THE ECONOMIC APPRAISAL OF IMPORT SUBSTITUTING INDUSTRIALISATION, WITH SPECIAL REFERENCE TO THE NIGERIAN TEXTILE INDUSTRY.

by

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Department of Economics

TO THE MEMORY OF MY FATHER AND MOTHER,
AND WITH DEEP GRATITUDE TO MY BROTHER,
ALFRED OBADA EKUERHARE, WHO GAVE ME
THE OPPORTUNITY TO LEARN.

DECLARATION

No portion of this thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institution of learning.

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NOTE

The Nigerian currency is called Naira which is abbreviated as (₦), and it is made up of 100 Kobo. The abbreviation for Kobo is (K). The exchange rate in 1973 was ₦0.66 = 1 United States of America dollar.

ABSTRACT

This study is concerned with the appraisal and the explanation of the pattern of resource allocation and growth associated with Nigerian import-substituting industrialisation in the context of the textile industry. It seeks to investigate the general hypothesis, that import substitution as a strategy of industrialisation has resulted in inefficient allocation and utilisation of resources. In this context, the study seeks to analyse and explain the economic costs of import substitution in the Nigerian textile industry, and to suggest alternative strategies for improving the economic performance of this industry in particular and of Nigerian industrialisation in general. The approach adopted is to apply the methods of social cost-benefit analysis to firm level data of the textile industry.

The organisation of the study is as follows. Chapter 2 reviews the theoretical and empirical themes and issues concerning the economic performance of import substitution as a strategy of industrialisation. Within the neo-classical and the structuralist/Marxist paradigms, it attempts a theoretical interpretation of the performance of this strategy of industrialisation. The neo-classical theoretical interpretation provides the basis for the empirical appraisal of the textile industry, and Chapter 3 sets out the theoretical and methodological aspects of social cost-benefit analysis.

Chapter A describes and analyses the strategies of Nigerian economic and industrial growth which provide the general economic background to the detailed study of the development and performance of the textile industry

Chapter 5 discusses the growth and structural change of the textile industry, identifies the main factors influencing its development, and examines some aspects of the performance of the industry. On the basis of the methods of social cost-benefit analysis explicated in Chapter 3, Chapter 6 appraises empirically the economic performance of the individual firms operating in the textile industry.

The main results of the application of the methods of social cost-benefit analysis in Chapter 6 are that the growth of the textile industry has been extremely inefficient, and that there have been wide differentials in relative inefficiency among firms and sectors in the industry. Chapter 7 attempts an identification and assessment of the factors which could explain the economic inefficiency of the industry.

In the light of the major conclusions drawn from the empirical analyses undertaken in Chapters 5, 6 and 7, Chapter 8 examines the alternative strategies within the neo-classical and the structuralist/Marxist paradigms, which might be used to improve the economic performance of the textile industry and of the Nigerian industrial sector generally. The summary of the main conclusions reached in the study is presented in Chapter 9.

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CHAPTER ONE

Introduction

1.1 The Central Issue of the Study

The policy prescriptions flowing from most theoretical analyses of the problems of economic development immediately after the Second World War confidently expected that the encouragement of import-substituting industrialisation in less developed countries would result in rapid economic growth. But, more recently, there has been a plethora of theoretical and empirical studies which express a disenchantment with the economic performance of import-substitution as a strategy of industrialisation and growth. Specifically, such studies conclude that this strategy of development has promoted inefficient industrialisation, and, as a consequence, has retarded economic growth in less developed countries. This general analytical hypothesis is generated from the findings of detailed empirical case studies of the performance of this strategy of industrialisation in individual countries drawn mainly from Latin America and Asia. The import-substitution experience of most tropical African economies has only been treated peripherally in such studies. The relative neglect of Tropical Africa in the studies derives mainly from its relatively late entry into the era of industrialisation through import substitution in the Third World. Hence, by undertaking an appraisal of the economic consequences of import-substituting industrialisation in Nigeria, we intend this study to contribute to a redress of this imbalance in the literature.

Nigeria has experienced rapid industrial growth since the second half of the 1950s mainly as a result of government intervention. As in many less

developed countries at the early stages of industrialisation, the structure of Nigerian industrial expansion has been dominated by import substitution in the simple technology, consumer goods industries such as textiles, food, drink and tobacco. Characteristically, the development of the capital goods sector of the Nigerian economy has been insignificant. As a consequence, industrialisation has basically consisted of importation of plant and machinery and intermediate inputs for the domestic production of the consumer goods to replace imports. This pattern of industrialisation has been induced largely by the government policy of a high and differentiated tariff structure.

In general, one would expect significant disparities in the economic costs of various manufacturing activities to result from such a high and differentiated tariff structure. Two types of disparities in the economic efficiency of manufacturing activities may be distinguished: firstly, production would have higher economic costs in some manufacturing industries than in others; and secondly, firms within the same industry might produce at varying levels of economic efficiency not only as a result of such a tariff structure but also as a result of such factors as the differences in economies of scale, relative factor intensities and X-efficiency among the firms. Hence, the central issue of this study is concerned with the determination of the extent to which Nigerian trade policies affected resource allocation and growth in the manufacturing industries. A set of analytical and empirical questions may be derived from this central issue. Could the benefits of import-substituting industrialisation in Nigeria have been increased and the costs reduced? Could Nigeria have achieved a more rapid development of manufacturing with the resources employed in the strategy of import substitution? Put differently, can the output contribution of the

import-substituting manufacturing industries to Nigerian economic growth be regarded as optimum? The basic aim in posing these questions is not only to analyse and explain the benefits and costs of import substitution but also to consider how the import-substitution strategy of industrialisation could become a more effective vehicle of economic growth in Nigeria.

As the foregoing questions are highly amenable to a micro-economic investigation, the tool of Social Cost-Benefit Analysis can be used to appraise the economic consequences in terms of costs and benefits of the various import-substituting manufacturing activities in Nigeria. This is because the tool of Social Cost-Benefit Analysis as "a good method of project appraisal is by implication a method for devising and evaluating policies more generally".[1] Thus, the merit of the adoption of this micro-economic approach in the investigation is that the approach can shed light on the central issue of the study because the effects of trade policies are basically felt at the micro-level of economic activities. But a research undertaking aimed at determining the costs and benefits of all the import-substituting manufacturing activities was considered to be extremely difficult and too time-consuming to execute, mainly because data in any systematic form for such a research endeavour could not be obtained readily in Nigeria. As a consequence, the micro-economic appraisal of the performance of Nigeria's import-substituting industrialisation was undertaken in the context of a single industry.

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1. Scott, M. FG., J. D. MacArthur and D. M. G. Newbery, Project Appraisal in Practice, London, Heinemann Educational Books, 1976, p. viii.

1.2 Choice of Industry and Period for the Study.

The economic appraisal of the performance of Nigeria's import-substituting industrialisation is conducted with respect to the textile industry. The choice of the Nigerian textile industry for a detailed micro-economic study was influenced by three considerations. Firstly, the textile industry is the largest single manufacturing industry in the Nigerian economy. For example in 1973/74, out of the 7 per cent of the contribution of manufacturing to the Gross National Product, the textile industry alone accounted for 28 per cent of this contribution.[1] Besides, the textile industry has generally been considered a high priority industry in terms of its share of total private capital investment in manufacturing industries in Nigeria: for example, in 1970, the textile industry accounted for 42 per cent of the total investment by the private sector in manufacturing industries.[2] Secondly, the establishment and expansion of a modern Nigerian textile industry has largely been in response to government economic policies: for instance, Kilby observes that "government initiative and special concessions have played a particularly important role in the creation of the textile industry".[3] In its formulation of industrial policies, the Second National Plan specifically argues for the "promotion of integration, forward linkage and diversification of the textile industry" within the import-substituting industrialisation programme.[4] Thirdly, historically, the textile industry has acted as the

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1. P A Management Services, S.A., A Study of the Nigerian Market for Fabric, Garments and Carpets, Unpublished Report, November 1974, p.8.
2. Industrial Survey: Nigeria 1970, Lagos, Federal Office of Statistics.
3. Kilby, Peter, Industrialisation in an Open Economy: Nigeria 1945-1966, Cambridge, Cambridge University Press, 1969, p. 109.
4. Second National Development Plan 1970-74, Lagos, Federal Ministry of Information, 1970, p. 283.

"leading sector" in some of the present-day developed countries in the early stages of their industrialisation. Indeed, some of the most advanced industrially of the contemporary less developed countries, which initially encouraged the development of their textile industries through import substitution, have increasingly become important exporters of manufactured textile products. Given these considerations, it can be argued that a study of the Nigerian textile industry is representative of a study of Nigeria's import-substituting industrialisation. It seems appropriate, therefore, to appraise the past economic performance of the Nigerian textile industry with a view to identifying alternative paths within the framework of import-substituting industrialisation along which the industry could be encouraged to develop in the future.

The evaluation of the past economic performance of the individual firms operating in the Nigerian textile industry requires that the firms to be included in the study should have been in existence and in continuous production for a sufficiently long period so that they would have had experience of the behaviour of costs of production over time. But where time-series data on the pattern of income and expenditure of the firms are unavailable or insufficient, an economic evaluation based on a single year's observations of the operating investments of the firms can be undertaken. In this respect, the evaluation can be based either on the actual level of output of the individual firms in the year observed, or on their projected full capacity output for the year, or on their estimated average level of output during their lifetime.

Given the nonavailability of fairly comprehensive time-series data, the economic evaluation undertaken in the study, is limited to the operating investments of the individual firms in the industry on the basis of their

actual level of output during the single calendar year of 1973. The industry evaluated for this year consists of thirty firms. Two criteria were used for selecting the firms in this sample. Firstly, to be selected, a firm must have disaggregated data on inputs and output: it must have comprehensive data on the structure of fixed investments and depreciation charges, on the structure of labour employment and of the remunerations of employees, and on the structure of raw materials and intermediate inputs in terms of their domestic and imported components. Secondly, the firm must have been in continuous production for at least four years up to and inclusive of 1973.

Data on the firms included in the sample are contained in the Nigerian Industrial Survey for 1973 undertaken by the Federal Office of Statistics. Quantitative data were also obtained from government ministries and other government bodies as well as Skoup and Company Limited, a consultancy firm which was commissioned jointly by the Nigerian Federal Government and the World Bank to survey and study the problems of the textile industry in the 1972/1973 period. Moreover, a questionnaire was sent to the firms in the industry, including those in the sample, in order to obtain mainly qualitative information.[1] For the same purpose, we also conducted personal interviews with the executives of the firms. The procedure adopted was that, at the conclusion of each personal interview, a questionnaire was left behind to be filled in by each firm's executives, collected later on by the present investigator, or forwarded to him by the executives. The personal interviews and the administration of the questionnaires were undertaken during the summer and autumn of 1976.

The choice of 1973 as the date for the economic appraisal was dictated primarily by data availability. However, 1973 is generally regarded

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1. See Appendix Q.S for the questionnaire.

as the year by which the textile industry like other manufacturing industries had fully adjusted to an environment of a relatively less restrictive trade regime brought about by the end of the Nigerian Civil War. In April 1971, the war-time system of quantitative restrictions was dismantled and replaced almost entirely by tariff restrictions. Given the greater competitiveness allowed by the post-April 1971 trade regime in the economy generally, the economic appraisal of the relative viability of firms of differing sizes and processes in the textile industry for 1973 is likely to provide some meaningful insights into the differential effects of trade policies at the micro-level on manufacturing activities in Nigeria.

1.3 Organisation of the Study

The major discussion in this study is undertaken in chapters 2-8. In chapter 2, we review, in the context of different strategies of economic development, the general theoretical and empirical themes and issues concerning the nature and appraisal of the performance of import substitution as a strategy of industrialisation in less developed countries. The chapter examines the generally complex and interrelated forces which initiated and sustained the import-substituting industrialisation (ISI) process, and clarifies the conceptual and measurement problems of import substitution. The chapter also analyses the immanent features of an economy under ISI.: the typical manufacturing growth and structural change patterns, and the balance of payments position. We then interpret within two theoretical paradigms, namely, the neo-classical trade and welfare theory and the structuralist/Marxist dependency theory, the manifestations of the impact of the ISI process on economic development. The implications of the interpretation of the impact of the ISI process within the neo-classical trade and welfare theory provide the analytical framework for the study. Chapter 3 therefore sets out, within the neo-classical paradigm, the theoretical and methodological aspects of Social Cost-Benefit Analysis as the basis for an empirical evaluation and comparison of the relative economic efficiency of operating investments among firms within the import-substituting Nigerian textile industry.

Chapter 4 presents the economic setting which provides the general context for the economic appraisal of the textile industry. The economic setting is described and analysed in terms of the strategies of Nigerian economic and industrial growth against which background the textile industry developed. Chapter 5 examines the development of the modern textile

industry in Nigeria. The examination of the development of the industry focuses on its growth and structural change, and on such interrelated factors as the government trade policies and the investment strategies of foreign private firms which largely accounted for its development. Chapter 5 also undertakes a summary evaluation of the performance of, and the factor use in the industry.

In chapter 6, we use the methods of social cost-benefit analysis, outlined in chapter 3, to appraise the economic performance of the textile industry. The data used in the empirical analysis are scrutinized, and the estimates used for determining the extent of economic efficiency or inefficiency of firms and for analysing the variations in economic efficiency among firms in the industry are presented and discussed; the net foreign exchange effects of the import-substituting activities in the industry are examined. In chapter 7, we attempt to explain the observed extent of economic efficiency or inefficiency in the industry.

In the light of the major conclusions drawn from the empirical evidence contained in chapters 5, 6 and 7, we examine, in chapter 8, the alternative strategies, within the neo-classical and the structuralist/Marxist paradigms, which can be used to improve the economic performance of the Nigerian textile industry. Finally, in chapter 9, we present a summary of the main conclusions reached in the study.

CHAPTER TWO

Import-Substituting Industrialisation and Economic Development

2.1 Introduction

The overriding implication of most of the development theories propounded immediately after the Second World War and up to the early 1960s was that the most important way of escape from underdevelopment was to initiate a concerted programme of industrialisation.[1] Industrialisation in many less developed countries (LDCs) has been heavily biased towards import-substitution. The rationale of the emphasis on industrialisation as opposed to agricultural development in the design of economic development in the LDCs derives from the theoretical and empirical conviction that manufactures are not subject to the severe demand limitation which applies to agricultural produce. This observation needs amplification. Firstly, given the composition of imports, the possibilities for import substitution are much greater for manufactured goods. Secondly, the potential export demand for labour-based manufactures is more buoyant than normally is the case for unprocessed food and fibre. The third and most fundamental consideration is the differential income elasticity of demand: in contrast to the demand pattern for food, as *per capita* income in the economy rises, a growing share of household expenditures is devoted to

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1. For a summary of most of these theories, see Elkan, Walter, An Introduction to Development Economics, Middlesex, Penguin Books Ltd., 1973, pp. 78-91.

manufactures and processed commodities. It is this absence of a significant demand limitation, in conjunction with the trend towards specialisation, which makes manufacturing industry the fastest growing sector in an expanding economy and the major recipient of resource transfers from slower growing sectors, especially agriculture. Allied to this theoretical persuasion was the political consideration which strongly emphasised industrialisation as a means of achieving economic development in the post-Second World War period in the LDCs. This contention is exemplified by Ronald Robinson's summing up of the general views of most delegates at the conference on industrialisation in LDCs held in Cambridge in 1964: "Industry glitters with promise. Nothing else seems to hold out much hope of fulfilling the expectations of new nationalism, winning economic independence and raising average prosperity dramatically."[1]

But most studies have concluded that the performance of import-substituting industrialisation (ISI) in the context of promoting economic development has been disappointing, and some of the studies have specifically called for alternative routes to industrialisation. This chapter therefore reviews the general theoretical and empirical appraisal of the performance of ISI in LDCs. In the ensuing discussion, attempts will be made to outline the possible reforms of this approach to industrialisation. As a prerequisite to the review of the main themes and issues concerning the impact of ISI, we will briefly expound the notion of development strategies, the motivations of ISI, and the measurement of import substitution.

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1. Robinson, Ronald (ed.), Industrialisation in Developing Countries, Cambridge, Cambridge University Press, 1965, p. 5.

2.2 Alternative development strategies.

The discussions of the impact of ISI usually rest upon the implicit or explicit assumption that LDCs have a choice between different strategies of economic development. The notion of a development strategy implies two related aspects. Firstly, it implies a development pattern which can be defined "as a systematic variation in any significant aspect of the economic or social structure associated with a rising level of income or other index of development".[1] Secondly, it implies that "by some twist or torment of the economy, or by some gimmick, the underdeveloped, stagnant economy can be set in motion".[2] The "twist or torment of the economy" is usually a manifestation of the use of government policy instruments to induce structural economic or social change. Thus, the choice of a development strategy is affected not only by the structural characteristics of the economy but also by the government's social objectives and willingness to use various policy instruments. This formulation suggests that countries, as amongst themselves and over time in each, follow different sequences of development strategies, stemming partly from initial differences in size, resource endowments, and access to external capital or other resources, and partly from differences in social philosophy and organisation as embodied in public policy.

The implication of the preceding clarification is that a development strategy is concerned with the problem of how current resources should be allocated among activity sectors within the economy in order to achieve a desired level of economic development. This interpretation implies that a

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1. Chenery, H. and M. Syrquin, Patterns of Development 1950-1970, London, Oxford University Press, 1975, p. 4.

2. Bruton, H. J., "The Import-Substitution Strategy of Economic Development: A Survey", The Pakistan Development Review, Vol. 10, 1970, p. 125.

development strategy is related to the identification of the "prime-movers" which propel the resource allocation processes in the economy. Predominantly, the resource allocation processes in the economy are explicable in terms of the various theories of balanced and unbalanced growth and in terms of the several theories of international trade.[1] The former set of theories is concerned with the relations between the pattern of demand growth on the one hand, and the patterns of international trade and domestic production and investment on the other. An important variant of the latter set of theories is the Heckscher-Ohlin theory which derives comparative advantage from relative factor proportions. For example, the rapid accumulation of physical and human capital relative to unskilled labour may facilitate the growth of manufactured exports; similarly, the relative abundance of natural resources may encourage the growth of primary commodity exports. The shift in export composition is also supported by another variant of the theory of international trade. This variant is the theory of representative demand, which states that a country acquires a comparative advantage in manufactures through producing them first for the domestic market. With the passage of time, through innovation and "learning by doing", relative production cost advantages and export patterns would follow changes in the pattern of domestic demand.

But the decision to allocate current resources among activity sectors of the economy for the achievement of a desired level of economic development may be constrained by a set of limitations. Frances Stewart summarises the possible limitations as follows: (a) limitations on investment set by absorptive capacity; (b) limitations on investment set by the willingness to invest; (c) limitations on savings and therefore investment set by difficulties in restraining luxury consumption; (d) limitations on

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1. Chenery, H. and M. Syrquin, *op. cit.*, pp. 32-33.

savings set by necessary consumption; and (e) limitations on investment set by the sum of domestic investment-goods capacity and foreign exchange availability.[1] These limitations are variously central to growth models. For example, in the two-gap models of development in an open economy[2] the availability of foreign exchange provides the upper constraint on possible investment on the assumption that domestic investment-goods capacity is zero. In other words, foreign exchange availability determines the growth rate of the open economy assuming that the foreign exchange constraint is reached before the savings and investment constraints.

The influence of foreign exchange considerations on alternative development strategies can be discerned from the following formal argument. Assuming that exports have no domestic market and that the existing domestic investment-goods sector is negligible, the sectorization of the economy into a consumer goods and an investment-goods sector is coterminous with its partition into a domestic and an export sector. If imports of consumer goods are neglected for simplicity of exposition, the export sector "produces" the economy's investment goods through the imports it makes possible, and the domestic sector supplies the consumption goods needed for both sectors.[3] Thus, the size and the rate of expansion of the export

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1. Stewart, Frances, "Capital Goods in Developing Countries", in A. Cairncross and M. Puri (ed.), Employment, Income Distribution and Development Strategy: Problems of the Developing Countries, London, Macmillan, 1976, p. 129.

2. For examples of the theoretical statement of the two-gap models of development, see Chenery, H. B. and M. Bruno, "Development Alternatives in an Open Economy", Economic Journal, March 1962; and Joshi, V., "Saving and Foreign Exchange Constraints", reprinted in Meier, G. M., Leading Issues in Economic Development, Third Edition, New York, Oxford University Press, 1976, pp. 336-343.

3. For a detailed exposition of this formal argument, see Sweezy, P. M., The Theory of Capitalist Development, New York, Oxford University Press, 1942, Chapter X.

sector determines, through the volume of the imports it makes possible, the limits within which the domestic sector can expand. This is because the export sector provides, on the one hand, the investment goods needed, and on the other hand, the greater the volume of these equivalent imports, the wider is the field of expansion for domestic accumulation and output.

But, given the economy's continuing reduced capacity to import, what development strategies should a developing country pursue? Raj and Sen have identified alternative strategies under conditions of foreign exchange restraint.[1] The kernel of their analysis is the saving of foreign exchange in the face of growing scarcity through the expansion of the domestic economy. If the scarce foreign exchange is used to import consumer goods, the economy will not grow. But if it is used to import investment goods which are used to produce consumer goods domestically, there will be a steady rate of expansion of investment and a steady rate of growth of output. More importantly, if the limited foreign exchange is used to import investment goods to produce investment goods, then the capacity to produce investment goods will show a steady rate of growth, and consequently the savings ratio will rise steadily and the economy as a whole will be on an accelerating growth-path. Thus, the Raj and Sen model implies a strategy of accelerating economic development based on a development process being led by the expansion of investment-goods sector under conditions of foreign exchange constraint.[2]

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1. Raj, K. N. and A. K. Sen, "Alternative Patterns of Growth Under Conditions of Stagnant Export Earnings", Oxford Economic Papers, Vol. 13, No. 1, February 1961.

2. The Raj and Sen model is primarily concerned with the justification for the establishment of "heavy industries" assuming "a pure foreign exchange constraint". But this model can be criticised on the ground that the two conditions necessary for the assumption of "a pure foreign exchange constraint" to hold are probably untenable. These conditions are: "(a) that the underlying rate of transformation in domestic production is zero over the relevant range and (b) that the rate of transformation through trade is zero signifying that the elasticity of reciprocal demand is unity or less". Joshi, V., "Saving and Foreign Exchange Constraints", reprinted in Meier, G. M., *op. cit.*, pp. 338-339.

More specifically, however, the discussions of alternative development strategies for LDCs are commonly conducted in the context of the two headings of "looking outward" and/or "looking inward".[1] According to Streeten, outward-looking policies "encourage not only free trade but also the free movement of capital, workers, enterprises and students, a welcome to the multinational enterprise, and an open system of communications". On the other hand, inward-looking policies stress the need for LDCs to evolve their own style of development and to be masters of their own fate. Such a self-reliant development strategy can be accomplished only if "you restrict trade, the movement of people and communications and if you keep out the multinational enterprise, with its wrong products and wrong want-stimulation and hence its wrong technology".[2] Within the framework of these two philosophical approaches to development, we can identify four typologies as a guide to trade strategies for development. These are: (1) primary outward-looking policies (encouragement of agricultural and raw material exports); (2) secondary outward-looking policies (promotion of manufactured exports); (3) primary inward-looking policies (mainly agricultural self-sufficiency); and (4) secondary inward-looking policies (manufactured commodity self-sufficiency through import substitution).

On the basis of these typologies, three interrelated trade strategies for development, namely, primary export production, export-oriented manufacturing, and import substitution can briefly be examined. Firstly, the expansion of the export of primary products would generate higher *per capita* income, which would, in turn, generate demand for domestically manufactured goods. But as a result of relatively low primary export supply

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1. For a discussion of these issues see P. P. Streeten, "Trade Strategies for Development: Some Themes for the Seventies", World Development, Vol. 1, No. 6, 1973, pp. 1-10.

2. *Ibid.*, p. 2.

and demand elasticities, especially of agricultural commodities, and of the growth of agricultural protection in the developed countries, most LDCs tend to avoid an exclusive reliance on this strategy. In spite of such primary product export pessimism, primary export expansion is still a necessary condition for the early stage of industrialisation which is mainly concerned with capacity creation and expansion and which therefore depends on the import of intermediate and capital goods.

The second trade strategy for development is concerned with the generation and strengthening of foreign-exchange-earning capacity of the economy through the domestic production of manufactured goods for export. The expansion of manufactured exports of the LDCs has been given great stimulus by the spectacular export performances of countries such as South Korea, Singapore, Hong Kong, Taiwan, Brazil, India and Pakistan during the 1960s. The rate of growth of exports of manufactures from the LDCs to developed countries was about 14 per cent per annum during the 1960s.[1] But the demand problems confronting LDC export expansion of manufactured goods though different in basic economic content from those facing primary products are nonetheless similar in practice. Thus, although income and price elasticities of international demand for manufactured goods in the aggregate are higher than for primary commodities, they afford little relief to LDCs bent on expanding their exports. This is largely due to the growing protection in developed countries against the manufactured exports of LDCs - in part, the direct result of the successful penetration of low-cost labour-intensive manufactures from some of the LDCs. The demand problems facing export expansion of manufactured goods from these countries are eloquently expressed by Helleiner in the following terms:

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1. MacBean, A. I. and V. N. Balasubramanyam, Meeting the Third World Challenge, London, Macmillan, 1976, pp. 173-174.

> "Of fundamental importance to the issue of Third World manufacturing export prospects are the barriers which are erected by the developed countries to restrict entry of these products to their own markets. Tariffs, quotas and other barriers in the markets of the rich constitute a major impediment to large-scale industrial exports. The tariff structures of the rich nations are such as to offer the greatest degree of effective protection to their producers in the very industries in which poor countries are most likely to be competitive - light industries relatively intensive in the use of unskilled labour such as textiles, footwear, rugs, sporting goods, handbags, processed foodstuffs, etc. This is precisely because of these industries' inability freely to compete, unskilled labour-intensity putting them at a comparative disadvantage within the context of their relatively high wage economies."[1]

However, there is great scope for mutually beneficial trade in manufactures among LDCS themselves within the context of the gradual economic integration of their national economies.

Thirdly, import substitution as a strategy of industrialisation was the dominant feature of economic development effort in most LDCs between the end of the Second World War and the "Second Post-War Restructuring" of the economies of many LDCs as manifested in the increasing adoption of export-oriented industrialisation policies in the 1970s.[2] Import substitution entails an attempt to replace commodities, usually manufactured goods which were formerly imported, with domestic sources of production and supply. The typical strategy is first to erect tariff barriers or quotas on the importation of certain commodities, then to try to set up a local industry to produce the goods that were formerly imported. Immediately after the Second World War, there was a general belief among the LDCs in the magic of this strategy of industrial development. The next section will attempt an explanation of this phenomenon.

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1. Helleiner, G. K., International Trade and Economic Development, London, Penguin Books, 1972, pp. 69-70.
2. MacBean, A. I. and V. N. Balasubramanyam, *op. cit.*, p. 118.

2.3 The motivations of import-substituting industrialisation (ISI)

The initiation of ISI in most of the large- and medium-sized LDCs derived most of its impetus from the "Great Depression" experience of the 1930s which strengthened the belief that industrialisation fostered by protectionism might be the most effective medium of growth when "outward-looking" development, stimulated by the primary export sector, was no longer a possibility. Little, Scitovsky and Scott adumbrate the impact of the "Great Depression" on the thinking of these countries about protection-stimulated industrialisation in the following terms:

> "It is true that the developed countries suffered as much or more from the great depression; but, unlike them, the developing countries could blame the outside world, and their dependence on the outside world, for their troubles. The developed countries emerged with the resolve never again to let depression and unemployment reach such depths; the developing countries seem to have made up their minds to try to reduce their dependence on the world economy."[1]

The determination of the LDCs "to reduce their dependence on the world economy" through the pursuit of industrialisation based on import substitution was given considerable respectability in development theorising in the immediate post-war years. This section therefore, firstly, presents briefly the theoretical justification for the phenomenon of protection-engineered ISI. The concern here is to indicate the main strands of the argument advanced and not to assess their relevance.[2] Secondly, the

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1. Little, I., T. Scitovsky and M. Scott, Industry and Trade in Some Developing Countries: A Comparative Study, London, Oxford University Press, 1970, p. 32.

2. The intention here is to show only that theoretical justification often accompanies prevailing economic doctrines. Thus, we are persuaded by the argument that as David Ricardo provided the theoretical justification for the rise of "economic liberation" with his theory of comparative cost advantage so also Keynes's "General Theory" provided the theoretical justification for the abandonment of "laissez-faire" doctrine. See Harold Brookfield, Interdependent Development, London, Methuen and Co., 1975, pp. 4-23.

section is concerned with the identification of the motivations of ISI in practice.

The Prebisch-Singer-Myrdal argument provided the theoretical justification for the adoption of import substitution as a strategy of industrialisation.[1] Specifically, the Prebisch-Singer-Myrdal thesis gave intellectual respectability to the process of import substitution which had gained momentum in the larger Latin American countries during the Great Depression and the Second World War.[2] The thesis states that confronted with the long-run slow growth of demand for their primary exports manifested in a secular deterioration in their terms of trade LDCs must encourage ISI through protectionism. The deterioration-in-terms-of-trade argument rests on the contention that there is disparity in the income elasticities of demand for imports and exports and that the manufactured goods are essential and must therefore be either imported or produced domestically. Given its limited means of increasing its capacity to

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1. Prebisch, Raul, The Economic Development of Latin America and its Principal Problems, Economic Commission for Latin America, United Nations, New York, 1950; Prebisch, Raul, "Commercial Policy in the Underdeveloped Countries", American Economic Review, Papers and Proceedings, May, 1959. Singer, H. W., "The Distribution of Gains between Investing and Borrowing Countries", American Economic Review, Papers and Proceedings, May 1950. Myrdal, G., "Trade as a Mechanism of International Inequality", in Meier, G. M., Leading Issues in Economic Development, Second Edition, Stanford, Oxford University Press, 1970, pp. 479-484. It must be stressed, however, that the subsequent writings of these authors have been critical of the import-substitution process which has actually been occurring in the LDCs.

2. "The Economics of Prebisch and ECLA" was largely responsible for the conceptualisation and advocacy of an already ongoing process of import substitution in Latin America during the early post-war years. See Felix, David, "The Dilemma of Import Substitution - Argentina", in Papanek, G. F. (ed.), Development Policy - Theory and Practice, Cambridge (Mass.), Harvard University Press, 1968, p. 57.

import, a developing country must adopt industrial protection to encourage import-substitutive production.[1]

The protection-propelled ISI is also justified on the theoretical premise of the "infant industry" argument which economists have long accepted as a logical exception to the free trade principle. According to this argument, temporary protection should be given to a newly established manufacturing industry during the period of "infancy" when its costs are high because of lack of experience and various "teething troubles". As the industry matures through the proces of "learning-by-doing" it is able to reduce costs and withstand international competition, and then the protection should be removed.

Moreover, an employment argument is advanced to justify the protection of the domestic manufacturing industry in the LDCs. The argument derives from the concept of "disguised unemployment". Although the marginal product of labour in subsistence agriculture is very low or may even be zero, the agricultural worker enjoys a share of the product from the family farm which is equal to his average product and much higher than his marginal product. But in order to attract this worker to the manufacturing sector, he would have to be paid wages at least equal to the real income he enjoys in the agricultural sector, and somewhat more to induce him to leave the rural area. Thus, there is a distortion in the labour market causing the

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1. The theoretical and empirical validity of this thesis has been both confirmed and questioned. For a confirmation of the thesis, see, among others, Baer, Werner, "The Economics of Prebisch and ECLA", in C. T. Nisbet (ed.), Latin America: Problems in Economic Development, New York, The Free Press, 1969; and Kay, G., Development and Underdevelopment: A Marxist Analysis, London, Macmillan, 1975, pp. 107-122. For a criticism of the thesis, see, for example, Meier, G. M., The International Economics of Development, New York, Harper and Row, 1968, pp. 57-65; and Myint, H., The Economics of the Developing Countries (4th ed.), London, Hutchinson University Library, 1973, pp. 124-127.

manufacturing sector to employ too little labour because it is obliged to pay wages higher than the alternative social opportunity cost of labour as measured by the marginal product of labour in agriculture. As a result, it is argued that the manufacturing sector should be given a protective tariff to correct this distortion in the importable manufacturing industries by offsetting the effects of an excessively high wage rate for labour.[1]

Whatever is the merit or demerit of the *ex post* theoretical justification for import substitution as a strategy of industrialisation, in practice, ISI in LDCs has been a product of a combination of interrelated motive forces associated with the historical processes of economic development and deliberate development policy. Hirschman's identification of four distinct motivations of ISI in the LDCs provides the point of departure for the analysis of these interrelated motive forces.[2] According to him, ISI may be initiated when a country's supply of manufactured imports is

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1. For a detailed exposition of this argument, see Hagen, E. E., "An Economic Justification for Protectionism", Quarterly Journal of Economics, Nov. 1958. Bhagwati, J., "The Theory of Comparative Advantage in the Context of Underdevelopment and Growth", Pakistan Development Review, Autumn 1962. Bhagwati, J. and V. K. Ramaswami, "Domestic Distortions, Tariffs and the Theory of Optimum Subsidy", Journal of Political Economy, Feb. 1963. However, whilst acknowledging the rationale of the employment argument for stimulating domestic manufacturing development, Johnson and Myint have contended that to correct the distortion introduced into the labour market by "disguised unemployment" a wage subsidy and not a tariff must be given to the manufacturing sector. This proposition derives from the general principle that a "domestic distortion" should be corrected by a subsidy directed at its source within the domestic economy and not by a tariff or a tax on foreign trade. See Johnson, H. G., "Optimal trade intervention in the presence of domestic distortions", in J. Bhagwati (ed.), Readings in International Trade, London, Harmondsworth, 1969. Myint, H., "Dualism and the Internal Integration of the Underdeveloped Economies", in H. Myint, Economic Theory and the Underdeveloped Countries, New York, Oxford University Press, 1971.

2. Hirschman, A. O., "The Political Economy of Import-Substitution Industrialisation in Latin America", Quarterly Journal of Economics, Vol. LXXXII, February 1968, pp. 4-5.

suddenly cut off because of wars and depressions, and the government may respond by promoting domestic import-replacing industries. Secondly, ISI may occur "naturally" as incomes rise in response, for example, to growth of exports. Thirdly, ISI may develop as part of a country's planning strategy. And fourthly, ISI may be encouraged in an attempt to economize on scarce foreign exchange in the face of balance-of-payments difficulties.

Such motive forces as the Great Depression of the 1930s and the Second World War were central to the initiation of ISI in some of the large- and medium-sized developing countries, especially in those of Latin America. Diaz Alejandro attests to this phenomenon in Argentina:

> "Before 1930, it (manufacturing) was just one of the sectors participating in the expansion of the economy, but since 1930 the growth of the economy has depended heavily on the ability of import-competing manufacturing to expand. This dependence was thrust upon Argentina by exogenous factors during 1930-45. . . ."[1]

During the Great Depression the "exogenous factors" took the form of a sudden collapse of the demand for primary exports and a corresponding incapacity to import manufactured goods; hence domestic manufacturing of some previously imported goods became a necessity. Similarly, the nonavailability of manufactured imports from the developed countries during the Second World

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1. Diaz Alejandro, C. F., Essays on the Economic History of the Argentine Republic, New Haven, Yale University Press, 1970, p. 218. Furtado also attests to the same phenomenon in the following terms: "The sudden collapse of the capacity to import, the contraction of the export sector and the ensuing fall in export profits, the blocking of international channels of finance, all provoked by the 1929 crisis, profoundly altered the course of development of the Latin American economies, particularly of those that had already begun to industrialise. The contraction of the export sector" meant that "the industrial sector geared to the home market was expanded in an effort to replace, wholly or in part, goods previously purchased abroad". Furtado, C., Economic Development of Latin America: Historical Background and Contemporary Problems, Second Edition, Cambridge, Cambridge University Press, 1976, p. 110.

War despite the resumption of the expansion of primary export earnings encouraged the development of domestic manufacturing to replace imports.

Another set of motive forces accounting for the initiation of ISI is the growth of domestic demand consequent upon the growth of income. Industrialisation induced by the growth of income in the LDCs was also associated with periods of sustained expansion of primary production for export. The increased productivity in primary product exports led to an increase in the purchasing power of the population which, in turn, led to diversification in the pattern of overall demand which would entail a more than proportionate increase in the demand for manufactured products. Thus, Furtado argues that "in countries with a *per capita* income level below 500 US dollars there is a high income-elasticity of demand for manufactured goods, the coefficient value being between 1.3 and 1.5. Hence any rise in the population's purchasing power will mean not only diversification of demand but diversification in a particular direction, requiring a more than proportionate increase in the supply of manufactures".[1] Chenery earlier demonstrated this postulate when he argued that not only the share of industrial output rose with development but also the growth of industries based on import substitution accounted for a large proportion of the total rise in industry. Specifically, he showed that over the 100 to 600 dollars income range the growth of import substitution was a more important explanation of manufacturing growth than changes in the final and intermediate demand for manufactured products.[2]

Associated with the explanation of the autonomous expansion of import

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1. *Ibid.*, p. 100.

2. Chenery, H. B., "Patterns of Industrial Growth", American Economic Review, September 1960, pp. 639-641, p. 651.

substitution based on the growth of the domestic market is the changing investment strategies of foreign firms operating in the LDCs. As a prerequisite to the analysis of the changing investment behaviour of the foreign firms, the question can be asked: Why did "natural" import substitution not occur in some large- and medium-sized developing countries, especially in Africa, in which the market size would clearly have made possible domestic manufacturing production? Some credence is lent to this question by the fact that a considerable backlog of previously unexploited "natural" import-substitution possibilities had existed before the Second World War in many of these countries as they had experienced the growth of domestic market as a result of agricultural or primary export expansion.[1]

The argument can be advanced that the incentive structure within these countries most of which were colonies until the late 1950s prevented the foreign firms from exploiting the "natural" import-substitution possibilities. The foreign merchant firms' lack of enthusiasm for industrial activities derived partly from their entrenched monopoly position in the import trade which was encouraged by colonial policy.[2] Furthermore, the fact that the foreign merchant firms were branches of parent manufacturing companies in the developed countries rendered their engagement in manufacturing activities apparently unprofitable or unfashionable. This might have been the objective situation which confronted the foreign merchant firms because they did not wish to harm home manufacturers with whom they

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1. W. A. Lewis has shown that the rapid expansion of agricultural exports from tropical countries between 1880 and 1913 resulted in the growth of national income per head. Lewis, W. A., "The Export Stimulus", in W. A. Lewis (ed.), Tropical Development 1880-1913: Studies in Economic Progress, London, George Allen and Unwin, 1970, pp. 13-45.

2. Ekuerhare, B. U., "The Influence of Colonial Policy on the Nigerian Economy with special reference to the Foreign Trade Sector 1919-1939", unpublished M.Sc. (Econ.) Dissertation, University of Ibadan, 1971, pp. 103-107.

had contractual relations or in whose property they had financial interests.[1]

But after 1945 the foreign firms' changing investment strategies in response to the growth of domestic markets and government development policies became crucial in initiating and sustaining the ISI process in many LDCs. It is argued that the foreign firms' changing investment strategies are manifestations of oligopolistic reaction in the manufacturing sector. In this respect, the main motive force of foreign private investment in the "simple technology" manufactured products such as soap, textiles, cement and tobacco, is competitive imperfections arising "from import restrictions and/or high transport costs and from the economies of experience and/or scale possessed by the investing company over its local competitors".[2] Thus, it is argued that the oligopolistic foreign firm's decision to invest in the host country rather than servicing the foreign markets by exports derives from its real or imagined fear of losing its traditional export markets consequent upon the imposition of import controls by the host country and/or the strategic decisions of its oligopolistic competitors. Such "defensive" investment reflecting the reaction of an oligopolistic foreign firm constitutes Kilby's central explanation of the mechanics of import substitution in Nigeria. For a substantiation of this argument Kilby deserves being quoted at some length:

> "The hypothesis offered . . . is that competitive pressures, generated by a rapidly growing demand, have constituted the catalyst . . . in transforming ample

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1. Seidman, Ann, Planning for Development in Sub-Saharan Africa, New York, Praeger Publishers, 1974, p. 112. Using Marxian terminology, G. Kay incisively analyses the same relationship between the metropolitan merchant capital and industrial capital at the periphery of the international capitalist system. See Kay, G., *op. cit.*, pp. 96-124.

2. Dunning, J., "The Multinational Enterprise: The Background", quoted in Lal, Deepak, Appraising Foreign Investment in Developing Countries, London, Heinemann, 1975, p. 22.

> market opportunities and fiscal incentives into actual investments. . . . The competitive pressures are of essentially two kinds. The first is related to the number and size of distributive firms engaged in the import trade; the competitive pressure is on the general level of distributive margins. The second kind pertains to specific commodity markets and affects both local distributors and overseas manufacturers; the pressure here is primarily on volume of sales and share of the market. Assuming some minimum sensible threshold has been met, the positive entrepreneurial response to both these kinds of 'market threatening' is to protect one's 'stake in the market' by going into local manufacture. The competition from other sellers is eliminated by virtue of the protective tariff."[1]

There is also an implicit recognition of the impact of "the competitive pressure . . . on the general level of distributive margins" in Kay's hypothesis: that the changing investment strategies of the foreign merchant (distributive) firms reflected a fundamental crisis of "merchant capital", which began during the Great Depression of the 1930s and deepened after 1945. In order to survive, "merchant capital" began to discountenance commercial activities and to act as "productive capital". At the same time, as a consequence of the crisis, the "productive capital" which had previously restricted its activities to the developed world began to intervene in the underdeveloped world by establishing an industrial capitalist mode of production.[2]

Implicit in the preceding discussion is the view that economic planning in the form of a policy-package designed to direct the mobilisation and allocation of resources for development was an important factor responsible for initiating and quickening the pace of the ISI process in the LDCs during the post-Second World War period. In general, the development

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1. Kilby, Peter, Industrialisation in an Open Economy: Nigeria 1945-1966, Cambridge, Cambridge University Press, 1969, pp. 54-55.

2. Kay, G., *op. cit.*, p. 124.

ideology permeating the planning efforts derived essentially from the implications of the Prebisch-Singer-Myrdal thesis outlined earlier. In essence, this thesis gave rise to a development ideology based on "development through import-substitution" instead of "development through trade".[1] Thus, foreign-exchange-saving considerations appear to have dominated the planned industrialisation pattern.[2]

But the industrial planning was generally not well articulated in the sense that a long-term industrial growth path and structure was not envisaged. Hence it can be argued that the long-term import-substitution policy designed to push economic development beyond the limits set by the growth of exports and external financial resources has been "due to measures adopted at the dictates of circumstance to counteract external disequilibria. In other words, the import coefficient is not normally reduced as a far-sighted measure when exports are booming - that is, when more resources are available for investment - but during slumps, when exports drop or falter, and countries find themselves constrained to take steps to restrict imports in order to correct external imbalances".[3] But it must be stressed that by encouraging the development of a "dynamic" manufacturing sector in an otherwise stagnant economy the import-substitution

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1. For a detailed discussion of this idea, see The United Nations, Economic Commission for Latin America (ECLA), "The Growth and Decline of Import Substitution in Brazil", Economic Bulletin for Latin America, March 1964; Baer, Werner, "Import Substitution and Industrialisation in Latin America: Experiences and Interpretations", Latin American Research Review, Spring 1972.

2. Robock, S. H., "Industrialisation Through Import-Substitution or Export Industries: A False Dichotomy", in J. W. Markham and G. F. Papanek (ed.), Industrial Organisation and Economic Development, New York, Houghton Mifflin Co., 1970, p. 350.

3. Prebisch, Raul, Change and Development - Latin America's Great Task: Report submitted to the Inter-American Development Bank, New York, Praeger Publishers, 1971, pp. 56-57.

policy was conceived in plan documents or policy statements as capable of promoting a self-sustaining economic growth. Indeed, the great feeling of nationalism in the underdeveloped world in the immediate post-Second World War years, and the corresponding strong desire to achieve economic independence and to diversify the economy combined to emphasise the importance of import substitution in the design of economic development. Be that as it may, in practice, import-substitution policy was largely limited to "stop-gap" measures designed to deal with the immediate problems of external disequilibria. The import-substitution experience briefly reviewed in section 2.5 below bears the stamp of this policy-preoccupation. But first we turn to a discussion of the nature of the evidence on import-substitution in sections 2.4(i) and 2.4(ii).

2.4(i) Evidence on import substitution: concept and measures

Some ambiguity still surrounds the concept of import substitution in spite of its wide currency in the development economics literature. Evident in the discussion in the preceding section is the characterisation of import substitution as an industrialisation strategy which purports to encourage the domestic production of certain goods previously imported by raising tariff levels or imposing import controls on such goods. This conception implies that the import-substitution strategy of industrialisation necessarily leads to a decline in the import coefficient of the economy. But this may not be because the encouragement of domestic production of a set of goods (mainly consumer goods) generally involves increased imports of another set: capital goods and intermediate inputs. This apparently warrants the contention that import substitution is better defined by its orientation towards the domestic market or by the policy instruments used to induce it. Moreover, the concept of import substitution can also be used explicitly to describe the effects of industrialisation on imports. The measures of such effects can be regarded as measures of the degree of import substitution already achieved. But the definition of such effects of industrialisation raise conceptual and empirical problems. The basic problems are that the effects of industrialisation on imports cannot be easily separated from the effects of other changes in the economy and that the effects should be assessed in relation to what would have happened to imports in the absence of industrialisation - a hypothetical situation which can never be satisfactorily specified. In this section, however, we attempt a brief specification and evaluation of the most commonly used concepts and measures of import substitution in

the sense of actual import effects of industrialisation. The measures aid descriptive analysis of the facts concerning inter-temporal and cross-sectional comparisons of the degree of import-substituting industrialisation of the economy.

The methodology for establishing the evidence on import substitution was first systematically specified by Chenery in his influential article of 1960.[1] As most of the subsequent investigators concerned with the identification of the evidence on import substitution have adopted Chenery's method, we are concerned in the first part of this section with a brief exposition of Chenery's concept and measure of import substitution. Primarily, Chenery's analysis of "patterns of industrial growth" aimed at a determination of the "causes of industrialisation". In this context, he distinguished (a) the substitution of domestic production for imports, (b) growth in final use of industrial products separated into final domestic demand and export demand, and (c) growth in intermediate demand stemming from (a) and (b) as the causes of industrial growth.[2] In other words, four causes of industrial growth can be isolated, namely, final domestic demand, export demand, intermediate demand, and import substitution.

Chenery's method can be explicated within the framework of general equilibrium analysis in which two equilibrium positions are assumed for the economy: firstly, total demand (D) is equal to total supply (S), and secondly, the change in total demand (ΔD) is equal to the change in total supply (ΔS). Total demand is equal to the sum of final domestic demand (F), intermediate demand (I), and export demand (E), while total supply

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1. Chenery, H. B., "Patterns of Industrial Growth", American Economic Review, Vol. 50, No. 2, September 1960.

2. *Ibid.*, p. 639.

is equal to domestic production (P) plus imports (M). Expressing the change in domestic production in terms of the change in all other defined variables, we have the following equation:

$$\Delta P = \Delta F + \Delta I + \Delta E - \Delta M \ . \qquad 2.1$$

Import substitution is related to the change in the ratio of imports to total supply from the base-year of a period to the end-year of the period under consideration. Given the change in total demand, the change in domestic production which would have occurred if there had been no import substitution may be given by the following expression:

$$\left(\frac{P_1}{S_1}\right)\left[\Delta F + \Delta I + \Delta E\right] \qquad 2.2$$

where $\left(\frac{P_1}{S_1}\right)$ is the ratio of domestic production to total supply in the base-year of the period.

The change in domestic production due to import substitution may be 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. In this case, the total change in domestic production between the base-year and the end-year of any given period may be represented in the following form:

$$\Delta P = \left(\frac{P_1}{S_1}\right)\left[\Delta F + \Delta I + \Delta E\right] + \left[\left(\frac{P_2}{S_2}\right) - \left(\frac{P_1}{S_1}\right)\right]S_2 \qquad 2.3$$

where $\left(\frac{P_2}{S_2}\right)$ is the ratio of domestic production to total supply in the end-year of the period and S_2 is the total supply in the end-year of the same

period. In the formulation as represented by expression (2.3), the term $\left[\left(\frac{P_2}{S_2}\right) - \left(\frac{P_1}{S_1}\right)\right]S_2$ should be equal to $(M_1 - M_2)S_2$ which is a measure of the difference between actual imports and the hypothetical imports in the end-year had their proportion in total supply remained the same as in the base-year of the period under consideration. The expression (2.3) enables us to measure other components of the change in domestic production and to compare them with each other and with the given change in domestic production. In this case, the expression (2.3) can be rewritten as follows:

$$\Delta P = \left(\frac{P_1}{S_1}\right)\Delta F + \left(\frac{P_1}{S_1}\right)\Delta I + \left(\frac{P_1}{S_1}\right)\Delta E + \left[\left(\frac{P_2}{S_2}\right) - \left(\frac{P_1}{S_1}\right)\right]S_2 \qquad 2.4$$

where $\left(\frac{P_1}{S_1}\right)\Delta F$ = the change in domestic production due to the growth of final domestic demand;

$\left(\frac{P_1}{S_1}\right)\Delta I$ = the change in domestic production due to a change in intermediate demand;

$\left(\frac{P_1}{S_1}\right)\Delta E$ = the change in domestic production due to a change in export demand;

and $\left[\left(\frac{P_2}{S_2}\right) - \left(\frac{P_1}{S_1}\right)\right]S_2$ = the change in domestic production due to import substitution.

These components of the change in domestic production represent Chenery's four identifiable sources of industrial growth. But for reasons of insufficiency of data subsequent investigators of patterns of industrial growth

in individual countries of the developing world, who used Chenery's method, found it necessary to isolate only three sources of industrial growth by collapsing final domestic demand and intermediate demand into a single variable-domestic demand.[1] Thus, equation (2.4) can be modified as follows:

$$\Delta P = \left(\frac{P_1}{S_1}\right)\Delta d + \left(\frac{P_1}{S_1}\right)\Delta E + \left[\left(\frac{P_2}{S_2}\right) - \left(\frac{P_1}{S_1}\right)\right]S_2 \qquad 2.5$$

where Δd represents a change in domestic demand, and all the other variables and terms remain as defined in equation (2.4).

The results of Chenery's inter-temporal and cross-sectional analysis of fourteen major categories of manufacturing industries in thirty-eight countries are presented in Table 2.1. Two general observations can be discerned in this table. Firstly, on average, import substitution accounted for 50 per cent of industrial expansion within the income range of 100 to 600 dollars while final demand and intermediate demand respectively accounted for 22 per cent and 28 per cent. Secondly, import substitution accounted for 72 per cent, 66 per cent and 13 per cent of the expansion of investment goods, intermediate goods, and consumer goods industries respectively. Thus, Chenery shows that the importance of import substitution is greatest in the earliest stages of industrialisation and that the relative importance of import substitution is greater in the investment goods and

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1. Some of such investigators are the following: Lewis, S. and R. Soligo, "Growth and Structural Change in Pakistan's Manufacturing Industry, 1954-64", Pakistan Development Review, Vol. 5, Spring 1965; Ahmad, J., "Import Substitution and Structural Change in Indian Manufacturing Industry 1950-66", Journal of Development Studies, Vol. 4, No. 3, April 1968; Oyejide, T. A., Tariff Policy and Industrialisation in Nigeria, Ibadan, Ibadan University Press, 1975, p. 25.

Table 2.1 Chenery's "Causes of Industrialisation"

Industrial Sector	Effects of:		
	Import-Substitution	Final Demand	Intermediate Demand and Substitution
	%	%	%
Group A: Investment and Related Products			
Machinery	94	5	1
Transport equipment	86	11	3
Metals	55	6	39
Nonmetallic minerals	31	54	15
Subtotal	72	11	17
Group B: Other Intermediate Goods			
Paper	85	13	2
Petroleum	98	0	2
Rubber	73	19	8
Chemicals	50	-5	55
Textiles	67	12	21
Subtotal	66	7	27
Group C: Consumer Goods			
Wood products	19	51	30
Clothing	15	13	72
Printing	2	11	87
Leather	29	16	56
Food, beverage, tobacco	9	77	14
Subtotal	13	45	42
Total	50	22	28
	Induced by final demand		10
	Residual		18

Source: Chenery, H. B., "Patterns of Industrial Growth", American Economic Review, Sept. 1960, p. 643.

intermediate goods industries than in the consumer goods industries. Hence he concludes that changes in supply conditions, which result from a change in relative factor costs as income expands, cause a substitution of domestic production for imports. Because of this, he holds that changes in supply conditions are a more satisfactory explanation of industrial expansion than changes in demand.[1] He further concludes that the import substitution pattern of industrialisation is more significant in the 20th century than in the 19th century.[2] Maizels similarly concludes that the "normal" extent of import-substituting industrial growth has been much greater in the newly-industrialising countries during the 20th century than it was during the early stages of industrialisation of the present-day developed countries.[3] Furthermore, the empirical results of studies based on Chenery's method for Pakistan, India and Nigeria (already cited) indicate clearly that import substitution has been relatively the most important source of industrialisation in these countries.

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1. Chenery, H. B., *op. cit.*, p. 644.

2. *Ibid.*, p. 651.

3. Maizels, A., Industrial Growth and World Trade, cited in Sutcliffe, R. B., Industry and Underdevelopment, London, Addison-Wesley Publishing Company, 1971, p. 38.

2.4(ii) Criticisms of Chenery's measure and other measures of import substitution

In this sub-section, we critically examine Chenery's measure of import substitution at two levels. Firstly, we consider the precision and consistency of this measure. In this respect, we will explore briefly some of the suggested alternative measures of import substitution. Secondly, we will indicate the possible implications of Chenery's measure for industrial planning.

The exposition of Chenery's method in the preceding section indicates that his measure implies that the import-substitution process occurs with a decline in the ratio of imports to total supply. But Morley and Smith[1] have questioned the validity of this definition on the grounds that it does not incorporate all that can legitimately be considered as import substitution. They argue that, to be precise, the concept of imports should be expanded to include the intermediate demands generated by import-substituting industrial production. The rationale of this procedure derives from the observation that, as the process of import replacement proceeds, production must rise not only in the final processing industry but also in industries supplying its inputs and in their supplier industries. In the absence of these linkage effects, induced imported intermediates must increase; otherwise the supply of goods for final demand in other sectors must fall. Hence they conclude as follows:

> "In effect, the newly required intermediates were previously supplied indirectly or directly by the importation of the final product. The replacement of implicit imports by domestic production is import substituting

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1. Morley, S. A. and G. W. Smith, "On the Measurement of Import Substitution", American Economic Review, Sept. 1970; "Import Substitution and Foreign Investment in Brazil", Oxford Economic Papers, March 1971.

> every bit as much as the direct substitution captured by [Chenery's Measure], but will be missed by the usual definitions of imports and total supply."[1]

This conclusion suggests that Chenery's measure underestimates import substitution.

