THE MANUFACTURING SECTOR IN KENYA: AN EMPIRICAL ANALYSIS

BY

ODHIAMBO, WALTER

Research paper submitted to the Department of Economics, University of Nairobi, in partial fulfilment for the Degree of Master of Arts in Economics

June 1991

Declaration

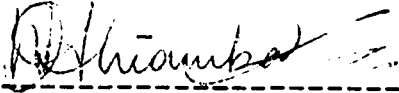This research paper is my original work and has not been presented for a degree in any other University.

_____

Odhiambo, Walter

This research paper has been submitted for examination with our approval as University supervisors.

_____

G. K. Ikiara.

_____

G. B Begumisa.

Acknowledgement.

I wish to thank those people who have in one way or the other contributed to the successful completion of this paper.

My most sincere gratitude go to my supervisors, Mr. G.K Ikiara and Mr. G.B Begumisa for their guidance. They read all the drafts of this paper and made useful and constructive criticisms and suggestions. Thanks are also due to other members of staff of the Economics Department whose generous co-operation made it possible to produce this paper.

I owe gratitude and thanks to the University of Nairobi who gave a scholarship for my studies.

I also benefited greatly from colleagues and friends. In particular I am grateful to Messrs. Nyongesa, Kulundu and Nyangena of the University of Nairobi who assisted me in many ways in preparing this paper. I am also grateful to Risper who acted with admirable speed and accuracy in typing this work.

Last but not least, my sincere thanks go to my father, Ayub Wambundo, mother, Gladys Wambundo and my relatives for their unfailing encouragement, prayers and wishes for my academic achievement.

However neither the above named persons nor the Department of Economics should be held responsible for the mistakes or views in this paper. The sole responsibility is mine.

Abstract.

Manufacturing is the corner stone of Kenya's Industrial sector. This sector is not only seen as the economy's engine of growth but also as a means of diversifying it. However after three decades of existence, the sector is still grappling with problems, some of which were inherited from the pre - independence period. These problems have contributed to the poor performance of the sector especially in the 1980s.

Based on the existing literature and the available data, this paper provides a descriptive and empirical analysis of the factors that determine growth in the manufacturing sector. Its primary purpose is to identify the major determinants of manufacturing output growth in Kenya. In doing this, the major focus of the paper is an analysis of the relative importance of these determinants, followed by a proposal of measures to enhance output growth in the sector.

The main findings of the paper, based on a time-series regression model, are that per capita income, export of manufactures, government expenditure and import substitution have statistically significant influences on manufacturing output growth. Industrial policies and foreign investments in manufacturing turn out to be modest predictors of manufacturing output growth.

To promote faster growth of the sector, there is need to adopt policies which enhance the per capita income level. To this end policies are required both in the agricultural and the industrial sectors which are the major sources of income. The future of manufacturing will also depend heavily on the growth of its exports and the adoption of more efficient import substitution strategies. More importantly, the growth of the sector will depend on what extent industry - specific policies are adopted to rationalize and re - structure the whole manufacturing sector.

TABLE OF CONTENTS.

LIST OF TABLES.

CHAPTER ONE

INTRODUCTION

1.1: BACKGROUND

Kenya is predominantly an agricultural country with an economy
based on the production and export of primary agricultural products
such as tea, coffee and pyrethrum. The dependence on primary
commodity exports whose prices are unpredictable has contributed
to persistently unfavourable terms of trade and a weak balance of
payments position. One strategy frequently mentioned with regard
to reducing this dependence is industrialization. The government
of Kenya like many other developing countries, has consequently put
a lot of emphasis on industrialization, not only to contribute to
its diversification strategy but also to act as the economy's
engine of growth. Thus in the context of Kenya's long term
planning, the development of the industrial sector occupies the
second priority position after agriculture.[1] Within the industrial
sector as a whole, emphasis has been put on manufacturing.[2] Over
the years manufacturing been part and parcel of the Kenyan
development efforts and has been recognized as an important
ingredient for rapid and sustained growth of the economy.

---

[1]Republic of Kenya, <u>Sessional Paper No.1 of 1866 On Economic
Management For Sustained Growth</u>, Government Printer, Nairobi, 1986
p 1

[2] Industry as used in this context embraces mining and
quarrying, manufacturing, electricity and water, building and
construction.

Manufacturing in Kenya is pursued with a wide range of objectives the major ones being: a rapid industrial growth to meet domestic demand, the improvement of the export performance of the economy, provision of employment and diversification of the economy and the development of a diversified technological base.[3] With such objectives to attain, the active participation of the government has been very important, especially in creating a policy framework within which the sector operates. The government has also had some direct and indirect holdings in industry. By 1985, the government holding in industry amounted to 38 companies in which it had a majority share and 66 companies in which it had a minority share. The major investments of the government were in textiles, sugar and cement. Heavy reliance seems, however, to be on the private enterprise including capital from abroad. To perpetuate this the government has tried to promote the sector although this has to a large extent created a sector dominated by multinational corporations and investors of Asian origin. The African-Kenyan has only played a minor role. According to the Development Plan (1989-93) non-indigenous Kenyans who constitute 2% of the population contribute over 65% of Kenya's manufacturing Gross Domestic Product (GDP).

---

[3]Republic of Kenya, <u>Development Plan of 1980/84</u>, Government Printer, Nairobi, 1980 p 196.

While the growth and the structure of the manufacturing sector is dealt with in detail in the next chapter, it is important to note that Kenya's manufacturing sector is among the largest in sub-Saharan Africa. By 1985, the sector had about 560 medium and large scale enterprises, 720 small-scale and over 1600 micro enterprises. Structurally, the sector is inward looking because of the incentive structure which has made the domestic market more favourable than export market.

Although Kenya is the most industrially developed country in East Africa, Manufacturing currently represents only 13% of her GDP. Besides, its overall performance has not been very impressive. After a promising start soon after independence, the drive to industrialize now seems to be faltering. The rate of growth of the sector has declined from well over 7.0% in the 1964/70 period to 4.0 per annum in the 1980/1984 period (Table 1.1). In 1989 the sector grew at 5.9% per annum which was lower than the 6.0% recorded in 1988 and much lower than the target growth rate of 7.5% as per sessional paper No.1 of 1986.

Table 1.1 shows that output growth rate was greater in manufacturing than all other sectors outlined except government. However a declining trend can be observed. In terms of contribution to Gross Natioanal Product (GNP), manufacturing contributes the least. If manufacturing is to play the role of

being an engine of growth, the sector will have to grow much faster than the sluggish rate of the last few years.

Table 1.1: **AGGREGATE ECONOMIC PERFORMANCE - KENYA (1964-88).**

sectoral growth rates %increase in real GNP	1964-70	1970-75	1975-80	1980-84	1984-88
-Agriculture	5.0	5.1	4.5	2.6	4.2
Manufacturing	7.5	7.3	7.2	4.0	5.3
Retail	4.7	4.7	3.0	1.2	3.5
Government	9.7	9.0	5.7	4.4	4.0
Total	6.7	5.6	5.0	3.2	5.5
Sectoral share of real GNP					
Agriculture	44.2	41.3	40.3	38.6	35.5
Manufacturing	10.4	11.3	12.3	13.2	13.1
Retail	12.9	11.7	10.6	9.9	11.2
Government	11.6	13.1	14.2	14.7	15.2
Others	20.9	22.6	22.6	23.6	25.0
Total	100.0	100.0	100.0	100.0	100.0

Source: Republic Of Kenya; Economic Survey, Statistical Abstracts (various issues).

But why would a country desire a faster rate of industrial growth? Most developing countries have the desire for the industrial sector as a whole to grow faster than agriculture. The implication of this is that it should be the manufacturing portion of industry that usually accounts for the most of the growth. This is mainly because manufacturing pre-dominates other industrial activities. For example in Kenya the industrial sector comprises mostly of manufacturing, a little of electricity generation and water, a small but growing building and construction sector and an

insignificant mining and quarrying sector. Thus not only will industry be growing faster than the agricultural sector, but also within industry manufacturing will be growing faster than the other industries (mining, construction etc). This according to Sutcliffe (1970) is desirable for a variety of reasons:-

(a). It creates demand for agricultural output. Although industry and agriculture compete for funds and scarce resources (skilled labour, raw materials etc), the two sectors are complementary in many ways. Industry relies on farm production for local raw materials, food for its workers and foreign exchange to purchase capital goods and other imported inputs. It would thus be true to argue that the expansion of the manufacturing sector will create a market for the agricultural products. Thus industrial growth will promote growth in the agricultural sector. On the other hand agriculture is a major outlet of manufactured output.

(b). It relieves balance of payments problems. Expansion of industrial output as a substitute for imports may, in the long run at least, alleviate balance of payments problems by reducing imports. In the short run, however, this might not be the case as it may only create the need to import capital goods. On the other hand industrial growth in an export seeking environment may alleviate balance of payment problems.

(c). It expands employment. This is the most widely held argument for industrial growth although in recent discussions it has been severely criticized. As the industrial sector grows, it

is the general expectation that it will absorb more and more labour. However some economists (e.g. Kilby (1979)) have observed that a general characteristic of modern industrialization is that it fails to create employment on a large scale. In its early stages, they observe further, it may reduce the aggregate industrial employment by displacing existing manufacturers. The failure of industrial growth to contribute to employment opportunities is often attributed to the 'high' wages which, it is argued, discourage domestic capital formation by raising cost to the producers.

(d). It relieves fluctuations and encourages stability of incomes. This argument refers to industrial production as opposed to agricultural production whether for exports or for the home market. It is said that agricultural output more than industrial output, may fluctuate greatly for totally non- economic reasons e.g. draught and other climatic influences. Though this may sound as an argument for the promotion of industrialisation in contrast to agriculture, the main point is that industrial production may lead to a more stable economy than agricultural production.

This list of arguments is not exhaustive. The important thing is that industrial growth is generally regarded as desirable and worth pursuing. Perhaps this is why industrialization as a strategy has gained importance in many developing countries, and Kenya is no exception. There has been a desire to promote fast industrial growth in Kenya but this has not been possible because of some

structural and institutional problems facing the sector. Towards this end a number of studies have been carried out to analyze different aspects of Kenya's industrial development with a view of making recommendations for faster growth. This study is also an attempt in this direction.

1.2: STATEMENT OF THE RESEARCH PROBLEM

Given the prominence that the manufacturing sector has been accorded in Kenya's development effort, its sluggish growth in the last few years is a matter of concern. Section 1.1 of this chapter summarizes in part the record of the manufacturing sector in Kenya since independence. This record is a function of a number of factors including the international environment, the policy framework and more importantly, the macro -economic situation in the country. In Kenya, manufacturing output growth has occasionally been linked with the macro-economic environment, the policy framework and other variables but rarely in any detailed or explicit fashion. The whole process of determination, the relative contribution of the factors and their magnitudes are not quite known. Thus there exists an information gap that needs to be filled. The present analysis is an attempt to delineate and estimate the major determinants of manufacturing output growth in Kenya. An understanding of such factors is important in any effort to promote faster growth of the sector.

1.3: OBJECTIVES OF THE STUDY

This study attempts to provide an empirical estimation of the determinants of manufacturing output growth in Kenya. The specific objectives are:-

(i)   To identify the major determinants of manufacturing output growth in Kenya

(ii)   To estimate the relative importance of the determinants in (i) above.

(iii)   On the basis of the findings in (i) and (ii) above derive policy implications for promoting faster industrial growth in Kenya.

1.4: SIGNIFICANCE OF THE STUDY.

Sustained growth of the manufacturing sector is vital for providing incomes and employment for Kenya's rapidly growing population, increasing exports and stimulating other sectors. This study will throw some light on the causes of manufacturing output growth in Kenya. By identifying the major determinants of manufacturing output growth and providing estimates of the relative importance of these determinants, the findings of the study will aid policy makers in designing policies for the sector. Besides, an empirical analysis of manufacturing output growth would provide valuable

information to prospective investors apart from being an academic exercise.

This study will also provide reference materials to supplement existing ones for further research in this area. The study may also provide vital information that would form a basis for a clear understanding of the relationship between manufacturing output growth and its various determinants. This should help in filling the existing information gap.

1.5: PLAN OF THE REST OF THE PAPER.

The rest of this paper is organized as follows. The next chapter presents an in-depth analysis of the growth and structure of Kenya's manufacturing sector. The chapter also contains an analysis of the evolution of industrial policies in the sector. This is followed in chapter three by a review of the existing literature on this subject. Chapter four presents a model adopted for the analysis and the hypotheses of the study. The results of the empirical analysis are presented in chapter five. Some concluding remarks and policy implications are presented in the last chapter.

CHAPTER TWO.

