exports and thus economic growth. However, considering that world demand conditions are also highly significant in determining the level of export earnings, a balance has to be maintained between outward and inward-oriented trade policies. If a joint approach is

undertaken, then an economic disaster can be avoided if the growth in world demand for traditional exports is low.

In relative terms internal policies that lead to diversifying the export base of the sector appear to have more influence on overall export performance when compared to policies that lead to increased shares of traditional exports. This conclusion is supported by the literature that shows that the agricultural export sector in Tanzania is highly diversified and has the potential for further diversification given the diversity in weather conditions around the country (Lele 1989b).

It was expected that a move towards a more liberal trading regime would result in an improvement in the country's ability to compete on world markets and allow for the mobility of resources from rent-seeking to productive activities. From the results it would appear that the shift in policies did allow for some movement of resources towards more diversification. Contrary to expectations the competitive standing was not improved, despite indications that there was growth in world demand during the liberal regime, as compared to the restrictive regime. Although this lack of evidence could be attributed to the short period that the liberal regime has been in force, it can also be ascertained that effective internal policies which lead to increased exports are yet to be enforced. Consequently, there is a need to look closely at the implementation of adjustment policies. Furthermore, the significant change in world demand conditions between the restrictive and the liberal regime period is further evidence for the need for careful selection of internal policies.

6.3.2 Agricultural production

Results from an analysis of the performance of individual commodities reveals that diversification does not have a significant influence on the level of export earnings of coffee, cotton and sisal. This could be because different climatic and soil conditions are required for different crops. Despite this, coffee could face increased competition from tea and cocoa, both which grow in more or less the same geographical areas. However, as all these are perennial crops' farmers face a difficult production decision in attempting to diversify.

It can be concluded from the results with respect to sisal export performance that competitiveness has the most significant influence on its level of export earnings, compared to the case of coffee and cotton, where both world demand and competitiveness have more or less the same influence. This is an indication that different policy attention need to be made for different commodities.

6.3.3 Policy recommendations

Increasing the share of traditional commodities in world trade can improve the export performance of the agricultural sector in Tanzania. One way of achieving this is by increasing the volume of production of export crops and improving quality. For this to occur all production units have to be efficient. It is therefore recommended that the government should consider the implementation of internal policies that effectively allow for production units to have better access to technology and increase efficiency in production so as to improve their ability to meet international competition. Furthermore, in view of the findings on the performance of individual commodities, commodity specific policies may need to be considered when designing production incentive systems to promote exports.

Given the important role of diversification in improving export growth, diversification policies which allow for the effective use of underutilised resources need to be designed. This is to ensure that costs of diversifying are kept to a minimum by avoiding a shift of resources into less productive uses.

In view of the significant influence of world market conditions on the export performance of the country and given that these policies keep changing, special attention should be paid in designing internal policies for export promotion so as to allow for flexibility in policy implementation. Following this, a careful implementation of liberalisation policies to allow for the efficient protection of the agricultural export sector in case of slow growth in world markets may need to be encouraged.

6.4 Summary

Both external demand conditions and internal supply factors have a significant influence on export performance of the agricultural sector in Tanzania. Furthermore, a shift in policies towards a more liberal trading regime allowed for the movement of resources towards more diversification but, contrary to expectations, it did not lead to an improvement in competitiveness. These findings reveal that an improvement in export performance can be achieved through the application of appropriate internal policies and diversification has an important role to play. Therefore, there is a need for a careful implementation of policies leading to increased shares in world trade and export diversification. This is to ensure that production units operate efficiently and resources are efficiently utilised. Moreover, in view of the changing world market condition's flexibility in policy implementation is important.

Chapter 7: Summary and conclusion

7.1 Introductory remarks

In this chapter a summary of the important aspects of this study are presented. In section 7.2 a synopsis of the study is provided. This is followed by an outline of the main findings of the study and conclusions. Limitations of the study are summarised in section 7.4 and areas for further study are suggested in section 7.5. A final word on this study is stated in section 7.6.

7.2 A synopsis of the study

In this study the relative importance of the aggregate demand and supply factors which influence export performance of the agricultural sector in Tanzania have been examined. An attempt has also been made to assess the effects of different trade regimes on the export performance of Tanzania. The study was motivated by the need to provide some ideas on why the export performance is poor and suggest some appropriate domestic agricultural production and export policies.

