

DETERMINANTS OF KENYA'S MANUFACTURED
EXPORTS: AN EMPIRICAL ANALYSIS

BY

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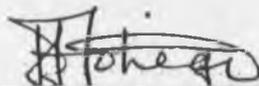
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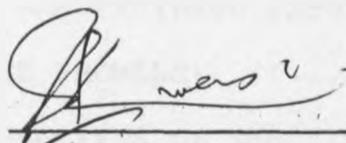
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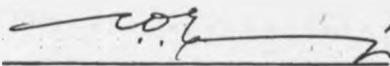
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ABSTRACT

Kenya has recognised the important role played by exports in its economic growth. Various policies have often been employed as instruments to handle the balance of payment difficulties. To achieve a sustainable current account balance consistent with an adequate and steady rate of economic growth, Kenya has strongly emphasized the need for manufactured exports expansion. However, the industrial sector exports' share of total merchandise exports has not shown significant improvement over the last decade. External and domestic factors are held to be responsible for the slow pace of the manufactured exports' growth. The main purpose of this study is to estimate the elasticities of supply and demand of manufactured exports with respect to traditional variables income and price and some other shift variables.

The determinants of Kenya's manufactured exports in European Economic Community (EEC) market are examined in a simultaneous equation framework taking into consideration domestic (supply-side) and external (demand-side) variables. The paper utilizes time-series data covering the period 1970-1984 to assess the relative importance

of demand and supply factors explaining Kenya's manufactured exports' expansion. Manufactured exports considered in the analysis are those classified under class 6 of the United Nations International Standard Trade Classifications (ISTC).

Based on the findings, the paper argues that domestic (supply-side) factors are more binding than external (demand-side) factors in explaining the expansion of Kenya's manufactured exports in the EEC market. The results seem to support the structuralists' case that LDCs exports are mainly constrained by domestic factors. Policies aimed at export expansion should, therefore, be directed at improving and removing structural bottlenecks in the supply of manufactured products.

The paper also attempts to suggest some possible policy implications of the econometric results obtained from Two-Stage Least Squares (2SLS) estimates. Weaknesses of the analysis and possible further research areas are suggested in the paper.

CHAPTER ONE

1.0 INTRODUCTION

With the achievement of independence at the end of 1963, the Kenya Government was faced with a challenging array of problems connected with the economic and social development of the country. The major objectives of the Government immediately after independence was to create jobs for Kenyans and to transfer the operations of the economy into the hands of its indigeneous citizens. These objectives were necessary since Kenya inherited an economy characterized by widespread unemployment and poverty. The first development plan, 1964-1970, was formulated to help speed up the rate of employment generation and to transfer the economic operations into the hands of the indigeneous citizens. Kenyanization of the economy was infact the theme of the 1964-70 Development Plan. Apart from Kenya- nization of the economy, there was also the need to indust- rialize so as to help generate more employment opportunities for Kenya's growing population.

Industrialization as a strategy was being adopted in Kenya at a time when there was strong support amongst the Less Developed Countries (LDCs) for the inward-looking industrialization policies which emphasized import- substitution and discredited export growth for LDCs. The

import substitution strategy involved production of imported goods locally and domestic industries were established under tariff and quota protectionism. Investment decisions were controlled and domestic market enjoyed partial protection from international competition. The first phase of import-substitution was the manufacture of consumer goods followed by the manufacture of capital goods. LDCs hoped for improved balance of payment and reduction of dependency on imported products. They also hoped to achieve sustained economic growth by adopting inward-looking strategies. Kenya, therefore, followed the import-substitution industrialization strategy with the hope of improving its economic performance and making the best use of its resources.

The expectations from the inward-looking strategies did not however, materialize in most LDCs. The results were so dissapointing to most of the LDCs since the strategy never improved their balance of payments and their dependency on imports never diminished. The strategy increased the balance of payments difficulties and only changed the structure of imports from consumer goods to captial goods imports making LDCs exclusively more dependent on imports.

In Kenya, import-substitution strategy attracted several investors who could enjoy domestic market protection such that during the first ten years of statehood, the country had built up a wide ranging and varied light industrial base. The major contribution of the import-substitution strategy in Kenya was self-sufficiency in consumer goods. The country has also acquired some level of scientific and technological capacity necessary for industrial advancement.

Over the period 1967-1974, the total number of industrial enterprises increased more than twelve fold, from 1,062 in 1967 to 13416 in 1974 (see table 1.1). It should however be noted that a large number of these industries consisted mainly of small-scale manufactures whose output would have little impact on the export trade. Given the government's objective of import-substitution, a small part of the newly created industrial capacity was sufficiently competitive to be directed into export production.¹

As the decade progressed, it became increasingly apparent that there were limits to this inward-looking strategy of industrialization. The strategy led to industries with heavy reliance on imported inputs,

TABLE 1.1: NUMBER OF MANUFACTURING ENTERPRISES
(1967 - 1974)

<u>INDUSTRY</u>	<u>1967</u>	<u>1974</u>
Food and Beverages	183	3073
Textile, clothing and Leather	238	5161
Wood and Furniture	103	1381
Chemical and Petroleum	10	163
Plastics and Rubber	13	82
Metal Products	52	339
Transport Equipment	173	2495
Miscellaneous	290	722
<u>TOTAL</u>	<u>1062</u>	<u>13416</u>

SOURCE: Kenya Statistical Abstracts, Central Bureau of
Statistics, various issues

capital-intensive means of production and high levels of capacity underutilization. Import-substitution strategy generated only partially the intended results. In many instances, it only exacerbated the problems it was meant to solve. The truth, however, is that it worked in a limited way but the expectations were too high to be solved by one single strategy. Kenya, therefore, was forced to re-consider the other strategy of export oriented industrialization.

* Export promotion is the main alternative strategy to import-substitution in LDCs which came as a response to the failure of import-substitution. The idea was to develop industries with external market in mind. Countries which have pursued this strategy with spectacular success include Hong Kong, Taiwan, Singapore and Korea. This strategy involves taking more initial risks if success is to be attained. Success depends on the availability of several factors to enable production and distribution take place at comparatively low costs. This requires the expenditure of large amounts of government funds on infrastructure and incentives. Foodstuffs and raw-materials are to be made available as cheaply as possible. Export-promotion generally requires open trade policies.

Relatively few LDCs have adopted the export promotion strategy though most spectacular successful rates of progress have been achieved by countries which followed this path. However, it is gaining recognition in most LDCs as a response to external shocks such as: debt repayments, fluctuations in primary goods exports, world economic recessions and balance of payment difficulties. For a growing number of LDCs, export industrialization is gaining importance due to limitations imposed by small domestic markets and partly stagnating or even recessive regional markets which have brought a standstill in the import-substitution phase of industrialization.² Export expansion provides advantages over import-substitution by contributing to resource allocation according to comparative advantage, greater capacity utilization, the exploitation of economies of scale and improvement of technology stimulated by competition in foreign markets.

In their efforts to encourage exports as a viable avenue to industrial development, LDCs have attempted to encourage mostly those industries that utilize mainly domestic resources. This is intended to help counteract the problems of balance of payments difficulties and unemployment which are quite crucial in most LDCs. The use of domestic resources promotes backward and forward

linkages in the economy. LDCs also encourage export diversification instead of relying on only a few primary commodity exports as such a reliance places a nation in a very uncertain process of development.

The promotion of exports, particularly exports of industrial products, is an attempt towards meeting the two objectives of industrialization and generation of foreign exchange in LDCs. Constraints of the local market and import requirements for industrial growth have also made export expansion of industrial exports imperative.³ LDCs have therefore attempted to offer essential incentives to industrial exports promotion.

Kenya has continued to take keen interest in the needs of the manufacturing industry. It has provided adequate incentives as and when the changing economic environment dictates.⁴ Over the period 1974 to 1984, the number of large scale firms in the manufacturing sector grew by roughly 44 per cent from 390 in 1974 to 563 in 1984 as Table 1.2 below suggests.

TABLE 1.2 : NUMBER OF LARGE SCALE FIRMS IN THE
MANUFACTURING SECTOR (1974 - 1984)

Year	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Number of Large Scale firms	390	414	425	456	411	429	443	456	547	561	563

SOURCE: Kenya Statistical Abstracts, Central Bureau of
Statistics; various issues

The growth of large scale firms reflects government's concern with the expansion of the manufacturing production in order to boost manufactured exports. This is because large firms are better placed than small ones in overcoming uncertainties and information handicaps that characterize selling to external markets than selling at home.

Expansion of the economy requires more imported inputs and capital goods. Hence, more exports are required to finance these imports if the country is to limit its dependency on external financial resources. But since there is a limit to the possible growth of Kenya's agricultural exports due to scarcity of fertile land and increasing need for food production to satisfy the growing population's food needs, long-run solution must come from the industrial sector exports.

1.1 KENYA'S EXTERNAL TRADE POLICY

Planned economic development of Kenya is constrained, among other things, by acute shortage of foreign exchange. This has made purchases of essential capital goods and raw materials from abroad rather difficult and thus seriously hinders development efforts. For successful implementation of development plans, it has been necessary for Kenya government to formulate external trade policies with a view of increasing exports in general and in particular exports of manufactured products. Kenya has been making deliberate efforts to promote manufactured exports.

Kenya's external trade policy as concerns industrial exports began in the early 1970's and is documented in the Third (1974-1978) and Fourth (1979-1983) Development Plans.