KENYA'S MANUFACTURING SECTOR.

In this chapter we review the growth, structure and policies of the manufacturing sector since independence. In the first part of the chapter we look at the growth and performance of the manufacturing sector. In the second part we examine the structure of the sector followed in part three by an analysis of the evolution of industrial policies in the sector.

2.1: GROWTH AND PERFORMANCE OF THE SECTOR.

Kenyan manufacturing sector has achieved considerable success since independence, although there has been relatively slow growth in the 1980s. Statistics (mainly from the Economic survey, Statistical Abstract and other official sources) show that the performance of Kenya's manufacturing sector during the first fifteen years of independence was comparatively impressive. Real GNP grew at an annual rate of 8.9% over the period 1966-72. In the subsequent period, despite a severe OPEC-induced recession in 1974-75, output of the sector increased at an average annual rate of 10.5%. Among factors that contributed to the expansion of the Kenyan manufacturing sector in the 1960s and the 1970s included the country's general stability linked with a strong commitment to private initiative, the creation of a hospitable environment for foreign investors and the assistance, incentive and protective

measures from the government (Kilby, 1979;1). Other contributing factors were the redeployment into manufacturing of Asian citizens possessing more advanced entrepreneurial skills and the protection of large investors. During this period manufacturing was among Kenya's fastest expanding sectors. In the subsequent periods, 1980-84, manufacturing growth fell to less than 4% per annum, rising slightly to an average of 5% in the 1985-90 period.

At the sub-sectoral level, growth has quite been uneven. During the period 1979-88, the high growth sub-sectors were petroleum and other chemicals (8.5%), printing and publishing (7.7%), rubber products (5.7%), beverages and tobacco (4.69%) and clothing (3.16%). At the same time other sectors showed negative growth rates: wood and cork products (-9.8%), leather and footwear (-2.49%) and metal products (-0.8%). Despite these disturbing trends many new manufacturing enterprises have been developed while others have grown from a few small establishments into large industries with a wide range of products and employing numerous employees (Coughlin and Ikiara, 1986;276). In terms of contribution to GDP, the most important branches have been beverages and tobacco; textiles; miscellaneous food production; motor vehicle assembly and automobile products; electrical appliances and machines; basic and secondary metal products; sugar and confectionary; canned fruits and vegetables; chemical products; rubber; clothing; cement; meat and dairy products etc (Tostensen and Scott; 1987,247).

As regards capital formation in the sector, the 1980s has experienced significant decline in manufacturing investments virtually in all aspects of investment in the sector (see Table 2.1). This trend is particularly evident in the private sector where there have been very few investments either by domestic or foreign enterprises. A World Bank report (1987) estimated that capital stock of the manufacturing sector in 1985 was 85% of its peak value in 1979 in real terms. Net private capital inflow at the same time has declined significantly in recent years. The decline is estimated at some 14% of capital formation by enterprise. Despite these low investment levels and declining capital stock, the mission found out that the Incremental Capital Output Ratio (ICOR) has been increasing over time - it was 4.5 and 5.4 for the period 1970/1980 and 1981/84 respectively. Capacity utilization at the same time has undoubtedly been increasing over time. Whereas no time series data are available to confirm this, the increasing output and declining capital stock is a clear indication of improving capacity utilization. The report (ibid.) estimated that about 80% of the sector's installed capacity was being utilized.

Table 2.1: **KENYA-INVESTMENT IN THE MANUFACTURING SECTOR 1977-85**
(Million 1982 K pounds)

Years	Buildings	other const.*	transport	Machinery	Total
1977	8.99	1.05	8.94	110.25	129.23
1978	5.71	2.96	13.37	134.37	156.78
1979	18.82	3.72	17.35	97.76	137.65
1980	2.41	6.16	13.15	88.35	110.31
1981	2.65	5.63	10.41	81.62	100.31
1982	0.76	1.24	10.17	53.86	66.03
1983	0.79	8.61	9.68	61.77	80.85
1984	0.24	2.31	9.16	56.89	68.59
1985	0.22	2.15	8.54	53.02	63.93

Source: World Bank; Kenya Industrial Sector Policies for Investme
and Export Promotion. Report No. 6711-KE VOL. 1.
* construction

The performance of the sector in terms of employment has not been
very good either. Contrary to expectations, employment in the
sector has been quite low, severely lagging behind the rate of
growth of the sector (Table 2.2). Recorded wage employment in the
manufacturing sector increased at more than 6% per annum from some
60,000 in 1966 to 130,000 in 1978. In the 1980s the growth rate
has slackened to some 2% per annum. The low labour absorption in
the sector has been a major challenge to policy makers in view of
the high growth rate of the labour force in the country. Table 2.2
show that in all the years the rate of growth of output in the
sector exceeds the rate of growth of employment. This raises
serious questions on the labour absorptive capacity of the sector.

TABLE 2.2: OUTPUT AND EMPLOYMENT IN KENYA'S PRIVATE MANUFACTURING SECTOR.

Year.	growth rate of mfg GDP (%)	growth rate of employment (%)
1965	9.48	6.12
1970	14.27	7.81
1975	6.77	-0.59
1980	18.13	2.1
1983	6.20	1.35
1984	4.30	2.9
1985	4.6	3.7
1986	5.9	3.8
1987	5.7	2.3
1988	6.0	0.3

Source: Republic of Kenya; Statistical Abstract, Economic Survey (various issues).

There is, however, evidence that labour productivity has improved over the years. The increased capacity utilization in the sector is a pointer in this direction. Average real wage in the sector has at the same time declined in the past few years. The wage cost as a percentage of gross output has consequently declined over the period. This reduction is due also to wage restraint in the sector. Besides, according to the world bank report (1986), value added per employee in real terms has been increasing in the sector. Between 1976 and 1984 it increased by 28% in large firms.

One incisive way of assessing the performance of the manufacturing sector is to estimate its Total Factor Productivity Growth (TFPG). Output growth may be the result of using more capital with a given amount of labour or using more labour given the amount of capital,

or increasing both capital and labour. The extent by which the growth rate of output exceeds the growth rate of factors used may indicate the rate at which real returns to factors may grow. TFPG defined as the difference between the rate of growth of output and the weighted average of inputs, measures the growth in real returns to factors. Table 2.3 shows TFPG calculations for three periods: 1972-1980, when investment was rising and capital stock was growing; 1980-85, when investment was falling and capital stock declining in real terms; and 1985-1988 a period the economy showed some signs of recovery.

Table. 2.3: **OUTPUT, INPUTS AND FACTOR PRODUCTIVITY GROWTH IN KENYA'S MANUFACTURING SECTOR (1972-1982)**

Year	growth of output	growth of capital	growth of employmt.	labour share (sl)	capital share (sk)	TFPG
1972-80	9.3	7.3	6.4	0.34	0.66	2.60
1980-85	3.6	0.7	2.0	0.38	0.63	2.07
1985-88	4.1	0.2	2.6	0.32	0.68	2.26
1972-88	6.3	3.9	4.2	0.35	0.65	2.20

* Regression estimates of logarithmatic time trends are used to estimate the growth rates. The equation used is $LnX = a + \alpha t$ where X is output or any input, t is time. Using ordinary least squares α can be interpreted as the growth rate.

Source: Republic of Kenya; Statistical Abstract (Variuos issues, see appendix I)

TFPG in the three periods was positive and averaged about 2%. The period 1972-1980 was characterized by a high growth of output, capital, employment and a positive TFPG. The second and third periods had comparatively lower output, employment and capital growths rates and slightly lower TFPGs. This means that over the

entire period the rate of growth of output was higher than the weighted average growth rate of capital and labour. One important factor likely to have led to the positive TFPG is capacity utilization which has been improving in the sector. Evidence from other studies have shown that the increase in capacity utilization is a significant source of TFPG (Shaaeldin, 1989).

2.2: STRUCTURE OF KENYA'S MANUFACTURING SECTOR.

A discussion on the structure of Kenyan manufacturing sector would usually require a distinction between modern and informal manufacture, between large and small scale manufacturing, between local and foreign ownership of manufacturing and between manufacture for export and for domestic consumption. Within the small industry sector in Kenya, a distinction is customarily drawn between the unregistered traditional artisan production and the registered non-traditional small scale industry.

Traditional artisan production is defined as including small undertakings employing, in most cases, less than 10 workers, unregistered and using production methods which require limited specialization and management capacity. A large proportion of their output is directed towards satisfying basics needs, namely the provision of low income consumer goods and services. Such items will include clothing, furniture, foodstuffs and motor vehicle repairs. While data on this sector is not adequate, it is

estimated that by 1984 approximately 14,000 enterprises provided total employment for some 31,000 persons in urban centres. (World Bank, 1986).

In the small scale industry, which forms part of the formal economy, the definition is generally based on employment levels of up to 50 persons. Some degree of specialization and supervision characterizes this sector. Enterprises in the modern small scale category manufacture a wide range of items including wood and metal products, glass and pottery, clothing and leather items, furniture and fixtures- items generally designed to meet the needs of low income households. Recent estimates by the World Bank (1987) on this sector which centred mainly in Nairobi and Mombasa indicate that the sector consists of some 2,000 registered enterprises employing approximately 7,000 persons. This represents some 4% of total wage employment and 3% of value added in the manufacturing sector.

In the area of management and ownership of manufacturing enterprises, a lot of changes have taken place. Since independence most positions for low and middle level technicians and managers have been Kenyanized. In 1968, 26% of the top level managers and administrators in manufacturing firms were Kenyan, by 1975, 52% were Kenyans and by 1982 it was 59% (Kim, 1985;23). At the same time, Kenyan private and government capital investment in manufacturing have grown more rapidly than foreign investment. In

1966, foreigners controlled 60% of the issued capital in large manufacturing firms; by 1976, they only controlled 43.7% (Kaplinsky, 1982; 209-11).

Government participation in manufacturing has also become an important feature of the manufacturing sector. This has taken the form of both equity participation either through one of the several parastatals set up for specific purposes or indirectly by the Treasury. Three parastatals have been set up specifically to serve the manufacturing sector. These are the Industrial and Commercial Development Corporation (ICDC), the Industrial Development Bank (IDB) and the Development Finance Company of Kenya (DFCK). Other institutions which regulate and facilitate industrialization in Kenya include the Kenya Bureau of Standards, Kenya Industrial Development Research Institute and the Kenya Industrial Estates. The parastatal sector in general has expanded remarkably in the 1970s and 1980s. According to the 1982 report of the government working party, there were about 245 parastatals of which 45% were jointly owned by the government and 28% totally owned by the government. These entities are engaged in a wide range of activities across sectors of the economy: agriculture, manufacturing, energy, transportation etc. The rapid expansion of the parastatal sector and government participation in industry in general has become a subject of constant debate, with calls for privatization.

As relates to production, one would be quick to point out that the Kenyan manufacturing sector is characteristic of a developing economy. Table 2.4 shows the structure of the sector. It depicts the contribution of each of the sub-sectors to the total manufacturing output. What emerges from this is that the largest share of manufacturing output is mainly in consumer goods production. The single most important group of industry is the food, beverages and tobacco which form over 30% of the total manufacturing output. This is followed closely by chemical, rubber and petroleum. Other important sectors in terms of contribution to total output include leather, metal products, transport equipment and machinery.

TABLE 2.4: **STRUCTURE OF THE MANUFACTURING SECTOR.**
                    (% of total manufacturing)

Industry	1980	1981	1982	1983	1884	1985	1986
Food,beverages and tobacco.	37.8	36.3	35.6	40.9	42.3	43.2	44.1
Clothing, textiles leather	8.69	7.88	7.29	7.62	6.80	7.16	7.26
Wood ,furniture	5.44	10.7	2.16	2.30	2.10	1.83	1.53
Chemical rubber petroleum	21.75	19.66	23.9	21.7	22.2	21.8	22.5
Plastic glass,non-Metallic minerals.	4.04	3.53	4.95	4.78	4.57	4.17	3.62
Metal products	7.46	6.04	7.12	6.92	6.70	6.84	6.95
Machinery	4.01	3.75	4.57	4.16	3.84	3.94	3.83
Transport equipment	7.01	5.37	8.17	5.89	5.62	5.89	5.66
Miscellaneous.	0.92	0.75	0.72	0.56	0.73	0.86	0.92

Source: Republic of Kenya; Statistical Abstract, Economic Survey (Various issues).

Export of manufacturers have not fared well since independence. This is in spite of incentives to promote exports of the sector. In real terms, manufactured exports have stagnated or even declined especially in the early 80s. As a proportion to the total exports, manufactured exports represent a smaller percentage averaging out to about 13% over the period 1980-87 compared to 57% in agriculture over the same period (Table 2.5). As a percentage of total output, manufactured exports represent a small proportion of the sectors output - less than 30% in most of the years. This indicates that Kenya's manufacturing is primarily oriented to the domestic market.