From a review of literature it was found that the expansion of exports in developing countries is important for economic growth. However, it has been observed that the export performance of these countries has deteriorated and they now have a declining share in world trade. The most affected are non-oil producing countries in Sub Saharan Africa. While external factors, prevailing through world market conditions, have an influence on the export performance, internal factors largely related to trade, adjustment and domestic policies are more significant. The capability of the countries to increase their share in world trade through competitiveness factor appears to play an important role. Choice of internal policies and overall trade strategies in the light of changing world demand conditions need to be carefully considered.

For the case of Tanzania, the growth of the economy relies heavily on the development of agricultural exports. However, for the period 1962-92 export earnings have been fluctuating. Several external and internal factors have influenced the performance of the sector. Major demand factors that have been influential are fluctuating world export prices, oil price hikes, changing trading arrangements and competition from synthetics for the case of sisal which was once the major export earner. Supply-side influences include exchange rate, producer prices and sectoral development policies together with poor resource allocation and planning. Other

factors also on the supply-side include inefficiency and instability in marketing arrangements, inadequate incentives to farmers and poor physical infrastructure. Regarding trade strategies, inward-oriented policies dominated during the 1962-80 period. Since then, major liberalisation efforts have been made paving the way to greater export promotion.

In general, identification of specific factors influencing export performance of a country, measuring the respective factors and applying the same in the analysis of export performance of a country is still a major problem facing economists. This is mainly because export performance is influenced by a multitude of interdependent factors. Furthermore, most of these factors are not directly measurable. In view of this most analysts of export performance have resorted to using aggregate measures. The method used in this study is based on aggregate measures as applied by Love (1984) and Athukorala (1991). The model used is a time series regression model with export growth rate as the dependent variable and is applicable to less developed countries.

The basic foundation of the model is the small country assumption in world trade. The theory behind the model was developed by Kravis (1970). It is assumed that under given world market conditions for its traditional commodities, an individual country can achieve higher export growth when compared to the other countries by improving upon its market share in these exports, a factor referred to as 'competitiveness', and/or by diversifying its commodity mix into new product lines. Therefore, the explanatory variables in the model are world demand, representing demand factors, and competitiveness and diversification representing supply factors. In this study a trend variable has also been introduced in the model to capture effects of other variables that may not have been represented by the model. Moreover, the variables have been disaggregated further to enable investigation of export performance at the individual commodity level. The internal factors of competitiveness and diversification potentially capture the net effect of internal policies. To analyse the effect of different trade regimes, a dummy variable has been used. Testable hypotheses have been setup in line with findings from previous studies and standard economic theory. Data used cover the period 1962-92 and was based on constant 1985 prices. In absence of unit roots in two of the variables and on the strength of the autocorrelation and partial autocorrelation functions, the method employed in estimating the parameters is the conventional regression analysis using the log model.

7.3 Main findings and conclusions

From the results of the study it is evident that both external demand and internal supply factors have significant influence on export performance of the agricultural sector in Tanzania. However, in view of the short time series data of 31 years, it has not been possible to statistically resolve the hypothesis that supply-side factors are no more important in determining export performance than demand-side factors. However, considering that a log model has been used in the analysis, where the respective coefficients can be directly interpreted in terms of elasticity's, it has been possible to conclude that export earnings are more sensitive to the internal factors of competitiveness and diversification than to world demand conditions.

The findings with respect to the hypothesis that competitiveness has no greater influence on export performance than diversification have been contrary to expectations as diversification has been found to have a major influence on export performance than competitiveness in traditional exports.

With regard to the effect of the liberal trade regime on export performance it has been found that differences in performance between the restrictive and the liberal trade regime has been due to differences in responsiveness of exports to world demand conditions. Furthermore, the shift towards a more liberal regime did allow for movement of resources towards more diversification. However, contrary to expectations the shift in policies did not result in improvement in competitiveness of traditional exports in world markets.