In contrast to Morley and Smith's argument, Sutcliffe[2] argues that by defining import substitution as the deviation from the proportional growth of imports Chenery's measure exaggerates the displacement of imports engendered by domestic production. This criticism implies that the notion of import substitution should be restricted to direct substitution of domestic production for goods previously imported. But this definition of import substitution is not unambiguous because it is sensitive to aggregation due to structural effects. For instance, the ratio of imports of a good to the total supply of that good may decrease for all goods in the economy and yet the overall ratio of imports to overall total supply may increase.[3] This is because the behaviour of the overall ratio of imports to overall total supply over time is not associated with industrialisation in a regular and predictable pattern because of the interference of other forces operating in the economy. Policy which may encourage or frustrate import demand, and external variables, such as changes in aid flows, significantly influence this behaviour. Moreover, ISI may not engender a decline in the overall import ratio, since its effects may be cancelled or over-compensated for by increases in the import ratio of agriculture, rises

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1. Morley, S. A. and G. W. Smith, "Import Substitution and Foreign Investment in Brazil", quoted in Fane, G., "Consistent Measures of Import Substitution", Oxford Economic Papers, Vol. 25, No. 1, March 1973, p. 254.

2. Sutcliffe, R. B., *op. cit.*, p. 44.

3. Fane, G., "Consistent Measures of Import Substitution", *op. cit.*, pp. 252-253; Diaz Alejandro, C. F., *op. cit.*, p. 219.

in import propensities engendered by changes in the composition of final demand, and other increases due to a multitude of secondary phenomena. Indeed, ISI itself may be partly responsible for these increases through the diversion of resources away from agriculture and other sectors, the redistribution of income in favour of groups with high propensities to import, and changes in the composition, and hence the import content, of investment.

The preceding discussion indicates that both Chenery's measure and the suggested alternative measures of import substitution may yield inconsistent results. Fane has shown that Morley and Smith's measure of import substitution may even yield inconsistent results in the sense that there could be positive import substitution in each industry and yet negative import substitution for all industries as a group. He argued that the inconsistent results of Chenery's and the other measures of import substitution are due to the fact that such results may be sensitive to the length of the period considered. He therefore suggested a method for estimating "consistent measures" of import substitution based on the use of substantially disaggregated data; in this method, import substitution during a long period can be estimated by adding-up import substitution measures for a series of successive- and fairly short-intervals for the industry or the group of industries under consideration.[1]

A brief exposition of the essence of Fane "consistent measures" of import substitution may be indicated. Fane's analysis is based on Chenery's concept of import substitution: positive import substitution

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1. Fane, G., "Consistent Measures of Import Substitution", *op. cit.*, pp. 254-257.

corresponds to a rise in the ratio of domestic gross output to total supply. In Fane's formulation, import substitution for an industry i can be measured in two parts: import substitution within the industry, denoted by S_i, and the extra contribution, S_i^*, of growth in industry i to import substitution in all industries. Thus, the total contribution of industry i to import substitution, S_i^T, can be defined as follows:

$$S_i^T = S_i + S_i^* \qquad 2.6$$

Allowing for small changes in S_i, S_i^* and total supply, denoted by Z_i, we have the following two expressions:

$$\Delta S_i = Z_i \left[\Delta \frac{P_i}{Z_i}\right] \qquad 2.7$$

$$\Delta S_i^* = \left[\left(\frac{P_{i2}}{Z_{i2}} - \frac{P_{i1}}{Z_{i1}}\right)\right] \Delta Z_{i2} \qquad 2.8$$

where $\frac{P_i}{Z_i}$ = the ratio of domestic production to total supply in industry i

subscripts 1 and 2 = the base year and the current year respectively.

The logic of the definition of ΔS_i^* as in expression (2.8) is that growth in an industry with a higher than average ratio of domestic production to total supply leads to a rise in this ratio for the whole industry group. Hence the contribution of import substitution to the growth of all industries, S, can be defined by applying equation (2.7) to aggregate data the expression for which may become the following:

$$\Delta S = Z \left[\Delta \frac{P}{Z}\right] \qquad 2.9$$

Fane then applied the measures[1] specified in the foregoing to the

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1. For simplicity, we have excluded some of Fane's measures from the discussion.

data collected and analysed by Lewis and Soligo[1] who used Chenery's measure of import substitution. For purposes of comparison, Table 2.2 presents the results of Fane's and of Lewis and Soligo's measures of the total contribution of the industries in each group to import substitution for the whole manufacturing sector in Pakistan.

Table 2.2 Measures of Import Substitution in Pakistan 1954/55 to 1963/64 (millions of rupees)

	Fane	Lewis and Soligo	AX_j^*
	(1)	(2)	(3)
1954/55 to 1959/60			
Consumption	666	437	1571
Intermediate	26	54	663
Investment	-271	125	459
Total	420	616	2693
1959/60 to 1963/64			
Consumption	404	-164	1836
Intermediate	89	242	788
Investment	-841	-87	905
Total	-347	-9	3529
1954/55 to 1963/64			
Consumption	1070	543	3406
Intermediate	115	352	1451
Investment	-1112	204	1364
Total	73	1099	6222

Note: * is the magnitude of the total increases in output as a standard for comparison.

Source: Fane, G., "Consistent Measures of Import Substitution", Oxford Economic Papers, Vol. 25, 1973, p. 259

It is clear from the Table that Fane's estimates differ markedly from those of Lewis and Soligo. Fane's estimate, for instance, shows that only just over 1 per cent of the total growth of domestic manufacturing output in the

1. Lewis, S. and R. Soligo, "Growth and Structural Change in Pakistan's Manufacturing Industry, 1954-64", *op. cit.*

period 1954/55 to 1963/64 can be attributed to import substitution, whereas Lewis and Soligo's estimate of this contribution was 17.6 per cent.

The preceding comparison together with the other measures already reviewed indicates that the known measures of import substitution when used to describe structural changes in the manufacturing sector may lead to inconsistent and contradictory results because of the differences in methods, length of period, degree of aggregation, and the nature of statistical sources. The investigation of Fane's assertion that his measures for aggregation across industries and over time yield consistent results is outside our concern here. Suffice it to stress that despite the disagreement among investigators over the precise measure of the observed import substitution the fact remains that import substitution has been an important component of industrial growth in the LDCs. In using the existing measures of import substitution to describe the process of industrial growth, we should therefore bear in mind their weaknesses which stem largely from their conceptual assumptions and statistical foundation.

Does the identification of import substitution in the studies of patterns of industrial growth based on inter-temporal or cross-sectional regression analysis reviewed above assist policy-formation in countries wishing to industrialise? This question requires a distinction to be made between import substitution as a historical phenomenon or as an occurrence or a process and import substitution as a growth strategy or as a product of deliberate development policy. From the results of the studies following Chenery's method, can it be argued that import substitution is a cause of industrial growth or a consequence of industrial growth or is import substitution both a cause and a consequence of industrial growth? These questions seem legitimate because some of the investigators of the patterns of industrial growth assume that their findings would either guide or

evaluate industrial policy. For example, Lewis and Soligo conclude their study as follows:

> ". . . on the basis of the statistical analysis used here, and subject to the limitation of the definitions and the data adopted, we think it would be difficult to accept the widely held hypothesis about the distorted nature of industrial growth in Pakistan up to now. There has been substantial growth and there has been import substitution in major intermediate- and investment-goods industries."[1]

However, it can be argued that import substitution as revealed by the studies of patterns of industrial growth is not a growth strategy but a result of growth. This observation is implied in Sutcliffe's argument:

> "Typical patterns are neither necessary patterns nor predictable patterns. The 'normality' of a particular pattern of growth which is one of the outcomes of regression analysis should not be considered to have any normative content. There is no reason from the statistical analysis to assume that normal patterns of growth are either desirable patterns of growth or possible patterns of growth for the future."[2]

But this argument must admit that the observed industrial growth is a combination of the "normal patterns of growth", which reflect historical processes of industrialisation, and of the impact of development policy on industrial expansion.

The studies of patterns of industrial growth can also be criticised on the ground that they do not capture the development of differences in the objective conditions which confront a country on the eve of its industrialisation. The objective conditions are determined by the number of mature industrialisers which exist alongside the industrialising country,

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1. Lewis, S. and R. Soligo, "Growth and Structural Change in Pakistan's Manufacturing Industry, 1954-64", *ibid.*, p. 111.

2. Sutcliffe, R. B., *op. cit.*, p. 62.

by its economic relations with the mature industrialisers and other countries, and, in short, by its relative backwardness. Such objective conditions were important in determining the patterns of European industrialisation in the 19th century as well as the patterns of industrialisation in the present-day LDCs.[1] Thus the omission of these objective conditions from the results of the studies of patterns of industrial growth based on Chenery's method limits their usefulness with respect to industrial policy because policy instruments must be used to influence such conditions. However, the fact that the measures of import substitution, in spite of their obvious weaknesses, are a mixture of a growth strategy and a "normal" growth suggests that they form a useful basis for searching for different agents and patterns of industrialisation when planning for industrial development in the third world.

2.5 Some aspects of the experience of import-substituting industrialisation in developing countries

The literature on industrialisation in the LDCs clearly indicates that the "natural" motivations of import substitution are subordinate to government interventionist policies. But the enthusiasm underlying the early studies which advocated ISI as a necessary path to economic development has, in recent years, decidedly given way to studies which express disenchantment over the performance of import substitution.[1] The expression of dissatisfaction mainly centres on the performance of the ISI which has been encouraged in the LDCs since the end of the Second World War by government actions through the restriction of imports, tax holidays, accelerated depreciation allowances, credit guarantees, cheap government credit, the importation of capital equipment duty-free, and similar measures. This section therefore seeks to analyse and describe some of the salient features of the general performance of import substitution in the light of government interventionist policies concerning the price and market mechanisms. The approach adopted in our discussion is inevitably selective with respect to the general issues covered, and with respect to the examples of countries used to illuminate such issues.

The notable experience of the ISI process in developing countries is

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1. Examples of studies advocating import-substitution as a strategy of industrialisation include the early writings of Prebisch, Singer and Myrdal already cited. See also W. A. Lewis's influential study in which he showed how to use import statistics to ferret out feasible import-substitution industries: Industrialisation in the Gold Coast, Accra, Government Printer, 1953. The studies of the process of industrialisation of Argentina, Brazil, Mexico, India, Pakistan, Taiwan, and the Philippines, made by the consultants of the O.E.C.D. Development Centre and summarised in a single volume: Industry and Trade in some Developing Countries: A Comparative Study by I. Little, T. Scitovsky and M. Scott, are a classic example of studies which emphasise the dissatisfaction with the performance of import substitution.

that this strategy of industrialisation has been characterised by initial rapid growth of manufacturing output and then by loss of momentum as the ISI process continued. Three related main features of the ISI process, which are essentially linked to the loss of momentum of the process, can be identified. Firstly, the size of the domestic market for a previously imported consumer good, now produced domestically, is limited to the volume of goods previously imported. Secondly, once the process of substituting imports is exhausted, the domestic market is, by definition, saturated and industrial investment must cease in these lines of production. Thirdly, industrial investment and growth can theoretically continue only on the basis of domestic production of intermediate and capital goods. These features derive mainly from the experience that the ISI process "usually begins in the easiest area, the production of finished consumer goods, partly because the technology is generally less complicated and less capital-intensive, but mainly because there is a larger untapped market for goods of this kind, either already existing, or brought into being as a result of the foreign trade policy adopted as a defensive measure" in the face of the balance of payments problem.[1] Indeed, in practice, the ISI process is related to discriminatory protective policies which bias the structure of manufacturing production in favour of consumer goods industries and against intermediate and capital goods industries. To this extent, such policies create a correspondingly low vertical integration within the manufacturing sector. This bias is clearly evidenced by Table 2.3. A measure of this discrimination is the average effective rate of protection which was higher for consumption goods than for capital goods in the countries shown in the Table with the exception of Mexico.

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1. ECLA, "The Growth and Decline of Import Substitution in Brazil", Economic Bulletin For Latin America, Vol. IX, March 1964, p. 5.

Table 2.3 Average Effective Protection for Manufacturing in Relation to Official Exchange Rates

Country	Year	Consumption goods	Inter-mediates	Capital goods	All Manu-factures
Argentina	1958	164	167	133	162
Brazil	1966	230	68	31	118
Mexico	1960	22	34	55	27
Pakistan	1963/64	883	88	155	271

Source: I. Little, T. Scitovsky and M. Scott, Industry and Trade in Some Developing Countries: A Comparative Study, p. 174.

It can be deduced from this Table that one of the main causes of the differential shares of import categories in total supplies was the policy of protecting the manufacture of final consumer goods more than that of intermediate and capital goods. The sectoral variations in the effective rates of protection also meant that import-substitution opportunities would quickly be exhausted as the final consumer goods "easy stage" of the substitution process was passed if the domestic production of intermediate and capital goods could not readily be embarked upon.

Based on these immanent features of ISI, various and related explanations have been given as to why the ISI process has been marked by initial rapid growth of manufacturing output and by eventual loss of momentum. Characteristically, ISI generates a high rate of growth of gross national product during its initial stages but later the economy experiences stagnation at a low level of development. Three influential studies can be summarised as a basis for our discussion of the interrelated explanations of the stagnationist tendencies of the ISI process.

Firstly, the ECLA study of 1964[1] asserts that stagnation of ISI

1. ECLA, "The Growth and Decline of Import Substitution in Brazil", *ibid.*, pp. 51-56.

arises from four sets of structural disequilibria or imbalances, namely, sectoral, regional, social and financial imbalances which characterise the import-substitution model of development. The sectoral imbalances are discernible between industry and other sectors in the economy and within the industrial sector itself, between consumer and capital goods sectors. As the manufacturing sector expands and diversifies on the basis of massive investment and modern technology, the structure of and the existing production functions in the agricultural sector remain basically unchanged. Even within the manufacturing sector, the degree of technological and economic complementarity is very low; for instance, some industries experience excess production capacity while others suffer from a shortage of installed capacity. The regional imbalances reflect a concentration of economic activity in a given region which constitutes the nucleous of the import-substitution activities. The regional imbalances imply that not only resources and incomes are transferred from the less developed to the more developed regions but also the economic development occurring in the latter does not benefit the former. The social imbalances derive mainly from the inability of the growing and diversifying manufacturing sector to create employment opportunities at a pace sufficient to absorb the increasing masses of population. Thus the social imbalances are manifested in unequal distribution of income and increasing social inequalities. The financial imbalances take the form of inflationary pressures which derive either from the external bottleneck or from maladjustments in the structure of domestic production.[1]

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1. Bruton has also identified some general dualistic features which arise from ISI and which underscore the stagnationist tendencies of the ISI process: the distortion of the economy, the creation of activities which are alien to the economic and social environment of the community, and the creation of conditions which dampen productivity growth. Bruton, H. J., "The Import-Substitution Strategy of Economic Development: A Survey", The Pakistan Development Review, Vol. 10, 1970, pp. 123-145.

Secondly, in their study, Baer and Maneschi,[1] using a short-run income determination model, have demonstrated that the stagnation of ISI arises from the insufficiency of domestic market demand which the ISI process itself generates as it proceeds. Their argument is based on the implicit recognition that ISI gives rise to the structural disequilibria discussed above. They contend that ISI "which occurs in a setting where there are no other basic structural changes, results in the establishment of an industrial productive capacity for which eventually there is no adequate demand". The ISI process, they maintain, "is self-terminating, since it neither generates sufficient income nor distributes it adequately enough to occupy the new capacity fully and keep it expanding".[2] The insufficiency of domestic demand reflects the fact that the intial ISI process is based on existing skewed income structures and the fact that the distribution of the increment in income generated by industrialisation increases the concentration of income in favour of the high-income minority of middle and upper classes.

Thirdly, Felix, in his study,[3] gives a general explanation of the stagnationist tendencies of ISI based on the postulate that ISI eventually loses the capacity to sustain a growth rate in gross national product in excess of the growth in the capacity to import. This implies that, contrary to policy-expectations, ISI loses its ability to reduce the import coefficient (the ratio of the value of total imports to gross national

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1. Baer, W. and A. Maneschi, "Import-Substitution, Stagnation, and Structural Change: An Interpretation of the Brazilian Case", Journal of Developing Areas, Vol. 5, January 1971, pp. 177-192.

2. *Ibid.*, p. 183.

3. Felix, David, "The Dilemma of Import Substitution - Argentina", in Papanek. G. F. (ed.), Development Policy - Theory and Practice, Cambridge, (Mass.), Harvard University Press, 1968, pp. 55-91.

product) as it proceeds, especially in the intermediate and capital goods sectors. The essence of Felix's argument is that the levelling-off of the import coefficient is related to the changing final demand mix which is persistently import biased. The increased import bias associated with the ISI process also derives from the fact that the expansion of industrial investment depends crucially on the imports of capital goods. To this extent, the rising import content of investment causes the rate of growth of industrial capacity and hence of growth of gross national product to be severely constrained by the capacity to import.

The foregoing related three general explanations of the stagnationist tendencies of the ISI process can be amplified in specific terms under three sub-sections, namely, lack of domestic market demand, balance of payments constraint, and the inability of ISI to move to the capital goods sector. These issues can briefly be considered in turn.

2.5(i) Lack of domestic market demand

The size of the domestic market demand for previously imported consumer goods is the precondition for the initiation of the ISI process. The absolute size of the domestic market in many a developing country was relatively small to begin with. As industrial expansion basically consisted of the replacement of previously imported final non-durable consumer goods, the domestic market demand would increase as a result of the general income-creating effects of the industrial growth process. But, as import substitution progressed, and especially when it embraced categories of durable consumer goods, the relative growth of the domestic market would become vertical, that is, the ISI process would be based on the purchasing power of the high-income segment of the population. One of the main factors responsible for this is that the high capital density per unit of

output would preclude the large-scale absorption of labour in the production process. Evidence abounds that there has been a substantial lag of industrial employment creation behind the growth of industrial production. For example, between 1949 and 1964 the contribution of the industrial sector to GNP increased in Brazil from 26 per cent to 35 per cent, but during the same period industrial employment as a proportion of the total labour force remained the same at 8 per cent.[1] Paralleled to this trend in Brazil is the evidence that wages as a proportion of value added in the manufacturing sector declined continuously from 34 per cent in 1957 to 23 per cent in 1965.[2] Moreover, in Brazil, the real annual growth rates in productivity and wages in the manufacturing sector during the 1955-1965 period were 5.2 per cent and 1.3 per cent respectively.[3] On the basis of these pieces of evidence, it can be argued that the additional demand created by the production process was relatively small. It can also be argued that the marginal propensity to save in the economy presumably increased because the production process redistributed income in favour of the industrial-entrepreneurial classes. This meant in turn that the saving schedule of the economy would shift upward all things being equal. Thus the power of the multiplier of industrial investment would be reduced, and hence the rate of income and demand expansion would be reduced. However, it will be shown later on that Leff and Netto argued that import-substitution activities generated additional income which created additional demand for new imports.

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1. Baer, W. and A. Maneschi, "Import-Substitution, Stagnation and Structural Change: An interpretation of the Brazilian Case", *op. cit.*, p. 188.

2. *Ibid.*, p. 189.

3. *Ibid.*, p. 189.

The slow growth in overall purchasing power relative to the growth in manufacturing output is often reinforced by the fact that inter-sectoral income transfers are notable features of the ISI process. As manufacturing and agriculture are the main sectors which produce traded goods, the high protection or subsidization of the former in the domestic market implies a high anti-protection or taxation of the latter. Since most agricultural output is tradable at a price determined in world markets, the anti-protection occurs through raising the price of protected inputs used by farmers and of goods which farmers buy for consumption. This implies that the domestic terms of trade between manufacturing and agriculture differ from the external terms of trade. This difference, in turn, implies that the domestic terms of trade are shifted against the farmers and in favour of the manufacturers.

The deterioration of the domestic terms of trade against agriculture means a diversion of income from the farmers to the manufacturers. It has been estimated, for example, that Pakistan's import-substitution policy, which caused the ratio of manufacturing to farm prices to be twice as high as it was in world markets, resulted in an 11-13 per cent tax on farmers' incomes.[1] In Kenya, the magnitude of income transfers from agriculture was enormous. In this country, the magnitude of inter-sectoral income transfers was calculated by taking the tax or subsidy per £1 of value added, and multiplying by the total value added in current prices. The tax rate was found to be 0.45 United States dollar per £1, and the total implicit tax on agriculture in 1972 was estimated at 41 million United States dollars. A similar calculation was made for manufacturing whose domestic terms of trade improved from 100 to 122, and its implicit rate of

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1. Little, I., T. Scitovsky and M. Scott, *op. cit.*, p. 42.

subsidy was therefore 22 per cent. The value of this subsidy was 31 million United States dollars in 1971.[1] These results clearly indicate that the protective policies designed to stimulate import-substituting manufacturing production considerably diverted incomes from agriculture and concentrated them in the manufacturing sector. The fact that the farmers, who constitute the largest proportion of the population, experienced a slow growth or even an absolute decline in their earnings relative to the growth in the earnings of those in the manufacturing sector meant that the ISI process did not only not create a mass domestic market but also accentuated the existing small domestic market.

The implication of the overall effects of the ISI process in creating a relatively small domestic market is that the highly protected manufacturers could not exploit economies of scale, especially in industries where scale economies were important and called for very large-scale operations. As a consequence, the newly established industries whose output and profits tended to increase rapidly during their early import-substitution period, soon reached a precocious "maturity" when the substitution process was completed, and could continue to expand only on the basis of an increase in domestic demand. However, as the domestic demand grew but slowly, they would lapse into monopolistic indolence, with lower rates of profits, and of growth in investment and output.[2]

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1. The World Bank, Kenya: Into the Second Decade, London, Johns Hopkins University Press, 1975, p. 282.

2. Felix, David, "Monetarists, Structuralists, and Import-Substituting Industrialisation: A Critical Appraisal", in W. Baer and I. Kerstenetzky (eds.), Inflation and Growth in Latin America, Homewood, Illinois, Richard D. Irwin, 1964, p. 384. For similar views, see Santiago Macario, "Protectionism and Industrialisation in Latin America", Economic Bulletin For Latin America, Vol. IX, March 1964, pp. 78-80.

2.5(ii) Balance of payments constraint

Implicit in the main characteristics of the ISI process examined earlier is the fact that certain imports acquire an indispensible status in the production process. This arises from the fact that the domestic production of final consumer goods gives rise to derived demand for imports of raw materials, intermediate inputs and capital goods. It also arises from the nature of technology required for domestic production and from the structure of government investment incentives which are meant to encourage the importation of capital goods for sustaining the ISI process. Moreover, certain imported consumer goods become indispensible in the course of ISI because of the consumption propensities linked to the income generating effects of import substitution. Felix adumbrates these features of ISI as follows: "Analysis of the dynamics of ISI requires . . . explicit hypotheses not only about the sequential pattern of domestication of industrial activities, their technological characteristics and import content, but also about the changing composition of final demand over time under ISI."[1]

Some empirical studies have demonstrated that the effects of ISI on the balance of payments have been negative. Applying their constructed sequential model to Brazil, Leff and Netto[2] found that import-substitution policies did not only not eliminate the balance of payments deficit, but also increased the deficit at the end of the sequence. They found that the worsening of the balance of payments problem, as seen above, was due mainly to the dynamic income-creating effects of ISI. These effects were manifested in the generation of additional income through investment in

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1. Felix, David, "The Dilemma of Import Substitution - Argentina", *op. cit.*, p. 62.

2. Leff, N. H. and A. D. Netto, "Import Substitution, Foreign Investment, and International Disequilibrium in Brazil", Journal of Development Studies, April 1966, pp. 218-233.

import-substitution activities and the consequent creation of additional demand for new imports. Using the Argentine data, Felix tested the hypothesis that persistent import bias of final demand generated by the ISI process worsens the balance of payments problem. His findings[1] show that the intermediate import requirements per composite unit of Argentine output were higher in 1960 than in 1953 despite considerable ISI in the intervening years. He found that the relative increase in the output of the manufacturing sector accounted for virtually all of the increase in import requirements. The shift in demand to the dynamic industries, the products of which have income elasticities of demand greater than one, was responsible for the rise in the import requirements. Thus, as rising incomes shifted the demand mix towards products with high income elasticities, import-substitution activities would become, paradoxically, import-intensive, and hence would worsen the balance of payments problem. Doherty, in a case study of the Rhodesian experience,[2] concludes that the balance of payments position might deteriorate as a result of ISI, depending on the sectoral composition of the import substitution programme and various import propensities.

The empirical evidence reviewed reflects the fact that the worsening of the balance of payments problem is a manifestation of the industrial structure which characterises the sequential pattern of the ISI process induced by the discriminatory protective policies discussed earlier. The low vertical integration within the manufacturing sector gives rise to a phenomenon of increasing import dependency. This is the case with predominantly consumer goods industries-biased ISI which tends to shift the

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1. Felix, David, "The Dilemma of Import Substitution - Argentina", *op. cit.*, pp. 70-71.

2. Doherty, N. "Import Substitution and the Balance of Payments", Eastern African Economic Review, December 1970, pp. 39-51.

structure of imports more towards inputs and away from consumption goods. As import substitution proceeds in response, in many cases, to balance of payments crises, the substitution process is given a twist by the initial policy-preoccupation to cut "inessential" imports of consumer goods. Such a step increases the weights of inputs in the import bill, and, by making manufacturing production dependent on imported inputs, this process thus renders manufacturing activities highly vulnerable to remedial action in the face of subsequent balance of payments crises. The import restrictive measures against the "inessentials" further increase the incentive to substitute for inessential consumer goods while making the imported inputs for their production "essential". To relieve the strain on the balance of payments, the substitution process may, conceivably, be extended to capital goods. But, because of the reasons given below, many countries are unable to go beyond the consumer-goods stage of ISI. Hence, the tendency of the ISI process towards increasing import dependency would persist. This implie that the import coefficient would reach a "floor" beyond which it would no longer fall. Beyond this point, further investment and growth in the import-substituting industries would be severely constrained by the capacity to import. Thus the stagnation of ISI would be inevitable. The inevitability of the stagnation of ISI stems, *inter alia*, from the fact that the capacity to import cannot appreciably be expanded because the protection systems designed to stimulate ISI reduce the incentives to engage in agricultural and manufacturing production for export.

2.5(iii) The inability of ISI to move to the capital goods sector

Given the limitations of the capacity to import which characterise the ISI process, it is necessary to embark upon import substitution in

respect of intermediate and capital goods before an excessively rigid import structure foreshortens the ISI process. But, in practice, it is virtually impossible for the ISI process "to proceed from the base to the apex of the production pyramid, that is, to start with the more simply processed consumer goods and progress gradually until it includes capital goods".[1]

Two sets of factors can be put forward to support the argument that the ISI process in the majority of developing countries has been inherently biased against the establishment of domestic capital goods industries. The first set of factors derives from the characteristics of the manufacturing sector itself, namely, the limited domestic market for capital goods, capital-intensive techniques of production, and the unwillingness of the domestic producers of final goods to allow import substitution in the capital goods industries. The second set of factors derives from the role of the investment strategies of foreign firms in initiating the ISI process.

Merhav argues that, in an underdeveloped economy, there is typically a small stock of capital goods and therefore there is little replacement demand. In the circumstance, the limited domestic market for the capital goods provides little incentive for their domestic production. This lack of incentive to produce capital goods is reinforced by the fact that the initial growth of manufacturing activities in an underdeveloped economy where the markets for final goods are small in relation to the available technology tends to be achieved by fragmentation of production as a result of diversification. The resultant different specific types of equipment and materials required for the manufacture of the final goods may not be

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1. ECLA, "The Growth and Decline of Import Substitution in Brazil", *op. cit.*, pp. 6-7.

produced domestically because the fragmentation of the production process leads to an absence of standardization of the equipment and materials. This implies that the diseconomies of scale for the equipment and materials may be large enough to discourage their domestic production.[1] The discouragement of the domestic production of the capital goods is reinforced by the capital-intensive techniques of producing the final goods promoted by the import-substitution policies. The capital-intensive techniques favour the use of specialised machinery in the production process; this fact restrains the growth of domestic demand for capital goods. The absence of investment opportunities in the capital goods sector in turn prevent the development of capital goods which embody modern labour-intensive technology. The other related factor which discourages the expansion of the capital goods sector is the resistance of the domestic producers of final goods against import substitution for their inputs in general and capital goods in particular because they know from their own experience that import substitution may raise costs, lower quality and reduce reliability. Thus, even if the domestic producers of final goods could pass fully on to consumers the additional costs resulting from the establishment of capital goods industries, they seem unwilling "to serve as guinea-pigs for untried domestic equipment, the purchase of which is a long-run commitment of resources".[2]

As argued in section 2.3, the changing investment strategies of foreign firms have played an important role in initiating and sustaining the consumer goods industries-biased ISI process in the majority of developing countries. The relative failure of the foreign firms in extending

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1. Merhav, Meir, Technological Dependence, Monopoly, and Growth, Oxford, Pergamon Press, 1969, p. 133.

2. *Ibid.*, p. 134.

the ISI process to the capital goods sector derives partly from the fact that the risks attached to the investment required for the establishment of capital goods industries may be too great given the economic and political uncertainties which characterise these countries. More importantly, the oligopolistic structure of advanced capitalist countries bias investment against capital goods industries in the developing countries. This oligopolistic structure is reflected in the investment strategies of the large-scale foreign firms operating in the developing countries. The investment decision of an oligopolistic large-scale foreign firm will be influenced, among other things, by three considerations: (1) its own export interests, (2) its competitors' export interests, and (3) its customers' export interests, if any (assuming that the new plants will not compete in the national market from which the investment originates). A foreign firm dealing in consumer goods will take into consideration only (1) and (2) when making investment decision. On the other hand, a foreign firm dealing in capital goods will also consider possible effects on its customers' interests which may be impinged upon by the growth of a competing industry engendered by the domestic production of capital goods in the developing countries.[1] The result of these considerations by foreign firms is that they are reluctant to extend the ISI process to the capital goods sector. Thus, we conclude, as Arrighi does, that ". . . the oligopolistic structure of the industrial centres strengthens the other factors . . . in producing . . . a sectoral pattern of foreign investment biased against the capital goods industry".[2]

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1. Arrighi, G., "International Corporations, Labour Aristocracies, and Economic Development in Tropical Africa", in Arrighi, G. and J. S. Saul (eds.), Essays On The Political Economy of Africa, New York, Monthly Review Press, 1973, p. 112.

2. *Ibid.*, p. 112.

We may conclude this section by illustrating the growth contours of the economy under ISI with respect to the Brazilian experience because Brazil is one of the most important countries from the experience of which the various explanations of the stagnationist tendencies of ISI, discussed in the foregoing, have been distilled. Brazil experienced rapid economic and industrial expansion during the second half of the 1950s, but experienced a dramatic deceleration in the growth of national product and of manufacturing output throughout most of the 1960s. For example, the average annual rate of growth of the real national product was 7.8 per cent for the 1956-1962 period and was only 3.4 per cent for the 1962-67 period.[1] The average annual rate of growth of the industrial sector was 10.8 per cent for the 1956-1962 period and was only 4.8 per cent for the 1963-1968 period. The rate of growth of the industrial sector during the former period was 60 per cent higher than the growth rate of the gross domestic product, whereas during the latter period it was only 20 per cent higher.[2]

The foregoing evidence suggests that the Brazilian economy under ISI stagnated throughout most of the 1960s. But, since 1968, the rate of growth of gross national product has been at about 9-10 per cent per annum, with industrial production growing at over 15 per cent per annum.[3] It is widely recognised that this performance of the Brazilian economy has been a result of a modification of the industrialisation strategy pursued up to 1968. It is argued that the performance was largely brought about by a

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1. Baer, W. and A. Maneschi, "Import-Substitution, Stagnation, and Structural Change: An Interpretation of the Brazilian Case", *op. cit.*, p. 179.

2. Furtado, C., Economic Development of Latin America: Historical Background and Contemporary Problems, Second Edition, Cambridge, Cambridge University Press, 1976, p. 175.

3. Wells, John, "Recent Developments in Brazilian Capitalism", Bulletin of the Conference of Socialist Economists, Winter 1973, p. 1.

considerable removal of the demand constraint on further industrialisation by vigorous government policies aimed at reducing protection and promoting export expansion, and at redistributing income from the mass of the population in favour of the upper and middle income groups in order to enlarge the domestic demand of sectors, especially consumer durables, with an under-utilised capacity. Moreover, the enormous inflow of foreign private investment into the manufacturing sector since 1970, and the use of Brazil by multinational corporations as a base to export to other countries of Latin America and to the advanced capitalist countries have contributed to the impressive performance of the Brazilian economy.[1]

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1. For a detailed description of these facts, see John Wells in footnote 3 of the preceding page; see also Ehrensaft, P., "Polarized Accumulation and the Theory of Economic Dependence: The Implications of South African Semi-Industrial Capitalism", in P. C. W. Gutkind and I. Wallerstein (eds.), The Political Economy of Contemporary Africa, Beverly Hills, Sage Publications, 1976, p. 65; Baer, W., "The Brazilian Boom 1968-1972: An Explanation and Interpretation", World Development, Vol. 1, No. 8, August 1973.

2.6 The general theoretical interpretation of the experience of import-substituting industrialisation

The manifestations of the impact of the government-inspired ISI on the economic development of LDCs described in the preceding section can be interpreted in general theoretical terms. The aim of this section is therefore to indicate systematically the general theoretical critiques of the performance of ISI. The justification for this procedure is that the discussion of policy-reforms of ISI is usually conducted in the context of the received theoretical paradigms. Hence this section is logically followed by a discussion of the policy implications of the theoretical critiques for the reform or implementation of import-substitution programmes in section 2.7.

For the sake of convenience of exposition, the interpretation of the performance of ISI is organised around two intellectual frameworks, namely, the neo-classical trade and welfare theory and the structuralist/Marxist dependency paradigm. The aim here is to provide the basis for an implicit comparison of these alternative theoretical critiques of the impact of the ISI process in order to highlight the theoretical construct used as the basis of empirical analysis in this study.

At the heart of the neo-classical framework are the assumptions of substitutability, diminishing returns, continuity, homogeneity of the economic structure, and of integration of all economic agents through market relations. Given these assumptions, the price system solves the "economic problem" of optimum allocation of scarce resources, the solution of which yields maximum economic welfare in the economy. Thus, the main concern of neo-classical analysis is how to get the prices of resources "right" - that is, how to remove resource-price distortions - in the process of

planned economic development.[1]

On the other hand, the uniting theme of the structuralist/Marxist paradigm is the attempt to explain the process of underdevelopment in terms of the *dependence* of the third world countries upon the developed countries.[2] The central point of this paradigm is that the underdevelopment of the third world countries is not a condition of being several centuries behind the kinds of transformations experienced by the capitalist developed countries but a condition of satellitization forced upon the third world countries since 1500 by the developed countries in the process of their capitalist development. The integration of the power structure, which benefits from the satellitization, with corporate capital from the developed countries results in structures which permit a limited degree of

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1. For these characteristis of neo-classicism, see Kay, G., *op. cit.*, pp. 4-6; Stewart, Frances, "Capital Goods in Developing Countries", in A. Cairncross and M. Puri (ed.), Employment, Income Distribution and Development Strategy: Problems of the Developing Countries, London, Macmillan, 1976, p. 125; and Lall, S., "Conflicts of Concepts: Welfare Economics and Developing Countries", World Development, Vol. 4, No. 3, March 1976, pp. 181-195. The classic examples of works which fall eminently within the neo-classical paradigm include: I. Little, T. Scitovsky and M. Scott, Industry and Trade in some Developing Countries: A Comparative Study; and I. Little and J. A. Mirrlees, Project Appraisal and Planning for Developing Countries, London, Heinemann Educational Books, 1974.

2. The economists whose studies may be regarded as belonging to the structuralist/marxist school of thought include the following: Baran, P. A., The Political Economy of Growth, London, Penguin Books, 1973; Frank, G., Capitalism and Underdevelopment in Latin America, New York, Monthly Review Press, 1969; Arrighi, G. and J. S. Saul, Essays on the Political Economy of Africa, London, Monthly Review Press, 1973; Sutcliffe, R. B., "Imperialism and Industrialisation in the Third World", in Owen, R. and R. B. Sutcliffe (ed.), Studies in the Theory of Imperialism, London, Longman, 1972; Furtado, C., Economic Development of Latin America: Historical Background and Contemporary Problems (Second Edition), Cambridge, Cambridge University Press, 1976; Szentes, Tamas, The Political Economy of Underdevelopment, Budapest, Akademiai Kiado (Third Edition), 1976; Leys, Colin, Underdevelopment in Kenya: The Political Economy of Neo-Colonialism 1964-1971, London, Heinemann, 1975; Samir Amin, Unequal Development: An Essay on the Social Formations of Peripheral Capitalism, Sussex, Harvester Press, 1976.

industrialisation in the third world. In essence, the structuralist/Marxist dependency school of thought encompasses many variations originating from Marxist analysis: those who have adopted and contributed to it include non-Marxists, and neo-Marxists as well as Marxists with differing conceptions of the nature of Marxism. Thus, the Marxists can basically be distinguished from the structuralists. The Marxists conceive the dependency of the third world as the inevitable outcome of capitalist development in the developed countries, and some regard the internationalisation of conflicts within the third world as representing the Marxist class struggle transferred to it from the developed countries. It must be stressed, however, that both the Marxists and the structuralists agree that the dependent relationship makes it impossible for the third world countries to pursue independent development policies to transform their state of underdevelopment. But whereas some structuralists appear to believe that a break on the part of the third world countries from their dependent relationship with the developed countries is possible, most of the Marxists appear to believe that such a break is impossible because, as the dependent relationship is the inevitable outcome of capitalist development, it is only a change in the developed countries that can make a change in the third world countries possible.[1] Some differences between the Marxists and the structuralists notwithstanding, their strong emphasis of the dependent relationship as a central explanation of underdevelopment warrants their being treated here as belonging to the same school of thought.

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1. For a clear distinction between the Marxists and the structuralists, see Lall, S., "Is 'Dependence' a Useful Concept", World Development, Vol. 3, November/December 1975.

2.6.1 The neo-classical critique

The neo-classical interpretation of the impact of the ISI process on economic development is based on the proposition that the protective import-substitution policies have created price and market distortions which represent a violation of the principle of comparative advantage. This violation has led to induced distortions in resource allocation and utilisation in the economy. The interrelated manifestations of the induced distortions can be identified as inequalities of income distribution, reduced rates of national savings, resource under-utilisation and the foreign exchange shortage created by trade policies. These can briefly be illustrated in turn.

2.6.1(i) Inequalities of income distribution

The outstanding feature of import-substitution policies is, as we noted in section 2.5, the concentration of investment in manufacturing relative to other sectors of the economy. Specifically, by biasing investments, through the internal-terms-of-trade mechanism and other policy measures, in favour of manufacturing and against agricultural development, the import-substitution policies aggravate inequalities in the distribution of income in the economy. As a consequence, industrial profits are increased at the expense of farm income. The increase in industrial profits is further rendered possible by the encouragement given to the development of monopolistic structures within the manufacturing sector by the protective import-substitution policies. Moreover, the encouragement which the import-substitution policies gave to increased marginal productivity of capital and to increased intensity with which capital was used in industrial production processes relative to labour meant that functional distribution of income was in favour of capital relative to labour.

Admittedly, as such policies encouraged the concentration of income in the economy in the manufacturing sector, it would be expected that industrialisation would result in accelerated capital accumulation and growth. This could be the case if industrial investments were efficient. But as ISI has been inefficient and as agriculture still remains the dominant economic activity in most developing economies, their overall growth rate would be retarded.

2.6.1.(ii) Reduced rates of national savings

The inequalities of income distribution equally relate to reduced rates of national savings. By turning the internal terms of trade in favour of the manufacturing sector, import-substitution policies result in increased industrial profits thereby increasing this sector's capacity to save. But while protective and domestic currency-over-valuation policies stimulate the growth of industry, their unfavourable impact on the agricultural sector reduces the profitability of investment and innovation in this sector and discourages production for the market, particularly the export market. This implies that the import-substitution policies reduce the agricultural sector's ability to save. Moreover, by encouraging industrial investments, low interest rates simultaneously act as a disincentive to voluntary savings efforts in the economy.

This point is further strengthened by Power and Khan's argument[1] that as import substitution is usually biased towards manufactured consumer goods the effective constraint imposed on domestic consumption expansion

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1. Power, J. H., "Industrialisation in Pakistan: A Case of Frustrated Take-Off", Pakistan Development Review, Summer 1963, pp. 191-207. Khan, A. R., "Import Substitution, Export Expansion and Consumption Liberalization: A Preliminary Report", *ibid.*, pp. 208-231.

by the scarcity of foreign exchange is to some extent removed. Theoretically, the achievement of an increased marginal rate of savings, which is consistent with the objective of rapid economic growth, requires that the growth of domestic aggregate consumption must be limited to some "normal" level. But the fact that import substitution removes the effective constraint on domestic consumption dictated by foreign-exchange scarcity implies that, as the domestic production of consumer goods increases, consumption is "liberalized", and so savings do not increase as quickly as they otherwise might. Hence, ultimately the rate of growth of real income might be lower when import substitution in consumer goods dominates an industrialisation strategy.

2.6.1(iii) Resource under-utilisation

Inequalities in the distribution of income are also a reflection of the capital-intensive production methods, and hence of the employment implications of import-substitution policies. The protective and exchange-rate-overvaluation policies discourage labour utilisation in the manufacturing processes.[1] By enabling the exchange rate to be overvalued and allowing low duties on imported capital goods, protection permits capital equipment to be imported cheaply. Thus, as we have seen, the capital intensive bias of import-substitution policies tends to favour profits over wages within the industrial sector. As capital-intensity is usually associated with skill-intensity, there is a further polarisation of the industrial wage-income structure against unskilled labour. However, the power of trade unions and government minimum wage legislation in the organised industrial sector and the favourable internal terms of trade of this sector relative to the agriculturai sector combine to place the employed unskilled labour in an income advantage relative to the farm workers.

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1. Morawetz, D., "Employment Implications of Industrialisation in Developing Countries: A Survey", Economic Journal, Vol. 84, September 1974, pp. 491-542.

The low labour absorption of the industrialisation process is paralleled by the fact that the process helps to stimulate rural-urban migration thereby accentuating urban unemployment. The Harris-Todaro model[1] attempts to explain this phenomenon. According to the model, rural-urban migration proceeds in response to rural-urban differences in average expected real earnings with the employment rate acting as an equilibrating factor. Expected urban earnings are an increasing function of the urban-rural wage differential, and of the probability of finding an urban job. Thus, by simultaneously creating more urban jobs and inducing an increase in the available industrial labour supply, industrialisation may have, paradoxically, worsened urban unemployment.

Parallel to this implied labour under-utilisation is the creation of excess industrial capacity by import-substitution policies. The protective policies, tax holidays and depreciation allowances render it cheaper, easier and more profitable to install more industrial capacity with a very low output. Thus, industrial excess capacity is a reflection of undue diversion of investible funds from other sectors of the economy and their concentration in the manufacturing sector. The under-utilisation of manufacturing capacity can be explained in terms of the general reluctance to operate more than a single shift in developing countries. The reason usually adduced for this phenomenon is the shortage of managerial and supervisory staff or their unwillingness to work at night because of their high social prestige and their high standing in the income scale.[2] But the general under-utilisation of industrial capacity is mostly attributed

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1. Harris, J. R., and M. P. Todaro, "Migration, Unemployment and Development: A Two-sector Analysis", American Economic Review, Vol. 60, No. 1, March 1970, pp. 126-142.

2. Winston, G. C., "Capital Utilisation in Economic Development", Economic Journal, Vol. 81, March 1971, pp. 36-60.

to the insufficiency of imported materials, parts and components because of administrative controls such as investment licensing, import licensing and banned lists.[1]

2.6.1(iv) Foreign exchange shortage

As argued in section 2.5, the ISI process worsens rather than eases the strain on the balance of payments in the process of economic development. This contention is compatible with the measure of import substitution as a decline either in the ratio of imports to total supply or in the ratio of imports to gross national product because a decline in either of these ratios is quite consistent with an increase in the aggregate absolute volume of imports. This is so because, in general, as the imported manufactured consumer goods are being reduced as a result of domestic production, the import of capital goods, intermediates and raw materials rises.

In addition, as a result of an indiscriminate and high protection, the gross value added by manufacturing enterprises evaluated at "world" prices may be negative - that is, the foreign exchange cost of current inputs, apart from domestic labour, may be greater than the foreign exchange value of the final product. The high foreign exchange cost implication of import substitution is reinforced by the fact that high tariffs or low quotas create a bias against both agricultural and manufactured exports. Thus, by placing emphasis more on saving than on earning foreign exchange, the import-substitution policies unnecessarily render the task of exporting from most developing countries more difficult and, hence, inhibit the expansion of the capacity to import. This, in turn, retards the overall utilisation of capacity in the economy.

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1. Little, I., T. Scitovsky, and M. Scott, *op. cit.*, pp. 206-230.

2.6.2 The structuralist/Marxist critique

The ingredients of the relationship between ISI and economic development as highlighted by the neo-classical interpretation in the preceding section can be recast in a different analytical mould in the structuralist/Marxist critique. This critique is marshalled under three sub-headings: assumption, postulates and mechanisms reinforcing underdevelopment.

2.6.2(i) Assumption

The structuralist/Marxist critique rests on the assumption that to generate a self-sustaining process of economic development an industrialisation process should be independently propelled.[1] The notion of independent industrialisation does not just involve the idea that industrialisation is not merely "derived" from the industrialisation of another economy. The notion essentially concerns the origins and driving forces of industrialisation: the process of industrialisation should originate with and be maintained by social and economic forces within the industrialising country.

However, this idea does not mean a wholly autarkic development. The concept only stresses the significant role of the domestic market and the structure of industrial production in the industrialisation process. This implies that independent industrialisation is unattainable unless a country has a wide range of industries, including economically and technologically strategic capital goods industries. To achieve independent industrialisation a country should control the industrial capital employed within its borders and possess the capacity to copy, develop and adapt, or to choose a technology suitable to its resource endowments. Specifically,

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1. For a fuller exposition of the concept of independent industrialisation, see Sutcliffe, R. B., "Imperialism and Industrialisation in the Third World", in Owen, R. and R. B. Sutcliffe (ed.), *op. cit.*, pp. 174-177.

the notion emphasises that, historically, technological independence/choice/ progressiveness has constituted the basis for successful industrialisation.

The assumption of independent industrialisation as a condition of self-sustained economic development has been questioned. It is argued that *dependence* as a category which the assumption implies yields contradictory empirical results.[1] But the fact that import substitution has sharpened technological dependency greatly vitiates this criticism. For example, H. W. Singer has pinpointed the technological dependence implication of import substitution in the following terms:

> "Import substitution shifts the geographical location of manufacturing plants, but the increasing technological dependence arising from the one-sided distribution of technical progress will ensure that the real terms of trade continue to go against the developing countries and in favour of the advanced countries from which the intermediate inputs flow."[2]

In addition, Singer's argument that the centre of gravity of technological development should shift to the developing countries[3] corresponds to the assumption of independent industrialisation. This point is further supported by Frances Stewart's argument that "to get technological change responsive to the conditions in the LDCs the change must originate in the LDCs. For this capital goods capacity is essential as much to build up skills associated with technological change as to realize the ideas others

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1. For a searching criticism of the notion of independent industrialisation, see Warren, Bill, "Imperialism and Capitalist Industrialisation", New Left Review, No. 81, September-October 1973. Also see Kay, G., *op. cit.*, p. 104.

2. Singer, H. W., "The Distribution of Gains Revisited", in A. Cairncross and M. Puri (ed.), H. W. Singer: The Strategy of International Development - Essays in the Economics of Backwardness, London, Macmillan, 1975, p. 65.

3. Singer, H. W., "Science and Technology for the Development of Poorer Countries", *ibid.*, pp. 189-207.

may initiate".[1]

2.6.2(ii) Postulates

The structuralist/Marxist critique hinges on the proposition that ISI at the periphery (developing countries) of the international capitalist system does not lead to an independent process of capitalist development but rather it leads to a further consolidation of underdevelopment.[2] The ISI process progressively articulates the periphery with the centre (developed countries) thereby accentuating the dependency of the former. Whilst *per capita* incomes barely rise in the peripheral countries, the gap between them and *per capita* incomes in the "metropolitan" countries grows wider, and income distribution within the former remains so unequal that the real incomes of the majority of the population may well decline."

Although ISI has been accelerating, the import bill rises and the industrial surplus flows abroad through new channels (for example, profit and dividend repatriations), thus, aggravating the balance of payments problem. The ISI process has established a new "enclave" in the economy; it is incapable of setting in motion a chain-reaction of investment and employment

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1. Stewart, Frances, "Capital Goods in Developing Countries", in A. Cairncross and M. Puri (ed.), Employment, Income Distribution and Development Strategy: Problems of the Developing Countries, London, Macmillan, 1976, p. 133.

2. Ehrensaft has, however, suggested a possible exception to this proposition. With a ruthlessly powerful state strongly linked with metropolitan capital and metropolitan military power, and with a state pursuing a policy of crushing all opposition and of organising the accumulation of capital, South Africa and Brazil's adoption of "polarised accumulation" as a strategy of development might transcend the structural limitations of the ISI process thereby enabling their economies to advance beyond stagnation within a capitalist mode of production. But he doubts the possibility of any other peripheral country following this South African and Brazilian path. Ehrensaft, Philip, "Polarized Accumulation and the Theory of Economic Dependence: The Implications of South African Semi-Industrial Capitalism", in P. C. W. Gutkind and I. Wallerstein (ed.), *op. cit.*, pp. 58-89.

which would eventually make it burst out of the enclave into national economic transformation. Instead, the ISI process has locked the developing countries into a subordinate role in the international capitalist system through new means which perpetuate underdevelopment.

2.6.2(iii) Mechanisms reinforcing underdevelopment

The postulated stagnation tendencies of the ISI process are fundamentally associated with the existing pattern of demand, the ownership and monopoly of industrial investment, and the implications of these for technological dependence. The existing pattern of demand reflects the fact that in developing countries incomes are very low and hence markets are small, and that as income distribution is skewed towards a small section of the population markets are smaller still. Additionally, the ISI process does not create a market sufficient unto itself because of lack of export outlets. As a consequence, profitable industrial investment opportunities, despite high levels of protection, tend to be very narrow. In the circumstance, investment can usually only be made profitable if a single plant is given a monopoly of the market or monopolises the market on its own accord.

As ISI thus expands along the existing demand curve, monopolistic and oligopolistic structures tend to emerge in the industrial sector. But, contrary to classical Marxian and Schumpeterian expectations, these market structures tend to foreshorten the industrialisation process at a relatively low level of economic development because associated with these market structures is the development of precocious processes of product differentiation and diversification. Hence, "whatever the merits one may ascribe to innovation and diversification as a counterweight to stagnation tendencies in the advanced countries, it will not only fail to have a similar

effect where technological dependence and small markets combine, but is even likely to accentuate such tendencies" in the conditions of underdevelopment of the developing countries.[1] Moreover, given the limited markets for final goods, the markets for the equipment necessary to make them are even narrower by comparison with the scales of production which prevail in the developed countries. This implies that the ISI process is biased initially in favour of consumer goods industries and against capital goods industries; hence industrial investments become import-dependent and technologically dependent.[2]

The technological dependence implication of import substitution further reflects the fact that industrial investment in the peripheral countries is predominantly undertaken by foreign entrepreneurs under the aegis of multinational enterprises or companies. In this respect, import substitution means that these companies set up highly protected subsidiary factories to manufacture in the periphery what they formerly exported there. As a result of the relative absence of an indigenous industrial bourgeoisie in, for example, Tropical African countries, the foreign firms dominate the industrialisation process. Because of their familiarity with and possession of an abundant supply of the developed countries' capital and technology, the foreign firms tend to rely heavily on these resources for engendering import substitution.

The foreign firms' employment of these resources for the generation of the import-substitution process implies that the manufacturing production processes are capital- and skill-intensive. As a consequence, import substitution does not generate large increases in labour employment but

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1. Merhav, Meir, Technological Dependence, Monopoly, and Growth, London, Pergamon Press, 1969, p. 72 and pp. 65-102.

2. *Ibid.*, pp. 55-60.

leads to the creation of a relatively small, semi-skilled and skilled labour force. The foreign firms pay this labour force high wages and salaries in order to reduce labour turnover and secure compliance with management needs. This limits the impact of import substitution on domestic demand, and tends to reinforce the existing limited demand for consumer goods. This fact together with the vertically integrated oligopolistic structure of the foreign firms discourages the establishment of capital goods industries, thus, further hamstringing the growth of domestic demand in the periphery.[1]

Even in Asia and Latin America where relatively large indigenous industrial bourgeoisies exist, import substitution still gives rise to technological dependence. In Latin American countries, for example, given the existing pattern of demand, the indigenous industrial capitalists with substantial incentives from the governments cannot enter the industrial sector without using the technology developed in the developed countries. This technology is usually owned by foreign private companies, and therefore it can only be hired at a price in terms of royalties, commissions, management contracts, and so on. As the price levels of the products of the import-substitution industries established with this technology must reflect these payments, the expansion of their markets together with the consequent expansion of the markets for capital goods industries is further restricted. Moreover, dependence on imported technology tends to involve imported inputs almost as much as if the investments were made by foreign firms.[2] Thus, the syndrome of import- and technology-dependence implications of the ISI process is complete.

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1. Arrighi, G. "International Corporations, Labour Aristocracies, and *Economic Development in Tropical Africa*", in G. Arrighi and J. S. Saul, *op. cit.*, pp. 105-151.

2. Leys, Colin, *op. cit.*, p. 16.

2.7 Policy implications of the neo-classical and the structuralist/Marxist critiques

Although their analytical focuses are significantly different, the neo-classicals and the structuralists/Marxists come to the same conclusion with respect to the impact of the ISI process on economic development: that import substitution in developing countries has not induced accelerated economic development. Specifically, they conclude that import substitution has not resulted in efficient and sufficient industrialisation; that not only have the productive capacities associated with import substitution proved incapable of leading to sustained economic development, but also import substitution has been an ineffective vehicle for spreading the benefits of industrialisation to the majority of the population. Finally, they conclude that import substitution has worsened rather than eased the balance of payments problems. Thus, perhaps both the neo-classicals and the structuralists/Marxists may agree with Helleiner's reasoned assessment of the impact of the ISI process on economic development:

> "It is difficult to find any rationale for the pattern of import substituting industrialisation which has, whether consciously or not, actually been promoted. It has given undue emphasis to consumer goods in most countries; it has given insufficient attention to potential long-term comparative advantages, i.e. resource endowments and learning possibilities; and it has employed alien and unsuitable, i.e. capital-intensive technologies to an extraordinary and unnecessary degree . . . . The consequence has too frequently been the creation of an inefficient industrial sector operating far below capacity, and creating very little employment, very little foreign exchange saving, and little prospect of further productivity growth."[1]

But the structuralists/Marxists maintain that, given its existing patterns, import substitution is not amenable to policy-reform or implementation. To them, the import substitution programme is inherently bad *per se*

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1. Helleiner, G. K., *op. cit.*, p. 106.

because it has built-in mechanisms for the encouragement of consumer goods industries at the expense of the technologically strategic capital goods industries. As it is largely sustained by progressively skewed income distribution, even the consumer goods industries are increasingly oriented towards sophisticated durable consumer goods with a concomitant limitation on the creation of mass markets which could form the basis for the establishment of capital goods industries and the generation of independent technology. In the circumstance, to generate independent technology, an industrialisation strategy should be based on indigenous technology reflecting the developing countries' factor endowments and economic and political objectives. Such industrialisation, they contend, should be oriented towards catering solely for the domestic market, or the markets of other developing countries. This strategy requires a different pattern of domestic demand in the form of income redistribution: mass markets for less sophisticated goods, which in turn could only be based on a very different class structure and a different kind of political leadership. This strategy implies radical social changes which should be accompanied by industrialisation based on "a bicycle economy instead of an automobile economy".[1] Thus, it would appear that the structuralists/Marxists offer a fascinating perspective about import substitution rather than a policy-package reflected in a clear-cut, coherent methodology for its reform or implementation.