Table 2.5: COMPOSITION OF TRADE: EXPORTS.
            (Percentages)

	1980	1981	1982	1983	1984	1985	1986	1987
Primary(agri.)	43.5	45.5	51.1	58.7	62.7	63.2	69.4	63.0
Primary(mining)	42.7	40.0	36.5	29.0	25.8	23.6	17.5	22.4
Manufacturing	14.0	14.5	12.4	12.3	11.4	13.2	12.0	14.5

Source: Republic Of Kenya; Statistical Abstract (1988).

According to a world bank report (1986), Kenya's manufactured exports may be divided into three groups. The first group comprises standardized products such as cement and paper-products made in large and modern plants. These products are mainly sold over a wide area though they are mainly oriented towards East Africa. The second group comprises exports based on distinctive

natural resources. These include leather, wattle back extract and wood carvings and are sold mainly outside Africa. The third group, products sold almost entirely in Africa make about two-thirds of the manufactured exports and include chemicals (mainly pesticides, soaps and medicaments) and iron and steel products. There are also non-traditional exports such as canned pineapples, canned meat and preserved vegetables which are mainly sold to developed countries, principally the EEC.

Among reasons for Kenya's poor performance in export of manufactures include lack of foreign exchange to import inputs and spares (especially in the 1982-3 period), the poor performance of economies surrounding Kenya who have faced decreasing per capita incomes and lack of foreign exchange, recession in Europe and fierce competition in the international market. There are also internal factors which have affected the performance of industrial exports. Foremost in the list is the exchange rate which has been overvalued for a considerable period thereby reducing profitability of exports. Other reasons include the lack of commitment in the part of the authorities to implement some of the export promotion measures. These and other factors have kept Kenya's manufactured exports quite low.

In general, therefore, Kenya's manufacturing sector is typical of a less developed country, though it is outstanding when compared to many sub-Saharan African countries.

2.2: EVOLUTION OF INDUSTRIAL POLICY IN KENYA SINCE 1963.

The process of Kenya's industrial development is a result of a complex mixture of historical influences, the macro-economic situation, the framework of economic policy and the international environment in which it operates. From this set, policies especially those bearing on technology, infrastructure financial intermediation and entrepreneurship play an important role in industrial growth.

Kenya's industrial policies derive to a considerable extent, from Sessional Paper No. 10 of 1965 on "African Socialism and Its Application to Planning in Kenya". The major aim of this paper was to achieve a broad based development in all sectors. Its objectives included faster industrial growth; a change in the structure of production; growth of import substituting industries; and the development of export of manufactured goods among others. The paper also had the objective of promoting the private sector in trying to attain a balance between the private and the public sectors. Thus the broad contour of industrial strategy in the wake of this policy paper was one in which the country opted for a mixed economy. Kenya's first Development Plan (1966-70) recognized inadequate indigenous entrepreneurship as the critical impediment and put heavy reliance on foreign private parties to supply capital

and technology. At this point little attention was given to issues of production to cater for " basic needs" and on how much emphasis should be placed on the development of key lines of production (e.g. steel and machines). The government thus had to intervene. Kenya today is among countries which have pursued a policy of direct intervention for stated purposes of fostering domestic industrial sector.

Soon after independence, Kenya embarked on a serious industrialization programme to achieve economic independence among other objectives. By 1963, the economy was heavily dependent on developed countries in terms of the market, technology, managerial and entrepreneurial skills and even capital (Mwaura, 1986; 1-2). The resulting emphasis on industrialization was to reduce this dependence. A lot of emphasis was therefore put on import substitution based on policies that protected domestic firms from import competition. Consequently, much of the sector growth particularly in the first decade after independence, came from exploiting profitable opportunities for import substitution behind high tariff and non-tariff barriers. Competing in the world market was considered unfeasible at this time.

From about the early 70s, there was a growing realization amongst policy makers that the existing trade and industrial policies were over emphasizing import substitution. This was well recognized in the fourth Development Plan (1979 - 83), and the fifth Development

Plan (1984 - 88). The fourth plan stated that further industrial growth would require increasing emphasis on the promotion of industrial efficiency and decreasing emphasis on industrial protection.[4] The plan accordingly proposed the phasing out over the plan period of quantitative import restriction, tariff rationalization and export promotion. Other measures to redress the imbalance included the introduction of a sales tax, the purpose of which was to enable the government to raise revenue without providing domestic industry further protection, as is the case with tariffs (Low, 1982;294).

Other policies on industrialization have included the curtailment of imports through qualitative restrictions and protective duties, fiscal and other incentives to stimulate investment, and the development of extensive parastatals involving both loan finance and equity participation from public sources. This last aspect of Kenyan policy has changed since the 1982 Working Party on Government expenditure in which the government was strongly advised to rationalise and improve the efficiency of the parastatals. Consequently, though hesitant, the government policy moved to some extent away from public investment in commercial activities towards strengthening the private sector. This is particularly emphasized in the fifth Development Plan (1984-88).

---

[4]Republic of Kenya, <u>Development Plan for 1979/83</u>, Government Printer, Nairobi 1979 p .

A major turning point in Kenya's industrial policy came with the introduction of Structural Adjustment Programmes (SAPs) in the 1980s. The major thrust of this programme was to shift from a highly protective import substitution strategy to industrial policies which would lead to increased use of local resources, greater emphasis on employment creation and the encouragement of exports (export promotion). By shifting incentives away from import substitution, exposing domestic production to greater import competition, the reforms were expected to promote efficiency and improve the environment for exports, investments and employment. It should be noted here that the promotion of Kenyan manufacturing exports has represented an important element in the various structural adjustment discussions between the government and the International Bank for Reconstruction and Development (IBRD). The 1986 sessional paper and various IBRD reports, indicate that the Kenyan authorities have committed themselves to the implementation of successive stabilization and structural adjustment programmes. The government's determination to pursue these policies is also evident in Kenya's current development plan for 1989-93. The plan lays a lot of emphasis on export expansion and outlines the necessary incentives for export promotion in Kenya. The setting up of Export Processing Zones (EPZ), manufacturing under bond, the green channel and other incentives indicate the government's commitment to implementation of SAPs. Since these reforms in industrial and trade policies have been implemented only recently,

while others are yet to be fully implemented, it is difficult to evaluate their impact at this juncture.

From the foregoing, its clear that though Kenya's industrialization has for a long time been inward-looking, there have been attempts to change to an outward- oriented strategy that seeks greater efficiency and competitiveness. The heavily protected nature of the industrial promotion system, its economic weaknesses and its administrative shortcomings have emerged as a matters of major concern to the authorities and hence the need for adoption and reform. The consequence of industrial development behind a wall of protection has been well documented in Kenya (see for example Coughlin (1985)). These effects include inward-looking bias and encouragement of inefficient use of capital. It also leads to a situation where potential exports are priced out of foreign market by inflated costs of locally manufactured intermediate products. (Hopcraft, 1979;2).

CHAPTER THREE

LITERATURE REVIEW.

The role of both internal and external factors in explaining the pattern of industrial growth in developed and developing countries has been discussed at length in the literature. This chapter reviews both theoretical and empirical literature on industrial growth in both developed and developing countries.

3.1: THE LITERATURE

There have been a certain amount of discussion in the theory of economic development about different factors determining industrial output. According to Sutcliffe (1971), there are four broad categories of resources required for the development of industrial output: labour, management and entrepreneurship, capital, and natural resources. Labour is not only a major factor of production but also the chief beneficiary for which the effects of industrialization and economic development is intended. Commenting on the importance of labour, Johnson notes that one of the most obvious requirements of industrialization is the development of skilled, disciplined and acquisitively motivated labour force and the creation of a professional management class able to combine disciplined teamwork with imaginative entrepreneurship. (Johnson, 1967;45).

The other resource that has been given prominence in the literature is the entrepreneur and particularly the private entrepreneur. Many writers and most notably Schumpeter (1963), have insisted that private entrepreneurship has assumed the leading part in modern economic development. To Schumpeter, the function of the entrepreneur is not the same as the function of the capitalist or the manager. Instead "it is the carrying out of new combinations of factors of production that constitute the entrepreneur" (Shumpeter, 1963;75). These new combinations include the development of new products, the opening of new markets and sources of supply and the introduction of new techniques of production. Thus the role of the entrepreneur is essential in the industrialization process as he has the initiative and the ambition to take risks and exert skills in starting or developing a new industry.

The crucial role of capital formation in industrialization cannot be over emphasized. Economists (e.g. Rosentein-Rodan) recognize that an investment of the order of 12-15% of net national income is necessary if it is intended to diversify and advance a backward economy. The maintenance of such a rate of investment, and especially in industry, can allow an economy into the "take-off stage". This may however be an over-simplification in that capital alone does not automatically engineer development. Much depends on the quality of the people, their ability and desire to learn and

apply better methods of production, the removal of institutional obstructions and the provision of incentive to effort and investment (Mountjoy, 1963). Nevertheless, capital is an important factor and may be likened to a catalyst in its effect upon other factors.

Other important determinants of industrial growth in the literature are power, fuel and minerals and infrastructure. The availability of these ingredients of productions and especially natural resources is a major asset for developing industries which require these inputs. At the same time, a country which has developed its infrastructure to the point that it is available on a reliable basis and at reasonable costs, as is the case with most developed countries, has established an important pre-condition for industrial development.

All the above factors will influence the supply of industrial output. From the demand side, there are five possible major sources of an increase in the level of industrial output in underdeveloped countries. According to Sutcliffe (1971) these are a rise in real income, the substitution of modern industrial products for existing manufactures, import substitution, an increase in the demand created by market integration and lastly increases in the export of industrial goods. Rising real income is important because it affects the demand for industrial output. The relationship between demand for industrial products and the

level of income is a positive one. When incomes rises, the consumption of manufactured goods also rises, usually more rapidly than income. This continues until high level of income are reached. The growth in incomes therefore provides an important opportunity to expand industrial output to supply domestic demand. However, the income elasticities of demand for different types of products are not the same at all levels of income.

Import substitution is another important source of industrial growth. Where imports of manufactures are replaced by domestic production, the total industrial output increases. In less developed countries where there is extreme dependence upon imports for supplies of manufactured goods, import substitution becomes very important.

The other emphasized source of industrial growth is exports of industrial goods. Sutcliffe (1971) for example, emphasizes this factor. Like import substitution, it allows industrial output to grow more rapidly than domestic demand for manufactures. However with a few exceptions, under-developed countries have only to a limited extent been involved in the vast growth of trading in manufactures.

Other less emphasized factors that determine output demand in the literature include the substitution of domestic products and state activities. Substitution of traditional production for new ones

may not in the strict sense lead to industrial growth. It, however, has side effects which may promote industrialization (e.g. improvement in the quality of the labour force) which may lead to changes in output or the demand for it.

A further source of increase in economic activity is the state. The activities of the state particularly its policies can affect industrial outcomes. These activities are however not entirely independent of the previous sources since state demand for industrial products can have its influence on industrial output in just the same ways. State policy and enterprise are however important as they influence the level and direction of industrial growth.

Chenery (1960) attempted a general explanation of the growth of industrial output in 38 countries, including Kenya. He estimated a linear logarithmic regression equation in which per capita value added depends upon per capita income and population:

$$\log V_i = \beta_{i0} + \beta_{i1}\log Y + \beta_{i2}\log N.$$

Where V_i is per capita value added in industry, β_{i1} is the growth elasticity ($\delta v_i/v_i \div \delta Y/Y$) and β_{i2} is the size elasticity ($v_i/v_i \div \delta N/N$), Y is National income per head and N is population. Through the regression of value added on income and population, Chenery "explains" 70% of the total growth in most of the sectors except in the tobacco and petroleum sectors. The regression for

value added per capita in manufacturing sector and in the whole of the industrial sector had high coefficients of determination (R^2); 0.931 for manufacturing and 0.963 for whole industry. The growth elasticity (β_{i1}) for manufacturing was 1.44 and for all industry 1.36. All these were statistically significant.

Chenery also attempted a demand side analysis of the 'causes' of industrial growth and distinguished three main causes of industrial growth: (i) the substitution of domestic production of imports, (ii) growth in the final use of industrial products and (iii) growth in the intermediate demand stemming from (i) and (ii). He contends that only the first of these factors can be directly measured from his regression results. Chenery's study, however, has two major shortcomings. By defining import substitution as the deviation from the proportional growth of the imports, Chenery over emphasizes the importance of the displacement of imports by home production. The second limitation concerns the use of cross-sectional analysis which is taken up later in this section.

