GOVERNMENT POLICY FOR PROMOTION OF INDUSTRIAL DEVELOPMENT IN THE SUDAN.

by

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Department of Economics,
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1978.
The main purpose of this study is to find out whether the policies adopted by the government to encourage industrialization have really helped to accelerate industrial sector growth or not. This can be found if an analysis of the industrial sector is made to see what type of industries was established with the help of these policies.

Different tools of analysis were used in this study. One is the concept of Effective Rates of Protection which is defined as the percentage excess of domestic value added over world value added resulting from the imposition of a tariff on imported commodities. This is used to see whether or not industries in the Sudan are getting excessive rates of protection.

The other is a questionnaire approach where owners or managers of factories were investigated about the main reasons which influenced them to invest in industry, to see to what extent has government policy influenced these decisions. Also about the factors which has lead to the poor achievement of industry in spite of the amount of these concessions.
The second chapter of this thesis gives a description of the Sudanese economy, and the main features of the industrial sector. This includes the distinction between the roles of the private and public sectors in industrial development; location of industry in different regions of the country; classification according to size of units and the relative contribution of each sector to GDP. The obstacles which hinder industrial development is also analysed. These are mainly an inadequate transport system, shortages of skilled manpower and power failures.

Two types of government policies are distinguished, one is the system of incentive, the other is tariff protection. Each is discussed in a separate chapter.

Chapter three describes and analyses the role of the different concessions granted as incentives to encourage investment in domestic industry. The first investment Act in the Sudan was issued in 1955, followed by three others. All of them give generous concessions to industry in the form of Business Profit Tax relief, exempted from duties on imported machinery, spare parts and raw-materials, and provision of cheap prices for land and
other infra-structural facilities. The role of incentives in encouraging industrial development was also discussed. This was further analysed with the help of a questionnaire. It was found that although government policy was not the main factor which determined the decision to invest in industry, but its role is always taken into consideration by entrepreneurs when making such decisions. Although the concessions given to industries are very generous, but there are some factors which hinder the industrial sector from achieving the prescribed goals. This is mainly the conflict between the declared industrial goals as can be seen from the criteria for choosing different projects and the concessions granted to industries which will sometimes lead to the adoption of a different policy. This is clear in the case of the concession of reduction if import duties or raw materials which has led to the creation of industries that are depending largely on imported raw-materials, while one of the goals of industrial policy is to encourage the use of local raw-materials. The relief from Business Profit Tax and depreciation allowances has reduced the
relative price of capital leading to the adoption of capital-intensive techniques. Also the work of these incentives is affected by the problems and obstacles in the economy.

Chapter four is about tariff protection in the Sudan. In the first section it shows different arguments for protection and how it has come to be a suitable policy for the conditions of the Sudan. A quantitative measure of the degree of protection was made with the help of effective rate of protection.

The results support the view that Sudanese industries are enjoying very high rates of protection. This is worsened by the fact that there is no limitation to the protection period. It is now widely known by many economists that high rates of effective protection are harmful to the economy, because it will lead to the establishment of inefficient industries working at high cost of production. Protection of inefficient industries is a waste of the natural resources of the country which can be used in a more economic production. Other defects of protection
is the discrimination against export. Excise taxes on domestic production has the effect of reducing effective rates of protection. But the problem in the Sudan is that these taxes are levied very high on some commodities and low on others, without any specified criteria.

The fifth chapter examines the role of import-substitution as a strategy for industrialization. Import-substitution policy was widely adopted by many LDCs as a first stage of industrialization. The main reason is the already available demand for the product which is further assured by foreign import restriction. There are many problems connected with the adoption of such policy especially in the Sudan, where the size of the market is limited because of both the small size of the population and the low level of per capital income. The small size of the market will not make it possible for industry to make use of the advanced techniques and cost reductions associated with large-scale production. Also there is always a limit to the commodities that can be produced for a small market. In the Sudan the limitation
of the market has led to factories working with excess capacity and this will add to the production costs. Working below capacity is also the result of other economic handicaps which are lack of sufficient foreign exchange funds to import all needed raw materials and spare parts. The other is the inefficiency of the transport system especially from Port Sudan to the interior where the railways track is always washed by the rains. This had lead to delays in the arrival of raw materials to industries depending on them and thus leading to many factories stopping production. Even when the local raw materials are used such as in oil industry, the insolvency of peaking time can stop production.

After discussing all the facts and problems of industry policies in the Sudan it is recommended that import substitution policy should not be deliberately encouraged, rather an industrial policy which increases the linkage effects between industry and other sectors should be adopted. The first stage to this policy can be the reduction in the rates of protection and determination of its period.
I would like to express my gratitude to my supervisor, Doctor Sayed M. Nimeri, for his valuable advice, constant help, guidance and encouragement throughout the period of this study. I am also grateful to my co-supervisor Doctor Sayed Bashir for his frequent help and advice.

My thanks to all the members of the University of Khartoum who have greatly helped me with their experience and valuable suggestions, and in particular to A. Guliman, and Siddig M. Ahmed.

My greatest gratitude is to Doctor M. A. El Agaily for his great help and advice while I was using his input/output tables of the Sudan.

My thanks are extended to my friends Miss Allia R., Mr. El Din and Sayed A. Moneim Mahgoub in the Department of Statistics who have greatly helped me in data collection and processing. A special gratitude is due to the private firms, individuals and Government Departments which helped by supplying information for this inquiry.
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export of primary products because of the problems associated with such exports.

Through the operation of Engel's Law, viz. the relatively lower income elasticities of primary products, these countries are getting lower incomes especially if they have to use their earnings from export to import other manufactured goods.\(^{(1)}\)

In addition there is the competition from synthetics and the fluctuations in yield, hence the earnings of primary products which will have a significant effect on the stability and growth of the economy.

Industrialization is always linked with development from the experience of advanced countries, where high levels of per capita income were obtained through industrialization.

Other advantages of industrialization is the creation of backward and forward linkage effects. A thing which is not found in other sectors.

We can distinguish between two patterns of industrialization, namely import substitution or export promotion. The export approach has been adopted, with some degree of success, by many LDCs including South Korea, Hong Kong and Taiwan. This approach is somewhat difficult because the commodities manufactured for export will face competition from an already well-established products in the foreign markets.

The second approach to economic development is the domestic production of manufactured goods for the domestic market. This approach is largely adopted in most of the less developed countries taking advantage of the already existing market which is now closed to foreign imports. Through import restrictions domestic producers would be sure of the existence of a well-known market without fear of competition. This will lead to an increase in domestic production. However, such industries will be depending heavily on the imports of raw materials, machinery and capital equipment which will not lead to any savings in the foreign exchange resources.
Instruments of Industrial Policy:

Once industrialization is recognized as a convenient policy for economic development, the government has to find the appropriate means and methods which will easily help the transformation of resources from other sectors of the economy. Since in a mixed economy the government cannot directly control the economic system, some rules and incentives are to be forced, which will lead to an increase in the amount of capital invested in industry. These rules can reflect the government opinion towards the objectives of industrialization priorities given to certain industries and the attitude towards private foreign investment.

Investment is generally encouraged by removing the obstacles and disadvantages of this sector to make it look more attractive to foreign and local investors.

Two categories of instruments of industrial policy aimed towards the achievement of a strong industrial base are known, one is the system of industrial incentives, the other is the system of protection.
The system of incentives consists of some exemptions from Business Profit Tax or any other form of tax holidays, depreciation allowances, reductions in the customs duties on machinery and equipment. Non-tax incentives are provisions for easier financial terms, a piece of land at reduced price and cheaper rates of transport and electricity. The system of incentives reduces the cost of production to the producer. Its work is mainly on the supply side in contrast with protective measures, which involve a reduction in the size of the domestic market.

Protective measures depend on the use of tariffs on imported products and reduction of taxes on the imported raw materials. The tariff will enable the domestic producers to sell at high prices which equal to the foreign price plus the amount of the tariff. The system of protection tends to reduce the size of the market, since smaller quantities are usually purchased at higher prices.

There are other non-tariff measures which include total restriction of imports and quantitative restrictions in the form of import quotas, import licensing and exchange control.
Chapter (2)

The Manufacturing Sector

(1) Main Features of the Sudan Economy

The Sudan is a large country with an area of one million square miles and population of 16 million. The economy of the Sudan is a dual economy in the sense that a large traditional sector exists side by side with a modern sector. Such dualism is exhibited in technological, social and financial differences between the two sectors. The advanced exchange sector is characterized by better functioning markets where money transactions predominate producing with relatively more advanced techniques of production and financial institutions. At the same time the traditional sector is producing only for subsistence, and where money has little or no role to play, primitive techniques of production are used. Dualism results from the sudden eruption of twentieth century techniques into primitive
societies which need a large time to adapt to this new technology. (1)

Over 85% of the population depends on traditional means of production, either herding and cultivation of crops or primary industry activities; while the contribution of both sectors to Gross National Product is almost equal. (2) This means that 15% of the population in the modern sector contributes the same percentage to G.N.P. as 85% of population in the traditional sector. This large contribution of the modern sector is the result of higher productivity which is the natural outcome of modern technology and skilled labour.

Table 1 shows the total domestic product in the modern and traditional sectors. The table also shows that per capita income does not exceed Le 37


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of Gross Domestic Product. Its contribution to GDP accounted for 33% in 1966/67 while the maximum contribution of 41.4% was reached in 1973/74. The average contribution is 38%. Meanwhile the role played by industry in the economy is considered very minor and its average share in GDP is only 10%. 

The country is largely dependent on cotton as the main cash crop for export and foreign exchange earnings. The government revenue depends heavily on cotton proceeds; and so does most of the economic activities in the country. The percentage of cotton in the annual exports of the country was estimated on average at 58%. In 1971 it was 61.1% but from there on it continued to deteriorate to 35.5% in 1974 but it again rose to 46% in 1975. This deterioration of the share of cotton in exports was mainly due to the expansion of production.


and export of other crops such as Gum Arabic, ground-nuts and sesame. (1) This policy of introducing other crops started in 1973 after the low demand for cotton consumption accompanied by low prices for cotton led to a sharp decrease in the total amounts of sales of Sudanese Cotton. The fall in demand for cotton was attributed mainly to the world economic recession during the last few years which led to a decline in the demand for textiles. The competition from human made fibres was also responsible for this. The decline in cotton demand was noticed despite the fact that cotton fabrics dominated the fashion world during the last few years.

Even with the introduction of other crops, the economy is still highly dependent on cotton, and cotton exports still form the bulk of total exports.

(1) Economic Survey 1975/76.
The dependence of the Sudan, like many less-developed countries, on the earnings of primary products exports, and on one particular crop as their main source of national income, is very dangerous to its economy making it highly unstable because of the fluctuations in the earnings of these exports from year to year.

These fluctuations stem from many factors. The first in importance is that prices are determined externally according to the world market supply and demand of the commodity. Secondly, on the supply side there is uncertainty about quantities produced which change with weather and other climatic conditions every year. (1) Thirdly, while prices of primary products are deteriorating, those of manufactured products to be imported by the countries are rising thereby leading to balance of payments deficits.

The Sudan is very rich in natural resources such as land, irrigation water and animal resources which are not fully exploited. Cultivable land in the Sudan is estimated to be 200 million faddans while the area under cultivation do not exceed 77.5 million faddans or 33.5%. (1) Most of the agricultural production is carried on a very small scale using primitive methods of production which result in that the productivity per faddan is much less than the world known standards.

Now the resources of the country and the chances of greater success in investments that can make of these resources is fully recognised by many foreign investors, mainly those from the rich oil-exporting Arab countries. They look at the Sudan as their future main supplier of food stuff, textiles and sugar. With a combination of Arab money, western technology, Sudan’s land, and the cheap labour from

both Sudan and Egypt much can be done. (1) Many plans are now under study or under implementation for investing in many fields of economic activity.

The Manufacturing Sector

Industrialisation was thought of in the Sudan, as in most underdeveloped countries, as a means of achieving economic development and a high level of per capita income. It was also considered as a source of increasing employment in the country, and of diversifying its earnings so that the Sudan will no longer depend on agricultural crops. In this part I will consider the history of industry in the Sudan, its main features and problems which hinder its development.

History of Industrial Development

Modern industry appeared only with the intensified cultivation of cotton in 1925 and the establishment of a few ginneries in different parts of the


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country. By 1933 twenty one gineries were operating the Sudan. During the second world war, in 1942, British colonies were asked to establish some industries so as to meet the demand for consumption goods, because British factories which had turned to war production could no longer satisfy it. So by that time oil mills for crushing cotton seed and soap manufacturing were the first group of industries to come into existence. (1)

In the early fifties some industries were established which included shoes manufacturing, cigarettes and beverages. These industries were mainly undertaken by private domestic and foreign investors. Thus we find that before the country has attained its independence in 1956 industry has played a negligible

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1) C.H. Saeed, *Industrial Development strategy in the Sudan*, a paper presented to seminar on the role of the Public Sector in the Economic Development of Africa (Cairo 20 May - 29 June 1972.)
role in the economy. In fact its contribution to G.D.P. accounted only for one per cent. By that time the policy of the government aimed at encouraging the private sector, both foreign and domestic, to take the lead and invest in industry. The Approved Enterprises (Concessions) Act, was passed in 1956 and it contained generous incentives to encourage the private sector to invest in industry. Following this Act many industries have been established, mainly to meet the domestic demand for some essential goods such as textiles, shoes, food and beverages.

Until 1960 the investment of the public sector did not exceed three per cent of the total volume of investments in industry undertaken in the country. In 1961 the government decided to enter the field of industry by investing in some industries. This change in government policy was justified on the ground that there were some vital industries which were needed for economic development, and that the private sector would not invest in these industries because of the large amounts of capital needed.
By 1970 the government owned nine factories. These were Kerima Date Factory, Khartoum Brewery, Cunied and Khushim Al Girba Sugar Factories, Aruma Cardboard Factory, Kerima and Raw Fruits and Vegetables Cannning Factories, Kiasalla Guise Dehydration Factory and Bahamasa Milk products Factory.

The Government Industrial Board was established in 1962 in order to help in the management of these nine factories. This board was replaced in 1965 by the Industrial Development Corporation.

In spite of the public sector's increasing share in industrial investment, the government continued to encourage the private sector to invest in the field of industry by providing fiscal and other incentives to industries. These incentives include exemptions from Business Profits Tax, full or partial exemption from import duties on machinery, spare parts and raw materials and many other facilities which will help the industrial unit to start inspite of the poor infrastructural system in the country. In order to help the private sector to overcome the problems of shortage of finance, the government established the
Industrial Bank of the Sudan in 1962 to provide medium and long term loans as well as technical assistance(1).

The share of industry and handicraft in Gross Domestic Product continued to increase rapidly. It was 4% in 1960. In 1965 it was 5.4% and it reached 7.1% in 1968. In 1970 many manufacturing enterprises were either acquired or nationalized following the Acquisition Act on April 1970 and the Companies Nationalization Act, May 1970. As a result, the public sector’s total investment jumped from about Ls 23.3 million to Ls 49 million.

In spite of these undertakings of companies by the public sector, the government continued to encourage private sector investment in industry. The Five Year Plan of Economic and Social Development (1970 - 75) projected an amount of Ls 23 million to be invested by the private sector. The 1972 Act (The Development and

Promotion of Industrial Investment Act, 1972) and the 1974 Act (The Development and Encouragement of Industrial Investment Act) gave further assurance that the government still encouraged private investment in the same way it used to do before nationalisation. The Six Year Plan (1977 – 83) was launched in July 1977 with the ambitious attempt of transferring the economic and social conditions of the country of the world's least developed to that of prosperity and modernisation. The plan aims at building suitable industrial base and providing services and infrastructural facilities in different production areas. The main objectives of the plan include the continuation of the self-sufficiency policy declared in the previous Five Year Plan (1970 – 75) and the starting up of the new phase of production for exports of some manufactured products. Other objectives are the regional distribution of industries throughout the Sudan and the development of rural areas through the modernization of traditional industries and handicrafts. (1) Unlike its predecessors

this plan allows a much wider scope for private investment, both domestic and foreign. The private sector will contribute 14% to industrial investment, the mixed (government-private) sector 26%, while the remaining 60% will come from the public sector. Manufacturing and mining output is assumed to increase by 9.5% a year, but its share in GDP is projected to grow only from 9% to 10%. Most foreign businessmen and Sudanese critics think that all the plan figures were overstated.

Main Features of Sudanese Industry

Industry's share in the Sudan economy continued to increase steadily year after year. Although detailed statistical data are missing, the manufacturing, handicrafts and mining sector accounts for about 4% of employment in the economically active population. Investment in industry has increased from LS 7 million in 1956 to LS 107 million in 1969. In the following analysis of the industrial sector, it will depend, to some extent, on the 1970/71 and the 1973 Industrial Surveys. The 1970/71 Industrial Survey made by the Industrial Development Corporation for Arab Countries constitute the only available data about the industrial sector.

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Classification of Industry by Ownership

According to the 1970/71 Industrial Survey which covered industry in the whole country, and in a sample of 209 establishments, the share of the public sector accounted for 26.8% of the number of establishments, 53.1% of employment, 50.2% of total wages, 51.6% of the aggregate value of production (at factor cost), 53.1% of the value added, and 59% of capital invested.

These percentages should be taken as indicative only because the 1970/71 Industrial Survey covers all the public sector establishments but only selected samples of the private sector industries. (2)

The 1973 Industry Survey covered only establishments in Khartoum Province. According to that survey, the percentage of public sector establishments was 17.6%. The percentage of labour force was 25.7 percent, and 30.8% of wages were in the public sector. Percentage of total value added was 22.4% and that of capital invested.


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is 26.9%. Tables 2 and 3 show the relative importance of public and private manufacturing in the Sudan in 1970/71 and in Khartoum Province in 1973 respectively.

Throughout the industrial development, government policy was to encourage the private sector investment in industry and the government will only undertake these industries in which the private sector has no interest either because of the large amount of capital involved or because establishing the industry would mean attaining a social objective such as development of rural areas. In this case the social benefit will be large but the economic benefit will not encourage private investment.

If we compare tables 2 and 3 we notice that the percentage of government establishments in the country as a whole is 26.6% with total production of 51.6% while the percentage of public sector enterprises in Khartoum province is only 17.6% of the total number of industries and the percentage of production is 34.4%. This clearly shows that most of the government industries were established outside Khartoum Province with the purpose of creating an economic and social balance.
In 1961–68 the government had established 9 factories with a total capital investment of Rs 22.3 million. After the nationalization of some industries in 1970 this came to about Rs 49 million.