However, an exceptional structuralist/Marxist, Ignacy Sachs, maintains that what is to be blamed is badly conceived import substitution and not import substitution as such. He believes that, given adequate incentives, the "shallow and extensive import substitution" in the consumer goods industries can be reformed in the direction of the "deepening of the import

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1. Haq, Mahbub ul, "Industrialisation and Trade Policies in the 1970s: Developing Country Alternatives", in P. Streeten (ed.), Trade Strategies for Development, London, Macmillan, 1973, p. 100.

substitution process" in the intermediate and capital goods industries.[1] To him, the policy-goal should be towards a determination of the relative efficiency of import substitution vis-à-vis export promotion. He asserts that this "can be established for a given country and period on a fairly pragmatic basis by using, as a sub-optimisation device, the criterion of net domestic cost per unit of foreign exchange earned or saved".[2] But Sachs' policy-reform is limited only to developing countries within regional groupings, such as the Andean Pact, which seek to promote a new division of labour in manufacturing production. To the extent that most developing countries are excluded, Sachs' policy-device for the reform of import substitution is unimportant although it remains an interesting footnote to the structuralist/Marxist position.

Unlike the structuralist/Marxist critique, the implications of the neo-classical critique bear eminently upon the reform or implementation of import substitution. According to the neo-classicals, what was wrong was the poorly implemented import substitution programme and not import substitution *per se*, because they would argue that import substitution could be a rational strategy of industrialisation provided it could compete in the domestic market without long-run protection. But import substitution policies, especially trade and foreign exchange policies, which have turned out to be long-run protective devices, have induced "wrong" prices of resources, which have, in turn, violated the principle of comparative advantage. The "wrong" prices have distorted the patterns of resource allocation and utilisation in the economy thereby inducing inefficient industrialisation.

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1. Sachs, Ignacy, "Outward-Looking Strategies: A Dangerous Illusion?", P. Streeten (ed.), *ibid.*, p. 54.

2. Sachs, Ignacy, "Outward-Looking Strategies: A Dangerous Illusion?", *ibid.*, p. 57.

Therefore, the neo-classical policy-implication is that, given the "right" prices of resources, to ensure an efficient resource allocation and utilisation, import restrictive policies which have exclusively encouraged import substitution should be liberalised so as to engender an efficient ISI process as well as to encourage export-oriented industrialisation. But an important strand of the neo-classical policy prescription seems to be that developing countries should return to a regime of international trade in which emphasis should be placed on the development of agricultural and light manufactured exports. Thus, the patterns of economic development should be largely obedient to the normative implications of the theory of comparative advantage based upon different factor proportions prevailing in these countries. Given capital and skill scarcities, these countries should, accordingly, expand agricultural export production and labour-intensive light manufacturing exports for the world markets.

But to imply, as the foregoing does, that export-oriented manufacturing production is an alternative of import substitution is a "false dichotomy" in the sense that export-oriented manufacturing and import substitution are not mutually exclusive strategies of industrialisation.[1] This proposition derives from the view that the development of industry for the domestic market is an important phase in the shift in comparative advantage towards industrial exports. The usual infant-industry arguments for protecting domestic industry can readily be extended to the learning period in which product quality is raised to export standards and costs are reduced to competitive levels. Thus, in general, new industries specifically oriented towards the export market can only develop comparative

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1. Robock, S. H., "Industrialisation Through Import-Substitution or Export Industries: A False Dichotomy", in Markham, J. W., and G. F. Papanek (ed.), Industrial Organisation and Economic Development, New York, Houghton Mufflin Company, 1970, pp. 350-365; see also Chenery, H. B. and H. Hughes, The International Division of Labour: The Case of Industry, World Bank Reprint Series, No. 71, September 1972.

advantage after skills and entrepreneurship have been acquired through domestic production.

We have seen in the foregoing discussion that, despite the differences in their analytical focuses, the neo-classicals and the structuralists/Marxists basically come to the same general conclusion that ISI has not induced accelerated economic development. However, the empirical appraisal of ISI undertaken in this study will be based on the neo-classical rather than on the structuralist/Marxist paradigm because of two considerations. The first consideration is that the adoption of the neo-classical paradigm facilitates a micro-economic investigation of import-substituting industries (or industry) in terms of their (its) individual activity sectors or in terms of their (its) firms. This is mainly because the neo-classical analysis is based on a distinction between *projects* rather than *industries*. Specifically, the neo-classical analysis is hardly ever intersectoral: it is generally confined to the choice of projects within a sector or a subsector in the economy. In this respect, the neo-classical methodology for investigating the impact of ISI tends to assume that no particular merit or demerit may be attached to a project because it is in a particular industry; rather each project is to be evaluated for the effects to be attributed to it. In contrast, in the structuralist/Marxist paradigm, a sharp distinction is often made between industries on an inter-sectoral basis: a distinction between capital goods industry and consumer goods industry. The evaluation of an industrialisation programme under the structuralist/Marxist paradigm is critically dependent on this distinction.

The second consideration is that the neo-classical analysis enables the study to be focused on a narrow aspect of economic efficiency with respect to resource allocation and utilisation associated with the import-substitution strategy. In this respect, the fundamental neo-classical

proposition, based on the principle of optimisation in resource allocation and utilisation, is that productive activities in the national economy are efficient if and only if it is impossible to increase total national output by shifting one or more resources among product lines, and/or by improving the technique in one or more product lines. This proposition suggests additional ways to improve efficiency: we may seek alternative ways to increase some outputs even if we reduce other outputs thereby, provided the value of the increase is greater than the value of the reduction. Thus, the appraisal of the efficiency of resource allocation and utilisation in import-substituting activities must be based on an acceptable system of valuation of outputs and inputs. This is because, as argued above, trade and foreign exchange policies which were used to encourage import substitution have largely rendered domestic market prices incorrect reflectors of the economic scarcity values of the produced outputs and purchased inputs. Hence, a system of valuation of the produced outputs and purchased inputs of import-substituting activities on the basis of a "social cost-benefit analysis", the neo-classical theoretical and methodological foundations of which will be expounded in the next chapter, can be used to evaluate and compare the efficiency of operating investments among firms in the Nigerian textile industry.

2.8 Conclusions

A notable fact about the economic history of most of the large- and medium-sized developing countries since the Second World War is that theoretical economic arguments as well as political considerations conspired to emphasise the necessity for adopting import substitution as a strategy of industrialisation as a means of stimulating economic development. In reality, however, the initiation, the pace and pattern of the ISI process were products of a combination of complex interrelated motive forces which were associated with the historical processes of economic development and with the changing investment strategies of foreign firms on the one hand, and of government economic policies on the other.

The concept and the empirical identification of import substitution are ambiguous largely because the import effects of industrialisation and the import effects of other changes in the economy, whose occurrence is simultaneous with the process of industrialisation, cannot be easily separated. But despite their obvious weaknesses Chenery's concepts and measures of import substitution can be used as an aid to a descriptive analysis of the facts concerning the inter-temporal and cross-sectional comparisons of the degree of ISI of the economy.

The notable experience of the ISI process is that this strategy of industrialisation has been characterised by initial rapid growth of manufacturing output and eventually by loss of momentum. In general, this growth performance of ISI has been related to discriminatory protective policies which biased the structure of manufacturing production in favour of consumer goods industries and against intermediate and capital goods industries. This meant that import-substitution opportunities would quickly be exhausted as the final consumer goods "easy stage" of the substitution

process was passed if the domestic production of intermediate and capital goods could not readily be embarked upon. These immanent features of the ISI process would generally give rise to stagnation of the economy at a low level of development. The related specific explanations of the stagnationist tendencies of the ISI process often include the lack of domestic market demand, the balance of payments constraint, and the inability of ISI to proceed from the consumer goods sector to the capital goods sector.

The general theoretical interpretation of the impact of the ISI process on economic development has been undertaken in the context of two paradigms, namely, the neo-classical trade and welfare theory and the structuralist/Marxist dependency theory. Despite the differences in their analytical focuses, the neo-classicals and the structuralists/Marxists reach the same conclusion: that import substitution has not, through its generation of inefficient and insufficient industrialisation, induced accelerated economic development. They conclude that ISI has resulted in the under-utilisation of resources in the form of the creation of excess capacity and of little labour employment in the production processes; has given rise to extremely skewed income distribution; and has worsened rather than eased the balance of payments problems. But the main implication of the structuralist/Marxist critique is that the ISI process is inherently incapable, *per se*, of generating and sustaining efficient and sufficient industrialisation because ISI has built-in mechanisms for encouraging consumer goods industries at the expense of technologically strategic capital goods industries. To the structuralists/Marxists, given the existing dependent relationship between the developing countries and the developed countries and the existing structure of political power relations in the former, ISI is not amenable to reform. The neo-classical critique, on the other hand, implies that what was wrong was the poorly implemented ISI and

not the ISI *per se* because the neo-classicals would argue that ISI could be a rational strategy of industrialisation so long as it could compete in the domestic market without long-run protection. But they maintain that import substitution policies, especially trade and foreign exchange policies which have tended to be permanent protective devices have induced "wrong" prices of resources, which have, in turn, violated the principle of comparative advantage - a violation which has largely resulted in inefficient industrialisation. To the neo-classicals, to reform ISI in the direction of achieving greater industrial efficiency in resource allocation and utilisation in the economy, the prices of resources should be got "right". Although we recognise that an evaluation of ISI may be based on the neo-classical or the structuralist/Marxist paradigms, the empirical appraisal undertaken in this study is based on the neo-classical paradigm. This is mainly because the neo-classical analysis permits not only a micro-economic investigation of the impact of ISI but also enables the study to be focused on a narrow aspect of economic efficiency in terms of efficient resource allocation and utilisation in the import-substituting Nigerian textile industry.

CHAPTER THREE

Theoretical and Methodological Aspects of Social Cost-Benefit Analysis of Import-Substituting Industrialisation

3.1 Introduction: The general framework of project appraisal

This chapter sets out the theoretical and the methodological underpinnings of the contention made in the preceding chapter that the neo-classical paradigm can be used to appraise empirically the performance of import-substituting industrialisation. The general thrust of project appraisal derives mainly from the fundamental tenet that, in any welfare-optimum economy, policy-makers are faced by the problem of maximising a specified social welfare function subject to given resource and transformation constraints. Within the framework of the neo-classical paradigm, the maximisation of welfare is based on the following crucial assumptions: (i) the existence of perfectly competitive conditions in the economy as a whole; (ii) absence of externalities of economic activities; (iii) foreign trade is balanced for each country at any moment of time and all economies are readily able to adjust to changes in world prices with a minimum of dislocation; and (iv) absence of government interventions in the form of imposition of distortionary taxes or subsidies on economic activities. In an economy characterised by the neo-classical assumptions concerning the maximisation of welfare given resource and transformation constraints, market prices provide the exact solution of the general equilibrium problem

of optimum resource allocation and utilisation. The manifestation of this optimality condition is that the market prices of goods and factors of production equate the marginal social cost of producing with the marginal social value of using the relevant goods/factors. In project analysis, this condition means that there is an exact correspondence between market prices and social prices of the inputs and output of a project. Hence, in terms of welfare theory, project expenditures and receipts measured at market prices are exactly identical, respectively, with project social costs and social benefits.

But it is widely recognised that in most countries, especially in developing countries, market prices are not reasonable reflectors of social costs and social benefits of a project because of the existence of various market imperfections and non-optimal government trade controls. Specifically, it is recognised that in the developing countries the existence of highly differentiated and varying effective protective structures engendered by non-optimal government trade policies result in wide ranging divergences between the market and social prices of goods and factors of production. This belief underpins the general theoretical foundation of social cost-benefit analysis: in order to move an underdeveloped economy towards the frontier of optimal resource allocation, planning for economic development in such an economy must be concerned primarily with how to achieve "correct" prices of resources and, correspondingly, how to avoid "wrong" prices. A method of appraising a project must therefore be concerned with the "accounting price" or "shadow price" valuation of its inputs and output so as to determine its social economic efficiency.[1] Thus, it is claimed

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1. The recent years have witnessed attempts at widening the scope of accounting prices to include the impact of projects not only on the distribution of income between consumption and investment but also on the distribution of income between different categories of the rich and poor. The accounting prices which take account of such equity objective may be described as

that, as a *second-best* solution device, a proper application of social cost-benefit analysis to evaluate the economic performance of projects may move the underdeveloped economy in the direction of optimal resource allocation.[1]

"social prices", whilst the accounting prices which take account exclusively of growth objective of maximising the increment in total national income may be regarded as "efficiency prices". Although the attempts to incorporate equity considerations into the estimation procedures of accounting prices are worthy from the viewpoint of the current emphasis on the income distribution goal of economic development, the techniques of deriving suitable income distribution weights based on the policy-maker's notions of a welfare function "are necessarily rather crude". Squire L. and H. G. Van der Tak, Economic Analysis of Projects, Baltimore, Johns Hopkins University Press, 1975, p. 7. In the study, we concentrate on efficiency prices as the accounting prices used for valuing inputs and outputs of projects not only because of the crude techniques of deriving income distribution weights, but also because we evaluate the import-substituting industrialisation programme against the Nigerian development policy which has placed an uncompromising emphasis on economic growth at the expense of the income distribution goal. For instance, the Second National Plan points out that "emphasis has been placed on growth as a precondition for a meaningful distribution of the fruits of development. The 'national cake' must first be baked before it is shared; and the bigger the cake, the more it can go round at each succeeding round of the sharing game". Second National Development Plan 1970-74, Lagos, Government Printer, 1970, p. 33.

1. It may be argued that it is misleading to refer to social cost-benefit analysis as a second-best solution because the theory of second best would seem to argue against the partial social cost-benefit approach. Although it is not the purpose of this study to enter the discussion of second-best optimisation theory, it may be pointed out that this objection is based on the reasoning that, because optimal prices and outputs are determined simultaneously through iterative decentralisation methods, the only accounting prices which have theoretical validity are those which are derived from the exact solution of the general equilibrium optimum problem. See Joshi, V., "The Rationale and Relevance of the Little-Mirrlees Criterion", Bulletin of the Oxford University Institute of Economics and Statistics, vol. 34, Feb. 1972, p. 4. But the solution of the optimum programming model of the economy requires data on the inputs and outputs of all existing production processes and data on the inputs and outputs appertaining to all future possible projects. It is widely acknowledged, however, that it is well-nigh impossible for an evaluator to obtain these data in the right quantity and quality in an underdeveloped economy. More fundamentally, the model's assumption of linear economic relationships caricatures the real economic world. Equally absurd is the model's assumption of fixed technological coefficients for most sectors of the economy and of non-response on the part of economic agents to price changes. In theory, however, it may be conceded that the optimum programming model may be superior to the partial equilibrium model implicit in social cost-benefit analysis. But the data realities of an underdeveloped

3.2 Alternative project appraisal methods

The foregoing exposition indicates that the central problem of social cost-benefit analysis is the appropriate accounting price valuation of the inputs and output, and the determination of social economic efficiency of a project. In this section, we examine critically the relationships between the main alternative project appraisal methods in the context of the problems of valuation of inputs and output of a project, and of constructing the investment decision rules designed for judging its performance.

3.2.1 Valuation of inputs and output of a project

Two methods are basically used to value the inputs and output of a project. These are the Little/Mirrlees (LM) method and the UNIDO method.[1]

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economy render the partial equilibrium model more useful empirically.

Some have questioned the neo-classical welfare economics concept of economic welfare which forms the basis of social cost-benefit analysis. Usually, project selection is critically dependent on government decisions and values which define economic welfare functions on the assumption that the state power is neutral of all contending classes in a given society. But this proposition ignores the basic fact that a government represents the interests and values of particular classes in society. See Stewart, Frances, "A Note on Social Cost-Benefit Analysis and Class Conflict in LDCs", World Development, Vol. 3, No. 1, January 1975, pp. 31-39; Lall, S., "Conflicts of Concepts: Welfare Economics and Developing Countries", World Development, Vol. 4, No. 3, March 1976, pp. 181-195.

1. These methods are generally associated with and named after two outstanding studies: Little, I. M. D. and J. A. Mirrlees, Manual of Industrial Project Analysis in Developing Countries, Vol. II: Social Cost-Benefit Analysis, Paris, Organisation for Economic Cooperation and Development, 1968. The Manual has been published in a substantially revised form as a book: Project Appraisal and Planning for Developing Countries, London, Heinemann Educational Books, 1974. United Nations Industrial Development Organisation [Dasgupta, P., A. Sen and S. Marglin], Guidelines for Project Evaluation, New York, United Nations, 1972. The UNIDO method also includes studies by A. C. Harberger and D. M. Schydlowsky: see, for example, Harberger, A. C., "Survey of Literature on Cost-Benefit Analysis for Industrial Project Evaluation", in Evaluation of Industrial Projects, New York, United Nations (UNIDO), 1968; Schydlowsky, D. M., "On the Choice of a Shadow Price for Foreign Exchange", in Economic Development Report No. 108, Cambridge (Mass.), Development Advisory Service, Centre for International Affairs, Harvard University, 1968.

The main distinguishing feature of these methods is that while the latter uses domestic currency as the numeraire the former uses foreign exchange.[1]

The LM method basically consists of distinguishing between tradable and nontradable inputs and outputs. The tradables are valued at their border prices or world prices - c.i.f. price for importables, f.o.b. price for exportable. The nontradables are successively broken down into their component tradables and primary factors. The component tradables are then valued at their border prices, and the primary factors are valued by revaluing their domestic currency value marginal product in terms of foreign exchange.

Making the restrictive assumption that all commodities in the economy are tradable, we can relate directly the LM world price rule for valuing inputs and output of a project to the principle of comparative advantage in neo-classical trade theory. Joshi and Krueger have demonstrated this relationship in the context of the simplifying standard two-commodity model commonly used in the exposition of trade theory.[2] Our exposition

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1. The use of foreign exchange as the numeraire does not imply that the government pursues exclusively the objective of maximising foreign exchange reserves or of improving the balance of payments. By using foreign exchange as the numeraire, we only imply that the costs and benefits of projects are merely expressed in terms of equivalent value of actual increases or decreases in foreign exchange reserves. For this clarification, see Scott, M. FG., J. D. MacArthur and D. M. G. Newbery, Project Appraisal in Practice, London, Heinemann Educational Books, 1976, pp. 6-7.

2. The discussions of the relationship of the use of world prices as accounting prices to the principle of comparative advantage in neo-classical trade theory can be found in V. R. Joshi, "Foreign Trade and Investment Criteria", in W. A. Eltis, M. FG. Scott, and J. N. Wolfe (eds.), Induction, Trade and Growth: Essays in Honour of Sir Roy Harrod, Oxford, Oxford University Press, 1970; V. Joshi, "The Rationale and Relevance of the Little-Mirrlees Criterion", Bulletin of the Oxford University Institute of Economics and Statistics, 34, February 1972, pp. 3-32; A. O. Krueger, "Evaluating Restrictionist Trade Regimes: Theory and Measurement", Journal of Political Economy, 80, January/February 1972, pp. 48-62.

follows that of Joshi and Krueger. Assuming a small open economy where the two commodities are tradables (importable and exportable), where perfect international trading conditions prevail, and where any domestic distortions may be corrected by appropriate tax/subsidy measures, we can represent the two-commodity economy by the transformation curve TT as shown in Figure 3.1. In such an economy, production or national income is maximised, independently of the pattern of consumption, at the point of tangency at Af between the transformation curve TT and the international terms of trade ff. At this point of tangency, the given international terms of trade are equal to the marginal rate of transformation between the importable and exportable commodities. If the economy is operating at point Af on the transformation curve TT, there is no difficulty in choosing prices for the purpose of planning the production of the two commodities because the domestic price ratio is equal to the international price ratio with the economy and exchange rate in equilibrium. In a developing country such as Nigeria, however, trade restrictions may have distorted relative domestic prices in favour of the importable leading to a restricted trade equilibrium at point Br on the transformation curve TT. If production takes place at Br, at domestic prices dd, consumption can occur at that point, or the economy can exchange commodities internationally along the terms of trade line f´f´which intersects Br. If production were shifted to Af, the set of alternative consumption choices would lie everywhere outside the initial set of consumption choices defined by the restrictive trade position. Thus, valuing inputs and outputs at world prices ff rather than at domestic prices dd would indicate which industries should be expanded or contracted to move the economy towards the free trade production point. This planning rule for production may therefore yield higher feasible social welfare than may be possible under a restrictive trade regime.

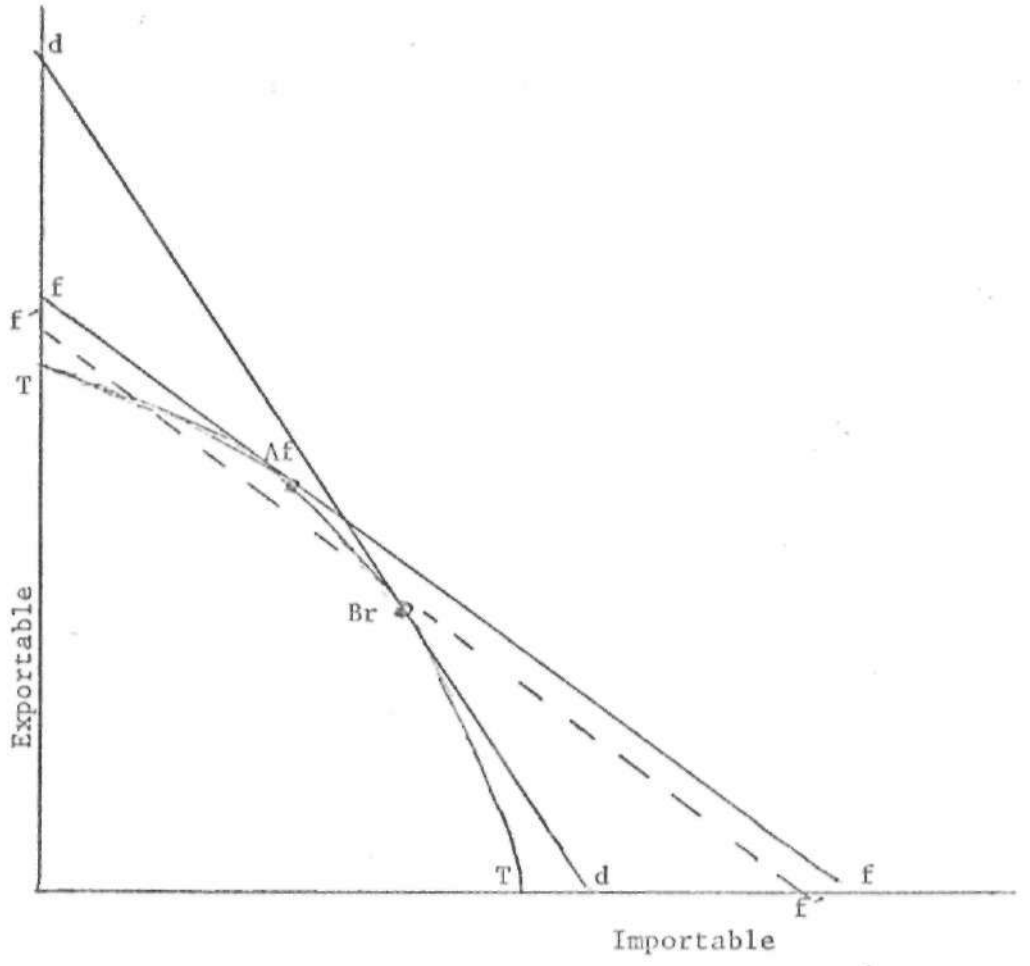

Figure 3.1

The World Price Rule in a Two-Sector Model

But the foregoing presentation of the world price rule must be modified if the country under examination exercises some monopoly power in world trade. In such circumstances, international prices are not unaffected by the level of domestic production and consumption, the feasible consumption set is no longer defined by the terms of trade line, and the optimal pattern of production cannot be determined independently of the pattern of domestic demand. Thus, "the optimal pattern of production and consumption and the accounting prices of goods and factors must be determined simultaneously".[1] Granting this, it may not be possible to derive the accounting price of the relevant commodity from the observed marginal rate of transformation of the commodity in world trade. In this situation, Little and Mirrlees suggest a modification of the world price rule: they recommend that the marginal export revenue of the exportable or the marginal import cost of the importable can be used as the appropriate accounting price of the commodity. If the economy is not a price-taker in world trade, this procedure is a reasonable solution only when the marginal rate of transformation is determined at the optimum trade point (optimum tariff equilibrium). However, Nigeria, like most developing countries, does not exercise monopoly power in the supply of and demand for manufactured commodities in world trade.

We next examine the main features of the UNIDO method with respect to the valuation of tradable inputs and outputs. This method consists of valuing tradable inputs and tradable output of a project by converting their foreign currency values into domestic currency values through the shadow exchange rate (SER). The concept of SER, which is central to the UNIDO method, may be defined by the following expression:[2]

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1. V. Joshi, "The Rationale and Relevance of the Little-Mirrlees Criterion", *op. cit.*, p. 10.
2. United Nations Industrial Development Organisation, Guidelines for Project Evaluation, *op. cit.*, pp. 215-216.

$$SER = \sum_{i=1}^{n} fi \frac{Pi^D}{Picif} + \sum_{i=n+1}^{n+h} xi \frac{Pi^D}{Pifob} \qquad (3.1)$$

where fi = the fraction of foreign exchange allocated to imports of the ith of n commodities at the margin

xi = the domestic currency amount by which each of h exports falls in response to earnings of foreign exchange

Pi^D = the domestic market clearing prices of imports and exports

Picif and Pifob = the border prices of imports and exports respectively.

Clearly, as represented by expression (3.1), the SER is defined as the weighted sum of domestic prices of tradables, divided by a similar weighted sum of border prices, the weights in each case being the marginal changes in imports and exports induced by the project. An appropriately estimated SER can then be used to deflate the market values of tradable inputs and tradable output of a project in order to obtain their accounting values.

We now turn to the problem of valuing nontradable commodities under the LM and UNIDO methods. There is a major difference between the LM and UNIDO methods with respect to the valuation of non-traded commodities.

When non-traded commodities are introduced into the LM valuation framework, the generality of the world price rule is lost, and the LM method therefore loses much of its simplicity. Even in the absence of barriers to trade there will exist a category of commodities whose internal prices will lie between their import and export parity prices, and which will therefore be non-traded. If such commodities are not close substitutes for tradables, there are no world prices to which reference can be made in the estimation of commodity accounting prices. Changes in the domestic output of or demand for commodities which remain non-traded will

affect internal relative prices. Thus decisions regarding the optimal pattern of production, and the related accounting prices, cannot be made independently of the pattern of domestic demand. In principle, when some commodities remain non-traded, the accounting prices of all commodities must be determined simultaneously within the context of a general equilibrium model. The present state-of-the-art in mathematical programming and the data resources of most developing countries make such an approach impossible to undertake in practice.[1] In the circumstance, the practical problem of valuing nontradables may be solved by estimating some conversion factors which can be applied directly to project-specific nontradable inputs. Conversion factors can be estimated for such nontradables as electricity, construction, transport and marketing margin. In this respect, we can estimate a standard conversion factor which can be used to deflate the market value of a nontradable. The standard conversion factor can be computed as the ratio of the value at border prices of all imports and exports to their value at domestic prices.[2] The use of the standard conversion factor is only an approximation because very difficult adjustments may be made when computing it. For instance, it may be necessary to make some allowance for a less than perfectly elastic world demand for exports.[3]

Under the UNIDO method, the accounting price valuation of a non-traded commodity is based on the producers' or consumers' willingness to pay for the nontraded commodity.[4] Basically, this implies, in practice,

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1. V. Joshi, "The Rationale and Relevance of the Little-Mirrlees Criterion", *op. cit.*, p. 10.
2. L. Squire and H. G. Van der Tak, Economic Analysis of Projects, *op. cit.*, p. 130.
3. *Ibid.*, p. 129.
4. Dasgupta, P., "A Comparative Analysis of the UNIDO Guidelines and the OECD Manual", Bulletin of the Oxford University Institute of Economics and Statistics, 34, February 1972, p. 48.

that the market price of the nontraded commodity may be taken as the accounting price of the nontraded commodity. This approach is valid provided that it is assumed that trade-liberalisation will occur in the future with a flexible exchange rate and that the price of the nontraded commodity is constant. Thus, if it is assumed that the economy is producing efficiently, valuing a nontraded commodity under the UNIDO method could be equivalent to regarding the social marginal cost of producing the nontraded commodity as its accounting price under the LM method. But such equality scarcely happens because it is typical for the willingness to pay for the marginal amount of the nontraded commodity to exceed its marginal social cost. This may be the case in a situation where the nontraded commodity in question is being rationed. Granting this, on the basis of the UNIDO method a project may be rejected while the same project may be accepted on the basis of the LM method or vice versa.

It has been argued, however, that, under certain conditions, the LM and the UNIDO methods of valuing commodities are theoretically related and that they may similarly rank projects which produce tradable commodities. Dasgupta has summarised this position as follows:

> ". . . if the commercial policy of a nation were efficient it would be entirely correct to value tradable goods using world prices, as the OECD approach recommends. However, in such a situation this is precisely the procedure that the UNIDO approach would recommend as well."[1]

Lal[2] has demonstrated, under certain assumptions, that the LM and the UNIDO

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1. Dasgupta, P. "A Comparative Analysis of the UNIDO Guidelines and the OECD Manual", *ibid.*, p. 48.

2. Lal, Deepak, Adjustments for Trade Distortions in Project Analysis, World Bank Economic Staff Working Paper No. 128, March 1972; Appraising Foreign Investment in Developing Countries, London, Heinemann Educational Books, 1975, pp. 48-56.

methods may similarly rank projects which produce tradable commodities. We may summarise Lal's demonstration of the similarity of the two methods so as to indicate their implications for an empirical valuation of tradable commodities in project analysis.

Central to Lal's demonstration of the similarity between the LM and the UNIDO methods are the following simplifying assumptions: (1) the economy produces two tradable commodities, an importable (m) and an exportable (x) with two domestic factors of production of capital (k) and labour (l); and (2) the economy is in a protection situation with a tariff of t per cent on the imports of m, besides this distortion there are no other distortions in the economy which is assumed to be in external and internal balance at the official exchange rate (e) with W and R representing the domestic money wage and rental rates of the two factors of production, k and l. On the basis of these assumptions, ePxf and ePmf(1+t) may be defined to represent the domestic money prices of commodities x and m respectively where Pxf and Pmf are the respective foreign currency prices of the two commodities. We may also define Aij as the input of the ith factor in the production of the jth commodity. We may then construct a simple model which describes the equilibrium condition for the economy in the post-protection situation in terms of the following cost conditions shown in units of domestic currency:

$$\begin{aligned} AimW + AkmR &= ePmf(1+t) \\ AixW + AkxR &= ePxf \end{aligned} \qquad (3.2)$$

Suppose we were to determine the relative social profitability of a marginal investment project for producing commodity x or commodity m in an economy depicted by the model represented by expression (3.2). We must

stress, to start with, that, at the prevailing domestic market prices in the pre-protection situation, the producers would be indifferent as to whether a marginal increase in domestic resources was invested in x or m. In this situation, the producers' investment decisions based on the domestic market price of x or m would result in the maximisation of feasible social welfare in the economy. But the imposition of a tariff of t per cent on m has introduced a distortion which implies that investment decisions taken on the basis of market prices may not maximise feasible social welfare in the economy because the tariff has introduced a wedge between the marginal social cost of producing and the marginal social value of using a unit of foreign exchange.

In the protection situation of the economy, the factors e(1+t) and e defined earlier may be identified with the shadow exchange rates (SERs) because the tariff has resulted in a non-unified exchange rate. Thus, there are two different effective exchange rates which apply to imports and exports, *e for exports and e(1+t) for imports.*[1] *In this situation,* the social costs and benefits of expanding the production of commodity m or commodity x, on the basis of the UNIDO method, can be worked out from two sets of cases in comparison to the model represented by expression (3.2).

If we use an SER of e(1+t), we obtain the following social costs and benefits

$$\begin{aligned} AimW + AkmR &= ePmf(1+t) \\ AixW + AkxR &< ePxf(1+t) \end{aligned} \qquad (3.2a)$$

If we had used an SER of e, we would obtain the social costs and benefits

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1. Effective exchange rates are the rates which convert domestic money prices into foreign money prices of the tradables.

as the following

$$AimW + AkmR > ePmf \qquad (3.2b)$$

$$AixW + AkxR = ePxf$$

In the two cases represented by the expressions (3.2a) and (3.2b), the production of commodity x would be socially more profitable than m.

From the model represented by expression (3.2), we may also work out and compare the social costs and benefits of expanding the production of m or x on the basis of the LM method using foreign currency as the numeraire. The social benefits represented by the marginal social values of the two commodities in foreign currency are their foreign currency prices of Pmf and Pxf. To determine the social costs of production represented by the marginal social costs of the two commodities, we must revalue the inputs used in their production in foreign exchange. As only primary factors are considered in the model, with their physical quantities given, it is only the factor prices which need to be revalued in foreign exchange. In this respect, the correct social value of the factors is their value marginal product (VMP) in an alternative use. Then if the m or x industry is being expanded, the relevant social cost of its factors will be the foreign exchange VMP of the factors in the x or m industry. This is because the m or x expansion must entail, assuming full employment, a withdrawal of factors from the x or m industry. Given the assumption of the absence of factor market distortions, the factor prices in domestic currency must be equal to the domestic currency VMP of the two factors in the two industries. As a consequence, the foreign currency VMPs of the two factors are W/e and R/e for factors from the x industry, and W/e(1+t) and R/e(1+t) for factors from the m industry because the conversion of domestic currency VMP into

foreign exchange VMP of factors from the x or m industry is done at the effective exchange rate which applies to the x or m commodity, namely, e or e(1+t). Using an effective exchange rate of e, we obtain the following social costs and benefits from expression (3.2)

$$\begin{aligned} AimW/e + AkmR/e &> Pmf \\ AixW/e + AkxR/e &= Pxf \end{aligned} \qquad (3.2c)$$

If we had used an effective exchange rate of e(1+t), we would obtain the social costs and benefits as the following

$$\begin{aligned} AimW/[e(1+t)] + AkmR/[e(1+t)] &= Pmf \\ AixW/[e(1+t)] + AkxR/[e(1+t)] &< Pxf \end{aligned} \qquad (3.2d)$$

In both cases represented by the expressions (3.2c) and (3.2d), the production of commodity x would, once more, be socially more profitable than m.

The implications of the foregoing demonstration of the relative social profitability of m and x on the basis of the LM and UNIDO methods are unmistakable. The LM and the UNIDO methods of valuation would give the same rankings of the two commodities. Whereas the LM method would explicitly use the multiple conversion factors corresponding to the twin effective exchange rates [e and e(1+t)] to convert domestic currency values into foreign currency, the UNIDO method would explicitly average across these multiple exchange rates to derive the single conversion factor (the SER) to make the reverse conversions. However, the averaging process which the UNIDO method entails may be sensitive to the weights of marginal changes in imports and exports, and may therefore be liable to error. This might be the case because (although our simple model does not show this), in a situation where a unit increase in foreign exchange is expended by

increasing imports of α, and by reducing exports of β (in foreign currency $\alpha + \beta = 1$), the marginal social value of a unit of foreign exchange expended (e') would be the following:[1]

$$e' = \alpha e(1+t) + \beta e = e[\alpha(1+t) + \beta] \qquad (3.3)$$

In the situation represented by expression (3.3), the SER would be e', and the value of the SER would lie between $e(1+t)$ when $\beta = 0$ and e when $\alpha = 0$. Thus, in practice, the averaging process involved in the use of the UNIDO method may be sensitive to the weights α and β. To this extent, the application of the UNIDO method which requires the estimation of a single conversion factor, the SER, may be less accurate than the application of the LM method because the latter derives multiple conversion factors for converting domestic into foreign currency values and the former averages across these implicit multiple exchange rates. Although computational difficulties may be encountered when using the LM method to value tradable commodities because, in practice, the LM method tends to resort to "average" conversion factors, such difficulties are much more serious when using the UNIDO method because the scope for averaging is much larger. Hence, we conclude as Lal does that "for relatively open economies, the LM methods provide the simplest methods for taking proper account of trade distortions . . ." in project analysis.[2]

In the light of this conclusion, we undertake, in this study, the valuation of all tradable commodities within the LM framework. The application of the LM method in this respect enables us to estimate several

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1. Lal, Deepak, Appraising Foreign Investment in Developing Countries, p. 52.
2. Lal, Deepak, Adjustments for Trade Distortions in Project Analysis, p. 32

conversion factors for converting domestic values of tradable commodities into foreign currency values on the basis of the c.i.f. and f.o.b. price data for the Nigerian textile industry. This obviates the need to compute a single conversion factor in the form of a shadow exchange rate for the whole Nigerian economy. Given the general unreliability of data characterising underdeveloped economies such as the Nigerian economy, the use of the LM method may minimise our computational errors arising from data deficiency.

Both the LM and the UNIDO methods stress the need to choose an appropriate discount rate which provides the link between different time periods of costs and benefits and which allows all costs and benefits of projects under examination to be expressed in present value. The discount rate used in project analysis should correspond to the numeraire in which costs and benefits are expressed. In general, the discount rate is derived from the market interest rates on investible funds. The correction for the market interest rates is based on the idea that saving and investment in a developing economy could be below the socially optimal level. In the LM method, the discount rate is represented by the accounting rate of interest (ARI) which is the rate of fall through time of the uncommitted public sector income measured in convertible foreign exchange. As aggregate consumption measured in units of domestic currency is the numeraire in the UNIDO method, the discount rate takes into account not only the growth rate of consumption and the rate of diminishing marginal utility of income but also the pure time preference of the government. In this respect, the discount rate known as the consumption rate of interest (CRI) or social discount rate may be defined as the discount attached to having additional consumption next year rather than this year. The two discount rates under the LM and the UNIDO methods may be different, and the ARI may typically

be greater than the CRI mainly because the net benefits of a project under the two methods are expressed respectively in terms of investible resources and in terms of consumption.[1] For instance, a heavily growth-oriented devlopment policy may require a relatively high ARI or a relatively low CRI. However, if the ARI is set too high, few projects will pass the test of a positive net present value, and there will be an excess supply of public investment funds. If the ARI is set too low, demand for public investment resources will exceed supply, because too many projects will have a positive net present value. Thus the ARI performs the function of rationing public investible funds. The value of ARI should therefore be set at a level such that an investment project which exhausts the funds available will show zero net present value when discounted at the ARI. When discounting the costs and benefits of projects in the present study, we use the ARI under the LM method mainly because this method is used to value all the tradable commodities. The empirical problems involved in choosing the apprpriate ARI used in the appraisal will be dealt with in chapter six.

The LM and the UNIDO methods generally give similar justification and provide basically similar approaches for valuing labour inputs in project evaluation. The estimation of the shadow wage rate of labour is based on the rationale that in an underdeveloped economy the market wage rate, especially of unskilled labour, overstates its social opportunity cost mainly because of the presumptive evidence on surplus labour, the institutionally determined rural-urban wage gap, as well as the impact of rural-urban migration on maintaining or accentuating the rural-urban wage gap.[2]

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1. Dasgupta, P., "A Comparative Analysis of the UNIDO Guidelines and the OECD Manual", *op. cit.*, p. 42.

2. Sen, A., Employment, Technology and Development, Oxford, Clarendon Press, 1975, pp. 53-56; Mazumdar, D., The Rural-Urban Wage Gap, Migration and the Shadow Wage, World Bank Staff Working Paper, No. 197, February 1975, p. 1.

However, because of unavailability of appropriate data, we do not undertake the estimation of shadow wage rate of labour in the study. Instead, we regard the prevailing market wage rate as equivalent to the shadow wage rate for all categories of labour.[1] A sensitivity analysis will, however, be undertaken in chapter six to determine whether or not there are significant variations in the value of the estimated investment decision rule variable with respect to given variations in selected hypothetical shadow wage values.

Some justification may be sought for this treatment of labour valuation in the study. In general, the theory of labour valuation in project analysis is not unambiguous. The essence of the theory is that the relevant measure of the social opportunity cost of the unskilled urban worker is his foregone marginal agricultural product when he migrates from the rural area. Implicit in this reasoning is the idea that the creation of a new urban job has the effect of inducing additional migration from the rural area. Three implications of this theory for shadow wage computation are worth underscoring. Firstly, when account is taken of the induced migration in terms of greater expenditure on the migrant than he was used to in the rural area in order to make his stay in the town worth his while, the shadow wage may be equivalent to his market wage. The validity of this proposition depends on the assumption of a migration function which predicts an exaggerated rate of urban unemployment and on the assumption that the cost of living confronting the migrant in the town is higher than in the rural area. Secondly, given an appropriately defined migration function, the impact of induced migration on the shadow wage may be small

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1. The Central Planning Office and the Nigerian Industrial Development Bank, two key government bodies, assume, when appraising projects in Nigeria, that the prevailing market wage rate as equivalent to the shadow wage rate for all categories of labour.

when there is rural financing of the job seeker in the urban market. Thirdly, if migrants finance themselves in the urban market by participating in the informal sector, or if they are financed by relatives or friends who participate either in the formal sector or in the informal sector of the urban economy, the consumption effect of the worker's migration may be significant. In which case, the shadow wage may exceed the market wage.[1]

Given the apparently conflicting predictions of the theory of labour valuation, the estimation of the shadow wage calls therefore for a detailed knowledge of the rural and urban labour markets of an underdeveloped economy. This stems from the implication of the theory that the estimation of shadow wage requires an assessment of which type of financing of the rural-urban migrant is dominant. However, a detailed knowledge of the Nigerian rural and urban labour markets is lacking. The World Bank Report of 1974 testifies to this as follows:

> "Additional information is needed on the structure and operations of labour markets, the patterns and trends in relative earnings and wage rates, and the mechanisms of wage determination within the Nigerian institutional setting."[2]

Hence, we are limited by data unavailability to regarding the prevailing market wage rate as equivalent to the shadow wage rate in the study.

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1. For a more detailed exposition of these ideas, see Mazumdar, D., *op. cit.*, and Harberger, A. C., "On Measuring the Social Opportunity Cost of Labour", in Harberger, A. C., Project Evaluation: Collected Papers, London, Macmillan, 1972, pp. 157-183.

2. The World Bank, Nigeria: Options for Long-Term Development, Baltimore, Johns Hopkins University Press, 1974, p. 31.

3.2.2 Some criticisms of accounting price valuation of commodities

> "It is easy to point out the flaws in any practical set of rules one cares to invent, but that does not mean that *they are useless*."[1]

Even Jan Tinbergen, one of the most prominent inventors of the concept of accounting prices, admits that there are practical difficulties in applying it to countries with "fundamental disequilibria".[2] Not surprisingly, the flaws in the LM method's recommendation of world prices as the basis for accounting price valuation of commodities have been pointed out incisively by several authors.[3] Although we are concerned here only with some of the basic criticisms of the use of world prices as accounting prices, it must be noted that most of the objections relate to the general concept and application of accounting prices.[4] Two basic sets of objections may be considered. Firstly, it may be argued that conceptually and structurally border prices (world prices) contain inherent biases which tend to produce misleading evaluations in project analysis. The second set of objections concerns the practical problems of obtaining relevant data required for an accurate measurement of border prices. These issues

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1. Scott, M. FG., J. D. MacArthur and D. M. G. Newbery, *op. cit.*, p. 5.

2. Tinbergen, J., The Design of Development, Baltimore, Johns Hopkins University Press, 1958, p. 39.

3. For most critical reviews of the world price accounting valuation of commodities, see Stewart, F. and P. Streeten, "Little-Mirrlees Methods and Project Appraisal", and Joshi, H., "World Prices as Shadow Prices: A Critique", all in Bulletin of the Oxford University Institute of Economics and Statistics, Vol. 34, February 1972.

4. For a critique of the general concept and application of accounting prices, see Cairncross, A., "The Limitations of Shadow Rates", in Cairncross, A. and M. Puri (ed.), Employment, Income Distribution and Development Strategy: Problems of the Developing Countries, London, Macmillan, 1976, pp. 169-180.

are briefly discussed in turn.

3.2.2(i) Conceptual and structural objections to accounting price valuation

The obvious conceptual criticism of border prices is that the existence of multiple prices for the same product may not be sufficiently allowed for. The common feature of a market economy is that no product has a unique price which is universally known to all potential buyers and sellers. Little and Mirrlees identify this problem and its probable solution as follows:

> "Another, rather different, puzzle arises when the project evaluator finds, as he sometimes will, that there is quite a wide range of import prices for a particular product. This could be because of a difference of quality, or differences in the size of the consignment, or because the goods were not bought at the same time. It could also be simply irrational - someone has paid more than he need have done. The project evaluator should always try to estimate the lowest price at which imports of a given quality are likely to be actually obtainable at the relevant times."[1]

This conception and solution of the problem posed by the likely existence of multiple prices for the same product can be questioned on the grounds that the use of the "lowest obtainable price at the relevant times" of a tradable good to value it implies that the good has a unique price. On this interpretation, the use of the "lowest obtainable price" contradicts the optimality assumption of a decentralised economic system the basic feature of which is the existence of multiple prices for identical commodities as the decentralised economic system relies on the independent actions of buyers and sellers in determining the market prices of commodities. Given these conditions, it may be argued that "the *typical* price is not

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1. Little, I. M. D. and J. A. Mirrlees, *op. cit.*, p. 210.

the lowest obtainable price but a weighted average of the prices of the various transactions involving the same product".[1] Moreover, the use of the lowest obtainable price may imply that such objective characteristics of the market as risk, uncertainty, variations in firm size and the imperfectness of information should be regarded as distortions and not as objective conditions to which the market equilibrium must ultimately gravitate. Hence, by ignoring the objective conditions of the market when devising criteria for resource allocation, the adoption of the "lowest obtainable price" to value tradable goods may, unwittingly, lead to a rejection of decentralised market systems which constitute the foundations for the methods of project appraisal.

Another objection to the use of the world price rule is based on the argument that a development policy based on static comparative advantage ignores the dynamic role of industrialisation in transforming the structure of a developing economy. The alternative form of this argument is that, although the establishment of industries may be inefficient at world prices, such industries may not only have positive externalities through investment linkages or training effects but may serve to reduce the vulnerability of the economy to fluctuations in the world prices for primary exports. In principle, quantifiable externalities can be captured within the context of the investment criteria presented below. But it is difficult to find any consistent method of incorporating qualitative externalities into an efficiency criterion.

The main structural criticism of the world price rule is that it ignores the feature of *relative underdevelopment* which is manifested in a

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1. Guisinger, S. and D. Papageorgiuo, "The Selection of Appropriate Border Prices in Project Evaluation", Oxford Bulletin of Economics and Statistics, Vol. 38, May 1976, p. 81.

wide gap in the living standards between the developing countries and the developed countries. As argued in section 3.1, the process of accounting pricing presupposes a well-defined social welfare function which reflects the inter-temporal and intra-temporal distribution of income-consumption in a given country. The concentration of world income-consumption in the developed countries therefore implies that these countries dominate the formation process of world prices of most commodities. Thus the use of world prices by a developing country in project analysis implies the acceptance of the existing world distribution of income-consumption. But it may be argued that this acceptance negates the purpose of development if it is held that development efforts ought to aim at changing the existing structure of world distribution of income-consumption in favour of the developing countries vis-à-vis the developed countries.

It can also be argued that the use of world prices in evaluating projects in developing countries may result in a bias against industrialisation in those countries thereby reinforcing their relative underdevelopment. This argument is based on the view that because industrial exports from the developed countries may be sold at prices less than the average costs of production (due to the operations of multinational firms examined below and government subsidies) the developing countries may enjoy a bargain in their purchases. But this good bargain may be obtained at the cost of a lower industrial growth rate than may have been the case if industrial projects in developing countries had been evaluated using an assumed price of imports based on the full costs of production in the developed countries. As dumping is a cyclical phenomenon, however, its existence may not be a strong argument against the use of world prices as such but against the use of current prices to represent future trends.

3.2.2(ii) Problems of obtaining relevant border price data

It is claimed that "the twentieth century has seen an erosion of international prices over a broad range of markets".[1] The increased dominance of international trade by multinational firms has largely caused the "erosion of international prices", and has therefore posed problems of obtaining relevant border price data. The problems have their nexus in the organisation of the multinational firms. The growing importance of economies of scale, product differentiation and concentration in manufacturing industries and the concomitant addition of quality differentials to price differentials have meant an accentuation of competition. These manifestations of the dominance of the multinational firms have led to intensified discriminatory pricing in international trade. In this respect, the multinational firms usually expect that marginal costing today will be recouped by average costing on a larger scale of production tomorrow.[2] Thus the potential benefits of economies of scale may motivate the multinational firms to undertake investment in excess capacity so that marginal pricing in export markets for minimising losses may be adopted until the market grows to catch up with the capacity installed.

Increasing product differentiation and concentration, with the attendant monopolistic and oligopolistic features of the multinational firms may also give rise to new opportunities for discriminatory pricing. Oligopolistic firms may establish a non-price competitive environment in a domestic market, but may compete with oligopolistic firms from other countries in the international market. As a consequence, international markets for

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1. Hughes, Helen, Trade and Industrialisation Policies: The Political Economy of the Second Best, World Bank, Development Economics Staff Working Paper, No. 143, February 1973, p. i.

2. *Ibid.*, pp. 1-5.

many products may tend to become more competitive than domestic markets, and marginal cost pricing may become increasingly concentrated in exports. Even marginal cost pricing may be used as a temporary device to capture export markets from competitors, prevent their entry, or to prevent domestic production. Using the system of transfer pricing, the multinational firms may price products in such a way as to minimise tax, royalty and other costs, thereby lowering the international market prices of such products as a means of repatriating their profits to their home countries.

A related practical problem of obtaining relevant border price data derives from the fact that the c.i.f. prices actually reported in countries with restrictive trade barriers may be quite different from the *prices that would obtain if these trade barriers were dismantled. This is* because border prices are frequently manipulated to circumvent trade distortions and taxes. For example, transfer prices assigned to intra-corporate exchange of goods between subsidiaries of one multinational firm located in different countries, are often arbitrary bookkeeping entries designed to minimise a company's total tax payments or to facilitate the circumvention of foreign exchange control regulations. In general, transfer prices are an important aspect of the problem of under-and-over-invoicing of imports and exports. Invoice faking may flourish in the regimes of trade barriers and exchange restrictions; the border prices found under such regimes may not be a good guide to the border prices that would obtain under free trade.

All in all, most of the criticisms, examined in the foregoing, of *the use of world prices as the basis for accounting price valuation of* commodities are valid. For the present, however, given the state of the art in cost-benefit methods, the world price rule represents the most

advanced technique for valuing commodities. The use of the world price rule is based on a fairly solid empirical foundation: recent empirical studies of some developing countries indicate that the costs in terms of efficiency of development strategies which ignore the opportunities for increasing national income through world trade have been high.[1] Specifically, the encouragement of import-substituting industrialisation in developing countries has significantly reduced their opportunities to participate in world trade. Nevertheless, the criticisms raised call for imagination when identifying border prices in practice: in selecting appropriate border prices for project appraisal, an evaluator must equip himself with "well-informed opinion and nice judgment"[2] about the economic environment, especially about the external sector of the country concerned.

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1. For example, see the studies by Little, I. M. D., T. Scitovsky and M. FG. Scott, Industry and Trade in Some Developing Countries, London, Oxford University Press, 1970; Krueger, A. O., Foreign Trade Regimes and Economic Development: Turkey, New York, National Bureau of Economic Research, 1974; and Diaz Alejandro, C. F., Foreign Trade Regimes and Economic Development: Colombia, New York, National Bureau of Economic Research, 1976.

2. Little, I. M. D. and J. A. Mirrlees, *op. cit.*, p. 211.

3.3 Investment decision rules

Four investment decision rules or investment criteria have generally been put forward for the determination of the relative social economic efficiency of investment projects. They are the present discounted value of the net cash flow, the unit social profit, the domestic resource cost, and the effective rate of protection. These may briefly be presented, evaluated and compared with a view to identifying and justifying the criteria used in our empirical appraisal of the Nigerian textile industry.

3.3(i) The present discounted value of the net cash flow

The investment decision rule most commonly used for evaluating the costs and benefits of a project is the present discounted value (PV) of the net cash flow measured in accounting units the valuation of which are based on the methods indicated in section 3.2.1 above. The PV decision rule may be defined as follows:

$$PV = \sum_{t=0}^{T} \left[\frac{PjtXjt - \sum_{i=1}^{n} AijtPit - \sum_{s=1}^{m} FsjtPst}{(1+r)^t} \right] \qquad (3.4)$$

where Xjt = quantity of the jth commodity output produced in year t

Pjt = accounting price of the jth commodity output in year t

Aijt = quantity of the ith material input used in the production of the jth commodity output in year t

Pit = accounting price of the ith input in year t

Fsjt = factor input s employed in the production of the jth commodity output in year t

Pst = accounting price of factor input s in year t

r = accounting rate of interest used as the rate of discount

T = lifetime of project.

On the basis of the PV criterion thus defined, all compatible projects (i.e. projects which produce similar commodities and which have similar input-output coefficients) which show present values greater than or equal to zero must be accepted. If the PV of a project exceeds zero, the investment may be said to show social profits in the sense that it generates extra income at accounting prices beyond the returns necessary to cover the opportunity cost of material and primary factor inputs.

The PV criterion may be used to assess the social profitability of existing investments because such investments which exhibit present values greater than or equal to zero must be judged as socially efficient. The application of the PV criterion in this way requires that the past streams of project inputs and output are fully known, and therefore the cash flows actually exhibited by the investment in each year of operation may be discounted back to the initial expenditure period. But, in circumstances where full information on the past pattern of income and expenditure of projects is unavailable or insufficient, it is difficult to apply the PV criterion.

3.3(ii) The unit social profit

Given the limited availability of time-series data on the pattern of income and expenditure of projects, an efficiency criterion - the unit social profit - based on a single year's observations of operating

investments may be substituted for the PV criterion.[1] In defining this efficiency criterion, the variables involved are transformed into "per unit" measures for two reasons besides the fact that this criterion is usually presented in per unit terms. Firstly, the use of per unit measures permits an easy comparability of the unit social profit with the domestic resource cost criterion discussed below. Secondly, the use of per unit measures in the analysis eliminates the size differences among firms; thus the use of per unit measures facilitate the comparison of social efficiency among firms in the industry. The unit social profit criterion may be defined as follows:

$$B_j = P'j - \sum_{i}^{n} aijP'i - \sum_{s}^{m} fsjP's \qquad (3.5)$$

where Bj = annual social profit per unit of the jth commodity output

P'j = accounting value of one unit of the jth commodity output

aij = input of the ith material per unit of the jth commodity output

P'i = accounting price of the ith material input

fsj = input of primary factor s per unit of the jth commodity output

P's = accounting price of primary factor s.