In a later study, Chenery and Taylor (1968) found a better explanation of the growth of industry by using regression equation with more explanatory variables. The equation is expanded to include the share of gross fixed capital formation in GNP, the share of primary export in GNP, and the share of manufactured export in GNP. The equation estimated was

$$\log V_0/P = \alpha + \beta \log Y/P + \gamma (\log Y/P)^2 + \psi \log P + \ell \log K +$$

$$\theta \log e_p + \Pi \log e_m$$

where V_O = Value added in the industrial sector

P = Population

Y = Total income

K = share of gross fixed capital formation in GNP

e_p = the share of primary exports in GNP

e_m = the share of manufactured exports in GNP

$\alpha, \beta, \gamma, \psi, \ell, \theta, \Pi$ are parameters.

For regression purposes the writers used a sample of 606 observations on 48 countries. The entire sample was subdivided into three sub-groups (depending on the size of population): large countries, small industrial oriented countries and small primary oriented countries. For the large countries, the regression results indicated that apart from income and size, only the share of income (K) was important. All the other variables were insignificant. For the small industry-oriented countries, income as a variable had almost the same effect as in the large countries. The significance of the other variables was quite different though. The export variable turned out to be significant in the primary sector. The share of investment(K) on the other hand, had a lesser effect on small countries since capital goods are largely imported. The overall fit of the regression equation for the small countries was as good as that of the large country group.

A study which is in many ways very similar to Chenery's (1960), but rather more detailed, was carried out by the United Nations (1963). The study employed multiple correlation techniques in comparing the level of industrialization with a number of candidate variables: per capita income, population as proxy for size of the market, the rate of economic development, government policy, natural resource endowment. The study adopted a model very similar to that used by Chenery. The only difference is that to the regression equation a third variable is added - the ratio between the actual and the calculated value added in the whole manufacturing sector. It is noteworthy that the UN study confirms some of the results of Chenery about the change in composition of industrial output.

The studies so far reviewed on patterns and sources of industrial growth are based upon analysis of cross-sectional data though others are both cross-sectional and time series. Cross-sectional analysis as was rightly pointed out by Sutcliffe (1971) has a number of statistical difficulties. One notable limitation in the use of cross-sectional data is that the results are distorted to some extent, by price changes. This becomes even serious when cross-sectional data is used in comparing growth in different countries. Because of these difficulties researchers have tried using time series data.

Temin (1967) studied industrial growth using time series data. Temin performs a regression analysis similar to that of Chenery and the UN study from 1870 to 1950 for 9 countries (Australia, Canada, France, Germany, Italy, Sweden, United Kingdom, Japan and United States of America). He tested the following model

$$\log(A_{it}) = a_1 + b\log(Y_{it}) + U_{1it}$$
$$\log(M_{it}) = c_1 + d\log(Y_{it}) + V_{1it}$$

where A and M are the shares of national income (measured in percentages) originating in agriculture and industry and Y is per capita income in constant prices (the subscript "i" indicates the country being observed, the subscript "t" indicates the period and the final subscript on the error term refers to the model being used). Temin's model is an adaptation from Chenery's model but he omits population because he finds no significant evidence that it enters into any of the relations tested. As a conclusion to his analysis, Temin notes that the share of industry in national income appears to be related to the level of per capita income. Per capita income thus turns out in this context to be a good predictor of industrial outcomes. His result confirm that of Chenery that industrialization will rise with per capita income.

Story (1980) also attempted a time series analysis of industrial growth in Latin America. Story argued that besides the traditional

35

factors of population and per capita income, there are other economic and political factors which are important in predicting the pattern of industrialization through time. He emphasizes the following factors as important predictors of industrial growth in Latin America:- the value of exports, U.S foreign investment in manufacturing, government expenditure, protectionist policies and regime type. These he included in his model as explanatory variables. The model he estimated was

$$I = \text{constant} + \sum_{i=1}^{5} \beta_i x_i + \alpha_1 C + \alpha_2 D + \delta_1 C x_5 + \delta_2 D x_4 + u$$

where I = log of industrial value added in million of 1953 US.$

x_i = log of per capita income in 1953 U.S.$

x_2 = log of population in million of inhabitants

x_3 = log of exports as an index (1953 = 100)

x_4 = log of US foreign investment in manufacturing in million U.S $

x_5 = log of government expenditure in million U.S. $

C = dummy vari able for protection policies.

D = dummy variable for bureaucratic -authoritarian regimes

His analysis confirms the importance of the two traditional socio-economic predictors of industrial growth, per capita income and population. He also found some political factors to have a meaningful influence on industrial value added. Government expenditure turned out to have a positive and significant

relationship with industrialization. The dummy variable for protectionist policies and bureaucratic- authoritarianism turned out not to be important predictors of industrial outcomes.

Ahluwalia (1986), in analyzing trends in industrial growth in India, calculated the Total Factor Productivity Growth (TFPG) for the organised or registered manufacturing sector for the period 1959-1979. Using a methodology similar to that of Shaaeldin (1989) he developed a measure of capital stock and estimated TFPG. His results showed that the contribution of the efficiency factor, TFPG, is negligible or negative in most industry groups. For the whole manufacturing sector, he finds that TFPG declined at a rate of 0.1% per annum during the period before 1965 and 0.6% per annum in the subsequent period. He thus concludes that cumulative inefficiency through the years may have a stiffening effect on the growth of industry.

Other similar studies have been carried out in the semi-industrialized countries. One such study was that by Mieko Nishimizu and Sherman Robinson (1984) who wanted to examine the impact of different strategies on productivity. The two writers derive the TFPG and examine how it was affected by trade strategies. The Nishimizu - Robinson study is particularly important in the literature as it makes a major deviation from earlier studies on sources of growth. This is in their attempt to estimate the sectoral TFPG and trying to see how demand side

sources affected it. This is done for four countries, Korea, Yugoslavia and Japan. Tybout J.R (1990) using the Nishimizu-Robinson approach, also carried out similar analysis for Chile, Colombia, Turkey, Morocco and Cote d'Ivoire. He found out that the clearest determinant of TFPG growth is output expansion.

Metwally (1977) attempted an explanation of sources of industrial growth in Maltese manufacturing sector over the period 1961-75. According to Metwally, industrial output expands due to the following factors: expansion of domestic demand, import substitution and export expansion (Metwally, 1977;747). Metwally developed a mathematical model which he tested empirically using Maltese data for the period 1961-1976. His regression results seem to suggest that exports played a greater role as a source of industrial growth. Further his results indicate that the process of import substitution was weakening and factor incomes were not expanding as much as prices of materials and output.

In Kenya, several studies have attempted some analysis of some aspect of industrial growth (at times with neighbouring countries). Ravi Gulhati and Uday Sekhar (1982), assessed the extent and nature of industrialization in three African countries; Kenya, Tanzania and Zambia. In their analysis of sources of industrial growth, they found out that import substitution was a major impetus behind Zambian industrialization. Exports were unimportant while domestic demand rose at a slower pace than in the other two countries.

Import substitution accounted for 53% of the overall rise in manufacturing output during 1965-1972. For kenya, over the period 1963-71, they found out that import substitution was a considerably smaller source of industrial growth but with domestic demand and exports playing a larger role than in Zambia. Tanzanian results were a bit different. They found out that over the period 1965-1972 import substitution played no role in overall expansion in Tanzanian manufacturing. On the basis of their findings , the authors conclude that the industrial growth record in the three countries is influenced much more by the macro -economic situation of each country than by the industrial strategies pursued. The authors basing on the results warn that catering to world market is not likely to provide a major stimulus for the industrial sector of many African economies in the near future. These qualifications withstanding, the authors recommend that the bias against exports that now pervades the incentive system of African economies ought to be removed. Instead, governments should adopt a strong promotional posture, given the key role that manufacturing exports play in assimilating technological change and in breaking the barrier imposed by small domestic markets.

In a more recent study, Jeniffer Sharpley and Stephen Lewis (1990) also attempt an analysis of the sources of output growth in manufacturing in Kenya over the period 1964-84. For the purposes of analyzing the sources of growth in manufacturing output, they divide the sectors into 10 sub-sectors; food beverages and tobacco;

clothing textiles and leather; wood and furniture; paper printing
and publishing; chemical rubber and petroleum; metal products;
machinery; transport equipment; and miscellaneous. One important
feature of their results is the dominance of the growth of the
domestic demand in " explaining" the growth of manufacturing
output. More than two-thirds of output growth was attributed to
domestic demand. Import substitution provided just over one
quarter of the sources of domestic output growth, with the two most
important contributing sub-sectors being chemical, rubber and
petroleum. Export growth contributed only 5% to the growth of the
manufacturing output. Examination of the sources of growth of
manufacturing value added over the same period, and using the same
framework of analysis, yields somewhat similar results.

Similar analysis of sources of growth have been carried out in
other countries in Africa such as Botswana, Cameroon, Nigeria and
Zimbabwe (Ridell,1990). Across all these economies, the results
consistently show that the predominant source of growth of
manufacturing has been domestic demand; for Botswana 54%, for
Cameroon 53%, for Nigeria 76% and for Zimbabwe 72%. For most of
these countries, the next most important source of industrial
output growth after domestic demand has been import substitution.

Analysis of sources of growth from the supply side has also been
attempted in the literature. Shaaeldin (1989) utilized a growth
accounting production function approach to analyze the sources of

industrial growth in Kenya, Tanzania, Zambia and Zimbabwe. According to him industrial growth results from an increase in factor inputs and the efficiency with which these factors are used (productivity). The effect of all inputs taken together he captured by the TFPG. This he defined as the difference between the rates of growth of output and that of a weighted sum of inputs including labour and capital stock. Assuming a Cobb-Douglas production function in the following form;

$$Q = A(t)f(K, L).$$

Where Q is the manufactured output,K is capital, L is labour and A(t) represents other factors including technical change, Shaaeldin functionally defined TFPG as:

$$A^*/A = Q^*/Q - (sK . K^*/K + sL . L^*/L)$$

where sK and sL represent the share of capital and labour respectively. The asterisk (*) represent time derivatives. Shaaeldin defined the right hand side as the TFPG which is equal to the difference between the percentage change in output and the percentage change in inputs weighted by sK and sL.

To estimate the rates of growth of the TFPG, Shaaeldin obtained growth rates of manufacturing output(Q) capital (K) labour (L) and estimates capital and labour shares. His estimates during the periods between 1964 and 1983 indicate negative growth rates of TFPG in Kenya, Tanzania and Zambia. He found the growth rate of the TFPG in Zimbabwe's to be positive but insignificant. On the basis of these estimates he concluded that for the four countries

growth in manufacturing output is mainly accounted for by increases in factor inputs.

Shaaeldin's study, is important in as much as it is an original attempt in developing Africa. However, it is not without its limitation both methodologically and in terms of the assumptions it made. TFPG as derived in this study is a residual which is meant to capture other sources of growth beside capital and labour. Looked at differently this residual can be viewed as " some sort of measure of our ignorance about the causes of economic growth, accounting for factors that are difficult to surmount " (Nelson, 1981; 1035). Productivity could have arisen due to varied factors some of which include improvements in industrial organisation economies of scale ,capacity utilization etc. All these are lumped together in TFPG.

Nelson points further that the approach has limited causal depth and deals with proximate rather than ultimate causality. Changes in factors of production and technical progress are treated as exogenous, although in practice the supply of most resources to an economic system is endogenous, responding to the demand for them (Thirwal, 1983; 62). Thus this approach does not explain the elements of policy or circumstances, national or international, that underlie them. As Nelson rightly points out, this approach does not " discern broad factors or conditions that foster or hinder a generally stimulating environment " (Nelson 1981; 35).

This approach also makes some assumptions which do not quite hold in economies like Kenya. For example the approach assumes that labour and capital are homogenous. In the real world these assumptions are invalidated for we find that capital takes different forms. Labour can also be skilled or unskilled and so cannot be said to be homogenous. This approach further assumes neutral technical progress and constant returns to scale which do not quite hold. Another serious limitation of using the production function to estimate TFPG is that the production function might not be observable and therefore not easy to estimate. Notwithstanding the limitations of this approach the model yields rough estimates of the contribution of labour, capital and the residual.

The World Bank has also carried out some studies to analyze certain aspects of industrialization in Kenya. In a report on industrial sector policies for investment and exports growth, a world bank mission attempts an analysis of sources of industrial growth in Kenya between 1976-83. During the period the mission found out that 64.4% of the growth in the expanding sectors was a displacement of imports while exports had a negative or negligible contribution to growth in all but one sector(cement).[5]

---

[5] For more details see World Bank, Kenya: Industrial Sector Policies for Investment and Export Growth (1987) Report No. 6711-KE.