In 1969 total capital assets amounted to Rs 107 million with the private sector accounting for Rs 80 million or 75% of total industrial investment. (1)

After the nationalization of 1970/71 the public sector held a dominant position in the following subsectors:

1. Food, Beverages and Tobacco 80.5%
2. Textiles, Tanneries and Leather products, 73.2%
3. Glass, Cement and Building Materials, 65.1%

The public sector held a perfect monopoly with a 100% share of the total paid capital in milk

products, fruit and vegetable canning, sugar, tobacco, tanneries, leather shoes, and car assembly. (1) In 1974, 14 companies operated by the Industrial Production Corporation, were fully returned to their former owners after the adoption of the denationalization policy. Also the sharp increase in the number of private sector establishments could be attributed to the improvement in the investment climate in general as a result of government assurance that there will be no nationalization in the future, and the expansion of investment loans through the various specialized institutions. The performance of some public sector enterprises is considered far below the planned level of production and profitability and this is attributed to the shortcomings in their management, lack of adequate or any project evaluation before the establishment of these factories. The management of these factories is in the hands of the Industrial Development Corporation and its branches. The difficulties facing these factories stem from that all the rights

(1) Ibid P. 60.
of decision making are concentrated in the hands of the managing director of IDC who finds himself lost in looking in the small details of official management and having little time for the planning and supervision of the industrial units. Inadequate performance is also due to the poor quality of the factory managers who had to consult the IDO headquarters in every problem facing the factory even if it needs a quick decision. (1)

### Relative Importance of Public & Private Manufacturing Industry in the Sudan (1970/71)

<table>
<thead>
<tr>
<th>Sectors</th>
<th>No of Establishments</th>
<th>Total Production (000 Ls)</th>
<th>Value Added (000 Ls)</th>
<th>%</th>
<th>No of Workers (000 Ls)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Public</td>
<td>56</td>
<td>42231</td>
<td>51.6</td>
<td>14565</td>
<td>53.1</td>
</tr>
<tr>
<td>2. Private</td>
<td>153</td>
<td>39661</td>
<td>48.4</td>
<td>12886</td>
<td>46.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>209</td>
<td>81892</td>
<td>100</td>
<td>27451</td>
<td>100</td>
</tr>
</tbody>
</table>

**Source:** Industrial Survey 1970, Ministry of Industry and Planning.

### Relative Importance of Public & Private Manufacturing in Khartoum Province 1972/73

<table>
<thead>
<tr>
<th>Sectors</th>
<th>No of Establishments</th>
<th>Total Production (000 Ls)</th>
<th>Value Added (000 Ls)</th>
<th>%</th>
<th>No of Workers (000 Ls)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Public</td>
<td>31</td>
<td>25601</td>
<td>34.4</td>
<td>5199</td>
<td>22.4</td>
</tr>
<tr>
<td>2. Private</td>
<td>145</td>
<td>48750</td>
<td>65.6</td>
<td>17999</td>
<td>77.6</td>
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<tr>
<td><strong>Total</strong></td>
<td>176</td>
<td>74351</td>
<td>100</td>
<td>23178</td>
<td>100</td>
</tr>
</tbody>
</table>

**Source:** Industrial Survey 1973 = Statistics Department, Industrial Statistical Office.

**Total Production:** Total Production at factor costs.
Relative Shares of Sub-Sectors

There are two main industrial sub-sectors which dominate the industrial sector of the Sudan. There are (1) Food, Beverages and Tobacco Industries sector and (2) Textiles, Apparel and Leather Industries sector. This feature is found in most under-developed countries where production is mainly for the consumption needs in the local market. According to the 1970/71 Industrial Survey, the subsector of Food, Beverages and Tobacco ranks first with 31.8% of total industrial investment, 48.8% of output, 32.6% of value added and 35.5% of employment. The second place is held by Textiles, Apparel and Leather which accounts for 33.5% of investment, 33.2% of output, 39.2% of value added and 36.9% of employment. (1)

These two sub-sectors account for between two thirds and three quarters of production in the modern manufacturing field and maintain a dominant position as the leading sub-sectors of industry in the Sudan; followed by the sub-sector of chemicals which accounts for 10.1% of total investment, 11.6% of output, and 8.8% of employment. (2)

(2) Ibid., P. 71.
Table 4 shows the relative importance of major branches of manufacturing industry in the Sudan, in terms of number of establishments, total production, value added, employment, wages and size of invested capital.

In terms of value added, employment and wages, textiles is the most important industry in the country. Prospects of success for the textiles industry appear to be very good. The raw material is available and the market is promising either inside or outside the country. (1) The Sudan's imports of cotton fabrics amounted to £10 million in 1970. In the 15 Year Textile Plan there is a proposed expansion in the manufacture of cotton fabrics and the export of cotton yarn. (2)

Second in importance is oil mills industry which produce edible oil and oil cakes mostly for the domestic market but also cater for export. Also prospects are


good for developing the shoes manufacturing for import substitution and for export if the quality is improved. This industry has large prospects of success because of the real and planned expansion in the leather tanning industry. The sugar industry has received much attention by the Sudanese government and many factories were projected to be established in the near future to satisfy the increasing domestic demand and for exports, after the local demand is satisfied. It is planned that in the future enough sugar will be produced to meet much of the demand in the Middle East, giving the Sudan a chance of having an alternative cash crop to cotton.

From this we notice that the industrial development in the Sudan is based on processing of agricultural products such as fruits and vegetable canning and in the production of textiles, and of shoes manufacturing from local leather. This agro-based industries create a linkage between the industrial and agricultural sectors. In the case of shoes making and textiles we have a vertical integration where leather is tanned then shoes are made from
<table>
<thead>
<tr>
<th>Branch of Industry</th>
<th>No. of Establishments</th>
<th>Total Production</th>
<th>Total Value</th>
<th>No. of Workers</th>
<th>Total Wages</th>
<th>Total Invested</th>
<th>Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Food, Beverages &amp; Tobacco</td>
<td>82</td>
<td>39.2</td>
<td>40029</td>
<td>48.8</td>
<td>8959</td>
<td>32.6</td>
<td>15195</td>
</tr>
<tr>
<td>2. Textiles, clothing &amp; leather industry</td>
<td>32</td>
<td>55.3</td>
<td>18991</td>
<td>23.2</td>
<td>10760</td>
<td>39.2</td>
<td>15707</td>
</tr>
<tr>
<td>3. Wood products and furniture industry</td>
<td>8</td>
<td>3.8</td>
<td>322</td>
<td>0.4</td>
<td>77</td>
<td>0.3</td>
<td>604</td>
</tr>
<tr>
<td>4. Paper printing &amp; publication ind.</td>
<td>12</td>
<td>5.7</td>
<td>2860</td>
<td>3.5</td>
<td>1433</td>
<td>5.2</td>
<td>2291</td>
</tr>
<tr>
<td>5. Chemicals petroleum &amp; coke ind.</td>
<td>35</td>
<td>16.8</td>
<td>9498</td>
<td>11.6</td>
<td>2844</td>
<td>10.4</td>
<td>3767</td>
</tr>
<tr>
<td>6. Non-metallic mineral products ind.</td>
<td>12</td>
<td>5.7</td>
<td>2520</td>
<td>3.0</td>
<td>1161</td>
<td>4.2</td>
<td>1763</td>
</tr>
<tr>
<td>7. Basic metal, all ind.</td>
<td>1</td>
<td>5</td>
<td>730</td>
<td>1.0</td>
<td>232</td>
<td>0.8</td>
<td>78</td>
</tr>
<tr>
<td>8. Metal products machinery &amp; equipment ind.</td>
<td>26</td>
<td>12.5</td>
<td>6858</td>
<td>8.4</td>
<td>1997</td>
<td>7.2</td>
<td>3034</td>
</tr>
<tr>
<td>9. Other manufacturing ind.</td>
<td>8</td>
<td>0.5</td>
<td>64</td>
<td>0.1</td>
<td>8</td>
<td>-</td>
<td>35</td>
</tr>
</tbody>
</table>

Total Manufacturing Industry: 269 | 100.0 | 81892 | 100.0 | 27451 | 100.0 | 27451 | 100.0 | 12947 | 100.0 | 102704 | 100.0 |

Size of Industrial Units

The criterion used for classification of the size of industrial units is based on the number of employees. The 1973 and 1974 Employment Surveys give the following classification:

<table>
<thead>
<tr>
<th>Size of Units</th>
<th>1973 Employment Survey</th>
<th>%</th>
<th>1974 Employment Survey</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50</td>
<td>568</td>
<td>73.4</td>
<td>317</td>
<td>50.3</td>
</tr>
<tr>
<td>50 - 100</td>
<td>120</td>
<td>15.5</td>
<td>120</td>
<td>26.3</td>
</tr>
<tr>
<td>100 &amp; Over</td>
<td>85</td>
<td>11.1</td>
<td>72</td>
<td>14.1</td>
</tr>
</tbody>
</table>


A different classification is provided by the 1970/71 Industrial Survey in which units employing 100 and over account for 35.4% of the total, those of 51 - 100 persons for 26.6% and those of 25 - 51 for 79% of the total. (1)

As can be seen from these surveys, the industrial sector is marked by the preponderance of small sized units which is a phenomenon of less industrialized countries. These small-scale industries (or handi-crafts) usually employ less than ten workers. They are mainly food processing, wood processing and textiles.

Most of the large industries are carried out by the public sector. However, with the expected increase in the size of industrial units in the Sudan, large sized industries will be of more importance in the public sector, especially after the government proposed investments in textiles, chemicals and sugar. Table (6) shows the size distribution of public and private sector establishments.

<table>
<thead>
<tr>
<th>Size of Units</th>
<th>Private Sector</th>
<th>Public Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>5 - 24</td>
<td>517</td>
<td>65.4</td>
</tr>
<tr>
<td>25 - 49</td>
<td>68</td>
<td>14.9</td>
</tr>
<tr>
<td>50 - 94</td>
<td>44</td>
<td>9.1</td>
</tr>
<tr>
<td>100 +</td>
<td>56</td>
<td>11.5</td>
</tr>
<tr>
<td>Total</td>
<td>485</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Large-scale production is more advantageous and inevitable in any country putting development and a higher per capita income as its primary goal. Large firms can acquire some industrial techniques which provide internal and external economies of scale. Internal economies of scale are usually associated with the use of a piece of capital equipment with the appropriate quantities of other resources. Large scale production makes it possible for the firm to produce output at reduced average costs. This reduction in cost stems from the specialization in production processes both for men and equipment and from the lower cost per unit associated with buying in bulk. External economies, in the form of skilled labour, low rates of electricity and transport, are greater when firms are using advanced production techniques.\(^{(1)}\)

\(^{(1)}\) Edith M. Whetman and Joan I Currie; *The Economics of African Countries*, Cambridge, 1971.
### Table 7

**Manufacturing Industries By Province**

<table>
<thead>
<tr>
<th>Province</th>
<th>No.</th>
<th>%</th>
<th>Lsd</th>
<th>%</th>
<th>Value Added</th>
<th>Lsd</th>
<th>%</th>
<th>No.</th>
<th>%</th>
<th>Lsd</th>
<th>%</th>
<th>Lsd</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khartoum</td>
<td>153</td>
<td>73.2</td>
<td>54,414</td>
<td>66.1</td>
<td>16,885</td>
<td>61.9</td>
<td>27,653</td>
<td>64.1</td>
<td>6,693</td>
<td>67.2</td>
<td>48,451</td>
<td>47.2</td>
<td></td>
</tr>
<tr>
<td>Blue Nile</td>
<td>18</td>
<td>8.6</td>
<td>13,319</td>
<td>16.3</td>
<td>5,232</td>
<td>19.1</td>
<td>8,541</td>
<td>19.9</td>
<td>1,850</td>
<td>14.3</td>
<td>24,935</td>
<td>24.3</td>
<td></td>
</tr>
<tr>
<td>Kordofan</td>
<td>16</td>
<td>7.7</td>
<td>1,366</td>
<td>1.7</td>
<td>545</td>
<td>2.0</td>
<td>928</td>
<td>2.2</td>
<td>202</td>
<td>1.6</td>
<td>2,661</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Darfur</td>
<td>3</td>
<td>1.4</td>
<td>157</td>
<td>0.2</td>
<td>31</td>
<td>0.1</td>
<td>134</td>
<td>0.3</td>
<td>10</td>
<td>0.1</td>
<td>170</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Northern</td>
<td>5</td>
<td>2.4</td>
<td>2,146</td>
<td>2.6</td>
<td>859</td>
<td>3.1</td>
<td>1,140</td>
<td>2.7</td>
<td>379</td>
<td>2.9</td>
<td>4,575</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>Kassala</td>
<td>13</td>
<td>6.2</td>
<td>10,398</td>
<td>12.7</td>
<td>3,772</td>
<td>13.7</td>
<td>4,164</td>
<td>9.7</td>
<td>1,591</td>
<td>13.0</td>
<td>20,786</td>
<td>20.4</td>
<td></td>
</tr>
<tr>
<td>Behr El Gzel</td>
<td>1</td>
<td>0.5</td>
<td>362</td>
<td>0.4</td>
<td>127</td>
<td>0.5</td>
<td>263</td>
<td>0.6</td>
<td>122</td>
<td>0.9</td>
<td>924</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td><strong>Total for the 7 Provinces</strong></td>
<td>209</td>
<td>100.0</td>
<td>83,592</td>
<td>100.0</td>
<td>27,451</td>
<td>100.0</td>
<td>42,823</td>
<td>100.0</td>
<td>12,947</td>
<td>100.0</td>
<td>102,704</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Industrial Survey 1970.
<table>
<thead>
<tr>
<th>Industry</th>
<th>No. of Establishments</th>
<th>Total Output</th>
<th>Value Added</th>
<th>Number of Employees</th>
<th>Wages</th>
<th>Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food, Drinks &amp; Tobacco</td>
<td>104</td>
<td>75,296.4</td>
<td>5,293.1</td>
<td>61.4</td>
<td>7,296.4</td>
<td>53.9</td>
</tr>
<tr>
<td>Textile</td>
<td>19</td>
<td>13,532.1</td>
<td>6,512.7</td>
<td>60.5</td>
<td>9,924.7</td>
<td>73.9</td>
</tr>
<tr>
<td>Wood &amp; Wood Products</td>
<td>8</td>
<td>100.0</td>
<td>77.0</td>
<td>100.0</td>
<td>60.0</td>
<td>71.8</td>
</tr>
<tr>
<td>Paper &amp; Printing Industry</td>
<td>11</td>
<td>91.7</td>
<td>2,860.1</td>
<td>99.5</td>
<td>1,439.1</td>
<td>99.0</td>
</tr>
<tr>
<td>Chemicals and Petroleum</td>
<td>21</td>
<td>88.5</td>
<td>6,366.7</td>
<td>67.0</td>
<td>1,343.7</td>
<td>47.2</td>
</tr>
<tr>
<td>Non-Metallic Industry</td>
<td>9</td>
<td>75.0</td>
<td>694.1</td>
<td>27.5</td>
<td>346.1</td>
<td>29.6</td>
</tr>
<tr>
<td>Metallic Industry</td>
<td>1</td>
<td>100.0</td>
<td>729.1</td>
<td>100.0</td>
<td>232.1</td>
<td>78.0</td>
</tr>
<tr>
<td>Machine &amp; Equipment Ind.</td>
<td>221</td>
<td>84.6</td>
<td>1,482.1</td>
<td>65.0</td>
<td>1,439.1</td>
<td>75.0</td>
</tr>
<tr>
<td>Other Industry</td>
<td>1</td>
<td>100.0</td>
<td>69.1</td>
<td>100.0</td>
<td>8.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Total</td>
<td>293</td>
<td>73.2</td>
<td>54,314.6</td>
<td>66.1</td>
<td>51,514.6</td>
<td>61.5</td>
</tr>
</tbody>
</table>

**Note:**
1. Total output at factor cost.
2. Percentage of branch in Khartoum Province related to total of branches in the seven provinces.

**Source:** Industrial Survey 1973.
There are some economists who claim that the development of small-scale industries are more suitable to the nature of the economy and society of most African and underdeveloped countries. (1) Many arguments were given on this subject. The main one is that by encouraging small scale industries, underdeveloped countries can develop a technology adjusted to the endowment of the country, and that they can be extended to large scale producing units. Other arguments are the small size of markets and that the people advocate personal ownership as the only way of investing their savings. This ownership can only produce small scale industries.

For the Sudan small scale industries has to be developed for production in rural areas and small towns but large-scale industries has to play a major role specially when the country is to gain from the benefits of producing for export. The importance of the relatively larger industrial units (employing more than 100

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A very important point in encouraging small-scale industries is that they are usually more labour intensive industries. Creating more jobs is one of the objectives of industrialization in the country. But we find that the relatively larger industries provide 84.3% of employment. This can be the right type of industries to be encouraged in the Sudan. Considering employment in the whole sector we find that by 1970, the percentage of workers employed in the manufacturing sector in Sudan is only 5% of the total labour force. This can be attributed to that the percentage share of the manufacturing sector is so small that whatever happens regarding its contribution to employment creation, the net impact on general employment will be insignificant. (1)

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Table 2a

Relative Capital Intensity by Sub-sector of Industry.

<table>
<thead>
<tr>
<th>Sub-Sector</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Food and Allied Industries</td>
<td>188</td>
<td>85.1</td>
<td>26</td>
<td>11.8</td>
<td>7</td>
</tr>
<tr>
<td>Textile &amp; Leather</td>
<td>56</td>
<td>190.3</td>
<td>4</td>
<td>6.5</td>
<td>2</td>
</tr>
<tr>
<td>Wood and Furniture</td>
<td>23</td>
<td>88.5</td>
<td>3</td>
<td>11.3</td>
<td>-</td>
</tr>
<tr>
<td>Paper and Printing</td>
<td>26</td>
<td>87.7</td>
<td>2</td>
<td>6.7</td>
<td>2</td>
</tr>
<tr>
<td>Chemical</td>
<td>36</td>
<td>76.6</td>
<td>11</td>
<td>23.4</td>
<td>-</td>
</tr>
<tr>
<td>Non-Metallic Minerals</td>
<td>16</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Basic Metal and Metal Produce Industry</td>
<td>2</td>
<td>50</td>
<td>2</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>Engineering</td>
<td>55</td>
<td>80.9</td>
<td>10</td>
<td>14.7</td>
<td>3</td>
</tr>
<tr>
<td>Other Industries</td>
<td>5</td>
<td>83.3</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Sub-Totals</td>
<td>407</td>
<td>84.8</td>
<td>58</td>
<td>17.1</td>
<td>15</td>
</tr>
</tbody>
</table>

The table shows that 84.8% of the industries have a capital investment of £5 - 99 thousand while those in which invested capital is more than 9 million pounds is only 3.1 per cent of the total.

The 1974 Employment survey reveals that the 24 establishments of the public sector have total fixed assets of £5,903,000 or an average of £245,045 per unit, as against 480 units of the private sector with fixed assets totalling £58,708,000 or £121,047 per unit. However, when the numerous small units within the private sector are excluded, the capital intensity of the large units may approach that of the public sector enterprises.

Regional Distribution of Industry

Most of the manufacturing activity in the Sudan is concentrated in Khartoum Province. From a sample of 209 establishments in the 1971 Industrial Survey, covering all firms which employ 25 workers and over, Khartoum area accounts for 73.2% of all establishments, 47.2% of total investment, 64.6% of employment, 66.1% of production, 61.5% of value added and 64.6% of total wages. Tables 8 and 9 indicate the extent of the
dominance of Khartoum Province in all aspects of manufacturing in the country.

This phenomenon of concentration of industries in one area is very common in underdeveloped countries, and unless governments attempt to control the location of industry, manufacturing tends to concentrate in one or two urban centres. (1)

Concentration of industries in one area can lead to external economies which have an important influence on the location of new industries and firms. Under competitive conditions, a producer must select that location for his business where he can produce at the lowest possible cost. (2) If a new firm opens in an industrial area near to a large town, it may well find transport, water, electricity and telephones already available; there may be a pool of unemployed men who are accustomed to factory work; a new firm may therefore save some of its fixed costs, otherwise used in providing these facilities. The advantages of such facilities can help to draw new

(2) Ibid. p. 65.

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firms to the well-established industrial centres and discourage new industries from settling in rural areas which lack these external economies.

Khartoum province provides a typical case of regional industrial concentration where 70% of the number of industries is established there.\(^1\) The Khartoum three towns have attracted a large number of industries in the Sudan, despite the fact that other regions are more suitable for industrial development in terms of electric power and raw materials.\(^2\)

Many factors can explain why Khartoum province is the most attractive centre for industrial location in the Sudan. The first factor is its large number of population and a high rate of population growth, combined with a relatively high per capita income, which is double the average for the whole country.\(^3\)

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\(^2\) Francis A. Lee and Hugh C. Brooks, op. cit.

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an excellent market for the distribution of industrial
products. Most of the Sudanese industries are market
oriented. These are industries which tend to grow
where consumer demand is substantial. They include
soft drinks, beer, textiles, oils and confectionery.
The other category of industries in the Sudan is raw
material oriented, where raw materials are perishable
or bulky and this increases cost of transport unless
located near source of input. This include cement
factories and sugar and cotton ginneries. The second
factor is the availability of technical institutions
and a higher living standard which lead to the creation
of a relatively skilled and semi-skilled labour force.
A third factor is the existence of government offices
and departments and financial institutions and banks
in Khartoum province which make it easier and time-
saving for an industry located in Khartoum to get its
financial needs, licence approval and direct contacts
with decision makers which is not available in other
regions. Fourth is the availability of infrastruct-
ural services such as transport and communications,
electric power and water supply. Another important
factor is that concentration will lead to more concentration through industries benefiting from vertical integration by making use of the by-products of established industry as an input to their industries, or horizontal integration which leads to the establishment of service and subsidiary industries such as repair and maintenance, bottling and packing industries.