In the Third Development Plan, import substitution type of industrialization was still being encouraged, but it was recognized that there was room for, import-substitution as well as for encouraging exports, particularly industrial exports. This was based on the experience that countries which had pursued import-substitution for a longer period had negative results and they had to start exporting

manufactured goods. It was however noted in the Development Plan that the prices of those manufactured products were too high to compete in international markets due to monopolies, high protection resulting in inefficiency in production.⁵

The Fourth Development Plan was, however, much more explicit than its predecessor on the import-substitution/export promotion controversy. In the area of foreign trade, it stated that "we are fast approaching the limit of the import-substitution. The main thrust of our strategy will be towards development of export-oriented activities both in the industrial and the agricultural fields."⁶ A whole series of measures were proposed in the plan so as to promote exports. These included: the strengthening of Kenya External Trade Authority (KETA), the revision of the Export Compensation Scheme (ECS), the introduction of an Export Credit Guarantee Scheme (ECG), and the expansion of the role of Kenya National Trading Corporation (KNTC). All these measures were intended to help promote manufactured exports and consequently narrow the merchandise trade deficit which has persisted since 1964. As Table 1.3 indicates, the deficit of visible trade which was only K£9 million in 1964 rose to K£ 320 million in 1984. Various attempts have been made to remove the trade deficit that

requires huge amounts of foreign exchange to finance. Table 1.3 also shows that the trade deficit forms a big portion of the GDP. From 1984 to 1984, the deficit has been approximately 10 per cent of the GDP on the average. Since primary commodity exports face uncertain conditions in the world market, the policy has been that of promoting industrial exports to narrow the trade gap.

Kenya government has been offering export incentives to manufactured exports with the objective of expanding export earnings to provide the needed foreign exchange in the development process. Sessional Paper No. 1 of 1986 recommends that "for the next 15 years, industry must be restructured to become far more productive and attain rapid growth in order to ... help expand and diversify Kenya's export base."⁷ The Sessional Paper also makes some recommendations for the industries that Kenya should encourage in the next 15 years. These are (a) export-oriented manufacturing; (b) efficient import-substitution; and (c) small-scale, employment intensive industry. The incentive structure is based on realistic exchange rates, moderate protection, reduced taxes on industrial inputs, and on special export incentives. These are expected to induce the manufacturers to build up capacity with export markets primarily in mind.⁸

TABLE 1.3: KENYA'S BALANCE OF VISIBLE TRADE (1964-1984)

YEAR	EXPORTS X	IMPORTS M	TRADE BALANCE X-M	GDP _{fc}	$\frac{X-M}{GDP_{fc}} \cdot 100$
1964	79	88	-9	328	3
1965	82	101	-19	352	6
1966	91	124	-33	381	9
1967	86	120	-34	406	8
1968	89	127	-38	439	9
1969	97	129	-32	476	7
1970	109	158	-49	522	9
1971	112	200	-88	576	15
1972	128	191	-63	658	10
1973	168	218	-50	739	7
1974	218	366	-148	892	17
1975	238	363	-125	1026	12
1976	345	407	- 62	1263	5
1977	502	531	- 29	1635	2
1978	393	661	-265	1780	15
1979	413	620	-207	1975	10
1980	516	959	-443	1135	17
1981	537	532	-395	2597	15
1982	563	900	-337	2951	11
1983	652	905	-253	3330	8
1984	777	1097	-320	3701	9

SOURCE: Kenya Statistical Abstracts, Central Bureau of Statistics, various issues.

Market - based incentives such as rapid market expansion for all manufacturing, exchange rate management, availability of industrial inputs, export compensation, manufacturing in bond, and wage guidelines are expected to induce investment in manufacturing.⁹ However, in the long-run the best incentive for export industries is flexible management of the exchange rate to maintain profitable margins of export earnings over domestic costs of production.

Relevant incentive structure to promote industrial exports has therefore been offered by Kenya government. This is a response to the failure of import-substitution strategy, foreign exchange requirements and the need to speed up the rate of industrialization to increase job opportunities to the growing population.

1.2 PERFORMANCE OF MANUFACTURED EXPORTS

Despite Kenya Government's efforts and desire to encourage its manufactured exports, the sector has not performed up to expectations. Explanation given by Kenya manufacturers is that local industries are too inefficient to compete in the world market. However it is paradoxical that the same industries are profitable

locally.¹⁰ The share of these exports on total merchandise exports has not changed much since independence.

Killick and Thorne (1981) observed that Kenya remains in the classical mould of a LDC largely dependent on the export of a limited number of primary commodities with no tendency towards a change in this situation.¹¹ Export diversification strategy has not shown considerable success in the Kenya's export sector. Kiggundu (1984) noted that although there are a number of other minor agricultural and non-agricultural exports, their shares do not indicate a successful export diversification strategy. The constraints are to be found on both the supply and the demand sides. Lack of adequate export incentives and marketing expertise also appear to be problems.¹²

From Table (1.4) column 5, it is evident that the share of manufactured exports on total goods exports has not shown significant change since 1966. Kenya's visible exports continue to be overwhelmingly agricultural in character. Apart from the period 1970-1975, manufactured exports have contributed persistently less than 15 per cent of Kenya's merchandise exports. The good performance of the period 1970-1976 may be partly explained by the

contribution of the East African Community's common market. The gains from the common market itself derived largely from free trade and the stimulating effect this had on economic activity in the three partner states.

From 1974, the share of manufactured exports on total merchandise exports started to decline. The share fell from 20.7 per cent in 1974 to 13.1 per cent in 1978. The overall export performance of the manufacturing sector was disappointing and this was undoubtedly due to the relative unprofitability of manufactured exports vis-a-vis sales to the highly protected home market. Another factor in the poor performance of manufactured exports was the closure of the Tanzanian border in 1977 which sealed off this traditional market for the country's industrial exports.¹³

Manufactured exports have also contributed considerably less to Kenya's Gross Domestic Product (GDP). From column 8 of Table 1.4, the percentage share of manufactured exports on GDP is shown. Manufactured exports have contributed only an average of 3.4 per cent of the GDP since 1966. The relatively high percentage of 1970-1976 may be explained by the impact of the East African Community on Kenya's economic activity. After the collapse

TABLE 1.4: COMPOSITION OF COMMODITY EXPORTS (1966-1983)

YEAR	TOTAL EXPORTS (X)	PRIMARY EXPORTS (PRX)	GDPfc	MANUFACTURED EXPORTS (MANX)	MANX % OF X	PRX % OF X	PRX % OF GDP	MANX % OF GDP
0	1	2	3	4	5	6	7	8
1966	58	52	381	6	10.7	88.9	13.5	1.6
1967	54	47	406	6	10.6	88.7	11.7	1.4
1968	58	51	439	7	11.8	87.5	11.5	1.6
1969	63	56	476	7	11.8	87.8	11.7	1.6
1970	103	78	522	25	24.6	75.2	14.9	4.9
1971	107	79	576	28	26.5	73.4	13.7	4.9
1972	123	98	658	25	20.6	79.1	14.9	3.9
1973	160	127	739	38	23.3	78.5	17.1	5.1
1974	211	167	895	44	20.7	79.2	18.7	4.9
1975	215	175	1028	40	18.7	81.3	17.0	3.9
1976	319	269	1263	49	15.5	84.5	21.3	3.9
1977	480	432	1635	48	10.0	89.9	26.4	2.9
1978	370	321	1780	48	13.1	86.8	18.1	2.7
1979	386	332	1975	53	13.8	86.2	16.8	2.7
1980	488	420	2235	67	13.8	86.5	18.8	3.0
1981	514	439	2597	74	14.5	85.5	16.9	2.9
1982	546	478	2951	68	12.4	87.6	16.2	2.3
1983	631	550	3330	81	12.8	87.2	16.5	2.4

SOURCE: Kenya Statistical Abstract; Central Bureau of Statistics, various issues.

NOTE: Re-exports are excluded.

of the community, the share has been falling overtime. This may be an indication of the inability for Kenya's manufactured products to compete in other markets, or partly due to more manufactured goods being consumed locally.

Even though Kenya's industrial base has really expanded since independence, this has not been followed by an increase in manufactured exports. William (1981) observed that less than a fifth of the value of Kenya's industrial sector's output is exported to the rest of the world and the majority of her industries depend heavily on the domestic market for their sales.¹⁴ Manufacturing sector's output has been rising overtime but the proportion of this output exported has been falling since 1970. (see table 1.5). Manufacturing sector's exports have constituted an average of only 14 percent of the sector's output since 1970. This is an indication of high levels of quantity being channeled into the domestic market as opposed to the external market.

The commodity composition of Kenya's external trade has undergone changes over the period 1964-1981 mainly in response to changes in relative prices. The three major foreign exchange earners of the country, coffee, tea and petroleum products, traditionally accounted for 45 to 50 percent of total exports. This situation changed in the

Table 1.5: Manufacturing Sector's Output and Exports
(1970-83)

Year	Manufactured Output (MQ)	Manufactured Exports. (MX)	MX/ MQ · 100
1970	175	25	15
1971	205	28	14
1972	253	25	10
1973	358	38	11
1974	522	44	8
1975	647	40	6
1976	854	49	6
1977	1181	48	4
1978	1197	48	4
1979	1162	53	5
1980	1360	67	5
1981	1710	74	4
1982	2224	68	3
1983	2425	81	3

Source: Kenya Statistical Abstracts, Central Bureau of
Statistics, various issues.

mid-seventies as a result of the rise in price of crude oil in 1973/74 and secondly on account of the coffee and tea boom of 1976/77.¹⁵ No real changes in commodity composition has really taken place. The 1984-88 Development Plan points out that the sluggish growth of goods exports during the period 1972-1981 was due mainly to the weak demand for primary and industrial exports and also due to protection barriers against LDCs exports in the more developed countries.

In the foregoing, Kenya's manufacturing sector has not done so well in terms of increasing its share of merchandise exports, contributing to GDP, and to export diversification. The implication of this situation may be that this sector has financed a decreasing share of its commodity import requirements.

1.3 STATEMENT OF THE PROBLEM

Even though it is clear that Kenya's manufactured exports depend on internal and external factors, two empirical questions still remain unanswered. These are; first, the extent to which internal supply factors contribute to the expansion of these exports; secondly, how binding the demand - side factors are on the expansion of these exports.