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1. This criterion was developed in a programming context by H. B. Chenery, "Comparative Advantage and Development Policy", American Economic Review, March 1961, pp. 18-51. For an application of this criterion, see, for example, Page, J. M., "The Social Efficiency of the Timber Industries in Ghana", in Little, I. M. D. and M. FG. Scott (ed.), Using Shadow Prices, London, Heinemann Educational Books, 1976, pp. 88-126.

Applying the unit social profit criterion, we may judge investments as efficient if the level of unit social profit (USP), Bj, is non-negative. The estimate of the level of USP may be made on the basis of the actual level of output of the project in the year observed, on the basis of an estimated average level of output during the lifetime of the project, or on the basis of projected full capacity output. The use of the latter two estimates of output and input levels permits the evaluator to determine if random factors (such as strikes, equipment breakdowns, and so on) have contributed to the apparent inefficiency of a project observed in a given year.

The interpretation of the USP criterion as a measure of social efficiency of a project is straightforward. The first two terms on the right hand side of expression (3.5) give the annual value added at world prices per unit of output or simply the annual international value added per unit generated by the project. This represents the annual net addition to national income, evaluated at the opportunity costs established by the given international terms of trade. The third term represents the opportunity cost of primary factor inputs evaluated at accounting prices. If the opportunity cost of factor inputs exceeds the net addition to national income, the USP will be negative. This theoretical possibility suggests that the resources employed in the project could be more efficiently used in their best alternative uses.

If projects produce similar outputs and have similar time patterns associated with their streams of income and expenditure, the USP criterion may be applied to a cross-sectional sample of firms within an industry in a given year of operation, and firms may be ranked in descending order of their levels of USP. Those projects with USP less than zero are classed

as inefficient, and those with USP greater than zero are regarded as efficient. Within an industry the intra-marginal ranking of firms provides an index of relative efficiency. Since we are concerned primarily with differences in the average cost curves between firms rather than with establishing the optimum size of firm in the Nigerian textile industry, we believe that variations in the USP among firms mirror the extent of relative efficiency in the industry.

However, the use of USP as an efficiency criterion based on a single year's observations of operating investments has some basic limitations. The assumption underlying the use of USP in this respect is that the single year's observations of the patterns of income and expenditure of projects are typical for the entire economic lifetime of the projects. But the single year chosen for the appraisal of the projects may be abnormal in the sense that the patterns of income and expenditure of the projects in that year might have been biased by the occurrence of unusual economically disruptive events in the country such as civil strife, war, and so on. In the circumstance, the level of economic efficiency indicated by the level of USPs of the projects may by atypical. However, if the year chosen for the appraisal is normal, this limitation may be empirically insignificant. A more fundamental limitation of the use of the USP criterion based on a single year's observations of operating investments stems from the fact that the costs of primary capital input are spread over the life of the projects. Granting this, if the costs of primary capital input of projects for a given single year are used in the estimation of USP without any modification, the costs of operations for that year may be exaggerated. But this limitation may be overcome by transforming the primary capital input into current input for the year under examination by estimating the annual

capital consumption for the projects on the basis of the economic lifetime of the capital input. As will be shown in chapter six, the annual capital consumption may be found by establishing the annuity yielding a present value equal to the initial purchased value of the capital input when discounted at an appropriate accounting rate of interest per annum over the estimated economic lifetime of the capital input.

3.3(iii) The domestic resource cost

The other investment decision rule is the domestic resource cost per unit of foreign exchange earned or saved (DRC) the leading advocates of which are Krueger and Bruno.[1] The DRC criterion may be derived from expression (3.5). For a project using the traded material and intermediate inputs and the inputs of primary factors to produce traded output, the project's addition to national income, measured at accounting prices, is given by the level of value added at world prices, which also represents the addition to foreign exchange arising from the investment. If domestically supplied factors of production are evaluated at their social opportunity costs, expression (3.5) may be rewritten as the ratio of domestic primary factor inputs evaluated at accounting prices to value added at world prices:

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1. Krueger and Bruno are the leading theorists and practitioners of the DRC Criterion. Krueger, A. O., "Some Economic Costs of Exchange Control: The Turkish Case", Journal of Political Economy, October 1966, pp. 466-480; "Evaluating Restrictionist Trade Regimes: Theory and Measurement", Journal of Political Economy, January/February 1972, pp. 48-62. Bruno. M., "The Optimal Selection of Export-Promoting and Import-Substituting Projects", in Planning the External Sector: Techniques, Problems, and Policies - Report on the First Interregional Seminar on Development Planning, New York, United Nations, 1967, pp. 38-135; "Domestic Resource Costs and Effective Protection: Clarification and Synthesis", Journal of Political Economy, January/February 1972, pp. 16-33.

$$DRC = \frac{\sum_{s}^{m} fsjP's}{P'j - \sum_{i}^{n} aijP'i} \gtreqless E \qquad (3.6)$$

where E = shadow exchange rate (the equilibrium exchange rate) for the economy;[1] the other terms remain defined as in expression (3.5)

The denominator of expression (3.6) may be adjusted to take account of repatriated payments made to foreign-owned factors of production per unit of output:

$$DRC = \frac{\sum_{s}^{m} fsjP's}{P'j - \sum_{i}^{n} aijP'i - \sum_{r}^{m} fr} \gtreqless E \qquad (3-7)$$

where fr = repatriated payments made to foreign-owned resources.

The denominator of expression (3.7) represents the net addition to national income generated by the project, which is retained in the economy. Either expression (3.6) or expression (3.7) may be used as the investment decision rule depending on the extent to which foreign-owned resources are present in the project.

In the foregoing formulation, the DRC measure represents the rate of transformation between domestic resources and foreign exchange for each firm in an industry or industries. The DRC measure which, strictly speaking, expresses the rate of transformation of domestic currency into foreign

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1. Within the Little/Mirrlees framework of valuation of the inputs and output of a project reviewed in section 3.2.1, the estimate of the equilibrium exchange rate is made unnecessary by the estimation of an accounting price in terms of foreign exchange for each domestic factor of production. In this case, the equilibrium exchange rate is simply 1.0.

exchange may be compared with the shadow exchange rate. In this respect, firms with DRCs below the shadow exchange rate may be judged as efficient, those with DRCs above the shadow exchange rate are regarded as inefficient. Minimising the DRC ratio in tradable producing activities is equivalent to maximising the value added at world prices per unit of domestic resources employed. Thus evaluating firms in terms of their DRC ratios provides a measure of social economic efficiency in producing tradable commodities. Furthermore, ranking of firms by the DRC ratio provides an index of relative efficiency among tradable commodities producing activities. Firms with the lowest DRC ratios are more efficient at transforming domestic factor inputs into foreign exchange than those with the highest DRC ratios. High DRC ratios may arise either from low levels of value added at world prices as when an import substituting activity uses inputs with low or zero protection to produce a highly protected output, or from low levels of technical efficiency in production.

We may compare the DRC ratio with the USP measure. As a ratio, the DRC measure can easily be used in evaluating the comparative performance of firms in different industries or producing markedly different products within the same industry. On the other hand, comparability of USPs among firms depends on the homogeneity of the output of the firms being compared. For instance, it is difficult to compare social profit per cubic foot of lumber with social profit per square yard of cloth. Thus, whilst the USP criterion is ideally suited for comparing the performance of firms within an industry, the DRC ratio can be used either to compare the performance of firms within a single industry or to compare the performance of firms in several different industries. However, the ranking of firms in the same industry according to the USP criterion or the DRC criterion may differ

because one involves maximising social profits per unit of output while the other involes maximising the ratio of value added to factor costs. But in principle the two criteria can identify consistently the marginal firm and any firms with negative social profits in the same industry.

On the basis of either criterion, however, the relative rankings of firms in the same industry may not be unambiguous. The ambiguity may stem from the view that the ordering of firms may alter as a result of a change in relative factor or commodity prices. Such alterations in accounting prices may significantly affect unit social costs if the firms in the same industry do not have similar input-output coefficients. But because the input-output coefficients of the firms in the Nigerian textile industry under study are generally similar, and because the use of per unit values in the analysis eliminates the size differences among firms, the problem of changes in the rank ordering of firms is unimportant empirically.

The DRC criterion as an investment decision rule has two fundamental weaknesses. Firstly, the role of the DRC criterion as a consistent measure of efficiency among projects may break down if some projects have negative international value added which forms the denominator of the DRC ratio. An illustration is needed to demonstrate the plausibility of this proposition. Suppose that we are concerned with a choice between two projects, A and B, within an optimal development programme and that the two projects have the same accounting value of domestic primary factors of 50 naira per unit of output evaluated in terms of foreign exchange. Suppose further that projects A and B each has generated negative international value added of 40 dollars and 100 dollars per unit of output respectively. Then the respective DRC ratios of A and B are negative 1.25 and negative 0.5. Given the minimum DRC ratio rule indicated earlier, project B ought to be preferred to project A. Clearly, this is a perverse investment decision

because, although the operation of each of the two projects resulted in a reduction in national income, the fall in national income attributable to project A is smaller than the fall in national income attributable to project B.[1] On the other hand, because the USP criterion is not a ratio, the use of this criterion may not pose the problem of perverse investment decisions. In our hypothetical example, projects A and B will respectively have negative unit social profits of 90 and 150 units of foreign exchange. In this case, although the two projects are socially inefficient, project A is relatively less inefficient than project B. We will however, compute in chapter six the Spearman's rank correlation coefficients for unit social profits and domestic resource cost ratios so as to determine if both measures provide essentially the same index of relative efficiency among firms in the Nigerian textile industry.

The second weakness of the DRC criterion derives from the insistence of its advocates that the international value added must be net of the repatriated payments to foreign-owned resources. Such an advocacy is based on the division of all primary factors of production employed in a project into domestic-owned and foreign-owned resources.[2] Thus, the DRC criterion

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1. Krueger has recognised the possibility of perverse investment decisions which may be engendered by negative international value added. See Krueger, A. O., The Benefits and Costs of Import Substitution in India: A Microeconomic Study, Minneapolis, University of Minnesota Press, 1975, p. 104.
2. The distinction between domestic owned and foreign owned resources is made in the literature because it is recognised that, by implicitly counting foreign factors as domestic factors when the distinction is not made, a "systematic bias" may be introduced into the DRC measure. For instance, counting foreign resources as domestic resources may (1) bias the DRC ratio downward if the true ratio is greater than the shadow price of foreign exchange, or (2) bias the DRC ratio upward if the true DRC is less than the shadow price of foreign exchange. See Pearson, S. R., "Net Social Profitability, Domestic Resource Costs, and Effective Rate of Protection", Journal of Development Studies, Vol. 12, July 1976, p. 329.

performs a dual role simultaneously: evaluating the efficiency performance and the foreign-exchange contribution of a traded good activity. Specifically, under the DRC criterion, the foreign-exchange contribution of a traded good activity, as explicit in expression (3.7) above, represents not only a maximisation of value added at world prices but also a maximisation of the value added retained in the economy. In *ex ante* investment appraisal, the DRC criterion can validly perform the simultaneous role of evaluating the efficiency performance and the foreign-exchange contribution of a project. However, given the substantial presence of foreign-owned resources in the Nigerian textile industry as made clear in the subsequent chapters, we consider it analytically legitimate and empirically meaningful to separate the *ex post* evaluation of the industry's contribution to Nigerian economic growth in terms of efficient resource utilisation, from the *ex post* assessment of the industry's foreign-exchange contribution.

Two sets of arguments may be advanced to support this approach. Firstly, there is the theoretical possibility that there may be a correspondence or a divergence between the efficiency consideration and the foreign-exchange saving aspect of an import-substituting activity. In other words, an import-substituting activity which is a net user of foreign exchange may make a greater contribution, in terms of efficiency, to economic growth than another import-substituting activity which is a net saver of foreign exchange or *vice versa*. This proposition needs empirical validation or falsification in an *ex post* evaluation of the performance of an import-substituting industry. Secondly, from the viewpoint of policy-reform, it may be desirable to evaluate import substitution in the Nigerian textile industry in terms of its economic efficiency and in terms of its foreign-exchange-saving capacity. An understanding of these aspects may be a prerequisite for the formulation of a more realistic policy for putting

the industry in the direction of optimal growth path. It is only after the variations in the efficiency performance among individual activities have been identified and explained, and the variations in the foreign-exchange-saving capacity among activities have been traced to specific factors such as overall efficiency of operations and the dominance of foreign resources, can a more consistent and coordinated policy-package be advocated to reform import substitution in the Nigerian textile industry.

But under the USP criterion there is no serious theoretical and empirical objection to a separate treatment of efficiency performance and foreign-exchange contribution when undertaking an *ex post* evaluation of an import-substituting activity. This is because when applying the USP criterion the evaluator does not need to distinguish between domestic primary-owned and foreign primary-owned resources. This criterion simply evaluates the efficiency of all resources, irrespective of their geographic origins, committed to the development of a traded good activity. Its application only requires that the activity's streams of the accounting value of output should be compared with the accounting value of all inputs of resources employed in the activity.

3.3(iv) The effective rate of protection

The concept of effective rate of protection (ERP) was originally designed to measure the degree of restrictiveness of tariffs on trade flows; thus the concept of ERP was initially meant to measure the cost of trade distorting policies.[1] But Balassa and Schydlowsky have elevated the ERP measure to the position of investment decision rule equivalent to the

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1. Corden, W. M., The Theory of Protection, Oxford, Clarendon Press, 1971. In this book, Corden has brought together the various threads of the evolution of the theory of protection as a measure of the cost of trade distorting policies.

DRC measure.[1] As a prerequisite to the examination of the role of ERP in comparison with that of the DRC measure in project analysis, a definition of the ERP measure is in order.

The ERP concept, which relates essentially to a value-adding process or activity, may be defined as the measure of the percentage increase, resulting from protection, in domestic value added over value added in a free trade situation. This definition can be expressed in several equivalent ways. The most frequently given definition is the following:

$$ERPj = \frac{ti - \sum_{i=1}^{n} tiaij}{1 - \sum_{i=1}^{n} aij} \qquad (3.8)$$

where ti = the proportional increase in the domestic price of the jth commodity output over the world price

aij = the amount of the ith material input valued at world prices required per unit of output of the jth commodity output.

A definition equivalent to the one given by expression (3.8) may also be given as follows:

$$ERPj = \frac{DVAj}{IVAj} - 1 \qquad (3.9)$$

where DVAj is the value added of activity j evaluated at domestic prices (domestic value added of activity j), and IVAj is the value added of activity j evaluated at world prices (international value added of activity j).

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1. Balassa, B., and D. M. Schydlowsky, "Effective Tariffs, Domestic Cost of Foreign Exchange and the Equilibrium Exchange Rate", Journal of Political Economy, May/June 1968, pp. 348-360; "Domestic Resource Costs and Effective Protection Once Again", Journal of Political Economy, January/February 1972, pp. 63-69.

Two expressions can readily be deduced from expression (3.9): firstly, domestic value added is the domestic value of output less the domestic value of purchased inputs:

$$[(1+tj) - \Sigma i(1+ti)aij]Xj \qquad (3.9A)$$

and secondly, international value added is the international value of the output less the international value of the traded inputs:

$$[(1-\Sigma iaij)]Xj \qquad (3.9B)$$

where Xj is the quantity of the jth commodity output and cancels out in expression (3.9).

As observed earlier, Balassa and Schydlowsky have recommended ERP as an investment criterion analogous to DRC criterion. They assert that investment projects or existing industrial activities with lower ERP are to be selected in an optimal development programme. In their recommendation, they advise that, in estimating ERP, primary factors other than foreign exchange should be evaluated at their domestic market prices. This implicit assumption of the existence of perfect competitive equilibrium in the domestic economy in their discussion of the ERP concept has provoked a controversy about the similarities and differences of ERP and DRC as measures designed for evaluating investment projects and estimating the economic costs of existing industries.[1] The general conclusion from the controversy is that the ERP and DRC measures can be equivalent only under special circumstances. Krueger has stated the circumstances as "(1) all goods are traded (or tradable); (2) there are no transportation costs; (3) factors of production

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1. Krueger, A. O., "Evaluating Restrictionist Trade Regimes: Theory and Measurement", *op. cit.*, Bruno, M., "Domestic Resource Costs and Effective Protection: Clarification and Synthesis", *op. cit.*, Pearson, S. R., "Net Social Profitability, Domestic Resource Costs, and Effective Rate of Protection", *op. cit.*, and Michaely, Michael, Theory of Commercial Policy: Trade and Protection, Oxford, Philip Allan, 1977, pp. 137-142.

are perfectly mobile within the domestic economy but perfectly immobile internationally; and (4) all domestic markets are perfectly competitive".[1] The implications of these assumptions are the following: there are no domestic (non-traded) goods; factor prices reflect the social opportunity cost of domestically owned factors of production; and there can be no foreign-owned factors of production employed within the domestic economy. Then, following Krueger, we can redefine DRC in terms of ERP [expression (3.9)] by rewriting the terms on the left hand side of expression (3.6):

$$DRCj = \frac{qj - \Sigma iqiaij}{1 - \Sigma iaij} = \frac{(1+tj) - \Sigma i(1+ti)aij}{1 - \Sigma iaij} = ERPj + 1 \qquad (3.10)$$

where qj is the domestic price of the jth commodity output and equals the world price (normalised at unity) times 1 plus the tariff or tariff equivalent.

As a consequence, under the stated assumptions which are reflected in expression (3.10), the ERP and DRC measures would provide identical rankings of the economic efficiency of value-adding activities. But, as the assumptions are extremely restrictive with respect to the conditions prevailing in underdeveloped economies, the ERP measure is not regarded as an efficiency criterion in the same way as the DRC measure. Balassa and Schydlowsky have, however, introduced a concept of the "social effective rate" of protection which should correct for distortions in the domestic factor markets in order that the ERP measure can play the role of an efficiency criterion. As Little and Mirrlees point out, if this procedure is followed, the ERP measure would simply become the DRC measure.[2]

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1. Krueger, A. O., "Evaluating Restrictionist Trade Regimes: Theory and Measurement", *op. cit.*, p. 54.

2. Little, I. M. D. and J. A. Mirrlees, *op. cit.*, pp. 365-366.

But it is generally recognised that the ERP measure remains the best measure of the incentives given by tariff structure. Krueger states this concensus as follows:

> "Effective tariffs are probably the best measure of the incentives given by restrictionist trade regimes. In general, one would expect resources to be pulled toward those activities with the highest effective tariffs or tariff equivalents. For purposes of positive economics within the market-oriented sector of the economy, therefore, effective tariff measurement is undoubtedly important."[1]

Since the ERP relates to the protection given to the value added, namely, to the product itself and the inputs used in producing it, the ERP influences the choice of producers with respect to the product to be produced and the inputs to be employed. Thus the ERP provides the incentives for the shifting of resources to activities enjoying such protection, and the incentives will be higher the higher the protection on the product and the lower the protection on the inputs. In this sense, the ERP permits the ranking of activities by relative incentives implicit in the tariff structure. The rankings of activities according to such relative incentives emphasise the interdependence of activities, implying that the protection of one activity would be at the expense of other activities.[2] Thus the ERP measure plays the role of indicating the directions of resource pull and push by the tariff structure in the market-oriented sector of the economy or in an industry.

In the light of the comparative analysis in the preceding sub-sections of USP, DRC and ERP based on a single year's observations of operating

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1. Krueger, A. O., "Evaluating Restrictionist Trade Regimes: Theory and Measurement", *op. cit.*, p. 60.
2. Balassa, B. and Associates, The Structure of Protection in Developing Countries, Baltimore, Johns Hopkins Press, 1971, p. 3-25.

investments, we estimated in chapter six the USP, DRC and ERP measures when undertaking the empirical appraisal of the performance of the Nigerian textile industry. Although both the USP and the DRC measures can be used to determine and compare economic efficiency among firms in the industry, the use of the USP criterion is emphasised in the study.

From our earlier discussion, two reasons can be adduced for this preference. Firstly, whereas the existence of firms with negative international value added may lead us, when using the DRC criterion, to a perverse judgment of relative economic efficiency among the firms, the use of the USP criterion in evaluating and comparing the efficiency of the firms will not lead to such a judgment. This advantage of the USP criterion vis-à-vis the DRC criterion is enhanced by the fact that many firms in the industry have, as will be shown in chapter six, negative international value added. Moreover, as the products of firms in the industry are basically similar, the USP criterion can be used in appraising their efficiency performance.

Secondly, it is theoretically possible, as can be argued on the basis of expression (3.5) shown earlier, and empirically feasible, as will be shown in chapter six, to separate, under the USP criterion, the appraisal of the industry's contribution to Nigerian economic growth in terms of efficient resource utilisation from that of the industry's foreign-exchange contribution. This separation permits the testing of the hypothesis that there might be a correspondence or a divergence between the efficiency consideration and the foreign-exchange-saving aspect of import substitution in the industry depending on the extent to which foreign-owned resources were important in the development of the industry. This hypothesis relates to the two objectives of import substitution in Nigeria, namely, the promotion of rapid economic growth and the saving of foreign exchange. Hence, the testing of

the hypothesis may partly provide the basis for discussing policies that can be used to reform import substitution in the industry. But this issue cannot be illuminated under the DRC criterion because, as argued earlier, the advocates of this criterion insist that it should perform a dual role at the same time: evaluating the efficiency performance and the foreign-exchange contribution of traded commodity activities.

Nevertheless, the estimates of DRC are made and presented in chapter six. The aim here is to compare the ranking of relative economic efficiency among firms in the industry under the DRC measure with that under the USP measure. Such a comparison will demonstrate, given the nature of the empirical evidence revealed in the study, the superiority of one of these investment criteria over the other in the empirical investigation. As controversies about the merits and demerits of investment criteria are common in the literature, a comparison of the USP criterion with the DRC criterion on the basis of the available empirical evidence will contribute to resolving such controversies.

The ERP measure is used in the study to indicate the impact, through the creation of incentives, of the tariff structure on the pattern of resource allocation within the Nigerian textile industry. In other words, the ERP measure is used to indicate the incentives created by the tariff structure which induced resource pull and push among activities in the industry. In this sense, the ERP measure is used as an import-substitution policy instrument designed to influence the pattern of resource allocation in the industry. As the concern of the study is essentially with the impact of trade policies on resource allocation and industrial growth in Nigeria, the use of the ERP measure in the way indicated seems appropriate.

3.4 Conclusions

The necessity for undertaking an accounting price valuation of inputs and outputs in project analysis derives fundamentally from the recognition that in developing countries like Nigeria, the domestic market prices of commodities significantly diverge from their accounting prices because of the existence of various market imperfections and non-optimal government foreign trade controls. A proper derivation of accounting prices as the basis for valuing the inputs and output of a project may therefore enable the investigator to determine its social economic efficiency.

The LM and the UNIDO methods can be used to value the inputs and output of a project. Through the use of foreign exchange as the numeraire, the LM method is explicitly and directly based on the world price rule which is related to the principle of comparative advantage in neo-classical trade theory. Through the use of domestic currency as the numeraire, the UNIDO method consists of valuing tradable inputs and tradable output by converting their foreign currency values into domestic currency values through the use of a single shadow exchange rate. It has been demonstrated that, under certain assumptions, the LM and the UNIDO methods of valuation of tradable commodities may similarly rank projects which produce such commodities. Whilst the LM method would explicitly use the multiple conversion factors corresponding to effective exchange rates to convert domestic currency values into foreign currency, the UNIDO method would average across the effective exchange rates to derive the single conversion factor to make the reverse conversions. Although in principle the LM and the UNIDO methods may be equivalent, in practice the former may be more accurate and easier to apply than the latter.

In the study, the accounting price valuation of commodities is undertaken within the LM framework. Despite some valid criticisms of the world

price rule as the basis for valuing tradable inputs and outputs, these are valued in the study on the basis of the world price rule because this rule represents the most advanced technique of project appraisal available to date. But the valuation of non-traded commodities within the LM framework is difficult in practice. The practical problem of valuing non-traded commodities may, however, be solved by estimating appropriate conversion factors which can be used to deflate the market value of the commodities in question. The standard conversion factor used is the ratio of the value at border prices of all imports and exports to their value at domestic prices. Although the LM valuation framework provides for the estimation of the shadow wage rate of labour, especially of unskilled labour, we are limited by data unavailability to regarding the prevailing market wage rate as equivalent to the shadow wage rate for all categories of labour. However, a sensitivity analysis will be undertaken to determine whether or not there are significant variations in the value of the estimated investment decision rule variable with respect to given variations in hypothetical shadow wage values. The discount rate used in discounting the costs and benefits is the accounting rate of interest.

Three criteria, namely, unit social profit (USP), domestic resource cost (DRC), and effective rate of protection (ERP) based on a single year's observations of operating investments have critically been examined and compared as the basis for appraising the performance of the Nigerian textile industry. The USP and the DRC criteria can be used to determine and compare the social economic efficiency among firms in the industry. The USP criterion can be applied to a cross-sectional sample of firms within an industry provided that they produce similar products. The firms can be ranked in descending order of their levels of USP, and firms with USP less than zero are classed as inefficient, and those with USP greater than zero are

regarded as efficient. The DRC investment criterion can be derived from the USP criterion. The firms with DRCs below the shadow exchange rate (which is 1 within the LM valuation framework) may be judged as efficient, and those with DRCs above the shadow exchange rate are regarded as inefficient. The firms with lower DRC ratios are more efficient at transforming domestic factor inputs into foreign exchange than those with higher DRC ratios. In principle, the USP and DRC criteria can identify consistently the marginal firm and any firms with negative social profits. In contrast, the ERP, which is related to the DRC criterion through value added evaluated at world prices, is not an efficiency criterion. But the ERP measure can be used as a measure of incentive effects of the structure of protection which implicitly confronts individual activities in the industry. The use of the ERP permits the ranking of activities in terms of relative incentives implicitly given by the tariff structure.

The USP criterion is emphasised in the study as the basis for evaluating and comparing the efficiency performance of firms in the Nigerian textile industry because the role of the DRC criterion as a consistent measure of efficiency among firms may break down if some firms have negative international value added. This weakness of the DRC measure may be serious in a study of an industry which is dominated by foreign resources because of the theoretical and empirical requirement that, in the computation of the DRC ratio, all primary factors of production employed should be divided into domestic-owned and foreign-owned resources - a requirement which implies that the international value added must be net of the repatriated payments to foreign-owned resources. The USP criterion does not have this theoretical and empirical requirement, and therefore it does not have the weakness therefrom. Hence, under the USP criterion, it is feasible to separate the

appraisal of the industry's contribution to Nigerian economic growth in terms of efficient resource utilisation from that of the industry's foreign-exchange contribution. Thus, by using the USP criterion, we are able to appraise the performance of the industry in terms of the two objectives of import substitution in Nigeria, namely, the promotion of rapid economic growth and the saving of foreign exchange. Nevertheless, the estimates of DRC will be made and presented with a view to comparing the ranking of relative economic efficiency among firms under the DRC measure with that under the USP measure in order to demonstrate empirically the proposition that the presence of some firms with negative international value added may render the DRC ratio as an inconsistent measure for ranking relative efficiency of such firms. Finally, because the ERP measure indicates the incentives created by the tariff structure which induced resource pull and push among activities, the ERP measure is used in the study as an import-substitution policy instrument designed to influence the pattern of resource allocation in the industry.

CHAPTER FOUR

Strategies of Nigerian Economic and Manufacturing Development

4.1 Introduction

As elucidated in section 2.2. of chapter two, the context in which economic development has taken place in most large- and medium-sized developing countries has been fundamentally determined by the interaction between resource allocation patterns and government actions and policies. Thus, colonialism as well as the attainment of political independence were central to the strategies of economic expansion pursued in Asian and African developing countries. An outstanding aspect of colonialism is that the colonial powers, by diverting to themselves the trade of their dependencies, distorted not only the latter's choice of trading partners but also the whole structure of their production in favour of the foreign-trade sector.[1] The essence of this structural-distortion hypothesis is that the colonial economies performed the dual function of providing the colonial powers with mineral and agricultural raw materials and of constituting markets for the latter's manufactured commodities. This meant that in order to prevent competition with their own manufactured exports the

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1. Kleiman, E., "Trade and The Decline of Colonialism", Economic Journal, Vol. 86, September 1976, pp. 459-480. For an insightful elucidation of the ramifications of the distortions of the economic structure caused by colonialism, see Szentes, Tamas, The Political Economy of Underdevelopment (Third Edition), Budapest, Akademiai Kiado, 1976, pp. 230-236.

colonial powers implicitly or explicitly discouraged the development of manufacturing industries in the colonies. This, in turn, implied that the production of the raw materials imported by the colonial powers was achieved by constraining the reallocation of resources from the primary producing sectors into the manufacturing sector of the colonial economies.

In contrast, decolonisation, accompanied essentially by the adoption of "inward-looking" policies by the former colonies induced the transformation of their distorted economic structures oriented towards industrialisation.[1] As a result, the post-independence structural economic change meant a reorientation and diversification of the foreign-trade sector in terms of commodity as well as of geographic concentrations. But industrialisation had the implication of increased levels of and changed structures of imports. Industrialisation also meant that further economic transformation was increasingly dependent on export-earning capacities because, as we have argued in section 2.2 of chapter two, foreign exchange earnings would be needed for the importation of investment goods required for sustaining the industrialisation process. Thus, the economic restructuring during the post-independence era assumed the critical characteristic of import-sensitivity and primary export-orientation.

The extent to which the structural changes in the Nigerian economy since the country's attainment of political independence in 1960 reflected

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1. The transformation of the structural-distortions consequent upon the adoption of "inward-looking" policies has occurred noticeably only in the large- and medium-sized ex-colonial countries and not in the small-sized ones. The point must also be stressed, as already argued in section 2.2 of chapter two, that the structural economic changes reflected not only the deliberate colonial and post-independence economic policies but also the spontaneous economic forces in the forms of external demand for primary export commodities, domestic demand for manufactured commodities, and of the changed investment strategies of the multinational companies.

this general phenomenon of the "First Post-War Restructuring"[1] in Asian and African developing countries forms the focus of this chapter. The chapter is therefore concerned with the analysis of the dynamics of the structure of the Nigerian economy and the growth and structural change of the Nigerian manufacturing industries.

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1. MacBean, A. I. and V. N. Balasubramanyam, Meeting the Third World Challenge, London, Macmillan Press, 1976, pp. 118-119.

4.2 Growth and structural change of the Nigerian Economy

4.2(i) Historical pattern of economic change

Up to the 1950s, agricultural export production was the critical determinant of the process of Nigerian economic growth; industrialisation was a lesser prime cause of economic expansion. The vicissitudes of world markets for Nigerian agricultural exports predominantly determined the pace and pattern of the expansion of the economy. The rapid development of infrastructural facilities was largely in response to the initial and anticipated growth of agricultural export production in the economy.

Helleiner has demonstrated this historical pattern of economic change in Nigeria.[1] Using the familiar "vent for surplus" model of international trade theory, he analysed the process of economic growth through the reaction of Nigerian farmers to the expanded opportunities for international trade under the colonial regime. The introduction of new transportation facilities and increased volume of trade goods provided the farmers with both the means and the incentives to bring the under-utilised land and labour into the production of agricultural export goods. The employment of these under-utilised resources in the agricultural export sector did not result in any diminution of the production of subsistence foodstuffs. The agricultural exports and the trade goods, the availability of which the former made possible, were therefore a net increment to production and consumption with the world market providing the "vent for surplus".

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1. See especially chapters one and two of Helleiner, G. K., Peasant Agriculture, Government, and Economic Growth in Nigeria, Illinois, Richard D. Irwin, 1966.

The farmers' positive response to incentives was at the core of the Nigerian development process during the colonial period. The incentives basically included imported consumer goods and money income. The role of the colonial government in stimulating trade through the provision of modern transport hastened the farmers' response mechanism. In addition to the provision of transportation facilities, the colonial government utilised money taxes, propaganda, agricultural research and extension services with varying effects to encourage agricultural export production.[1] The farmers responded to these incentives and to world market prices "by varying both land and labour inputs", and by "operating with fixed proportion at constant returns to scale". As a result, the "productivity per man" was increased, but "productivity per acre or per man-hour . . . scarcely changed . . . except as value productivity was increased by changes in the product mix".[2] This was because agricultural development followed a pattern of extensive farming, that is, agricultural development was geared to a utilisation of land and labour involving limited capital outlays.

The farmers' expanded export earnings and hence investible surplus had multiplier effects on the economy: additional farm families and land were drawn into export production. The multiplier effects of agricultural export production became increasingly pronounced as transport and distribution facilities improved and reached more and more remote areas of the predominantly agrarian economy. As can be seen in Table 4.1, this argument is partly demonstrated as power, transport and construction including

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1. For a detailed discussion of the evidence, see Usoro, E. J., The Nigerian Oil Palm Industry: Government Policy and Export Production, 1906-1965, Ibadan, Ibadan University Press, 1974, pp. 35-50.

2. Helleiner, G. K., *op. cit.*, p. 11.

buildings achieved the highest sectoral growth rate of 15 per cent per annum over the 1950-1957 period.

Table 4.1 Sectoral Growth Rates

(Per cent)

Sector	Compound Annual over period in real terms					
	1950-57	1958/59-1973/74	1958/59-1965/66	1958/59-1962/63	1962/63-1965/66	1965/66-1973/74
Agriculture	2.9	1.9	3.8	4.6	2.6	0.5
Mining	3.1	23.1	25.6	21.0	34.3	22.4
Manufacturing	5.6	9.8	11.8	10.1	13.5	9.5
Power, transport and construction	15.1	8.0	7.6	6.6	9.0	9.5
Services	3.4	7.3	7.1	5.8	9.0	8.4
Gross Domestic Product	4.1	5.7	5.8	5.6	6.4	6.5

Note: Agriculture includes livestock, fishing and forestry.
Mining includes petroleum.
Manufacturing includes crafts.

Sources: 1950-57: Okigbo, P.N.C., Nigerian National Accounts 1950-57, 1962
1958-1974: Federal Office of Statistics (Lagos), National Accounts of Nigeria 1958-59 to 1973-74, 1976.
The growth rates are Exponential Growth Rates computed using Burley, H. T., Growth Rate Tables, Cambridge University Press, 1966.

Thus, agriculture, significantly orientated towards the world markets, remained the dominant vehicle of economic expansion during the colonial era because the agricultural sector, as revealed in Table 4.2, continued to represent over 64 per cent of gross domestic product at the end of the 1950s.

Table 4.2 Gross Domestic Product at 1962/63 Factor Cost by Type of Economic Activity in Selected Years

	1958/59		1962/63		1965/66		1968/69+		1970/71		1973/74	
	₦ Million	%	₦ Million	%	₦ Million	%	₦ Million	%	₦ Million	%	₦ Million	%
Agriculture	1342.0	64.4	1605.8	61.8	1742.2	55.4	1338.0	52.6	1890.1	44.6	1808.7	34.1
Mining	23.2	1.1	54.0	2.1	149.8	4.8	85.0	3.3	508.9	12.0	943.8	17.8
Manufacturing	97.0	4.7	146.4	5.6	221.0	7.0	200.4	7.9	317.6	7.5	472.7	8.9
Power, transport and construction	192.8	9.3	249.8	9.6	326.6	10.4	260.0	10.2	428.9	10.1	700.0	13.2
Services	429.2	20.6	541.6	20.9	707.2	22.5	660.8	26.0	1096.4	25.8	1384.8	26.1
Gross Domestic Product*	2084.2	100.0	2597.6	100.0	3146.8	100.0	2543.8	100.0	4241.9	100.0	5310.0	100.0

Note: As in Table.
+ The 1968/69 national income data exclude the Eastern States of Nigeria.
* The sum of the percentages in each column does not add up exactly to 100 because of rounding.

Source: (Computed from)
Federal Office of Statistics (Lagos), National Accounts of Nigeria 1958-59 to 1973-74, June 1976, pp. 7-8.

4.2(ii) The growth pattern of national output

The growth performance and the structure of the Nigerian economy began to change direction, albeit fitfully, after the country's attainment of political independence in 1960. As can be observed in Table 4.1, the economy achieved an impressive growth rate in gross domestic product of 5.7 per cent per annum over the 1958/59-1973/74 period. This meant that with an annual population growth rate of 2.5 per cent the *per capita* national output grew annually at 3.2 per cent. The growth performance was more striking over the 1965/66-1973/74 period than during the 1958/59-1965/66 period. But within the latter period the growth of national output was more marked over the 1962/63-1965/66 period than during the 1958/59-1962/63 period. Reflecting this fluctuation in the growth performance of the economywere the movements of the proportion of gross fixed investment to gross domestic product. As Table 4.3 indicates, this ratio assumed an erratic downward trend till 1962/63 when it accelerated from 14 per cent to 19 per cent in 1965/66. With the outbreak of civil war (the Nigerian civil war began on 6th July, 1967, and ended on 15th January, 1970) the investment coefficient declined continuously, but it rose to over 20 per cent during the early 1970s. The productivity of domestic investment was unsteady during the 1958/59-1973/74 period. As roughly indicated by the crude measure of overall incremental output-capital ratio presented in column five of Table 4.3, the productivity of investment was generally low, but was extremely reduced during the civil war, was comparatively high in the immediate post-civil war years, and declined steadily after 1971/72.

Table 4.3 Gross Domestic Product (GDP) and Gross Fixed Investment (GFI) at 1962/63 Constant Prices
(N Million)

1	2	3	4	5+
Year	GDP	GFI	GFI/GDP Ratio	Incremental Output-Capital Ratio
1958/59	2084.2	294.8	14.1	-
1959/60	2230.4	338.4	15.2	0.50
1960/61	2493.4	321.0	12.9	0.78
1961/62	2492.2	370.2	14.9	-0.01
1962/63	2597.6	352.0	13.6	0.28
1963/64	2825.6	388.6	13.8	0.65
1964/65	2947.6	501.2	17.0	0.31
1965/66	3146.8	585.0	18.6	0.40
1966/67	3044.8	550.0	18.1	-0.17
1967/68	2572.2	462.0	18.0	-0.86
1968/69	2543.8	405.0	15.9	-0.06
1969/70	3225.5	465.6	14.4	1.68
1970/71	4241.9	748.1	17.6	2.18
1971/72	4721.5	1065.3	22.6	0.64
1972/73	5007.1	1143.8	22.8	0.27
1973/74	5310.0	1094.3	20.6	0.26

Note: Column 5+: The coefficient for any given year, t, is calculated as follows:

$$\frac{GDP_{t+i} - GDP_t}{GFI_t}$$

Source: Federal Office of Statistics, National Accounts of Nigeria 1958/59 to 1973/74, Lagos, June 1976, pp. 7-12.

The growth of national output of the economy derived from differential sectoral contributions. Table 4.2 shows that the 1958/59-1962/63 period witnessed modest shifts in the structure of national output away from agricultural activities towards manufacturing, mining, power, transport, construction including buildings and services. But Table 4.1 indicates that during the 1958/59-1962/63 period the nonagricultural sectors, especially mining and manufacturing, exhibited tremendous dynamism as compared to the 1950-57 period.[1] But because these sectors were initiating growth from a very small base their weight in the economy in terms of their contributions to the gross domestic product, as revealed in Table 4.2, was relatively insignificant. Their relatively unimportant quantitative impact on the economy was also due to the fact that the agricultural sector achieved its highest annual growth rate of 4.6 per cent during the 1958/59-1962/63 period as compared with its growth performance during the entire 1958/59-1973/74 period. But as from 1962/63 the sustained growth impulses of the manufacturing, power, transport, construction and mining activities began to exert an influence on the structure of the economy.

During the 1962/63-1973/74 period the economy underwent a dramatic structural transformation. The rapid process of industrialisation and petroleum mining activity became the motor force of the development process whilst the agricultural sector stagnated. In contrast to the experience of up to the 1950s, agricultural exports as an engine of economic growth were particularly in a low gear. These structural shifts in the economy were discernible over the 1962/63-1965/66 period, they were quickened by the civil-war conditions, and became more pronounced in the 1970s.

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1. This comparison should not be overstressed because the current official series of GDP estimates are not strictly comparable to the pre-1958 estimates.

As can be seen in Tables 4.1 and 4.2, the sustained rapid growth of the manufacturing and mining sectors resulted in their increased shares of gross domestic product, whilst the sustained deceleration of the agricultural sector together with the fast growing and diversifying non-agricultural sectors meant a swift decline in its share of gross domestic product. The trends in the composition of aggregate domestic investment during the 1958/59-1973/74 period as shown in Table 4.4 reflect these structural shifts in the economy. The shares of machinery, transport equipment, building and construction in gross fixed capital formation increased over the 1962/63-1973/74 period whereas the share of land development fell continuously during the same period.

A notable aspect of the structural shifts in the economy was the weakening of the strength of agricultural exports as a determinant of the development process as industrialisation and petroleum exports became important catalysts of growth. As can be observed in Tables 4.5 and 4.6, during the 1962/63-1965/66 period and after, the economy began to break from the strait-jacket of agricultural export earnings as its main growth generator.[1] Indeed, as Table 4.2 shows, there was an absolute decline in the value-added by the agricultural sector between 1970/71 and 1973/74. The stagnation of the agricultural sector is manifested in the fact that while the cost of living index increased at an average rate of 8.1 per cent per annum between 1960 and June 1975, the index for the food component increased at the rate of 10.4 per cent during the same period

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1. Aboyade has observed this structural trend in the economy as follows: "More and more, the economy has been depending on its own domestic steam. The prime movers were changing from agricultural exports to home industries, food production and public policy. The threshold lies within the period 1960 to 1965 and may be . . . suggested as being around 1962-63". Aboyade, O., "The Development Process", in Ayida, A. A. and H. M. A. Onitiri (ed.), Reconstruction and Development in Nigeria, Ibadan, Oxford University Press, 1971, pp. 47-48.

Table 4.4 Structure of Investment by Type of Assets at Constant Purchasers' Value of 1962/63, 1958/59-1973/74

1	2	3		4		5		6	
	Gross Fixed Capital Formation	Building and Construction		Transport Equipment		Machinery Equipment		Land Development	
Year	₦ Million	₦ Million	As % of 2	₦ Million	As % of 2	₦ Million	As % of 2	₦ Million	As % of 2
1958/59	294.8	161.8	54.9	46.2	15.7	54.0	18.3	32.8	11.1
1959/60	338.4	185.6	54.8	50.0	14.8	77.6	22.9	25.2	7.4
1960/61	321.0	184.2	57.4	48.0	15.0	65.8	20.5	23.0	7.2
1961/62	370.2	194.4	52.5	41.8	11.3	72.0	19.4	62.0	16.7
1962/63	352.0	210.2	59.7	24.0	6.8	66.6	18.9	51.2	14.5
1963/64	388.6	220.8	56.8	33.2	8.5	68.4	17.6	66.2	17.0
1964/65	501.2	237.8	47.4	52.2	10.4	147.0	29.3	64.2	12.8
1965/66	585.0	300.0	51.3	56.2	9.6	160.6	27.5	68.2	11.7
1966/67	550.0	296.2	53.9	52.2	9.5	136.8	24.9	64.8	11.8
1967/68	462.0	252.2	54.6	49.8	10.8	110.6	23.9	49.4	10.7
1968/69	405.0	217.2	53.6	46.0	11.4	99.0	24.4	42.8	10.6
1969/70	465.6	292.0	62.7	59.1	12.7	88.6	19.0	25.9	5.6
1970/71	748.1	417.0	55.7	127.7	17.1	179.3	24.0	24.1	3.2
1971/72	1065.3	588.2	55.2	152.3	14.3	295.9	27.8	28.9	2.7
1972/73	1143.8	712.9	62.3	151.1	13.2	248.2	21.7	32.6	2.9
1973/74	1094.3	694.4	63.5	143.5	13.1	220.8	20.2	35.6	3.3

Source: Federal Office of Statistics, National Accounts of Nigeria 1958-59 to 1973-74, Lagos, June 1976, pp. 11-12

Table 4.5 The Structure of Nigerian Agricultural Export Earnings at Current Prices

Year	GDP at Current Prices	Agricultural Component of GDP		Value of Agricultural Exports			Value of Petroleum Crude Oil Export	
	₦ Million	₦ Million	% of GDP	₦ Million	% of GDP	% of Agric. GDP	₦ Million	% of GDP
1958/59	1905.4	1256.4	65.9	253.5	13.3	20.2	3.7	0.2
1959/60	2022.4	1283.6	63.5	277.3	13.7	21.6	7.1	0.4
1960/61	2247.4	1414.6	62.9	282.8	12.6	20.0	15.9	0.7
1961/62	2359.6	1453.2	61.6	271.5	11.5	18.7	28.2	1.2
1962/63	2597.6	1605.8	61.8	273.0	10.5	17.0	36.9	1.4
1963/64	2745.8	1673.8	61.0	294.9	10.7	17.6	52.3	1.9
1964/65	2894.4	1676.4	57.9	315.6	10.9	18.8	100.2	3.5
1965/66	3110.0	1691.6	54.4	309.9	10.0	18.3	160.1	5.4
1966/67	3374.8	1855.0	55.0	278.5	8.3	15.0	164.1	4.9
1967/68*	2752.6	1527.8	55.5	264.1	9.6	17.3	109.1	4.0
1968/69*	2656.2	1415.2	53.3	271.2	10.2	19.2	167.9	6.3
1969/70*	3549.3	1711.7	48.2	279.6	7.7	16.3	385.8	10.9
1970/71	5290.3	2580.4	48.8	272.9	5.2	10.6	731.4	13.8
1971/72	6684.7	3072.4	46.0	227.6	3.4	7.4	1064.6	15.9
1972/73	7346.9	3126.1	42.5	234.3	3.2	7.5	1534.9	20.9
1973/74	8670.5	3261.2	37.6	288.1	3.3	8.8	3605.6	41.6

Note: * The Eastern States are excluded from the data.

Source: Federal Office of Statistics, National Accounts of Nigeria 1958-59 to 1973-74; Digest of Statistics (Various Issues)

Table 4.6 Exports of Major Commodities by Economic Sectors

	Value (₦ Million)			% of total export value	
Year	Total Domestic Exports	Agricultural Export	Petroleum Crude Oil Export	Agricultural Export	Petroleum Crude Oil Export
1958	265.6	232.2	2.0	87.0	0.8
1959	321.0	274.8	5.4	85.6	1.7
1960	331.2	282.5	8.8	84.5	2.7
1961	340.2	283.0	23.0	82.3	6.8
1962	328.0	260.0	33.4	78.3	10.2
1963	369.8	285.9	40.4	76.7	10.9
1964	421.0	303.9	64.2	71.4	15.2
1965	526.4	327.3	136.2	61.4	25.9
1966	557.4	292.5	184.0	58.1	33.0
1967	476.2	264.5	144.2	60.9	30.3
1968	413.0	263.7	74.0	70.6	17.9
1969	629.2	278.7	261.8	47.9	41.6
1970	877.0	280.5	509.8	35.5	58.1
1971	1204.5	265.2	953.0	18.7	79.1
1972	1434.2	190.1	1176.2	12.0	82.0
1973	2269.4	278.8	1893.5	10.5	83.1
1974	5751.1	297.8	5317.6	5.2	92.5

Sources: (i) Federal Office of Statistics (Lagos), Digest of Statistics, (Various years).
(ii) Central Bank of Nigeria, Annual Report and Statement of Accounts, (Various years).

indicating that the growth of productive capacity in the agricultural sector was not keeping pace with the growth of domestic demand.[1] The decline in agricultural productive capacity resulted in a sharp and continuous rise of Nigeria's food import bill from ₦93.2 million in 1971 to ₦353.8 million in 1975.[2]

Although a systematic investigation of the causes of the stagnation of the agricultural sector is outside our purview, a brief comment is desirable. In general, the operations of the commodity marketing boards are held responsible for the secular decline of agricultural production in Nigeria. Given the fact of a positive supply elasticity among the Nigerian agricultural export products, the overall long run effect of the marketing boards low producer pricing policy was to discourage reinvestment and hence to reduce the rate of agricultural output expansion. Thus accentuating the urban-rural income differentials, the marketing boards pricing policy substantially quickened the process of rural-urban migration and the consequent loss of requisite manpower to the agricultural sector.[3] But it must be stressed that natural disaster also played a part in the agricultural stagnation: the absolute decline in agricultural output in the early 1970s was partly due to the occurrence of the sahelian drought.[4] It

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1. First Report of the Anti-Inflation Task Force, Lagos, Federal Ministry of Information, October 1975, p. 13.
2. Federal Office of Statistics, Review of External Trade: Nigeria 1975, April 1976, p. 23.
3. The main ideas in the literature concerning the negative effects of the marketing boards' operations on agricultural production in Nigeria are associated with the following studies: Helleiner, G. K., "The Fiscal Role of the Marketing Boards", Economic Journal, September 1964; Olatunbosun, D. and S. Olayide, "The Effects of Marketing Boards on the Output and Income of Primary Producers"; Olakanpo, O. and O. Teriba, "The Fiscal, Monetary, and Investment Implications of the Marketing Boards". These are papers presented at the International Seminar on Marketing Board Systems, University of Ibadan, March 1971.
4. Third National Development Plan 1975-80 Volume 1, Lagos, Federal Ministry of Economic Development, March 1975, p. 65.

has been argued, however, that development planning in Nigeria was synonymous with industrialisation and neglect of agriculture.[1]

The expansion of the nonagricultural sectors of the economy, especially the manufacturing sector, was mainly induced by government actions and policies. Government tax incentive and tariff policies and provision of infrastructural facilities encouraged foreign investment in manufacturing development. The formation of government partnerships with foreign private investors and the new forms of international financing through foreign contractor finance and supplier credit stimulated industrialisation.[2] The war-time restrictive economic and financial policies accelerated the pace of import-substituting industrialisation; for example, by 1969 the index of manufacturing production outside the Eastern States had surpassed the 1965 level for the whole country.[3] The process of industrialisation continued its momentum in the 1970s.

But Nigerian economic expansion in the 1970s has mainly been petroleum export-led. As indicated in Table 4.5, whereas the proportion of agricultural exports to GDP declined from 11 per cent in 1962/63 to 3 per cent in 1973/74 the proportion of crude petroleum exports to GDP increased from 1 per cent to 42 per cent during the same period. Table 4.6 also stresses the dominance of the export sector by crude petroleum. From the second half of the 1960s the petroleum sector, as shown in Table 4.7, began

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1. Ekuerhare, B. U., "Nigerian Planning Strategy Since Independence", Unpublished Diploma in Development Economics Dissertation, University of Cambridge, May 1975.
2. For the various government policy measures adopted to promote industrialisation in Nigeria, see Manfred Berger, Industrialisation Policies in Nigeria, Munchen Wellforum Verlag, 1975, pp. 108-140.
3. Second National Development Plan 1970-74, Lagos, Government Printer, 1970, p. 22.

to contribute significantly to GDP: its value added as a proportion of GDP rose from 1 per cent in 1964 to 5 per cent in 1966, fell to 1 per cent in 1968 due to the civil war, and accelerated to 17 per cent in 1971.

Table 4.7 Contributions of Petroleum to the Nigerian Economy

(₦ Million)

	1964	1966	1968	1970	1971
Gross proceeds	66	202	76	530	1016
Value-added (factor costs)	30	152	34	416	900
Wages and salaries	4	6	4	8	12
Government income	22	32	30	162	496
Investment income	2	114	-	246	392
Value-added as % of total GDP	(1%)	(5%)	(1%)	(9%)	(17%)
Net foreign exchange earnings	50	86	58	264	586
As % of total imports of goods	(9%)	(14%)	(11%)	(28%)	(47%)

Source: World Bank, Nigeria: Options for Long-Term Development, London, Johns Hopkins University Press, 1974, p. 72.

The net foreign exchange earnings derived from the petroleum sector increased remarkably in the 1964-1971 period. The favourable impact of petroleum on the balance of payments can be discerned from Table 4.8: the petroleum sector continuously improved the balance of payments whose Current Account was transformed into a surplus for the first time in 1971/72 over the 1961/63-1971/72 period.

Table 4.8 Petroleum Impact on the Balance of Payments 1961/63-1971/72

(N Million)

	1961-63	1964-66	1967-69	1970-71	1971-72
Non-oil Sector:					
Export of Goods	347.6	504.0	506.8	374.0	374.0
Import of Goods	-408.8	-509.6	-425.6	-732.8	-950.0
Net non-factor services	-27.4	-77.0	-152.4	-147.6	-190.0
Total non-oil	-88.6	-82.6	-71.2	-506.4	-766.0
Petroleum Impact	32.4	128.0	160.4	308.0	770.0
Balance on Current Account+	-113.2	-220.2	-194.2	-198.2	4.0

Notes: + The balance on Current Account is not the sum of total non-oil and petroleum impact because net factor payments and transfers are excluded from the Table.

Sources: (i) World Bank, Nigeria: Options for Long-Term Development, London, Johns Hopkins University Press, 1974, p. 17.
(ii) Central Planning Office, Second National Development Plan 1970-74: First Progress Report, Lagos, The Government Printer, p. 15.

For an appreciation of the structural changes of the economy in the 1970s the characteristic role of the petroleum sector needs further amplification. Table 4.7 shows that whereas wages and salaries have an insignificant share of the petroleum sector value added the substantial proportion of the sector's value added is in the form of government and investment incomes. The petroleum sector remains an enclave in the economy operated

by foreign capital and technology. Hence most of the post-tax investment income is repatriated from the economy. But the acquisition by government of 55 per cent equity in the oil-producing companies in 1974 made certain that more than 50 per cent of the profits of these companies would remain in the economy besides royalty and petroleum profits tax.[1] Given continued improvements in the prices of crude petroleum in the world market and in the tax rates applicable to the oil industry, the Third Plan envisaged that the petroleum sector would account for 40 per cent of the GDP and its contributions to both government revenues and foreign exchange earnings would be 85 per cent during the Plan period. As a result, the Planners could confidently expect that the projected total investment of ₦30 billion "could be financed entirely by national saving".[3]

4.2(iii) The foreign exchange issue

The Planners' optimism about foreign exchange abundance can further be underscored and the development strategy which they advocated may be outlined. The Planners' optimism can be attested to as follows:

> "Quite often the development of most developing countries is held back by a trinity of constraints: savings, foreign exchange and executive capacity. In the case of Nigeria . . . it [is] quite clear that there will be no savings and foreign exchange constraints during the Third Plan period and beyond."[4]

Thus, the Planners envisioned a development strategy whereby the investible resources derived from the petroleum sector would be used to create

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1. Third National Development Plan 1975-80 Volume 1, p. 44.
2. *Ibid.*, p. 48.
3. *Ibid.*, p. 46.
4. *Ibid.*, p. 48.

the economic and social infrastructure necessary for generating a self-sustained growth of the economy in the longer run when resource scarcity might recur. The essence of the envisaged development strategy as suggested by Table 4.9 is that in order to internalise the rapid growth of the petroleum sector within the structure of the economy the Plan emphasised rapid industrialisation, and the accelerated development of social overhead capital activities and of manpower. Given the assumptions made about foreign exchange availability, it was hoped that the economy would achieve the aggregate annual growth rate of 9.5 per cent during the 1975-80 Plan period.