On the basis of these findings the main conclusion that can be drawn from the study is that while world market conditions are significant in determining the level of export earnings in Tanzania, growth in real export earnings can be achieved through the choice of appropriate internal policies. Therefore, there is a need to emphasise policies that lead to an improvement of efficiency in production and ability to meet international competition. Moreover, as the diversification of the agricultural export sector has a major role in raising the level of exports for the sector, there is a need to consider the implementation of diversification policies that allow for the effective use of underutilised resources. For the case of individual commodities, both world demand and competitiveness significantly influence the level of earnings for the case of coffee, cotton and sisal but for the latter the effect of competitiveness was significantly larger. This leads to the conclusion that poor performance of sisal has been largely due to internal factors leading to reduced share of the commodity in trade. Thus, specific commodity policies need to be considered. Results on the effect of the liberal trade regime lead to the conclusion that there is a need for proper choice of

effective adjustment policies to match the prevailing external environment and which can lead to increased share of traditional commodities.

7.4 Limitations of the study

From the results of this study, the choice of internal policies to improve export performance appear to be the most critical decision. Competitiveness results from a combination of factors such as exchange rate policies, quality of products, marketing efficiency, product pricing, input supply and pricing, macroeconomic policies, research and extension services. Several factors also need to be considered in the diversification of exports as this depends on country's comparative advantage and costs are large if it involves shift of resources to less productive uses (Massel 1970). However, in view of data limitations and subsequent choice of the method employed in the analysis, identifying the appropriate internal policies to achieve competitiveness and/or diversification have not been undertaken. To achieve this a more disaggregated approach is required. This implies a thorough research on the various internal policies that have been applied over the years and linking such policies directly to the growth of export earnings

Another limitation of the study is associated with the general problem of measurement of factors influencing the export performance. Even where information was available on some of the factors, eg the marketing arrangements and pricing policies, there was a problem on how to measure and incorporate these in the analysis.

Further to the above, production decisions made by farmers in response to world market conditions involve a lag from the time the market conditions are known to the time production is achieved. For the case of Tanzania this lag in response may even be longer due to the lack of efficient market information system. To have a detailed and more informative analysis of the export performance such lagged responses that affect production decisions, and consequently the volume of exports, need to be incorporated into the analysis. However, because of the model used in the analysis, the lagged responses could not be incorporated. In spite of these limitations findings from the study could be supported by further research.

7.5 Suggestions for further studies

In order to understand further the cause of poor export performance in Tanzania and provide a better guidance on internal policy choices for the ultimate growth of the whole economy, the following areas are suggested for further study:

- (a) To evaluate the effect of individual internal supply policies on the country's agricultural export performance with a view of identifying the most effective policies to be applied.
- (b) To investigate further the effect of diversification of the agricultural export sector on production and exports of traditional commodities in line with resource endowment and comparative advantage.
- (c) To investigate the implementation of the liberalisation and adjustment policies on export performance so as to ensure that policies implemented do not have negative effects on the sector and that there is flexibility in the implementation of such policies in view of the changing world markets conditions.

7.6 A final word

This study has been an attempt to look into the cause for poor export performance of the agricultural export sector in Tanzania with the aim of providing some policy guidelines on improving the export performance and thus the growth and development of the economy at large. The study has been based on the aggregate approach where factors influencing the export performance have been disaggregated into internal and external factors. It was found that the export performance can be improved through the proper choice of internal policies leading to increased shares of traditional exports in world trade and diversification of the export base. Thus, the role of decision makers within the country is of paramount importance.

Appendix 1

Tanzania total agricultural exports to the world 1962-92 (\$US millions)

Year	Total agricultural exports
1962	124.1
1963	157.0
1964	170.0
1965	155.1
1966	191.3
1967	162.3
1968	175.1
1969	185.2
1970	193.5
1971	190.9
1972	235.7
1973	270.3
1974	301.7
1975	293.7
1976	406.3
1977	467.1
1978	396.1
1979	393.2
1980	408.1
1981	466.1
1982	399.1
1983	262.3
1984	311.8
1985	258.1
1986	342.7
1987	249.6
1988	288.3
1989	305.5
1990	279.5
1991	247.5
1992	264.3

Sources: FAO (1992 and earlier issues) for 1970 to 1992 data.
UN (1969 and earlier issues) for 1962 to 1969 data.