Several factors have been cited as explaining the poor performance of the Kenya's manufactured exports. These include: the practice of protectionism in the industrial world; uncompetitive price levels; domestic market competition; internal factors such as financial constraints, marketing systems, lack of proper export incentives and the orientation of the import-substitution industries towards the highly protected domestic market. But no attempt has been made to investigate how responsive manufactured exports are to each of the variables. It still remains an empirical issue the extent to which Kenya's manufactured exports respond to supply and demand side factors.

Nearly all the empirical work on manufactured export performance in developing countries has concentrated on the more advanced 'newly industrializing countries' (NICs). This may be due to the fact that the bulk of manufactured exports from LDCs emanates from a small number of NICs. There is therefore the need to analyse export behaviour of neglected areas such as Kenya. Apart from knowing the factors that influence our manufactured exports it is important to evaluate their marginal effects on the exports. The focus of this study is, therefore, to investigate factors which influence the manufactured exports demand and supply and the extent to which such factors are binding.

1.4. PURPOSE AND OBJECTIVES OF THE STUDY

Given the research questions stated above, the main purpose of this study is to provide empirical answers to these questions, and to formulate an analytical framework that can increase our understanding of these issues. The specific objectives of the paper are:

- (a) To formulate and estimate manufactured exports supply and demand functions for Kenya;
- (b) To analyse the market potential for Kenya's manufactured exports by evaluating income elasticity of demand for these exports.
- (c) To suggest some policy options for promoting Kenya's industrial exports.

These objectives are to be accomplished by specifying possible functional relationship between exports supply and demand variables. Elasticities of manufactured exports are to be calculated with respect to the major variables traditionally associated with demand and supply i.e., prices, income and other shift variables.

1.5 SIGNIFICANCE OF THE STUDY.

The need to expand manufactured exports in Kenya is quite great, particularly, when we consider the general scarcity of foreign exchange, the desire to industrialize and the need to minimize dependence on external resources to finance our development requirements. An understanding of the behaviour of Kenya's industrial exports is therefore necessary and essential for policy formulations.

By generating information about the extent to which industrial exports respond to factors influencing their production, this study is useful in projecting possible outcomes if certain variables affecting Kenya's industrial products change. Knowledge on the responsiveness of industrial exports to change in some factors may help in selecting appropriate export incentives.

An econometric exercise in the estimation of the foreign trade parameters is, therefore, not only of academic interest but may be of practical significance to Kenya's export promotion strategy.

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CHAPTER TWO

2.0 LITERATURE REVIEW

Owing to the LDCs low export growth in relation to their import requirements and servicing of foreign borrowing, there has been imperative need for sustained industrial expansion to accelerate their economic development. More particularly there has been the need to expand industrial exports from most LDCs as the agricultural and other primary exports face considerable difficulties in the world market. Fluctuations in world prices of primary exports is a great hinderance to LDCs development efforts. Various studies have, therefore, been conducted in LDCs, particularly in the newly industrializing nations, to provide empirical and theoretical understanding on the factors determining manufactured exports flow from these countries.

- Henry (1970) conducted a study on the relationship between industrial exports and domestic demand pressure on exportables for eleven countries (Austria, Canada, Belgium-Luxembourg, France, F.R. of Germany, Italy, Japan, Netherlands, Sweden, U.K. and U.S.A.). He estimated a regression model for each country using aggregated time series data for industrial exports. His results indicated that high levels of domestic demand on exportables adversely affect export growth of most manufacturing industries. The results may suggest that to increase industrial exports, domestic

consumption should be first taken care of. There should be adequate provision for the domestic demand for industrial products if substantial increase in manufactured exports is to be expected.

Donges and Riedel (1977) analyzed supply and demand determinants of manufactured exports from LDCs. Using time series data and adopting the assumption that the individual LDC's manufactured exports constitute only a small portion of manufactured exports in the world market and hence face horizontal demand, they estimated single export equation for each country. Aggregate export supply function with exchange rate, industrial production capacity, domestic demand pressure on exportables as explanatory variables was estimated. The export supply was found to be responsive to financial incentives; that is, the coefficient exchange rate was significantly more than zero. The result underlines the importance of establishing and maintaining an appropriate exchange rate if a country is to embark on export-oriented development strategy. Tax and subsidy incentives should be effective in stimulating export growth.

A similar study by Yang (1981) analyzed the determinants of non-traditional exports for three countries (Brazil, Israel and South Korea). He estimated a single equation regression model using aggregate time series data for each country's non-traditional exports. He assumed that

the export demand function for each country's non-traditional exports is horizontal. He, however, added another shift variable, rate of change of capacity utilization as a measure of domestic demand pressure on exportables. From his findings, he concluded that first, non-traditional exports respond favourably to changes in relative prices, reaffirming that price does matter in export decisions. Secondly, the regression coefficients for the capacity to produce variable were larger than one in all cases suggesting that growth in Brazil, Israel and South Korea was export biased. Thirdly, an increase in domestic demand pressure on exportables affected export growth adversely. The study suggests that in an effort to promote manufactured exports, more attention should be given to relative price, capacity to produce and extent of domestic demand pressure on exportables.

- Rodney (1984) investigated the relationship between exports, production for domestic market and export prices by estimating a single equation regression model for Egypt's exports of cotton and manufactured cotton products. Using time series data and assuming horizontal export demand function for the exports, he found that domestic market sale significantly determine exports. As the variable used was domestic consumption, this suggested that the more raw cotton is consumed locally in Egypt, the less available for

exports. This supports the structuralists case that LDCs exports are mainly constrained by domestic factors. He concluded that isofar as domestic factors constrain exports, there is little point in attempting to apply pressure on trading partners to liberalize their import policies. This may only aid in a country's competitors in the short-run, if they do not face the same internal constraints. Trade liberalization should be negotiated for export products whose main constraints are external market conditions, while products whose main export constraints are internal bottlenecks should have consistent internal export promotion policies.

- Love (1984) constructed a model to investigate the determinants of export performance for individual LDCs and to assess the relative performance across a sample of 27 LDCs. He used time series data to estimate a single equation regression model of each country's export growth. Using indices for external market conditions and internal constraints as explanatory variables, he found that export growth in most LDCs is relatively more sensitive to domestic factors, particularly the ability to compete in world markets. This supports the emphasis placed by the opponents of trade pessimism on the importance of policies designed to improve

domestic supply conditions for exportables . LDCs should consider improving upon their domestic bottlenecks if the strategy of export promotion is to yield some positive results.

Ifzal (1984) estimated the determinants of export supply in India at aggregate level. The explanatory variables included the foreign exchange rate, export incentives, relative prices between export and domestic markets, and total output. Time series data from 1967-1982 were used in the estimation. He estimated a single equation regression model for India's export supply by adopting "small country" assumption. He argued that India's exports constitute a small share in the world market and hence face horizontal demand curve. The coefficient associated with the relative price variable was found to be positive and significantly different from zero while output variable coefficient was found to be insignificant. This implies that it is the relative profitability in selling in the export market versus selling in the home market which is constraining factor in increasing export supply rather than productive capacity.

As is already clear, the subject matter of our study is to determine the factors that influence Kenya's manufactured exports. The reviewed literature based on the work outside Kenya's context provide some hint on the factors

to consider for our analysis. However, it is of interest to review some of the work done in Kenya and their approaches on the topic of discussion.

In Kenya, there exists a few studies on export behaviour with respect to external and internal factors, particularly the behaviour of manufactured exports. The manufactured exports from Kenya do, however, face certain constraints that need to be investigated. The difficulty of finding markets in a situation of stiff competition from already established manufactures and the protective measures often resorted to for the purposes of preserving domestic markets for industrial products may affect the flow of these products.

- Manfred (1976) conducted a study on the opportunities and pre-requisites for an increased export of manufactured goods from A.C.P. states to the European Economic Community (E.E.C.) market taking Kenya as an example. His study was quite comprehensive and involved interviewing exporters and importers of Kenya's manufactured products so as to get a real picture of both sides. He found that the three special obstacles to Kenya's manufactured exports were first, slow procedures for handling of imports required for export production. Secondly, gaps in financing small enterprises which possess a considerable export potential. And lastly, amount of red-tape in the export refund system whose

financial effects are too small to permit compensation of cost disadvantage in most industries. The results imply that Kenya's industrial export expansion depends largely on the domestic factors. But since the magnitudes of these factors were never the concern of Manfred's study, it is difficult to evaluate the most binding factor. This may therefore be the weakness of his study that our study may remove.

- Another study by Schluter (1984) analyzed the constraints on Kenya's food and beverage exports by calculating nominal protection coefficient for each commodity export in the Middle East market. For each commodity, he compared domestic border price with the export parity price, which he defined as the price in export market less duty, freight, and insurance costs. He found that internal constraints prevented Kenya from realising its export potential in the Middle East market. For Coffee and Tea; he found that internal constraints prevented Kenya from realising its export potential to the Middle East market. He found that inefficient small holder marketing systems that make producers receive lower portions of export value and delays in payments are the major internal constraints.

For Pulse and horticulture crops, he found that international prices for beans were almost double the domestic border price for several major varieties. However, Kenya's product is of low quality. It is not standardised for colour and size and it is often subjected to 1 percent weevil damage which excludes it from most of the world market. Even though Schluter dealt with primary exports and not manufactured exports, his findings may give some insight of what constraints export expansion in Kenya. The internal factors he identified may apply also to manufactured exports but the extent to which they do this still needs to be investigated.

- Lall, et al (1986) investigated the determinants of manufactured exports performance in Low-Income Africa taking Kenya and Tanzania as examples. Their major interest was the examination of factors that determine revealed comparative advantage by destination of manufactured product exports of Kenya and Tanzania in the early 1980's. They ran a regression model relating revealed comparative advantage with physical capital-intensity, skill, large-scale firms and concentration. They were interested in knowing whether the manufactured exports from Kenya and Tanzania really correspond to the modern theory of international trade. The results indicate that many

factors which lie outside conventional trade theory influence the patterns of comparative advantage for Kenya and Tanzania. They found also that economic factors play a relatively small overall role in the trade patterns of Kenya and Tanzania. The results also suggest that government interventions, an undeveloped base of technological and other skills, and weak supporting framework for export activity all contribute to the delay which LDCs have in exploiting their latent comparative advantage in world market. While this study is particularly useful in understanding of trade patterns, it dealt with the nature of goods rather than the supply and demand factors that influence the manufactured exports.