Concentration of industry has serious drawbacks on economic and social development of the country, leading to wide differences in income and development of different regions. Migration from less developed regions to industrial areas and from rural to urban areas will lead to certain social problems common to most large cities of the world and which involve heavy economic and social costs, such as difficulties in transport, urban congestion, and increasing expenses in the provision of health and water systems in large towns.

Encouraging dispersal of industries by the government is an effective instrument for regional development and hence in the overall balanced socio-economic
development in the country. (1) Such policy will lead to the creation of new job opportunities and generation of higher incomes for the inhabitants of the area thereby leading to reduction in migration and income disparities in different regions. When industries are dispersed, there is a chance of carrying out small scale enterprises where family or personal savings can be directed to such investment. Self employment is carried up to the point where marginal productivity of labour equals zero. This can be beneficial on the assumption that the alternative to this type of self employment is involuntary unemployment. (2) However, there are problems facing dispersion of manufacturing units, which include the lack of adequate service and infrastructural facilities in non-industrial areas. The firm has to provide its own electric generator, and transport which will add to the cost of production. Sometimes transport cost may be so high that the establishment of a plant may be an unprofitable venture. In the Sudan

(1) Francis A. Lees and H. Brooks, op. cit. (P. 85)
(2) H. W. Singer op. cit.
most of the industries in rural and less developed areas were carried on by the government and they are mostly producing at high cost of production due to lack of facilities and shortages of raw materials.

Problems of the Industrial Sector

In the Sudan there are many constraints which hinder the efficiency of the achievements of industrial enterprises and hence industrial development in the country. These problems include inadequate infrastructure such as transport and power, shortage of skilled manpower at all levels and some problems which stem from the industrial policies adopted in the country. The inefficiency to which these problems have led to, is noticed in the high degree of idle capacity in most of the Sudanese industries.

Transport

A deficient transport system can seriously hamper industrial and economic development. For industry
adequate transport facilities is needed both to bring supplies of raw materials into the factory and in the distribution of finished products. In the Sudan, because distances are large and most parts of the country are sparsely populated, transport needs are correspondingly large. Most imported and exported goods are to be moved at least 800 km between Khartoum and Port Sudan. In addition, food has to be moved from agricultural areas to consumption centres inside the country. The transport system in the Sudan depends mainly on the government owned Sudan Railways. The capacity with which the railways is working is far below the needs of the country. The railways suffer from inefficient operations, and serve as a major constraint to the expansion of the economy as a whole. The rail link from Port Sudan to Khartoum is periodically submerged by sand or washed away by floods. Rail disruptions bring food and petrol shortages to Khartoum every two months, on average. The oil pipeline with a length of 100 kilometres, and a cost of £11 million was completed last year to replace carriage by

(1) B.J. Vilijgen, Problems of Large Scale Industry in Africa, in B.G. Robinson (Ed) Economic Development for Africa, North of the Sahara, op. cit. - 48 -
The inability of Sudan railways to reach the potential carrying capacity has caused the delay of raw materials and fuel to many factories forcing them either to work with less than their installed capacities or to maintain higher than normal stocks of raw materials and finished products that increase working capital requirements and thus production costs. (1) The inadequacy in transport facilities has also hindered dispersal of industries.

Road transport was thought of as an alternative to rail transport and many tarred roads were to be constructed to link different parts of the country with its main port. The new competition which the railway system is apt to face will lead to an increase in its efficiency of operations which in turn could result in important contributions to the whole economy. The main limit to the use of road transport in Sudan is its

With the increasing mechanization of manufacturing, the supply of sufficient, regular and cheap power becomes an important problem. In the Sudan, industry is the main consumer of electric power accounting to 40 - 50% of the total. At present the supply of energy suffers from distribution problems which are occasional failures and variations in voltage. This led to damages and loss in some factories. The power supply available is just sufficient to meet local demand, with some seasonal shortages during peak irrigation season, where stored water is shared between irrigation and power generation. With the proposed expansion in the industrial sector some investments has to be made in the power sector, especially that the potential for power expansion is available. The greater part of electric power generating capacity is centralized in the Khartoum-Dakira area. The availability

(1) Ibid., P. 10.
of low-cost power in this region has resulted in concentration of industries in this area. While it is possible to create electric power generators in other areas, this is not provided, and many industries find it difficult to locate there.

Some factories in Sudan have installed their own power supplies. This applies to factories located in areas supplied by public power as well as factories located in outlying areas. These include the Sudanese Textile Factory in North Khartoum, the Shell B.P. Refinery, and the Sugar Factories at Sumeid and Kasim El Dirfa. (1) The operating costs of such generating plants is considerably higher than the centrally located large-scale generating plant.

Moreover

The industrial sector is faced by the shortage of skilled manpower. This is seriously felt in technical and managerial fields.

The problem is mainly attributed to Sudan's education system which has traditionally favoured general education.

(1) Francis A. Leen and High C. Brooks, op. cit.
rather than technical or vocational training. Six out of every ten students in the country's universities are enrolled into humanities. The problem is aggravated by a more serious shortage emerging because large numbers of technical and managerial staff are finding more lucrative opportunities in the Gulf States. According to the latest estimates, there are about 167,000 Sudanese teachers, agricultural technicians, builders, and drivers employed in the rich Arab countries, where they are encouraged by higher payments. This drain of skilled manpower has to be stopped especially that the Sudan has started an ambitious Six Year Development Plan (1977 – 83) which needs all the efforts and resources for its implementation. (1)

The usual way to cope with these shortage problems is to use expatriates or to train employees outside the country. This will place a heavy burden on the enterprise. The most suitable solution is the establishment of training institutions inside the country. Some efforts are now being made by the private and public sectors to create and upgrade skills. Training courses are held inside the factory as noticed in textile and construction industries and some of the employees are sent for training.

(1) The Six Year Plan of Economic and Social Development, of (1977 – 83), 294.01.51.
outside the country. Some industries have created their own training centres such as Bata Shoes Technical College.

The government has established a number of vocational centres in Khartoum, Wad Medani, Wau and Port Sudan. The Khartoum Institute of Technical Colleges was established in 1975 as an autonomous body operating under policies laid down by the National Council for Higher Education. It was formed from five engineering technical institutes, three agricultural ones, an institute of commercial studies and an institute of technical teacher training.

The problem of manpower shortage cannot be completely solved unless a comprehensive manpower plan is formed by surveying the numbers of skilled persons needed for each industry in order to set out future targets in some detail. (1)

The Six Year Plan has set a target of 2,700 graduates every year. (2) In spite of this ambitious plan.

(2) The Six Year Plan of Economic and Social Development.
there will be a deficiency in technical manpower. This deficiency is increased by the emigration of workers to wealthier neighbouring countries. The advantages to Sudan of remittances in foreign currency and the experience gained by Sudanese in working there are not enough to offset the short and middle term losses.\(^1\) It is only hoped that the wealthier countries that benefited from Sudanese skill could contribute to the development of the countries educational services.

**Financial Resources**

The financial requirements are larger in under-developed countries, because they have to import all their machinery and employ experts at the initial stages of production. Also large stocks of raw materials and spare parts is needed. Here capital may be necessary to install new services which are cheaply provided in advanced countries. Investments is either supplied from savings, from export earnings or from external sources.

This has led to shortages of raw materials in many factories, with the result that many of them are working at less than their full capacity, a factor which adds to the cost of production.

Other reasons for existence of excess capacity are delays in foreign exchange allocations, bad layout and selection of the wrong type of machinery and equipment which is not suitable for the small size of the domestic market.
Incentives for Promotion of Industry

Many developing countries offer some sort of investment incentives to assure the flow of capital into private investment. The central theme of the incentive policies is to offset the obstacles faced by private investors. These obstacles are considered greater in the industrial sector in relation to other sectors.\(^{(1)}\) Different types of tax and non-tax incentives are given to attract foreign and domestic capital. The purpose of these concessions is to assure the profitability of newly established industries by reducing their cost of production, which is a phenomenon connected with infant industries. They usually face higher cost of production as a result of inexperience in production and marketing processes. In under-developed countries, this cost and uncertainty is increased by the inadequacy

\(^{(1)}\) George Plant, "Tax Incentives for Investment in Developing Countries", International Monetary Fund Staff Papers, July 1967.
accelerated depreciation allowance and tariff protection. The investment incentives usually apply equally to domestic and foreign capital. In developing countries, they often appear to have been designed primarily to attract foreign capital. Many developing countries seem to be competing among themselves for the limited supply of foreign capital. This has induced many of them to offer more and more liberal benefits to investors.\(^1\)

Foreign investors would not invest their money in a country unless the opportunities of profits from investment are sufficiently large to outweigh the difficulties encountered.\(^2\) Usually foreign firms had the choice of many countries to invest in, where there is a high standard of public utilities and administrative efficiency at their disposal. In under-developed countries, they

\(^1\) "Tax Incentives in Developing Countries", International Monetary Fund Institute, 72 - III/12.

\(^2\) George B. Lent, ep. cit.
countries which rely heavily on limited national markets.

Inspite of the promising results of investment incentives and their effect on investment, a question is to be asked whenever such incentives are to be adopted. It is necessary to see whether the economic benefits of the investment attracted by the incentives is greater or less than the loss of revenue by the government and by those who would have invested without the special treatment.

The revenue forgone by the government through various tax exemptions has an opportunity cost and there may be some doubts about whether the investments achieved by incentives is worth their cost.

Robert E. Hall and Dale Jorgensen have found, supported by empirical studies, that tax policy is highly effective in changing the level and timing of investment expenditure as noticed in the increase of both net and gross capital stock.

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2. George E. Lent, *ibid.*, P. 256.
Others think that tax incentives alone are not the only determinants of the flow of investment. Other determinants (mainly to foreign investors) are the intention to gain control of raw material sources, make use of cheap labour, penetrate new markets or the possibility of higher profits.

Objectives of Incentives in the Sudan:

The main objective of incentives is the stimulation of manufacturing activities. The belief that industrialization is the main factor in increasing per capita income and stabilizing exports has created a strong preference for manufacturing. In the Sudan the need to stimulate private investment was already recognized, due to the recognition of the fact that economic growth cannot be sustained without the contribution of the private sector. The slow growth in the industrial sector is the result of inavailability of sufficient investment as a result of the small rate of domestic savings (11% of GDP) which represent a constraint on capital formation. In order to eliminate the obstacles hindering capital investments, incentives are to be provided for private enterprises.

Incentive Policies in the Sudan

The most important instrument for industrial policy in use in the Sudan now is "The Development and Encouragement of Investment Act 1974" (1) which is a revised form of the 1972 Act. (2)

The first attempt made to organise industrial policies was declared in 1956, (3) with the issuing of "The Approved Enterprises (Concessions) Act". At that time the government wanted to encourage industrial investment in the country by giving generous concessions and exemptions to newly established industries. After eleven years, the 1967 Act was enacted to give more generous concessions to encourage industrial development.


The 1972 and 1974 Acts followed the giving back of the confiscated industries (in 1971) to their owners. These industries were nationalized or confiscated after the enactment of the Acquisition Act, 1970, and the Companies Nationalization Act, 1970. In these Acts various fiscal incentives were reviewed with the purpose of restoring the confidence of private domestic and foreign investors which was lost after the acquisition and nationalization decisions of 1970.

All these Acts give the same concessions to industry with very minor differences.

Eligibility Criteria:

In the Sudan all industries can be given preferential tax treatment and other facilities, if they pass certain eligibility criteria. These industrial projects are to be part of the development effort to achieve social and economic objectives. Consequently, the selection criteria should, in general, be related to the development strategy, the prevailing economic conditions and the possibility of achieving some objectives in the future, (1)

According to the 'Development and Encouragement of Industrial Investment Act 1974', the enterprise will be selected and given tax and other concessions if it satisfies any of the following conditions: (1)

a) That it will be of defence or strategic importance.

b) That its production will depend upon local raw materials or will encourage the production of such materials.

c) That its production will reduce imports or contribute to export prospects.

d) That it shall directly or indirectly provide employment for Sudanese people.

e) That it shall achieve economic cooperation and integration with Arab and African states.

f) That its work shall contribute in increasing national income.

These conditions are similar to those of the 1967 and 1972 Acts except for very slight difference. In the 1972 Act there is a criterion which is not mentioned in the previous Act and it does not appear in the 1974 new

(1) The Development and Encouragement Act, 1974, sec. 6, cit., p. 3.
Act as well; namely the owners shall agree to establish it in rural areas. The omission of this criterion from the 1974 Act is considered very wise because dispersion of industry in rural areas, cannot be used alone as a criterion for choice; as other conditions must be met. In the 1974 Act it is stated that, 'The Minister may grant additional concessions to the establishments set up in the suburbs specified by him from time to time'. The concessions given to such industry may even include priorities in financing by the specialized banking institutions.

The attempt to encourage rural dispersion of industries is very important in order to achieve rural development, through increasing employment and raising the level of per capita income in rural areas.

The establishment of industries in rural areas is greatly needed in developing countries since the spill-over effects from the urban sector were unable to modernize the rural sector as has been thought before.

From an economic point of view scattering of industries in rural areas will add to their cost of production, because of lack of adequate services even in what may be called towns in the Sudan. (1) Unless the industry is raw material-oriented to a source in a rural area it would be preferable at this stage, to concentrate industries in big towns.

Generally the eligibility criteria stated in the Act reflects what is thought to be the country's development strategy. The concessions should be granted to industries in the light of the importance of the contribution that it can make in fulfilling the country's planned objectives. (2) The first main objective as stated in the eligibility criteria is the use of local raw materials which will help to create linkage effects between agricultural and industrial sectors. Another objective which is common to almost all developing countries that import more than they can export, and therefore attempt to stimulate

(2) George E. Bent, op. cit., P. 256.
which centre on the fact that newly opened industries contribute more to economic development and that they are exposed to greater risks. Another argument is that investors will hesitate in entering new fields if equal opportunities were given to competing firms. (1)

Giving incentives only to the first established industry may not be accepted by others, because the risk faced by new industries is not greater than that faced by late-comers, especially when the market has already been created by imports. (2)

Most investment laws provide preferential treatment for both imports and income. Some extend the benefits to taxes on property, sales, exports and different business transactions. In the Sudan, tax incentives include reduction of import duties on machinery and raw materials, business profit tax relief, restriction of imports of competitive commodities in addition to other non-tax incentives. These concessions will be considered in turn.

(1) George B. Lent, op. cit., p. 259.
(2) Ibid. (3) Ibid.
1. Relief from Import and Other Indirect Taxes:

The effect of reductions in import duties is considered to be of greater potential value than most other incentives. Relief from import duties on machinery and equipment will enable the firm to lower its fixed costs. It will encourage investment in the sense that businessmen in pursuit of gain will find the purchase of capital goods more attractive if they cost less. Exemption of duties on imported raw materials and of excise duties on locally produced materials will reduce operating cost thereby enabling the firm to gain a competitive advantage in establishing its market. Exemptions also reduce capital requirements and thus make it easier for the enterprise to get its financial capital. But they have the disadvantage of encouraging capital intensive industries.

In the Sudan, all of the four Acts issued give concession in the form of reduction of custom duties on machinery and raw materials.

The 1967 Act offers full exemption of all machinery, equipment and spare parts from custom duties, and reduction of import duties on raw materials to 10% of their value. The 1972 Act gives full or partial exemption to machinery and raw materials provided that they are not available in the domestic market.
In the 1974 Act, it is stated that concessions given include 'Exemption from payment of customs duties, surcharges, and any other duties relating to machinery and equipment necessary for production; spare parts, raw materials, semi-manufactured or intermediary material imported by the establishment', on the condition that domestic materials of comparable quality and price are not available.

In the Sudan, the period for exemption from import duties is not defined, and in practice this exemption continues for long periods of time. There is great need to determine the period of exemption specially now when it is though that the Sudanese tax incentives are too generous and that they are helping the entrepreneurs getting richer, while the consumers are suffering. Also because 20% of government revenue was from indirect taxes. In some countries the exemption is connected with the tax holiday period, and in others, such as in Central America, the exemption period depends on the essentiality of the industry. For export industry complete and indefinite exemption generally is granted for such materials. (1)

In the Sudan, most industries find it more profitable to use imported raw materials, encouraged by their lower cost as a result of relief from payment of customs duties rather than to use local raw materials. In this case, little is to be gained when the import content comprises a high proportion of the final value.

The result of raw material exemption in the Sudan is that some factories have started to import these materials at reduced rates, not to be used for industrial production but to sell them at higher prices, especially when they have different uses. (2)

In the 1972 and the 1974 Acts a new provision is added, which is the reimbursement of any excise duties or customs paid by the enterprise in packing materials used in the production of commodities for export. This is made with the intention of encouraging industrial production for export.

(1) Ali, A. Salim, op. cit., P. 41.
Protection Against Competing Imports:

In many countries protection against competitive imports is already built, through high tariff rates on many consumer goods. Protection enables enterprises to work in a sheltered market where prices are made higher by the excess value of the tariff. They are sure of selling their products irrespective of their quality because there is no competition from other imports.

Protection against competitive imports have started in the Sudan with the enactment of the first Act in 1956, where protection is granted to some industries on the basis of recommendations of an 'impartial expert body'. In 1967 and 1972 Acts protection is given to industries which satisfy price and quality standards on recommendations of the Minister of Industry. The same protection is provided in the new 1974 Act.

Restriction of imports is by quotas, full prohibition of imports or through higher tariffs. Out of 42 protected industries 36 is protected by full import restriction.\(^{(1)}\)

\(^{(1)}\) JERD, 'A Survey of the Industrial Sector of Sudan, 1973, 40, 41ff.'
The period in which protection policies are to be applicable is not determined under the Acts. Protection is not advised after the initial period necessary to get the establishment on its feet. The country may find itself incurring higher costs to support industries that need continuous protection in order to be able to compete with imports. In this case industrialization will be wasteful to the country's economic resources.

53) **Income Tax Concessions:**

Many techniques have been used to accelerate tax from recovery of an investment, by exempting or postponing income tax payment. This takes the form of accelerated depreciation, investment allowances and/or tax holidays.

Investment allowance allows a specified percentage of new investment to be deducted before computing taxable profits. Tax holidays permit complete income tax exemption for some years depending on the essentiality of the business or the size of the investment.

As an incentive, business profits tax relief reduces investment risk by permitting an earlier recovery of capital and permit a higher net rate of return than would be
possible under full taxation. (1)

In the 1974 Act, income tax concessions granted by the minister are as follows: (2)

a) Exemption from payment of Business Profit Tax for a period of five years calculated from the date of commencement of production.

b) Exemption from payment of Business Profits Tax for another period of five years if the total annual profits do not exceed 10% of the invested capital.

c) Exemption from payment of Business Profits Tax for an extra period of five years, for establishments that have increased their capital in the first ten years, provided that the exemption from the Profit Tax shall be at the same percentage in which the capital has been increased in such period and if the percentage of profits in such case is below 10% of the total capital after the increase, the exemption shall be a complete one.

(1) George E. Lent, op. cit.,
(2) The Development and Encouragement Act, 1974, op. cit.,
If we are to compare the three Acts of 1967, 1972 and 1974 we find that the three of them give total exemption from payment of the Business Profits Tax for a period of five years.

In the 1972 and 1974 Acts the exemption for the second five years is connected with profits, while in the 1967 Act the exemption is tied with the amount of capital invested; only if it is more than one million the enterprise can get tax relief. By doing so this Act is considered to encourage large scale investment.\(^{(1)}\) The enterprise is given half exemption from the BPT if in the fifth year its capital is one million pounds or more. The investment is encouraged to expand during its first five years.

The 1974 Act has the advantage of encouraging the enterprise to expand in its third five years of life, if it is originally not large enough. This is done by exemption from BPT at the same percentage in which the capital is increased. If the investment expansion is large the exemption will be larger.

The explanation of the widespread use of tax holiday in underdeveloped countries seems to be in the potentially greater liberality of a tax holiday and the great willingness of underdeveloped countries to attract foreign capital.