Appendix 2

Tanzania main primary agricultural exports to the world 1962-92 (\$US '000')

Year	Sisal	Cotton	Coffee	Cashew nuts	Tea	Tobacco	Cocoa	Sugar	Oil seeds ^a
1962	44052	20700	18410	10440	4513	220	14	10	2558
1963	63479	30010	19150	7776	4346	200	18	170	2361
1964	61286	27670	30940	9296	4535	900	38	200	2142
1965	40017	34190	24060	11690	4343	3150	25	10	2692
1966	32948	48990	42400	14084	6418	3270	94	130	2424
1967	28191	35190	33440	12958	6194	5480	98	49	2099
1968	24586	36451	48011	15634	5964	5479	172	11	1888
1969	22350	32858	35997	19155	6765	4943	314	20	2057
1970	25036	34611	43758	19296	5907	6272	252	15	2626
1971	18726	34275	31984	20845	6846	6038	188	57	2422
1972	20269	47092	53639	24366	7527	6864	303	32	3778
1973	31501	47351	70463	25217	7705	7892	653	1	3617
1974	64888	67355	52549	34225	9668	12273	942	2	3352
1975	40751	39953	65251	26626	10929	11077	734	7123	2690
1976	28727	75923	153778	24940	16060	8838	1471	9319	506
1977	28615	69941	225445	34557	25551	34825	2000	3300	510
1978	28715	54665	169504	30946	21875	28806	3643	6002	3438
1979	31344	48323	147056	28003	19821	18028	2986	4966	2360
1980	30261	52030	138655	29323	22482	12755	2507	4544	1500
1981	32521	77412	151692	60406	19804	18148	4000	871	1568
1982	23931	55949	132578	36647*	18437	19071	2000	3000	1465
1983	13082	51224	128152	37065*	21717	11121	2300	3280	1050
1984	10291	49493	150589	29298	23565	13000	2300	3300	2000
1985	5762	30596	117899	14811	16209	13562	2550	2930	1200
1986	4963	32177	165246	16286	14183	13977	2834	4000	307
1987	5421	42864	100451	17253	13049	11870	3923	4300	617
1988	3745	71991	84481	17779	14661	12908	3480	5000	59754
1989	4326	78247	108920	19085	16762	12222	3200	4700	74133
1990	4000	74550	83800	17043	21450	10590	3500	9300	2390
1991	2200	63300	77300	17489*	21700	16700	2270	5460	3145
1992	1600	95000	64000	17730*	26000	18000	1800	5000	5800

Note: ^a Includes sunflower and sesame seeds.

* estimates

Sources: FAO (1992 and earlier issues) for all the data on sisal, cotton, coffee, tea, tobacco, cocoa, sugar and oilseeds.

IMF (1981) for the 1962 to 1981 data on cashew nuts.

UN (1991) for 1983 to 1990 data on cashew nuts

Appendix 3

Tanzania main primary exports share in total agricultural exports 1962-92 (percent)^a