3.2: OVERVIEW OF THE LITERATURE

The above literature review looks at different factors determining industrial growth in Kenya and elsewhere. What seems to emerge is that both supply factors (labour, capital, entrepreneurship, natural resource etc.) and demand side factors (import substitution, exports and domestic demand) are all important. Initial studies in this area, found out that the major sources of industrial growth were mainly from domestic demand, import substitution and growth of exports. From the supply side, these studies have shown that the most important determinants of industrial growth are socio-economic factors of per capita income and population.

Later studies using time series analysis (Temin 1967, Story 1980) mainly confirmed that the socio-economic factors of per capita income and population were still the most important. These studies also brought into the picture other economic and political factors such as government expenditure and government policy.

A study which is of much interest to us is that of Story (1980). He attempted to combine both supply and demand factor in explaining industrial growth. This particular study is important as we

believe that any serious analysis of industrial growth should combine both supply and demand forces. The model and approach by Story will thus be utilised in our analysis.

CHAPTER FOUR

METHODOLOGY, DATA COLLECTION AND HYPOTHESES.

To fulfil the objectives of this study, quantitative and descriptive analysis is used to examine the major determinants of manufacturing output growth in Kenya. Time-series regression analysis with continuous and dummy variables is used. Story's (1980) model is modified to analyze Kenyan data. The model is presented in the first part of this chapter. In part two we discuss the estimation procedure. Parts three and four present the definitions and measurement of the variables used in the model and the basic data respectively. The hypotheses of the study are stated in the last part.

4.1: THE MODEL

The general model to be tested empirically will be:-

$$Y = f \ (PI, \ PS, \ EX, \ G, \ FDI, \ GE, \ D)^6 \ \ldots\ldots\ldots\ldots \ (4.1)$$

where:-

Y   =   Manufacturing value added in Million K£.

PI   =   Per capita income in Ksh.

PS   =   Population in Millions of inhabitants.

---

[6] This specification excludes two important supply side factors, capital and labour. This is because of the obvious correlation between these variables and per capita income and population.

EX   =   Export of manufactures in thousands of K£.

FDI   =   Foreign (Direct) investment in Million K£.

G   =   The ratio of domestic production to total supply
           (Import-substitution).

GE   =   Government expenditure in million Ksh.

D   =   Dummy variable for protectionist activities.

Story's model is modified in two aspects. First the introduction of the import substitution variable G into the model. Secondly, dropping Story's regime variable which was included in the model to capture the effect of different regimes (bureaucratic-authoritarian regimes). While there is evidence in Kenya that import substitution has been a major source of growth (as has been shown in studies analyzing sources of industrial growth in Kenya), there is no evidence in Kenya to show that regime types have had any systematic influence on industrial outcomes. Story's sectoral- discrimination variable has also been left out for a similar reason. Further Story used the model on the entire industrial sector while we focus exclusively on the manufacturing sector.

4.2:   THE ESTIMATION PROCEDURE

Ordinary Least Squares (OLS), is used to estimate the Log-linear form of the equation (4.1). The log-linear form of the equation is used so that all regression coefficients can be interpreted as

47

elasticities. Elasticities are particularly useful because they are unit free, that is, their values are independent of the unit in which the variables are measured. The specific equation that we estimate is linear and additive of the functional form:-

$$LogY = \alpha_0 + \alpha_1 logPI + \alpha_2 logPS + \alpha_3 logEX + \alpha_4 logG + \alpha_5 logFDI + \alpha_6 logGE + \alpha_7 logD + e \ldots\ldots\ldots\ldots\ldots(4.2).$$

Where e is the error term.

4.3: DEFINITION, MEASUREMENT AND JUSTIFICATION OF VARIABLES.
Manufacturing value added (Y)

According to the United Nations, manufacturing value added refers to the contribution of the manufacturing sector to the Gross Domestic Product, in terms of the national accounting concept. This is defined as the value of gross output less the cost of: (a) materials, fuel and other supplies used; (b) contracts and commissions work done by others; (c) repairs and maintenance work done by others; (d) goods shipped in the same condition as received (i.e re-exports) and (e) Electricity purchased all at factor prices.

We use value added instead of total output as the dependent variable because the former is less affected by variations in the product mix.

Per Capita Income (PI)

Per capita income, refers to the ratio of national income to total inhabitants in a country or place. Per capita (PI) is thus defined as the ratio of National Income to the total population, that is

$$PI = NI/P$$

Where NI is National Income (GDP) and P is total population.

Per capita income contributes to industrial output both through changes in demand, as the share of food relative to manufactured goods in consumption declines, and through changes in supply, as capital accumulation, technical knowledge and education increase. Usually it is expected that as per capita income rises industrial output and especially that from the manufacturing sector increases.

Population (PS)

Population refers to the total inhabitants of a place or country at a particular time. Population increase affects industrial production by increasing the demand for industrial goods and the supply of industrial labour. This variable is used in this context as a measure of the size of the market. The population figures are estimates based on the IMF projections in the International Financial Statistics (IFS).

Exports of manufacturers (EX)

Exports of the manufacturing sector can directly and indirectly contribute to output growth. Directly, export growth can provide the much needed foreign exchange to pay for the necessary imports. This is particularly the case in the early stages of industrialization. Even in later stages, export growth can finance the needed imports of industrial inputs and can reflect an increase in the degree of domestic value added. Indirectly, export expansion can promote growth in the primary sector, which benefits industry in maintaining the domestic market for manufactured goods.

Manufactured exports in Kenya include chemicals, cement, glassware, paper and paper products, metal and metal products, machinery and transport equipment, processed foods etc. The sum of all these are used in this analysis as manufacturing exports (this includes all the items under manufactured exports in the Statistical abstracts).

Import Substitution (G)

This refers to the replacement of hitherto imported goods by domestic ones. Where imports of manufactured goods are replaced by domestic productions, the amount of production will normally increase (even though consumption of manufactured goods may not). Import substitution is therefore an important source of industrial

growth in a developing economy like Kenya. Statistical studies on industrial growth place a lot of emphasis on the role of import substitution in industrialization. One way of illustrating the role of import substitution is to see to what extent it correlates with value added in the sector. We use the ratio of domestic production to total supply (gross output plus imports minus exports) to indicate the level of import substitution. Thus

$$G = X^*/(X^* + x_m - x_e)$$

Where: X^* = Gross output of the manufacturing sector.

x_m = manufactured imports

x_e = Manufactured Exports

This ratio gives an indication of the relative importance of imports and competing domestic output. This ratio is calculated in Appendix II.

Foreign (Direct) Investments (FDI)

The International Monetary Fund (IMF) defines foreign direct investment as the amount invested or re-invested by non-residents in enterprises in which they or other non-residents exercise significant managerial control. It includes equity capital, reinvested earnings and other capital (both long term and short term).(IFS Yearbook, 1990).

Though much disagreement exists as to the effect of foreign investment in terms of the balance of payment, employment etc,

their contribution to production and sales is clear in many host countries. The 1967 census of industrial production in Kenya estimated that predominantly or wholly foreign owned firms accounted for 71% of value added in the manufacturing sector. An even more significant figure is the ratio of manufacturing investment involving foreign capital to total manufacturing investment. The 1972 ILO/UNDP report estimated this ratio to be about 60%, which may be regarded as an indication of the extent of foreign control on manufacturing. Though there have been changes in recent years, FDI still accounts for a considerable proportion of the value added in the manufacturing sector. Thus despite the various social and economic costs of the penetration of foreign firms in Kenya, they may have great potential for promoting aggregate manufacturing output growth worthy of investigation.

Government Expenditure (GE)

Government expenditure may affect industrial growth. A number of writers (e.g. Ikiara (1986)) have emphasized the positive impact that government expenditure can have on industrialization. Government spending on consumption can increase demand for manufactured goods directly through purchases or indirectly through maintaining a minimum income level for individuals. Government spending can also go into areas of production which in turn draw inputs from the manufacturing sector. At the same time, government expenditure may provide the required infrastructure for industrial

development. Besides, direct government investment or ownership often represent a critical proportion of capital investment in basic industries.

We define government expenditure as the total expenditure in million Ksh. of the government through its various ministries on health, education transport and communication, industry etc. We use total government expenditure (and not expenditure specific to industry or manufacturing) to capture both the direct and indirect effects of government expenditure on industrial outcomes.

Protectionist Policies (D)

In addition to government expenditure, the government through its trade and foreign exchange measures can be a major source of increase of economic activity in the manufacturing sector. Though some writers argue in the contrary that state protection and promotion policies only inhibit industrial growth by reducing efficiency and productivity, a basis exists for claiming that these policies do affect industrial outcomes and for including the variable in the analysis. The initiation of protectionist policies in most cases coincides with the initiation of other incentives for industry, and a distinct time period in which these industrialization policies are particularly emphasized can be identified for many countries. Several studies have been carried out in Kenya to measure the rate of protection (e.g. Phelp and

Wasow 1972, Sharpley and Lewis (1990). These studies seem to indicate that the average and the effective rates of protection were higher for the period between the late 1960s and early 80s. Protection policies are represented in this study by a dummy variable,D. Specifically,

$$D = 1 \text{ where protection is higher (1970-84)}$$

$$D = 0 \text{ where protection is low (all other periods)}$$

4.4: THE BASIC DATA, ITS SOURCES AND LIMITATIONS.

This analysis uses secondary data covering the period 1964 to 1988 (the period chosen for the study). The values are at constant 1985 prices. This was after deflating the current figures using the GDP deflator (1985=100). The main sources are the various publications of the Statistical Abstract and the Economic Survey issued by the Government of Kenya, the International Financial Statistics and Government Expenditure Yearbook by the IMF, and the Industrial Statistics Yearbook by the UN. Column 2 in Table 4.1 gives the dependent variable, manufacturing value added. This was obtained from the UN publication- Industrial Statistics Yearbook. Columns 3-9 give the independent variables as specified in the model.

TABLE 4.1: DATA USED IN THE REGRESSION ANALYSIS.

year	Y	PP	PI	EX	G	FDI	GE	D
1964	5.76	9.18	3922.1	2748.0	0.94	0.24	1066	0
1965	5.89	9.53	3838.7	3177.7	0.93	1.50	1249	0
1966	6.98	9.78	3769.2	4155.8	0.93	0.22	1379	O
1967	7.23	10.12	3786.0	3896.1	0.93	1.82	1286	0
1968	8.16	10.48	3970.2	4736.7	0.92	1.63	1492	0
1969	9.82	10.88	4035.0	5203.5	0.94	1.31	1794	0
1970	11.74	11.23	4197.9	6199.0	0.94	1.21	1958	1
1971	14.71	11.67	4316.3	7230.0	0.93	1.13	2426	1
1972	19.66	12.07	4568.4	6661.9	0.93	2.53	3175	1
1973	34.45	12.48	4720.1	10712.3	0.94	2.32	3151	1
1974	36.36	12.91	4630.8	14893.3	0.91	2.40	3816	1
1975	52.84	13.41	4610.3	15431.5	0.95	2.42	5495	1
1976	84.36	13.85	4777.5	21630.0	0.96	8.52	6614	1
1977	122.04	14.35	5045.4	24309.6	0.94	12.0	6883	1
1978	126.60	14.88	5304.8	25187.2	0.94	11.52	10037	1
1979	152.63	15.33	5342.3	29455.0	0.96	17.42	12954	1
1980	192.44	16.67	5187.6	40893.1	0.95	17.85	13839	1
1981	245.33	17.34	5174.2	50209.6	0.98	4.31	18329	1
1982	307.69	18.04	5199.0	51252.2	0.98	5.38	20070	1
1983	348.87	18.77	5006.5	63168.5	0.98	12.84	17734	1
1984	443.50	19.54	4910.8	78457.6	0.98	7.09	21259	1
1985	542.80	20.33	4912.2	103360.0	0.99	14.85	23790	0
1986	664.80	21.16	5050.7	124912.4	0.99	29.00	29690	0
1987	800.56	22.94	4930.0	126401.7	0.98	64.78	37468	0
1988	664.8	21.16	5050.7	124912.4	0.98	10.62	38046	0

Y   = Manufacturing value added in Million K£
PP = Population in million of inhabitants.
PI = Per capita income in K.sh.
EX = Exports of manufactured goods in thousand K£.
G   = Imports substitution ratio
FDI= Foreign direct investment in Million K£.
GE = Government expenditure in million K£
D   = Dummy variable for protectionist policies.
*See appendix III for the log forms of the variables

Exports, imports and the output of the sector were obtained from

various issues of the Statistical Abstract and the Economic Survey.