A tax holiday is criticized because it can provide unnecessarily large benefits for highly profitable enterprises by permitting same firms to recover more quickly and before they are subject to tax. From the country’s point of view there is loss of revenue in excess of what is needed for simple industrial promotion.

1. Accelerated Depreciation:

Income tax concessions may take the form of accelerated depreciation. A growing number of developing countries employ various accelerated depreciation schemes to encourage reinvestment in order to allow profitable enterprises to expand. In the 1974 Act depreciation is calculated


according to the number of shifts i.e. it is counted at double the rate in case of working two shifts and at triple the rate in the case of three shifts. Depreciation is deducted when computing taxable income. Although depreciation allowance generally encourages capital intensive techniques, its calculation in this way seems to encourage more employment of labour, as a larger number of labourers are employed for the three shifts.

The effect of accelerated depreciation system to stimulate re-investment is of minor effect in advanced countries, but they offer significant potentialities in developing countries. Whether these systems will lead to additional investment depend on the importance of profitability, liquidity and risk evaluations in the firm's decision.

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(4) Heller and Kaufman, *op. cit.*

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In the 1974 Act any loss incurred during the period of tax exemption is treated as if incurred during the last year of this period, and the expenses arising within the period of exemption shall be treated as a loss liable to be deducted from the profits. This provision will reduce the risk and uncertainty about profits to the firm because it is sure that it will cover any losses which may be incurred during the first stages of production. The 1967 Income Tax Act gives a period of ten years during which business losses are to be carried forward, on the condition that the amount of profits deducted to cover losses must not exceed half the profits in any year.

In the 1971 Income Tax Act any percentage of losses can be deducted from profits so that the period of loss carry over is reduced to 5 years.

Non-Tax Incentives:

Other concessions given to encourage industries include

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of electricity, and the rates of freight applied upon machinery, equipments and raw materials used in production. Other incentives include guaranteed government purchases of locally produced manufactured goods.

The true price of transport is higher than what market prices indicate. Thus the reduction in transport rates is not reflected in reduction of transport costs to these industries, especially in Sudan where such costs are considered higher if one is to include waste in time, losses and damages. (1)

Tax incentives and similar measures affect domestic and foreign capital alike. Foreign capital, however, may require further measures to attract it. Indirect inducements to attract foreign investment, include guarantees against nationalization and confiscation and unrestricted freedom of profit transfer and capital repatriation.

In the Sudan (the 1972 and 1974 Acts) there guarantees were meant to assure foreign and domestic firms of the good

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Subsequent growth. Some writers regard the period of foreign borrowing as the normal and necessary first step towards economic development, (1) because of the inadequacy of domestic savings and foreign trade surplus to finance the need for investment. Most underdeveloped countries are exporters of primary products where the earning from such export is not sufficient to finance economic development, although some countries were able to create a substantial export surplus at their initial stages of economic development (2) e.g. (Gold Coast and Nigeria).

Direct foreign investment may give a great impetus to economic development, not only because it contributes to overall capital formation, output and income growth, but also because of its ability to transmit technological and managerial ‘know how’. In particular it may help to diversify the economy and to strengthen exports through improved technology. The rate of technological advance in a poor country is highly dependent on the rate of capital

(2) Ibid.
to additional domestic investment through the creation of external pecuniary economies.

The desirability of attracting foreign capital may be questioned. The apparent benefit of foreign industrial enterprise is that it brings capital and skills to the economy from outside. On the other hand, it leads to the repatriation of profits and may lessen the opportunities for expansion of domestic enterprises.

Sometimes foreigners may raise local loans in their companies. In this case the outflow of profits is possible without any corresponding previous inflow of foreign funds.\(^1\)

Another defect of direct private foreign investment is that foreign investors are likely to introduce capital-intensive techniques of production as they are not faced with the problems of capital shortages. This type of technique is not suitable for the conditions of LDCs and may lead to inappropriate allocation of resources. This

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on many factors, one of which is a degree of political stability and the extent of success in domestic economic planning. The Sudan is in need of some planning in the private industrial sector, putting in mind the desirable expansion in the capacity to produce for exports at a cost level compatible with world prices and to expand import saving production as well.

The Role of Incentives in Industrial Development:

In spite of the inducive role played by incentives throughout the industrial development in the Sudan in encouraging investments in different types of industries, the outcome of these policies, on the whole, is not what is expected by planners for economic development in the country. This is because of some defects in the incentive framework and other policies connected with project selection.

The 1974 Act made the provision for the establishment of an Advisory Committee for assessing applications for approval and assistance. The choice is made on the
basis of the eligibility criterion mentioned in every Act. As there is no planning for the investments of the private sector, the effective control and regulation of private enterprises is practised through the selection and granting of concessions to these enterprises.

The eligibility criteria on the basis of which projects are selected are broad and vague. These criteria are very general and cannot accommodate any project which is commercially profitable, since no specific qualifications are required from the proposed project. The only condition is that the project should contribute to one of the six broad described conditions. One of these conditions 'at least' can easily be passed by any industry.

Dr. Awad suggested that 'contribution (of projects) can roughly be measured by the number of tests (conditions or criteria) which the enterprise passes, and how well it passes each test separately'.


Using these conflicting or complementary criteria, it is very difficult to arrive at the "total net value" of the project or its impact on the economy as a whole. Furthermore, selection in almost all cases is made on a partial basis, i.e., only limited aspects of the project are taken into consideration.

Even after selection of the criteria to be applied, a full project appraisal studying all aspects is not carried out. The selection does not consider any social profitability analysis. In the case of employment criteria, only direct employment created by the project is calculated. Indirect employment is not taken into account quantitatively. This can be attributed to lack of data.

Another thing is that employment is measured by the number of jobs created without relating it to any other factor such as capital required per employed worker, which makes it easier in cases of comparison.

of almost all projects which used local raw material thereby leading to many problems in certain cases. An example is the excess capacity in the oil mills because the capacity installed is greater than the amount of cotton and other seeds produced in the country. As a solution to this, some priority is to be given for industry which utilizes local raw material which is not used or not fully utilized. (1)

"Eligibility for preferential tax treatment under the investment incentive laws reflects a country's development policy." (2)

This may be what is meant in the Sudan, because the eligibility criterion provides objectives which reflect a policy that look suitable to the conditions in the country, but the incentives provided has led, in practice, to different strategies.

(1) Ibid., P. 41.

(2) George E. Lent, op. cit., P. 296
techniques which employ more labour. In LDCs where capital is the scarce factor, such production techniques should not be encouraged.

A question which is always asked when considering incentives effects is whether the economic benefits of the additional investment attracted outweigh the revenue loss to the government. Attempts were made by Dr. Suliman and Dr. Himeiri to measure the benefits and costs of the incentives. They agreed that the loss of the government is great because it depends on import duties and income taxes as a source of income. The benefits are difficult to measure quantitatively because of lack of data.

Part of the government losses is unjustified. This is mainly attributed to the unlimited period of relief from import duties on raw materials and spares and the provisions of cheap electricity and transport.

Another factor is that concessions are granted to all industries, irrespective of need and contribution to value added. A system of priorities is to be established in granting concessions.

(1) Sayed M. Himeiri, op. cit.
The Effectiveness of Incentive Policies

To find out the effectiveness of incentives, given by the Investment Acts in the Sudan, as an instrument of industrial policy, a questionnaire approach was used. The main purpose was to find the impact of these concessions on the decisions of the entrepreneurs to invest. This is done by asking investors in manufacturing firms to name the most important factor which has induced them to invest in a particular industry.\(^{(1)}\)

The relative effectiveness of a particular policy instrument is also given by its place in the ranking order. Also some investigations were made regarding the inability of these incentives to encourage some industries, from the point of view of the entrepreneurs. The degree of protection and of capacity utilization was also asked.

For the purpose of the questionnaire a sample of 60 industries were chosen to represent the three main industrial areas in Khartoum province and to represent all the industrial branches.

\(^{(1)}\) A sample of the questions asked is provided in the appendix.
Before discussing the results of the questionnaire I would like to point out the disadvantages of such an approach. Such disadvantages introduce some biases and distortions which have to be taken into consideration when we want to evaluate the effectiveness of incentive policies.

The first disadvantage stems from the subjective nature of the answers. The people interviewed express their own opinions which will contain some biases accounting to personal factors. These persons investigated may exaggerate or underestimate the influence of incentives in the process of decision making. For example, the effect of incentives on decision making may be underestimated if the entrepreneur feels that by saying so these incentives will be increased.

Another problem is that by the time the questionnaire is carried, you may not find the person who had made the decision. In this case the answers are provided by his subordinates or by the managing director. These people may not be in a position to give the correct answer about what motivated the original decision.

Inspite of these disadvantages, the questionnaire
The approach was widely used in different countries to evaluate the effectiveness of tax concession policies and to determine the most important policy instrument in favouring industrial expansion. (1)

The background of the entrepreneurs (in the Sudan) before entering industry will give us an idea about their motivations, and generally about the financing of Sudanese industry. Table 1 shows the occupation of entrepreneurs before entering industry.

Table 1
Occupation of Entrepreneurs Before Entering Industry

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade (Foreign and Internal)</td>
<td>44.7</td>
</tr>
<tr>
<td>Employee</td>
<td>15.8</td>
</tr>
<tr>
<td>Owner of a Factory</td>
<td>26.8</td>
</tr>
<tr>
<td>Agricultural Scheme</td>
<td>2.6</td>
</tr>
<tr>
<td>Small-Scale Industry</td>
<td>5.2</td>
</tr>
<tr>
<td>Straight into Industry</td>
<td>5.2</td>
</tr>
</tbody>
</table>

Most of the industries in the Sudan have been established by people working in trade and mainly as importers. A small percentage of these have invested in industry after the restriction of imports as a protection to a newly established industry. They thought it would be more beneficial if they started their own industries.

The second larger percentage are those who possess one or two factories. They have established other industries either to supply their first industry with material inputs or packing materials, or mainly because they get more interest in industry and wanted to increase their profits further.

Reasons for Entering Industry

Table 2 summarizes the main reasons given by entrepreneurs for entering industry.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaked profitable</td>
<td>35.3</td>
</tr>
<tr>
<td>Government policy to encourage industry</td>
<td>29.4</td>
</tr>
<tr>
<td>Family or personally in industry before</td>
<td>5.9</td>
</tr>
<tr>
<td>Trade and Agriculture prospects poor</td>
<td>8.8</td>
</tr>
<tr>
<td>To provide inputs or packing materials for an established industry</td>
<td>17.6</td>
</tr>
<tr>
<td>Others</td>
<td>100</td>
</tr>
</tbody>
</table>
Proposals of profits as well as government policy to encourage industrial development emerged as the two most important factors influencing the decision to enter industry. Although some did not deny the role of government in encouraging industry, this did not act as their main initiative for entering industry in the first place.

The ranking of concessions according to their importance is given in table 3.

<table>
<thead>
<tr>
<th>Concession</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exemption from B.P.T</td>
<td>17.6</td>
</tr>
<tr>
<td>Exemptions in custom duties on raw materials</td>
<td>49.8</td>
</tr>
<tr>
<td>&quot; &quot; &quot; on machinery</td>
<td>4.8</td>
</tr>
<tr>
<td>Protection</td>
<td>26.7</td>
</tr>
<tr>
<td>Provision of land at nominal price</td>
<td>2.3</td>
</tr>
<tr>
<td>Nothing</td>
<td>4.8</td>
</tr>
</tbody>
</table>
The most important concession to industries is the reduced custom duties on raw materials. This is mainly because of its effect on reducing cost of production.

This result seems to be natural since in the Sudan exception from custom duties on raw materials is given without any limitations to the period of time. Also raw materials are important and needed throughout the life of the plant, unlike machinery which is imported only once in each project’s life.

Reduction of duties on raw materials was always looked at as a form of encouraging the development of domestic industries. Barber reported that a tariff expert entrepreneur will not insist on increasing the tariff on his product but instead try to reduce duties on parts and components and this will increase his industry’s effective rate of protection.

The second in importance is the protection of the country’s domestic market from foreign imports, so that the local market is fully reserved for domestic production. This concession is very important to the manufacturing firms in the Sudan. Because of the narrowness of the size of the market, if foreign imports were allowed, domestic producers will not be able to sell their products.
The importance given to this two concessions will reveal the importance of effective protection which insures both sales at higher prices in domestic market and reduction of costs through lower rates on imported raw materials. We should not forget that profit prospects is considered the main factor behind investment in industry.

The third in importance is the exemption from Business Profits Tax which consist of a tax holiday for a five year period liable for extention.

This concession is not given the strong weight it deserves only because of the limitation of the relief period as compared to the other concessions.

Many entrepreneurs consider the government incentives as not quite effective for the development of industry in the Sudan. This is either because they are not fully given or because of some other factors which hinder their effectiveness as an industrial policy. These are given in table 4.
Table 4: Failure of Government Policy

<table>
<thead>
<tr>
<th>Reason</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>In availability of foreign exchange to buy raw materials</td>
<td>22.4</td>
</tr>
<tr>
<td>In availability of foreign exchange to buy spare parts</td>
<td>9.6</td>
</tr>
<tr>
<td>Inadequacy of infrastructural services</td>
<td>11.3</td>
</tr>
<tr>
<td>High excise taxes</td>
<td>22.7</td>
</tr>
<tr>
<td>Some incentives are only on paper and not actually provided</td>
<td>16.1</td>
</tr>
<tr>
<td>Ex-factory price low</td>
<td>4.5</td>
</tr>
<tr>
<td>Difficulties in getting supplies of local raw materials</td>
<td>6.8</td>
</tr>
<tr>
<td>Nothing</td>
<td>6.8</td>
</tr>
</tbody>
</table>

In availability of foreign raw materials and spare parts as a result of shortages of foreign exchange is the main hindrance to the performance of industries in the
known plan on the basis of which the excise tax is determined, in order to have a powerful and accepted domestic taxation.

Some enterprises are suffering from that the ex-facto-
ry price of their products is low. The ex-factory price is determined by the Ministry on a cost-plus basis. The objective of the ex-factory price control is to reduce the extent to which firms can make profit. Sometimes excise duties are levied on the product without informing the Minister of Industry, and this will affect profitability unless prices are changed. (1)

16.1% claims that the incentives are only on paper and that they are not actually provided. These containe firms who claim that they are promised to be given protection, reduced customs rates on raw materials and in fact these are not provided.

For 6.6% of the entrepreneurs there is nothing that can offset the benefits given to industries by the concessions. They said that the transport and other problems

exist in many countries and they can manage these problems without causing any losses to the factory.

On a question on whether they prefer to have the concessions provided by the investment Acts or to have better infrastructural facilities, 27% prefer to have adequate and efficient services. These are mainly industries which power failure and delays in transport will cause damage of the raw materials (eg. Millamines, paints and plastic products industries).

The remaining 73% appreciate the role of government incentives in stimulating investment especially at the beginning of the production period characterized by high production costs.

We can conclude that the government policy although not very important in the decisions made to enter industry, it is considered of great importance in the successful continuation of industrial production, once the industries are established.
Chapter (h)

Tariff Protection and Industrialisation in the Sudan

Traditional Theory of Protection:

Many of the underdeveloped countries are now using a variety of policy instruments to protect their manufacturing industries. Although protective measures were used previously as a remedy to balance of payments difficulties, now they are widely used to promote industrialisation.

Industrialisation has been widely accepted by most of these countries as the best way of increasing the national income and achieving high rates of growth, and also as the best way of diversifying their economies which are greatly dependent on the export of primary products.

Protective instruments used include price and non-price measures. All price measures can be expressed in terms of tariffs which are applied to imports enabling these protected industries to raise their prices to be equal to the imported goods price, plus the amount of tariff. High domestic price of imported goods will induce
domestic supply to increase, this increase depends both on the tariff rate and the elasticity of domestic supply over the relevant range. Non-price measures include quotas, licensing and exchange control. By restricting the amount of these commodities, their prices will rise in the domestic market. The result is high profits for the domestic producers. The excess of domestic over world market prices can be regarded as an (implicit tariff)\(^{(1)}\) since the quantity of imports will decline whether this price increase is the result of a tariff or a result of import restriction.

There are many arguments in favour of applying protection policies to the manufacturing industries of developing countries.

The basic argument is protection for industrialization because the poor demand and declining prices of the primary products of LDCs, can not assure a rapid rate of economic growth. As a result, they resort to the policy

of import substitution to solve the balance of payments problems and to bring with it all the benefits of industrialization. These include rapid rate of growth and an increase in employment. Industrialization is also regarded as a symbol of development.\(^{1}\)

Now we find that most of the developing countries have expanded their manufacturing industries behind high protection walls, by substituting domestic production for imports. Although there are different degrees of the rate of protection in these countries, the average degree of protection is usually considered higher than it was in the now industrialized countries at the beginning of their industrialization process.\(^{2}\)

The protection given to domestic producers by changes in the tariff structure may be absolute, that is, the importation of a given commodity may be banned completely so that the domestic market is fully reserved for the output of local producers of that commodity. In this

\(^{1}\) Ibid., p.13.
case, the only determinant for the buyer’s choice of the commodity is its price.

Less than absolute protection involves the use of import duty on the commodity. The advantage to local producers are greater the higher the level of import duties on the finished product and the lower the import duties on imported material inputs.

Since the time of Frederick List, it has become quite recognized that the infant industry argument could form a valid basis for industrial protection. Infant industry argument has traditionally been regarded as one of the most acceptable justifications for interference with free trade.

The main theme of the argument is that a newly established industry may find it difficult to compete with the products of other industries, simply because of an earlier start of the industry in another country.

The older industry would usually be developed to a point where it would be impossible for a newly established industry to compete with it. (1) In this situation a tariff might be necessary to make possible the establishment of the industry in the country especially if it has a potential cost advantage.

The infant industry argument has two versions. (2)
The first is based on the concept of external economies which is based on the assumed differences between social and private profitability. This arises because manufacturing industries in general create some facilities from which other industries and the national economy will benefit, so it is natural that the firm should be rewarded for these benefits which are not counted in its profit calculations. (3)

The second version is that at the first stages of production costs may be higher because of large amount

(1) Ibid., p. 99.
(2) W. Garden "Protection, Economic Record, Vol. 42.
of capital to be invested and the great risks involved. So preferential treatment is a necessity in the case of an infant industry. Some industries may start by making losses before they begin to yield profits. With the help of protection, this period is regarded as investment towards a more profitable future. The infant industry argument is even more stronger when applied not merely to an industry or a group of industries, but to a whole sector of a country's economy. (1) When the country is at an earlier stage of development, a chance should be given to industry whenever there is an opportunity cost.

Some reductions in cost appear to the firm when it gains experience or as a result of increases in the scale of production. Because of these internal economies the protection must be of a temporary nature and should be removed as maturity is reached. The infant industry argument is criticized in that this infancy is a feature of different types of production including primary and

(1) Sidney J. Wells, Op cit.
agricultural production. Therefore protection should not be confined to industry alone.\(^{(1)}\)

There are many other arguments for protection derived from the existence of domestic distortions in the factor and product markets due to governmental actions or to market imperfections. As a result of imperfections in the market, the cost of production of any commodity will not reflect the real values of resources used in making them.

Distortions in the labour market may be due to market imperfections of which the existence of unemployment and under-employment is a particular case. Labour markets are usually characterized by higher wages of labour in industrial than in agricultural sector. This higher wages in industry can be explained from two points of view, all depending on the concept of disguised unemployment.\(^{(2)}\)

\(^{(1)}\) Little and Mitrovsky, Op.Cit.
The first which can be associated with the name of Arthur Lewis (1) is that while wages in the industrial sector are determined by marginal productivity of labour, wages in agriculture, where there is disguisedly unemployed family labour, are determined by the average product of labour which is far less than its marginal product.