Certainly, as regards foreign exchange availability Nigeria occupies a favourable position as compared to any other non-oil producing underdeveloped country. But this does not imply, as the Plan does, that foreign exchange constraint has been removed; it merely indicates that the Nigerian foreign exchange problem has been comparatively eased. It can be argued, therefore, that the Plan underestimated the foreign exchange requirements of a rapidly expanding third world open economy such as Nigeria. Theoretically, it is plausible to argue that the foreign exchange constraint confronting the economy can be regarded as an *ex ante* concept in the sense that it must appear at some rate of growth of the economy. In an empirical and dynamic context, the foreign exchange constraint can be conceived of as a function of the structure of domestic consumption and of the technological and import dependence of the investment pattern.[1] Thus, given the relative absence or unimportance of a capital-goods sector in the

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1. The technological and import dependence of the investment pattern has been demonstrated with respect to the Nigerian manufacturing industries. See Thomas, D. B., Capital Accumulation and Technology Transfer: A Comparative Analysis of Nigerian Manufacturing Industries, New York, Praeger Publishers, 1975, pp. 5-6.

economy, the planned investment pattern implied by the planned sectoral growth rates presented in Table 4.9 would have an adverse influence on the balance of payments. In this respect, the trends in the import structure revealed by Table 4.10 would be intensified during the Plan period. For instance, the increase in the proportion of capital goods including transport equipment and raw materials tototal imports would continue throughout the 1970s. In addition, the change in the structure of domestic consumption resulting from the 1971 Adebo and the 1975 Udoji awards of general increases in money wages and salaries granted to civil servants and similar increases in the private sector would probably involve unfavourable foreign exchange implications.[1] The rise in wages and salaries would tend to increase the import-orientation of the propensity to consume - a tendency which might be a special manifestation of "Engel's Law". Thus the increase in wages and salaries, or the shift towards the higher income brackets among the employed might engender a shift in the demand structure not simply from the lower-grade goods to the higher-grade ones, from basic food and clothing products towards durable consumer goods, but often from domestic products to imported goods even within the commodity category of similar grades. The tendency for the demand structure to shift from domestic products within the commodity category of similar grades to imported goods was apparently indicated by some of the executives of synthetic textile companies interviewed, who complained that some of their distributors were in the habit of attaching "made in Hong Kong or Japan" trade marks to

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1. The Adebo and the Udoji Wages and Salaries Review Commissions chaired respectively by Chief S. Adebo and Chief J. Udoji led to unprecedented increases in money wages and salaries in the economy. For instance, the 1975 wages and salaries increases averaged 100 per cent. When it is recognised that the average increase in general price level in the economy was less than 40 per cent, it can be stated that the increases in real wages and salaries were substantial.

Table 4.9 Annual Sectoral Growth Rates of the Gross Domestic Product at 1974-75 Factor Cost

(Per cent)

Sector	1975-76	1976-77	1977-78	1978-79	1979-80	Average Annual Growth Rate 1975-80
Agriculture, Forestry and Fishing	3.5	5.0	5.5	5.5	5.5	5.0
Mining and Quarrying	5.1	5.2	5.4	5.5	5.6	5.3
Manufacturing and Crafts	10.4	15.9	18.7	21.2	23.8	18.0
Electricity and Water Supply	15.5	18.0	23.0	24.7	25.5	21.0
Building and Construction	14.4	18.6	20.5	23.0	24.0	20.1
Distribution	10.0	10.3	11.6	12.0	12.5	11.3
Transport and Communication	12.5	15.9	17.5	20.0	21.5	17.5
General Government	15.0	15.0	20.0	20.0	20.0	18.0
Education	19.0	21.0	22.0	23.0	24.0	21.8
Health	18.0	19.0	21.0	21.0	21.0	20.0
Other Services	8.4	9.0	9.6	10.2	10.8	9.6
Aggregate Annual Growth Rate	7.2	8.5	9.8	10.6	11.5	9.5

Note: The growth rates indicated in the Table are the planned growth rates.

Source: Third National Development Plan 1975-80, Volume 1, Central Planning Office, 1975, p. 49.

Table 4.10 The Structure of Nigerian Imports

Percentages

	1964	1968	1970	1971	1972	1973	1974	1975
CONSUMER GOODS								
(a) Non-Durable Consumer								
(i) Food	9.6	8.5	8.4	8.8	10.1	10.8	9.6	9.5
(ii) Textiles	12.6	8.5	5.3	5.5	5.4	3.0	1.8	2.2
(iii) Others	14.1	13.7	10.6	11.8	12.1	11.4	10.1	9.5
(b) Durable Consumer Goods	3.5	2.4	3.3	4.0	5.2	5.2	4.0	5.2
Total	39.8	33.1	27.6	30.1	32.8	30.4	25.5	26.4
CAPITAL GOODS								
(i) Capital Equipment	24.1	27.6	31.5	32.7	28.3	26.8	28.4	30.6
(ii) Transport Equipment	7.5	8.0	10.7	10.3	9.0	9.6	7.2	10.0
(iii) Raw Materials	17.5	22.1	25.3	23.3	22.8	25.8	30.1	24.4
(iv) Fuel	7.7	7.7	3.0	0.8	1.0	1.1	3.2	2.7
Total	56.8	65.4	70.5	67.1	61.1	63.3	68.9	67.7
PASSENGER CARS	3.4	1.5	1.9	2.8	6.1	6.3	5.6	5.9
GRAND TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Calculated from Appendix 4.A.

the domestically manufactured textile goods in order to "improve" their attraction to consumers. Be that as it may, the change in the structure of domestic demand occasioned by the wage and salary increases might result in increased foreign exchange expenditure on consumption goods. Thus, as evidenced by Table 4.10, the rising trend in the imports of durable consumer goods and food might continue throughout the Plan period although this may be offset by continued import-substituting industrialisation, especially in the durable consumer goods sector.

The implications of a tendency towards intensification of foreign exchange expenditure in the economy were actually transformed into a serious worsening of the balance of payments position in the 1975/76 fiscal year: for example, to meet current commitments, not only foreign exchange receipts during this year were completely exhausted but also accumulated reserves were dipped into. The favourable trade balance of N2.7 billion recorded in 1974/75 contrasted with a deficit of N125 million in 1975/76, and with an overall balance of payments deficit of N1 billion in the latter year.[1] Furthermore, during the 1977/78 fiscal year, because of continued worsening of the balance of payments position, the government banned certain imported goods including beer bottles, galvanised buckets, sophisticated textile goods and all cars over 2500 cubic engine capacity; the government also imposed high import duties on many other goods some of which were to be imported under the granting of special licences to importers.[2] Thus, given the high target annual aggregate growth rate assumed by the Third Plan, the structure of domestic consumption, and the technology-import dependent investment pattern would make almost certain that foreign exchange constraint would continue to constitute an economic development problem

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1. Recurrent and Capital Estimates of the Government of the Federal Republic of Nigeria 1976/77, pp. xi-xii.

2. West Africa, No. 3118, 11 April 1977, p. 699; West Africa, No. 3119, 18 April 1977, p. 747. For the detailed list of the banned and high-dutied imported goods, see The Nigerian High Commission, Nigeria Today, London, No. 79, May 1977, pp. 4-9.

facing Nigeria throughout the Plan period.[1]

Indeed, as can be seen in Table 4.11, the foreign exchange constraint has been a major development problem since the attainment of political independence in 1960. However, as revealed in this Table, the history of Nigeria's balance of payments problems dates back to 1955. The initiation of the balance of payments problems can be traced to the worsening terms of trade caused by the cessation of the primary export boom induced by the Korean War; the balance of payments problems were also aggravated by the escalation of imports, partly explained by the Nigerian 1955-1960/61 Development Programme.[2] It can be observed in the Table that from 1955 the country's external reserves began to dwindle fast: they declined continuously from N406 million in 1955 to an all-time low of N86 million in 1967. The 1966-1970 period, which included the civil war period, witnessed an unprecedented balance of payments crisis in Nigeria as the country's external reserves were lowest during this period. Among the general reasons given for the worsening of the country's balance of payments position in the 1960s were: the rise in the cost of foreign private investment, especially through the repatriation of profits, capital, and capital gains; the decline in the inflow of foreign private capital; and the dwindling and

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1. It is worth stressing that this nature of the Nigerian balance of payments problem in spite of the "oil boom" largely derives from the fact that unlike most major oil producing countries Nigeria's available resources from the petroleum sector are not large compared with her development needs. The resources from the petroleum sector in Nigeria are unlikely to approach the order of magnitude of such resources in Iran or Venezuela. For example, in 1970, the oil revenue *per capita* in Nigeria was only 4 United States dollars as compared with 37 and 125 United States dollars in Iran and Venezuela respectively. See The World Bank, Nigeria: Options For Long-Term Development, Baltimore, Johns Hopkins University Press, 1974, p. 76.

2. Onitiri, H. M. A., "Recent Trends in Nigeria's Balance of Payments", Nigerian Journal of Economic and Social Studies, Vol. 7, No. 2, July 1965.

Table 4.11 Nigeria's External Transactions, 1954-1973

Year	Exports (₦ Million)	Imports (₦ Million)	Trade Balance (₦ Million)	Current Account Balance (₦ Million)	Net Direct Foreign Investment (₦ Million)	External Reserves (₦ Million)
1954	298	230	68	60	37	406
1955	242	280	-38	-43	49	406
1956	255	310	-55	-61	58	402
1957	238	316	-78	-82	63	414
1958	269	336	-67	-82	34	360
1959	324	360	-36	-70	48	314
1960	330	419	-89	-139	38	310
1961	342	429	-87	-123	50	278
1962	331	395	-64	-105	43	242
1963	370	402	-32	-111	76	166
1964	420	492	-72	-182	126	166
1965	530	535	-5	-179	110	176
1966	562	501	61	-184	110	162
1967	478	436	42	-166	79	86
1968	417	382	35	-168	93	90
1969	625	458	167	-109	100	96
1970	891	718	173	-50	129	160
1971	1344	1059	285	-219	143	284
1972	1437	960	477	-317	288	254
1973	2206	1212	994	65	166	389

Source: Isong, C. N., "Nigeria's External Finance", Nigerian Journal of International Affairs, Vol. 1, July 1975, p. 55.

the progressive tightening of conditions of official aid flows into Nigeria.[1] One of the immediate consequences of the persistent balance of payments problems was to focus the attention of the Nigerian policy-makers on the country's relations with the international economy. In the circumstances, the inevitable adoption of "inward-looking" policies largely created the conditions which induced industrialisation in Nigeria.

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1. Akeredolu-Ale, E. O., "Private Foreign Investment and the Underdevelopment of Indigenous Entrepreneurship in Nigeria", in Williams, Gavin (ed.), Nigeria: Economy and Society, London, Rex Collings, 1976, p. 113.

4.3 Growth and structural change of the manufacturing industries

Industrialisation was at the core of the process of the "First Post-War Restructuring" of the post-independence Nigerian economy. A combination of interrelated factors, namely, the government protectionist and tax-incentive policies, domestic market expansion, and the changing investment strategies of foreign private firms were among the most important causes of accelerated manufacturing development in Nigeria.[1] The interplay of these factors in the context of the industrialisation process is not examined here but will be analysed in the next chapter in relation to the development of the Nigerian textile industry.

In this section, we are concerned with the analysis of the growth performance, and the structural dynamics and characteristics of Nigerian manufacturing industries. Table 4.12 presents the annual average industrial growth rates over the 1958/59-1973/74 period. It must be noted, however, that the civil war introduced some elements of disturbance into the growth trends.

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1. Although the investigators of the Nigerian industrialisation process have identified these factors, they have tended to assign varying degrees of emphasis to each or some of them. For instance, Kilby stresses the primacy of domestic market expansion and the changing investment strategies of the foreign private firms, whilst Akeredolu-Ale, Usoro and Oyejide emphasise the primacy of government protectionist and tax-incentive policies. Kilby, Peter, Industrialization in an Open Economy: Nigeria 1945-1966, Cambridge, Cambridge University Press, 1969, pp. 53-80; Kilby, Peter, "Manufacturing in Colonial Africa", in Duignan, P. and L. H. Gann (ed.), Colonialism In Africa 1870-1960 Volume Four: The Economics of Colonialism, Cambridge, Cambridge University Press, 1975, pp. 470-519; Akeredolu-Ale, E. O., "The 'Competitive Threshold' Hypothesis and Nigeria's Industrialisation Process", Nigerian Journal of Economic and Social Studies, Vol. 14, No. 1, March 1972, pp. 109-120; Usoro, E. J. "Government Policies, Politics and Industrial Development Strategy in Nigeria, 1947-1974", Nigerian Journal of Economics and Social Studies, Vol. 16, No. 2, July 1974, pp. 243-254; and Oyejide, T. A., Tariff Policy and Industrialisation in Nigeria, Ibadan, Ibadan University Press, 1975, pp. 61-75.

Table 4.12 Growth Rates in Manufacturing Industries in Nigeria

(At Constant Prices)

Year	Manufacturing Component of GDP at 1962/63 Factor Cost ₦ Million	Growth Rate in Manufacturing Sector %
1958/59	97.0	-
1959/60	107.4	10.7
1960/61	109.6	2.1
1961/62	130.2	18.8
1962/63	146.4	12.4
1963/64	170.0	16.1
1964/65	181.0	6.5
1965/66	221.0	22.1
Average Annual Growth Rate		12.7
1966/67	221.6	0.3
1967/68+	190.0	-14.3
1968/69+	200.4	5.5
1969/70+	263.4	31.4
Average Annual Growth Rate		5.7
1970/71	317.6	20.6
1971/72	307.7	-3.1
1972/73	378.6	23.0
1973/74	472.7	24.9
Average Annual Growth Rate		16.3
Overall average annual Growth Rate 1958/59-1973/74		11.8

Source: Federal Office of Statistics, National Accounts of Nigeria 1958-59 to 1973-74, pp. 7-8. Note: + Exclude the Eastern States.

For instance, during the civil war, all modern manufacturing enterprises in Eastern Nigeria stopped production. Hence our time period analysis is divided into three phases: phase one covers the period before the civil war (1958/59-1965/66); phase two covers the period of the civil war (1966/67-1969/70);[1] whilst the third phase covers the period after the civil war (1970/71-1973/74).

The manufacturing sector achieved an impressive annual average growth rate of 12 per cent during the 1958/59-1973/74 period. But prior to the civil war the achievement of the annual average growth rate of 13 per cent was slightly more impressive than the overall industrial growth performance for the entire period under review. The decline in the annual average growth rate to 6 per cent during the civil war is to be expected because manufacturing production in the war-affected areas was suspended throughout the war. But the fillip which the war-time restrictive economic policies gave to industrial expansion mentioned earlier is evidenced in the all-time growth rate record of 31 per cent achieved in 1969/70. The annual average growth rate of 16 per cent in the post-civil war period represents the fact that the manufacturing growth performance had exceeded the pre-war level.

Other indicators of manufacturing growth performance such as the number of persons employed per establishment, gross output per establishment, gross value added per establishment, gross output per employee, gross value added per employee and wages and salaries per employee presented in Table 4.13 point to the remarkable industrial progress attained during the 1964-1973 period.

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1. The civil war actually began on July 6, 1967, and ended on January 15, 1970. But the political crisis which engulfed the whole country from the beginning of 1966 worsened continuously until the actual outbreak of the civil war in 1967.

Table 4.13 Some Indicators of Manufacturing Performance in Nigeria, 1964-1973

Item	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	Average Annual Growth Rate %
Number employed per Establishment	154	167	141	135	188	199	183	167	159	165	1.8
Gross Output per Establishment (in ₦'000)	740	864	823	785	1130	1130	1204	1096	992	1223	7.0
Gross Value Added per Establishment (in ₦'000)	298	364	318	317	504	614	560	508	470	575	9.6
Wages and Salaries per Employee (in ₦)	442	476	502	539	532	534	536	614	644	711	5.5
Gross Output per Employee (in ₦)	4792	5182	5848	5808	6016	6698	6596	6560	6244	7392	5.2
Gross Value Added per Employee (in ₦)	1934	2178	2258	2350	2684	3086	3068	3042	2952	3478	7.0

Source: Compiled from: Federal Office of Statistics, Annual Industrial Survey of Nigeria, various years

An important feature of this progress is that the manufacturing employment growth rate lagged behind the manufacturing output growth rate. The annual average growth rates of the number of persons employed per establishment and of gross value added per establishment during the 1964-1973 period were 1.8 per cent and 9.6 per cent respectively. This evidence of the failure of the manufacturing sector to generate a significant number of employment opportunities is corroborated by Morawetz's result that during the 1963-1969 period in Nigeria the manufacturing annual output growth rate was 14.1 per cent whilst the annual manufacturing employment growth rate was only 5.3 per cent.[1] As we have already seen in Table 4.12, there was a sharp decline in manufacturing production in 1971/72. This decline reflected a painful adjustment of the manufacturing sector to an environment brought about by the dismantling of wartime restrictions on imports. This meant that the domestic industries had to face a greater degree of price and quality competition from imports. Moreover, the anticipation of and the actual promulgation of the "Nigerian Enterprises Promotion Decree" in April 1972, which reserved certain areas of enterprise wholly or partially for indigenous businessmen generated some uncertainty in the foreign investment climate which had an adverse effect on manufacturing output.[2] This was likely to be the case because of the dominance of foreign investment in the Nigerian manufacturing sector. In 1967, foreign investment accounted for 70 per cent of total manufacturing paid-up capital.[3] The fact that, as shown in Table 4.14, the total foreign investment in this

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1. Morawetz, David, "Employment Implications of Industrialisation in Developing Countries: A survey", Economic Journal, Vol. 84, September 1974, p. 492, Table 1.

2. Central Bank of Nigeria, Annual Report and Statement of Accounts, December 1972, p. 20.

3. The World Bank, *op. cit.*, p. 82.

Table 4.14 Distribution of Foreign Private Investment in the Manufacturing Sector By Industries 1966-1970

Industry	Investment (₦ Million)					Percentage of Total Investment					Average Annual Growth Rate %
	1966	1967	1968	1969	1970	1966	1967	1968	1969	1970	
Food, Beverage and Tobacco	45	50.4	53.8	62.8	66.6	32.1	29.2	31.6	32.1	29.6	12.9
Clothing and Footwear	0.5	1.4	1.6	1.8	2.0	0.4	0.8	0.9	0.9	0.9	54.5
Wood and Furniture	2.2.	2.2	2.4	2.8	3.4	1.6	1.2	1.4	1.4	1.5	12.5
Paper and Printing	4.3	5.6	6.4	7.2	12.8	3.1	3.2	3.8	3.6	5.7	38.3
Leather Products	0.3	0.4	0.4	0.4	1.6	0.2	0.2	0.2	0.2	0.7	83.3
Textiles	9.7	15.2	21.6	25.2	40.0	6.9	8.8	12.7	12.9	17.8	43.5
Rubber Products	9.5	16.2	5.8	6.8	4.0	6.8	9.4	3.4	3.5	1.8	-1.9
Chemicals and Petroleum Products	32.2	33.2	36.8	42.4	36.2	23.9	19.2	21.7	21.6	16.1	4.4
Non-Metal Mineral Products	13.1	12.6	18.8	21.0	20.4	9.4	7.3	11.1	10.7	9.1	13.5
Metal Products	17.1	25.6	13.4	16.2	12.8	12.2	14.8	8.5	8.2	5.7	32.1
Machinery	2.2	1.0	1.8	2.2	2.6	1.5	0.6	1.0	1.1	1.1	36.0
Transport Equipments	3.5	5.6	5.0	5.8	9.0	2.5	3.2	2.9	3.0	4.0	30.1
Miscellaneous	0.6	3.6	1.0	1.8	12.8	0.4	2.1	0.6	0.9	5.7	279.7
Total	140.1	173.0	169.8	196.0	224.8	100.0	100.0	100.0	100.0	100.0	12.9

Source: Central Bank of Nigeria Staff Paper, Foreign Private Investment in the Manufacturing Sector in the Nigerian Economy - 1966-70, May 1975, p. 4.

sector rose from N173 million in 1967 to N224.8 million in 1970, a rise of 30 per cent, meant that this proportion of foreign investment to total manufacturing paid-up capital probably remained unchanged in the 1970s.[1]

Despite its impressive growth performance, the Nigerian manufacturing sector's contribution to GDP, as can be discerned in Tables 4.2 and 4.15, was still less than 10 per cent by the first half of the 1970s. As can be seen in Table 4.15, some South-East Asian, South American, and even sub-Saharan African countries have relatively larger manufacturing sectors than Nigeria: during the early 1970s, the manufacturing sector contributed 17.5 per cent, 25.1 per cent and 11.2 per cent respectively to the GDP of Thailand, Brazil and Kenya. However, the contribution of the Nigerian manufacturing sector to the GDP compares favourably with similar estimates for other West African countries: the share of manufacturing in Sierra Leone (1969) was 5 per cent; in Liberia (1968) 5 per cent; Niger (1966) 6 per cent and Dahomey (1966) 3 per cent.[2]

The relative recency and underdevelopment of the Nigerian manufacturing sector bears upon its structure. The salient features of the structural change in the manufacturing industries between 1957 and 1973 can be observed in Table 4.16. For analytical convenience, the manufacturing sector is divided into three broad sub-sectors; namely, industries producing primarily consumer goods, those producing largely intermediate goods, and those producing mainly capital goods.[3] The consumer goods

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1. The Nigerian Enterprises Promotion Decree of 1972 and its revised version of 1977 did not actually change the proportion of foreign investment to total manufacturing paid-up capital. See footnote 1 on p. 215.
2. Guidelines For the Third National Development Plan 1975-80, Lagos, Government Printer, 1974, p. 17.
3. This division can hardly be completely precise. There are overlappings between the sub-sectors although an effort was made to keep cases of overlapping to the minimum.

Table 4.15 Expansion of Value Added in Manufacturing Activity and of Gross Domestic Product in Constant Prices, Early 1960s to Early 1970s for Selected Developing Countries[a]
(Percentage)

COUNTRY	Average Annual Rate of Increase[b]		Increase in Value added in manufacturing as % of increase in GDP	Value added in Manufacturing as Percentage of GDP	
	Manufacturing Activity	GDP		Early 1960s	Early 1970s
Nigeria	11.3	5.4	14	4.8	8.4
Iran	12.5	9.1	27	17.5	22.4
Thailand	10.9	7.9	21	13.2	17.5
Pakistan[c]	7.7	4.9	18	10.1	13.0
Brazil	8.3	6.7	29	21.6	25.1
Kenya	7.9	7.2	12	10.7	11.2

Source: Centre for Development Planning, Projections and Policies of the Department of Economic and Social Affairs of the United Nations Secretariat, 1975.

Notes: a. Data are at constant factor cost except for Thailand where they are constant market prices. The time period is as follows: from 1960/61-1961/62 to 1970/71-1971/72 for Nigeria; from 1960/61-1961/62 to 1968/69-1969/70 for Iran; from 1960-61 to 1970-71 for Brazil and Thailand; from 1960/61-1961/62 to 1969/70-1970/71 for Pakistan; from 1964-1965 to 1970-1971 for Kenya.

b. Annual compound rate calculated from average of two consecutive years in early 1960s and average of two consecutive years in early 1970s. For details in time period, see footnote a.

c. Including data for Bangladesh.

industries were dominant in terms of their contribution to total manufacturing value added, but their dominance declined from 1957 until 1967 from whence it rose during the remaining part of the period under review. The gainer from the initial relative decline of the consumer goods sub-sector was the capital goods sub-sector: its contribution to total value added nearly doubled over the 1957-1967 period but fell steeply afterwards. The relative contribution of intermediate goods industries, on the other hand, rose, with slight fluctuations, continuously during the 1957-1973 period. The food, beverage and tobacco industry group was responsible for at least 32 per cent of total manufacturing value added in each year of the period under review. The structure of industrial investment attests to the dominance of this industry group and chemicals and petroleum products as well as textiles. This fact is clearly brought out from the distribution of foreign private investment in the manufacturing sector as presented earlier in Table 4.14.[1]

A comparison of these structural trends with those of the manufacturing sectors in Brazil and Pakistan highlights the relative underdevelopment of Nigerian manufacturing industries. As Table 4.16 indicates, whereas the food, beverage and tobacco industry group contributed 42 per cent to total value added of Nigerian manufacturing industries in 1973, this industry group, as shown in Table 4.17, contributed slightly less than 20 per cent to total manufacturing value added in Brazil and Pakistan in 1963 and 1963/64 respectively. Machinery and metal products together constituted respectively 32 per cent and 23 per cent of total value added in Brazil

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1. In the absence of sectoral investment national income statistics in Nigeria, this Table may be used to represent, approximately, the magnitude of manufacturing capital formation because of the dominance of foreign private investment of the Nigerian manufacturing sector as mentioned earlier.

Table 4.16 Value Added By Industry Groups as a Percentage of Value Added By All Nigerian Manufacturing Industries

	1957	1962	1967	1970	1971	1972	1973
CONSUMER GOODS:							
Food, Beverage and Tobacco	52.3	33.0	31.7	36.1	37.2	34.3	42.4
Clothing and Footwear	0.9	1.3	2.7	0.6	3.0	1.8	1.6
Wood and Furniture	8.6	13.9	4.8	2.6	2.7	3.2	2.6
Paper and Printing	4.5	4.4	3.5	5.3	4.5	5.0	5.6
Leather Products	0.2	0.1	0.6	0.3	0.4	0.5	0.5
Radio and T.V. Sets	-	-	-	0.7	0.7	0.8	0.4
Household Electrical Equipment	-	-	-	0.3	0.3	0.3	0.4
Sub-total	66.5	52.7	43.3	45.9	48.8	45.9	53.5
INTERMEDIATE GOODS:							
Textiles	5.5	6.1	15.6	23.6	17.5	15.4	13.5
Rubber Products	3.1	3.8	3.5	4.0	2.8	3.5	3.5
Chemicals and Petroleum Products	14.3	15.4	16.9	14.4	16.8	18.0	15.8
Miscellaneous Manufactures	-	0.4	1.0	5.1	6.2	6.4	6.3
	22.9	25.7	37.0	47.1	43.3	43.3	39.1
CAPITAL GOODS:							
Non-Metal Mineral Products	2.4	4.9	3.8	-	-	-	-
Metal Products	2.6	4.0	6.9	6.6	7.5	11.1	6.9
Machinery	-	0.1	0.7	0.2	0.2	0.2	0.1
Transport Equipment	5.7	12.6	8.2	0.3	0.2	0.1	0.7
Sub-total	10.7	21.6	19.6	7.1	7.9	11.4	7.7
GRAND TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Calculated from Appendix 4.B.

Table 4.17 Value Added by Industry Groups as a Percentage of Value Added by All Manufacturing in Brazil and Pakistan

Industry Group	Brazil		Pakistan	
	1949	1963	1953	1963/64
Food, beverages and Tobacco	26.5	18.6	17.6	18.6
Textiles	19.7	11.6	55.5	27.9
Clothing and Shoes	4.3	3.2	2.8	1.4
Wood and Furniture	6.4	4.2	0.2	0.4
Paper and Printing	6.3	5.4	2.0	4.2
Leather	1.3	0.8	0.5	0.6
Rubber	1.9	1.9	0.6	0.7
Chemicals	} 9.3	}14.3	2.9	7.6
Petroleum and Coal Products			-	3.5
Non-metallic Mineral Products	7.2	5.1	5.1	5.1
Basic Metals	5.0	}32.3	1.5	5.8
Metal Products[a]	10.3		5.0	17.5
Other Manufacturing	1.8	2.6	6.3	6.7
Total Manufacturing	100.0	100.0	100.0	100.0

Note: a. Includes machinery, electrical goods and transport equipment.

Source: Little I, Scitovsky, T. and Scott, Industry and Trade in Some Developing Countries, London, Oxford University Press, 1970. p. 89; (culled from Table 3.2)

and Pakistan. In 1968, 34 per cent of manufacturing value added in Brazil originated from machinery and metal product industries.[1] In Nigeria, by contrast, the share of machinery and metal products in total value added by manufacturing industries increased from a small base of 4 per cent in 1962 to only 7 per cent in 1973.

The upshot of the foregoing descriptive analysis is unmistakable: the structure of the Nigerian manufacturing sector is heavily biased in favour of low technology and light consumer goods industries and against intermediate and capital goods industries. This implies that backward and forward integration within the manufacturing sector is insignificant. This pattern of Nigerian industrialisation has been revealed by the application of Chenery's concept of the "normal" pattern of industrial growth in various studies, the results of which are presented in Table 4.18.[2] As can be seen in this Table, a comparison between the "normal" and actual structure of Nigerian manufacturing industries for 1957, 1967 and 1972 indicates that the negative deviations of actual structure from "normal" structure within the manufacturing sector

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1. Guidelines for the Third National Development Plan 1975-80, *op. cit.*, p. 19.

2. These studies are based on Chenery's identification of "normal" growth pattern with proportional growth in each sector of manufacturing industries in his article: "Patterns of Industrial Growth", American Economic Review, September 1960. In the regression model used for estimating the "normal" growth pattern, *per capita* value added in each sector of manufacturing industries is the dependent variable and the level of *per capita* income and the population size for Nigeria are the explanatory variables. But the results presented in Table 4.18 which are derived from this regression model may be criticised on the ground that a proportional growth in all sectors may not adequately represent a "normal" pattern of growth for the Nigerian manufacturing industries. This is because the two explanatory variables - *per capita* income and population size - may not account for all of the observed growth as other factors such as resource endowment, income distribution, regional growth differences, and some kind of indicator of the stage of economic development may be equally important in explaining the observed growth of Nigerian manufacturing industries.

Table 4.18 Nigerian Manufacturing Industry: Comparison of "Normal"* and Actual Structure for Selected Years

Industry Group	1957[a]		1967[a]		1972[b]	
	"Normal"	Actual	"Normal"	Actual	"Normal"	Actual
Food, Beverages and Tobacco	0.9	0.2	0.9	0.6	29.7	34.3
Clothing and Footwear	1.0	0.0	1.0	0.5	2.4	1.8
Wood and Furniture	0.8	0.8	0.8	0.9	3.4	3.4
Paper and Printing	0.7	0.3	0.8	0.5	7.0	4.6
Leather Products	0.8	1.0	0.8	1.0	0.6	0.5
Textiles	0.6	0.03	0.7	0.5	17.5	15.5
Rubber Products	0.9	0.4	0.9	0.7	1.9	3.4
Chemicals and Petroleum Products	0.6	0.4	0.6	0.6	14.4	18.0
Non-metal Mining Products	0.7	0.1	0.7	0.6	4.8	4.3
Metal Products	0.4	0.1	0.4	0.3	3.5	10.7
Iron and Steel Basic Industry	-	-	-	-	3.9	0.5
Machinery	0.2	-	0.2	0.05	4.3	1.4
Transport Equipments	0.5	0.04	0.6	0.5	4.4	-

Note: * The "normal" shares were estimated from an econometric model based on a cross-section analysis of the experiences of 37 to 90 countries. They are the shares which the various industry groups ought to have had at the stages (1957, 1967 and 1972) of Nigerian industrial development.

Sources: a. Oyejide, T. A., Tariff Policy and Industrialization in Nigeria, Ibadan, Ibadan University Press, 1975, p. 16 (culled from Table 2.4)

b. Central Planning Office, Third National Development Plan 1975-80, p. 150 (culled from Table 11.2)

were generally much more pronounced within the intermediate and capital goods industries, that is, iron and steel and machinery industries, than within the consumer goods industries. This fact does indicate that there exists tremendous potential for industrial development, especially in the intermediate and capital goods sectors in Nigeria.

These structural characteristics seem consistent with the general pattern of the structural changes which usually accompany an industrialisation process based on the strategy of import substitution. Import substitution has been the most important source of Nigerian industrial growth. This fact has been demonstrated through the application of Chenery's method which we presented and evaluated in sections 2.4(i) and 2.4(ii) of Chapter two. Using this method, Oyejide applied equation (2.5) already specified in section 2.4(i) of Chapter two to the growth in gross output in all manufacturing industries over the 1957-1967 period, and his estimates are presented in Table 4.19. Bearing in mind, as pointed out in section 2.4(i) of Chapter two, the general weaknesses of the measures of import substitution based on Chenery's method, we can conclude from Table 4.19 that over the 1957-1967 period import substitution was responsible for about 80 per cent of all manufactured products, export expansion made a negligible relative contribution of 0.1 per cent, whilst the domestic demand made a relative contribution of 19.8 per cent to overall manufacturing growth. The Nigerian import structure reflects this pattern of industrialisation. As Table 4.10 presented earlier indicates, whilst the share of consumer goods in the value of total imports declined over the 1964-1975 period, the share of capital goods assumed an upward trend over the same period. Thus the general impact of Nigerian industrialisation on the import bill has been to shift away from the imports of consumer goods and to concentrate on the imports of capital goods.

Table 4.19 Percentage Contribution of Three Sources of Growth in Nigerian Manufacturing: 1957-1967

Industry Group	Domestic Demand	Export Demand	Import Substitution
Food, Beverages and Tobacco	23.2	0.0	76.8
Clothing and Footwear	0.13	0.0	99.0
Wood and Furniture	77.3	5.8	16.9
Paper and Printing	0.1	0.0	99.9
Leather Products	33.0	6.6	60.4
Textiles	4.5	0.0	95.5
Rubber Products	39.9	0.0	60.1
Chemicals and Petroleum Products	63.5	0.0	36.5
Miscellaneous Manufactures	0.2	0.0	99.8
Non-metal and Mineral Products	9.0	0.0	91.0
Metal Products	8.4	0.1	91.5
Machinery	142.8	0.0	-97.2
Transport Equipments	4.0	0.0	96.0
All Industry	19.8	0.1	80.1

Source: Oyejide, T. A., Tariff Policy and Industrialization in Nigeria, Ibadan, Ibadan University Press, 1975, p. 28. (culled from Table 3.2)

As argued in section 2.5 of Chapter two, the central problem usually associated with industrialisation based mainly on import-substitution strategy is that at some critical point - presumably when the "easy" stage of import substitution which involves basically low technology and light consumer goods has been passed - the growth of domestic industries becomes rigidly tied to a minimum level of imports of capital goods and raw materials. In other words, the requirement for a continued acceleration in the growth of domestic industries after the critical "easy" stage of import substitution has been passed, transforms the imports of capital goods and raw materials into essentials. As argued in section 2.5 of Chapter two, the stagnation tendency in manufacturing output associated with the import-substitution strategy basically inheres in the arrival of this "critical point" in the substitution process. In general, the arrival of the "critical point" for any economy cannot be predetermined except with some knowledge of the time profile of its export performance, target growth rates of GDP, the structure of domestic demand, and other obligations which may relate to foreign exchange expenditure in the economy. Comparing the structure of manufacturing production in Nigeria with that of Brazil and Pakistan as we have already done, we may argue that the arrival of the "critical point" will not occur in the foreseeable future because there is plenty of scope for further import-substituting industrialisation in Nigeria. It must be stressed, however, that the continued strains on the Nigerian balance of payments position noted in section 4.2(iii) above may slow down the import-substitution process if the expansion of the export-earning capacities of the economy does not keep pace with the growth of imports of investment goods which further import substitution requires.

The Nigerian import-substituting industrialisation process has been characterised, as elsewhere in the developing world, by foreign

exchange-intensive orientation. As Table 4.20 indicates, the import content of the manufacturing industry has been high. On the average, 34.5 per cent by value of the raw materials was imported in 1971 and 1972. Such industry groups as textiles, glass products, and chemicals and petroleum products had the highest proportions of imported raw material to total raw material of 66.9 per cent, 65.3 per cent and 46.5 per cent respectively. On the average, the economy spent a high proportion of manufacturing value added (58 per cent) on imports. This characteristic import dependence of Nigerian industrialisation has been succinctly observed by the Second National Plan in the following terms:

> "Most industrial activities in the country are still not manufacturing in the true sense of the term, but mere assembly. Very often, all the components used are imported and are merely put together behind the tariff wall."[1]

The net foreign exchange effect of Nigerian industrialisation in the context of the textile industry will be investigated in Chapter six of this study.

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1. Second National Development Plan 1970-74, *op. cit.*, p.285.

Table 4.20 Some Input Co-Efficients in Nigerian Manufacturing Industries for 1971 and 1972

Industry	Raw Material Import/ Value Added	Import/ Gross Output	Imported Raw Material/ Total Raw Material
Food, Beverage and Tobacco	0.586	0.169	33.41
Clothing and Footwear	0.650	0.221	25.52
Wood and Furniture	0.143	0.072	12.68
Paper and Printing	0.840	0.243	35.85
Textiles	1.357	0.484	66.87
Rubber Products	0.378	0.134	31.58
Chemicals and Petroleum Products	1.570	0.208	46.53
Bricks and Tiles	0.195	0.104	27.05
Cement and Concrete Products	0.120	0.060	15.30
Glass Products	0.130	0.058	65.35
Leather Products	0.385	0.119	20.20
Average of All Industries	0.578	0.170	34.50

Source: Federal Ministry of Economic Development, Third National Development Plan 1975-80, March 1975, p. 151, (culled from Table 11.3).

4.4 Conclusions

The overview of the structural dynamics of the Nigerian economy since 1958 indicates that, although "inward-looking" developments in the form of industrialisation and economic and social overhead capital activities have increasingly become important, the development process has been strongly oriented towards the foreign-trade sector. Primary export production has been the engine of economic growth; however, the gear of the engine of growth has changed decidedly from agricultural exports to crude petroleum export earnings. The foreign exchange constraint, despite the "oil boom", still constitutes one of the most important economic development problems confronting the Nigerian policy-makers.

Although there was a general policy-concern with the encouragement of industrialisation as a means of achieving accelerated economic development after the attainment of political independence, the persistent balance of payments problems provided the main context in which "inward-looking" policies were used to promote industrialisation in Nigeria. Nigerian industrialisation has achieved remarkable growth rates largely because of its relative recency and underdevelopment. The "classic" strategy of import substitution in the light consumer goods industries has been faithfully followed. This strategy of industrialisation has been import dependent and therefore foreign-exchange intensive; thus it has contributed to the general continued strains on the Nigerian balance of payments.

CHAPTER FIVE

The Development of the Nigerian Textile Industry

5.1 Introduction

The textile industry, especially the cotton textile industry, has pioneered and dominated the industrialisation process of almost every developing country during the twentieth century. Indeed, it has been argued that the textile industry played a similar role in the initial phase of the industrialisation process of some of the present-day developed countries: for instance, Rostow identified the cotton textile industry as the "leading sector" in the British "take-off" into a "self-sustaining" economic growth process during the last two decades of the eighteenth century and the early decades of the nineteenth century.[1]

Several propositions may be advanced for the important role of the textile industry in the early stages of industrialisation of the present day developing economies.[2] Firstly, the production process of the textile industry is, in general, relatively labour intensive and yet does not require a highly skilled labour force. This feature makes the textile

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1. Rostow, W. W., The Stages of Economic Growth, Cambridge, Cambridge University Press, 1960, pp.54-55.

2. For a discussion of some of these propositions, see Kilby, P., Industrialisation in an Open Economy: Nigeria 1945-1966, Cambridge, Cambridge University Press, 1969, p.108; Briscoe, L., The Textile and Clothing Industries of the United Kingdom, Manchester, Manchester University Press, 1971, pp.2-4; and Shepherd, G., The Economics of International Trade in Cotton-Type Textiles, IBRD Economic Staff Working Paper, No.111, July 26, 1971, pp.5-6.

industry eminently suitable for countries with relative capital and skilled labour scarcities and a relative abundance of unskilled labour. Secondly, the textile industry is confronted with favourable supply conditions for dominant inputs: the industry is largely resource-based or obtains raw materials through imports at competitive prices. Moreover, the existence of excess capacity in both the textile and textile machinery industries of the developed countries means not only that new and used equipment is available at favourable prices but also that experienced foreign partners can be recruited by the private industrialists and government agencies of developing countries. Thirdly, although the textile industry has frequently not achieved optimal scales of production, the scale factor has not, in general, proved to be disadvantageous to the industry either in terms of its establishment and growth or in terms of exporting its products. Fourthly, from the standpoint of demand, in low-income countries not only does the purchase of cloth account for a significant proportion of total consumer expenditure but also as an import, cotton textiles are often the largest single user of foreign exchange. This implies that the textiles are, at first, hand-made domestically or imported, but, as the market expands consequent upon income growth, incentives are provided for the establishment of a domestic manufacturing industry. Thus, from the viewpoint of demand patterns, the textile industry has been a prime candidate for early import substitution in many developing countries. Fifthly and finally, flowing from this view is the proposition that import substitution has been forced by governments imposing tariffs and quotas on imports of textiles either with the deliberate aim of fostering the development of a textile industry or with the objective of dealing with the balance of payments problems of which the expansion of the industry is a consequence. In this respect, it has been argued that trade restrictions are amongst the important determinants of

the establishment and expansion of the textile industry. This is mainly because, in the words of Briscoe, as "a footloose industry, there is no overriding economic advantage favouring production either at the source of the raw material or near the market for the final product". This "enables a considerable amount of trade to take place between the production of the raw material and the final product". As a result, "tariffs have a considerable effect on the location of any production process" of the textile industry in several countries.[1]

The foregoing propositions, taken together, underscore the generally held view that developing countries have a potential comparative advantage in the development of the textile industry, and that, in practice, this comparative advantage has been realised in many of these countries in the context of the infant-industry considerations of tariff protection.[2] Hence, in this chapter, we argue that government initiative and trade policies have acted as a catalyst in the establishment and growth of the modern textile industry in Nigeria. Specifically, in the context of

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1. Briscoe, L., *op. cit.*, p.4.

2. Despite the usual controversy among the "pro-trade" and the "anti-trade" economists concerning economic development, all of them accept the basic neo-classical interpretation of the infant-industry argument. This interpretation is that temporary protection can be granted to an industry during the initial period of high costs of production on the understanding that the infant-industry would eventually be able to compete on equal terms with the established foreign producers both in the domestic and in the export markets. Over time, it is argued, the infant-industry would "grow up" in the sense that it would achieve cost reduction through the process of learning by doing and acquisition of experience. Thus tariff protection is essentially a selective method of granting a differential price or cost advantage to a particular industry or group of industries relatively to the other domestic industries. For a detailed assessment of the issues involved in the controversy over the role of tariff protection in economic development, see Myint, H., "International Trade and the Developing Countries", in P. A. Samuelson (ed.), International Economic Relations: Proceedings of The Third Congress of the International Economic Association, London, Macmillan, 1969, pp.15-46.

government initiative and trade policies, we analyse the forces which determined the development pattern of the Nigerian textile industry. We will also define and assess the various measures of profitability, labour-intensity or capital-intensity and labour productivity which will be used, on the basis of the available data, for a summary evaluation of the performance of and the factor use in the industry. The discussion in the rest of this chapter is therefore organised around four sections. Section 5.2 analyses the growth and structural change of the industry, discusses the issue of size-and-process-distribution among firms, and determines the extent to which economies of scale are important in the industry. Section 5.3 marshalls the available evidence on the role of government economic policies in the development of the industry; in particular, it focuses on the relationship between the changes in the structure of tariff or tariff-equivalent protection and the pattern of growth of the industry. In Section 5.4, we undertake a summary evaluation of the performance of and the factor use in the industry, and we present the main conclusions which emerge from the discussion in Section 5.5.

5.2 Growth and structural change

The analysis of the processes of growth and structural change in the Nigerian textile industry requires, as a prerequisite, a brief examination of the concept of an industry. A definition of an industry is necessary because our unit of analysis in the study is the firm which organises the manufacture of textile products. In defining an industry, we therefore attempt to classify meaningfully the units of our analysis. An industry can be defined either in terms of its main raw material inputs, or in terms of its production processes, or in terms of its outputs. For a purposeful taxonomy, however, an either-or definition may be unsatisfactory. For instance, let us consider the output or market-orientated definition. This definition may yield a large number of marginal cases among firms which may produce for different end-uses thereby placing such firms in diverse industries. Although this problem of indistinguishableness of firms with respect to industries may not be associated with the production-process definition, this definition also has its own limitations. This point needs an illustration. To group together firms which use the same set of techniques at a given point in time, and the progress of which may therefore be viewed as starting from a common point, may inform us very little about why some firms advance from this base while others do not. An examination of the factors which account for these differences may lead ultimately to a consideration of the whole market structure in which the firms operate. A hybrid definition of an industry is therefore adopted for this study. In the words of Miles,

> "an industry is defined as a group of firms using similar or substitutable processes to produce a competing range of end-products. Thus the textile industry is defined as the group of firms

> producing textile products for all apparel, household goods and transport and other industrial uses".1

Historically, the establishment and development of the modern textile industry in Nigeria dates from the 1950's. Historical evidence suggests, however, that hitherto Nigeria had had a flourishing and extensive cottage textile industry which declined decidedly, as elsewhere in the underdeveloped world, in the face of severe competition from the machine-made textiles first of Britain and later of the rapidly industrialising Far East. For example, the share of the cottage textile industry in total textile consumption fell sharply from the second half of the nineteenth century onwards: by 1962 only about 8 *per cent* of total textile consumption in Nigeria was produced by traditional hand-weavers.[2] Historical evidence also attests to the fact that on the eve of colonial rule the Kano cottons were said to clothe two-thirds of the population of the Western Sudan. Indeed, an embryo cotton trade began at an early date, with the first consignment of West African cotton cloth taken from Benin in Southern Nigeria to England in 1558. It is reported, however, that during the nineteenth century Manchester cotton textiles captured the cloth market and virtually ended domestic production in the "Oil Rivers" of Southern Nigeria.[3] This historical evidence not only reveals the decline of a sometime thriving cottage textile industry but also points to the

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1. Miles, C., Lancashire Textiles: A Case Study of Industrial Change, Cambridge, Cambridge University Press, 1968, p.8. See pp.6-8 of this work for a detailed review of the definitions of an industry and an elaboration on their limitations.

2. Hopkins, A. G., An Economic History of West Africa, London, Longman, 1973, p.250.

3. Hogendorn, J. S., "Economic Initiative and African Cash Farming: Pre-colonial Origins and Early Colonial Developments", in Duignan, P., and L. H. Gann (eds.), Colonialism In Africa 1870-1960 Vol.Four: The Economics of Colonialism, Cambridge, Cambridge University Press, 1975, pp.287-288 and pp.297-298.

existence of an extensive market for the development of the modern textile industry in Nigeria.

The cottage textile producers having been crippled by the competition from the early successful industrialisers, foreign private investors led the development of the modern textile industry in Nigeria. The expansion of the industry was essentially a product of the response mechanisms, under the propellant of the market-protection investment motive of the foreign private investors, to the government economic policies, especially trade policies, designed to promote industrialisation as well as to deal with balance of payments problems. This proposition will be demonstrated in Section 5.3 below, but it is to the analysis of the processes of change in the industry that we now turn.

Initially, the processes of change in the Nigerian textile industry were hastened by government initiative in assisting the indigenous entrepreneurs to establish modern textile enterprises. The Colonial Ten-Year Plan, launched in 1946, envisaged the development of the industry through indigenous entrepreneurs by providing them with technical and financial assistance. As a consequence, in 1950, with financial assistance from the government, the Kano Hausa trading community established a textile mill using fifty second-hand power looms imported from Lancashire. Similarly, in 1952, with sixty looms imported from Lancashire another indigenous enterprise, also assisted financially and technically by government, began operations on the outskirts of Lagos. The importation of second-hand looms and equipment was deemed a worthwhile proposition because during the 1950's the Lancashire textile industry embarked on re-equipping with modern machinery. But these early government efforts at promoting the development of the textile industry through indigenous entrepreneurs were stillborn. Such efforts failed because the indigenous entrepreneurs lacked the management experience required for running efficiently modern

textile enterprises. Although the Department of Commerce and Industries planned to remedy the managerial inexperience of the entrepreneurs by supplying them with textile officers, the supply of government textile officers was inadequate and intermittent. Equally significantly, the generally low tariff on imported textiles until the second half of the 1950's so exposed the pioneering indigenous modern textile producers that they could not withstand the competition from foreign producers.[1]

The next phase, which witnessed the successful establishment of the modern Nigerian textile industry, was marked by government initiative in forming partnerships with foreign private entrepreneurs as well as by foreign private investors who undertook market-protection investment in the industry.[2] These two categories of Nigerian textile manufacturers can be illustrated from Appendix 5.C with respect to when they began operations and to their shareholding structure. The Northern Nigeria Government recruited David Whitehead and Sons of Lancashire as a technical partner to set up Kaduna Textile Limited in 1958. As a result of the initiative of the Western Nigeria Government, the Nigerian Textile Mills went into production in 1962. This enterprise was established by the association between the government and a consortium of the Trans-Continental Mercantile Company of Milan, Maurer Textile Consultants of Geneva, and the Chase-Manhattan Investment Company of New York. In 1962 and 1964, E. A. Seroussi, a Sudanese entrepreneur, in partnership with the Northern Nigeria Government formed the Nortex and the Zamfara Textile Industries. The Aba Textile Mills and the Midwest Textiles similarly

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1. For a more detailed account of these efforts, their results, and the explanations of their failure, see Kilby, P., *op. cit.*, pp.311-316.

2. Kilby, P., *op. cit.*, pp.113-116.

began operations in 1964 and 1966[1] respectively on the basis of partnership between government and foreign private investors. It must be stressed that the foreign manufacturers' participation in the establishment and development of the textile industry was expressly and vigorously solicited by various government bodies.

But the pace of expansion of the industry in terms of number of establishments largely resulted from the scramble, independent of the government participatory role, for the Nigerian textile market by the foreign private investors. These market-protecting foreign investors' decisions to establish textile factories were in response to the rising tide of competition which was mainly caused by the geographic diversification of Nigeria's import trade induced by government trade policies.[2] Kilby emphasised the general influence of the rising tide of competition on the foreign investors' decisions to invest in Nigeria's manufacturing industries as follows: "for both the overseas manufacturer and the established distributing merchant firm the optimum solution to mounting competition and threatened markets was often to establish a local factory".[3]

As can be discerned in Appendix 5.C, from the beginning of the 1960's there was an increasing presence of foreign private investors in the Nigerian textile industry to protect, broadly speaking, first, the

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1. The Aba Textile Mills and the Midwest Textiles closed down throughout the Nigerian civil war period - 6th July, 1967 to 15th January, 1970. But the Aba Textile Mills was re-established after the war on the basis of government 100 *per cent* shareholding.

2. For a discussion of the trade policies adopted after the achievement of political independence in 1960 to diversify the geographic orientation of Nigeria's import trade, see Edozien, E. C. and A. Oyejide, "Import Restrictions in Nigeria and their Impact on Imports from Japan", Nigerian Journal of Economic and Social Studies, Vol.15, No.2, July 1973, pp.157-170.

3. Kilby, P., "Manufacturing in Colonial Africa", in Duignan, P., and L. H. Gann (eds.), *op. cit.*, p.495.

market interests of the erstwhile British merchant firms and, second, the overseas markets of the oriental textile manufacturers. By 1972, the oriental textile manufacturers had topped the list in terms of the size of equity investment in the industry followed by the British manufacturers. Within the Asian group of manufacturers, the Japanese were the most important followed by the Indians.[1] An outstanding example of market-protection investment undertaken by an established merchant firm was the Norspin enterprise. This was a cotton spinning factory which was a joint venture between the United Africa Company and English Sewing Cotton. The venture was intended to supply (a) handloom yarn for the United Africa Company's merchandise trade, (b) yarn for conversion into sewing thread in the English Sewing Cotton's Lagos factory, and (c) cotton cord for Dunlop's tyre factory. A substantial proportion of the risk capital was provided by the United Africa Company and English Sewing Cotton.[2] Also for the reason of protecting established merchandise trade interests the United Africa Company provided the bulk of risk capital for the West African Thread venture which started operations in 1961. A notable instance of a textile project undertaken as part of an attempt to protect the overseas markets of oriental manufacturers was the establishment of the Arewa Textiles mill which began production in 1965. A consortium of ten Japanese cotton textile firms was actively encouraged by the Japanese government in the Arewa enterprise. This was considered necessary in the face of several threats by the then Nigerian Minister of Finance to place an embargo on textile imports from Japan as a means of

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1. Nigerian Institute of Social and Economic Research, Adeboye's Report: The Textile Industry - General Survey for the Purpose of the Next Budget, unpublished Official Document, 1972, p.2.

2. Kilby, P., Industrialisation in an Open Economy: Nigeria 1945-1966, p.114.

correcting the extreme Nigerian trade imbalance with Japan.[1] It is evident in Appendix 5.C that from the middle of the 1960's to the early 1970's the desire to safeguard their share of the Nigerian market largely explains the increasing importance of the oriental manufacturers in the textile industry.

The establishment of the Kaduna Textiles venture, the first successful modern Nigerian textile mill, in 1958 marked the beginning of the era of rapid growth of the modern Nigerian textile industry; in particular, the industry saw an unprecedented acceleration of growth during the second half of the 1960's. This trend in the growth of the industry is revealed in Table 5.1 and Figure 5.1 which respectively indicate the growth of value added, in real terms, and the growth of the physical quantity of domestically produced fabrics. Whereas the average annual growth rate of value added of the industry over the 1964-1973 period was 30.5 *per cent*, the average annual growth rate of value added during the 1964-1970 period was 52.6 *per cent*, and that for the 1970-1973 period was only 1.4 *per cent*. Hence, we may conclude that, whereas the industry achieved rapid acceleration of growth during the second half of the 1960's, it experienced a dramatic deceleration of growth during the 1970-1973 period. This growth feature of the industry is further illustrated in Figure 5.1 which shows the pace of expansion of domestic production of textile fabrics in relation to their total consumption in Nigeria over the 1958-1973 period. The domestic production of textile fabrics grew respectively at 40 *per cent*, 72 *per cent* and 14 *per cent* annual compound rates over the 1958-1965, 1965-1971 and 1965-1973 periods. Figure 5.1 also confirms that the process of import substitution in the industry gathered momentum in 1964 and

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1. *Ibid.*, p.115. The issue of trade imbalance dominated the Nigerian-Japanese economic relations until the outbreak of the Nigerian civil war in 1967. See Edozien, E. C. and A. Oyejide, "Import Restrictions in Nigerian and their Impact on Imports from Japan", *op. cit.*

Table 5.1 Growth of Value Added of Nigerian Textile Industry, 1964-1973 (At 1963 Prices)

Year	Value Added (₦'000)	Percentage Change
1964	7873.5	-
1965	16824.2	113.7
1967	25310.3	50.4
1969	51763.6	104.5
1970	76014.4	46.8
1971	60104.2	-20.9
1972	56789.8	-5.5
1973	48379.8	-14.8
Average Annual Growth Rates %		
1964-1973		30.5
1964-1970		52.6
1970-1973		1.4

Source: Calculated from Appendix A.