Per capita income, population and foreign direct investment figures

were obtained from the IFS while government expenditure figures

were obtained from the Government Statistic Yearbook (1990). The

(G) ratio is computed in Appendix II.

Before analyzing the data in the next chapter, a word is in order about the statistics themselves. The CBS data though wide in coverage has a serious limitation. This is the non-conformability of complementary series. There is evidence in the CBS data that data referring to the same year differ considerably. To go around this problem, CBS data was supplemented with revised and more accurate data from IMF and UN publications.

The other problem encountered with the data was the unavailability of some series especially in the IMF and UN publications. Such was the case with manufacturing value added which was not available for 1965-68. This problem was overcome by supplementing it with CBS data from the government sources. Conversions were also made in cases where the data was not available in the form required. This was the case for example with foreign direct investment which was available in SDRs. Change of definitions though not frequent in this data, may also have reduced the accuracy, reliability and comparability of the data especially in 1972 when there was a change from the SITC to ISIC definition.

4.5:   STATEMENT OF HYPOTHESES

A total of six hypothesis will be tested relating manufacturing
Value added to its determinants postulated above. These are:-

(i)   There is a positive and significant relationship between
      manufacturing value added and population, $\delta Y/\delta PS > 0$.

(ii) A positive and significant relationship exists between
      manufacturing value added and Per Capita Income, $\delta Y/\delta PI > 0$.

(iii) A positive and significant relationship exists between
      manufacturing value added and Export of the manufacturing
      sector, $\delta Y/\delta EX > 0$

(iv) There is a positive and significant relationship between
      manufacturing value added and import substitution, $\delta Y/\delta G > 0$.

(v)   Foreign Direct Investments and manufacturing value added are
      positively and significantly related, $\delta Y/\delta FDI > 0$.

(vi) Manufacturing value added is positively and significantly
      related to Government Expenditure, $\delta Y/\delta GE > 0$.

4.6:   LIMITATIONS OF THE STUDY.

The major limitation of this study is that it focuses exclusively
on the formal manufacturing sector for which data was available.
This ignores the informal sector activities or " Jua Kali". In a
country like Kenya, the informal sector activities account for a
significant proportion of the manufacturing output which this study

omits.   The study is also too aggregative given the kind of data used - it lumps all the sub-sector in manufacturing and deals with them as a single entity.   Due to the varied characteristics of the sub-sectors, there is need to analyze growth sector by sector.

CHAPTER FIVE

REGRESSION RESULTS AND HYPOTHESES TESTING

This chapter presents regression results of the model used in the study and tests of the hypotheses of the study. The computer programme used to run the linear regression model was the Time Series Package (TSP) - MicroTSP version 4.1 in the Economics Department, University of Nairobi. The first part of the chapter presents regression results while the second part presents the interpretation of the regression results. In the third part we test the hypotheses of the study.

5.1: EMPIRICAL RESULTS

In this section we present the computer results of the model presented in section 4.2. We used an Ordinary Least Squares (OLS) model with continuous and dummy variables. Logarithmic transformation of all continuous variables were made to express the coefficients as 'elasticities'. The results are presented in equation form as shown below:-

$$Y = -2.33^{-10} + 2.19PI + 0.41PS + 0.65EX + 3.05G + 0.007FDI$$
$$(-3.13) \quad (2.48) \quad (0.51) \quad (3.28) \quad (1.45) \quad (0.19)$$

$$0.28GE - 0.05D \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots(5.1)$$
$$(1.33) \quad (-0.62)$$

$$R^2 = 0.99 \quad DW = 1.19 \quad F - \text{Statistic} = 865.3.$$

The t - Statistics are in parentheses.

The method of regression analysis we have utilized makes two major assumptions; that no exact linear relationship (multicollinearity) exists between any of the independent variables and that the error terms are uncorrelated. Our test of these econometric problems reveals that autocorrelation may not exist. The Durbin-Watson test is used to test for the presence of autocorrelation. If this statistic is less than its lower limit then the hypothesis that the error terms are correlated is accepted. If the statistic is greater than the upper limit, the hypothesis that the error terms are correlated is rejected. Our model yields a DW of 1.19 compared to a DW of 0.86 when k=5 and n=25 indicating no serious autocorrelation problem . However most of the variables are multicollinear as can be seen by the simple correlation coefficient in Table 5.1. This and the high R^2 indicate that multicollinearity may be a problem in the model.

Table 5.1: **SIMPLE CORRELATION COEFFICIENT MATRIX.**

	Y	PI	PS	EX	G	GE	FDI	D
Y	1	0.88	0.98	0.99	0.85	0.99	0.87	0.17
PI		1	0.83	0.85	0.64	0.86	0.82	0.52
PS			1	0.99	0.85	0.99	0.85	0.11
EX				1	0.85	0.99	0.86	0.14
G					1	0.86	0.66	-0.31
GE						1	0.86	0.86
FDI							1	0.16
D								1

To explore the effect of multicollinearity, we employed a method based on Frisch's confluence analysis (Koutsyoyiannis, 1977;242).

To do this we first compute the elementary regressions as:-

1). $Y = a_0 + a_1 PI = -108.8 + 13.39 PI$ $R^2 = 0.777$ DW = 0.19

                              (-8.63)   (8.95)

2). $Y = b_0 + b_1 PS = -11.72 + 5.99 PS$ $R^2 = 0.97$ DW = 0.35

                              (-23.5) (32.2)

3). $Y = c_0 + c_1 EX = -9.28 + 1.36 EX$ $R^2 = 0.990$ DW = 1.12

                              (-33.1) (48.5)

4). $Y = d_0 + d_1 G = 7.01 + 59.6 g$ $R^2 = 0.734$ DW = 0.96

                              (17.6)   (7.98)

5). $Y = f_0 + f_1 FDI = 2.63 + 1.09 DFI$ $R^2 = 0.763$ DW = 1.54

                              (10.5) (8.6)

6). $Y = h_0 + h_1 GE = -3.40 + 0.95 GE$ $R^2 = 0.993$ DW = 1.26

                              (-25.2) (57.6)

Choosing the sixth elementary regression (Y=f(GE) as the first step of our analysis (since government expenditure seems on a priori grounds to be the most important explanatory variable during the period under consideration), we introduced the remaining explanatory variables gradually into the function. The subsequent results are shown in Table 5.2.

Table 5.2: REGRESSION RESULTS.

	C	GE	PS	PI	EX	G	FDI	D	R^2
1	-3.40 (0.14)	0.96 (0.01)							0.9931
2	-3.53 (1.22)	0.94 (0.13)	0.09 (0.86)						0.9931
3	-17.6 (4.62)	0.68 (0.14)	1.19 (0.81)	1.56 (0.50)					0.9952
4	-17.6 (3.86)	0.46 (0.13)	0.02 (0.77)	1.44 (0.42)	0.59 (0.18)				0.996
5	-20.5 (4.45)	0.33 (0.16)	0.34 (0.86)	1.77 (0.49)	0.63 (0.18)	2.67 (2.11)			0.9970
6	-20.2 (4.63)	0.32 (0.17)	0.34 (0.81)	1.74 (0.51)	0.63 (0.19)	2.88 (2.22)	0.02 (0.03)		0.9970
7	-23.9 (6.49)	0.28 (0.78)	0.43 (0.78)	2.18 (0.17)	0.64 (2.11)	0.01 (0.03)	3.05 (0.15)	-0.05 (0.08)	0.9972

Note: the numbers in parenthesis are the standard errors of the estimates.

The introduction of the variables PI, EX, G and D improves slightly the overall R^2 while the introduction of PS and FDI do not affect R^2 to any considerable extent. The signs of the coefficient all remain as before while the individual coefficients improve slightly. This indicates that the intercorrelation between these variables does not affect the significance and signs of the parameters. Despite the high degree of collinearity of the independent variables, the standard errors (Table 5.2) are not large showing that the effect of multicollinearity is not serious.

5.2: INTERPRETATION OF EMPIRICAL RESULTS

Equation 5.1 was retained as the final regression. It indicates that all variables except one pass the economic "A priori" criteria (Koutsoyiannis, 1977; 25). The signs of the parameters of per capita income, exports, import substitution, foreign direct investment and government expenditure are positive as defined by theory. The dummy variable D which was hypothesized to have positive effect (that is protection enhancing output in manufacturing) turns out to have a negative coefficient-implying that protectionist policies inhibit rather than promote growth in the manufacturing sector. This particular result goes ahead to amplify the controversy highlighted earlier in the previous section as to whether protectionist policies contribute positively or negatively to output growth. More so, economic theory does not explicitly state the expected sign of the relationship between protectionist policies and industrial growth.

One notable result of the regression analysis is the role of the traditional socio-economic variable of per capita income (PI). Per capita income turns out to be an important predictor of growth of value added in the manufacturing sector. It is statistically significant at the 95% level of confidence. This tallies with our expectation and the findings of other studies that per capita income is a major predictor of industrial outcomes. From these results we can infer that an increase of per capita income by 1%

will increase value added in the manufacturing sector by 2.1%
showing that the dependent variable Y, is highly responsive to the
independent variable, PI.   As the per capita income level
increases, people are more able to purchase goods and services.
Increases in per capita income implies increased demand and
especially for manufactured goods which were hitherto   not
affordable or considered as luxuries.   This tendency will thus
stimulate manufacturing in the country.   On the other hand
increases of per capita income of a country will stimulate capital
accumulation and labour productivity through education and
training.   This may enhance the level of output in the
manufacturing sector.

The population parameter turns out to be insignificant though
positively related to manufacturing value added.   This is contrary
to our expectations and to results of previous studies (e.g.
Chenery 1960 and Story 1980) which have found the variable to be
highly significant.   What this means is that population increase
in Kenya does not significantly influence value added in the
manufacturing sector.   Population as is used in this analysis is
a measure of the size of the market.   An increase of population,
may not, in the strict sense mean an increase in the size of the
market and therefore an increase in manufacturing value added.
Population may not have had increased but the people may not have
the economic power to consume more manufactured goods.   Thus
effectively the market may not have increased.   This therefore

means that the increase of population in Kenya has not stimulated manufacturing to any considerable extent. Increasingly, therefore, Kenya's manufacturing has been responding to Exports markets more than the domestic market.

The other significant variable in the model is manufactured exports (EX). This is significant at 99% level of confidence. This again tallies with our expectations. Thus as manufactured exports increase by 1%, we expect 0.65% increase in manufacturing value added. The more the manufacturing sector is able to export its output, the more it can import inputs (especially capital) which are vital for its production. At the same time exports represent a search for external market, reducing the problem due to small domestic market. Thus a positive relationship exists between exports and manufactured output. Studies in Kenya (e.g the Sharpley and Lewis (1990)) have shown that exports, though not the most important, are a source of growth of the manufacturing sector.

Government expenditure is also statistically significant at the 95% level of confidence. From the results above, we can infer that a 1% increase in government expenditure will increase value added in the manufacturing sector by 0.28%. In mixed economies like Kenya, the government plays both a direct and indirect role in the process of industrialization. Through Direct investment in manufacturing the government assumes the role of the entrepreneur and supplies the capital required for investment. This may enhance

output. The government also creates demand by purchasing directly from the manufacturing sector. Indirectly, government spending may go into other areas of production which are in turn stimulated and thus buying more from the manufacturing sector. For example, increased government expenditure in education implies an increased demand for paper from the relevant enterprise.

Also significant, though at a lower level of significance (85%) and positively related to manufacturing value added is import substitution (G). An increase in the ratio of domestic product to total supply by 1% will increase value added in the manufacturing sector by 3.05%. Again this is a high elasticity which merely confirms results of previous studies on Kenya's manufacturing sector which have shown that import substitution is a major source of growth. Thus the relative and absolute size of the manufacturing sector are closely related to import substitution.

Though not significant, foreign direct investment (FDI) is a modest predictor of manufacturing value added in Kenya. An increase of FDI by 1% will increase manufacturing value added by only 0.007% which is indeed low. This shows that the effect of FDI on manufacturing value added is not statistically different from zero. This is however a strange result as Kenyan manufacturing sector is to a large extent dominated by foreign investments. If foreign direct investment does not significantly influence value added,

then one would suspect that foreign indirect investment does, given the dominance of the two in Kenya's manufacturing sector. Besides since most of the foreign investors are multinational corporations, their contribution to value added may not be significant because they tend to "export" the net effects of local production through transfer pricing practices. Moreover the value of foreign investment tend to fluctuate a lot for non - economic reasons (mainly political) and thus may not be reliable predictors of economic activity.