The other explanation asserts that for various reasons, such as the existence of trade unions and the new ways of life and risks in urban centres, wages tend to be higher in the industrial sector. This difference is also attributed to the high cost paid by the community which has to provide accommodation and transport and other facilities if this labour is to be transferred from agricultural to industrial sectors. (2)

These arguments of distortion in the labour market is used as an argument for protecting industry so as to

(1) W. A. Lewis, "Economic Development with Unlimited Supplies of Labour" Manchester School of Economic & Social Studies, Vol. 28, No. 2 (May 1960).
compensate employers in the manufacturing sector for the higher wages paid to the workers.

Another argument is the external economies which exist whenever a firm has to pay higher cost to a factory than what it really costs. External economies exist also wherever the existence of an industry gives benefits to others in the form of trained labour, and higher incomes which will lead to the expansion of the market for other products. Other benefits are the creation of other industries through linkage effects. These are either backward in the sense that every activity will induce others to supply domestically the inputs needed in that activity. Forward linkage effects is where the creation of industry induce others to utilize its output as inputs in some new industries. (2)

Another kind of external economies can arise as a result of economies of sale and transport cost reductions. (2) This cost can clearly be seen when there is a large market.

(1) A.O. Hirschman, "The strategy of Economic Development".
(2) Soltovsky and others, op.cit.
where many commodities can be produced cheaply due to the economies of large scale production. But when the domestic market is small, large scale production will not be possible unless there is a trend for exports. Exports also may face some difficulties as a result of transport cost and import duties in foreign countries.

The external economies is not considered a very strong argument because of the difficulties encountered in measuring external costs and benefits and thus determining how much protection an industry deserves. Another reason is that there are external diseconomies as well. These are air and water pollution which is harmful to the society. So the external economies and diseconomies balance out.

There are other arguments for protection which are not considered very convincing. One is the argument for saving from the high profits of business corporations which come into existence with the help of protection in raising prices of the domestically produced goods. These profits can be taxed and the benefits from it will accrue to the whole society. (1) Also the prices of commodities made

(1) Ibid.
higher by the addition of tariff are considered as one possible way of taxing people in the agriculture and services sectors. Thus heavy protection can be seen as a way of taxing the rest of the economy.\(^1\)

These arguments can not be completely accepted because those profits made possible by protection will add to the wealth of the rich. This will create income maldistributions and absence of social justice where the poor people will not benefit from the fruits of industrialization, and this can lead to social instability.

In support of preferential treatment of manufacturing industry it has been argued that productivity tends to rise more rapidly in manufacturing than in primary production. Industry also leads to the widening of the service sector such as insurance and bank services and so it has the indirect effect of increasing employment in the country.

Sometimes, specially in developing countries, protection is used as a compensation for lack of efficient

\(^1\) Ibid.
services and infrastructure. LDCs are characterized by lack of transport facilities, and other means of communications, power shortages, and shortages in managerial and organizational skills, and lack of experience in manufacturing operations. The absence of allied industries is considered as a disadvantage to the newly established industry.\(^{(1)}\)

Some economists have pointed out that dumping the markets of the importing country by reducing export prices in their countries is a case for protection.\(^{(2)}\)

Another argument for protection can be the statement that all developed countries have become industrialized with the help of high degree of protection. This statement is not always true because the degree of protection in developed countries was not as high as those observed in developing countries.\(^{(3)}\)

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\(^{(1)}\) R. Bales and Associates, "The Structure of Protection in Developing Countries, 1971.

\(^{(2)}\) W. Conlan, \textit{op. cit.}

\(^{(3)}\) J. Little, Sittovsky and other, \textit{op. cit.}
Problems of Tariff Protection:

In spite of the acceptance of tariff protection as an effective instrument of industrial policy, we must also note that there are a number of problems connected with the application of tariffs. First, the protection system with higher prices of locally-manufactured commodities will force the consumer to pay higher prices for commodities which may not be quite satisfactory to his taste and his needs. This sacrifice of the consumer will not be worthwhile unless the producers are able to improve the quality of their products.

Secondly, the imposition of very high tariffs has led to black market operations and smuggling, as a result of high prices and the small quantities and bad qualities of the product.

Finally, the high prices will lead to a decrease in quantities demanded. So we can say that protection has the effect of limiting the size of the domestic market. Also the small foreign quantities demanded will result
in a loss of government revenue collected from import duties.

In addition to these there are many other arguments against the use of excessive protection.

The imposition of tariffs will lead to diversion of resources from the alternative, and usually more economic, uses to which they would freely move in the absence of tariffs, which may constitute a substantial economic loss that is not noticed when evaluating the effects of protection.

High rate of protection discriminates against primary activities because protection permits domestic industries to operate with a value added higher than under free trade value added and this will encourage factors of production to move into domestic industries. (1) Protection will lead to inefficiencies in resource allocation as a result of distortions in the relative prices of inputs and outputs due to the imposition of tariffs.

(1) Hal a Balassa & Associates, Co.c.i.b.
Protection will lead to overvaluation of currency, as the imposition of tariffs will permit balance of payments equilibrium to be maintained at a lower exchange rate. (1)

The high cost of inputs, and the overvaluation of currency both resulting from high protection have hindered the expansion of primary and manufactured exports. (2) Overvalued currency discriminates against exports because producers for export will receive lower local currency per dollar than they would get under free trade.

Protection policies also encourage production for the high-priced protected domestic market, rather than for foreign markets where they will face low prices and high competition from the more mature and better endowed foreign rivals.

This discrimination against export should not be encouraged by LDCs, as the right policy is to encourage

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(1) Ibid., p.11.
export production. The expansion of export is a more promising line of development than import substitution, because export as a foreign exchange earner is not hindered by the limited size of the domestic market. Exports also make it possible to specialize according to comparative advantage. Protection for domestic industries producing import substitutes, can not be continued for a long time because there is a limit to the absorptive capacity of the domestic market. The limitations imposed by the size of the market, also provides a constraint to the application of large scale methods of production and will lead to one or few firms monopolizing the market and also to production with excess capacity which is a waste of economic resources.

The numerous problems associated with protection need not stop LDCs from adopting such policy, but some considerations are to be taken when using this system. First of all, only a moderate (say 20% - 50%) rates of protection should be available to any industry. This

ensures that the prices of locally manufactured products will not diverge too widely from those of world prices. Secondly is that the period of granting protective measures should be determined for a specific time period. In Sudan most of the protective measures granted have turned to becoming permanent. The limitation of protection to infancy period will ensure that only those industries which have the ability to continue without protection will be given any protection to start with.

**Effective Tariff Protection: Theory and Measurement:**

A tariff imposed on an imported commodity would increase its domestic price, inducing more of it to be produced locally and less of it to be consumed. The fall in imports will equal the sum of these two effects.

The degree of protection provided by the tariff can be measured by the resulting percentage increase in the price at which imports are sold in the home market i.e., nominal rates of protection. It shows the percentage excess of the price of domestically produced goods over
gross output, a rise in the use of factors, and an increase in value added.

The main assumption in which calculation of nominal protection is based is that trade exists only in finished products. In the real world, trade is carried on all stages of production including raw materials and intermediate goods. The tariff is levied on intermediate or semi-processed inputs is not taken into account by the nominal rate of protection, which does not give a complete picture of protection. Some device has to be introduced to take into account the effect of input tariff rates on the degree of protection.

The theory of effective protection has added more to the understanding of how the structure of nominal

tariffs affects the production of a country by determining what effects tariffs have on the value added of an industry rather than on the price of the protected industry's output.\(^{(1)}\)

Generally, in LDCs the tariffs levied on intermediate inputs are low so that they will not offset the effect of a tariff on the output and discourage production. All over the world we find that tariffs are escalated in ascending order, from low rates in raw material and intermediate inputs to high rates on consumption and luxury goods.

The effect of tariff rates on raw materials in reducing protection given to industries was first mentioned by Barker (1955).\(^{(2)}\) The theoretical and empirical interest in effective protection as an instrument of measuring the real extent of protection and as a tool of economic analysis was known after the workings of Corden\(^{(3)}\) who developed the theoretical base.


To the producer a tariff levied on material inputs used in the manufacturing of the product will affect his decision about whether to produce or not since tariffs levied on inputs will increase his cost of production.\(^{(1)}\) The consumer is only affected by nominal rates because in his choice he is guided by relative prices of final goods.

The EEP expresses the margin of protection of value added in the production process rather than the product price. Thus while the nominal tariff rate of an industry is defined as \( t = \frac{P^d}{P} \) where \( P^d \) and \( P \) are the domestic and world market price of the industry’s outputs respectively, the rate of effective protection \( g \) is defined as:

\[
g = \frac{V^d - V}{V}
\]

where \( V^d \) and \( V \) are the value added per unit of output with and without protection respectively.\(^{(2)}\)

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\(^{(2)}\) Ibid.
ERP is defined as the percentage excess of domestic value added obtainable by the imposition of tariff on the product and its inputs over foreign or world market value added. (1)

Effective rate of protection reflects more accurately than the nominal rate how heavily the production process in each industry is protected. (2) Ranking of industries by ERP will indicate the actual movement of resources into the protected industries. ERP can then be the right indicator of how primary factors of production move into production of certain goods depending on the protective structure of industries. Generally, resources move towards an industry with higher ERP and move away from industries with lower ERP. It can also reflect relative price distortions as a result of government, trade unions and producers action through different devices which favour some commodities or sectors over others.

Using ERP we can measure the encouragement given to a particular activity much better than using nominal. (1) E. Orskov and R. Johansen, Op. cit., p.4. (2) Ibid.
rates which consider only the amount by which the price of the final product is increased. There is normally a good correlation between the two measures, but effective protection is usually higher,\(^1\) due to the fact that nominal rates on final goods are higher than those on inputs.

Now many countries are talking about reducing the degree of protection so that trade can take part in world development. ERP can be used in international bargaining about tariff reductions.\(^2\)

Sometimes it is found that some industries may have a negative rate of effective protection. This is a case when the tariff on the output is not as high as that levied on the material inputs.\(^3\) Or it can be due to the fact that the value of the imported inputs used in production exceeds the value of the final product. This means that the finished goods can be purchased more cheaply.

abroad than the inputs used in the domestic production. (1)

We have seen from the previous discussion about protection that high rates of protection have a harmful effect on the whole economy because of the discrimination they make against other non-protected sectors. That is why the ERP is the right instrument by which policy makers can determine the successful industries which deserve more protection than others. Sometimes there are misleading cases of high ERP, even if the nominal rate is relatively low. This is due to the fact that value added constitutes a small proportion of the product price. (2)

Generally, the ERP will be higher than, equal to or lower than the rate of tariff on the product depending on whether this tariff exceeds, equal to or less than tariffs on material inputs.

Some writers, however, believe that there is no difference in ranking industries according to effective or nominal rates of protection. (3)

Others hold the opposite belief that there is no reason to think that nominal and effective rates can give the same ranking because ERP is determined jointly by tariffs on inputs and outputs and by the share of value added in total output. (1) Why the two rates seem to move together is explained by the cascaded tariff structure in most developing countries where nominal rates are higher on consumer goods followed by intermediate and then primary products. (2)

**Measurement of Effective Protection**

The ERP is determined within the framework of partial equilibrium analysis. To avoid technical problems it is measured under certain assumptions, the most important of which is that import coefficients are fixed. Other assumptions include constant factor prices, constant returns to scale, pure competition and infinite elasticities of demand for exports and supply of imports.

The formula for the NBP for the activity producing \( \dot{A} \) can be derived as follows:

Let

- \( P_v \) = value added per unit of \( j \) in activity \( j \) in absence of tariffs i.e. world market price.
- \( p^1_v \) = Value added after the imposition of the tariff.
- \( \varepsilon_2 \) = Effective protective rate for activity \( j \).
- \( P_j \) = Nominal price of a unit of \( j \) in world prices.
- \( a_{i,j} \) = Share of \( i \) in cost of \( j \) at free trade prices.
- \( a_{i,j}^f \) = Share of \( i \) in cost of \( j \) after tariffs have been imposed.
- \( t_j \) = Nominal tariff rate on product \( j \).
- \( t_i \) = Nominal tariff rate on import \( i \).

Then

NBP defined as the percentage increase of domestic value added over world value added, as a result of imposition of tariffs.

\[
\varepsilon_2 = \frac{p^1_v - P_v}{P_v} \tag{1}
\]

Where

\[
P_v = \frac{P_j}{a_{i,j}} \tag{2}
\]

\[
p^1_v = P_j \left(1 + t_j\right) - a_{i,j}^f \left(1 + t_i\right) \tag{3}
\]

\[
\frac{g_{ij} = \frac{p_j (1 + t_j) - a_{ij} (1 + t_i) - p_j (1 - a_{ij})}{1 - a_{ij}}}{1 - a_{ij}}
\]

\[
g_{ij} = \frac{t_i - a_{ij} t_j}{1 - a_{ij}}
\]

If we have many inputs this formula can be written as:

\[
g_{ij} = \frac{t_i - \sum_{k=1}^{n} a_{ij} t_k}{1 - \sum_{k=1}^{n} a_{ij}} \quad i = 1, 2, \ldots, n
\]

This formula is applied when we are using world-market input coefficients where the amount of tariff is added to arrive at the domestic prices.

It is more usual that the domestic data is used. In this case the tariff rates are included inside the input coefficients. To arrive at world prices we deflate the domestic values by the amount of the tariff.

\[
g_{ij} = \frac{p_j}{p_j (1 - a_{ij})} - 1
\]

\[
p_j = p_j (1 - a_{ij}) ...
\]

...
Sometimes other taxes are levied both on the product and raw material levels. These are excise and consumption taxes. The effect of these taxes on formula (5) is as follows:

If $c_j$, $c_i$ are consumption taxes on $j$ and $i$ then

$$S_i = \frac{1}{1 + c_j} - a_{ij}$$

(1)

$$\frac{1}{(1 + t_i)(1 + t_j)} \frac{S_i}{1 + c_j}$$

(10)

Net effective Protection:

The imposition of tariffs on imports will permit balance of payments equilibrium to be maintained at a lower exchange rate than under free trade, because of the decrease in demand for imports. When the exchange rate is underestimated there is over-valuation in the local currency. The price of imports will be lower as the importer has to pay less local currency for the same amount of foreign currency. This will tend to decrease the rate of protection given to industry. If we want to...

measure the true rate of protection i.e. the net ERP. We have to adjust for the actual exchange rate which comes into existence as a result of protection of certain industries.

This low exchange rate may worsen the discrimination against the export sector as a result of protection. Producers for export receive less local currency per foreign currency than they would have received under free trade conditions if export promotion policy is adopted. This can not be done prior to devaluation of the currency. Net effective protection indicates the degree of discrimination against exports.

**Conceptual and Empirical Problems:**

Following the development of ERP theory as the measure of the effect of tariffs on resource allocation, many empirical studies were carried out. These included studies by B. Balassa, Basdev, Travis, Crubel and Johnson, Little, Seitzovsk and many others. (1)

---

When calculating ERP for different countries, some problems were encountered and different solutions were given. Some of the problems that have been encountered by me while measuring the ERP for the Sudan are mentioned below.

**Tariff Averaging:**

When determining nominal tariff rates, different rates for different commodities are to be averaged so as to arrive at a representative measure to the averaged group. For this purpose appropriate weights have to be chosen. Usually the weight used is the quantity of imported products of each commodity.

**Quantitative Restriction:**

Sometimes you find that most of the commodities in LDCs are protected not through imposition of a tariff rate but through quantitative import restrictions such as quotas and other kinds of prohibitions of imports. The implicit tariff equivalent has to be calculated by comparing actual domestic prices and foreign prices before any duties are levied. Some difficulties are encountered in comparing
prices if lower prices are forced in domestic industries so as to reduce the effect of bad quality in volume of sales.

Treatment of Non-Traded Inputs:

Another problem encountered in empirical calculations is the treatment of non-traded goods which include construction, electricity, water supply, communications, banking and insurance. These services are not traded internationally because of high costs of transportation. In practice, the free trade prices of these goods do not equal to their domestic prices minus the tariff. To calculate the free trade price for non-traded inputs, a question of whether to treat them as ordinary inputs with zero tariff rates or rates equal to other tradeable inputs arises. Protection to a certain industry will benefit the primary factors and the non-traded goods by raising their prices and hence allowing more of them to be produced.

Since the primary factors of production and the non-traded

services have different supply elasticities, so a different device has to be used in estimating the price of non-traded inputs.

Two methods are generally used: The Corden method, and the Balassa method. The former depends on the assumption that the protection for non-traded inputs means indirect protection for the primary products used in their production. So, the value of non-traded inputs is to be broken into value added, traded and non-traded inputs, which again can be broken to the same components. At the end only a small part of the non-traded input will remain. The value added of the non-traded input is to be added to that of other primary factors, and the extent of protection is calculated with respect to the sum of the two. This method is difficult to apply in LDCs where unavailability of data is a major problem.

The Balassa method is based on the assumption that tradeable as well as non-tradeable inputs have an infinitely elastic supply and that the prices of non-tradeables


(2) W. Corden, op. cit., p. 99.
are not affected by the tariff structure. So, were
tariff rates are used in deflating the non-traded
inputs. This is the method used in the calculation of ERP for Sudanese industry.

Both methods were used in different empirical studies and it was generally observed that the results, if using Belassa method are generally higher, but the ranking of industries is not affected.

Effectiveness of Tariff Protection in the Sudan:

For the estimation of values of ERP for Sudanese industries, the mathematical formulae were derived earlier in the chapter. The input-output system which forms the basis of this calculation is due to Dr. M. A. El Egaily.\(^\text{1}\)

His input-output analysis of the Sudanese Economy for 1970/71 contains the only suitable input-output table suitable for use in the calculations.

Some attempts were made to measure the ERP for Sudanese industries. All of them have used the general

cost structure of the different industries and the data provided by the 1971 industrial survey. The cost is divided into cost of (i) raw materials (local and imported) (ii) packing materials, (iii) non-trade inputs, and (iv) others.

For these broad classifications, different import duties were assumed. For raw materials, Dr. Nimeri (1) has assumed 20 per cent tariff rate while the IREO (2) and Dr. Nasser (3) a 15 per cent rate. For packing materials Nimeri has assumed 45 per cent and Nasser and the IREO 35 per cent. For other inputs a zero rate was assumed.

(2) IREO, A Survey of the Industrial Sector of Sudan (Cited), pp.59-60.
I am fortunate in that an input-output table for the Sudan has just come out. Using input coefficients, I was able to apply the appropriate rate for each input. In this way, more accurate results should be obtained.

Nominal Tariff Rates:

When calculating ERP, customs tariff has to be averaged for the relevant range of products which comes under my classification. For this purpose appropriate weights are to be chosen to arrive at the most representative weighted average.

For the Sudan, different averaging methods were used which have resulted in different ERP calculations for the same industry. These differences resulting from different tariff averaging have been noticed in some empirical studies in other countries. (1)

The averaging procedures used are: the simple average of tariff rates used by Dr. Masseeam. A weighted average was used by Dr. Himawi and the IMRB Mission. (1)

have used an average weighted by the value of total imports. Although I have got different results, the divergence between these estimations and my estimate is not too wide.

The nominal rates estimated for Sudanese industries are shown in Table 1. They vary from 10 per cent on fertilizers to 350 per cent on tobacco products. They are high on brewer's, soap, petrol, ready-made clothes, etc, but for the other industries they range between 30 and 52 per cent.

In the Sudan, where quantitative restrictions are widely used, comparisons between domestic and international prices have to be made. For lack of data, I have assumed that the tariff is the only means of protection and thus used the weighted average tariff rates. Since quantitative restrictions usually give stronger protection the effective rate measured may be underestimated. Few attempts were made to consider the effect of quantitative restriction on the extent of protection. One is made by IBRD to estimate the nominal protection rate for
Another attempt was made by the ILC mission where they calculated nominal rates for selected industrial products, by comparing the ex-factory price with the corresponding cif import price to which a 15 per cent internal trade transport margin is added. The ex-factory price is determined by the Ministry of Industry on the basis of the cost of production plus a profit margin. The difference between ex-factory and import price as a percentage of import price was taken as a measure of nominal protection for the commodity.

This measure can show the degree to which ex-factory price control permits exploitation (in price terms) given by higher tariffs on imports.

The estimated nominal rates vary from (-51.3) per cent for braned cow hides to 250 per cent in canned tomato paste. Negative nominal protection, where import price is greater than ex-factory price is computed for toilet soap, cement, sugar, and cotton seed oil.