Note: An appropriate Implicit Price Deflator is used to adjust the value added figures presented in Appendix 5.D. The Implicit Price Deflator used is defined as follows:

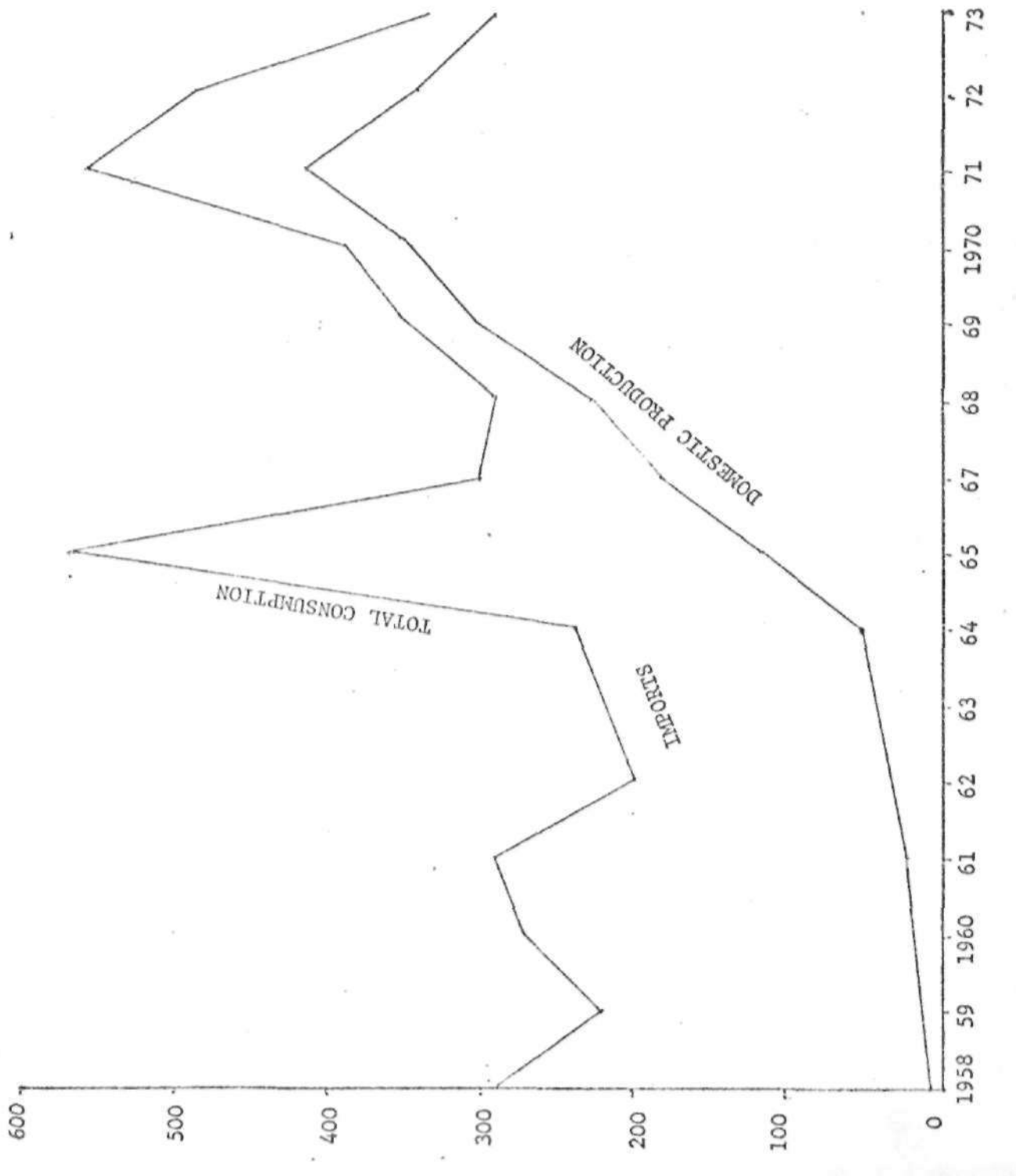
$$\frac{\text{GDP AT CURRENT FACTOR COST}}{\text{GDP AT CONSTANT FACTOR COST}}$$

that import substitution became a notable strategy of expansion of the industry after 1964 because the domestic production of textile fabrics as a proportion of the total consumption of textile fabrics increased rapidly at the expense of imports throughout the second half of the 1960's. During the period under review there was no export of textile products from Nigeria.

The phenomenal growth of the Nigerian textile industry bore upon its structure. The earliest and largest branch of the industry was cotton broadwoven activity. The other branches of the industry, in descending order of age, were "other" broadwoven, knitted fabric and synthetic broadwoven activities. Carpets, garments and textile products for industrial

Figure 5.1 Total Consumption of Textile Fabrics in Nigeria 1958-1973 (Million Square Metre)

Source: Constructed from Table 5.2



uses have been insignificant features of the structure of the industry.[1]

As Table 5.2 and Appendix 5.H indicate, the history of the Nigerian textile industry was completely dominated by cotton broadwoven activity until the second half of the 1960's. The proportion of domestic production in the total supply of cotton broadwoven textiles expanded from a small base of 4 *per cent* in 1958 to 97 *per cent* in 1970, declined to 81 *per cent* in 1972 and rose to 94 *per cent* in 1973. Although cotton broadwoven activity was still the largest branch of the industry, it tended to remain static in the 1970's. Similarly, "other" broadwoven activity did not sustain its dynamism of the 1960's into the 1970's. By contrast, knitted fabrics as well as synthetic broadwoven activities had exhibited powerful and sustained growth impulses since their inception. These trends in the structural change in the Nigerian textile industry seem to be consistent with the trends in world trade in woven textiles. In general, world trade in cotton fabrics has been in a secular decline, although in total quantity cotton products still lead. On the other hand, there has been an increasing share of synthetic fabrics, with polyester/cotton in the lead followed by polyester/rayon. This trend reflects the increasing sophistication of textile markets resulting from sustained income growth not only in the developed countries but also in the developing ones.[2]

An alternative analysis of the structure of the Nigerian textile industry may be attempted. In this respect, we utilise the definition of an industry offered earlier: the market- and the production-process orientations are combined in the analysis of the structure of the industry

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1. P. A. Management Services S. A. and Skoup and Company Ltd., A Study of the Nigerian Market For Fabrics, Garments and Carpets, unpublished Report, November 1974, pp.9-10.

2. Skoup and Company Ltd., and Werner Textile Consultants, A Study of the Nigerian Textile Industry, Lagos, unpublished Report, July 1973, p.183.

Table 5.2 Total Consumption of Textiles by Main Category of Fabrics in Nigeria 1958-1973
(million square metre)

Year	Cotton Broadwoven				Synthetic Broadwoven			
	Domestic Production	Imports	Total Supply	Domestic Production As % of Total Supply	Domestic Production	Imports	Total Supply	Domestic Production As % of Total Supply
	1	2	3	4	5	6	7	8
1958	7.1	163.3	170.4	4.3		123.7	123.7	
1959	10.5	122.1	132.6	7.9		82.3	82.3	
1960	13.5	176.8	190.3	7.1		82.6	82.6	
1961	17.8	199.8	217.6	8.2		73.9	73.9	
1962	28.8	138.5	167.3	17.2		36.1	36.1	
1963	34.5	163.7	198.2	17.4		22.7	22.7	
1964	49.5	164.9	214.4	23.1		27.1	27.1	
1965	111.4	168.5	279.9	39.8		292.6	292.6	
1967	158.2	68.0	226.2	69.9		41.0	41.0	
1968	196.3	23.7	220.0	89.2		26.9	26.9	
1969	257.8	11.0	268.8	95.9		15.4	15.4	
1970	287.3	8.2	295.5	97.2	2.6	23.4	26.0	10.0
1971	308.0	35.4	343.4	89.7	8.9	81.9	90.8	9.8
1972	239.9	56.1	296.0	81.0	19.0	82.9	101.9	18.6
1973	223.1	13.8	236.9	94.2	41.2	31.8	73.0	56.4

Table 5.2 continued...

Table 5.2 continued...

Year	Other Broadwoven				Knitted Fabrics			
	Domestic Production	Imports	Total Supply	Domestic Production As % of Total Supply	Domestic Production	Imports	Total Supply	Domestic Production As % of Total Supply
	9	10	11	12	13	14	15	16
1958								
1959								
1960								
1961								
1962								
1963								
1964								
1965								
1967	12.3	6.2	18.5	66.5	1.3	6.2	7.5	17.3
1968	24.7	10.4	35.1	70.4	2.1	10.6	12.7	16.5
1969	34.8	6.3	41.1	84.7	3.9	7.8	11.7	33.3
1970	42.9	9.5	52.4	81.9	6.7	1.3	8.0	83.8
1971	73.4	8.9	82.3	89.2	11.2	11.5	22.7	49.3
1972	50.9	7.3	58.2	87.5	13.2	7.6	20.8	63.3
1973	-	-	-	-	21.0	-	21.0	100.0

Sources: P. A. Management Services, S. A. and Skoup and Company Ltd., A Study of the Nigerian Market For Fabrics, Garments and Carpets, Unpublished Report, November 1974, p.15.

Also Appendix 5.H.

at the level of individual firms. The concept of integration is crucial to the analysis and therefore it requires a brief elucidation as a pre-requisite to the analysis.

The structure of the textile industry can be analysed in terms of a more vertically integrated structure or by a more concentrated horizontally integrated structure.[1] A more horizontally integrated structure implies that the industry is dominated by firms each of which has, under its control, a large number of similar units of production as represented, for example, in spinning by the number of spindles or by the amount of yarn produced by each firm. On the other hand, a more vertically integrated structure implies that the industry is dominated by firms each of which controls the various successive stages of textile manufacture. The ultimate degree of vertical integration would be achieved if a firm supplied exactly enough yarn of the right kind for all its weaving or knitting requirements and had exactly the right amount of bleaching, dying and finishing equipment to process the fabric which it produced in its weaving or knitting department. In several cases, the import-substitution process starts with the finishing process of textile manufacture and, then, it is generally accompanied by backward vertical integration into the spinning and weaving or knitting processes. In general, the larger is the scale of operation of a firm which is engaged in the finishing process, the greater is the tendency towards a completely vertically integrated enterprise. This is because, under competitive market conditions, "it is the size of the finishing unit which determines the size of a completely vertically integrated firm".[2] But vertical integration may be uneconomic

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1. In elucidating the concept of integration, we adopt Briscoe's characterisation of it. See Briscoe, L., *op. cit.*, pp.145-146.

2. Briscoe, L., p.146.

in a situation where an intermediate product is standardised, and therefore easily marketable, or where the equipment required for producing the product is easily transferable from one product to another. In contrast, the more specific an intermediate product is for a particular end-use, the more economic vertical integration may be.

But it is the competitive and uncertain economic environment which confronts textile firms that generally impels them to integrate vertically their production processes. In this respect, the behaviour of the textile firms can be conceived of in terms of the theory of the growth of the firm. In any industry, as Penrose argues, the constraints to which the firm is subject relate not to its absolute size but to its rate of growth which, in turn, is significantly related, *inter alia*, to its level of profits.[1] Thus, the desire to maintain the level of profits in order to sustain a given rate of growth often impels textile firms to integrate vertically their production processes. In his study of the nineteenth century Lancashire cotton textile industry, Gatrell has shown that, historically, engaging in vertically integrated production by single-process firms in the textile industry has been, in the face of declining profits, a necessary condition for survival and growth of these firms.[2] Furthermore, as we will argue in the following section, government trade restrictive policies may be used to induce the single-process firms to integrate vertically. For instance, the trade policies may deny the single-process finishing firms access to imported inputs of fabrics; thus spurred by the relative scarcities of fabrics, such firms may integrate weaving into their activities.

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1. For a full theoretical statement underlying this proposition, see Penrose, E. T., The Theory of the Growth of the Firm, Oxford, Blackwell, 1959, Chapters X, XI.

2. Gatrell, V. A. C., "Labour, Power, and the Size of Firms in Lancashire Cotton in the Second Quarter of the Nineteenth Century", Economic History Review, Second Series, Vol.XXX, No.1, February 1977, p.119.

The point must be stressed, however, that vertical integration can be a necessary condition for survival and growth of textile firms only if economies of integration are realised in the process of production. The importance of such economies to vertically integrated firms may derive from the fact that firms in which spinning output or weaving output are totally or largely absorbed by their own weaving or finishing departments may achieve a reduction in overall costs of operations, especially costs of materials. Specifically, vertical integration may lead to the reaping of internal economies in the costs which may otherwise be incurred in selling, buying, and transporting fabrics and yarn. However, vertically integrated firms may also deprive themselves of the full economy of integration owing to an imbalance between their spinning and weaving departments. In this case, a significant proportion of yarn output, for instance, may be produced under conditions no better than those enjoyed by single-process firms. Indeed, premature vertical integration may lead to significant diseconomies of integration being suffered by firms. This may be due to the fact that premature vertical integration may accentuate the imbalance among the firms' spinning, weaving and finishing departments.

The structure of the Nigerian textile industry in terms of the preceding discussion of the notion of integration, economies of integration, and size-economies of firms can be analysed on the basis of the 1973 cross-sectional data of firms in the industry. In analysing the size-distribution of firms in the industry, we must choose a suitable measure of size of the firms. Given the nature of the available data, two alternative measures, namely, number of persons employed and value of gross output may be used simultaneously as a basis for a comparative measurement of the size of firms in the industry. However, number of persons employed and value of gross output as measures of the size of firms have their limitations. The use of number of persons employed as a measure of size may

obscure both the dispersion of labour productivity among firms at a given point in time and shifts in productivity within individual firms when a comparison is made of the structure of the industry at two points in time. To the extent that, as we will show in Section 5.4 below, the larger firms in the industry obtain higher output *per* worker, the number of persons employed measure of size may underestimate the weight of the larger firms in relation to their output and therefore to their share of the market. The value of gross output as a measure of size of firms may ignore differences in product mix and quality and therefore may distort a comparison of the size of firms in an industry. The comparison may be distorted if some products are sold at special prices because of differences in specification or quality. Notwithstanding the weaknesses of number of persons employed and value of gross output as measures of the size of firms, they are used in the analysis of size-distribution of firms in the Nigerian textile industry because they are usually used for this purpose. In this respect, we use the share of number of persons employed by each firm and the share of value of gross output produced by each firm, respectively, in the total sample industry number of persons employed and in the total sample industry value of gross output as indicators of the size distribution of firms in the industry. Table 5.3 presents the size- and process-distribution of firms in the industry for 1973.[1]

A careful inspection of Table 5.3 shows that the cotton broadwoven sector not only dominated the industry but also this sector contained the

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1. The choice of the firms included in the analysis was determined primarily by the availability of appropriate data. We hold, however, that the firms covered were representative of the industry because the total number of persons employed, total value of gross output, and total value added of these firms were respectively 68.2 *per cent*, 69.5 *per cent*, and 72.2 *per cent* of the whole industry number of persons employed, value of gross output and value added. The finishing process includes the bleaching and dyeing processes. See Chapter Six for the explanation of the format of a similar table.

Table 5.3 The Structure of Nigerian Textile Industry, 1973

Textile Type and Firm	Process	Number of Persons Employed	Value of Gross Output (Naira)	Share in Total Number of Persons Employed	Share in Total Value of Gross Output
	1	2	3	4	5
COTTON BROADWOVEN					
A_1	Spinning, weaving and finishing	2535	10753682	0.076	0.074
A_2	Weaving and finishing	3896	14367390	0.117	0.099
B	Spinning, weaving and finishing	427	1563880	0.013	0.011
D	Spinning, weaving and finishing	437	2941152	0.013	0.020
K_1	Spinning, weaving and finishing	4002	14883725	0.120	0.103
K_2	Weaving and finishing	118	1004000	0.004	0.007
N_2	Spinning, weaving and finishing	3784	11441333	0.113	0.079
N_5	Spinning, weaving and finishing	1043	2139864	0.031	0.015
N_6	Finishing	154	859941	0.005	0.006
S	Spinning, weaving and finishing	3612	14161393	0.108	0.098
U	Spinning, weaving and finishing	4776	34630813	0.143	0.240
Z_1	Spinning and weaving	1003	1253472	0.030	0.009
Z_2	Spinning, weaving and finishing	406	2261904	0.012	0.016
		26193	102262554	0.785	0.777

Table 5.3 continued...

Table 5.3 continued...

Textile Type and Firm	Process	Number of Persons Employed	Value of Gross Output (Naira)	Share in Total Number of Persons Employed	Share in Total Value of Gross Output
	1	2	3	4	5
SYNTHETIC BROADWOVEN					
A_4	Weaving and finishing	89	1103141	0.003	0.008
E	Weaving and finishing	874	6157915	0.026	0.043
G	Weaving and finishing	188	399224	0.006	0.003
L	Spinning, weaving and finishing	169	241460	0.005	0.002
M	Weaving and finishing	63	156806	0.002	0.002
N_1	Spinning, weaving and finishing	935	4880352	0.028	0.034
W_2	Spinning, weaving and finishing	353	2823612	0.011	0.020
W_3	Spinning, weaving and finishing	219	3149065	0.007	0.022
		2890	18911575	0.088	0.134
OTHER BROADWOVEN					
A_3	Weaving and finishing	90	536191	0.003	0.004
N_7	Weaving and finishing	1003	3493044	0.030	0.024
T	Weaving and finishing	216	359000	0.006	0.002
		1309	4388235	0.039	0.030

Table 5.3 continued...

Table 5.3 continued...

Textile Type and Firm	Process	Number of Persons Employed	Value of Gross Output (Naira)	Share in Total Number of Persons Employed	Share in Total Value of Gross Output
	1	2	3	4	5
KNITTED FABRICS					
K_3	Knitting and finishing	334	1439308	0.010	0.010
THREAD AND YARN					
C	Spinning	148	333554	0.004	0.002
N_3	Spinning	185	1146723	0.006	0.008
N_4	Spinning	1477	3922684	0.044	0.027
F	Spinning	437	399915	0.013	0.003
W_1	Spinning	446	1742804	0.013	0.012
		2693	7545680	0.080	0.052
GRAND TOTAL		33419	134547352	1.000	1.000

Source: Calculated from Appendix 5.E.

largest firms in the industry. The firms in this sector accounted for 79 *per cent* and 78 *per cent* of the total sample industry number of persons employed and the total sample industry value of gross output respectively. Most of the completely vertically integrated firms in the industry were in this sector: out of the thirteen firms in the cotton broadwoven sector, nine had achieved complete vertical integration. In the synthetic broadwoven sector, out of the eight firms, four were completely vertically integrated. In 1973, the existence of single-process firms in the modern Nigerian textile industry was the exception rather than the rule. Another feature, revealed by Table 5.3, of the size- and process-distribution of firms in the industry is that whereas the degree of vertical integration of firms was positively correlated with the size of firms in the cotton broadwoven sector - that is, the more vertically integrated firms tended to be the larger firms in this sector - the single-process firms in the thread and yarn sector tended to have larger sizes than the more vertically integrated firms in the other broadwoven and synthetic broadwoven sectors. More specifically, the single-process firms in the thread and yarn sector tended to have larger sizes than the completely vertically integrated firms in the synthetic broadwoven sector.

The preceding discussion clearly reveals that there were wide variations in the size and the degree of integration of firms in the Nigerian textile industry in 1973. This observation necessitates the investigation of the extent to which economies of scale were reaped in the industry. The existence of economies of scale would be reflected in the shape of the industry long-run average cost curve and therefore the empirical investigation would be directed toward establishing a long-run relationship between the level of output and the level of average cost *per* unit of output.

A summary of Silberston's[1] comprehensive review of the general nature of economies of scale in a manufacturing activity may serve as a basis for the empirical investigation. In essence, economies of scale are the reductions in average unit costs which may be associated with an increase in the scale of output of a good. Often the reductions in average cost *per* unit are solely a function of an increase in the rate of output of the good. The manifestation of economies of scale is that, in a given production condition, a proportionate increase in inputs causes output to expand in greater proportion. Furthermore, scale is a multi-dimensional notion. It refers, in the case of a manufacturing activity, not only to the rate of total output *per* period of time but also to such aspects as the total quantity of a particular good produced irrespective of time, the range of goods manufactured, the rate of output and the total production of each, the number of processes undertaken, (that is, the extent of vertical integration) and the number of separate establishments or plants operated. Scale economies are generally derived from three main sources within an economic activity, namely technical, managerial and financial. Penrose has suggested that the first of these sources is associated mainly, but not exclusively, with the scale of the individual plant, whereas the other two are associated principally with the firm.[2] More specifically, at the level of the firm, "a listing of the sources of scale economies frequently includes economies of diversification or multi-product operation; and economies of integration".[3]

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1. Silberston, A., "Economies of Scale in Theory and Practice", Economic Journal, Supplement, March 1972, pp. 369-390.

2. Penrose, E. T., *op. cit.*, p. 57.

3. Devine, P. J., R. M. Jones, N. Lee and W. J. Tyson, An Introduction to Industrial Economics (Revised Edition), London, George Allen and Unwin, 1976, p. 96.

In empirical investigations, however, the identification and measurement of scale economies has been a difficult problem. The problem arises mainly from the empirical necessity "to convert available data to a form relevant to the theoretical concept [of scale economies] under investigation".[1] To convert data to the "relevant form", four methods, namely cross-section studies, time series studies, engineering studies, and the survivor technique have been put forward for investigating the evidence on scale economies. In cross-section studies, a comparison is made of the actual costs of firms of different sizes. In time series studies, a comparison is made of the costs of firms as their size changes over time. In engineering studies, hypothetical cost figures are estimated from technical data on the assumption that such cost figures would be experienced at different scales of output. Finally, in applying the survivor technique, firms are grouped into size classes and a comparison is made of the share of total output accounted for by each group at two or more points in time. A reasoned assessment of the usefulness of each of these methods for empirical investigation has shown that the engineering studies have been the most popular in practice.[2]

. But, as the available cross sectional data for 1973 on the output and inputs of individual firms in the Nigerian textile industry are not engineering data, the empirical investigation of scale economies in the industry cannot be based on the method usually used in the engineering studies. The nature of the available "Nigerian industrial survey" data permits a regression technique to be used to determine the extent of the presence of scale economies in the industry. A regression equation may therefore be specified as a basis for estimating the unknown parameters

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1. *Ibid.*, p.96.
2. For an assessment of these methods of identifying and measuring scale economies and the empirical results based on the engineering studies, see P. J. Devine, *et. al.*, *ibid.*, pp.96-100.

in a neo-classical Cobb-Douglas production function of the form

$$Y = AL^{\alpha}K^{\beta} \qquad (5.1)$$

by the method of least squares, where A is a constant term, α and β are the elasticities of value added (Y) with respect to labour (L) and capital stock (K) respectively. In applying this formulation below, we use the value of labour input represented by salaries and wages and the value of net fixed investment of each firm as a surrogate for capital stock.[1] The properties of the functional relationship described by equation (5.1) are well known. In the neo-classical Cobb-Douglas production function, constant returns to scale or unimportance of scale economies can be identified as $\alpha + \beta = 1$, decreasing returns to scale or scale diseconomies as $\alpha + \beta < 1$, and increasing returns to scale or scale economies as $\alpha + \beta > 1$.

The assumption underlying the foregoing formulation is that unitary elasticity of substitution with respect to labour and capital provides for the constancy of relative factor shares among firms regardless of changes in the supplies of the factor inputs to the firms. This assumption implies that the Nigerian textile industry is characterised by perfectly competitive market conditions. Although the assumption of perfectly competitive conditions in the Cobb-Douglas production function, as in other neo-classical production functions such as the constant

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1. This formulation has been applied to a study of some Nigerian industries other than the textile industry. See Liedholm, C., "Production Function for Eastern Nigerian Industry", Nigerian Journal of Economic and Social Studies, Vol. 8, No. 3, November 1966.

   Liedholm's study was based on cross-sectional "Nigerian industrial survey" data. The value added is the census value added which is defined in the Nigerian industrial survey statistics as the value of gross output less industrial costs which include costs of materials, fuel and electricity. We assume that the depreciation provided by each firm, which we deducted from the gross value of fixed investment provides a rough indication of real capital consumption.

elasticity of substitution (CES) production function, does not accurately reflect real world conditions, it is reasonable to assume that the behaviour of firms in the Nigerian textile industry is close to the competitive end of the spectrum in the theory of market structures. Hence, we can use the neo-classical Cobb-Douglas production function, as specified in expression (5.1), to investigate the extent to which economies of scale were reaped by firms in the Nigerian textile industry in 1973.

The general hypothesis which has emerged from studies of the textile industry with respect to the degree of scale economies and which we seek to test with respect to the Nigerian textile industry is that the realisation of scale economies has been unimportant in the development of the industry. This is largely because technological economies of scale, namely those derived from a better lay-out and integration of plants are scarcely realised in the textile industry. The unimportance of technological economies of scale derives, in turn, from the fact that mechanical units and operative functions are highly divisible in the textile industry, especially in the cotton branches of the industry. For example, in his historical study of the Lancashire cotton industry, Gatrell concludes that "large cotton concerns might be better equipped to overcome liquidity crises by virtue of their capital resources, but size in itself guaranteed neither efficiency in good times nor viability in bad - nor, for that matter, did vertical integration. . .".[1] In their estimates of the Cobb-Douglas production functions of the type specified in expression (5.1) above for Indian industry, Murti and Sastry found that there was constant returns to scale in the Indian cotton textile industry. More specifically, they found that the sums of the elasticities of value added of α and β with

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1. Gatrell, V. A. C., "Labour, Power, and the Size of Firms in Lancashire Cotton in the Second Quarter of the Nineteenth Century", *op. cit.*, p.125.

respect to labour and capital for the Indian cotton textile were respectively 1.04 and 1 in 1951 and 1952.[1] In a similar study of Pakistan's industries located in Karachi, Ranis came to the conclusion that scale economies were unimportant in Pakistan's textile industry: he found that the sum of the elasticities of value added of α and β with respect to labour and capital for the textile industry was 1.01.[2]

In testing the hypothesis that scale economies were unimportant in the Nigerian textile industry, we applied expression (5.1), already defined above, separately to three groups of firms according to their degree of integration. Three equations were therefore defined to correspond to three groups of firms: equations 1, 2 and 3 refer respectively to completely vertically integrated firms, to two-process firms, and to single-process firms. This approach is adopted in testing the hypothesis as it enables us to determine simultaneously whether economies of integration were important in the industry. The adoption of this approach seems reasonable because we concluded earlier not only that, in 1973, the phenomenon of vertically integrated firms was the major feature of the industry but also that there was a positive correlation between the degree of integration and the size of firms in the cotton broadwoven sector, the largest sector of the industry.

The regression results are presented in Table 5.4. As can be seen in column five of the table, in general, there was constant returns to scale, that is, scale economies were not reaped in the Nigerian textile industry. This is because, for the three equations, the sums of the

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1. Murti, V. N. and V. K. Sastry, "Production Functions for Indian Industry", Econometrica, Vol.25, April 1957, p.214.

2. Ranis, Gustav, "Industrial Efficiency and Economic Growth: A Case Study of Karachi", The Institute of Development Economics of Pakistan, Monographs in The Economics of Development, Karachi, No.5, April 1961, pp.38-39.

Table 5.4 Production Function: Regression Results for the Nigerian Textile Industry in 1973

Equation	Number of Firms	Constant Term.	Elasticity of Labour α	Elasticity of Capital β	R^2	Sum of α and β
		1	2	3	4	5
1	11	.031	.957 (.242)	.134 (.060)	.998	1.091
2	11	.020	.812 (.292)	.234 (.102)	.990	1.046
3	6	1.104	.782 (.238)	.329 (.142)	.526	1.111

Note: The figures in parentheses denote standard errors of the corresponding regression coefficients, and all the regression coefficients are statistically significant at 5 *per cent* level. For each of the variables the regression coefficient's significance has been determined by dividing the size of the coefficient by its corresponding standard error.

elasticities of value added of α and β with respect to labour and capital were not significantly different from unity. Also, for equations 1, 2 and 3, that is, for the completely vertically integrated firms, the two-process firms and the single-process firms, the sums of the elasticities of value added of α and β with respect to labour and capital were not significantly different from one another. This interpretation, in turn, suggests that, in terms of economies of scale, the drive towards vertical integration among firms in the industry was apparently premature. As we will argue in the next section, government trade policies largely created the uncertain and competitive conditions which induced firms in the industry to engage in backward vertical integration in their production process.

5.3 Government policy incentive measures and the Nigerian textile industry

In this section, we attempt to marshall the available evidence to support the proposition advanced in Section 5.1 above that the development of the Nigerian textile industry was largely the result of government policy incentive measures, especially trade policies. More specifically, we argue in this section that the growth and structural change of the Nigerian textile industry during the 1958-1973 period, observed in Section 5.2 above, was largely influenced by government policy incentive measures. Such measures predominantly determined the private sector environment in which the industry operated. Because our study of the textile industry is a case-study of the Nigerian import-substituting industrialisation programme, we discuss the government policy incentive measures which affected the textile industry in the context of the general government industrialisation policies. The Nigerian government policy incentive measures, assigned to stimulate rapid industrial expansion, have generally been framed with the recognition that private investors should form the hub of economic development of the country. The government has particularly encouraged foreign private investors to participate in the industrialisation efforts of the country.[1]

In general, the textile industry enjoys an extremely low degree of natural protection usually afforded by the transportation factor. In addition to this factor, in the Nigerian case, the existence of highly efficient low-cost exporting producers in the Far East partly delayed the development of the textile industry because, up to the early 1960's, the

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1. For evidence of the early recognition of this economic policy, see The Role of the Federal Government in Promoting Industrial Development in Nigeria, Sessional Paper No.3, Lagos, Federal Government Printer, 1958; National Development Plan 1962-68, Lagos, Ministry of Economic Development, 1962, p.36, pp.359-360; Third National Development Plan 1975-80 Vol.1, Lagos, The Central Planning Office, 1975, p.153.

market-protection incentive for the overseas manufacturers to establish textile mills in the country was not as strong as in other industries.[1] As a consequence, government industrial policies such as tax-and-infrastructure incentives, tariff protection incentives, and credit incentives, which will be discussed in turn below, were decisive in quickening the processes of growth and structural change of the Nigerian textile industry. As will subsequently be argued, tariff protection incentives were the most important of the various policy incentive measures in terms of their influence on the pace and pattern of the development of the Nigerian textile industry. This is mainly because tariff policies induced the oriental textile manufacturers, amongst others, to establish their presence in the country. This view can be supported by the evidence that despite increasingly high protective tariffs, and licensing in some cases during the 1963-1965 period, competitive textile prints continued to be imported in large quantities from the Far East, especially from Japan. This meant that, even given the high tariff protection, the domestically manufactured textile prints were less competitive than the imported ones in the domestic market. A government report argued then that the prices of imported prints from the Far East were being artificially maintained well below the actual costs of production.[2] Whatever strength this dumping-argument had then, it seems, in retrospect, that the oriental textile producers were so efficient that they could still undersell the Nigerian producers in the domestic market even given the then existing import duty structure. Given the evidence noted earlier on the remarkably increased presence of the oriental manufacturers in the industry after 1965, it may

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1. Kilby, P., *op. cit.*, pp.108-109.

2. Arthur D. Little, Inc., The Nigerian Textile Industry: Outlook And Policy Questions Facing Government, Unpublished Official Report, Lagos, July 1965, pp.43-45.

be argued therefore that up to this year the level of the import duty on textiles was not high enough to compel the oriental producers to protect their export markets in Nigeria by establishing textile factories. As we will argue below, it was the increasingly high protective tariffs after 1965 that largely created the conditions which significantly influenced the development of the Nigerian textile industry. We turn first to a brief review of the evidence on tax-and-infrastructure incentives.

(i) Tax-and-infrastructure incentives

The Nigerian textile industry has benefitted, in varying degrees, from a battery of tax incentives generally designed for the manufacturing industries. The tax incentives are embodied in three main pieces of legislation: the Industrial Development (Import Duties Relief) Act of 1957, The Customs Duties (Dumped and Subsidised Goods) Act of 1958, and The Companies Income Tax (Accelerated Depreciation) Act of 1961. Over time, these Acts have undergone some modifications, but their substance remains.[1] The income tax reliefs are granted to both indigenous and foreign industrialists, although the required initial investment for the latter is a multiple of that of the former. The income tax reliefs are granted for three to five years, and small companies enjoy special income tax relief during their first six years of operation provided that their profits are below ₦2000 each year and do not aggregate at more than ₦6000.

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1. These Acts are rather self-explanatory. For their detailed description, see Asiodu, P. C., "Industrial Policy and Incentives in Nigeria", Nigerian Journal of Economic and Social Studies, July 1967, pp.161-173; Federal Ministry of Industries, The Operation of Industrial Incentives in Nigeria, Lagos, November 1972; Federal Ministry of Industries, Industrial Directory (7th Edition), Lagos, The Investment Promotion Centre, 1975, pp.177-181.

The effectiveness of the tax incentives is difficult to assess empirically. This is mainly because, with respect to foreign private investment, most developing countries apply similar generalised incentives in their competition for foreign private investors. Nevertheless, it has been found that the estimated gross revenue foregone by the Nigerian government on account of the administration of the various tax incentives between 1955 and 1968 was ₦80 million, less than 4 *per cent* of all revenues over this period, and that during the same period there were 101 approved Pioneer Certificates which were effectively used (out of 179 granted).[1] For the textile industry, only twelve textile mills benefitted from the companies Income Tax (Accelerated Depreciation) Act between 1963 and 1973.[2] Relating the magnitude of the tax incentives actually granted to investment decisions in Nigerian manufacturing industries, most empirical studies conclude that the tax incentives have played a relatively minor role in motivating industrial entrepreneurs to invest. For instance, it has been shown that an estimated 60 *per cent* of manufacturing investments which benefitted from tax relief would have taken place anyway.[3] The studies regard market conditions, especially the competition among established merchant firms and overseas manufacturers to safeguard their stake in the

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1. The World Bank, Nigeria: Options For Long-Term Development, Baltimore, Johns Hopkins University Press, 1974, p.84.

2. Skoup and Company Ltd., and Werner Textile Consultants, *op. cit.*, p.180.

3. The World Bank, *op. cit.*, p.84. For a detailed discussion of the empirical studies, see Phillips, A. O., "Nigerian Industrial Tax Incentives: Import Duties Relief and the Approved User Scheme", Nigerian Journal of Economic and Social Studies, November 1967, pp.315-327; Phillips, A. O., "Nigeria's Experience With Income Tax Exemption - A Preliminary Assessment", Nigerian Journal of Economic and Social Studies, March, 1968, pp.33-62; Phillips, A. O., "Nigeria's Companies Income Tax", Nigerian Journal of Economic and Social Studies, November 1968, pp.321-338; and Dina, I. O., "Fiscal Measures", in Ayida, A. A. and H. M. A. Onitiri (ed.), Reconstruction and Development in Nigeria, Ibadan, Oxford University Press, 1971, pp.374-399.

Nigerian markets, as more important than tax incentives in determining the investors' decisions.

The textile industry has also enjoyed the government's provision of infrastructure incentives directed to minimise the impediments resulting from inadequate supply of electricity, water, transport, and other forms of communication. For the same purpose, industrial estates have been established in many parts of the country. The industry has also enjoyed another kind of infrastructure incentive in the form of the oft-repeated government goodwill towards foreign private investment embodied in the promise of non-nationalisation of private industrial enterprises, non-interference in their management, and of free repatriation of capital invested, profits and dividends.[1] The impact of these incentives on the industrialists' decisions to invest cannot be evaluated; suffice it to

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1. Asiodu, P. C., "Planning for Further Development in Nigeria", *ibid.*, pp.185-201. However, through the provisions of the Nigerian Enterprises Promotion Decree, 1972, which became operative on the 1st of April 1974, the policy orientation of the Nigerian government towards the foreign private investors has changed. Under this decree, enterprises were classified into Schedules I and II. In Schedule I, there were 22 enterprises which must have 100 *per cent* Nigerian shareholding, whilst in Schedule II there were 33 enterprises in which Nigerians must have 40 *per cent* shareholding. The scope of ownership specified in this Decree has been widened by another Decree - the Nigerian Enterprises Promotion Decree of January 1977 - which classifies enterprises into three schedules. Schedules I and II contain 40 and 57 enterprises with 100 *per cent* and 60 *per cent* Nigerian shareholding respectively. The enterprises not mentioned in these schedules constitute Schedule III in which Nigerian shareholding must be 40 *per cent*. The large-scale manufacturing enterprises including the textile industry belong to Schedule III. See Nigerian Economic Society, Nigeria's Indigenisation Policy: Proceedings of the November 1974 Symposium Organised By The Nigerian Economic Society on the Subject "Indigenisation: What Have We Achieved?", Ibadan, The Caxton Press, no date of publication, pp.92-94; West Africa, No.3108, 31st January 1977, p.200. The point must be stressed that the indigenisation programme allows the dominance of foreign private investment to continue in the manufacturing industries. For a critical assessment of the Nigerian indigenisation programme, see Collins, P., "Public Policy and the Development of Indigenous Capitalism: The Nigerian Experience", Journal of Commonwealth and Comparative Politics, Vol.XV, No.2, 1977, pp.127-150.

say that they constituted a part of the general "hospitable investment climate" in which the development of the Nigerian textile industry occurred.

(ii) Tariff protection incentives

The essence of the tariff protection incentives has been the promotion of rapid industrial growth through the protection of the domestic manufacturers against foreign competition.[1] In this sub-section, we examine the relationship between tariff protection incentives and the development of the textile industry in the context of the structure of tariff protection which generally confronted Nigerian manufacturing industries. The Nigerian protection matrix has included tariffs, subsidies of different kinds, and quantitative restrictions such as import quotas, import licensing and outright bans. But the combination of these protective devices has changed considerably overtime reflecting the relative severity of the need for revenue, the need to protect domestic industries against foreign competition, and the need to curtail imports and save foreign exchange in the face of recurrent balance of payments problems. In general terms, as argued in Section 2.2 of Chapter Two, the balance of payments motive and the protection-motive of tariff policy have become indistinguishable in the course of import-substituting industrialisation. There is little question, however, that, in Nigeria, the level of protection was positively associated with the emergence of the balance of payments problems during the second half of the 1950's and their intensification

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1. Oyejide has established a significant positive association between the rate of Nigerian industrial growth and the rate of tariff protection during the 1962-1967 period. Oyejide, T. A., Tariff Policy and Industrialisation in Nigeria, Ibadan, Ibadan University Press, 1975, pp.61-74; see also Berger, M., Industrialisation Policies in Nigeria, Minchen, Weltforum-Verlag, 1975, pp.275-331.

throughout the 1960's.[1]

The level and structure of tariff protection confronting the manufacturing industries in Nigeria, as in other developing countries, reflected the pattern of the country's import-substituting industrialisation. As shown in Section 4.2 of the preceding chapter, Nigerian import-substituting industrialisation has been mainly consumer-goods industries oriented. This meant that Nigerian industrialisation has essentially consisted of the importation of capital and intermediate inputs for the domestic production of the consumer goods to relace imports. The relationship between this pattern of industrial growth and the effective rates of protection implicit in the differentiated tariff structures may be discerned in Table 5.5 which presents roughly comparable estimates of the average rates of tariff protection for eight developing countries. Of these countries, India exhibits the highest effective rates of protection of 313 *per cent*, followed by Nigeria's 299 *per cent* for the whole manufacturing industry. Most of the countries shown in the table place heaviest protection on consumer goods. In Nigeria, the level of protection for the whole manufacturing industry escalated from 147 *per cent* in 1965 to 299 *per cent* in 1970. The structure of protection was heavily biased in favour of import substitution in the consumer goods industries and against intermediate and capital goods industries. For example, whereas the effective rate of protection for consumer goods rose from 181 *per cent* in 1965 to 315 *per cent* in 1970, that for intermediate goods rose from 76 *per cent* to only 85 *per cent* during the same period. This feature of the structure of Nigerian tariff protection reinforces the conclusion reached in Section 4.2 of the preceding chapter: there have been intimate

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1. Onitiri, H. M. A., "Nigeria's External Trade Balance of Payments and Capital Movements 1959-1968", in Ayida, A. A. and H. M. A. Onitiri (eds.), *op. cit.*, pp.236-279.

Table 5.5 International Comparison of Effective Rates of Tariff Protection (in %)

Country	Year	Average Effective Rates of Tariff Protection			
		Capital Goods	Intermediate Goods	Consumer Goods	All Industry
Argentina	1958	133	167	164	162
Brazil	1966	31	68	230	118
Mexico	1960	55	34	22	27
India	1961	n.a.	n.a.	n.a.	313
Pakistan	1963/64	155	88	883	271
Philippines	1965	80	65	94	49
Kenya	1968	n.a.	20	69	48
Nigeria	1965	n.a.	76	181	147
Nigeria	1970	n.a.	85	315	299

Note: "n.a." means "not available".

Source: Oyelabi, J. A., "Tariffs, Domestic Prices, Effective Protection and The Structure of Foreign Trade in Nigeria", in Manfred Berger, Industrialisation Policies in Nigeria, Munchen, Weltforum Verlag, 1975, p.310. For the eight countries shown in the table, the estimates are roughly comparable because they are computed on the same basis.

interrelationships between the structure of protection, the structure of manufacturing industries, and the capital and intermediate goods dominated structure of imports. Thus, the conclusion may be drawn that the Nigerian government tariff policy which largely induced and interacted with the market-protection investment behaviour of foreign industrialists played a major role in the initiation and progress of the consumer-goods oriented import-substituting industrialisation.[1]

The level and structure of tariff protection which encouraged the development of the textile industry reflected the overall government policy of tariff protection towards Nigerian manufacturing industries. On the basis of Appendix 5.F, we may begin a discussion of the trade

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1. This conclusion seems consistent with the essence of Akeredolu-Ale's argument:

> "At least since 1957 the fact that established expatriate companies have gone further and further into manufacturing and away from trade has been the result of a triangular interaction process between political factors (especially as crystallised in government intervention), market forces and adaptive entrepreneurial behaviour."

Akeredolu-Ale, E. O., "The 'Competitive Threshold' Hypothesis and Nigeria's Industrialisation Process", Nigerian Journal of Economic and Social Studies, Vol.14, March 1972, p.118. Usoro has rationalised the consumer-goods oriented pattern of Nigeria's industrialisation in the following terms: ". . . the commencement of industrialisation with consumer-goods [in Nigeria] complies with known cases of early industrial development in Western industrial countries". Usoro, E. J., "Government Policies, Politics and Industrial Development Strategy in Nigeria, 1947-1974", Nigerian Journal of Economic and Social Studies, Vol.16, July 1974, p.252. Usoro's historical parallel is inappropriate because what actually happened in the "Western industrial countries" was that the process of industrialisation simultaneously embraced the consumer goods industries and producer goods industries when it did not actually start from the producer goods industries downstream. But the simultaneous development of consumer goods industries and producer goods industries has not occurred in Nigeria because of the interaction between government industrial policies and the investment strategies of foreign private investors. For an elaborate discussion of the relationship between consumer goods industries and producer goods industries in the course of industrialisation of the present-day developed countries, see Sutcliffe, R. B., Industry and Underdevelopment, London, Addison-Wesley Publishing Company, 1971, pp.1-15 and pp.64-69; Samir Amin, Unequal Development: An Essay on the Social Formations of Peripheral Capitalism, Sussex, The Harvester Press, 1976, pp.209-210.

policies which affected the textile industry. As can be observed in Appendix 5.F, the rates of import duties on cotton textile goods and synthetic textile goods increased continuously from 1957 to 1965 and rose again in 1967. Their rates of import duties together with those of others remained relatively low and constant between 1967 and 1970 when they began to rise. This does not mean, however, that there was less protection between 1968 and 1970. What happened was that between 1968 and 1971 virtually all textile products were under specific licensing: what quantity and what type of textile products to be imported were administratively decided. This became necessary because the civil war had begun to tell severely on the country's external reserves.[1] Thus import duties ceased to be an instrument of import control. The main reason for the specific licensing was to conserve the country's fast dwindling foreign exchange reserves. It was purely incidental that the same policy gave maximum protection to the textile industry. By 1971, however, given an improvement and an expectation of continued betterment of the balance of payments position and the mounting domestic inflationary pressures, the policy of specific licensing was abrogated and import duties were raised to protect the industry as well as to allow in more imports of textiles into the country.[2]

The changes in the structure of import duties on textile goods can also be observed in Appendix 5.F. In the case of cotton textiles, the rate of import duty was the same for the different fabric types for the years 1967 to 1969. From 1970, however, an attempt was made to distinguish the more expensive fabrics (madras, brocade, damask and suiting)

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1. Second National Development Plan 1970-74, Lagos, The Federal Government Printer, 1970, pp.18-19.

2. Recurrent Estimates of the Government of The Federal Republic of Nigeria 1971-72, Lagos, Federal Ministry of Information, 1971, pp.461-462.

from the ordinary fabrics (printed, dyed, colour woven and bleached) which were the predominant products of the domestic industry. Higher duties were imposed on the more expensive fabrics: by 1973, the duties had reached ₦1.00 *per* square metre or 100 *per cent* whichever was higher. In the case of cotton fabrics, the distinction between the expensive fabrics on the one hand, and the ordinary fabrics on the other was made even before 1967. This distinction was more necessary in the case of cotton fabrics than in other fabrics mainly because the textile industry had been based mostly on cotton goods. This discussion further underscores the effect of a differential tariff structure on the development of the industry.

The tariff structure was also used, in government tariff policy-making, to coerce the textile firms to integrate backwards from printing and finishing into weaving and spinning processes. For instance, as indicated in Appendix 5.F., the tariff rate on cotton yarn imported by approved manufacturers increased two times from 1957 to 1970 when it was raised from 11 to 18 kobo *per* kilogram. This was intended to make it uneconomical for manufacturers to continue to import their yarn requirements instead of establishing the necessary facilities to spin their own yarn. Similarly, the tariff rate on grey cloth was progressively increased to discourage its importation and to encourage its domestic weaving. For example, the import duty on grey cloth rose from 14 kobo in 1972 to 50 kobo *per* square metre or 75 *per cent ad valorem* whichever was higher in 1973.

As can be seen in Appendix 5.F, the tariff rate on raw cotton, the major raw material used in the industry, was constantly high until April 1973. This was a result of a deliberate government policy to encourage the consumption of domestic raw cotton by the textile mills as a part measure in the price stabilisation scheme for cotton farmers. In 1973,

the policy had to be modified by reducing the tariff rate from 33⅓ to 10 *per cent per* kilogram because there was a rapidly growing industrial demand for longer stable cotton fibre to be used as finer yarn counts which were required for the production of better quality fabrics. This became necessary because the domestic cotton fibre was considered to be too short a stable length to be combed commercially for blending with polyester.[1]

Typically, the tariff structure confronting the Nigerian textile industry has exhibited a pyramidal pattern. As already shown, the tariff structure discriminated against the importation of consumption textiles intermediate textile goods and raw cotton which have consequently attracted high import duties. On the other hand, the tariff structure favoured the importation of textile machinery and has thus attracted low import duties. Appendix 5.6 illustrates the structure of import duties on textile equipment. The import duty on textile machinery was zero for the years 1967 and 1968; between 1969 and 1973 a rate of duty of 5 *per cent* was imposed. The duty varied between 5 *per cent* and 10 *per cent* for spare parts of industrial machinery. It would appear, however, that the administration of tariffs on spare parts of industrial machinery was unsatisfactory. For example, when spare parts were imported separately, that is, not along with machinery, the customs officials often imposed a rate of duty applicable to parts imported by non-approved users, that is, as if they were imported for re-sale by middlemen. In this case, the approved manufacturers would pay a rate of duty of 33⅓ *per cent* on spare parts. The customs officials would usually argue that there would be no guarantee that the textile manufacturers would not resell the parts especially when such parts were usable for both household and industrial

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1. Recurrent and Capital Estimates of the Government of The Federal Republic of Nigeria 1973-74, Lagos, Federal Ministry of Information, 1973, p.XXX.

equipment.[1] Thus, ultimately the manufacturers might pay a higher rate of duty on machinery parts than that which the law actually stipulated.

Foreign exchange control was another trade policy instrument used to restrict the import of textile products, raw materials and machinery. Over the 1967-1970 period, the government depended more on licensing than on exchange control as a tool for restraining textile imports. During this period, textile goods of any value imported from the sterling area countries might be paid for without any exchange control. However, textiles imported from non-sterling area countries could be paid for without any exchange control only if the f.o.b. value was ₦1000 or less. This arrangement was an implicit discrimination against the oriental textile manufacturers. But from 1971 when the specific licensing system was abolished it became necessary for the exchange control mechanism to be tightened as an instrument of controlling imports.[2]

Often the imposition of excise duty on domestically manufactured goods would have the effect of reducing effective protection implicit in any nominal tariff structure. The available data on excise duties on domestically manufactured textiles for some years are presented in Appendix 5.R. As can be seen in the Appendix, the rates of excise duty are quite low except in the cases of knitted fabrics used in the manufacture of singlets and those knitted fabrics whose measure could not be ascertained. After 1973, the excise duty was progressively reduced until it was abolished in 1975/76. It would seem that, up to 1973, the imposition of the excise duty was deemed to be a revenue-gathering measure rather than an ameliorating device against tariff protection. But the abolition

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1. This information was obtained from discussions with the officials of the Board of Customs and Excise.

2. Skoup and Company Ltd., and Werner Textile Consultants, *op. cit.*, p.171.

of excise duty in 1975/76 was intended primarily to help the textile firms to survive the increased wages bill consequent upon the general wages and salaries awards of 1975 made by the government and to absorb the increase in the price of domestic raw cotton.[1]

While some developing countries like Pakistan, India and South Korea have increasingly been adopting export-promoting policies for the development of their textile industries, Nigeria's trade policies have been geared more towards import substitution than export promotion. The Nigerian government provided only two export incentives for the manufacturing industries. The first was the exemption from excise duty of goods destined for export. This was provided for under the Excise Tariff Act of 1965. The second was the Customs Drawback Regulations of 1959.[2] The regulations provided that importers might, under two conditions, claim a repayment of import duty. These conditions were the following: (1) if goods, which were initially imported, were re-exported exactly in the same state as they were when they were imported; or (2) if materials were imported for use in the manufacture of goods which were later exported. Moreover, it has been envisaged that an Exports Promotions Council would be established during the Third National Plan period of 1975-1980 to work out a co-ordinated system of export incentives which have not, to date, been specified.[3] Thus, the priority of the Nigerian trade policy incentive measures designed for the development of manufacturing industries, has not been export promotion but import substitution.

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1. Recurrent and Capital Estimates of the Government of The Federal Republic of Nigeria 1975-76, Lagos, Federal Ministry of Information, 1975, p. XXVI.
2. Federal Ministry of Industries, The Operation of Industrial Incentives in Nigeria, November 1972.
3. Third National Development Plan 1975-80 Volume 1, Lagos, The Central Planning Office, 1975, p. 154.

The structure of incentives implicit in the structure of tariff protection used to encourage import substitution in the textile industry can be indicated. As discussed in Section 3.2.2 of Chapter Three, such incentives are usually captured by the concept of the effective rate of protection. An IBRD study of 1968, in which effective rates of protection were calculated for forty-two industrial sectors in Nigeria, indicates that one of the highest rates of effective protection was for textiles at 120 *per cent* of value added. The highest rate of effective protection, exceeding 200 *per cent*, was in the assembly, furniture, glass products, radio and television industries. In contrast, the lowest and even negative protection was given to export industries, capital and intermediate goods.[1] As can be seen in Table 5.6, in 1971, textile goods still enjoyed relatively high rates of effective protection. On the evidence,

Table 5.6 Effective Rates of Protection For Selected Products in 1971

Product	Effective Rate %
Textile Products:	
Cotton Prints	136
Shirting	97
Polyester Fibre	91
Furnishing Fabrics	80
Suits	92
Synthetic Suiting	62
Other Products:	
Sieves and Wire Netting	77
Chains	86.1
Pendants *per* piece	52.1
School Chalks	82
Starch	80

Source: Nigerian Industrial Development Bank Records quoted by: Diaku, I., "Development Bank Finance for Industry in Nigeria: A Case Study of the Nigerian Industrial Development Bank (NIDB)", Ph.D. thesis, University of Wales, June 1975, pp.193-194.

1. The World Bank, Nigeria: Options For Long-Term Development, Baltimore, Johns Hopkins University Press, 1974, p.83.

the conclusion may be drawn that the structure of protective incentives which faced the import-substituting consumer goods industires including the textile industry was considerably higher than that for the export industries.

We may conclude this sub-section by further demonstrating the proposition that the restrictive trade policies have been the major factor responsible for the observed development pattern of the Nigerian textile industry. We have demonstrated that the industry experienced a very rapid growth during the civil war period which saw a regime of unparalleled stringent trade restrictions in Nigeria. The unquestioned impact of trade policies on the development of the industry may also be shown by briefly examining the consequences of the abrogation of the specific licensing system in 1971, a system which had effectively shielded the industry from foreign competition.

As can be seen in Figure 5.1 presented earlier, the imports of textile fabrics began to rise steeply from 1970.[1] The increased imports did not apparently affect the industry adversely because the domestic production of textile fabrics continued its war-time acceleration of growth. But the rate of growth of domestic production of textile fabrics started to decelerate in response to the scrapping of the specific licensing system in April 1971. If the growth of imports of textile equipment shown in Table 5.7 approximates the rate of capacity expansion, there was a sustained build-up of capacity in the industry between 1967 and 1971. It follows that with a steep decline in domestic production of fabrics after

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1. The recorded imports of textile fabrics underestimated the amount of textile fabrics which actually entered Nigeria after 1970. This is because the continued existence of the civil war-time restrictive trade policies after the war had ended in January 1970 created great incentives for smuggling activities in textile fabrics. For example, the estimated unrecorded import of textile fabrics which was 25 million square metres in 1970 rose to 36 million square metres in 1971. See Skoup and Company Ltd., and Werner Textile Consultants, *op. cit.*, p.117.

Table 5.7 Imports of Textile Equipment 1963-1973

Year	Value (₦ million)	As % of Total Net Foreign Investment
1963	3.1	4.1
1964	7.3	5.8
1965	6.4	5.8
1966	10.2	9.3
1967	6.8	8.6
1968	10.2	11.0
1969	11.0	11.0
1970	24.0	18.6
1971	43.2	30.2
1972	18.2	6.3
1973	23.6	14.2

Source: Federal Office of Statistics, Digest of Statistics, various years.

1971 there was increased excess capacity in the industry. Figure 5.1 also shows that the fall in domestic production was simultaneous with a fall in the import of fabrics. Moreover, Appendix 5.H indicates that whilst there was an accumulation of stocks of textile fabrics in 1971, there was decumulation of stocks in all the other years over the 1968-1972 period.

On the basis of these trends, it may be argued that it was the speculative commercial activities among importers and distributors of textile fabrics which were generated by the 1971 trade policy that largely accounted for the decline of the industry in the early 1970's. In this connection, it may be argued that many importers and distributors of textile fabrics did not, presumably, expect that the 1971 trade policy would be sustained indefinitely. They must have reasoned that the drain of Nigeria's foreign exchange reserves would be so great that sooner or later, the specific licensing system would be re-established to conserve the country's foreign exchange. In anticipation of such a change in policy, therefore, there was a large importation of fabrics as well as heavy orders

on domestic manufacturers by the distributors who stocked the fabrics hoping to take advantage of price increases which a re-introduction of specific licensing would engender. With their expectations dashed, however, there was a decumulation of stocks and a corresponding drastic fall in the demand for the domestically manufactured fabrics. Moreover, with a relatively liberalised protective structure, consumers could buy imported synthetic fabrics as well as the more expensive imported cotton fabrics such as madras, brocade and damask. Thus the preference for these led to a perceptible shift in demand and in the fabric mix. The process of adjustment of the industry to this changed situation was inevitably painful.[1] This notwithstanding, with the greater exposure to foreign competition one would expect that the 1971 trade policy, if continued, would result in more rationalisation and efficiency in the textile industry.

(iii) Credit policy

As indicated earlier, the development of the Nigerian textile industry has also been assisted by government credit policy. The credit policy has been the provision of long term and short term credits through such financial institutions as the Nigerian Industrial Development Bank Limited, the Northern Nigerian Investments Limited, and the commercial banks. The first two institutions provided the industry's long term credit whilst the latter provided its short term credit. The contribution of these financial institutions to the textile industry's available investible funds is briefly examined in this sub-section.