2.1 OVERVIEW OF THE LITERATURE

The reviewed econometric studies on export performance had adopted the "small country" assumption which implies that demand facing any individual country's manufactured exports is horizontal. The prices of the LDCs manufactured exports are exogeneously determined in the world market and hence they do not have influence whatsoever on the prices of these exports. This was the justification for estimating single export equations in the past econometric studies on manufactured exports performance.

The "small country" assumption holds that manufactured exports from individual LDCs form such a relatively small portion of the world trade in manufactures that the effective constraint on their growth must be essentially on the supply side. The studies reviewed above, therefore, assumed that an individual LDC face perfectly elastic demand curve for its manufactured exports in the world market. LDCs on the basis of this assumption, can export any quantity at the ruling price in the world market given supply conditions.

Even though the assumption is theoretically plausible, it may not hold in the real world situation, and this may be the major weakness of the past studies. A small country will only face a horizontal demand curve for its exports in the world market if the products exported are homogeneous, that is, if the products exported are similar from all the countries. This will imply also that the technology of producing the products is the same in the exporting countries whether developed or developing.

The assumption was realistic since the studies were mainly concerned with flow of manufactures from countries with almost the same level of technological development; newly industrialized nations. However, it is unrealistic if we deal with exports from a least

developed nation to the highly developed nations. Efficiency of production differs from country to country and so we expect differences in quality of products produced and consequently price differences.

Again goods are often heterogeneous in the world market due to quality differences, packaging, standardization for colour etc. So products supplied in the world market are bound to be differentiated. Hence, an individual LDC does not necessarily face horizontal demand curve as was assumed in the reviewed past studies.

A small country may also find it difficult to sell all its products at the ruling world market prices. This may be explained by Armington's (1969) utility tree approach to specification of demand function in foreign trade. According to that approach, a country first determines the total demand for imports of any good and then orders are independently allocated among competing sources of supply by geographical origin. The demand for a country's exports depends on how reliable it meet the export requirements. A country which is more capable of supplying the export orders in time will win more export orders. So an individual country may not export any quantity in the world market at the ruling market prices. It is possible to perceive of downward sloping export demand curve for an individual

LDC. If this perception holds, then the estimation of a single export supply equation is likely to suffer from simultaneous equation bias. The bias resulting from the estimation of an equation belonging to a simultaneous equation system using ordinary least squares,

Our study attempts to develop a simultaneous equation system for Kenya's manufactured exports. We assume that the exports volume respond simultaneously to forces of demand and supply; that is, demand for Kenya's manufactured exports is not horizontal. This will not only remove the simultaneous equation bias but also analyse supply response to price and other variables taking into consideration the demand side conditions facing Kenya's manufactured exports.

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CHAPTER THREE

3.0 METHODOLOGY

3.1 INTRODUCTION

This study analyses the determinants of Kenya's manufactured exports by destination of these exports in 1970's and early 1980's. The manufactured exports considered for the analysis are those that Kenya can produce and offer for export according to Heckscher-Ohlin¹ theory of international trade. Following the United Nations International Standard Trade Classification (ISTC), manufactured goods that Kenya has comparative advantage in producing and offering for export fall under ISTC class 6 at the four digit version. These are manufactured products classified mainly by materials. We analyse the determinants of these exports at aggregate level.

The European Economic Community (EEC) market is selected as the destination of these manufactured exports. Goods falling under ISTC class 6 were identified by Manfred (1976) as goods that Kenya can produce and offer for export in the EEC market at real comparative advantage. Kenya is also at present analysing factors that limit access of its goods and services exports in Japan, Europe and the U.S.A.² There is also need to expand Kenya's manufactured exports in developed countries as reliance on exports to Tanzania, Uganda, and other P.T.A. member

states drive it ever further from the products in which it has comparative advantage. This is due to the fact that manufactured products that Kenya has comparative advantage in are the very ones that other LDCs are undertaking their own industrialization. As Porter (1973) puts it, the only efficient and viable alternative to coffee, tea and tourism exports, in the long-run is the development of exports of manufactured goods to advanced countries.³ Also based on the fact that after the Lome Convention, European Economic Community (EEC) granted duty-free access on a non-reciprocal basis to all African, Caribbean and Pacific (ACP) developing countries' exports of manufactured goods and tropical agricultural produce, the EEC market is taken as an ideal free market for our analysis.⁴

We consider both supply and demand side factors that determine the amount of manufactured product exports from Kenya into the EEC market.

3.2 ANALYTICAL FRAMEWORK.

The dependent variable used in this paper is the receipts from manufactured goods exports (classified mainly by materials) to the EEC market. The dependent variable (X), in million Kenya pounds, is expected to depend both on supply-side and demand-side

variables. That is, X , is influenced by domestic and external factors. Various traditional variables have been used as explanatory variables in applied trade literature. In this study, we only consider a few of such variables.

3.2.1 SUPPLY-SIDE FACTORS.

The supply-side explanatory variables on the manufactured exports flow from Kenya to the EEC market are the relative prices; domestic demand pressure on the manufactured goods; capacity of the industrial or manufacturing sector to produce; and the number of large scale firms.

Relative prices are key determinants of the volume of exports. It is expected that exporters respond to relative profitability of exporting or selling domestically in the home market as indicated by relative prices. The price an exporter can fetch for his products in the domestic market relative to the price he can receive if he exports his products influences the producer's decision to export or to sell at the domestic market. The higher the export market price (P_x) relative to the domestic market price (P_d) for the products the higher the profitability of exporting and hence the higher the volume of exports.

Data on manufactured exports price (Px) at ISTC class 6 aggregate level is, however, not available. We use price index for the whole of the manufactured exports as a proxy measure of Kenya's ISTC class 6 manufactured exports price level in the EEC market. For the domestic price level of Kenya's manufactured goods, we could use producer wholesale price index as a proxy reflecting the cost of producing these products and assuming prices are based on the production costs, but this information only exists for the period 1981 to 1985 and is published on quarterly basis. We therefore use manufacturing sector's GDP deflator to reflect the final price levels of Kenya's manufactured products sold locally. The relative price variable is thus given as Px/p_d

As the manufactured output grows overtime, it is expected that Kenya will be able to export more of her manufactured products. Increase in manufacturing sector's production may imply that the country becomes more able to produce more sophisticated goods that can compete effectively in the world market. Increase in industrial output may also indicate a country's ability to satisfy its own domestic demand for manufactured goods and have the surplus which can be offered for exports. We expect the capacity of the manufacturing sector to produce (CAP) or the growth of manufacturing sector's output to have a positive influence on manufactured exports. This variable CAP is measured by the

index of the manufacturing production. The index is intended to capture the impact of industrial growth on the exports of the manufactured products.

Domestic demand pressure (DDP) on manufactured products does exert some influence on the exports of these products. At relative high levels of domestic demand for manufactured goods, other things being equal, the quantity of resources devoted to exports, or quantity of goods available for exporting, is expected to be lower than would have been the case at lower levels of internal demand for exportables. ^{argument is founded} The/ principally on the view that exports are relatively unprofitable compared to domestic sales due to the costs involved and will be particularly sensitive to changes in the margin of unused capacity in the economy. Firms adjust their production for exports after meeting the domestic demand and there exists some unused capacity. Higher levels of internal demand for manufactured products creates competition for resources which could have been devoted to exports and so it is expected that domestic demand pressure affects exports adversely. Past studies have used capacity utilization rates as a measure of domestic demand pressure on manufactured exports. The assumption has been that high levels of capacity utilization only indicate high levels of domestic demand and not export sector demand. So at high levels of capacity utilization rates, less is

offered for exports. But in countries which have adopted import substitution for a long time, higher capacity utilization may indicate high export orders. While it could be interesting to subject this to empirical test, there exists no proper measure for capacity utilization in Kenya's industrial sector at the moment. In this study, we use real GDP for Kenya as a measure of domestic demand pressure on manufactured products. It is expected that higher levels of GDP are associated with higher levels of domestic demand and hence lower export volumes for manufactured products.

The size of the enterprises in the Kenyan manufacturing sector is expected to play some role in the export promotion. The larger the size of the enterprises, the more able are the firms to constantly supply a systematically built up export market. Larger firms are expected to be able to take risks and acquire market informations in the export market more readily than the small scale firms. Hence, as the number of large scale firms increase, the industrial sector becomes more capable of facing the risky and uncertain export market. Adopting Lall's (1986) procedure, we measure large scale firms by percentage of industrial output accounted for by firms with 50 or more employees in Kenya (NLF).

These variables only capture a part of influences on export supply behaviour. Various factors have been excluded in this study due to difficulties of getting data on them. Factors such as transport costs, export subsidies, taxes, export compensation schemes, and other policy variables have been excluded from our analysis due to difficulties in getting informations. For example, only a few manufactured exports are eligible for export compensation scheme and we cannot justify the export compensation scheme to apply to all the manufactured exports considered in our analysis. Again foreign exchange availability plays a critical role in the export supply decisions by making it easy to import critical inputs in the manufacturing sector. But information on foreign exchange availability is very difficult to arrive at. Other factors excluded from the supply-side due to difficulties in quantifying them include the presence of multinational corporations and the efficiency of production. However, the considered variables are expected to indirectly capture the influence of the excluded variables.

The supply-side factors dealt with in our analysis are, therefore, export prices, domestic prices of manufactured products, domestic demand pressure, capacity to produce and the size of the enterprises in the Kenyan manufacturing sector.