The dummy variable representing protectionist policy turns out to be negative and insignificant even at the 95% level of confidence. What this means is that over the entire period protectionist policies had a negative and insignificant effect on manufacturing value added. This is contrary to our expectations. Kenya's manufacturing sector as was earlier described is highly protected. Moreover studies have shown that import substitution which has taken place under high walls of protection has been a major source of growth. It is therefore expected that protectionist policy has had significant effects on the sector. The arguments that protectionist policy affect positively or negatively industrial growth are not confirmed in this analysis.

The seven explanatory variables explain 99% of the total variations in manufacturing value added. This indicates that the variables in the model are the most important determinants or predictors of

manufacturing value added. The F-statistic with 6 and 18 degrees of freedom is significant allowing us to reject the null hypothesis that all explanatory variable coefficients are jointly/zero. This points to the suitability of the model used.

equal to

5.2: HYPOTHESES TESTING.

We test the hypotheses based on the log-linear equation (4.2) in section 4.2. The hypotheses and expected relationships were put down in section 4.5. For test of the hypotheses we state the null and alternative hypothesis as

$$H_O\text{:} \alpha_i = 0 \text{ and } H_A\text{:}\alpha_i \neq 0$$

respectively.

Hypothesis (i)

$H_O\text{:}\alpha_1 = 0, \ H_A\text{:} \alpha_1 \neq 0$

H_A: There is a positive and significant relationship between manufacturing value added and population.

The expected positive relationship between manufacturing value added and population was confirmed. However, the relationship is not significant at the 5% level of confidence. Based on this, we accept the null hypothesis that $\alpha_1 = 0$ and reject the alternative that it is different from zero. Population is thus not a significant determinant of value added in the manufacturing in Kenya.

Hypothesis (ii)

$H_O: \alpha_2 = 0$, $H_A: \alpha_2 \neq 0$

H_A: There is a positive and significant relationship between manufacturing value added and per capita.

The regression results show that there is a positive relationship between per capita income and value added in the manufacturing sector. Further our tests reveal that per capita income is significant at the 1% level of significance. We reject the null hypothesis and accept the alternative that α_2 is statistically different from zero. We thus conclude that per capita income is positive and significantly related to manufacturing value added.

Hypothesis (iii)

$H_O: \alpha_3 = 0$, $H_A: \alpha_3 \neq 0$.

H_A: A positive and significant relationship exists between manufacturing value added and exports of manufactures.

The results reveal a positive relationship between exports of manufactures and value added in the manufacturing sector. This was expected. The manufacturing export variable is also significant at the 1% level of significance. This enables us to reject the null hypothesis that α_3 is equal to zero and accept the alternative that it is different from zero. Based on this we can conclude that exports of manufactures are positively and significantly related

to manufacturing value added.

Hypothesis (iv)

$H_O: \alpha_4 = 0$, $H_A: \alpha_4 \neq 0$

H_A: There is a positive and significant relationship between manufacturing value added and import substitution.

Though positively related to value added in the manufacturing sector, import substitution is not significant at the 5% level of significance. We conclude that α_4 is not different from zero. Thus the import substitution variable (G) is not significantly related to manufacturing value added.

Hypothesis (v)

$H_O: \alpha_5 = 0$, $H_A: \alpha_5 = 0$

H_A: Foreign direct investment and manufacturing value added are positively and significantly related.

Foreign direct investment is positively related to value added in the sector though insignificant at both the 1% and the 5% levels of significance. This therefore requires the acceptance of the null hypothesis that α_5 is equal to zero and the rejection of the alternative. The relationship between foreign direct investment and manufacturing value added is therefore not statistically significant.

Hypothesis (vi)

H_O: $\alpha_6 = 0$, H_A: $\alpha_6 \neq 0$.

H_A: Manufacturing value added is positively and significantly related to government expenditure.

The expected positive relationship was confirmed between government expenditure and value added in the manufacturing sector. The results also revealed that government expenditure is significant at the 5% level of significance. We thus, basing on these results reject the null hypothesis that α_6 was equal to zero and accept the alternative that it is different from zero. Government expenditure and manufacturing value added are therefore significantly related.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

This chapter summarizes the major conclusions of the study. The policy implications and limitations of the study are also presented. The conclusions and policy implications are based on the review of Kenya's Manufacturing sector (Chapter 2) and the regression results in chapter five .

6.1: SUMMARY.

The objective of this paper was to identify and estimate the major determinants of manufacturing output growth in Kenya. To do this we first presented the general background of the study on which issues relating to the growth and structure of Kenya's manufacturing sector were raised. Particularly the performance of the sector was analyzed. This analysis revealed that the sector's overall performance has not been very impressive, especially in the 1980s. Yet despite this fact little has been done to analyze certain aspects of this performance and especially the factors determining its growth.

We also presented an in - depth analysis of the growth and structure of the sector. The purpose of this was to be able to understand how the sector has performed, its structure and

prospects. A review of policies in the sector since independence was also presented. This was in realization that industrial policies have a strong influence on industrial outcomes. The sector performed quite well in the period immediately after independence but poorly in the 1980s. Structurally, the sector is dominated by small-scale producers mainly oriented to the domestic market. The enterprise, capital and skills for manufacturing have mainly been provided by foreigners and the government. The sector at the same time is highly protected.

Both theoretical and empirical literature was reviewed in this study. This was in trying to identify the major factors influencing manufacturing output growth in the sector. What seem to emerge from the literature is that both the policy and the macro-economic environment and even the political environment play an important role.

The major finding of this study, based on a time series regression model indicated that several factors can help to explain the growth of manufacturing value added. In particular per capita income, export of manufactures, government expenditure and import substitution had statistically significant effects on manufacturing value added. The other variables namely foreign direct investment, population and protectionist policies turned out to be modest predictors of value added in the manufacturing sector.

6.2: CONCLUSIONS AND POLICY IMPLICATIONS

The major conclusions of this study are:-

(1) The growth of manufacturing value added in Kenya is influenced much more by macro economic variables (Per capita income, manufactured exports and government expenditure) than by industrial policies.

(2) Contrary to expectation, Population and foreign direct investment are not important determinants of Kenya's manufacturing value added.

(3) The process of import substitution that was a major source of growth of manufacturing output in the early 1960s and 70s has now weakened.

The regression results show that as per capita income increases so does value added in the sector. This fact is indeed true for Kenya's manufacturing sector. Over the period 1964-80, a period in which the sector's growth was comparatively high, the growth rate of per capita income was 2.3%.[7] For the period 1980-88 when the sector experienced slow growth, the rate of growth of per capita income was -0.5%, indicating the positive correlation between per capita income and manufacturing value added. As a matter of policy, therefore, measures to increase per capita are

---

[7]The rates are based on the data in Table 4.1. The equation used to estimate the rates is $LnPI = a + \alpha t$, where PI is per capita income and t is time.

central to increases of output of the sector. Whereas reduction of the rate of the population may lead to increases in the per capita income, the most effective way seems to be increasing the level of income and especially farm incomes. The fate of the manufacturing sector is so intimately bound up with farm incomes as farmers are, or can become the major outlets for manufactured goods, farm implements and other inputs. Increments in rural incomes will provide the market stimulus for an even more rapid increase in manufacturing output. More effort is therefore needed to improve the incomes of the people who make the market for manufactured goods. This is because a growing share of household income will be spent on manufactured consumer goods thereby activating existing capacity in many lines of production. Policies are therefore required to ensure that agriculture that employs nearly 70% of the population and the industrial sector expands faster to create jobs and incomes. This fact raises questions about agricultural policy and we are not comfortable about analyzing them in this paper. However it is critical to note that the sustained growth of the sector is vital for providing employment and raw materials for Kenya's largely agro-based industrial sector. To meet these challenges it will be necessary for the farmers to be provided with adequate incentives, inputs and technical advice.

The other important variable in the model is government expenditure. From the aggregate data in this analysis, it is not

possible to specify which aspect of government expenditure is most important; direct government investment or ownership in the industrial sector, government purchase of manufactured goods, or the indirect role of stimulating the economy or increasing the domestic market through public employment, welfare services, etc. It would not be in order, therefore to conclude that any increases in government spending could automatically have positive effects on industrialization. There is already evidence in Kenya that increased government expenditure has resulted in a over expanded public sector. This has caused some strain on the economy which may have checked the performance of the manufacturing sector. Organisations such as the IMF and the World Bank have recommended to the government some structural adjustments aimed at the rationalization of government expenditure in the sector and the economy as a whole. These adjustments are yet to take root. However, there is no doubt that increases in certain aspects of government spending may favour the growth of manufacturing output. Yet despite the lack of more specific conclusions, the finding that government expenditure has a positive impact on manufacturing is an important one worth further analysis.

Exports of manufactures also turn out to have a positive and significant relationship with value added in the manufacturing sector. As exports of the sector increase so does manufacturing value added. Encouraging exports from the sector would thus be a sure way of increasing the value added in the sector. Through most

of the period of Kenya's industrialization, policy incentives have been biased against exports of manufactures. The high protection given to industry by tariffs and quantitative restrictions have made production for the domestic sector market more profitable than exports. In addition, the exchange rate has been overvalued for considerable periods which has decreased the profitability of exports. From this it appears therefore that the most important single promotional policy for exports of manufactures is removal of the anti-export bias created by quotas, tariffs and exchange rate overvaluation. Already the government is taking a number of steps to make production of manufactured exports more attractive to investors. One such step has been the establishment of the export compensation scheme which is supposed to compensate for the overvaluation of the exchange rate resulting from high levels of protection. In addition the government has begun to prepare a medium-term export promotion program including a review of incentives for manufacturing under bond, export financing and organizational and informational support. The government is also looking at the feasibility of establishing an export processing zone. Manufacturing under bond and EPZs offer the potential of making it easier for the producers to obtain imported inputs and moving products to foreign markets. These schemes allow imports duty free and any local purchases are made free of charge. All these strategies if successful, should lead to increased exports of manufactures and thereby increasing output of the manufacturing sector. These measures withstanding we recommend that:-

(a). The government should adopt a flexible management of the exchange rate and lower protection to the import -competing sector. A realistic exchange rate should maintain Kenya's competitiveness in the world market.

(b). A strong export incentive be provided to producers to offset the imbalances in the incentives between domestic and export production. There is also need to strengthen the existing incentives. Particularly, there is need to reorganize the export compensation scheme to reduce or remove the delay in payment which has plagued the scheme. There is also need to strengthen the institutional support and in particular the role of the Kenya External Trade Authority (KETA), which is the export promotion arm of the Ministry of Commerce.

(c). Exports should be diversified to other non-traditional markets. Selling to neighbouring countries through the PTA may not represent a sustained outlet of manufactured exports from Kenya as most of the countries also assign priority to industrialization. More so, neighbouring countries seldom buy in large quantities.

The final variable that shows a relationship (though weak) with manufacturing growth is the import substitution variable. As the process of import substitution continues output of the manufacturing sector is expected to increase. This must have been the case in the early periods of industrialization in Kenya. However as import substitution proceeds beyond some time, the opportunities for further import displacement narrow rapidly,

especially in countries with small markets like Kenya. This has been demonstrated by both the Sharpley - Lewis study (1990) and the world bank (1987) which showed that import substitution was an important source of growth in the early 1960s and 1970s and not in the 80s - pointing to the weak relationship between import substitution and value added over the period 1964-88. Despite this fact, there is need to re-organize import substitution on a sub-regional or regional level so as to escape from the predicament of limited national market. A wide market should allow a country like Kenya to attempt the second stage of import substitution - going into intermediate goods production in which economies of scale are more important. Research in Kenya mainly by Coughlin (1988) have shown that opportunities exist for deeper import substitution especially in the manufacture of components, raw material and machinery used in industry and agriculture. Such opportunities if utilized should enhance the role of import substitution in the growth of Kenya's manufacturing sector. There is also need to reform incentives to promote efficient import-substitution. This should entail the rationalization of import licensing and gradual liberalization-something which the government is already committed to. In the long run, the solution should be a shift towards export promotion.

The findings regarding the dummy independent variable corresponding to protectionist policy (D) suggest that this variable is not an important predictor of manufacturing value added. The period in

which deliberate protectionist measures and various instruments of industrial promotion were heavily emphasized proves to make little difference in terms of industrial success. Moreover, the result indicate that such a policy tend to inhibit rather than promote growth in the sector. However, concentrating on such policies neither strongly encourages nor inhibits industrial progress in Kenya. The first phase of the Structural Adjustment Programme (funded by the World Bank) had the intention of rationalizing industrial protection and gradually reducing it. Though the effects of proposed changes are yet to be fully felt, such a move is in order as industrial protection, as has been demonstrated in this study and others, inhibit rather than promote the sector.