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1. There was growing excess capacity in the industry and some textile firms substantially retrenched labour because of the dampened market prospects. See Nigerian Institute of Social and Economic Research, Adeboye's Report: The Textile Industry - General Survey for the Purpose of the Next Budget, Unpublished Official Document, 1972, pp.3-4.

The provision of investible funds by the Nigerian Industrial Development Bank Limited and the Northern Nigerian Investments Limited has generally been confined to the manufacturing and mining sectors. The textile industry has been a major recipient of these financial institutions' investible funds. For example, as at 31st December 1971, the Northern Nigerian Investments Limited had ₦5.8 million or 62.2 *per cent* of its total portfolio investments in eight textile firms.[1] The Nigerian Industrial Development Bank has also been a great provider of investible funds to the textile industry. As can be seen in Table 5.8, since its reconstitution in 1964, a substantial proportion of the Nigerian Industrial Development Bank's investment has been in the textile industry: over the 1964-1972 period, this industry had the highest percentage of the Bank's total sanctioned (approved) investments in the manufacturing and mining sectors. Given the fact that the share of the Nigerian Industrial Development Bank's total investment in Nigerian total net investment ranged between 11.6 *per cent* and 14.8 *per cent* in the 1969-1971 period, as revealed by column five of Table 5.9, and that the Northern Nigerian Investments Limited made more than 50 *per cent* of its total portfolio investments in the textile industry, it could be argued that the amount of investible funds committed to the development of the textile industry as compared with that committed to the development of other manufacturing industries was substantial.

It has been argued that the disproportionate share of the textile industry in the Nigerian Industrial Development Bank's total investment has been due to this institution's use of effective rates of protection as a basis for determining which manufacturing activities it could finance.[2] As the Bank maximises its own profits by investing in activities

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1. This information was supplied to the present investigator by the officials of the Northern Nigerian Investments Limited.
2. Diaku, I., "Development Bank Finance for Industry in Nigeria: A Case Study of the Nigerian Industrial Development Bank (NIDB)", Ph.D. thesis, University of Wales, June 1975, pp.190-196.

Table 5.8 Analysis of Nigerian Industrial Development Bank's Total Industry-wise Investments: Amount Sanctioned (₦'000), 1964-1972

Industry Group	No. of Sanctions	Equity	Loans	Foreign Currency	Total Sanctions	Percentage of Total Sanctions
Textiles	44	2056	14416	7460	23932	46.3
Chemicals and Chemical Products	21	82	2904	1327	4313	8.4
Food and Beverages	23	1075	4983	1990	8048	15.6
Electrical Apparatus and Appliances	5	-	312	-	312	0.6
Metal Products	26	540	3589	1411	5540	10.7
Rubber and Rubber Products	8	108	1280	366	1754	3.4
Mining	2	200	40	-	240	0.5
Paper Products	6	60	641	126	827	1.6
Footwear	2	-	168	-	168	0.3
Furniture	6	-	465	48	513	1.0
Financial Institution	1	50	-	-	50	0.1
Non-metallic Mineral Products	6	30	534	218	782	1.5
Wood Products	8	348	1092	-	1440	2.8
Leather Products	3	160	698	590	1448	2.8
Hotel and Tourism	3	100	730	110	940	1.8
Miscellaneous	6	-	813	511	1324	2.6
Total	170	4809	32711	14167	51631	100.0

Source: Nigerian Industrial Development Bank's Records.

Table 5.9 Nigerian Industrial Development Bank's (NIDB's) Investments in Industries as a Percentage of All Nigeria Total Net Investments, 1964-1971

Year	Total No. of Projects	New Projects	NIDB's Total Sanctions ₦'000	All Nigeria Total Net Investments ₦'000	Percentage Share ($\frac{3}{4}$ x 100)
	1	2	3	4	5
1964	19	n.a.	2308	26226	8.8
1965	19	n.a.	2654	24342	10.9
1966	9	4	7326	n.a.	-
1967	8	6	2132	n.a.	-
1968	6	4	1444	n.a.	-
1969	20	12	4818	32598	14.8
1970	26	15	6372	54736	11.6
1971	40	30	11404	83054	13.7

Note: "n.a." means "not available".

Source: Nigerian Industrial Development Bank's Annual Reports, 1964-1971.

with high actual or prospective rates of return on capital employed, it uses the criterion of the effective rate of protection to identify projects which enjoy relatively high profits accorded by the structure of tariff protection. As a consequence, because, as argued earlier, a high protective tariff structure confronted the textile industry, this industry attracted a large proportion of the Bank's investments. Since there is an inverse relationship between the effective rate of protection and social economic efficiency, as demonstrated in the next chapter, it is odd that a development bank charged with the responsibility of rationally allocating public investible funds for the maximisation of economic growth should use the effective rate of protection in the way in which the Nigerian Industrial Development Bank used it.

The Nigerian textile industry has also benefitted from the commercial banks' general provision of short term credits to the manufacturing sector. In this respect, the role of the commercial banks has been of increasing importance over the years. As can be seen in Table 5.10, the percentage share of commercial banks' loans to the manufacturing sector in their total loans rose continuously from 5 *per cent* in 1958 to 20 *per cent* in 1969. The proportion of the commercial banks' loans which has been going to this sector must have certainly exceeded the level indicated after 1969 because, during that year, the Central Bank introduced its policy of credit guidelines by which it tried to stipulate the proportion of credit that should go to the different sectors of the economy. This was an attempt to make the commercial banks extend more credit to the productive sectors of the economy, especially the manufacturing sector. For example, in the Central Bank's credit guidelines, while overall credit to the private sector was required to increase in 1969 and 1970 by 10 *per cent* and 20 *per cent* respectively, credit to the manufacturing sector was required in those same years to increase by 35 *per cent* and 48 *per cent* respectively. In 1972 and 1973, 30 *per cent* of all credit to the private

Table 5.10 Commercial Bank's Loans to Industry, 1958-1969

Year	Total Loans to Manufacturing ₦'000	Annual Increases of Commercial Bank's Loans to Manufacturing ₦'000	Total Of All Loans ₦'000	Annual Increases of Total of All Loans ₦'000	Percentage Share of Total Loans to Manufacturing in Total of all Loans
	1	2	3	4	5 ($\frac{1}{3}$ x 100)
1958	6398	-	129326	-	4.9
1959	6166	232	142462	15136	4.2
1960	9332	3166	189426	46964	5.2
1961	11232	2300	216608	27182	5.5
1962	18800	7568	276250	59642	6.5
1963	31608	12808	336636	60386	9.5
1964	47594	15986	430552	93916	11.1
1965	59276	11682	490734	60182	12.2
1966	73602	14326	544202	53468	14.3
1967	435402	361800	3049118	2504916	14.3
1968	460046	26444	2642538	406580	17.4
1969	485404	227330	2444126	198412	19.8

Source: Diaku, I., "Development Bank Finance for Industry in Nigeria: A Case Study of the Nigerian Industrial Development Bank (NIDB)", Ph.D. Thesis, University of Wales, June 1975, p.28.

sector was to be extended to manufacturing activities. This was three times higher than the next highest, namely, exports, imports, and domestic trade each of which was to get 10 *per cent.*[1] To the extent that the textile industry has been a major sub-sector of the Nigerian manufacturing sector, we can conclude that the government's short term credit policy has been favourable to the industry.

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1. Skoup and Company and Werner Textile Consultants, *op. cit.*, p. 174.

5.4 A summary evaluation of the performance of and the factor use in the textile industry

Some aspects of the performance of the textile industry were implicit at different points in our discussion in the preceding sections. In this section, we specifically undertake a summary evaluation of the industry's performance and factor use. In general terms, performance may be regarded as indicating "the degree of success in attaining stated objectives".[1] In the context of an industry which contains wholly privately owned firms, it has usually been assumed in economic theory that the objective of the individual firm is long-run profit-maximisation. This objective of the individual firm is also conceived of as the long-run cost-minimisation of inputs used in its production process. Thus, given the objective of proft-maximisation or cost-minimisation by which actual performance can be appraised, it may be argued that the nearest equivalents of the term "performance" are "efficiency" and "productivity".[2] Hence, we undertake the summary evaluation of the performance of the textile industry in terms of such indicators of performance as profitability and costs of inputs and factor productivity (labour productivity). Given the behavioural assumption of profit-maximisation or cost-minimisation of the private firms, the analysis of costs of inputs and factor productivity generally

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1. P. J. Devine *et.al.*, *op. cit.*, p.395.

2. *Ibid.*, p.395. In connection with this conception of the term "performance", Cockerill argues as follows:

> "The performance of an industry is a multi-dimensional concept which it is impossible to guage adequately in terms of a single indicator. The available measures generally fall into two main groups, financial and physical. The first group includes costs, prices and profit rates . . . . The physical indicator group takes in productivity levels, output growth rates and trade performance."

Cockerill, A., The Steel Industry: International Comparisons of Industrial Structure and Performance, Department of Applied Economics, Occasional Paper No.42, Cambridge, Cambridge University Press, 1974, p.101.

corresponds to an analysis of the extent of factor use (labour intensity or capital intensity) in the firms' production processes. In the sub-sections that follow, we therefore indicate briefly the theoretical interrelationships between profitability, factor intensity, and factor productivity; clarify and criticise the concepts and measures of profitability, factor intensity and factor productivity used in the empirical analysis; and discuss the empirical results based on such concepts and measures.

5.4(i) The theoretical interrelationships between profitability, factor intensity and factor productivity

The starting-point for the brief exposition of the interrelationships between profitability, factor intensity and factor productivity is the neo-classical theory of production. Central to this theory is the concept of a production function which expresses a relationship between the use of factor inputs and the resulting maximum obtainable output. Specifically, the production function of a firm indicates the available techniques of production from which the firm must choose, given factor prices, in order to minimise its cost of producing a desired level of output or to maximise the amount of output obtainable for any given cost. Thus, in choosing its technique of production the firm must relate the prices which it must pay for the services of factors of production to the productivity of the factors.

In a generalised way, we may present, with the aid of a diagram represented by Figure 5.2 below, a model of choice of techniques of production based on the neo-classical production function. Relating a given level of output of a commodity to the input of two factors of production, labour and capital, the diagram shows three equal product curves each of which represents a particular output level of the commodity. The

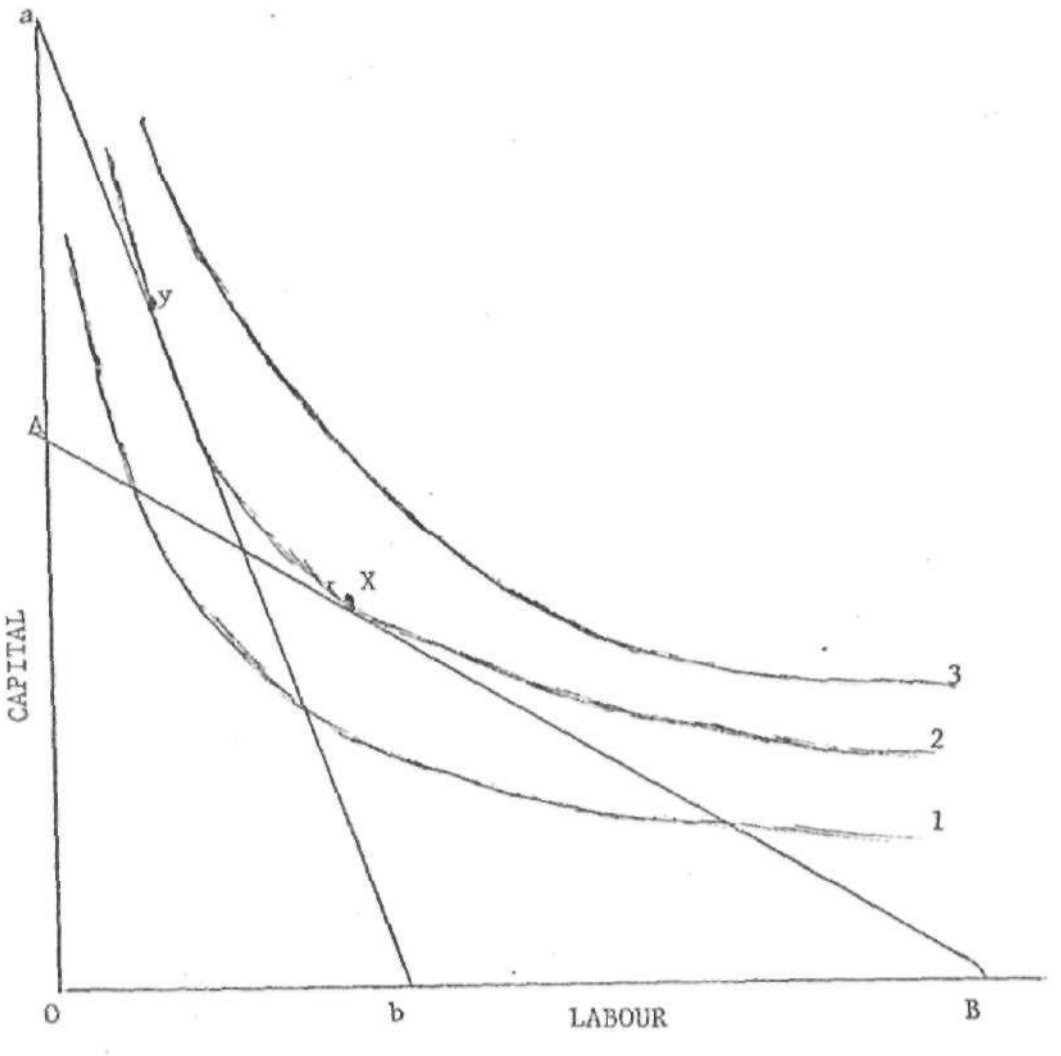

Figure 5.2

slope of these curves at any point represents the marginal rate of substitution between capital and labour measured in physical units. The straight line AB represent an equal-cost curve the slope of which measures the relative price of capital and labour. Point X in the diagram may be regarded as the optimum point of production because it represents the highest attainable output level represented by the equal-product curve 2 subject to the constraint imposed by total money outlay which is indicated by the equal-cost curve AB. Thus, this optimum point may be interpreted in three alternative ways: firstly, it represents the highest level of output attainable for a given total money outlay,

secondly, it represents the cheapest way of producing the particular level of output of the commodity; and thirdly, it represents the point at which the marginal rate of substitution between the two factors of production is equal to the ratio of their relative prices. The comparatively flat equal-cost curve AB and the comparatively steep equal-cost curve ab, as shown on the diagram, represent, respectively, a low price of labour in relation to capital and a high price of labour in relation to capital. Given the neo-classical assumption of a wide range of available techniques of varying labour and capital intensity to produce any given product as typified by the smooth and continuous production function, the first case of relatively low price of labour requires the use of a more labour-intensive technique of production than the second case of relatively high price of labour where the optimum point is at Y as indicated in the diagram. Thus, the critical determinant of choice of techniques of production in the neo-classical world is the relative price of capital and labour. It can therefore be argued that, as the derivation of the equal-cost curves is usually based on the market prices of these factors, the choice of techniques of production on the part of rationally behaved private firms represents the minimisation of costs for each level of output, which is equivalent to the maximisation of profits.

On the basis of the foregoing simplified neo-classical theory of production, we may specifically inquire, following Sen, Sutcliffe, Streeten and Stewart,[1] *into the basic explanations of the interrelationships between*

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1. Sen, A. K., Choice of Techniques: An Aspect of the Theory of Planned Economic Development (Third Edition), Oxford, Basil Blackwell, 1968, pp.11-26 and pp.51-57; Sutcliffe, R. B., Industry and Underdevelopment, London, Addison-Wesley Publishing Company, 1971, pp.140-197; Stewart, F. and P. P. Streeten, "Conflicts Between Output and Employment Objectives", in R. Jolly, E. Kadt, H. Singer and F. Wilson (eds.), Third World Employment: Problems and Strategy, Harmondsworth, Penguin Education, 1973, pp.367-384.

profitability, factor intensity and factor productivity. As a starting-point, let us further clarify the nature of the interrelationships between profitability, factor intensity and factor productivity as typified in the neo-classical theory of production. For this purpose, let us assume, as presented in Figure 5.3 below, a production function in which the amount of capital and the amount of labour employed in the production process are fixed and variable respectively, and in which the price of the commodity

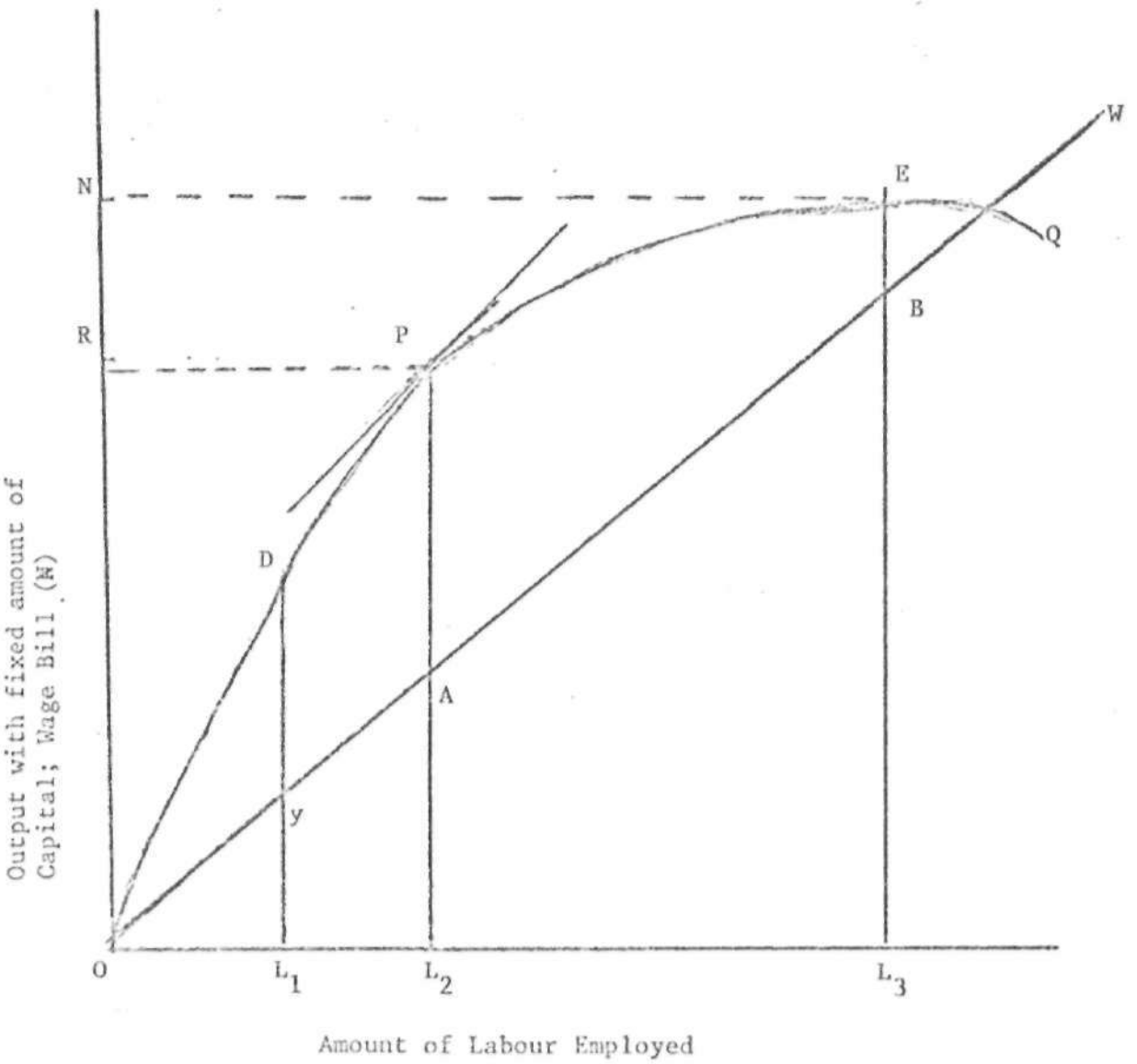

Figure 5.3

produced and the wage rate *per* labourer are given in the product and labour markets. Then the OQ curve, indicated in Figure 5.3, shows the value of output (measured on the vertical axis) obtained by employing different amounts of labour (measured along the horizontal axis) and the line OW represents the total real wage bill corresponding to the different amounts of labour employed. At point E on the OQ curve, the output is at its maximum, and at point P on the curve the surplus of output over the wage bill is at its maximum because the slope of the OQ curve at this point is equal to the slope of the line OW, that is, equal to the wage rate. The surplus of output over the wage bill increases, from the origin, over the OP range of the OQ curve while it decreases over the PQ range. Thus the point P corresponds to the profit-maximising position of a rationally behaved firm, which is therefore equivalent to the point X in Figure 5.2, because at this point the firm's marginal revenue product is equal to its marginal cost. We may also indicate, on the basis of Figure 5.3, the relationship between the surplus of output and the degree of labour intensity. As can be seen in the figure, while relatively greater labour intensity is associated with an increase in the surplus of output over the OP range of the OQ curve, relatively greater labour intensity is associated with a decrease in the surplus of output over the PQ range of the OQ curve. This implies that, over the OP range of the OQ curve, the surplus of output associated with relatively more labour intensity is greater than that associated with relatively more capital intensity and that, over the PQ range of the OQ curve, the surplus of output associated with relatively more labour intensity is smaller than that associated with relatively more capital intensity. For example, the PA surplus which is associated with the OL2 amount of labour employed is greater than the DY surplus which is associated with the smaller OL_1 amount of labour employed; on the other hand, the OL_3 amount of labour

produced and the wage rate *per* labourer are given in the product and labour markets. Then the OQ curve, indicated in Figure 5.3, shows the value of output (measured on the vertical axis) obtained by employing different amounts of labour (measured along the horizontal axis) and the line OW represents the total real wage bill corresponding to the different amounts of labour employed. At point E on the OQ curve, the output is at its maximum, and at point P on the curve the surplus of output over the wage bill is at its maximum because the slope of the OQ curve at this point is equal to the slope of the line OW, that is, equal to the wage rate. The surplus of output over the wage bill increases, from the origin, over the OP range of the OQ curve while it decreases over the PQ range. Thus the point P corresponds to the profit-maximising position of a rationally behaved firm, which is therefore equivalent to the point X in Figure 5.2, because at this point the firm's marginal revenue product is equal to its marginal cost. We may also indicate, on the basis of Figure 5.3, the relationship between the surplus of output and the degree of labour intensity. As can be seen in the figure, while relatively greater labour intensity is associated with an increase in the surplus of output over the OP range of the OQ curve, relatively greater labour intensity is associated with a decrease in the surplus of output over the PQ range of the OQ curve. This implies that, over the OP range of the OQ curve, the surplus of output associated with relatively more labour intensity is greater than that associated with relatively more capital intensity and that, over the PQ range of the OQ curve, the surplus of output associated with relatively more labour intensity is smaller than that associated with relatively more capital intensity. For example, the PA surplus which is associated with the OL2 amount of labour employed is greater than the DY surplus which is associated with the smaller OL_1 amount of labour employed; on the other hand, the OL_3 amount of labour

employed results in the smaller EB surplus as compared with the PA surplus which results from the employment of the smaller OL_2 amount of labour. We may also show the relationship between labour productivity and the degree of labour intensity on the basis of the concept of a production function. This relationship may be demonstrated with the aid of Figure 5.4 which shows, assuming a fixed amount of capital, three degrees of labour intensity represented by points A, B and C on the Q curve which relates the amount of labour employed to the level of output.

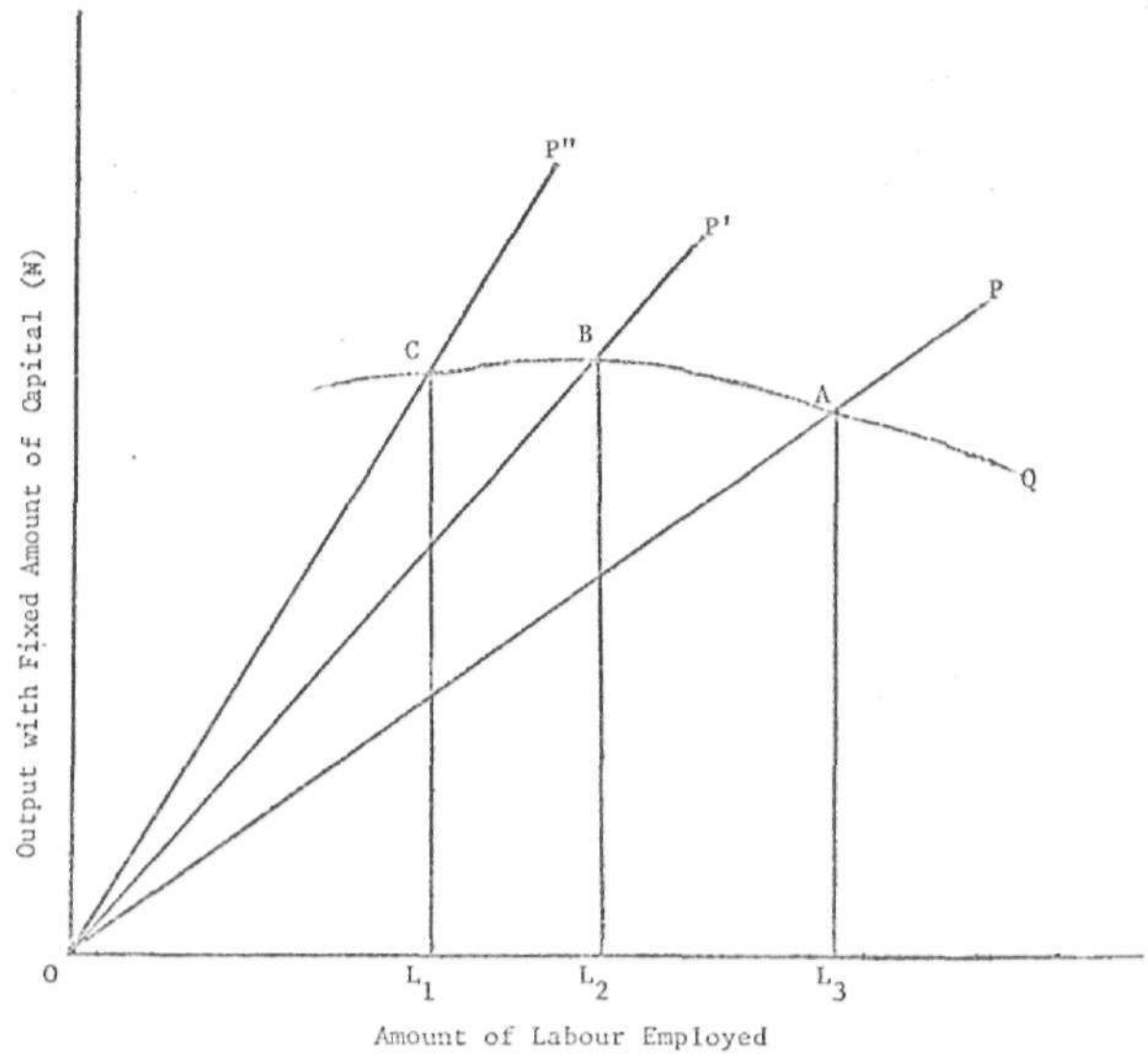

Figure 5.4

This diagram is a modified form of that of Sen.

See Sen, A. K., Choice of Techniques: An Aspect of the Theory of Planned Economic Development (3rd Edition), Oxford, Basil Blackwell, 1975, p. 18.

The three degrees of labour intensity are used in the figure as represented in the decreasing order by the tangents of the angles $P''OL_1$, $P'OL_2$ and POL_3. As the tangent of each of these angles is a measure of the productivity of labour, it follows that, with increasing labour-intensity, labour productivity falls and that, conversely, with increasing capital-intensity, labour productivity rises.

However, the specific interrelationships between profitability, labour productivity and labour-intensive techniques or capital-intensive techniques depend on the assumptions made about two issues: firstly, the relationship between surplus and therefore savings rates and functional income distribution which is related in turn to labour employment levels; and secondly, the nature of technical progress which is associated with capital-intensive techniques or labour-intensive techniques. With respect to the first assumption, the proposition commonly advanced is that, given the objective of optimum output growth of a manufacturing industry, growth rates of output are determined by savings rates which, in turn, depend on the distribution of the product of the industry between profits and wages. Given the level of technology, the distribution of income between capital and labour - that is, the distribution of the industry's product between profits and wages - is determined by these factors' marginal productivity and by the intensity with which each factor is used in the production process. The basic assumption which is often made in the discussion of optimum choice of techniques is that a higher proportion of profits is saved and reinvested than of wages and that consumption makes no contribution to future growth of output. It is sometimes assumed that all profits are saved and reinvested and all wages are consumed. These assumptions are based on the view that each technique of production has a double effect on employment and consumption. There is a direct effect on output and employment in the short run, and there is an indirect effect in the long

run as the technique of production, through its influence on income distribution and the size of the investible surplus, affects the rate of growth of output and employment. Given these conditions, a labour-intensive technique may be associated with a high level of employment in the short run, a large share of wages in output, and therefore with a smaller investible surplus and a slower rate of growth of output and employment; while a capital-intensive technique implies a smaller share of wages in output, and may therefore yield a larger investible surplus and a faster rate of growth of output and employment. The proposition that a capital-intensive technique may lead to a larger investible surplus is based on two main assumptions: firstly, the real wage rate is fixed whatever technique of production is adopted and it is constant over time; secondly, all the entrepreneurs want to reinvest their larger surplus in the economy. These assumptions may be questioned. The adoption of a capital-intensive technique may encourage a steady rise in wages. This may be a result of the multinational firms' employment of indigenous semi-skilled workers in their capital-intensive enterprises as a part of their stabilisation programme of a section of the indigenous labour force in the face of the fact that "the importation of skilled labour becomes impracticable and indeed unnecessary as complex operations are broken down into simpler operations that can be performed by semi-skilled labour".[1] Moreover, it can be argued that all profits are not saved and reinvested and that it may not even be valid to assume that a higher proportion of profits is saved and reinvested than of other incomes.[2] This may be the

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1. Arrighi, G., "International Corporations, Labour Aristocracies, and Economic Development in Tropical Africa", in G. Arrighi and J. S. Saul (ed.), Essays on the Political Economy of Africa, New York, Monthly Review Press, 1973, p.122.

2. Todaro, M. P., Economic Development in the Third World: An Introduction to Problems and Policies in a Global Perspective, London, Longman, 1977, p.112.

case in a situation where capital-intensive enterprises are operated by multinational firms which may repatriate a proportion of their profits from the host economy. Thus, the repatriated profits, even if saved, do not add to the investible surplus of the host economy. In the circumstances, the counter-proposition can be advanced: a more labour-intensive technique (a more unskilled-labour-intensive technique) may lead to lower wages *per* man and therefore to larger reinvestible surplus than a more capital-intensive technique.

We have assumed in the preceding analysis that technical progress is either absent or neutral. Let us now relax this assumption by examining the effects of technical developments on techniques of production which affect the investible surplus and labour productivity. Technical progress, whether disembodied or embodied, may increase labour productivity, so that the rate of growth of employment is less than the rate of growth of output which may therefore lead to an increase in investible surplus. In general, almost all current research and development expenditure which is concentrated in the developed countries is confined to techniques of high, and increasing capital intensity. For these techniques labour productivity and often capital productivity as well, may therefore increase over time, while the more labour-intensive techniques may be unaffected by technical progress. Thus, the labour-intensive techniques may become inferior and their use may involve a sacrifice of output as compared with the later techniques. This is mainly because "the labour-intensive methods currently available are generally the products of earlier and less sophisticated science and technology".[1] Kaldor emphatically states the inferiority of labour-intensive techniques as compared with capital-intensive techniques in the following terms:

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1. Stewart, F. and P. P. Streeten, "Conflicts Between Output and Employment Objectives", *op. cit.*, p.370.

> "If we can employ only a limited number of people in wage labour, then let us employ them in the most productive way, so that they make the biggest possible contribution to the national output, because that will also give the quickest rate of economic growth. You should not go deliberately out of your way to reduce productivity in order to reduce the amount of capital *per* worker. This seems to me nonsense because you may find that by increasing capital *per* worker ten-fold you increase the output *per* worker twenty-fold. There is no question from every point of view of the superiority of the latest and more capitalistic technologies".1

Another reason why capital-intensive methods are superior to labour-intensive methods is the existence of economies of scale in industrial production. For instance, as machinery has usually been adapted for larger-scale production, the capital costs in relation to output have tended to fall; as a consequence, for large-scale production the more capital-intensive methods tend to economise on capital in relation to output. However, if labour-intensive techniques are widely used, they may give rise to various improvements in the conditions of production including a fall in the cost of production resulting from economies of scale. It can even be argued that there is the possibility of devoting research and development expenditure to the labour-intensive techniques so that they become efficient as compared with capital-intensive techniques.

It appears, from the foregoing discussion, that the theoretical analysis of choice of techniques does not lead to clear-cut general conclusions about the interrelationships between profitability, labour productivity and factor intensity. This is particularly the case with respect to the empirical evidence on the effects of different technologies. For instance, after reviewing the evidence about the effects of

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1. R. Robinson (ed.), Developing The Third World: The Experience of the Nineteen-Sixties, Cambridge, Cambridge University Press, 1971, p.99.

different technologies as contained in a number of case studies of the relationship between capital intensity and other variables in the industrial sector of different underdeveloped countries, Sutcliffe concludes as follows:

> "All [the] limitations to the value of empirical statistical observations about the problem of choosing an industrial technology combine with the limitations of the theoretical analysis to produce scepticism about whether any general conclusions are possible about the effects of different industrial technologies on the promotion of industrialisation."1

Despite such scepticism, however, it is generally held that there may be some tendency for the surplus available for reinvestment to be highest in the most capital-intensive activities and to fall fairly consistently for more labour-intensive activities; more specifically, capital-intensive techniques tend generally to be more efficient than labour-intensive techniques.

5.4(ii) Clarification and criticisms of the empirical measures of profitability, labour productivity and labour intensity

To undertake the summary empirical investigation of the propositions advanced in the preceding sub-section, we require appropriate measures of the concepts of profitability, labour productivity and labour intensity. In this sub-section, we clarify and criticise the various measures of profitability, labour productivity and labour intensity which have been put forward; we also attempt a justification of the measures used as the basis for our summary empirical evaluation of the performance of and the factor use in the textile industry.

One of the most commonly used measures of the profitability of a privately owned firm, and the measure used in our empirical analysis, is

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1. Sutcliffe, R. B., *op. cit.*, p.181.

the rate of return on capital employed. The rate of return on capital employed is defined as a ratio of pre-tax profit (gross profit) to capital employed.[1] Packard has defined gross profit, on the basis of the Nigerian Industrial Survey data, as gross output less wages and salaries and less industrial costs (the costs of materials, fuel and electricity) or simply defined as value added less wages and salaries.[2] The main deficiency of this definition derives from the fact that the depreciation charges set aside by the firm are treated as part of the firm's gross profit. For instance, if the rate of return is expressed as the average return accruing over the whole life of a project, then this definition of profit may distort the evaluation of the viability of the project because of the exclusion of capital consumption from the analysis. Packard's definition of gross profit must therefore be modified: gross profit could be defined as value added less wages and salaries and less depreciation charges.[3] We next define the concept of capital employed. The concept of capital employed refers to paid-up share capital (equity capital) plus reserves of all kinds. The measure of capital employed used in our rate of return calculation is the paid-up share capital. This implies that the estimated rate of return may be a little exaggerated because of the exclusion of reserves. The major weakness of the rate of return estimates stems from the fact that, whereas

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1. For an extended discussion of the definition of the rate of return on capital employed, see Equere, I. U. and A. A. Longe, "Rate of Return on Capital in Nigerian Industries", Central Bank of Nigeria, Economic and Financial Review, Vol.13, No.2, December 1975, pp.14-20.

2. Packard, P. C., "A Note on Concentration and Profit Rates Within the Manufacturing Sector 1963 and 1965", Nigerian Journal of Economic and Social Studies, Vol.11, November 1969, pp.379-396.

3. For this definition of gross profit, see Vielrose, E., "Manufacturing Industries in Nigeria: Notes on Profits, Growth and Capacity Utilization", Nigerian Journal of Economic and Social Studies, Vol.12, March 1970, pp.141-151.

the gross profit derived from the Nigerian Industrial Survey data is valued at current prices, the paid-up share capital is usually valued at historical cost. This means that the rate of return estimates may be exaggerated because of the likely effect of inflation. However, the import of this criticism may be minimised in a comparative cross sectional analysis of firms limited to only a single year.

In indicating the measures of labour productivity we should, in theory, be concerned with obtaining direct estimates of the marginal productivities of labour and capital from an explicitly defined production function.[1] But the direct estimation of marginal productivities of labour and capital from a production function is extremely difficult as revealed by the theoretical controversy concerning the definition and measurement of the capital stock. Specifically, the objections to measurement of the capital stock are mainly concerned with the problems involved in aggregating a collection of items which are heterogeneous within and over time. Given such problems, indirect estimates of the marginal productivities of capital and labour are often used in empirical analyses. In this respect, the measure of labour productivity most commonly used is the gross output *per* employee or the value added *per* employee.[2] In this study, the gross output *per* employee is used as the measure of labour productivity.

The most commonly used measures of the intensity of labour input or capital input used in the production process include the capital/output

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1. For a detailed discussion of the measures of factor productivity based on direct estimates of the marginal productivities of labour and capital from a production function, see Nadiri, M. I., "Some Approaches to the Theory and Measurement of Total Factor Productivity: A Survey", Journal of Economic Literature, Vol.8, December 1970, pp.1137-1177.

2. Pratten, C. F., Labour Productivity Differentials Within International Companies, Cambridge, Cambridge University Press, 1976, pp.1-4.

and capital/labour ratios, the value added *per* employee and the share of wages and salaries in total value added.[1] The capital/labour ratio, which reflects essentially the degree of mechanisation of the production process, is closely related to the capital/output ratio. In this respect, higher or lower ratios of capital/labour and capital/output indicate that the duction process is relatively capital-intensive or is relatively labour-intensive. This situation, where an increasing capital/labour ratio is associated with a rising capital/output ratio, obtains under conditions of constant returns to scale. But it can be argued, as indicated earlier, that returns to capital-intensive processes may not be invariant to scale: at a higher scale of operations, returns to more capital-intensive operations may be greater than those to labour-intensive ones. The empirical usefulness of the ratios of capital/output and capital/labour as indices of labour intensity or capital intensity may be assessed on the basis of the proposition enunciated by Stewart:

> "There are two main sources of output variation with any given technique: the rate of output associated with any technique may vary with the intensity of its use when in use, and the amount of time when actually in use, or its capacity utilisation."2

The ratios of both capital/output and capital/labour depend crucially on the degree of capacity utilisation. These ratios may be poor indicators of the labour or capital intensity of an industry because changes in these ratios may not necessarily occur in response to technological factors.

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1. For a comprehensive review of these measures of labour intensity, see Bhalla, A. S., "The Concept and Measurement of Labour Intensity", in A. S. Bhalla (ed.), Technology and Employment in Industry: A Case Study Approach, Geneva, International Labour Office, 1975, pp.11-33.

2. Stewart, Frances, Technology and Underdevelopment, London, Macmillan, 1977, p.191.

This is mainly because increases in output may depend on fuller utilisation of the existing capacity in response to market demand variations and to the introduction of multiple shifts. Variations in capacity utilisation within an industry or across industries may not be easy to identify empirically. In this respect, the capital/labour ratios derived from statistical data may not be comparable unless it can be determined that the activities or industries being compared use the same number of shifts. In practice, however, censuses of manufactures or industrial surveys rarely provide any information on the number of shifts or the percentage of capacity utilised. Moreover, an increase in output may depend on the application of better methods to old plants without the use of any additional capital or labour. In addition to the problems of definition and measurement of capital stock arising from the differences in the durability of different capital inputs mentioned earlier, complications in empirical comparisons of the capital/labour ratio may arise owing to the heterogeneity of labour. If capital includes investment in human capital, the relative proportions of fixed and human capital may vary across industries or within an industry. Some activities may be more skill-intensive and capital-light than others.

As indicated earlier, the index of value added per employee and the share of wages and salaries in total value added can also be used to measure the degree of labour intensity or capital intensity. In this respect, the higher is the value added *per* employee in an industry, the more capital-intensive is the industry; conversely, the lower is the value added *per* employee, the more labour-intensive is the industry. Similarly, the greater is the share of wages and salaries in value added, the more labour intensive is the industry and *vice versa*. The main merit of these measures of labour intensity or capital intensity derives from the fact that they not only incorporate the contribution of human capital and of skill

differences but they also reflect the flow of capital services rather than treating capital as a stock. This fact implies that the use of these measures enables us to bypass the difficulty of measuring physical capital stock. The main demerit of the measures derives from the implication of the theory of competitive factor shares. Underlying this theory is the assumption of a smooth neo-classical production function as demonstrated earlier with the aid of Figure 5.2. The implication of this assumption is that, despite productivity differentials within an industry or across industries, all the firms in the industry or industries are operating on the same production function.[1] But, in a real world situation, the existence of imperfections in the product markets may result in higher value added which the measure of value added *per* employee may not distinguish. For instance, productivity differentials may be attributed more to imperfections in the product markets than to differences in technical requirements of factor inputs. Thus, the existence of monopolistic elements in an industry may unduly exaggerate, through monopoly rent, the value added *per* employee measure. Similarly, the index of wages and salaries as a share of value added suffers from the assumption of a perfectly competitive factor market. But, in the real world where wage legislation and trade unions influence the wage structure, the share of wages and salaries in value added may be irrelevant to the technical relationship between factor inputs and outputs.

The different measures of labour intensity or capital intensity examined in the foregoing have serious limitations. But the problems of measurement of capital stock which the ratios of capital/output and capital/labour entail are easily overcome by the indices of value added *per* employee and of wages and salaries as a share of value added. The

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1. Bhalla, A. S., "The Concept and Measurement of Labour Intensity", *op. cit.*, p.22.

latter are used in our empirical analysis as "their usefulness can be enhanced by analyses at the level of the firms and projects . . . .[1]

5.4(iii) The empirical evidence on performance and factor use

In this sub-section, we examine the changes over time in the level of profitability together with those in the costs of material inputs and in labour costs in the textile industry. We discuss also the variations in the rate of return on capital employed among firms in the industry in 1973, the labour productivity differentials over time and in 1973, and the trends in factor use over time and among firms in 1973. In addition, we attempt to relate, as far as possible, the empirical evidence on profitability and labour productivity to that on factor use.

(a) The trends in the costs of material inputs, labour costs, and profitability

As the changes in an industry's input costs can significantly affect its reinvestible surplus and therefore the industry's growth, we seek to analyse here the trends in the costs of material inputs, labour costs, and profitability of the Nigerian textile industry over the 1964-1973 period in order to illustrate further the conclusion reached in Section 5.2 of this chapter that the second half of the 1960's and the early 1970's saw respectively, the rapid growth and the dramatic decline of the industry. For the purpose of a comparative analysis of the trends in the industry's cost of material inputs, labour costs, and in level of gross profits during this period, the costs and the gross profits are indicated as *per* unit of output (in *per* square metre of fabric) produced and sold. The changes in unit cost of material inputs, unit labour costs and in unit

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1. *Ibid.*, p.33.

gross profits in real terms can be discerned in Table 5.11. The overall impression revealed by this table is one of a general rise in the unit cost of material inputs, unit labour costs and unit gross profits of the industry during the period under review. However, the unit cost of material inputs and the unit gross profits rose by about three times over the rise in the unit labour costs; for example, during this period, whereas the average annual growth rates of unit cost of material inputs and of unit gross profits were respectively 5.3 *per cent* and 5.5 *per cent*, the average annual growth rate of unit labour costs was 1.4 *per cent*. As there was a marked contrast in the growth performance of the industry during the second half of 1960's and the early 1970's, we may analyse the trends in the industry's unit cost of material inputs, unit labour costs and unit gross profits on the basis of the 1964-1970 and the 1971-1973 sub-periods. As can be seen in Table 5.11, while unit gross profits had the highest average annual growth rate of 15 *per cent* followed by unit cost of material inputs which had the average annual growth rate of 6.6 *per cent* during the 1964-1970 period, unit labour costs declined absolutely by 6.5 *per cent per annum* during the same period. In contrast, during the 1971-1973 period, while unit labour costs had the highest average annual growth rate of 17.1 *per cent* followed by unit cost of material inputs which had the annual growth rate of 4.7 *per cent*, unit gross profits declined absolutely by 13.6 *per cent per annum* during the same period. Thus, these trends in unit cost of material inputs, unit labour costs and unit gross profits reflected the fact shown earlier that the growth of the industry accelerated throughout the second half of 1960's but decelerated after 1971.

The trends in the industry's profitability can also be analysed on the basis of the cross sectional firm level data for 1973. In this respect, we use the notion of the rate of return on capital employed, as

Table 5.11 Costs of Material Inputs, Wage and Salary Costs, and Gross Profits *Per* Unit of Output (*Per* Square Metre of Fabric) in the Nigerian Textile Industry, 1964-1973 (At Constant 1963 Prices)

YEAR	COSTS OF MATERIAL INPUTS			WAGE AND SALARY COSTS			GROSS PROFITS		
	Amount (₦'000)	*Per* Square Metre of Fabric (₦)	Percentage Change in (2)	Amount (₦'000)	*Per* Square Metre of Fabric (₦)	Percentage Change in (5)	Amount (₦'000)	*Per* Square Metre of Fabric (₦)	Percentage Change in (8)
	1	2	3	4	5	6	7	8	9
1964	10706.1	0.216	-	3565.3	0.072	-	4308.2	0.087	-
1965	25329.3	0.227	5.1	4610.1	0.041	-43.1	12214.1	0.110	26.4
1966	20018.0	0.134	-41.0	4684.7	0.031	-24.4	13522.5	0.090	-18.2
1967	29616.8	0.172	28.4	7028.0	0.041	32.3	18282.5	0.106	17.8
1969	64338.2	0.217	26.2	10663.6	0.036	-12.2	41100.0	0.139	31.1
1970	89108.8	0.262	20.7	13136.0	0.039	8.3	62878.4	0.185	33.1
1971	78881.7	0.196	-25.2	14784.5	0.037	-5.1	45319.7	0.113	-38.9
1972	69393.2	0.215	10.0	17272.1	0.053	43.2	39517.7	0.122	8.0
1973	79255.2	0.278	29.3	17005.5	0.060	13.2	31374.2	0.110	-9.8
Average Annual Growth Rates %:									
1964-1970			6.6			-6.5			15.0
1971-1973			4.7			17.1			-13.6
1964-1973			5.3			1.4			5.5

Sources: Federal Office of Statistics, Nigerian Industrial Surveys, for various years, Table 5.2, and the author's own computations.

defined earlier, as the measure of profitability among firms in the industry. As can be seen in Table 5.12, the overall rate of return on capital employed for the sample industry studied was 46.2 *per cent* in 1973. As can also be seen in the table, there are wide variations in the rate of return among firms in the industry. For instance, firms in the cotton broadwoven sector achieved the highest rates of return, followed by firms in the synthetic broadwoven sector, and the firms in the thread and yarn sector achieved the lowest rates of return. This observation requires the investigation of the relationship between profitability and the size distribution of firms in the industry. The investigation of this issue seems necessary because we concluded earlier that the cotton broadwoven sector, which is the largest sector of the industry, contained the completely vertically integrated large-scale firms. As can be detected in Figure 5.5, the association between the rate of return and the size of firms in the industry, though positive, is not significant. For instance, the simple correlation coefficient between the rate of return and the size of firms in the industry is only .15. This result seems consistent with the finding of some studies, such as the one by Singh and Whittington, which found no significant relationship *between profitability and size of industrial undertakings.*[1]

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1. Singh, A. and G. Whittington, Growth, Profitability and Valuation, Department of Applied Economics, Occasional Papers, No.7, Cambridge, Cambridge University Press, 1968, p.128 and pp.148-162. It is worth noting that the observed insignificant correlation between profitability and the size of firms in the Nigerian textile industry is consistent with out earlier finding that scale economies were generally unimportant in the industry. Nevertheless, the insignificant positive correlation between profitability and the size distribution of firms in the industry suggests that the relatively large firms may have reaped some scale economies. The large firms presumably enjoyed preferential low interest rates in the procurement of capital resources. For instance, the Nigerian Industrial Development Bank, which channelled, as noted earlier, the highest proportion of its investible funds to the textile industry, favoured the large firms in its lending and investment policies. (Diaku, I., *op. cit.*, pp.183-186.) Moreover,

Relationship between the Rate of Return and the Size of Firms in the Nigerian Textile Industry, 1973

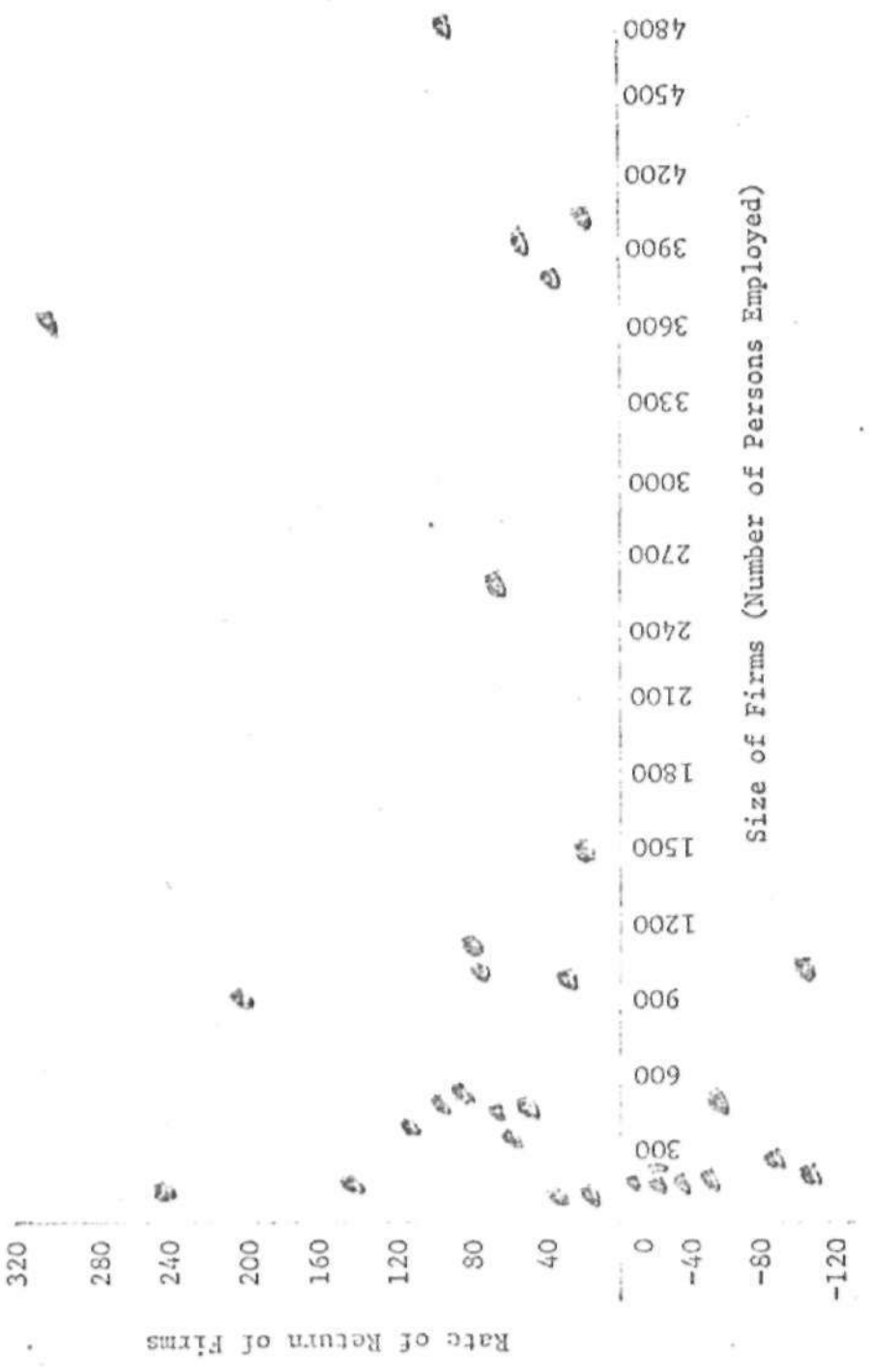

Figure 5.5 Source: Constructed from Tables 5.12 and 5.3

Table 5.12 Profitability Ratios for Nigerian Textile Firms, 1973

Textile Type and Firm	Paid-Up Capital ₦	Gross Profits ₦	Gross Profits as Percentage of Total Capital Employed
	1	2	3
COTTON BROADWOVEN			
A_1	4568376	2707121	59.3
A_2	7050000	3472893	49.3
B	862000	370919	43.0
D	650000	600400	92.4
K_1	6480000	818088	12.6
K_2	267000	377400	141.3
N_2	3800336	1160089	30.5
N_5	1133000	882698	77.9
N_6	2100000	-148176	-0.7
S	1204000	3594760	298.6
U	9000000	7817153	86.9
Z_1	1950000	-1989528	-102.0
Z_2	1930000	1123782	58.2

Table 5.12 continued...

Table 5.12 continued...

Textile Type and Firm	Paid-Up Capital ₦	Gross Profits ₦	Gross Profits as Percentage of Total Capital Employed
	1	2	3
SYNTHETIC BROADWOVEN			
A_4	60000	152893	254.8
E	586500	1177952	200.8
G	400000	-124267	-31.1
L	800000	-832749	-104.1
M	72000	21606.4	30.0
N_1	2200000	567600	25.8
W_2	900000	1027147	114.1
W_3	600000	-497761	-83.0
OTHER BROADWOVEN			
A_3	600000	70510	11.8
N_7	1225000	882698	72.1
T	270000	59344	22.0
KNITTED FABRICS			
K_3	450000	237802	52.8

Table 5.12 continued...

Table 5.12 continued...

Textile Type and Firm	Paid-Up Capital ₦	Gross Profits ₦	Gross Profits as Percentage of Total Capital Employed
	1	2	3
THREAD AND YARN			
C	392050	-159069	-40.6
N_3	500000	191019	38.2
N_4	1000000	163036	16.3
F	300000	-186477	-62.2
W_1	400000	350078	87.5
	51750262	23388961	46.2

(b) The trends in labour productivity

The analysis of the performance of the textile industry in terms of the trends in labour productivity is undertaken at three levels: the growth of labour productivity in the industry; international comparison of labour productivity differentials; and the disparity in labour productivity among firms in the industry.

The growth of labour productivity in the industry over the 1964-1973 period can be discerned from Table 5.13. During this period, the average annual rate of growth of labour productivity as measured by gross output *per* worker in real terms was 5.5 *per cent*. But, as can be seen in Table 5.13, there were marked fluctuations in the growth of labour productivity in the period under review. For instance, whereas the growth of labour productivity accelerated during the 1964-1970 sub-period, labour productivity declined absolutely during the 1970-1973 sub-period. This trend in the growth of labour productivity is paralleled, as shown above, by that in the growth of profitability in the industry.