3.2.2. DEMAND-SIDE FACTORS

From the demand-side, we relate manufactured export volumes (X) to these exports' price level in the EEC market; the price of competing manufactured products in the EEC market; the income level of the EEC and the foreign exchange rate.

The relative competitiveness of Kenya's manufactured exports with respect to price in the EEC market is expected to play a positive role in export promotion. That is to say, the relative price of Kenya's manufactured exports to those of competing products in the EEC will have a negative influence on Kenya's exports to the EEC market. As the price of Kenya's manufactured exports (P_x) rises relative to the price of competing products (P_w) in the EEC market, we expect the importers to switch away from Kenya's products to relatively cheaper products. The relative price, P_x/P_w , reflects how competitive Kenya's manufactured exports are in the EEC market with respect to price. The lower the relative price, the more competitive our exports are and more will be bought in the EEC market. As is already explained, P_x is measured by the Kenya's manufactured exports price index. P_w is measured by the price index of the EEC's manufactured exports. This is taken as a

proxy for the price of the competing products to Kenyas industrial exports. The assumption is that EEC members export most of their manufactured items in the common market and hence compete against other products imported from other countries (i.e Kenya).

However, since P_x is given in Kenya shillings while P_w is calculated in U.S. dollars, we use the official exchange rate (EXR) to transform P_w into Kenya shillings equivalent so as to deal with one currency.

Devaluation or over-valuation of Kenya Shilling with respect to the U.S. dollar or any other currency will have some influence on Kenya's manufactured exports. As Kenya devalues, its currency relative to U.S. dollar, for example, it is expected that its manufactured exports will be more competitive in the EEC market with respect to prices and hence an increase in export volume to this market. For our analysis, we use the official exchange rate (EXR) between Kenyan Shilling and U.S. dollar to reflect the exchange rate variable.

Income of the EEC market (YEEC) is expected to have a positive influence on demand for Kenya's manufactured exports in the EEC market. This is based on the

theoretical ground that as income rises, the purchasing power of the people improves and more of the products will be demanded. The assumption is that Kenya's manufactured products are not inferior goods in the EEC market. Their demand responds positively to income levels of the importers. We measure this income level by the real GDP of the EEC. The EEC's GDP at market prices is deflated by the manufactured exports price level of the EEC (P_w). P_w is expected to affect the purchasing power of the EEC. The EEC's real GDP. (Y_{EEC}) is expressed in Kenya shilling equivalent so as to have the variables in similar units.

The demand-side variables again are not exhausted. Factors such as trade restrictions are not explicitly taken care of in our analysis due to hardship in quantifying them.

3.3 MODEL SPECIFICATION

Having described the variables that we use in our analysis, we next specify the equations that are used to estimate the manufactured export supply and demand functions. The specification of the equations is based on two fundamental assumptions:

- (i) The export demand curve facing Kenya's manufactured exports into the EEC market is not infinitely elastic. This rules out the possibility that the demand curve is horizontal;

- (ii) The supply curve facing Kenya's manufactured exports is not infinitely inelastic.

These assumptions imply that the manufactured exports' volume respond simultaneously to demand and supply-side conditions.

The model of equations takes the general form of:

$$X_s = f(P_x, P_d, CAP, DDP, NLF) \text{ ---- (3.1)}$$

$$X_d = g(P_x, P_w, EXR, YEEC) \text{ ---- (3.2)}$$

$$X_s = X_d = X \text{ ---- (3.3)}$$

where equation (3.1) is the manufactured export supply function for Kenya relating export receipts (X_s) to:

P_x = Kenya's manufactured exports price index
with 1976 = 100.

P_d = Kenya's manufacturing GDP's deflator taken as a proxy for the alternative price level facing manufactured products in the domestic market (1976 = 100)

DDP = Domestic Demand Pressure on Kenya's manufactured products. The variable is proxied by the GDP at 1976 constant prices

NLF = Number of Large-Scale Firms. This variable is measured by the percentage of the industrial output accounted for by firms employing 50 or more people.

Equation (3.2) is the demand function for Kenya's manufactured exports in the EEC market, where P_x is as explained above and;

P_w = Price of Competing products to Kenya's manufactured exports in the EEC market measured by the price index of the EEC's manufactured exports with 1975 = 100

EXR = The official exchange rate between Kenyan Shilling and the U.S. dollar.

YEEC = The real income level of the EEC. The GDP at market prices of the EEC is deflated by P_w , the price index of the EEC's manufactured exports. YEEC is in K£m.

Equation (3.3) is the equilibrium or market clearing condition for the model. It is assumed that the observed variables are equilibrium values for the model.

From the assumption that the demand function for Kenya's manufactured exports is not infinitely elastic, we expected the demand curve to be downward sloping. Export prices (P_x) are not predetermined and so P_x is endogenous. The above model is thus mathematically complete. It contains three equations and three endogenous variables, X_s, X_d and P_x . The remaining variables $P_w, Y, P_d, CAP, DDP, EXR,$ and NLF are exogenous.

But, a potential source of bias may arise from an incorrect specification of the estimating equations as the model depicts an equilibrium relationship when actually the true relationship may be one of disequilibrium. In the absence of an equilibrium condition, the observed quantity traded in the market may not satisfy both demand and supply schedules. Market does not clear in each time period. For such disequilibrium models we observe the quantity demanded if there is excess supply and the quantity supplied if there is excess demand.⁵

Such disequilibrium models were first analysed by Fair and Jaffee⁶ and they used some variant of least squares methods of estimation. But the correct likelihood function for the use of maximum likelihood method in these models were formulated by Amemiya⁷ and Maddala and Nelson.⁸ The distinguishing feature of the disequilibrium model is that price is not assumed to adjust each period so as to equate demand and supply.

The main procedure in estimating disequilibrium models is to determine the level of quantities that correspond to supply and demand schedules. In periods of rising prices only supply schedule will be observed while in periods of falling prices only the demand will be observed. Separation of the sample data for demand and supply schedules depends on whether prices are falling or rising.

But for the Kenya's manufactured exports, it is difficult to verify whether the export market is characterized by disequilibrium or equilibrium conditions. This is because the manufactured exports, unlike primary products, are not subject to significant price fluctuations to make it practicable to separate demand

schedule from the supply schedule. Prices have the tendency of rising over time. Again, features of market disequilibrium such as queuing for the products, rationing and dumping of the products are not common features of the products considered in this study. Again, in the Kenyan economy, goods market does not clearly portray disequilibrium situation though the presence of price controls may suggest some state of disequilibrium. Njoroge (1985) also pointed out that the Kenyan goods market is not characterized by a persistent state of disequilibrium.⁹ But for the export market, it is still an empirical issue whether our exports markets are characterized by disequilibrium condition or not and this paper does not attempt to verify the issue. We instead assume, for ease of analysis, that the Kenya's manufactured exports market approximates equilibrium condition.

However, even if we assume a market clearing situation for Kenya's manufactured exports in the EEC market, we do not expect exports supply to vary immediately in response to price changes due to structural and institutional rigidities. A complete adjustment of actual exports to desired exports is not achieved in a single period due to market adaptation lags resulting from entry costs on the part of producers. Balassa (1978) observed that

omission of lagged price effects may result in downward bias in estimates of price elasticity of export supply.¹⁰ Little, et. al(1970) also stressed the importance of lagged price effects on export supply after devaluation.¹¹ We therefore expand equation (3.1) to introduce the distributed lag effects of price.

Due to habit formation and desire to maintain past levels of consumption, we expect that the demand for Kenya's manufactured exports in EEC market will respond to lagged values of exports. Following Houthakker and Magee¹², a partial adjustment model is considered for the demand function (3.2). We therefore expand equation (3.2) to include lagged values of export demand.

The model therefore takes the general form of:

$$X_{st} = f(P_{xt}, P_{dt}, CAP_t, DD_{pt}, NL_{ft}, P_{xt-1}, P_{dt-1}) \dots (3.4)$$

$$X_{dt} = g(P_{xt}, P_{wt}, YEE_{ct}, EXR_t, X_{dt-1}) \dots (3.5)$$

where P_{xt-1} , is lagged price for the Kenya's Manufactured exports, P_{dt-1} is lagged price for the manufactured products in the home market and X_{dt-1} is the lagged value of these exports sold in the EEC market.

3.4 ESTIMATION METHODOLOGY

Empirical forms of equations (3.4) and (3.5) are:

$$Xst = f(Pxt, Pdt, CAPt, DDpt, NLFt, Pxt-1, Pdt-1, Est) \text{---} (3.6)$$

$$Xdt = g(Pxt, Pwt, YEEct, EXRt, Xdt-1, Edt) \text{-----} (3.7)$$

where Est and Edt are the stochastic terms of the equations

For estimation, of equations (3.6) and (3.7) it is assumed that $E(Es_t/Px_t, Pd_t, CAP_t, DDp_t, NLF_t, Px_{t-1}, Pd_{t-1}) = 0$. and $E(Ed_t/Px_t, Pw_t, EXR_t, YEEC_t, Xdt-1) = 0$. But due to simultaneity between the level of exports supply and exports price, $E(Es_t/Px_t) \neq 0$. If Es_t changes, Px_t will change due to simultaneity between Px_t and Xs_t . This may be illustrated by expressing Px_t interms of Xdt , Pw_t , EXR_t , $YEEC_t$ and Xd_{t-1} to obtain indirect demand function as:

$$Px_t = g'(Pwt, Xdt, YEEC_t, Xdt-1, EXR_t) + Ed_t' \text{----} (3.8)$$

Then if Est rises Xst will rise by (equation (3.6)). If the equilibrium condition, $Xs_t = Xd_t$, holds, then Xd_t will also rise. A rise in Xd_t will lead to a fall

in Px_t by equation (3.8). So as Est rises, Xst rises, Xdt rises and Pxt falls, hence $E(Est/Pxt) \neq 0$.