Year	sisal	cotton	coffee	cashewnuts	tea	tobacco	cocoa	sugar	oilseeds ^b
1962	35.50	16.68	14.83	8.41	3.64	0.18	0.01	0.01	2.06
1963	40.43	19.11	12.20	4.95	2.77	0.13	0.01	0.11	1.50
1964	36.05	16.28	18.20	5.47	2.67	0.53	0.02	0.12	1.26
1965	25.80	22.04	15.51	7.54	2.80	2.03	0.02	0.01	1.74
1966	17.22	25.61	22.16	7.36	3.35	1.71	0.05	0.07	1.27
1967	17.37	21.68	20.60	7.98	3.82	3.38	0.06	0.03	1.29
1968	14.04	20.82	27.42	8.93	3.41	3.13	0.10	0.01	1.08
1969	12.07	17.74	19.44	10.34	3.65	2.67	0.17	0.01	1.11
1970	12.94	17.89	22.61	9.97	3.05	3.24	0.13	0.01	1.36
1971	9.81	17.95	16.75	10.92	3.59	3.16	0.10	0.03	1.27
1972	8.60	19.98	22.76	10.34	3.19	2.91	0.13	0.01	1.60
1973	11.65	17.52	26.07	9.33	2.85	2.92	0.24	0.00	1.34
1974	21.51	22.33	17.42	11.34	3.20	4.07	0.31	0.00	1.11
1975	13.88	13.60	22.22	9.07	3.72	3.77	0.25	2.43	0.92
1976	7.07	18.69	37.85	6.14	3.95	2.18	0.36	2.29	0.12
1977	6.13	14.97	48.26	7.40	5.47	7.46	0.43	0.71	0.11
1978	7.25	13.80	42.79	7.81	5.52	7.27	0.92	1.52	0.87
1979	7.97	12.29	37.40	7.12	5.04	4.58	0.76	1.26	0.60
1980	7.42	12.75	33.98	7.19	5.51	3.13	0.61	1.11	0.37
1981	6.98	16.61	32.54	12.96	4.25	3.89	0.86	0.19	0.34
1982	6.00	14.02	33.22	9.18	4.62	4.78	0.50	0.75	0.37
1983	4.99	19.53	48.86	14.13	8.28	4.24	0.88	1.25	0.40
1984	3.30	15.87	48.30	9.40	7.56	4.17	0.74	1.06	0.64
1985	2.23	11.85	45.68	5.74	6.28	5.25	0.99	1.14	0.46
1986	1.45	9.39	48.22	4.75	4.14	4.08	0.83	1.17	0.09
1987	2.17	17.17	40.24	6.91	5.23	4.76	1.57	1.72	0.25
1988	1.30	24.97	29.30	6.17	5.09	4.48	1.21	1.73	20.73
1989	1.42	25.61	35.65	6.25	5.49	4.00	1.05	1.54	24.27
1990	1.43	26.67	29.98	6.10	7.67	3.79	1.25	3.33	0.86
1991	0.89	25.58	31.23	7.07	8.77	6.75	0.92	2.21	1.27
1992	0.61	35.94	24.21	6.71	9.84	6.81	0.68	1.89	2.19

Note: ^a This data is based on export figures for each of the commodities provided in Appendix 2 as a percentage of the total exports figures in Appendix 1.

^b Includes sunflower and sesame seeds.

Appendix 4

Total world exports of sisal, cotton and coffee 1962-92
(\$US millions)

Year	Sisal	Cotton	Coffee
1962	130.2	2057.0	1867.9
1963	182.0	2256.4	1978.1
1964	173.5	2376.4	2328.0
1965	113.5	2305.6	2228.4
1966	101.2	2313.5	2399.1
1967	77.7	2246.6	2263.8
1968	71.6	2382.3	2556.9
1969	73.3	2153.7	2472.7
1970	73.8	2482.5	3089.4
1971	65.0	2791.0	2763.7
1972	79.6	3146.2	3250.2
1973	156.4	4124.8	4338.9
1974	314.6	4903.5	4314.4
1975	158.4	4415.1	4200.3
1976	98.7	5248.1	8435.4
1977	96.7	6040.3	12439.7
1978	96.4	6097.7	11204.2
1979	115.9	6714.7	12159.7
1980	137.8	7885.9	12585.1
1981	110.4	7381.7	8576.7
1982	80.1	6315.8	9310.3
1983	84.3	6470.9	9616.0
1984	73.4	7085.3	10968.5
1985	68.7	6048.7	11370.8
1986	59.1	5251.9	1526.3
1987	52.5	6647.3	10329.4
1988	60.2	7545.9	10504.2
1989	66.8	8607.2	9628.1
1990	63.6	8459.5	7715.3
1991	41.8	7822.9	7336.3
1992	28.4	6619.6	6184.8

Source: FAO (1992 and earlier issues)

Appendix 5

Indices used as variables for estimation of the equation for export performance of the sector 1962-92^a.

YEAR	EX	WD	CM	DV
1962	100.00	100.00	100.00	100.00
1963	129.90	128.58	149.25	118.83
1964	144.32	123.66	150.02	108.24
1965	135.02	100.06	127.15	91.20
1966	171.35	109.15	147.06	88.41
1967	141.29	99.40	132.19	85.12
1968	149.91	112.07	141.37	86.22
1969	159.89	107.77	116.56	81.87
1970	169.84	143.93	123.68	84.15
1971	180.61	130.16	117.21	85.15
1972	234.87	172.01	141.17	87.62
1973	360.74	326.44	115.53	88.48
1974	673.98	459.81	142.69	99.12
1975	698.37	307.47	123.55	79.51
1976	986.58	1041.55	191.69	101.40
1977	1282.08	3062.71	192.85	117.45
1978	1102.87	1914.51	135.65	99.55
1979	1384.77	2113.76	102.13	96.77
1980	1970.15	1889.60	88.35	88.31
1981	2204.88	1119.69	126.76	83.20
1982	1721.40	1169.75	115.14	86.06
1983	1039.82	1342.60	102.00	89.01
1984	1218.11	1835.97	98.71	94.34
1985	928.47	1752.46	79.16	104.66
1986	1343.76	355.99	225.72	126.15
1987	991.27	1365.34	65.34	91.50
1988	1136.67	1483.82	61.54	81.01
1989	1163.82	1399.17	71.36	82.51
1990	1192.47	1198.22	83.27	90.41
1991	985.61	1063.96	80.99	87.81
1992	1055.74	950.43	93.91	87.39