(3) Ibid.
There are three cases of high nominal rates
(Laundry Soap, canned tomatoes paste and refrigerators)
which suggest that ex-factory price control permits full
exploitation of nominal tariff protection as well as the
protection induced by quantitative restrictions.

Effective Rates of Protection:

Effective rates of protection are estimated for
29 industries. The estimates of nominal and effective
rates are given in Table 1 where 17 of the total number
got an ERP over hundred, 5 only got a less than hundred
ERP.

This high ERP indicates that the domestic value
added is much greater than the free trade value added.
This is the result of, either a higher than normal
profits or a high cost of production. If high ERP leads
to higher profits, this would mean a redistribution of
income from the consumer to the producer which should
not be encouraged. This redistribution of income is
worsened by the fact that the consumers are paying higher
prices for products which may not be of a good quality.
When high profits are assured by protection of the domestic market, no attention is paid by firms for product and technical improvements. If the firms are foreign owned ones, the transfer of profits would mean an additional cost to the economy.

If protection permits industries working at costs of production higher than international costs, this is harmful to the economy. High production cost reduces the national income obtainable from the available resources.

It means that these industries will never be able to continue production in the absence of high tariff rates. If the tariff rate is removed, these industries will stop producing and the domestic resources in the country will move towards industries where they can get a better reward.

Apart from the high average protection, differences in the protective rate between industries will encourage the misdirection of resources towards industries which

have a high KFF.

In 6 out of the 29 cases, negative world value added was computed. Negative world value added has been observed in many cases of empirical analysis,\(^\text{[1]}\) when computations are made by deflation using data on domestic costs.

Sometimes negative world value added is blamed on observational errors and inaccurate information on tariff rates and cost of intermediate inputs.\(^\text{[2]}\)

Negative foreign value added represents a case where the cost of protection to the economy is so high, this means that the finished product could be purchased abroad more cheaply than the sum of the importable inputs used in its production.\(^\text{[3]}\) Lewis and Guesinger\(^\text{[4]}\) suggested that a country’s entire price structure can be distorted in the sense that the firm can have a positive value added.

---


in domestic currency even though its value added is 
negative when all commodities are valued at interna-
tional prices.

The industries which have negative value added 
which suggests that they are inefficient industries 
enjoying excessive protection, are dairy products, 
edible oil, flour mills, tobacco products, spinning 
and weaving and soap industries. This can be explained 
by the high tariff rates on the product specially in 
the case of tobacco manufacturing. The high protection 
is also due to the national decision to protect industr-
ies for a long period of time. Although soap is a 
protected industry for about more than 50 years, the 
quality of the product is deteriorating every year.

The inefficiency connected with negative V.A. may 
be due to the fact that these industries are working with 
less than full utilized capacity. This will surely add 
to the cost of production as the fixed cost is continuously 
added to the cost of production. All these factories are 
working at capacity less than 60 per cent. (1)


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<table>
<thead>
<tr>
<th>Industry</th>
<th>NER</th>
<th>ERP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit and vegetable canning</td>
<td>60</td>
<td>1631</td>
</tr>
<tr>
<td>Dairy products</td>
<td>42</td>
<td>-</td>
</tr>
<tr>
<td>Flour mills</td>
<td>38</td>
<td>-</td>
</tr>
<tr>
<td>Bakery products</td>
<td>40</td>
<td>351</td>
</tr>
<tr>
<td>Sugar Refining</td>
<td>60</td>
<td>162</td>
</tr>
<tr>
<td>Sweets and confectionery</td>
<td>62</td>
<td>202</td>
</tr>
<tr>
<td>Edible Oil</td>
<td>26.5</td>
<td>-</td>
</tr>
<tr>
<td>Distilling and rectifying</td>
<td>38.6</td>
<td>62</td>
</tr>
<tr>
<td>Breweries and malt</td>
<td>125</td>
<td>479</td>
</tr>
<tr>
<td>Non-alcoholic drinks</td>
<td>42</td>
<td>78</td>
</tr>
<tr>
<td>Tobacco products</td>
<td>350</td>
<td>-</td>
</tr>
<tr>
<td>Spinning and weaving</td>
<td>55</td>
<td>-</td>
</tr>
<tr>
<td>Knitting Mills</td>
<td>70</td>
<td>944</td>
</tr>
<tr>
<td>Other Textiles</td>
<td>85</td>
<td>713</td>
</tr>
<tr>
<td>Tanneries</td>
<td>45</td>
<td>138</td>
</tr>
<tr>
<td>Footwear</td>
<td>65</td>
<td>772</td>
</tr>
<tr>
<td>Wood and Furniture</td>
<td>42</td>
<td>373</td>
</tr>
<tr>
<td>Paper and printing</td>
<td>47</td>
<td>132.7</td>
</tr>
<tr>
<td>Basic Chemicals</td>
<td>10</td>
<td>16.7</td>
</tr>
<tr>
<td>Paints</td>
<td>40</td>
<td>161</td>
</tr>
<tr>
<td>Other Chemicals</td>
<td>40</td>
<td>120.6</td>
</tr>
<tr>
<td>Soap</td>
<td>150</td>
<td>-</td>
</tr>
<tr>
<td>Petroleum Products</td>
<td>82</td>
<td>131</td>
</tr>
<tr>
<td>Rubber Manufacturing</td>
<td>40</td>
<td>73.8</td>
</tr>
<tr>
<td>Glass Manufacturing</td>
<td>36</td>
<td>175</td>
</tr>
<tr>
<td>Building Materials</td>
<td>35</td>
<td>151</td>
</tr>
<tr>
<td>Non-metal industry</td>
<td>38</td>
<td>50</td>
</tr>
<tr>
<td>Basic Metal Industry</td>
<td>40</td>
<td>131.6</td>
</tr>
<tr>
<td>Fabricated Metal Industry</td>
<td>65</td>
<td>155</td>
</tr>
</tbody>
</table>

These calculations are based on the assumptions mentioned earlier. Source of raw data for ERP is provided by Customs Department.
In the case of dairy products the factories are working below capacity as a result of inavailability of raw materials throughout the year. In the oil industry it is now known that the installed capacity of the factories is greater than the amount of cotton and other seeds that are cultivated in the country, and that some of the factories are using primitive techniques of production leading to high costs. These two cases clearly reveals the absence of any sound project evaluation that is carried by the Ministry of Industry before giving licences to the new factories.

Other reasons causing inefficiency in the domestic industries may be due to inefficiency in management or to the relative high costs of non-traded inputs such as electricity and domestic transport. In the Sudan these are considered very high. (1) The high cost of imported inputs which can result in negative value added and is not the result of high tariff rates on imported inputs can be the result of greater monopoly power by the foreign

supplier of material inputs than of finished products.\(^{(1)}\)

In the Sudan tobacco and edible oil have shown a negative
\(\text{EVQ}\) by all the studies.

In the Sudan quantitative restrictions industry
total prohibition of imports is widely used for the
purpose of protection. Quantitative restrictions are
normally used because of the ease with which prompt
application of them can be made by the government. In
the absence of detailed price comparisons, evaluating
the effects of these restrictions on the national economy,
becomes very difficult.

Although the effect of import restrictions has not
been quantified, there is a tendency that these restrict-
tions will result in redundancy of protection rates.

The full restriction of imports, together with the
high level of protection, and the narrowness of the
domestic market have led to the establishment of monopoly
positions which is evident in the case of batteries,
stationary products among others.

\(^{(1)}\) Lover "Import Substitution as an industrialization
In some cases, there is hardly any effective competition. The case of matches industry is a clear case in point. If there are two factories producing the same product in a small market, where only one factory can survive, one of them had to stop production or else each is to produce half the quantity that one of them can produce, at higher price. Sometimes as in the case of matches, one will buy the other and continue to possess a monopoly power.

Excise Taxes and Protection:

Excise duties are generally levied on domestic production to compensate for the revenue lost by the government as a result of import restrictions and other concessions given to industry in the form of Business Profit Tax relief or reductions. In addition excise taxes has the effect of decreasing the monopolistic positions given to certain industries as a result of excessive protection.

Leaving excise taxes will affect the relative prices in the economy and this causes domestic value
added to differ from free market value added.\(^{(1)}\) The result of interaction of excise taxes with tariff rates is substantially to reduce the SEP which is recorded under the tariff protection alone.

An imposition of excise taxes levied on a commodity which is used as an input for another industry will increase the cost of production to that industry. In the Sudan there are no excise taxes levied on inputs used by local industries, except in the case of perfumes, where a high tax is levied on the alcohol used in production. This has led to high cost of production for this industry, and to the smuggling of perfumes inside the country to be sold at cheaper prices.\(^{(2)}\)

In the Sudan, excise duty is levied at various rates on selected products. Although the motives for levying such duties is quite obvious, but there is no systematic approach on the basis of which the commodities


to be taxed and at what rate is determined. The tax was first introduced in 1952 when a tax was levied on tobacco products, beer and alcoholic drinks. Until 1969 only sweets, flour, petrol products, alcoholic drinks and edible oil were taxed. In 1970 seven other commodities were added.

As a result of increasing the commodities taxed and the increase in production, government revenue from these taxes, as a share of the total indirect taxes has increased from 4.7% in 1963/4 to 23.4% in 1974/5. (1)

The excise taxes in the Sudan are criticized for different reasons. One of them is the absence of a clear approach through which the products to be taxed are selected. Textiles have been added recently to those products but the rate is only 5% while in the case of refrigerators and air coolers it is about 70%.

The other is the lack of co-ordination between the Ministry of Industry which grants concessions to industries which it feels they need encouragement, and the Ministry of Finance which has the authority of deciding taxes.

(1) 1974, p. 38.
the rate of excise taxes on different commodities. (1)

Sometimes a high duty is levied on manufactured products which has led to a reduction in the concessions given to that activity. Many local manufacturers have been complaining about the high excise taxes which has reduced the extent of protection given to them.

To calculate the effect of excise taxes on the level of protection an adjustment is made to the ENP formula to be:

$$S_1 = \frac{V_1}{1 + G_1} - \frac{M_1}{1 + E_1}$$

where $C_1$ is the excise tax on the final product.

The measurements of ENP as a result of the combined effect of tariffs and excise taxes is given in Table 2.

Before evaluating these results, we have to take into consideration the fact that excise duties are applied after an ad hoc selection of rates and goods (70 per cent for electrical equipments) and very low on the others.

Because of the aggregated nature of the classification of

(1) INRD Report, op. cit., p.31.
industries, when averaging the excise tax rate with a weighted average, we get an average for the whole industry, while in fact some commodities in the same group of industries may be highly affected by the excise tax and others are not.

A full evaluation of the effective tax for each commodity alone is not possible in the case of the input output table I have used.

Also there are many industries in the Sudan which have a strong monopolistic situation resulting from the use of full import restriction as a protective measure, and the narrowness of the domestic market. In this case the excise tax will increase the price, but the consumers are compelled to buy these commodities, because of the inavailability of substitutes.

So we find that the use of excise duty has benefited some firms, while others are suffering without any clear reason. On the whole, we can conclude that, even if the REE is reduced by the imposition of excise taxes, still the REE calculated are very high and this can be noticed from the positive escalation explained in the following section.
<table>
<thead>
<tr>
<th>Industry</th>
<th>Excise Tax Rate</th>
<th>AEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit and Vegetable Canning</td>
<td>12</td>
<td>301</td>
</tr>
<tr>
<td>Dairy Products</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Paper Mills</td>
<td>34.5</td>
<td>3</td>
</tr>
<tr>
<td>Backery Products</td>
<td>70</td>
<td>--</td>
</tr>
<tr>
<td>Sugar Refining</td>
<td>25</td>
<td>--</td>
</tr>
<tr>
<td>Sweet and Confectionery</td>
<td>45</td>
<td>5</td>
</tr>
<tr>
<td>Edible Oil</td>
<td>15-25</td>
<td>153</td>
</tr>
<tr>
<td>Distilling and Rectifying</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Breweries and Malt</td>
<td>25</td>
<td>191</td>
</tr>
<tr>
<td>Non-alcoholic Drinks</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>Tobacco Products</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Printing and Wearing</td>
<td>4.5</td>
<td>1797</td>
</tr>
<tr>
<td>Knitting Mills</td>
<td>10</td>
<td>193</td>
</tr>
<tr>
<td>Other Textiles</td>
<td>10</td>
<td>291</td>
</tr>
<tr>
<td>Tanneries</td>
<td>10</td>
<td>80</td>
</tr>
<tr>
<td>Footwear</td>
<td>25</td>
<td>98</td>
</tr>
<tr>
<td>Wood and Furniture</td>
<td>--</td>
<td>373</td>
</tr>
<tr>
<td>Paper and Printing</td>
<td>0</td>
<td>132.7</td>
</tr>
<tr>
<td>Basic Chemicals</td>
<td>0</td>
<td>16.7</td>
</tr>
<tr>
<td>Paints</td>
<td>30</td>
<td>22.8</td>
</tr>
<tr>
<td>Other Chemicals</td>
<td>20</td>
<td>66</td>
</tr>
<tr>
<td>Soap</td>
<td>6</td>
<td>--</td>
</tr>
<tr>
<td>Petroleum Products</td>
<td>25</td>
<td>69</td>
</tr>
<tr>
<td>Rubber Manufacturing</td>
<td>20</td>
<td>267</td>
</tr>
<tr>
<td>Glass Manufacturing</td>
<td>0</td>
<td>175</td>
</tr>
<tr>
<td>Building Materials</td>
<td>15</td>
<td>52</td>
</tr>
<tr>
<td>Non-metal Industry</td>
<td>30</td>
<td>32.4</td>
</tr>
<tr>
<td>Basic Metal Industry</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>Fabricated Metal Industry</td>
<td>40</td>
<td>27</td>
</tr>
</tbody>
</table>

Source for excise taxes if the Department of Excise Duties, New York.
escalation of the Tariff Structure.

The degree of escalation is calculated by comparing the nominal and BEP. When BEP are higher, this reveals a case of positive escalation. Negative escalation results where nominal rates exceed effective rates. It is quite common, in LDC, to have a positive escalation which indicates that the tariff rates are low on material inputs and other components and high on the final product. It is now widely known that, in order to promote industrial development, protection can be given either by revising the tariff on its products or by reducing the tariff on its inputs. (1)

On the other hand, negative escalation implies that the tariff rates on raw materials are, on the average, higher than the tariff rates on the final product. This can be considered as a real discouragement to industries since the cost of production will be higher if the commodity is produced locally than the price of the imported processed commodity.

There is not a single industry in the calculations shown in Table 1 which has a negative escalation. This

further supports the view that industries in the Sudan are enjoying high rates of protection, and it may exceed the rates needed to support infant industries to be able to compete in the foreign market.

In the case of SW, calculated on the basis of tariffs plus excise taxes given in Table 2, we find that there are 18 out of 27 industries which get positive escalation. This means about 66 per cent of the total indicating a high average level of protection.

An International Comparison:

An increasing number of LDC are using tariff protection as a means of industrial promotion. Empirical studies were made to calculate the effective rates of protection. It may be helpful to compare the average rates of effective protection in the Sudan with the average rates in these countries. Although there are many limitations to these comparisons because of the different assumptions and different aggregate measures used, these comparisons can still give us an idea about the level of protection in Sudan industry.

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Table 3 gives the estimates of average effective protection in different countries.

The average ERP for industry in Sudan is calculated after excluding the six industries with negative value added. A simple average is calculated.

It is quite known that the industrial sectors in these countries contribute relatively more to the Gross Domestic Product than that of the Sudan.

Despite this fact we find that the ERP in the Sudan is the highest; it is only comparable with those of Pakistan and Chile.

It is recommended that these high average rates of protection in the Sudan are to be reduced gradually by reducing the tariff rates on products and raising tariff rates on imported inputs.

The first step is to prevent the full restriction of imports which has led to very high protection, bad quality of production and in some cases to the creation of monopolistic position.
## Table 3

**Tariff Protection in the Sudan and some Developing Countries.**

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>NRP</th>
<th>ERP</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Sudan</td>
<td>1971</td>
<td>34.8</td>
<td>307.3</td>
</tr>
<tr>
<td>Chile</td>
<td>1961</td>
<td>111.0</td>
<td>182</td>
</tr>
<tr>
<td>Mexico</td>
<td>1960</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1963/64</td>
<td>85</td>
<td>271</td>
</tr>
<tr>
<td>Nigeris</td>
<td>1967</td>
<td>58.9</td>
<td>97.6</td>
</tr>
<tr>
<td>Brazil</td>
<td>1966</td>
<td>96</td>
<td>113</td>
</tr>
<tr>
<td>Philippine</td>
<td>1965</td>
<td>25</td>
<td>61</td>
</tr>
</tbody>
</table>

**Note:**
- **NRP**: Nominal Rate of Protection.
- **ERP**: Effective Rate of Protection.

**Source:** Figures for Brazil, Chile, Philippine, Mexico and Pakistan are from Dalla Balza and Associates, *The Structure of Protection in Developing Countries*, John Hopkins Press, Baltimore 1971, pp.56, 58. Nigerian figures are from T. Abiola Cugide, *Tariff Policy and Industrialization in Nigeria*, Ibadan University Press, 1975, p.32.
When protection is reduced the successful industries can be able to produce more efficiently and compete with foreign products, while the inefficient ones have to close down, and resources will be directed to those industries that can produce at a comparative advantage. The competition from foreign commodities will force local producers to improve their quality.

In some countries, efforts which are made to reform the structure of protection were made difficult by powerful resistance on the part of the manufacturers of these commodities. (1)

Depending on the questionnaire results, I have found that, although 60.5 per cent are fully protected, 65 per cent of the total number think that they are not getting enough protection and that is a result of different inhibiting factors. These are given in Table 4.


(*) The questions asked are provided in the appendix.
### Table 1.

Factors Affecting the Positive Effect of Protection

<table>
<thead>
<tr>
<th>Factor</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imports allowed because no transfer of foreign exchange outside is</td>
<td>57.2</td>
</tr>
<tr>
<td>made (nil value)</td>
<td></td>
</tr>
<tr>
<td>High excise duty on product</td>
<td>7.2</td>
</tr>
<tr>
<td>Protection is not practically given</td>
<td>14.2</td>
</tr>
<tr>
<td>Smuggling of competing goods inside the country</td>
<td>21.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
</tr>
</tbody>
</table>

The main factor reducing the effectiveness of protection to domestic producers is the tendency of the government to approve importation of certain classified commodities, if transfer of foreign exchange is not required. Usually these imports are paid from the savings of Sudanese living outside the country, because usually they receive their payments in hard currencies. Sometimes they are given licences to import from the country in which they are working, using its own currency.
Although these imports may not be in large quantities and in relatively higher prices, but their existence is not welcomed by local producers who feel that this can reduce the volume of their sales.

Sometimes, foreign competition is the result of lack of co-ordination between different government units. This is when the Ministry of Industry is giving protection to one commodity, while the Ministry of Trade is giving licence for its importation.

Another factor reducing the degree of protection is the smuggling of some commodities from neighbouring countries and selling them at lower prices. This is considered the natural result of extremely high tariff rates which have resulted in black market operations and smuggling in many countries. (1)

Another reason given by some industrialists for feeling unprotected is that the excise tax levied on their production is equal to the tariff duties. Subtraction of the excise tax rate from the corresponding import tax.

rate will give them a new level of protection. This should not be the case since it is widely known that the excise tax is to be less than the tariff so we not to arrest the effect of protection. (1)

change earned from primary exports will not be enough to finance imports and the country would resort to industrialization either for export or import substitu-
tion as the possible solution. Thus the other approaches to development are not entirely independent of the first approach.

A second possible approach consists of the domestic production of manufactured goods for export. This
approach may be difficult for beginners in industrial
development, because of the foreign competition from
the advanced countries, though it has achieved a large
success in some less-developed countries eg Hong Kong,
South Korea and Taiwan.