Since $E(Es_t/Px_t) \neq 0$, we cannot use ordinary least squares (OLS) to estimate equations (3.6) and (3.7). Equations (3.6) and (3.7) are simultaneous equations and for consistent estimates of the coefficients of the structural equations, either indirect least squares (ILS), two - stage least squares (2SLS) or maximum - likelihood methods can be used depending on the identifiability of the structural equations.

Following the order condition for tracing the identifiability of an equation belonging to a structural model, equations (3.6) and (3.7) are all overidentified.¹³ Consistent and efficient parameter estimates can be achieved by 2SLS estimation technique. 2SLS has provided satisfactory results for the estimates of the structural parameters and has been accepted as the most important of the single equation techniques for the estimation of overidentified models.¹⁴

The model is estimated in log-linear functional forms for total manufactured exports (classified chiefly by materials) from Kenya to the EEC market using 2SLS technique. The variables of the first stage of 2SLS

are Px_t as dependent variable and Pd_t , Pw_t , CAP_t , DDP_t , $YEEC_t$, EXR_t , NLF_t and $Xdt-1$ as explanatory variables. Annual data covering the period 1970 to 1984 are used for the estimation.

Estimations are performed on the following functional forms:

$$(i) \ln Xst = \beta_{10} + \beta_{11} \frac{\ln Px_t}{Pd_t} + \beta_{12} \ln CAP_t + \beta_{13} \ln NLF_t + \beta_{14} \ln DDP_t + E_{st}$$

$$(ii) \ln Xst = \beta_{20} + \beta_{21} \frac{\ln Px_{t-1}}{Pd_{t-1}} + \beta_{22} \ln CAP_t + \beta_{23} \ln NLF_t + \beta_{24} \ln DDP_t + Est$$

$$(iii) \ln Xd_t = \beta_{30} + \beta_{31} \frac{\ln Px_t}{Pw_t} + \beta_{32} \ln YEEC_t + \beta_{33} \ln EXR_t + \beta_{34} \ln Xd_{t-1} + Edt.$$

The next chapter discusses and presents the data used in estimating the above equations.

FOOTNOTES

1. "The theory, developed by Heckscher and his compatriot, Ohlin, holds that a country which has an abundance of e.g. labour will specialize in the production and export of goods, which are intensive in the use of labour and import goods which are intensive in the use of the country's scarce factor of production e.g. capital."
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13. Let K be the number of all variables in the model and G be the total number of endogenous variables in the system and M be the number of variables in a particular equation. Then the order condition for equations (7) and (8) requires that:

$$K - M_7 > G - 1 \quad \text{and} \quad K - M_8 > G - 1$$

$$K = 13, M_7 = 8, G = 3, M_8 = 6$$

$$(i) \quad K - M_7 > G - 1 \qquad (ii) \quad K - M_8 > G - 1$$

$$13 - 8 > 3 - 1$$

$$13 - 6 > 3 - 1$$

$$5 > 2$$

$$7 > 2$$

Hence, both equation (7) and (8) are overidentified.

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CHAPTER FOUR

4.0. DATA: NATURE, SOURCES AND LIMITATIONS.

4.1. INTRODUCTION:

Data requirements of this study are clearly indicated by the discussion in Chapter 3. This chapter describes the nature and sources of the data and presents the raw data used in the analysis. It also discusses the main limitations of the data.

4.2 NATURE AND SOURCES OF THE DATA.

Time series data for the period 1970 to 1984 were used in estimating the model specified in Chapter 3. Due to lack of data at disaggregate level on most of the variables, this study concentrates on aggregate level analysis. Manufactured exports data were aggregated at the ISTC class 6 aggregate level.

The data for manufactured exports (ISTC class 6) earnings from the EEC market (X) expressed in million Kenya pounds were taken from various issues of Kenya Annual Trade Reports; Customs and Excise Department.

The indices of export prices; manufacturing output; manufacturing sectors GDP deflator; output of the large-

firms and the GDP at 1976 constant prices were obtained from various issues of the Kenya's Statistical Abstracts; Central Bureau of Statistics.

The Price indices of EEC's manufactured exports were extracted from the Monthly Bulletin of Statistics, United Nations Publications.

The official exchange rates between Kenya Shilling and the U.S. dollar were drawn from various issues of International Financial Statistics, I.M.F. Publications

Data on EEC's GDP were extracted from the Year Book of National Accounts Statistics, United Nations Publications.

The price index of EEC's manufactured exports and EEC's GDP given in U.S. dollars were converted into Kenya shillings equivalent by the official exchange rate between the two currencies.

Table 4.1 presents the data used in the analysis.

TABLE 4.1

THE RAW DATA USED

YEAR	X	Px	Pd	CAP	DDP	NLF	EXR	Pw	YEEC
1970	0.03	36	61	60	966	85	7.1	52	4281
1971	0.33	41	65	66	1020	84	7.1	63	4012
1972	0.33	45	66	70	1090	84	7.1	68	4400
1973	0.49	56	70	80	1143	85	6.9	71	5158
1974	0.79	77	82	86	1190	83	7.1	74	4364
1975	0.68	84	87	84	1220	83	8.3	100	5713
1976	2.06	100	100	100	1275	86	8.3	97	5944
1977	2.44	128	108	116	1386	80	7.9	109	5835
1978	2.86	140	117	131	1477	82	7.4	127	5799
1979	2.29	149	124	140	1540	90	7.3	146	6159
1980	4.40	147	139	148	1591	91	7.6	162	6590
1981	2.63	160	153	155	1679	90	10.3	157	8109
1982	2.47	183	165	157	1733	77	12.7	138	10878
1983	1.97	225	173	164	1794	81	13.8	131	13548
1984	2.84	234	188	170	1810	82	15.8	123	17179

- Sources:
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DEFINITIONS OF SYMBOLS:

- X: Receipts from ISTC Class 6 Manufactured exports to EEC market in K£ million
- Px: Kenya's Manufactured Exports Price Index (1976 = 100).
- Pd: Kenya's manufactured GDP Deflator (1976 = 100).
- CAP: Quantity Index of Manufacturing Production (1976 = 100).
- DDP: Kenya's GDP at 1976 Constant Prices (K£m).
- NLF: % of Manufacturing Sector's Output Accounted for by Large-Scale Firms.
- EXR: Official Exchange Rate between Kenya Shillings and U.S. dollar
- Pw: EEC's Manufactured Export Price Index (1975 = 100).
- YEEC: Real EEC's Gross Domestic Product in K£ million.

4.3 LIMITATIONS OF THE DATA

A major difficulty faced in data collection was the inavailability of the data at the required aggregate level. First, price indices are not published at the needed ISTC class 6 aggregate level for manufactured exports. Price index for Kenya's manufactured exports as a whole was used as the second best alternative. Secondly, producer wholesale price index for Kenya's industrial products which could be used to reflect the price of the Kenya's manufactured exports in the domestic market is only available for the period 1981 to 1985 on quarterly basis. The manufacturing sector's GDP deflator which is a measure of domestic price level of the manufactured products.

The EEC's manufactured exports' price index was also used as a proxy measure for the price of competing products to Kenya's ISTC class 6 manufactured exports due to lack of data on the relevant items at the required aggregate level (ISTC class 6 aggregate level). The weakness of using the EEC's manufactured exports price index is that it may not reflect the true price level of competing products to Kenya's exports considered in this study. But, however, it is the best alternative available.

The next chapter presents and interpretes the regression results obtained from the 2 SLS estimation of the model presented in chapter 3.

CHAPTER FIVE

5.0 EMPIRICAL RESULTS AND INTERPRATIONS

In this chapter, 2SLS regression estimates of the model developed in chapter 3 and using the data discussed in chapter 4 are presented and interpreted.

The estimated equations are in double logarithmic form. This implies that the estimated coefficients are the elasticities of manufactured exports with respect to each of the respective independent variables.

2SLS regression results for the manufactured exports supply function are summarized by tables 5.1 and 5.2. Table 5.1 presents results without the lagged price effects on the supply of manufactured exports while table 5.2 displays results taking into account lagged price effects. Table 5.3 presents the results of regression coefficients for the demand function of manufactured exports.

Table 5.1 Supply Function Coefficients : 2 SLS Estimates
(Dependent Variable is $\ln X_s$).

Variable	Regression Coefficient	Standard Error	T-ratio (d.f = 10)
$\ln \frac{P_{xt}}{P_{dt}}$	3.5773	1.9423	1.842
$\ln CAP_t$	1.0042	1.3382	0.750
$\ln NLF_t$	3.8333	0.3127	0.987
$\ln DDP_t$	-0.1161	3.8844	-0.371
Constant	-20.6816		

Standard Error of Estimate = 0.627
 R^2 = 0.836
 F-ratio(4,10) = 12.726
 D.W. Statistic = 2.3228.

From table 5.1, the regression coefficients all have the expected signs. Testing for the overall significance of the regression using F-statistic, the regression is found to be statistically significant at one per cent level. There is therefore linear relationship between the dependent variable and the regressors. R^2 is also reasonably large (0.836), hence an indication of a good fit. All the explanatory variables together explain approximately 84 per cent of the variation in the dependent variable.

However, not all of the variables are statistically significant. Only relative price variable, $\frac{P_{xt}}{P_{dt}}$ is statistically significant at five percent level. The relative price elasticity of manufactured exports supply is estimated as 3.5773, which is quite elastic. This may indicate that local manufacturers are more responsive to relative profitability between the local and export markets. The manufacturing production index; number of large-scale firms and domestic demand pressure variables have expected coefficient signs but, however, not significant. The manufactured exports supply elasticity with respect to manufacturing production index is estimated as 1.0042, while the elasticities with respect to large-scale firms and domestic demand pressure are estimated as 3.8333 and -0.1161 respectively.