Foreign direct investment (FDI) on the other hand does not prove to have an important impact on manufacturing value added. This finding down plays arguments that tend to stress either the positive or negative effect of foreign direct investment on industrial outcomes. Hence policies which either promote or discourage foreign capital in the manufacturing sector make little difference in terms of industrial progress. It is the intention of the Kenya government, as is evident in its plans, to encourage foreign investment. However with the kind of results we have obtained in this study we are not well placed to suggest ways of encouraging it.

All the conclusions and implications made in this section are admittedly quite simplified and cannot be readily used as policy guidelines. They however can be used to indicate the general direction in which policies should be directed. To be able to yield more precise policy guidelines , there is need for a more disagregated analysis.

Total Factor Productivity Growth (TFPG).

Estimation of TFPG is based on the approach by Shaeldin (ibid). The data needed for these estimates consists of time series indices of output, employment and capital stock for the manufacturing sector in Kenya. These are presented in Table A.

Table A: **OUTPUT, INPUT AND FACTOR SHARES IN KENYA'S MANUFACTURING SECTOR.**

year	index of output. 1985=100	capital stock 82 prices	employment numbers	labour share (sl)	capital share (sk)
1972	40.4	603.28	84,804	0.43	0.57
1973	45.7	703.22	94,453	0.31	0.69
1974	49.6	796.24	101,332	0.41	0.59
1975	50.5	840.44	100,731	0.36	0.64
1976	56.1	879.57	108,716	0.30	0.70
1977	67.3	879.57	117,949	0.29	0.71
1978	73.2	993.79	130,056	0.33	0.67
1979	78.8	1078.30	138,409	0.32	0.68
1980	82.9	1146.71	141,280	0.33	0.67
1981	87.0	1183.27	146,338	0.33	0.67
1982	87.9	1216.87	146,780	0.42	0.58
1983	91.8	1205.74	148,758	0.39	0.61
1984	95.6	1209.18	153,143	0.44	0.56
1985	100.0	1197.19	157,763	0.34	0.66
1986	105.9	1185.9	164,800	0.31	0.69
1987	111.9	1193.03	169,762	0.33	0.67
1988	112.7	1205.88	182,773	0.31	0.69

-Source: central bureau of statistics, Statistical abstract; several issues.
* Capital stock data are as compiled by G . Barber, W. Winnie and L.S Wilson (1990).

For the factor share, averages were calculated of wage earnings and value added. The share of wages on value added was taken as the share or weight assigned to the labour input. The share of capital input is given as the residual, 1- sl.

APPENDIX II

Table B: DATA FOR THE CALCULATION OF THE (G) RATIO.

Year	Q	EX	IM
1964	96800.0	13883.0	19359
1965	101200.0	16296.0	23474
1966	108800.0	18618.0	26623
1967	120380.0	17088.0	25879
1968	124270.0	20505.0	29879
1969	141960.0	22526.0	30124
1970	170330.0	25406.0	36737
1972	204731.0	28353.0	45176
1973	262710.0	25427.0	45653
1974	433890.0	43804.0	94489
1975	483890.0	39978.0	60786
1976	599460.0	49272.0	73247
1977	730130.0	47795.0	92072
1978	109171.0	48344.0	110912
1979	1177080.0	53072.0	100990
1980	1453140.0	67148.0	129955
1981	1764640.0	74495.0	105125
1982	2044880.0	67794.0	105198
1983	2281700.0	77698.0	103772
1984	2796930.0	85746.0	133819
1985	3382970.0	103360.0	150769
1986	4097210.0	168569.0	168569
1987	4772700.0	108967.0	202314
1988	4972314.0	111210.0	196315

Q = manufactured output in thousand K.sh.
EX = manufactured exports in thousand K.Sh.
IM = Manufactured imports in thousand K.sh.
* The figures in this appendix have not been deflated.
** The formulae used in the calculation of the G - ratio is

$$G = X^*/(X^* + X^m - X^e)$$

X^* = Domestic production X^e = Manufactured exports X^m = Manufactured imports.

APPENDIX III

LOG FORM OF THE DATA USED IN THE ANALYSIS.

LMVA	LPI	LPP	LMEX	LG	LDFI	LGE
1.750937	8.274383	2.217027	7.918920	-0.055513	-1.427116	5.352332
1.773256	8.252889	2.254445	8.063913	-0.068279	0.405465	5.495117
1.943049	8.234618	2.280340	8.332260	-0.071496	-1.500584	5.728475
1.978239	8.239065	2.314514	8.267721	-0.069350	0.601032	5.680855
2.099244	8.286572	2.349469	8.463096	-0.073647	0.490419	5.842675
2.284421	8.302762	2.386926	8.557087	-0.064005	0.272315	6.052560
2.463002	8.342340	2.418589	8.732143	-0.065072	0.188138	6.169192
2.688528	8.370153	2.457022	8.885994	-0.079043	0.123986	6.427507
2.978586	8.426918	2.490723	8.804160	-0.072571	0.926241	6.723712
3.539509	8.459585	2.524127	9.279148	-0.062940	0.841998	6.800170
3.593469	8.440485	2.558002	9.608666	-0.094311	0.875469	7.168118
3.967269	8.436049	2.596001	9.644166	-0.041864	0.883768	7.659690
4.435093	8.471673	2.628285	9.981836	-0.038741	2.142417	7.973672
4.804349	8.526232	2.663750	10.09863	-0.058689	2.484907	8.171261
4.841033	8.576367	2.700018	10.13409	-0.055513	2.444085	8.562014
5.028017	8.583411	2.729812	10.29062	-0.040822	2.857619	8.880373
5.259784	8.554027	2.813611	10.61872	-0.041864	2.882060	9.039303
5.502605	8.551440	2.853016	10.82396	-0.017146	1.461866	9.421711
5.729093	8.556222	2.892592	10.84451	-0.018164	1.682317	9.627266
5.854699	8.518493	2.932260	11.05356	-0.011061	2.552643	9.576212
6.094698	8.499192	2.972464	11.27031	-0.017146	1.959531	9.875700
6.296741	8.499477	3.012098	11.54597	-0.014099	2.697933	10.07702
6.499486	8.527282	3.052113	11.73537	-0.013085	3.367365	10.38749
6.685311	8.503095	3.132882	11.74722	-0.019183	4.170997	10.67966
6.922930	8.521803	3.173041	11.78311	-0.017146	2.363398	10.78793.

BIBLIOGRAPHY

1. Ahluwalia, I.J "Industrial growth in India; performance and prospects", <u>Journal of Development Economics,</u> 1986, pp 1-18.

2. Balassa, B "Patterns of Industrial Growth"<u>American economic Review</u> June 1961.

3. Chenery, H.B "Patterns of Industrial Growth" <u>American economic review</u>, september 1960.

4. _____. and L. Taylor "Development patterns: Among countries and over time" <u>Review of Economics and Statistics</u>, Nov 1968

5. Coughlin, P "The Kenya steel and steel related industries: A programme for domestic and export promotion". Monograph. Industrial research project (UON)

6. ——————, " Towards a new industrialization strategy in Kenya,in P.Coughlin and G.K Ikiara (ed)" in <u>Industrialization in Kenya: in search of a strategy.</u> Heinemann (1988).pp 275-303

7. ——————, " Moving to the next phase?" in R . Riddel(ed) <u>Manufacturing Africa; Performance and prospects of seven countries in sub-saharan Africa</u> (IDO)

8. Hecox, W. E "Structural Adjustment, Donor conditionality and Industrialization in Kenya", in P.Coughlin and G.K Ikiara(ed),<u>Industrialization in Kenya: In search for a strategy.</u> Heinemann Kenya(1988).pp 190-217

9. Hirschman,A.O " The political Economy of Import substitution industrialization in Latin America. <u>Quarterly Journal of Economics (1968)</u>

10. Hopcraft, P. "Outward Looking Industrialization: The promotion of manufactured exports from Kenya". IDS(Nairobi) Discussion paper No. 141.

11. _____, "Industrialization, Balance of payment and Trade Policy in Kenya: The Effect of protection and Government intervention on prices, exports and income Distribution" IDS, University of Nairobi.

12. Hoselitz, B.F " Some problems in the quantitative study of industrialization." <u>Economic Development and Cultural Change</u>,April (1961).

13. Ikiara, G.K "The Role of Government Institution in Kenya's Industrialisation process". In P.Coughlin and G.K Ikiara(ed): <u>Industrialization In Kenya: In Search of A Srategy.</u> Heineman Kenya, 1988.

14. Johnston,G.H <u>Economics Policies towards Less Developed Countries.</u> Unwin Books (1967).

15. Kaplinsky,P. " Fractions of capital and accumulation in Kenya" IDS (Sussex).

16. Kenya Govt. Sessional Paper No.10 of 1965. Government Printer, Nairobi,1965

17. _____.Development Plans - various issues, Government Printer, Nairobi

18. _____, Sessional Paper No.1 of 1986. Government Printer, Nairobi 1986

19. _____, Economic Survey - Various issues, Government printer, Nairobi

20. Kilby, P. "Kenyan Manufacturing Sector". Kenya Basic Economic Report,1979.

21. Killick ,T <u>Papers on the Kenyan Economy: Performance, Problems and Policies</u>, Nairobi. Heineman(1981).

22. Kim, C.H "The concept and social position of management Elite in contemporary Kenya: with special reference to Africanisation" IDS (Nairobi). WP No. 431

23. Koutsoyiannis, A. <u>Theory of econometrics</u>, Mcmillan Education LTD, 1977

24. Kuznets, S. <u>Quantitative Aspects of Economic Growth of Nations.</u> Industrial Distribution.(1957).

25. Low , P Export subsidies and Trade Policy: The Experience of Kenya"<u>World Development</u> VOL .10 (1982).pp 293-304

26. Metwally, M.M "Sources of Growth of Maltese Manufacturing Industries". <u>World Development.</u> (1977).pp 747-752.

27. Mountjoy, A.B. <u>Industrialization and Underdeveloped countries.</u> Hutchingson University Library, London 1963.

28. Mwaura , Z.N <u>Kenya Industrialization Strategy.</u> Ministry of Planning and National Development.

29. Nelson, R.R ` Research on Productivity Growth and Productivity Differences; Dead Ends and New Departures" <u>Journal of Economic Literature</u> vol. XIX. NO. 3 pp. 213 -243

30.   Nishimizu, M.and Robinson. S.   "Trade policies and Productivity Changes in Semi- Industrialized Countries <u>Journal of Development Economics</u> 16 (1984) pp. 177-206.

31. Phelp, M.G and Wasow, B. "Measuring Protection and its effects On Kenya". Working paper no.37 University Of Nairobi.

32. Ravi. G and Uday.S " Industrial strategy for late starters: The experience of Kenya, Tanzania and Zambia". <u>World development</u> Vol.10 No.11 (1982) pp 949-972

33. Riddell. R.C (ed). <u>Manufacturing Africa- performance and prospects of seven countries in sub-saharan Africa,</u>

34. Rosentein-Rodan,P.N. <u>How to Industrialize an Underdeveloped Area</u>, Cambridge, 1965.

35. Schimitz, H "Industrialisation Strategies in Less Developed Countries: Some Lesson of Historical Experience". <u>Journal of Development Studies.</u>(1984).

36. Shaaeldin, E "Sources of Industrial Growth in Kenya,Tanzania, Zambia and Zimbabwe". <u>African Development Review.</u>(1989). pp 21-40

37. Shumpeter, J.A <u>The Theory of Economic Development</u>, New York, 1961

38. Story, D "Time Series Analysis of Industrial Growth in Latin America: Political and Economic Factors". <u>Social Science Quarterly.</u> Vol.61 (1980).pp 293-307

39. Sutcliffe, R.B <u>Industry and Underdevelopment</u>. Addison Wesley Publishing Company. Inc. (1971).

40. Telenson, A and Scott, J.G <u>Kenya: Country Study and Norwegian Aid Review,</u>Nairobi, (1987).

41. Temin, P "A Time Series Test of Patterns of Industrial Growth" <u>Economic Development and Cultural Change</u> (1967). pp 174-182

42. Thirwal, A.P <u>Growth and Development with Special Reference</u>

to Developing Countries.(1953).

43.   Tybout, J.R. "Researching the Trade/Productivity Link: New
      Directions. World Bank Research Project,1986.

44.   United Nations A Study of Industrial Growth. Department of
      Economic and Social Affairs). New York (1963).

45.   World Bank, Kenya Policies and Prospects for Restoring
      Sustained Growth of Per Capita Income. 1986.

46.   _____, Kenya: Industrial Sector Policies for Investment
      and Export Growth. Report No. 6711-KE. VOL I and II.

47.   _____, Recent Economic Development and Selected policy
      Issues. 1988.