The third approach to economic development is the
domestic production of manufactured goods for the domes-
tic market. Most of the less-developed countries have
adopted the policy of import substitution through pro-
tective tariffs on manufactured imports as a direct
route to industrialization. High tariffs and other
protective measures tend to reserve the market for local
products and enable producers to sell at higher prices.
The domestic price will equal the foreign price plus the
amount of the tariff. These two factors will encourage
entrepreneurs to invest their money in producing manufact-
ured products for use in the local market.

Import substitution or production for domestic
market to replace previously imported commodities in-
volves a process of industrialization to the well known
requirements of a local ready-made market.
Arguments for Import Substitution:

There are many arguments in favour of import substitution as an industrial policy for less developed countries. Support for import-substitution comes from the historical development of the industrialized countries where studies showed that at the earlier stages of their industrialization, industries based on import substitution accounted for a large proportion of the increase in production. (1)

In the recent economic development we find many countries substituting domestic production for imports through the assembly of imported semi-finished materials on the hope that this will save foreign exchange and provide incentives for domestic production of parts and components. Even in the early development of Japan, assembly industry is constructed to make use of the cheap labour and create value added in the economy. (2)

Import substitution is encouraged as long as some additional value is created with each activity.

A proponent for this type of industrialization is Hirschman(1) who believes that the country may import semi-finished materials and perform the "final touches" to convert them into manufactured products for use in the local market. This will create more incomes which will increase demand for intermediate and investment goods and the possibility of producing them locally at a later stage. Success of this policy in one country does not imply its success in others and there are cases where the policy proved to be insignificant, for example in Turkey(2), where imported licenses were granted to establish assembly industries in the expectation that these industries would save foreign exchange and provide incentives for domestic production of parts and components. Instead people invested in order to earn export licenses and the requirements of intermediate goods continued to increase.


The most important reason given in support of import substitution is that it will lead to improvement in the balance of payments, by saving the amount of foreign exchange used to import goods which are now produced at home.

The balance of payments problems could be solved, in addition to the import substitution, either by export of primary products or exports of manufactured products, both of which proved to be insignificant for the conditions of LDCs. Primary products are facing problems of declining prices and instability of supply and earnings leading to instability in the economy while manufactured goods are liable to face world competition, the result of which is not to its benefit. The instability of export earnings usually leads to the adoption of other policies to save foreign exchange which can be a policy of import substitution. Many writers believe that even if LDCs have a comparative advantage they should not specialize in this line because of the disadvantages associated with the heavy reliance on exports of primary products. (1)

(1) Johnston and Nelson, "Agriculture and Structural Transformation in a Developing Economy".
At the beginning of industrialisation, because of problems encountered in underdeveloped countries which include deficiencies in social and overhead capitals, inavailability of skilled manpower and knowledge of adequate techniques of production, and lack of experience in manufacturing operations low quality goods are produced. This can only be accepted in the home market which is determined by the poverty of the consuming population. (1)

The case of import substitution is also supported by the need of underdeveloped countries to gain some advantages of industrialisation. High productivity and technology connected with industrial production, can spread to other sectors in the form of lower costs and prices of products. Import substitution is also considered as an obvious source of industrial growth, less-developed countries have been extremely dependent on imports of manufactured goods, so when these imports are produced domestically, there will be an increase in the amount of industrial production. (2)

Over the long run, the skills and other favourable externalities created by industrialization, will spread skills and technical knowledge to the other sectors of the economy. Linkage effects associated with industrialization will bring into more industries that can make use of the industry products for further processing, and other industries which may supply imports and packing materials.

An argument in favour of import substitution is the already existing market for the imported commodity. It is common knowledge that import restriction should be built side by side with the availability of supply. Import restriction creates the internal demand for the commodity without the need to wait until this demand is created by the effects of the increase in incomes resulting from increase in production. (1)

An import substitution policy is believed to result in an increase in savings and investment. Because of the restriction of luxury imports, their consumption will be reduced, allowing for an increased surplus to be saved. Moreover, the higher profits resulting from the higher

(1) C. Myrdal, op. cit.
prices in the protected market, are liable to be saved and may be channeled into investment, if local entrepreneurs find manufacturing prospects more promising than buying estates or going into domestic or international trade.

More investment will be made in the country if foreign manufacturers build branches of their industries in the country if they fear that import restriction will lead to their loosing of the market to which they have been exporting previously.\(^1\) So it is argued that import replacement policy, by turning the terms of trade against the non-protected sectors, will alter the distribution of income in such way that savings, investment, and growth are promoted.\(^2\)

Contrary to this, John Power argues\(^3\) that import substitution is likely to lead to lower savings because the production of consumer goods is likely to encourage consumption,

\(\text{\textendash}\)


\(^{3}\) Ibid, p. 1165.
Shortcomings of Import Substitution and Development Strategy:

Most of the underdeveloped countries have depended on import substitution as a policy for economic development without looking forward for its implementation and side effects in the allocations of resources and techniques of production.

Despite increases in the rate of investment, countries like Argentina and Chile experienced a decline in the rate of growth of GNP once the early stage of import substitution had come to an end. Recent experiences in these countries have raised doubts about the true size of the impact of import substitution on the balance of payments. (1)

Reducing the import bill, which is the main objective of this policy, has not been fulfilled and this seems to impose a limitation on the rate of economic growth. The substitution of imported finished goods by domestically produced goods may require the importation of a considerable volume of raw materials and

semi-finished products, particularly when domestic industries are relatively inefficient is when more imports than those in industrial countries are needed to produce the same output. (1)

Another factor which will lead to an increase in the import content of the LDUS is that, as a result of industrialization, incomes will rise as a result of the additional incomes and wages earned by the new employees. This increase in income will lead to a rise in demand for consumer durables which, sometimes, may not be satisfied from domestic production and the need for importing them arises. In some countries when agriculture is forgotten for the sake of industry, these imports may be feed stuffs and other agricultural products. Thus, especially in the short run, direct savings of foreign exchange following import restriction may be less than the indirect expenditure of foreign exchange arising from the need to import machinery, inputs and agricultural products.

The smallest savings of foreign exchange is usually found in processing or assembly industry which use imported

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(1) K. Griffin & J. Rees, op. cit., p. 145.
parts. In these cases where the imported inputs constitute a large proportion of the inputs of the product, the domestic value added constitutes a small ratio of the product value. The justification for establishing assembly type industries is based on the fact that these industries can make use of cheap domestic labour thereby adding to the value added in the country. But it is always doubted whether the gain from domestic employment will offset the higher cost of the operation, considering government loss of revenue as a result of import restriction. \(^{(1)}\) As a solution, some countries require that payments to labour must provide no less than a certain minimum percentage of value added. In Argentina, industries were reported where the import cost of the capital and other inputs was greater than the cost of the finished product. \(^{(2)}\)

---


The establishment of assembly industries in LDCs will not lead to increases in productivity, nor to the establishment of other industries through linkage effects.

Import substitution in the long run will lead to a decline in the rate of domestic savings, because of the redistribution of income savings from government revenues as a result of import restriction, towards new industrialists which have a lower marginal propensity to save. (1)

Also the high profits which accrue to a small percentage of the population will lead to social instability.

The continued sheltering of domestic industry from foreign competition involves a great loss to the economy. Because producers are sure of an outlet for their products due to restriction of competitive imports, they do not cater for the quality of the product. (2) In competition success depends on the ability to satisfy the buyers need, to improve quality and techniques of production. Excessive encouragement of import substitution will result in the creation of industries which are inefficient and can not compete in the world market without being offered higher degree of protection.

(1) Griffin and Kenen, op. cit.

In cases of import substitution where the country
is characterized by a small-sized domestic market there
is opportunities forgone for improvement in productivity.(1)
This is mainly because of limitation to the use of large-
scale production. Advantages from large-scale production
are gained through specialization in a narrow range of
activities or commodities, and improvements in efficiency
through learning by doing. In a small domestic protected
market specialization is not possible and many varieties
of a particular product are produced to satisfy different
tastes. This will add to the cost of production.

The small protected market also gives rise to mono-
plastic production. One producer can satisfy the whole
market impeding others from investment. These producers
will have a strong position in forcing high prices by rest-
restricting the volume of production.

The policy of import substitution would encourage
production of consumer-type goods. This is encouraged
by the pattern of domestic demand in a low income country.
In the supply side the scarcity of technical and managerial

Usually protection for the purpose of promoting import substitution discriminates against production for export. Such exports suffer due to high prices of industrial inputs and the over valuation of the exchange rate resulting from high tariffs on imports.

In countries with a limited size of market, exports are to be encouraged because this does not involve any limit to the growth of production. This is contrast to import substitution where further domestic production is not possible, after all the possible lines of manufacturing import substitutes have been exhausted.

According to Balassa, if a country has already embarked on import substitute production, it will find it really difficult to change into other routes of industrial development.

(1) Griffin and Hanes, op. cit.
Import Substitution in The Sudan

In the Sudan, because of the need to diversify the economy and the problems associated with specialization in the export of primary products, the only solution seems to be through industrialization. Industrialization is looked at as the only hope through which the country can achieve a high rate of growth and a high per capita income.

In order to industrialize, it is only natural to look at import substitution of imported commodities as the easiest way. It is generally known that in its early stages, industrialization tends to occur first in the production of consumer goods for satisfying the local market. Production for the domestic market is easier because of the demand satisfied earlier by previous imports and the possibility that this demand will increase with rising incomes. On the supply side, the resource endowment of LDCs will favour such production especially if it is processing of agricultural raw materials. Usually production of consumer-type goods does not require a sophisticated production technique nor skilled labour force.
From the early industrial development in the Sudan starting with the enactment of the "Approved Enterprises (concessions) Act 1956", the government encouraged industries by protecting them from foreign competition.

In the 1967 Act the saving of foreign exchange through import substitution is considered one of the major criteria on the basis of which industries are chosen. These criteria are considered to represent the main objectives of the industrial policy.

Entrepreneurs are encouraged to produce for the local market because of two concessions given by the government. The first is restriction of imports either through tariff or quota measures. The other one is the government purchase of locally produced products provided that quality and prices are satisfactory. During the 1950's, protection of domestic industries was not provided on a large scale. But around the middle of 1960's deliberate protectionist policy was followed; quotas are fixed on imports which have domestic substitutes and sometimes their imports are banned altogether.\(^{(1)}\)

\(^{(1)}\) A.M. El Tahir, *ibid.*, p. 28.
Manufacturers will definitely prefer to produce for a local protected market, with high prices associated with import restrictions, while they are sure that some of their products will be sold to government departments, rather than compete in the world market.

We find that nearly all industries in the Sudan are of the import substituting type except for a few industries such as edible oil and oil cakes and tanned leather, which export a growing surplus to other countries. There are no subsidies given to export industries nor any encouragement except in 1972 Act which provides drawbacks on import duties paid on packing materials used in the production of exports.

In 1970, the government declared policy connected with the 7th years plan (1970/77), was to achieve self-sufficiency in many of the manufactured commodities. This include, among others, sugar, textiles, flour, cigarettes and ready made clothes. (1) At that period the total imports of paper, cigarettes, ready made clothes.

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(1) Ministry of Industry and Mining, Plans and Trends of Industrial Development in the Sudan, 1974. (in Arabic)
the following. The first utilization of the existing industrial capacity, second the linkage of the industrial sector with the other sectors such as the agricultural sector so as to increase the productivity in both sectors.

The structure of industries in the Sudan is the result of the combination of the incentive policies applied within the framework of import substitution policy.

The most important characteristic is the heavy reliance on imported inputs, some of which are semi-finished raw materials.

So, it can be said that the net savings of foreign exchange is quite negligible when we compare the foreign exchange saved from import restrictions and the expenditure of foreign currencies on machinery, spare parts and material inputs. Another thing is that import of machinery, and raw materials required, will immediately put a further strain on the balance of payments while production at home may not occur before several years.
<table>
<thead>
<tr>
<th>Year</th>
<th>Raw Materials</th>
<th>Capital Goods</th>
<th>Consumer Goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>28.4</td>
<td>14.3</td>
<td>61.3</td>
</tr>
<tr>
<td>1962</td>
<td>27.2</td>
<td>19.6</td>
<td>53.2</td>
</tr>
<tr>
<td>1964</td>
<td>33.6</td>
<td>18.0</td>
<td>48.3</td>
</tr>
<tr>
<td>1965</td>
<td>34.2</td>
<td>15.7</td>
<td>52.1</td>
</tr>
<tr>
<td>1966</td>
<td>33.0</td>
<td>11.4</td>
<td>55.6</td>
</tr>
<tr>
<td>1967</td>
<td>33.8</td>
<td>14.5</td>
<td>51.7</td>
</tr>
<tr>
<td>1968</td>
<td>32.4</td>
<td>11.9</td>
<td>55.7</td>
</tr>
<tr>
<td>1969</td>
<td>42.6</td>
<td>13.3</td>
<td>44.1</td>
</tr>
<tr>
<td>1970</td>
<td>40.6</td>
<td>16.9</td>
<td>43.5</td>
</tr>
<tr>
<td>1972</td>
<td>58.3</td>
<td>18.9</td>
<td>22.8</td>
</tr>
<tr>
<td>1973</td>
<td>41.6</td>
<td>17.7</td>
<td>40.6</td>
</tr>
<tr>
<td>1974</td>
<td>33.9</td>
<td>21.7</td>
<td>44.4</td>
</tr>
</tbody>
</table>

From this table we notice the increasing percentage of raw materials in total imports. Consumer goods imports have not declined significantly since 1960. The reduction in the percentage of consumer goods imports was noticed only in the period 1960 - 1965. The share of capital goods is fluctuating from year to year but generally it is showing a declining trend.

The inability of import substitution industrialization to reduce the proportion of consumer goods imports substantially as expected after the application of the import substitution policy, is explained by the increasing demand for imported consumer goods as a result of rapid income growth.

The small size of the market in the Sudan was the main obstacle to the future expansion of import substitution industrialization. The advantages from industrialization in the form of higher rate of growth can not be achieved because of the diseconomies of small-scale.(1) Another fact is that the scope for

(1) R.B. Sutcliffe, op. cit.
import substitution is very small. Even in large countries, such as Mexico and Argentina, the limit to import substitution seems to be reached without creating employment or changing the economic structure. (1)

**Import Substitution and Capacity Utilization**

In the Sudan, the dependence of industry on imported raw materials has created a further strain on the foreign resources of the country. Priorities in allocating foreign exchange funds are given to capital goods and spare parts imports. The foreign exchange funds available at the time were divided between applicants in proportion to their use of raw materials during the previous fiscal year. (2) This means that each firm will only get a small proportion of the inputs it needs. The result of this insufficient imports of raw material

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(2) A.K. El Tahir, op. cit.
The purpose for making the questionnaire is mentioned in chapter 3. The questions asked can be found in the appendix.

(1)
All the industries investigated by this writer produce for the local market. Those which have the capacity to produce for exports are hindered to do so by the unavailability of raw materials e.g. (batteries and oil mills).

For the purpose of the questionnaire, full capacity was defined as the quantity which the factory can produce if it is provided with all the raw materials and spare parts needed. Sometimes full capacity is defined as working three eight hours shifts, five and a half or more days a week. The number of shifts does not give a complete idea about capacity utilization because some factories may be working one or two shifts without the full operation of the machinery. In this questionnaire, when the figures are not available, the manager is asked to give the approximate percentage.

The main reason given for working below capacity is the unavailability of the appropriate amounts of raw materials, mainly the imported ones. Even in industries using local raw materials, the unavailability of the adequate supplies of imported chemicals can stop production, such as the case of textiles. Also the unavailability of imported timbers lead to shortages of edible oil in the market. Unavailability of raw materials is the result of both inadequate transport system and shortages of foreign exchange. The latter is mainly due to the poor possibilities of earning foreign exchange funds to the country.

Inadequacy of transport and sometimes the high cost of road transport will increase cost of production. Although rail transport is cheap, but the problem arises from the delays in the delivery of raw materials and sometimes to the damage of these materials especially in the rainy season when rails are washed away.
Table 3

Reasons for Working Below Capacity

<table>
<thead>
<tr>
<th>Reason</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inavailability of raw materials</td>
<td>45</td>
</tr>
<tr>
<td>Shortages of skilled manpower</td>
<td>7.5</td>
</tr>
<tr>
<td>Problems of transport</td>
<td>7.5</td>
</tr>
<tr>
<td>Competition from foreign commodities</td>
<td>17.5</td>
</tr>
<tr>
<td>Size of the market is limited</td>
<td>15</td>
</tr>
<tr>
<td>Technical problems</td>
<td>7.5</td>
</tr>
</tbody>
</table>

Total of the cases investigated 100.0

Shortages of skilled manpower which is worsened by their emigration to neighbouring oil rich Arab countries where they are better paid, has led to reduction in production in some industries. This problem is attributed to the fact that these industries although they can afford to pay higher wages to foreigners, are not ready to do so with respect to Sudanese workers.

Problems include lack of local raw materials to
Competition from foreign commodities has forced 17.5 per cent of the factories to work below capacity. Competition from importation is either through imports by licences given by the Ministry of Trade or imports by immigrants without transfer of value or through smuggling. The existence of foreign commodities could be the indirect result of the unavailability of raw materials which has led to the absence of these commodities in the local market and the need to import them from outside the country. Or else it can be due to the bad quality of the local products which is a result of continued protection against foreign competition.

In 52% of the cases investigated by the writer, the limitation of the market size has led to their working with a limited capacity. In the case of the footwear industry, competition exists from small-scale industries or (handicrafts) which sell at lower prices because of their low cost of production in view of the fact that they are not paying any excise duties or other taxes and because of the labour intensive nature of these products.

Technical problems include old machinery and the insuitability of local raw materials to the conditions of production.
If we leave the questionnaire results aside, there are other features which give rise to low productivity and hinder the full utilization of capacity. This is the result of lack of adequate feasibility studies before establishment of industries. In the case of oil mills, for example, licences were granted without making adequate studies about the sufficiency of the quality of cotton and other locally produced seeds to the needs of the factories. It is also found later that exporting the raw seeds will bring more revenue to the government and to the country than with its processing. All these factors have led to the fact that the oil mills are working at very low capacities.

The capacity of the existing oil mills is 650 thousand tons while the seeds available do not exceed 350 thousand tons.

Most of the industries processing agricultural products are facing difficulties with the raw materials inavailability and high production cost resulting from lack of project evaluation.

(1) Plans and Trends of Industrial Development in the Sudan, p. 32.

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In the case of tomatoes paste canning, when the amount of tomatoes cultivated is not enough for the needs of the factory, concentrated tomatoes paste are imported from European countries.

Very high costs of production were reported in the onion dehydrating factory and in sugar industry where the cost of production per ton amounts to Le 50 while the world cost is only Le 32 in 1969.1)

Measurement of Import Substitution

The term “import substitution” is now being widely used in the economic literature of developing countries. This has led to many alternative meanings attached to it and different measures devised for it.2)

Cheverny defined import substitution as “the difference between the actual growth of industrial output and that which would have occurred if the proportionate increase of imports to total supplies levels remained unchanged throughout income.”3)

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Chenery's definition is criticized because it can be used for different levels of income in long periods of time, the result is being that a very wide range is included. Secondly, the definition used does not distinguish between import substitution and money sources of supply, such as for traditional products. 1)

If the term is used for economic changes in a short period, it will reflect import substitution similar to that of domestic production for exports.

Chenery identified four sources of growth in manufacturing industries. These are growth in final demand, in intermediate demand, growth in export demand and finally growth in replacement of imports. The method was originated by Chenery 2) and it is used in most of what follows as the theoretical framework for measuring import substitution and other sources of growth.