However, when we consider the lagged price effects, we find that the fit of the regression is improved and the factors are now all binding. The lagged price effects captured by one year lag of the relative price, $\frac{P_{xt-1}}{P_{dt-1}}$, improves the regression results of the supply function. From the results presented in table 5.2 the signs of the coefficients are still as expected and R^2 has improved to 0.923. All the variables together now explains roughly 92 per cent of the variations in the dependent variable. F-statistic test also indicates that the overall regression

has become even more significant. The relative price variable, and the shift variables, capacity to produce, and domestic demand pressure are significant at five per cent level. But large-scale firms variable is only statistically significant at ten per cent level. The implication is that both export promotion policies which affect export prices and the drive to increase industrialization resulting in the production of a more sophisticated and diversified bundle of goods are important factors in export supply.

Table 5.2: Supply Function Coefficients with Lagged Price Effects : 2SLS Estimates (Dependent Variable is LnXst).

Variable	Regression Coefficient	Standard Error	T - ratio (d.f=9)
$\frac{\text{LnPx}_{t-1}}{\text{Pd}_{t-1}}$	1.9759	0.9082	2.176
Ln CAP _t	1.2484	0.6415	1.946
Ln NLF _t	2.3875	1.7958	1.329
Ln DDP _t	-0.3402	0.1367	-2.489
Constant	-13.6284		

Standard Error of Estimate = 0.292

R² = 0.923

F-ratio (4,9) = 26.974

D.W. statistic = 2.6645

The relative price elasticity of supply given as 1.9759 indicates that if the relative price is increased by one per cent, Kenya's manufactured exports will increase by 1.9759 or approximately 2 per cent. The relative price elasticity of manufactured exports is therefore elastic, that is, manufactured exports are more responsive to the relative profitability of the domestic and export markets. The inference holds since the elasticity is statistically significant at five per cent level.

The elasticity of manufactured exports supply with respect to manufacturing output index (CAP) is estimated as 1.2484 and statistically significant at five per cent level. The elasticity is closer to unity and therefore may be interpreted as unitary elasticity. If the Kenya's manufacturing output or production grow by one per cent, exports of these products will grow by 1.2484 or roughly 1 per cent. There is therefore causal relationship between manufacturing output growth and manufactured exports.

Manufactured exports supply elasticity with respect to the output of manufactured products accounted for by large scale firms is of expected sign and estimated as 2.3875, but only statistically significant at ten percent level. The implication may be that if the ratio of large-scale firms' output to total manufactured output rises by one per cent, manufactured exports will increase by roughly 2 per cent. This is an indication that large scale firms are more able to engage in export activities than small-scale firms. Economies of scale may be seen to have some positive influence on exports of Kenya's manufacturing sector. Large-scale firms are more able to undertake the risky and uncertain export business. However, the inference does not take into account the firms (large or small) that may choose to go for exports only or sell to the home market only. The inference is also not statistically strong due to the fact that the elasticity is only significant at ten per cent level.

Domestic demand pressure elasticity of manufactured exports supply is estimated as - 0.3402 and statistically significant at five percent level. Since domestic demand pressure was proxied by Kenya's GDP at 1976 constant prices,

the interpretation of the elasticity should be that as Kenya's GDP grows in real terms, the level of manufactured exports will decline. Growth in real GDP, assuming fair distribution of income, will improve the purchasing power of the people and consequently increase domestic demand for manufactured products resulting in a decline of these exports. But since the elasticity is quite low (-0.3402), the decline in exports will also be very low. That is, if GDP grows by one percent, in real terms, exports of manufactured exports will fall by only 0.3402 or approximately 0.3 per cent.

Table 5.3 presents the regression results of the Kenya's manufactured exports demand function in the EEC market. The regression coefficients of relative price, P_x/P_w , EEC's income Y_{EEC} , and lagged export demand have expected signs but the exchange rate, EXR , coefficient has unexpected sign. From the F. statistic test, the overall regression is significant at one per cent level and this indicates that there is a linear relationship between the dependent variable and the regressors. R^2 of 0.806 imply that the regression has a good fit. All the variables (explanatory) together explain approximately 81 percent of the variation in the dependent variable. The problem, however, is the low

significance of most of the explanatory variables as is reflected by the t - statistics.

The lagged demand variable (X_{dt-1}) elasticity of demand is 0.7075 and statistically significant at one per cent level. The positive elasticity implies that the manufactured exports considered in this study are non-durable goods. Their demand respond positively

Table 5.3 Demand Function Coefficients : 2 SLS Estimates (Dependent Variable is $\ln X_d$)

Variable	Regression Coefficient	Standard Error	T-ratio (d.f. = 10)
$\frac{\ln P_{xt}}{P_{wt}}$	-0.2435	1.8678	-0.130
$\ln YEE_{ct}$	1.0370	2.5394	0.408
$\ln EXR_t$	-1.0072	3.2976	-0.305
$\ln X_{d_{t-1}}$	0.7015	0.1905	3.683
Constant	-6.1648		

Standard Error of Estimate = 0.682
 R^2 = 0.806
 F - ratio(4,10) = 10.379
 D.W. Statistic = 2.804

to previous year's level of demand. But the elasticity (0.7075) is quite low, inelastic. One percent increase in previous periods demand increases present level of demand by only 0.7 per cent.

The relative price, P_x/P_w , which measures the degree of price competitiveness of our manufactured exports in the EEC market has the expected elasticity sign. The elasticity is negative indicating that demand for Kenya's manufactured exports in the EEC market responds negatively to the relative price levels of these exports to competing product price levels. The elasticity of demand for our manufactured exports with respect to the relative price, P_x/P_w is calculated as - 0.2435. This implies that one percent increase in the price of our manufactured exports relative to price of competing goods will lead to 0.2435 per cent decline in the exports. Policy measures that make our exports more competitive with respect to prices may have some impact on expanding the exports. But the response seems to be very low, only 0.2 and again the insignificance of the coefficient makes it statistically difficult to draw concrete inferences about variable.

The income elasticity of demand for Kenya's manufactured exports in the EEC market (1.0370) is of the expected sign. The magnitude is consistent with

the expectations. The implication is that Kenya's manufactured exports in EEC market respond positively to the income levels of the market. The demand improves as the economic activity of the EEC market grows. One percent increase in the EEC market leads to approximately one percent increase in our exports in the market. But, again the coefficient is insignificant and we cannot make conclusive and binding statistical inferences about the relationship.

The foreign exchange rate elasticity of manufactured exports demand in the EEC market is of incorrect sign (-1.0072) and insignificant. The result is therefore suprisingly bad and no justification is available. The expectation was that as the foreign exchange rate increases (i.e. as we devalue our currency), the exports would rise. This is because devaluation is expected to make our exports cheaper in the world market. But the negative sign may in away reflect the fact that official exchange rate between Kenyan shillings and U.S. dollars used in our analysis may not be the effective exchange rate that the importers in the EEC market respond to in adjusting their demand behaviour. But whatever the explanation, the result is inconsistent and we do not draw inferences about.

5.1. SUMMARY OF REGRESSION RESULTS

The estimated parameters of the model are consistent with the expectations and in line with the results of past studies, except for the case of foreign exchange rate coefficient which had unexpected sign.

The supply function produces the best results. The elasticities of manufactured exports supply with respect to relative price, manufacturing production index and the domestic demand pressure are all significant at five per cent level when the lagged price effects are taken into account. However, the ratio of output of industrial output accounted for by large scale firms (NLF) is only significant at ten percent level.

The demand function, on the other hand, has expected coefficient signs for relative price, P_x/P_w , income and the lagged demand variables. The exchange rate however has incorrect coefficient sign. Only the lagged demand variable is statistically significant at one per cent level. The rest of the variables are statistically insignificant.

From the results, there is an indication that Kenya's manufactured exports performance is relatively more sensitive to domestic factors than external factors affecting demand condition in the EEC market. Policies should therefore be designed to improve domestic supply conditions of manufactured products if the strategy of export promotion is to succeed. The next chapter tries to highlight some policies that may help foster Kenya's manufactured exports growth.

CHAPTER SIX

6.0 CONCLUSIONS AND POLICY IMPLICATIONS

6.1 CONCLUSIONS

In this paper, the attention has been on the estimation of Kenya's manufactured exports supply and demand functions. The purpose was to examine the relative importance of the principle determinants on the demand and supply of Kenya's manufactured exports. This was attempted in a simultaneous equation framework taking into account the variability in both demand and supply schedules of these exports.

The manufactured exports considered in this study are those classified mainly by materials and therefore falling under class 6 of the International Standard Trade Classification (ISTC). These are the goods in which Kenya has comparative advantage. The destination of those exports selected for our analysis was the European Economic Community (EEC) common market. The analysis was at aggregate level both interms of commodities and destination of the products. The data used was on annual basis covering the period 1970-1984.

The model estimated is specified in chapter 3. Two-stage least squares (2 SLS) technique was used to estimate the model. Empirical results are discussed in detail in chapter 5.

One of the findings from this study is that the trade pattern of products in which Kenya has comparative advantage in producing and offering for export is influenced mainly by the domestic internal factors affecting the supply conditions of these products. The evidence answers the question raised in the introduction of this paper. That is, supply side factors do appear to be effective in stimulating manufactured export expansion and possibly the diversification of these exports in Kenya. Similar conclusion was arrived at by studies outside Kenyan context (Yang 1981, Rodney 1984). Schluter's (1984) study on Kenya's primary exports also concluded that internal constraints affecting supply of primary exports are more binding than external demand conditions. The relative price elasticity of supply of approximately 2 (Table 5.2) indicates that manufactured exports are responsive to export promotion policies affecting the export receipts.

It can be concluded also that the demand-side factors are not quite severe in influencing Kenya's manufactured exports in EEC. The low relative price, P_x/P_w , elasticity of demand may indicate that the competitiveness of our manufactured exports in the EEC market is not quite binding on these exports expansion. The data used indicate, therefore, that our exports in the EEC market do not respond to the relative price levels. The income elasticity of demand estimated as 1.0370 (table 5.3) may imply that our exports have really penetrated the EEC market. One unit change in EEC market income leads to approximately one unit change in our manufactured exports. Since the EEC market is large and growing, Kenya's manufactured exports have the potential for expansion in this market given the income elasticity of demand of approximately 1. Hence, as is already noted, the products considered in this study seem to have penetrated the EEC market quite well.