Note: ^a This data is calculated according to formulae presented in section 4.3.2.

Appendix 6

Indices used as variables for estimation of equations for export performance of individual commodities 1962-92^a

Coffee				Cotton			Sisal		
YEAR	EXC	WDC	CMC	EXCT	WDCT	CMCT	EXS	WDS	CMS
1962	100.00	15.43	100.06	100.00	35.37	100.02	100.00	75.59	100.00
1963	111.16	13.84	106.12	148.94	43.78	137.99	220.23	176.29	160.10
1964	235.14	34.77	170.13	138.46	36.82	127.61	193.37	126.70	154.57
1965	172.20	23.64	143.44	167.26	47.69	153.71	90.08	42.67	106.45
1966	282.70	34.49	208.79	234.67	55.20	205.97	67.27	23.35	85.47
1967	216.72	30.55	167.99	183.24	49.18	170.96	48.57	15.22	82.91
1968	313.39	47.48	213.03	190.18	50.87	167.78	40.60	11.02	75.39
1969	242.52	35.02	162.20	155.06	36.10	147.34	36.91	9.88	65.19
1970	386.62	71.62	189.71	170.02	43.86	137.28	36.58	9.47	62.89
1971	249.79	35.25	151.30	196.95	53.16	142.92	31.37	6.66	61.86
1972	472.68	66.25	221.70	289.76	77.31	163.58	46.30	10.55	65.41
1973	765.49	118.26	212.07	498.91	181.69	134.35	153.21	71.43	68.86
1974	623.55	62.11	143.41	744.62	179.43	162.20	621.31	324.20	133.54
1975	825.99	72.80	207.18	360.01	64.33	102.06	214.49	46.43	107.26
1976	3814.40	883.94	257.60	995.32	191.45	185.55	121.81	14.88	76.41
1977	9018.79	4119.52	237.78	846.48	147.28	134.24	132.64	12.47	83.16
1978	4587.78	1640.33	179.63	667.71	146.39	97.69	123.67	14.47	72.45
1979	4353.88	1401.78	150.78	632.51	167.82	60.90	202.72	31.33	71.59
1980	3649.39	746.58	139.80	827.61	197.04	62.42	209.97	29.48	57.39
1981	3069.54	303.01	217.74	1103.02	192.00	101.67	190.36	16.72	74.30
1982	2908.38	400.97	189.21	688.52	125.73	77.49	129.15	10.10	72.54
1983	2865.06	730.85	166.77	730.92	230.52	78.85	67.74	9.39	35.52
1984	3714.23	1069.21	163.54	679.54	213.05	62.95	54.51	5.98	30.84
1985	2748.53	952.30	131.92	311.17	91.98	40.11	27.42	3.11	19.71
1986	4915.55	181.17	1532.38	261.80	47.35	38.11	23.17	1.59	18.97
1987	1882.78	460.69	119.85	544.06	227.93	46.35	25.18	2.81	17.20
1988	1697.68	367.51	106.52	776.10	349.00	53.72	18.70	2.27	10.26
1989	1736.82	280.08	142.88	1008.28	490.90	62.95	25.63	3.27	13.05
1990	1807.47	199.50	212.02	1044.80	468.78	69.08	25.85	2.94	14.40
1991	1640.31	194.13	217.12	825.97	403.04	60.76	11.75	1.03	10.23
1992	1248.94	116.33	196.09	934.30	360.14	81.22	8.76	0.49	11.21

Note: ^a This data is calculated according to formulae presented in section 4.3.2 and in line with equations 4.16, 4.17 and 4.18.

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