The METHODOLOGY:

We start with an equilibrium situation where total demand is equal to total supply:

\[ (1) \quad R.B. \text{, } \text{Chenery, } \text{op. cit.} \]
\[ (2) \quad R.B. \text{, } \text{Chenery, } \text{op. cit.} \]
The second position of equilibrium is reached if the change in total demand is equal to the change in total supply:

\[ \Delta(T_D) = \Delta(T_S) \quad \text{(2)} \]

\[ \Delta = \text{Change} \]

Total demand is the sum of final domestic demand \((F_D)\), intermediate \((I_D)\), and export demand \((E_D)\). Total supply is composed of domestic production \((D_P)\) plus imports \((I_N)\). Then equation 2 can be expanded as follows:

\[ \Delta(I_N) + 1 = \Delta(F_D) + \Delta(I_D) + \Delta(E_D) = (3) \]

We can express the change in domestic production in terms of all other variables in equation 3:

\[ \Delta(D_P) = \Delta(F_D) + \Delta(I_D) + \Delta(E_D) - \Delta(I_N) \quad \text{(4)} \]

In the Chenery models, import substitution is related to the change in the ratio of imports to total supply from one to the next period. Thus given the change in total demand, the change in domestic production which would have occurred if there is no import-substitution can be represented by the following:

\[ \left( \frac{D_P}{T_S} \right) \left( \frac{\Delta(F_D) + \Delta(I_D) + \Delta(E_D)}{T_S} \right) \quad \text{(5)} \]

where \( \frac{D_P}{T_S} \) is the ratio of domestic production to total supply.
supply in the base period. The change in domestic production due to import substitution is measured by the change in domestic production which results from the actual change in the proportion of total supply which is imported when total demand is held constant. The total change in domestic production between any two points in time can now be represented in the following form

\[
\Delta(DF) = \frac{DF_1}{TS_1} \left( (FD) + (ID) + \Delta(ED) \right) \\
+ \left( \frac{DF_2 - DF_1}{TS_2} \right) \frac{TS_2}{TS_1} 
\]

(6)

When equation (6) is separated into its component parts it becomes:

\[
\Delta(DF) = \frac{(DF_1)}{TS_1} \Delta(FD) + \frac{(DF_2)}{TS_1} \Delta(ID) + \frac{(DF_1)}{TS_1} \Delta(ED) \\
+ \left( \frac{DF_2 - DF_1}{TS_2} \right) \frac{TS_2}{TS_1} 
\]

(7)

Where \((DF_1)\) and \((FD)\) represent the change in domestic production due to expansion of final domestic demand.

\[
\frac{(DF_2)}{TS_1} \Delta(ID) \text{ represents the change in domestic production} 
\]
due to the change in intermediate demand.

\[(D_{T2} - D_{T1}) \quad \text{represents the change in domestic production due to the change in export demand and}
\]

\[
\begin{bmatrix}
\frac{D_{T2}}{T_{S2}} - \frac{D_{T1}}{T_{S1}} \\
\frac{T_{S2}}{T_{S1}}
\end{bmatrix}
\]

\[T_{S2}\]

represents the change in domestic production due to import substitution. Because the data about the manufacturing industries in the Sudan is not found in such detail, we cannot use equation (7) to determine pattern of industrial growth. It is also due to the nature of the industries which are mostly consumer import-substituting products, final domestic demand and intermediate demand are added together to form a single variable - domestic demand, the change in domestic production due to export is also omitted. Equation (7) can be reduced to

\[\Lambda(D_P) = \frac{(D_{T1})}{T_{S1}} \Lambda(D_P) + \begin{bmatrix}
\frac{D_{T2}}{T_{S2}} - \frac{D_{T1}}{T_{S1}} \\
\frac{T_{S2}}{T_{S1}}
\end{bmatrix} T_{S2} \quad (9)\]

if we let \[\frac{D_{T2}}{T_{S2}} - \frac{D_{T1}}{T_{S1}} = \Lambda(D_P)\]
\[
\Delta(DP) = \frac{(D_2 D_1)}{S_3} \Delta(DD) + \frac{(D_2 P_1)}{S_3} \Delta(DP) \quad (10)
\]

since we cannot measure the relative contribution of import substitution and domestic demand as sources of growth, the equation can be formed to represent percentages

\[
1 = \frac{(D_2 P_1)}{S_1} \Delta(DD) + \frac{(D_2 P_1)}{S_2} \Delta(DP) \quad (11)
\]

This method was used to in the construction of the various tables which form the basis of the results that appear in Table 4.
<table>
<thead>
<tr>
<th>Industry</th>
<th>Imports as percentage of domestic supply</th>
<th>Percentage share of increase in output as a result of import substitution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textiles</td>
<td>48</td>
<td>76.8</td>
</tr>
<tr>
<td>Electric Equipment</td>
<td>31</td>
<td>7.5</td>
</tr>
<tr>
<td>Plastic and Rubber</td>
<td>48</td>
<td>58</td>
</tr>
<tr>
<td>Beer</td>
<td>96</td>
<td>21</td>
</tr>
<tr>
<td>Cigarettes</td>
<td>77</td>
<td>3</td>
</tr>
<tr>
<td>Glass</td>
<td>39</td>
<td>87</td>
</tr>
<tr>
<td>Wood and Furniture</td>
<td>43</td>
<td>27.5</td>
</tr>
<tr>
<td>Perfumes</td>
<td>63</td>
<td>9.5</td>
</tr>
<tr>
<td>Confectionary and Biscuits</td>
<td>98</td>
<td>14.2</td>
</tr>
<tr>
<td>Metal products</td>
<td>31</td>
<td>21</td>
</tr>
<tr>
<td>Sugar</td>
<td>45</td>
<td>14.4</td>
</tr>
</tbody>
</table>

Source: This table is based on the mentioned calculations. Data for imports is from Bank of Sudan Annual Reports. Data for domestic production is from Exira Daily Department.
These calculations use the formula based on Chenery's definition of import substitution, for the period 1968-75. The share of import substitution on the increase in output is large only in cases of Textiles, Plastic and Rubber and Glass. In some cases, although the ratio share of imports to total supply is large, the share of import substitution in the increase in output is very small. This is noticed in the cases of Beer, Cigarettes and Perfumes, and can be explained by the large domestic production already produced in 1968 and that this production has not increased very much during the period 1968-75. In case of Sugar the share of import substitution is expected to increase in view of the increased production of the newly constructed factories.

We can say that import substitution as an industrial policy in the Sudan, although given all the needed encouragement, is not quite successful. The main reason for this is the inavailability of raw materials which has lead to firms operating at less than full capacity. This has lead to high costs of production, high prices of the products and inavailability of the commodities in the market. The result is that these commodities have to be
imported either through the Ministry of Trade or through smuggling and nil value imports. The illegal ways of importing these commodities have created black market operations where goods are sold at very high prices and people are forced to buy because of the scarcity of these commodities in the market.

One can conclude that import substitution policy in the Sudan has resulted in mere expenditure of foreign resources and the establishment of inefficient industries characterised by high unit costs and low value added in terms of world prices.
SUMMARY AND CONCLUSION

This study has been an attempt to evaluate how the different government policies have helped to encourage and promote the processes of industrialization in the Ouedan.

Government industrial policies were largely used by many LDCs to induce and encourage the establishment of domestic manufacturing industry. They include a system of industrial incentives and a tariff protection system.

To study the impact of the effectiveness of these policies on the direction of resources in the manufacturing sector a general equilibrium framework is needed, so that we can determine the effect of all the variables on the direction and speed of economic development. An empirical study within a complete general equilibrium framework would be difficult for two reasons - one is that some of the variables cannot be quantified. The other is data limitation in LDCs.

The second chapter of this thesis gives a description of the main features of the manufacturing sector.
Although the first Act to encourage industrialization in the Sudan, was issued for the first time in 1956 "The Approved Enterprises (Concessions) Act, 1956" the rapid increase in the number of industrial plants was only noticed in the 1960's.

The government policy has always been to encourage private sector investments through different policy measures; and to take direct involvement in projects which requires amounts of capital beyond the capabilities of the private investors or those which will lead to rural development.

From 1960 onwards, the industrial sector has enjoyed a rapid rate of growth. The share of industry in Gross Domestic Product was only 4% in 1960 and it has reached 10% in 1971.

There are many features of the Sudanese manufacturing sector which are analysed in the Second Chapter. These are mainly that most of the industries are producing consumer goods for the local market and that they are concentrated in Khartoum Province. Others are that most
of the industries are of small or medium scale size and that most of the large units were established by the government, mostly in rural areas.

When analysing the structure and performance of industry as a result of the implementation of these policies, it is very difficult to consider the effect of one instrument of industrial policy in isolation from that of other collaborative measures. Also we should not forget to take into account the effect of the obstacles and constraints in the economy in the performance of the manufacturing sector.

Chapter three is an analysis of the role of incentives in fostering industrial development. To assess the role of incentives in such development, the answers of entrepreneurs to the questionnaire presented to them by the present writer has shown that although government incentives are not the main factor in making the first decision to invest in industry, they have a great role in stimulating and encouraging investment in the manufacturing sector.
The most important concession which has really helped industrialization, from the entrepreneur's point of view, is the exemption from custom duties on raw materials; the second in importance is tariff protection.

There are many evidences which show that incentives to encourage industries have adversely affected the performance and growth of industries.

We find that the concessions granted to industries will not lead to the achievement of the objectives of industrial development mentioned in the Act. A full discussion of this is found in Chapter three of this study.

Some shortcomings are also noticed in the implementation of the incentives. It has been proved that the land and imported raw materials provided cheaply for industry are sold by their owners to be used for other purposes which will be more profitable than their use in industry. This cannot be solved, unless a unit of follow up and control is established within the Ministry of Industry. Its functions will be to check.
whether the imported raw materials are used for industry or not. This is only possible if it is known how many units of material inputs are needed to produce a unit of the product.

In some industries it was found that entrepreneurs try to avoid large production because higher incomes will be subject to higher taxes under the progressive income tax.

Bad performance of industry is usually related to the bottlenecks in the economy. The problems constraining industrial development are broadly lack of infrastructural facilities, shortages of financial resources, scarcity of skilled labour and qualified managers and lack of comprehensive plans for the industrial sector.

These problems have led to the fact that most of the industries are operating with an idle capacity and high production cost. Idle capacity is calculated to be over 50% in many cases. The inadequacy of transport is considered an important factor leading to factories working with excess capacity.
The IMF mission to the Sudan has suggested that the policy carried out so far has underestimated the effectiveness of transport, manpower and foreign exchange on manufacturing growth. (1) The price of these three factors is relatively high, that even the concessions given in the form of reductions in transport rate has failed to attain the real price. Also these costs are made higher if we include time losses and other damages. A substantial improvement in the infrastructural system is highly recommended to reduce costs and encourage investments.

The absence of well formulated and evaluated projects is considered as one of the constraints to industrial development in the Sudan. This has led to the failure of many public and private industries.

The premises of the establishment of the system of incentives were the recognition of the fact that foreign investment was needed to supplement the inadequate

(2) Ibid.
supply of domestic investible resources, and that the
grant of some form of industrial incentives would induce
foreign investors to start economic activities which they
could not do without the incentives. The plan is now
starting a phase where many foreign companies are willing
to invest their money in industrial projects, and where
these investments are warmly welcomed. The gains from
such investments are expected to be in the form of higher
productivity and employment and improvements in technology
and skills.

The realization of these gains, whether from foreign
or domestic investors would require better planning for the
industrial sector.

A comprehensive plan is needed and a planning unit
should be formed to provide information about the projects
of industrial development and the priorities given.

The use of tariff protection as an instrument of
industrial policy followed an import substitution strategy
for industrial development. Import substitution policy in
LDCs has the objective of improving the balance of payments
Chapter four of this thesis examines the arguments for protection and how it has become a suitable policy for industrial development in the Sudan.

A technique of evaluating the real contribution of an industry to national product has recently been developed, i.e. effective rates of protection. It is now widely used in many developed and developing countries.

In this study, tariff rates and the protective nature of the tariff structure have been analysed within a framework of an input/output system, using the concept of effective protection.

The numerical results of the calculations of the measures for protection show that the average effective rate of protection for the Sudan is very high compared with other less developed countries.

In some industries negative world value added is obtained indicating that the value of industrial inputs measured at international prices will be greater than the total value of the product measured at the same price. This small or negative value added is indicated by high
rates of effective protection, means that these industries are inefficient even producing at high costs and selling at higher prices.

Inefficiency in industrial production is widespread throughout developing countries. In the Sudan this inefficiency is noticed in the form of bad quality of the products. This is mentioned by almost everyone who undertook a study of industry in Sudan.\(^{(1)}\) The quality of many products such as soap, assets and biscuits is deteriorating every year. This is one of the disadvantages of protection where the producer will not care about improving the quality and techniques of his production once he is assured of a market for his products.

Other forms of inefficiency appears in the widespread of processing industries making only the final touches on the production process. An example of these products are perfumes, refrigerators, air coolers, metal furniture and tooth-paste. These type of industries

\(^{(1)}\) M.H. Ismail, *Cit.*, *See The Report of the Selected Committee studying "The Problems of High Cost of Living in the Sudan", Al Sahafa, 30.5.1978."
does not have any linkage effects and will lead to the creation of a poor industrial base which lacks the incentive for the sufficient vertical specialization in the production of parts and components. This is worsened by the fact that most of the raw materials used in these industries are imported. The result is a small value added and that the import bill is not reduced as expected from carrying a policy of import-substitution industrialization.

Protection and the small size of the market are considered responsible for the creation of small and medium scale industries. If we consider the capital invested as a determinant of the size of industry we find that according to the 1973 Employment Survey, in only 3.1% of the industries, the capital invested is more than five million pounds for a privately owned industry.

Production for the limited domestic market will not allow industries to make use of large-scale production. Large-scale economies means the reduction of cost of
production per unit of output. The small-scale industries in the Sudan were able to cover the high cost of production only because of the high prices made possible by high tariff rates of protection.

A major defect of protection especially when there is a limit to the size of the market is the bias against export industries. This bias is mainly because firms can obtain the tariff-inclusive of its high price at the home market whereas they have to face competition in the form of better quality and low price of the well-established foreign rivals in the case of exportation. It was already known that most of the Latin America countries adopting import-substitution policies, industrial progress has nearly come to a stop because of their inability to start exportation, and after all the prospects of further import-substitution has been exhausted.\(^{(1)}\)

In the Sudan, with the help of a measurement for import substitution explained in Chapter five, we have found that the rate of domestic production as a substitute for imports is very small. This is due to the fact that the increase in the needs of the domestic market is supplied from increase in imports as well as the increase in domestic production.

The failure of domestic industries to expand production to satisfy the needs of the domestic market is the result of the inefficiency in the industrial structure and the other obstacles which hinder the full utilization of installed capacity.

Other problems connected with import-substitution policy is that as a result of the increase in imports of raw and semi-finished materials, the import content has fallen not thereby aggravating the balance of payments difficulties.

The system of excise duties has led to a large increase in the prices of some commodities when there is one factory monopolizing the domestic market. Whenever
the excise duty rate is high this will reduce the effect of tariff protection to the commodity. This can be seen from the results obtained from such calculation in Chapter four. To avoid discrimination between different industries it is suggested that excise taxes are to be applied uniformly to all domestic firms and at a moderate rate.

A feature of protection in LDCs is that import duties are low on capital goods and raw materials and very high on consumer goods. This tends to lower the price of capital relative to wages. In addition, tax holidays and the priority given to capital goods in the distribution of foreign exchange have led to preference for the use of capital intensive techniques of production. A firm willing to increase its output will gain more convincingly if it adds to capacity, rather than utilizing fully its existing idle capacity. It can obtain tax holidays for another period of five years and it can adjust its ex-factory prices to cover all the additional costs.

For all these problems associated with import substitution policy carried under high tariff protection,
it is to be recommended that the level of effective protection should be reduced gradually by increasing the tariff rate on capital goods and raw-materials and reducing the tariff rate on consumer goods. This will induce firms to work efficiently and will remove the bias against production for export and for intermediate production of parts and components. The other thing is to determine the period of time in which industries are protected. There are some industries which have been operating under protection for long periods of time. If such industries have failed to continue production after the removal of excessive protective measures, this is considered again to the economy because resources are now allowed to move to a more efficient use.

For the Sudan, a strategy based on the processing of local raw materials seems to be more sound. It can combine both the pursuing of import substitution and export promotion. The Sudan has large potentials in the expansion and modernization of the agricultural sector. There are good reasons to believe that the development of
the industrial sector should be related to the agricultural sector; either to provide inputs to agriculture, or depend on the processing of agricultural products.

Some products, mainly cotton and tanned leather, are exported in raw form. There may be opportunities for expansion of local processing which will lead to economic gains to the country by adding to the value of the product.

Furthermore, if local raw materials are used, production can be both for export and domestic markets. Such production is necessary for exploiting economies of scale and the general contribution of technical progress in the country. Economies of scale defined as falling cost of production per unit of output will mean more efficient production at lower costs.

The IDOAS survey which covered about 70% of modern manufacturing showed that about 80% of investments were in sectors where the Sudan has a comparative advantage. These include sugar and rum, flour mills, sugar and spinning and weaving. The inefficiency in the performance of these industries is attributed to the defects in the structure
of the system of incentives and to the bottlenecks in the economy. The long term plans for sugar and textile were now prepared for the future expansion of the two products. The first stages will be production for self-sufficiency and the third stage comprise production for export. The implementation of the first phase in each plan has already started.

The utilization of agricultural processing industries for import substitution and exports will encourage both the use of large-scale production possible in large sugar and textile schemes, where the use of capital-intensive techniques can not be avoided.

To develop rural areas, the processing of agricultural products can be dispersed in different areas to be near to the source of raw-materials supply. In this case small-scale industries will create more employment and incomes lead and will to an even redistribution of incomes in the country.

For large scale industries there are also considerable opportunities for developing industries which provide
equipments to the agricultural sector. These include irrigation pumps, assembly of tractors and other agricultural tools. The provision of fertilizers based on chemical industry can be constructed in response to the high demand for fertilizers in the Sudan.

A comprehensive plan is needed before such a strategy could be implemented. Additional survey of the potentials of the country is to be carried out on the basis of which a sound project evaluation could be made.

To encourage production for export, some incentives are required. Now there are only two incentives available for export. They are drawback on duties on raw materials and the 10 percent premium (subsidy) on exports. If protection for domestic industries is needed, a subsidy for export production can cancel the effect of the discrimination against export inherent in protection.
A sample of the Questions used by the writer in the Industrial Sector Survey.

1. Name of Establishment: ............
   Address: ..........................
   Main Products: ....................

2. What was your previous occupation before entering industry?
   (i) Trade (Foreign and Internal)
   (ii) Employees
   (iii) Owner of a Factory
   (iv) Owner of an Agricultural Scheme
   (v) Owner of a Handicraft or small scale industry
   (vi) Straight into industry

3. Why did you choose to go into industry? (Mention the most important single factor)
   (i) Looked Profitable
   (ii) Government policy to encourage industry
   (iii) Family or personally in industry before
   (iv) Trade and agriculture prospects poor
   (v) To provide inputs or packing materials for an established industry
   (vi) Others

4. Mention the most important concession given by the government to your factory?
   (i) Exemption from Business Profits Tax
   (ii) Exemption in custom duties on raw materials
   (iii) Exemption in custom duties on machinery
   (iv) Protection from foreign imports
   (v) Provision of land at nominal price
   (vi) Nothing

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5. What do you think are the main factors which has led to the failure of government policy?
   (i) Inavailability of foreign exchange.
   (ii) Inadequacy of infrastructural services.
   (iii) High rate of excise duties.
   (iv) Some incentives are only on paper and not actually provided.
   (v) Difficulties in getting supplies of local raw-materials.

6. What do you think is more beneficial to industrial development:
   (i) A system of government concessions, or
   (ii) An adequate infrastructure and services system.

7. What form of tariff protection is your industry receiving?
   (i) Total prohibition of imports.
   (ii) Quota restriction.
   (iii) High tariff rates on imports.

8. Do you think that you are getting enough protection?
   (i) Yes,
   (ii) No.

9. What is the average capacity utilization in your factory?

10. If your plant is working with an excess capacity, what are the reasons (mention the two most important ones)?
    (i) Inavailability of raw materials.
    (ii) Scarcity of skilled manpower.
    (iii) Transport problems.
    (iv) Lack of local demand.
    (v) Too much foreign competition.
    (vi) Lack of financial resources.
    (vii) Any other reason.
11. For how many years have you been getting government assistance?

12. Can your factory continue production if these concessions are removed?


39. Lent, George E., "Tax Incentives for Investment in Developing Countries", International Monetary Fund Staff Papers, July 1962.