Policies that are intended to promote Kenya's industrial exports should be directed mainly to factors affecting the supply of these products. Based on the findings, we have attempted to suggest some policy implications in the next section of this chapter.

6.2 POLICY IMPLICATIONS

Kenya Government is determined to promote manufactured exports and all possible means are being employed for rapid expansion of these exports both in regional and developed countries markets. One way of successful attainment of this noble goal is to formulate policies affecting major determinants of exports both from the internal and external sides.

From the empirical results, some policy implications may be suggested. First, the positive sign of the relative price, P_x/P_d , variable coefficient which is significant at five percent level implies that Kenya's manufactured exports have been responsive to the relative profitability of domestic market vis a vis EEC market. The concessions accorded to the infant industries during the import-substitution phase of industrialization in Kenya might have made the domestic market more attractive to the local producers than the external market. The protectionist regime might have acted to discourage exports because production for the protected domestic market have been artificially more attractive than production for exports. Domestic market price level of manufactured consumer goods

has been based on the import price equivalent including freight and import duties and hence, quite high and attractive to local producers. The implication is that there has been little inclination to build up an export market as the domestic market is prepared to accept products which do not necessarily correspond to the quality standards of imported goods. The policy implication is that to reinforce the export promotion strategy, the Government of Kenya should consider phasing out unnecessary protection of local manufacturers so as to make export activity contrast sharply with the competitive domestic market. Also, as the results indicate that manufactured exports are responsive to relative price levels between domestic and external markets, export compensation as a form of financial incentive should be based on the differential in the local market and export market price levels in order to make exporting activity equally attractive. Manufacturers should be able to make profits at the local market with as little protection as possible.

Secondly, the results also indicate that manufacturing sector's output growth has a positive and significant influence on the manufactured exports.

Export expansion strategy may therefore require policies that improve the growth of the manufacturing sector's output. Such policies should be directed towards capacity utilization, financial and institutional support. The strategy of export expansion, therefore, calls upon the need to industrialize through resource mobilization, expansion of industrial management base and infrastructural improvement so as to provide conducive investment environment necessary for industrial growth. Growth of capital stock and technological advancements which affect the growth of manufacturing sector should be part of policy package expected to speed up the rate of manufactured exports expansion.

Third, the positive coefficient of the number of large-scale firms variable, though only significant at ten per cent level, indicates that change in the output of large-scale firms has a positive or favourable influence on the supply of manufactured exports. Large-scale firms are capable of undertaking risks in investing in export business than small-scale firms. Export expansion, therefore, requires policies that help small-scale firms grow and become capable of engaging in export activities. The potential for the small-scale firms and rural manufacturing activities for producing cheaply and

profitably goods for both local and export markets can be exploited by removing handicaps that hinder the growth of these firms. Policy areas should therefore be: relaxed capital resources for small-scale firms; access to export financing; and bundling up of production and marketing for small-scale firms' produce.

Fourth, the negative and statistically significant value of the domestic demand pressure variable coefficient indicates that expansion of the Kenya's manufactured exports has been undertaken on the face of increasing domestic demand for manufactured products. As purchasing power of the people increases, more of manufactured products are consumed locally and less are available for exports. It follows that for export expansion strategy to achieve its stipulated objectives, there should be efficient production of manufactured goods for domestic consumption and for export. This requires policies to encourage increased variety of manufactured goods for domestic market and for export market. A diversified pattern of industrial development is necessary in order to expand our exports without reducing goods available for local consumption.

Lastly, the demand-side variables, though most of them have expected magnitudes, have coefficients with

low statistical significance as shown by the t statistics and so we cannot make conclusive policy suggestions. The policy variable, relative price P_x/P_w , has the expected coefficient (-0.2435), but however insignificant. This may seem to suggest that probably export promoting policies are of little help or effect on the existing industrial exports. But based on the sign of the coefficient, there are some indications, though very weak, that improvement in efficiency in manufacturing sector for production of quality goods at competitive prices in the export market may be a step towards improving upon our manufactured exports promotion.

6.3 LIMITATIONS OF THE STUDY AND FURTHER RESEARCH AREAS.

One major weakness of our study is the aggregative nature of our analysis. It is of interest to focus on individual commodity exports rather than aggregate level analysis. Interpretation of the elasticities computed from aggregative data is more difficult to make. The use of aggregative price index might have understated the true elasticity. Goods with relatively low elasticities may exhibit the largest variation in price and the effect of such variation will be more than its relative importance in the construction of aggregative

price index. Again, the aggregative nature of the EEC market needs to be looked into. It may be of more substance if the individual countries comprising the EEC market are studied separately so as to get a clear picture of exports behaviour into each country.

Another area of weakness which has been pointed out in the paper is the assumption that the export market is always in equilibrium. It is becoming theoretically and practically clear that markets do not always clear. Hence, an analysis based on market clearing condition may be faced with some level of bias.

Lastly, weakness and limitations of the data used are already discussed and should be seen as limitation of our study that may require more attention in further work on this area. Again, our study has concentrated mainly on the determinants of manufactured exports without taking keen interest on policy variables. A more policy oriented study is of necessity if impact of policy changes on manufactured exports has to be properly understood.

Further research areas on the manufactured exports should therefore focus on the following:

- (a) Disaggregated level analysis of exports both at commodity level and by destination of these exports.
- (b) More refinement of the data used in this study.
- (c) Disequilibrium market analysis of exports pattern.

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APPENDIX 1

European Economic Community (EEC) Countries:

- Belgium
- Denmark
- France
- The Republic of Germany
- Ireland
- Italy
- Luxembourg
- Netherlands
- United Kingdom.

APPENDIX 2

INTERNATIONAL STANDARD TRADE CLASSIFICATION (ISTC) CLASS 6 GOODS
(Goods Classified Chiefly by Materials)

CODE	GOODS
61	Leather, Leather Manufactures, and Dressed Fur Skins
62	Rubber Manufactures
63	Wood and Cork Manufactures (excluding Furniture)
64	Paper, Paperboard and Manufactures
65	Textile Yarn Fabrics, Made up of articles and Related Products
66	Non-Metallic Mineral Manufactures
67	Iron and Steel
68	Non Ferrous Metals
69	Manufactures of Metal

APPENDIX 3: ISTC CLASS 6 KENYA'S EXPORTS TO EEC MARKET

(Ksh.)

CODE	1970	1971	1972	1973	1974	1975	1976	1977
61	3619090	3179622	2352005	3242773	3830897	7672529	31303201	34510467
62	-	5332	1000	3239	6456	8875	2250	20160
63	1865626	2984507	3865049	5025954	5526658	3798787	4671424	4101280
64	18345	-	5739	-	1622	-	891084	4506083
65	401514	238425	133833	1097481	4773721	2112618	279317	2146640
66	120871	28181	266990	244672	1343533	1835038	3894200	3310110
67	-	-	-	-	-	-	-	-
68	4000	-	-	-	-	-	-	-
69	1370	16347	21385	145094	355797	315421	130917	143235
TOTAL	6030816	6,452,414	6646001	9759213	15838684	15743268	41172393	48737979

Cont/.....

APPENDIX 3 : Contd.

1978	1979	1980	1981	1982	1983	1984
33620818	31969667	73312796	39891735	29780939	24311227	42525920
14840	-	61740	320	-	136631	-
4725652	4615194	4200341	2065905	8328562	2313927	4710658
935411	761139	43764	4697	29139	54797	117233
6571335	2332943	5630027	1924744	3215088	131322	3507380
11144709	5343645	3453115	8508538	8039131	12003122	4080277
-	436731	1348081	65224	-	19598	1693226
191641	272403	44285	98509	41320	403831	144195
57204406	45734872	88094399	52699649	49434179	39457629	56898106

SOURCE: Kenya Annual Trade Reports: Customs and Excise Department. Various Issues

APPENDIX 4: DATA ON MANUFACTURED EXPORTS

YEAR	Xs = Xd	Px	Pd	CAP	DDP	MLF
1970	0.03	36	61	60	966	85
1971	0.33	41	65	66	1020	84
1972	0.33	45	66	70	1090	84
1973	0.49	56	70	80	1143	85
1974	0.79	77	82	86	1190	83
1975	0.68	84	87	84	1220	83
1976	2.06	100	100	100	1275	86
1977	2.44	128	108	116	1386	80
1978	2.86	140	117	131	1477	82
1979	2.29	149	124	140	1540	90
1980	4.40	147	139	148	1591	91
1981	2.63	160	153	155	1679	90
1982	2.47	183	165	157	1733	77
1983	1.97	225	173	164	1794	81
1984	2.84	234	188	170	1810	82

Xs - Receipts from ISTC class 6 exports to EEC in K£ million.

Px - Kenya's Manufactured Exports Price index (1976=100)

Pd - Manufactured GDP Deflator (1976=100)

CAP - Quantity Index of Manufacturing Production (1976=100)

DDP - Kenya's GDP at 1976 Constant Prices (K£m)

MLF - % of Manufactured Output Accounted for by Large Scale Firms.

APPENDIX 4: Contd.

YEAR	EXR	PW	YEEC
1970	7.1	52	4281.2
1971	7.1	63	4011.50
1972	7.1	68	4399.90
1973	6.9	71	5157.50
1974	7.1	94	4363.90
1975	8.3	100	5713.30
1976	8.3	97	5943.90
1977	7.9	109	5835.10
1978	7.4	127	5798.50
1979	7.3	146	6158.70
1980	7.6	162	6589.70
1981	10.3	157	8108.50
1982	12.7	138	10878.30
1983	13.8	131	13547.70
1984	15.8	123	17179.20

EXR - Official Exchange Rate (KShs to US dollar)

Pw - EEC's Manufactured Exports Price Index
(1975 = 100)

YEEC - Real EEC's Gross Domestic Product in KEm.