In general, labour productivity in the Nigerian textile industry was low as compared with that in other countries. As can be seen in Table 5.14, in the spinning section of the industry where the unit of comparison amongst countries is the number of kilogram of 20/1 count of yarn produced *per* man-hour, whilst Indonesia had the lowest productivity, closely followed by East Africa, Nigeria ranked third in low productivity. In Nigeria, the speed of the spindles was about 12,000 revolutions *per* minute (R.P.M.) while modern spindles in other countries had speeds of 16,000

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it can be argued that the large firms may have benefitted more than the small firms from the incentives implicit in the highly differentiated tariff structure which faced the industry because the large firms may have used more of the low-import-dutied inputs in their production process than the small firms.

Table 5.13 Changes in Gross Output *Per* Worker in the Nigerian Textile Industry, 1964-1973 (At Constant 1963 Prices)

Year	Number of Persons Employed	Gross Output	Gross Output *Per* Worker	
		₦'000	₦'000	Percentage Change
1964	9381	18579.6	1.981	-
1965	13416	42153.5	3.142	58.6
1967	17167	54929.0	3.200	1.8
1969	28516	116103.6	4.072	27.2
1970	37203	165123.2	4.438	9.0
1971	39976	138984.5	3.477	-21.7
1972	46897	126183.7	2.691	-22.6
1973	49011	127635.0	2.604	-3.2

Source: Appendix 5.D and author's own computations.

r.p.m.[1] As regards the weaving section of the industry, the basis of comparison is the number of thousand metres of weft inserted *per* one hour of labour. In this case, it is evident, as shown in Table 5.14, that Nigeria ranked second in low productivity.

The disparity in labour productivity among sectors and firms in the Nigerian textile industry can more closely be analysed. This can be done on the basis of Table 5.15. The general conclusion that may be drawn from this table is that the cotton broadwoven and the synthetic broadwoven sectors achieved higher labour productivity as compared with the thread and yarn sector in 1973. For instance, whereas five firms in the cotton broadwoven and five in the synthetic broadwoven sectors had, respectively, labour productivity which was higher than the average labour productivity for the sample industry, only one firm in the thread and yarn sector had labour productivity which was higher than the sample industry average labour productivity. On the basis of this evidence, it can be argued that the firms which were engaged in broadwoven activities achieved higher labour productivity than the firms which undertook spinning activities.

(c) The trends in factor use

In this sub-section, we analyse the trends in the degree of labour intensity or capital intensity in the industry on the basis of measures of value added *per* employee and the share of wages and salaries in value added. In the ensuing discussion, we will indicate the relationship

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1. Skoup and Company Ltd., and Werner Textile Consultants, *op. cit.*, p. 61.

Table 5.14 International Comparison of Average Total Wages/Hour/Unit of Production, 1973

Country	SPINNING			WEAVING		
	Average Total Wages/Hour	Kilos of 20/1 Yarn Produced/ 1 Hour of Labour	Labour Cost *Per* Kilo	Average Total Wages/Hour	Thousand Metre of Weft Inserted/ 1 Hour of Labour	Labour Cost *Per* Thousand Metres of Weft Inserted in Kobo
Nigeria	15.8	2.8	5.6*	17.1	15.6	1.1
Indonesia	10.5	1.7	6.2	10.5	12.3	0.9
East Africa	18.4	1.8	10.2	18.4	20.2	0.9
South America	33.6	6.2	5.4	36.2	44.2	0.8
U.S.A.	171.1	11.6	14.8	177.6	148.1	1.2
Hong Kong	25.0	4.0	6.3	25.0	51.9	0.5
Taiwan	18.4	3.8	4.8	18.4	49.0	0.4
EUROPE:						
Germany	112.5	6.9	16.3	119.7	68.1	1.8
Austria	77.6	6.5	11.9	84.2	60.0	1.4
France	75.0	6.2	12.1	78.9	53.4	1.5
Holland	103.9	6.9	15.1	103.9	64.4	1.6

* Relates to wages of operatives only. US $3.04 = ₦2.00 = 200 Kobo.

Source: Skoup and Co. Ltd., and Werner Textile Consultants, *op. cit.*, p.65.

Table 5.15 Labour Productivity as Measured by Gross Output *Per* Worker in the Nigerian Textile Industry, 1973

Firms	Gross Output *Per* Worker ₦'000	Each Firm's Gross Output *Per* Worker as a % of the Average Gross Output *Per* Worker for the Sample Industry
COTTON BROADWOVEN		
A_1	4.24	88.5
A_2	3.69	77.0
B	3.66	76.4
D	6.73	140.5
K_1	3.72	77.7
K_2	8.51	177.7
N_2	3.02	63.0
N_5	2.05	42.8
N_6	5.58	116.5
S	3.92	81.8
U	7.25	151.4
Z_1	1.25	26.1
Z_2	5.57	116.3

Table 5.15 continued...

Table 5.15 continued...

Firms	Gross Output *Per* Worker ₦'000	Each Firm's Gross Output *Per* Worker as a % of the Average Gross Output *Per* Worker for the Sample Industry
SYNTHETIC BROADWOVEN		
A_4	12.39	258.7
E	7.05	147.2
G	2.12	44.3
L	1.43	29.9
M	2.49	52.0
N_1	5.22	109.0
W_2	8.00	167.0
W_3	14.38	300.2
OTHER BROADWOVEN		
A_3	5.96	124.4
N_7	3.48	72.7
T	1.66	34.7
KNITTED FABRICS		
K_3	4.31	90.0

Table 5.15 continued...

Table 5.15 continued...

Firms	Gross Output *Per* Worker ₦'000	Each Firm's Gross Output *Per* Worker as a % of the Average Gross Output *Per* Worker for the Sample Industry
THREAD AND YARN		
C	2.25	47.0
N_3	6.20	129.4
N_4	2.66	55.5
F	0.91	19.0
W_1	3.91	81.6
AVERAGE	4.79	

Source: Computed from Appendix 5.E.

between the degree of labour intensity or capital intensity and the empirical evidence on profitability and labour productivity in order to test the proposition advanced earlier in sub-section 5.4(i) that higher levels of profitability and labour productivity tend to be associated with more capital intensity than with more labour intensity. We will suggest hypotheses to explain the observed trends in factor use in the industry.

The variations in the intensity of labour use, as measured by the variations in value added *per* employee and in wages and salaries as percentage of value added, in the industry over the 1964-1973 period can be discerned in Table 5.16. To establish a clear trend in the intensity of

Table 5.16 Value Added *Per* Employee, Wages and Salaries as a Percentage of Value Added (at 1963 Constant Prices) as Measures of the Degree of Labour Intensity or Capital Intensity in the Nigerian Textile Industry, 1964-1973

Year	Value Added *Per* Employee ₦'000	Wages and Salaries as Percentage of Value Added
1964	0.987	45.3
1965	1.254	27.4
1967	1.474	27.8
1969	1.815	20.6
1970	2.043	17.3
1971	1.504	24.6
1972	1.211	30.4
1973	0.987	35.2

Source: Computed from Appendix 5.D.

labour use in the industry during this period, we estimated the correlation coefficient between value added *per* employee and time trend. The correlation coefficient, though low, is positive (it is 0.22) which suggests that during the period under review there was some relative factor substitution

away from labour intensity towards capital intensity. Furthermore, as can be seen in Table 5.17, there were variations in the degree of labour intensity among sectors and firms in the industry in 1973. For example, the value added *per* employee of seven firms in the cotton broadwoven sector exceeded the average value added *per* employee for the sample industry in comparison with four firms in the synthetic broadwoven sector and two firms in the thread and yarn sector, whose value added *per* employee exceeded the sample industry average value added *per* employee. This evidence suggests that the firms in the cotton broadwoven sector tended to be relatively less labour-intensive (relatively more capital-intensive) than those in other sectors. In fact, Figure 5.6 shows that there was a negative, though insignificant, correlation (the correlation coefficient is, however, very low: -.07) between the share of wages and salaries in value added and the size of firms, thus, implying that larger firms in the industry tended slightly to be relatively capital intensive.

Next, we present the empirical evidence about the interrelationships between the degree of labour intensity and profitability and labour productivity. These interrelationships are shown in Figures 5.7 and 5.8. As can be seen in Figure 5.7, there is a positive correlation between labour productivity and capital intensity in the sample industry. The sample correlation coefficient for gross output *per* worker and value added *per* employee is 0.52 which is statistically significant at 99 *per cent* confidence level. Similarly, as can be observed in Figure 5.8, there is a positive correlation between profitability and capital intensity. The sample correlation coefficient for the rate of return on capital employed and value added *per* employee is 0.71 which is statistically significant at 99 *per cent* confidence level. This empirical evidence seems to support the general hypothesis about the effects of choice of techniques that greater profitability and labour productivity tend to be associated with capital intensity rather than with more labour intensity.

Table 5.17 Value Added *Per* Employee As A Measure of the Degree of Labour Intensity or Capital Intensity in the Nigerian Textile Industy, 1973

Firms	Value Added *Per* Employee ₦'000	Each Firm's Value Added *Per* Employee as a % of the Average Value Added *Per* Employee for the Sample Industry
COTTON BROADWOVEN		
A_1	1.82	109.0
A_2	1.55	92.8
B	1.67	100.0
D	2.21	132.3
K_1	1.40	83.8
K_2	4.08	244.3
N_2	1.42	85.0
N_5	1.33	79.6
N_6	1.20	71.9
S	1.75	104.8
U	2.68	160.5
Z_1	0.02	1.2
Z_2	3.33	199.4

Table 5.17 continued...

Table 5.17 continued...

Firms	Value Added *Per* Employee ₦'000	Each Firm's Value Added *Per* Employee as a % of the Average Value Added *Per* Employee for the Sample Industry
SYNTHETIC BROADWOVEN		
A_4	4.53	271.3
E	2.27	135.9
G	0.68	40.7
L	-2.06	-123.3
M	1.25	74.9
N_1	2.39	143.1
W_2	4.91	294.0
W_3	-0.44	-26.3
OTHER BROADWOVEN		
A_3	2.59	155.1
N_7	1.45	86.8
T	0.87	52.1
KNITTED FABRICS		
K_3	1.34	80.2

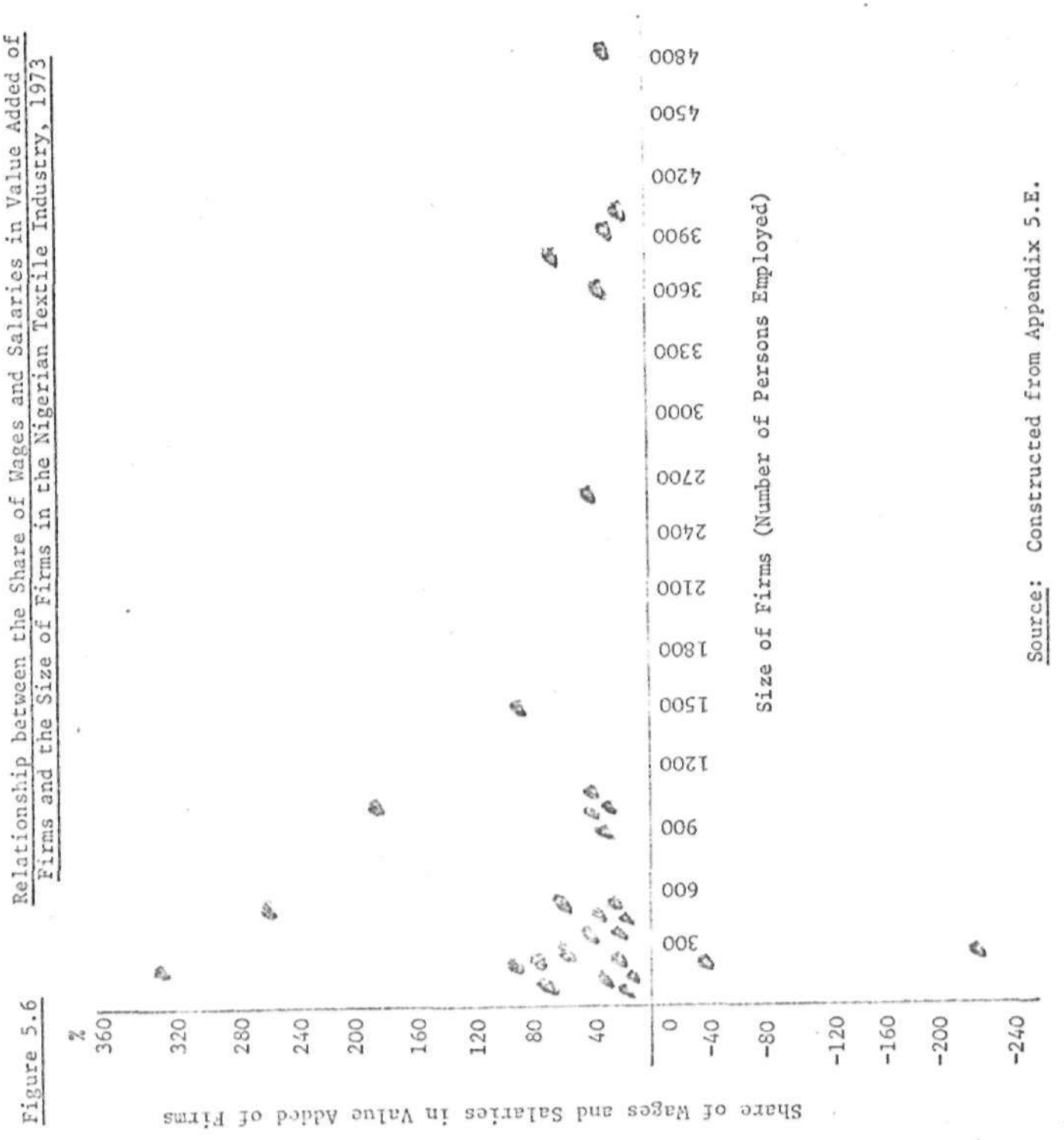
Table 5.17 continued...

Table 5.17 continued...

Firms	Value Added *Per* Employee ₦'000	Each Firm's Value Added *Per* Employee as a % of the Average Value Added *Per* Employee for the Sample Industry
THREAD AND YARN		
C	0.19	11.4
N_3	2.75	164.7
N_4	0.80	47.9
F	0.24	14.4
W_1	1.84	110.2
AVERAGE	1.67	

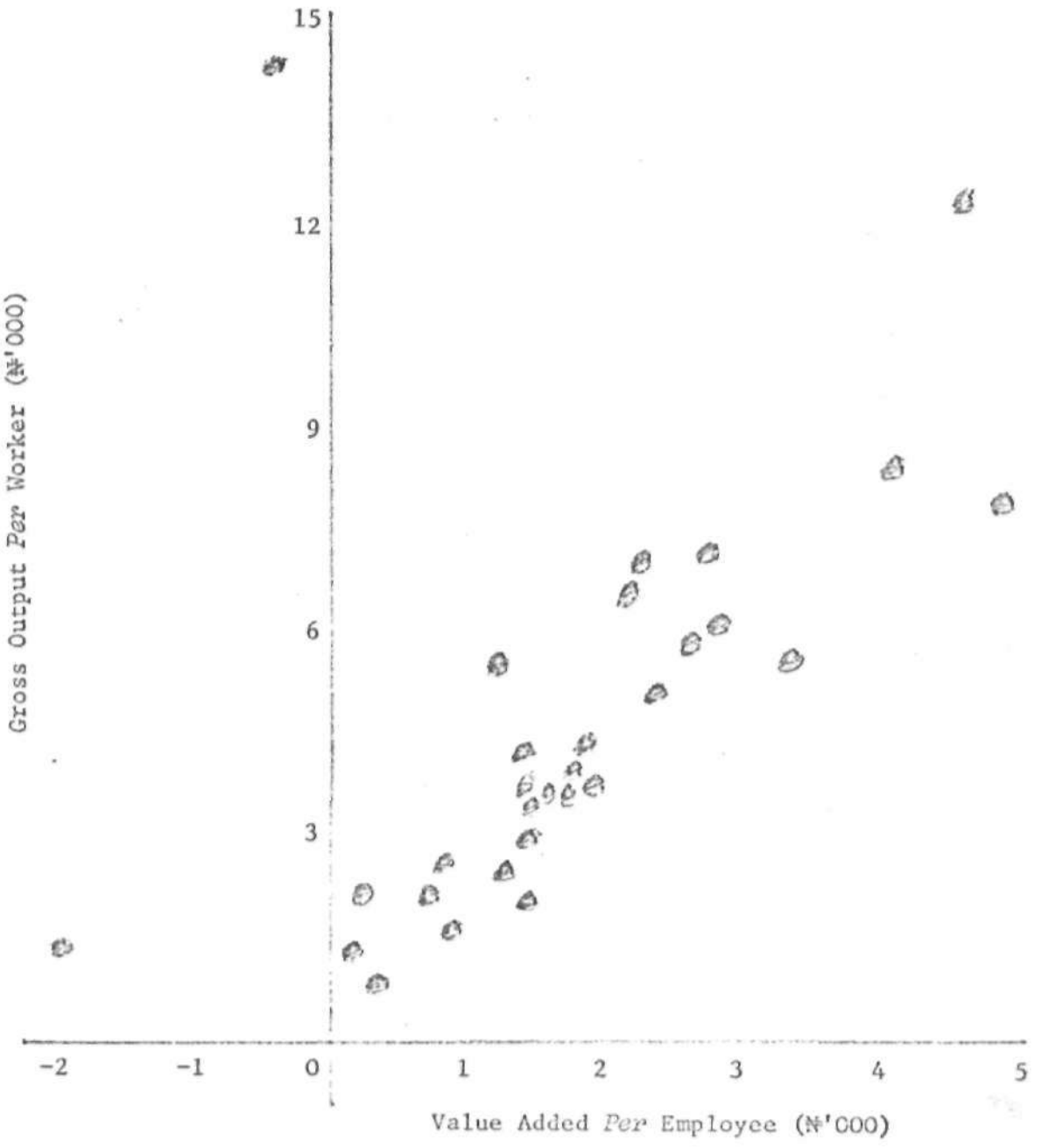
Source: Computed from Appendix 5.E.

Figure 5.6 Relationship between the Share of Wages and Salaries in Value Added of Firms and the Size of Firms in the Nigerian Textile Industry, 1973



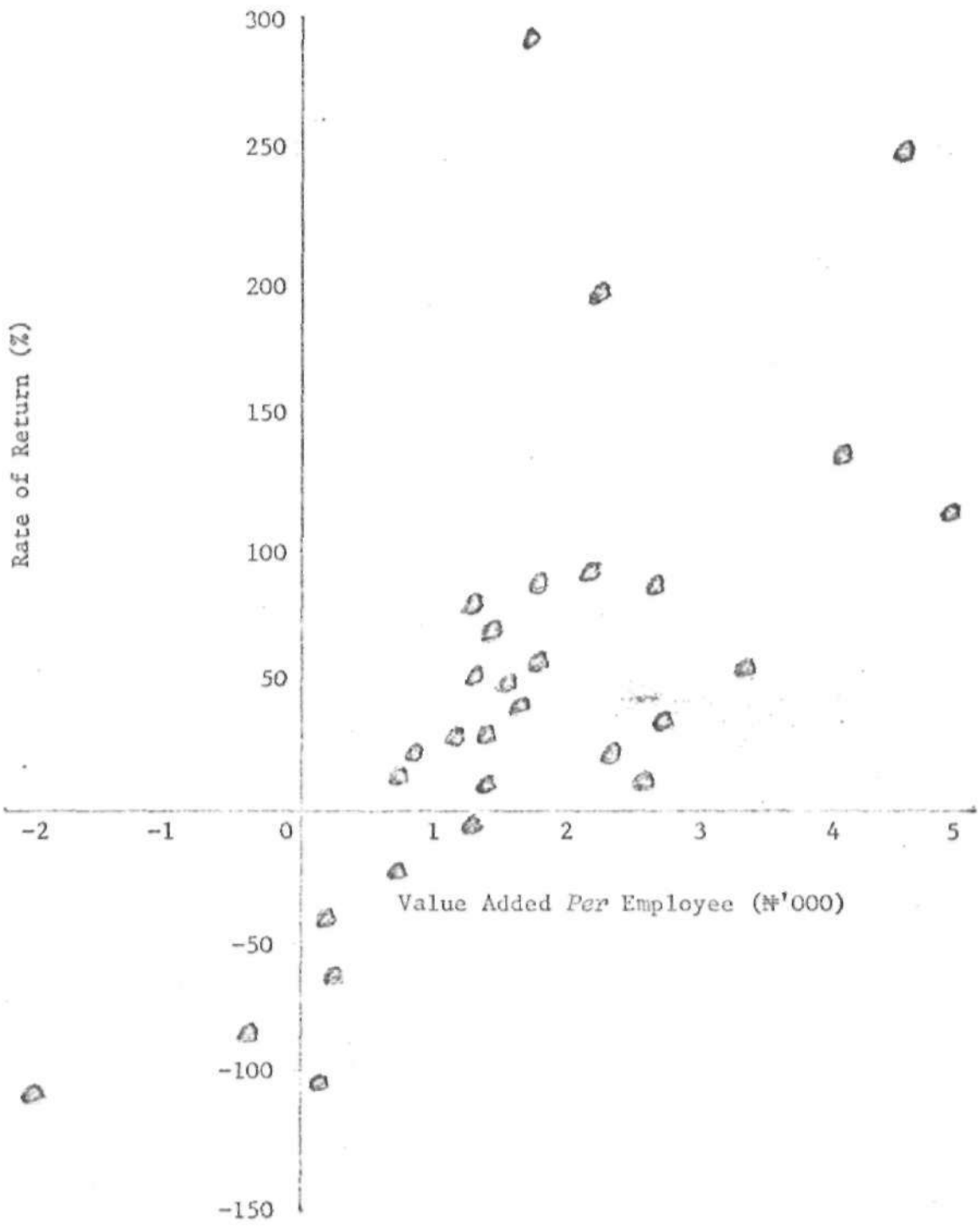
Source: Constructed from Appendix 5.E.

Figure 5.7 Relationship Between Labour Productivity and the Degree of Labour Intensity in the Nigerian Textile Industry, 1973



Source: Constructed from Tables 5.15 and 5.17.

Figure 5.8 Relationship Between Rate of Return on Capital Employed and the Degree of Labour Intensity in the Nigerian Textile Industry, 1973



Source: Constructed from Tables 5.12 and 5.17.

Why was there a tendency on the part of the firms operating in the industry to choose, in the main, capital-intensive methods of production relative to labour-intensive methods of production? Two hypothesis, namely, neo-classical and structuralist, may be suggested. The strength of these hypothesis in explaining the experience of the industry will be determined in Chapter 7. The crux of the neo-classical hypothesis is that, as such institutional factors in the Nigerian economy as trade unions and minimum wage legislation tend to raise the market cost of labour relative to the market cost of capital, the firms tended to use relatively more capital inputs than labour inputs in their productive processes. Indeed, such factors as tax incentives, currency overvaluation and low import duties tend to lower artificially the effective market cost of capital. In particular, as the structure of tariff protection which confronted the industry was biased in favour of imported investment goods and against imported final textile goods, the relative prices of capital and labour were distorted in favour of the former in the sense that the low import duties on investment goods progressively cheapened capital relative to labour. Thus, by distorting the relative prices of capital and labour, the structure of tariff protection presumably encouraged the firms to adopt capital-intensive methods relative to labour-intensive methods in the production of the import-substitutive textile goods. Moreover, the fact that capital intensity and size of firms in the industry tended to be positively correlated suggests that large firms were more obliged to save on labour probably because of their greater sensitivity to union bargaining power of workers or to the inadequacy or inappropriateness of local labour supply. An index of the probable shortage of local skilled labour is the high share of expatriate labour in total labour costs in the industry. For example, the expatriate labour employed in production in the sample textile industry studied account for 1.7 *per cent* of total labour employment and 25.7 *per cent* of

total labour costs in 1973. This evidence compares with that for the whole textile industry in 1963: 2.6 *per cent* of total employment and 29 *per cent* of total labour costs were respectively accounted for by expatriate labour.[1] The civil war demand for labour of all kinds for war purposes worsened the inherent problem of skilled-labour scarcity in Nigeria. Indeed, some of the companies' executives interviewed regarded the skilled-labour shortage as one of the greatest problems facing the industry. It is therefore conceivable that some firms had reacted to this problem by relatively increased capital intensity.

An aspect of the structuralist hypothesis suggested derives from the premise that the growing capital intensity of the productive processes in the textile industry was a manifestation of competitive pressures generated by the massive entry of overseas manufacturers into the industry by way of establishing "tariff-textile mills" in Nigeria during the 1960's. The critical determinant of the entry of the overseas manufacturers was the imposition of high import duties on final textile goods which threatened their export market interests rather than the cheapening of the investment goods which their low import duties made possible. This meant that the overseas manufacturers, especially the Japanese, who, since the middle of the 1960's had become increasingly familiar with the process of capital-intensification in textile production in response to the need to remain competitive in the face of rising wage costs,[2] began to establish relatively capital-intensive textile mills to protect their markets against the established textile producers who, taking advantage of the high import duties, would inevitably expand their output to capture the overseas manufacturer's share of the markets. Moreover, it might have been the case

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1. Kilby, P., Industrialisation in an Open Economy: Nigeria 1945-1966, Cambridge, Cambridge University Press, 1969, p.124.
2. Shepherd, G., The Economics of International Trade in Cotton-Type Textiles, World Bank Economic Staff Working Paper, No.111, July 26, 1971, p.25.

that the new producers, who represented the overseas manufacturers, actually anticipated the ensuing competitive struggle so that they aimed, from the start, at securing a competitive advantage in the markets by adopting capital-intensive methods of production. On the other hand, the established producers began to undertake "defensive" investments in capital-intensive methods as a response to the new competitive challenge.

The summary evaluation of the Nigerian textile industry undertaken in the preceding sections on the criteria of profitability and input costs, labour productivity and factor use is undoubtedly illuminating. But it can be argued that the evaluation of the overall economic performance of the industry is incomplete. Two reasons can be adduced to support this viewpoint. Firstly, most of the criteria used in the evaluation, as already demonstrated, have some fundamental theoretical and conceptual problems. Secondly and more importantly, the evaluation ignores the imperfections which government economic policies, especially trade policies, introduced into the Nigerian textile product and factor markets. This means that, from the standpoint of Nigerian society, the evaluation does not sufficiently take into account the scarcity values of the resources used in the production process. In other words, in the evaluation, adjustments for the potential divergences between private and social valuations of the inputs and outputs of the individual firms in the industry were not made. For these reasons, the more comprehensive appraisal of the economic performance of the industry in terms of the methodology of social cost-benefit analysis will be undertaken in the following chapter.

5.5 Conclusions

The main conclusions reached in the preceding discussions can be highlighted for emphasis. Unlike the historical experience of some countries, the modern textile industry in Nigeria did not develop from the cottage textile industry. Instead, the modern Nigerian textile industry developed after the cottage textile industry had been crippled by foreign competition. In the main, the development of the modern textile industry has been the creature of government economic policies, especially trade policies. Foreign private investors, largely reacting to government economic policies, constituted the engine of expansion of the industry. Initially, through the formation of partnerships with foreign entrepreneurs and the provision of generous non-tariff protection incentives, the government determined the private sector environment in which the industry operated. But it was government restrictive trade policies, more than anything else, that fundamentally determined such an environment by providing the greatest incentives for the development of the industry. In this respect, the restrictive trade policies generated competitive pressures which were manifested in market-protection investment activities in the industry by both the established merchant firms and the overseas manufacturers who had hitherto been satisfied with supplying the Nigerian textile markets from their imports and exports respectively.

The industry achieved rapid acceleration of growth during the second half of the 1960's, but it experienced a dramatic deceleration of growth during the 1970-1973 period. The history of the industry was completely dominated by cotton broadwoven activity until the second half of the 1960's when synthetic broadwoven activity began in the industry. By 1973, the cotton broadwoven sector still dominated the industry but also this

sector contained most of the completely vertically integrated large-scale firms in the industry. Whereas the degree of vertical integration of firms was positively correlated with the size of firms in the cotton broadwoven sector, the completely vertically integrated firms in the synthetic broadwoven sector tended to have smaller sizes than the single-process firms. In testing for the presence of economies of scale, we found that scale economies were not reaped in the industry thereby validating the general hypothesis that, as elsewhere, the realisation of scale economies has not been an important factor in the development of the industry.

The trends in the unit costs of material inputs, unit labour costs and unit gross profits reflected the conclusion reached above that the rate of growth of the industry accelerated throughout the second half of the 1960's but decelerated after 1971. While the unit gross profits had the highest annual rate of growth in comparison to the unit costs of material inputs and the unit labour costs during the 1964-1970 period, the unit gross profits in the industry declined absolutely as the annual growth rates of unit labour costs and of unit costs of material inputs accelerated during the 1971-1973 period. This trend in the growth of unit gross profits is paralleled by that in the growth of labour productivity in the industry.

The industry's labour productivity was generally low as compared with that in other countries. An analysis of the cross sectional firm level data for 1973 revealed that firms which undertook broadwoven activities achieved higher labour productivity than those which undertook spinning activities.

There were variations in the degree of labour intensity or capital intensity in the industry over time and within it. There was some relative factor substitution away from labour intensity towards greater capital intensity over time. The firms in the cotton broadwoven sector tended to be relatively less labour-intensive (relatively more capital-intensive) than those in other sectors of the industry. In determining the interrelationships between the degree of labour intensity, profitability and labour productivity, we found that greater profitability and labour productivity tended to be associated with relatively more capital intensity than with relatively more labour intensity in the industry.

CHAPTER SIX

Empirical Appraisal of Import Substitution in the Nigerian Textile Industry

6.1 Introduction

The preceding chapter has been concerned with the growth and structural change of the Nigerian textile industry and the general economic aspects of production in the industry. It has been shown in that chapter that Nigeria has pursued the strategy of import substitution in the development of the industry in order to achieve rapid economic growth and to save foreign exchange. In this chapter, we are concerned with the application of the methods of social cost-benefit analysis, discussed in Chapter Three, to appraise the economic performance of the industry. Basically, this chapter evaluates the industry's contributions to Nigerian economic growth. The industry's contributions to Nigerian economic growth are regarded in the analysis as the difference between the social benefits and the social costs which were associated with its production activities. The social benefits represent the industry's produced commodities evaluated at accounting prices, while the social costs represent the purchased inputs of resources employed in its production processes evaluated at accounting prices. For the purpose of the appraisal, data were gathered on 30 firms which were broadly representative of the structure of the industry for the calendar year of 1973. The empirical appraisal which follows is organised around three sections. Section 6.2 presents and scrutinises the data used in the empirical analysis. Section 6.3 presents the estimates used in the discussion of the variations in

efficiency performance of the individual firms in the industry. Section 6.4 examines the estimates of the net foreign exchange effects of the import-substituting activities in the industry. The main conclusions of the analysis will be summarised in Section 6.5

6.2 The data

The estimation of unit social profits, domestic resource costs and effective rates of protection for the various activities in the Nigerian textile industry, as indicated in Chapter Three, basically requires disaggregated data at the firm level on the quantities and/or values of purchased raw materials and intermediate inputs and their corresponding domestic and world prices. We also require data on the quantities and values of produced outputs of the activities and the per unit domestic and world prices of the relevant products. More specifically, we need data at the level of firms in the industry on the number of persons employed and the wages and salaries split between domestic and expatriate staff of various skill categories of labour, the structure of fixed assets and the depreciation charges on them, the quantities and values of domestic and imported raw and intermediate materials including electricity, water and land transport costs, and the data on the quantities and values of goods produced and sold, and the excise taxes imposed on the produced goods.

These data were obtained from the returns of the 1973 Nigerian Industrial Survey carried out by the Nigerian Federal Office of Statistics. The detailed data on the enumerated large-scale individual establishments of the textile industry proved useful to our empirical investigation. The calculations made are based on the "official" definition of census value added. The Federal Office of Statistics (F.O.S.) defines value added as the total output value less the cost of raw materials and intermediate inputs including fuels, electricity and water. However, the weakness of this definition is that it makes excise tax paid on domestic production part of value added. To obtain a more accurate value added, we net out the amount paid in excise taxes. Another weakness of the F.O.S. Industrial Survey data, which we could not correct for in this study, is that certain deliberate errors on the part of the establishments which filled the F.O.S. questionnaire

may affect the accuracy of some of the data. For instance, to avoid taxes there may be a tendency among the establishments to understate production and to overstate inputs. As a consequence, the data may yield lower value added of the activities concerned.

6.2(i) Valuation of textile products

The outputs of products, the inputs of the primary factors of production and the purchased raw material and intermediate inputs are valued at their appropriate accounting prices. Here, the valuation of the textile products is undertaken in accordance with a classification of the industry into six products, namely, cotton broadwoven, synthetic broadwoven, cotton/synthetic broadwoven, other broadwoven, knitted fabrics, and thread and yarn. This classification is based on the quantitative information obtained from the 1973 Nigerian Industrial Survey and from Skoup and Company Limited - a consultancy firm - on the one hand, and on the qualitative information obtained through personal interviews with the executives of textile firms, and with the officials of the Nigerian Textile Manufacturers Association, the Federal Ministry of Industries, and the F.O.S., on the other.

The per unit domestic market price for each of these classified textile products is obtained by dividing the total sales value adjusted for excise taxes by the total quantity sold of each product. The per unit accounting price of each of the products is defined as the per unit c.i.f. border price plus the relevant per unit marketing margin and the per unit transport cost revalued at accounting prices.[1] The per unit transport cost and the per unit marketing margin are taken as the total transport cost and the total marketing margin associated with each product divided by the total quantity

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1. This definition of accounting price is adopted from Squire, L. and H. G. Van Der Tak, Economic Analysis of Projects, Baltimore, Johns Hopkins University Press, 1975, p.88 and p.122.

sold of each product. The per unit marketing margin is estimated on the assumption that it is 40 per cent of the per unit sales value of all fabrics and 30 per cent of the per unit sales value of thread and yarn.[1] The per unit marketing margin and per unit transport cost should be converted into their accounting values. In this respect, as argued in Chapter Three, marketing margin and land transport which are non-traded commodities should be evaluated by using for them all a single standard conversion factor defined as the ratio of the value at border prices of all imports and exports to their value at domestic prices. This ratio was estimated at 0.99. Thus, because the single standard conversion factor is approximately 1.00, the domestic market values of all non-traded commodities are left unadjusted in the calculations.[2] The results of our calculations of market prices, accounting prices, and accounting conversion ratios for the textile products are presented in Table 6.1. The columns of this table are self-explanatory. But it is worth noting that the accounting conversion ratio for each textile product used in the empirical analysis to deflate the market value of each product is defined as the ratio of the accounting price to the market price of the product.

Besides the general critique of the concept of accounting prices discussed in Chapter Three, specific and practical objections may be raised against the use of c.i.f. prices as the basis for the accounting price valuation of textile products in Nigeria as we have done in Table 6.1. Guisinger

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1. These percentage figures are derived from the results of personal interviews conducted in 1973. They are reported in PA Management Services, S.A., A Study of The Nigerian Market For Fabrics, Garments and Carpets, Unpublished Report, November 1974, p.69.

2. This procedure is not unconventional. The estimate of the single standard conversion factor which Scott, MacArthur and Newberry made for Kenya is not significantly different from 1.00. Hence, they admitted as follows: "We have not . . . attempted to estimate accounting prices for everything, and in particular we have not estimated them for non-traded outputs . . . ." M. F. Scott *et. al.*, Project Appraisal in Practice, London, Heinemann Educational Books, 1976, p.3.

Table 6.1 Estimates of Market Prices, Accounting Prices, and Accounting Conversion Ratios for Nigeria's Textile Commodities, 1973†

	Market Prices 1	Marketing Margin 2	Transport Cost 3	C.I.F.* Prices 4	Accounting Prices 5 (2+3+4)	Accounting Conversion Ratios 6 (5÷1)
Cotton Broadwoven	1.01	0.21	0.01	0.608	0.828	0.820
Synthetic Broadwoven	1.28	0.56	0.01	0.532	1.102	0.861
Cotton/Synthetic Broadwoven	6.53	3.81	0.02	0.661	4.491	0.688
Other Broadwoven	2.03	1.28	0.05	0.581	1.911	0.941
Knitted Fabrics	3.50	1.12	0.004	2.044	3.168	0.905
Thread and Yarn	5.11	1.53	0.04	2.356	3.926	0.768

Source for Column 4: Federal Office of Statistics, Nigeria Trade Summary, Lagos, December 1973, pp.89-93, p.98.

Note

* The C.I.F. Price for each commodity is computed in accordance with the relevant S.I.T.C. codes of the commodity. For each commodity we obtained the total cumulative quantity and the total cumulative C.I.F. value from January to 31st December, 1973, then we divided the total cumulative C.I.F. value by the total cumulative quantity in order to obtain the *per* unit C.I.F. value. In essence, this *per* unit C.I.F. value represents the average for the year 1973.

† The values in columns 1-5 are in Naira *per* square metre for all the broadwoven fabrics, but the values for the thread and yarn are in Naira *per* kilogram.

and Papageorgiou[1] have argued that the c.i.f. prices derived from the Nigerian Trade Statistics may not engender a correspondence, in terms of standard specifications and quality, between the domestically manufactured textile products and the imported ones. They have attributed this alleged lack of the comparability of the imported textile products with the domestic products to the high level of aggregation at which trade data are recorded and to misreporting by importers of the quantity and quality of imported products. They argued that the problems of aggregation and of misreporting of the trade data might arise from the kind of trade policies pursued by the government. For example, from 1968 to 1971 the imports of most textile products were banned, and for the other years since 1971 textile imports were subject to high specific duties. Such a policy might mean that imported textiles would tend to consist of atypical varieties of high quality in terms of yarn count, weaving construction and finish. Despite these changes, the imported textiles were still being partly reported in the Nigerian Trade Statistics under the same general category of imports as the standard varieties. As a consequence, Guisinger and Papageorgiou have suggested that export prices, even unadjusted for estimated transportation and insurance costs, which should be derived from the f.o.b. prices of the exporting countries might provide better estimates of the Nigerian border prices for the textile products. In this respect, they recommend that a simple average of the prices reported by the various exporting sources may be taken to obtain a fairly accurate border price. They conclude that, admittedly, "there is much residual uncertainty remaining even after a diligent search of

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1. Guisinger, S. and D. Papageorgiou, "The Selection of Appropriate Border Prices in Project Evaluation", Oxford Bulletin of Economics and Statistics, Vol.38, May 1976, pp.79-98. In this article, Guisinger and Papageorgiou were reacting, among other things, to the common practice by the World Bank and by consultancy firms of using c.i.f. prices as the basis for evaluating textile products in Nigeria.

alternative sources is made"; but "if price information from only one source is used, estimates of economic rates of return may be given a false air of credibility".[1]

Implicit in Guisinger and Papageorgiou's argument is their concern to avoid the problems of aggregation and of misreporting of the Nigerian import trade data on textiles. But it can be argued that their suggested solution may leave the problems largely unresolved. If one assumes that it is just as possible to oversubsidise in export substitution through a set of discriminatory governmental policies as it is in import-substituting industrialisation, then the f.o.b. prices of Nigeria's trading-partner countries may also induce a high level of aggregation and misreporting of their export data. In this case, the simple averaging of the f.o.b. prices of the exporting sources may not therefore alter the problems of aggregation and misreporting of export trade data. Furthermore, the fact that the list f.o.b. prices may tend to be either out of date or unrepresentative because of rebates, or special price reductions arising from large volume purchases, may render equally unreliable Nigeria's trading-partners' export trade data. Nevertheless, the contention that there is some evidence that oversubsidisation of export substitution is less likely to occur than oversubsidisation of import-substituting industrialisation[2] suggests that market imperfections, caused by suboptimal trade policies, may render f.o.b. prices more reliable than c.i.f. prices. As a consequence, the problems of aggregation and of misreporting associated with f.o.b. prices may not be as serious as those associated with c.i.f. prices.

Despite this apparent advantage of the f.o.b. prices over the c.i.f. prices, the latter as reported in the Nigerian Trade Statistics are used in

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1. *Ibid.*, p.94.
2. Bhagwati, J. N. and A. O. Krueger, "Exchange Control, Liberalization and Economic Development", American Economic Review, Papers and Proceedings, May 1973, pp.419-427.

the empirical analysis as the basis for the accounting price valuation of the textile products as presented in Table 6.1. This preference largely reflects data non-availability. For example, the f.o.b. price data obtained for West German and Japanese exports of textiles do not cover all the categories of products of the Nigerian textile industry.[1] The estimates of border prices made by Guisinger and Papaegeorgiou on the basis of alternative sources, which are presented in Table 6.2, are for cotton broadwoven textiles only and they cover the products of only two firms. Even the result of the computation of the accounting conversion ratio for the cotton broadwoven sector on the basis of the method advocated by Guisinger and Papageorgiou is not significantly different from that shown in Table 6.1. For example, the accounting conversion ratio calculated from Table 6.2. for the cotton broadwoven sector in 1972/73 is 0.767 as shown in Table 6.3. This compares reasonably with the accounting conversion ratio of 0.820, as revealed in Table 6.1, which we have used in this study. It can even be argued that the accounting conversion ratio of 0.767 represents an underestimate. For instance, as the accounting conversion ratio of 0.767 pertains to the 1972/73 financial year (that is, April 1 1972 to March 31 1973), the ratio pertains only to the first three months of 1973. The accounting conversion ratio of 0.767 does not adjust for marketing margins and transport costs. Moreover, as can be seen in Table 6.2, border prices rose remarkably in the early 1970's, reflecting the general increase in world prices throughout 1973 - a rise a substantial part of which is not reflected in the 0.767 accounting conversion ratio. For these reasons, we believe that the evaluation of the textile products on the basis of the c.i.f. prices as reported in the Nigerian Trade Statistics may yield results consistent with the evaluation

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1. The f.o.b. price data for West German and Japanese exports of textiles are in the author's possession. For such information, see Skoup and Company Limited and Werner Textile Consultants, A Study of The Nigerian Textile Industry, Lagos, Unpublished Report, July 1973, p. 190.

Table 6.2 The Guisinger and Papageorgiou Market Prices and Border Prices for Some Specific Nigerian Textile Goods, 1965/66-1972/73. (U.S. ¢ *per* linear yard)

Source	Description	Width (in.)	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970	1970-1971	1971-1972	1972-1973
WHITE SHIRTING										
1. Ex-Factory Selling Price of Nigerian Manufacturer	White shirting	34	27.9	26.6	27.0	27.4	30.3	30.3	35.2	32.8
2. Nigerian Trade Statistics Nigerian Manufacturer's Estimate:	Bleached cotton cloth	34				51.4[a]	45.9[b]	50.1[c]	40.7[d]	
3. Firm #1	White shirting	34	18.0	18.0	18.0	18.0	18.0		37.5	
4. Firm #2										
5. Textile Consultants	Cotton bleached shirting	33							83.0[e]	90.0[f]
6. IBRD Reports	Bleached cloth	34				13.0[g]				
7. Indian Textile Exporter Council	Bleached shirting	34			14.7	14.7	15.3	16.0	17.5	23.5
8. Purchasing Agent										
(a) High Estimate	White shirting	34	19.5	19.5	19.5	20.5	20.5	20.5	22.0	24.5
(b) Low Estimate			18.0	18.0	18.0	19.5	19.5	19.5	21.0	22.5

Table 6.2 continued...

Table 6.2 continued...

Source	Description	Width (in.)	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970	1970-1971	1971-1972	1972-1973
DYED SHIRTING										
1. Ex-Factory Selling Price of Nigerian Manufacturer	Dyed shirting	23	39.4	38.0	38.6	37.3	41.7	34.4	37.0	41.8
2. Nigerian Trade Statistics	Piece dyed cotton	n.s.				56.5[h]	33.5[i]	60.7[j]	48.9[k]	
Nigerian Manufacturer's Estimate:										
3. Firm #1	n.s.	n.s.	19.2	19.2	19.2	19.2	19.2		45.0	35.0
4. Firm #2										
5. Textile Consultants										
6. IBRD Reports	Piece dyed cotton cloth	23				14.0[1]				
7. Indian Textile Exporter Council	Dyed shirting				18.2	18.2	18.8	14.5	21.0	27.0
8. Purchasing Agent										
(a) High Estimate	Dyed shirting		16.0	16.0	16.0	16.0	17.5	17.0	22.0	37.5
(b) Low Estimate			14.5	14.5	14.5	14.5	15.5	15.0	19.5	29.5

Table 6.2 continued...

Table 6.2 continued...

Source	Description	Width (in.)	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970	1970-1971	1971-1972	1972-1973
DYED POPLIN										
1. Ex-Factory Selling Price of Nigerian Manufacturer	Dyed poplin	30		37.0	37.5	36.9	44.8	39.2	52.5	50.0
2. Nigerian Trade Statistics Nigerian Manufacturer's Estimate:										
3. Firm #1	Dyed poplin	30		31.2	31.2	31.2	31.2		49.5	
4. Firm #2										
5. Textile Consultants										
6. IBRD Reports	Piece dyed cotton cloth	30				14.0[m]				
7. Indian Textile Exporter Council	White sheeting	30			27.6	27.6	27.6	27.6	27.6	
8. Purchasing Agent										
(a) High Estimate	Dyed poplin	30	18.5	18.5	18.5	18.5	19.0	19.0	31.5	41.5
(b) Low Estimate			16.0	16.0	16.0	16.0	17.5	17.5	30.0	33.5

Table 6.2 continued...

Table 6.2 continued...

Source	Description	Width (in.)	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970	1970-1971	1971-1972	1972-1973
DYED DRILL										
1. Ex-Factory Selling Price of Nigerian Manufacturer	Dyed drill	27		36.4	38.0	40.3	42.6	45.9	50.9	45.6
2. Nigerian Trade Statistics Nigerian Manufacturer's Estimate:										
3. Firm #1	n.s.	n.s.	30.0	30.0	30.0	30.0	30.0		48.0	
4. Firm #2										
5. Textile Consultants										
6. IBRD Reports	Piece dyed cotton cloth	27				14.0[m]				
7. Indian Textile Exporter Council	Dyed drill	27			18.0	18.0	18.2	18.3	18.5	
8. Purchasing Agent										
(a) High Estimate	Dyed drill	27	19.0	19.0	19.0	22.5	22.5	24.0	28.5	37.5
(b) Low Estimate			18.0	18.0	18.0	20.5	20.5	22.0	26.5	31.0

Table 6.2 continued...

Table 6.2 continued...

Source	Description	Width (in.)	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970	1970-1971	1971-1972	1972-1973
AFRICAN PRINTS										
1. Ex-Factory Selling Price of Nigerian Manufacturer	African print	46-50			50.6	54.5	59.4	67.0	70.0	66.0
2. Nigerian Trade Statistics Nigerian Manufacturer's Estimate:	Printed cotton fabrics					54.5[n]	67.3[o]	88.9[p]	99.1[q]	
3. Firm #1	African print	46-50		28.0	28.0	28.0	29.0	33.0	40.0	57.0
4. Firm #2	African print	46-50								
5. Textile Consultants										55.0
6. IBRD Reports	Prints	46-50				25.4[m]				
7. Indian Textile Exporter Council										
8. Purchasing Agent (a) High Estimate	African prints	n.s.	29.5	29.5	29.5	31.5	31.5	46.0	64.5	96.0
(b) Low Estimate			27.0	27.0	27.0	28.5	28.5	39.5	59.5	92.0

Note: a = January-June, 1969; b = January-December, 1970; c = January-December, 1971; d = January-June, 1972; e = Calendar Year 1971; f = Calendar Year 1972; g = Report dated May 19, 1969; h = January-June, 1972; i = January-December, 1970; j = January-December, 1971; k = January-June, 1972; l = Report dated May 19, 1969; m = Report dated May 19, 1969; n = January-June, 1969; o = January-December, 1970; p = January-December, 1971; q = January-June, 1972; n.s. = not specified.

Source: Guisinger, S. and D. Papageorgiou, "The Selection of Appropriate Border Prices in Project Evaluation", Oxford Bulletin of Economics and Statistics, Vol.38, No.2, May 1976, pp.87-91.

Table 6.3 Accounting Conversion Ratio for Cotton Broadwoven in 1972/73

White shirting	0.716
Dyed shirting	0.772
Dyed poplin	0.750
Dyed drill	0.751
African prints	0.848
Average	0.767

Source: Calculated from Table 6.2.

based on averaging across all f.o.b. prices reported in other sources. The added advantage for our study of the c.i.f. prices as contained in the Nigerian Trade Statistics is that they cover all the categories of products of the Nigerian textile industry.

6.2(ii) Valuation of capital, raw material and intermediate inputs

We next examine the problems of estimating the accounting costs of primary capital inputs and of raw material and intermediate inputs employed in the textile industry's production processes. To calculate the accounting cost of primary capital inputs, we found it necessary to subdivide capital goods into machinery and equipment, transport equipment, building and construction goods. Since this study is concerned with the evaluation of operating investments in the textile industry for a single calendar year of 1973, we must compute the annual capital consumption based on the structure of operating investments which are presented in Appendix 6.I.[1] The justification for the computation of the annual capital consumption has been given in Section 3.2.2 of Chapter Three. To obtain the annual primary

1. The operating investments presented in Appendix 6.I refer to the book values of fixed assets of the firms as at the beginning of 1973 plus the fixed assets purchased during 1973 less the fixed assets sold in 1973, and less the depreciation charges on all fixed assets during 1973. In this respect, we presume that depreciation as provided by each firm provides at least a rough indication of real capital consumption.

capital costs in the industry, we found it necessary to set the accounting rate of interest at 6 per cent or 10 per cent or 15 per cent the choice of which is justified below. On this basis, we estimated the annual capital consumption for each firm in the sample industry. This was done by establishing the annuity yielding a present value equal to the initial purchased value of each capital category when discounted at 6 per cent or 10 per cent or 15 per cent per annum over the estimated economic lifetime of the capital category. The estimated economic lifetime of each of the capital categories assumed in our calculation is 40 years, 14 years and 6 years for building and construction, machinery and equipment, and transport equipment respectively.[1] The results of our calculations are presented in Appendices 6.J and 6.L.

The choice of the appropriate accounting rate of interest used in the study must be made and justified. In order to make a reasonable assumption about the estimated accounting rate of interest, we examined the existing evidence on interest rates in foreign and domestic markets for investible funds, rates of return on private investments, and the discount rate used in public sector project evaluation in Nigeria. The levels of interest rates of the Nigerian Industrial Development Bank may be used as approximating the prevailing market rates because, as argued in the preceding chapter, this is an important institution operating in the Nigerian capital market. During the 1964-1968 period, the lending rates of this institution were marginally higher than the 7½ per cent first class advances of the commercial banks, being only 1 or ½ per cent higher. Its lending rates have generally remained stable over the years, and since 1969 they have moved to 9 per cent. The Nigerian Industrial Development Bank borrowing rates from the Nigerian government and from the World Bank in 1971 ranged respectively between 3¾

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1. These estimated economic lifetimes of the capital categories are adopted from M. F. Scott, *et. al.*, Project Appraisal in Practice, London, Heinemann Education Books, 1976, p.142.

and 5 per cent on the one hand, and between 6½ and 7 per cent on the other.[1] Furthermore, evidence on the private rates of return on capital employed in the Nigerian manufacturing sector may be presented. During the 1966-1971 period, the average private rates of return for thirty-six, twenty-three and eighteen companies operating in the manufacturing sector were respectively 30 per cent and above, between 20 per cent and 30 per cent, and below 20 per cent. During the same period, thirteen textile companies had a 36.2 per cent average private rate of return.[2] In the 1970-1974 Plan period, the Central Planning Unit used an average of 6 per cent rate of social return to represent the opportunity cost of using public sector investment resources.[3] On the basis of the evidence presented, we have chosen an assumed accounting rate of interest of 10 per cent for use in the body of the study, mainly because we believe that it represents a midpoint between the apparently low cost of borrowing from abroad and the higher rates of return on equity investments in Nigeria. However, in the sensitivity analyses of the main results presented below, alternative accounting rates of interest of 6 and 15 per cent are also tried.

Having estimated the 1973 market cost of annual consumption of machinery and equipment, transport equipment, building and construction categories of capital as shown in Appendices 6.J and 6.L, we then derived their accounting costs. For this purpose, like the evaluation of the textile products above,

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1. Diaku, I., "Development Bank Finance for Industry in Nigeria: A Case Study of the Nigerian Industrial Development Bank (NIDB)", Ph.D. Thesis, University of Wales, June 1975, p.164.

2. Equere, I. U. and A. A. Longe, "Rate of Return on Capital in Nigerian Industries", Central Bank of Nigeria, Economic and Financial Review, Vol.13, No.2, December 1975, pp.15-16.

3. Second National Development Plan 1970-74, Lagos, Federal Ministry of Information, 1970, p.40.

the inputs of these capital categories should, in the main, be valued at their import prices (i.e. at their c.i.f. prices) because Nigerian industrialisation has largely been characterised by the importation of investment goods to manufacture consumer goods. In this respect, the capital categories should be treated as fully tradable and importable inputs. But building and construction goods, though produced domestically to replace imports and which therefore can be regarded as importable, have non-tradable components of inputs. In the empirical analysis, we regard the market costs of such non-tradable inputs as equal to their accounting costs because, as we have already seen, the estimated single standard conversion factor for deflating the market values of non-tradables is approximately 1.00. Since we have data on all the values but not on all the quantities of the categories of capital inputs, we found it necessary to calculate the effective exchange rates of the relevant capital categories given the official exchange rate and the tariff rates for the capital categories. The formula used for the estimation of the effective exchange rate, as already defined in Section 3.2.1 of Chapter Three, is as follows: $e(1+t)$, where e is the official exchange rate and t is the tariff rate for each category of importable input. The estimated effective exchange rates are presented in Table 6.4. On the basis of the effective exchange rates, we estimated the total naira cost of foreign exchange of the capital categories to represent their accounting costs as shown in Appendices 6.K and 6.L. Similarly, as presented in Table 6.4, effective exchange rates were estimated for categories of raw material and intermediate inputs as the basis for deriving their accounting costs. The inputs of electricity and water were treated as non-tradables whose market costs were assumed to be equivalent to their accounting costs because of the reason given above concerning the valuation of non-tradables in the study.

Table 6.4 Estimates of Effective Exchange Rates for Categories of Capital Goods, Raw Materials and Intermediate Inputs

Category	Average Tariff Rate (%)	Effective Exchange Rate
1	2	3
Capital Goods:		
Machinery and Equipment	6.3	0.702
Transport Equipment	86	1.228
Building and Construction	16.7	0.770
Raw Materials and Intermediates:		
Raw Cotton(a)	-	0.980(a)
Man-Made Fibre	$33^1/3$	0.880
Thread and Yarn	$33^1/3$	0.880
Grey Baft	75	1.155
Chemicals	10	0.726
Fuel Oil	10	0.726

Note: Official exchange rate in 1973: ₦0.66 = 1 dollar.

(a) indicates the shadow conversion ratio Kobo/Kg. to the Nigerian market price, 52.8 Kobo/Kg., which is the ex-depot price at which the textile mills bought raw cotton from the marketing board.

Sources for Column 2:

(i) Skoup and Company Ltd., Working Papers, S/F20, 1973.

(ii) Skoup and Company Ltd., A Study of The Nigerian Textile Industry, Lagos, July 1973, pp.206-207.

6.3 The extent of economic efficiency performance of individual firms

The Nigerian government's restrictive trade policies created enormous investment incentives for the growth and structural change of the textile industry through the strategy of import substitution. As this growth path is still being pursued, it is instructive to evaluate the past economic costs of this resource allocation strategy in order to ask the policy question of how new resources may be more optimally allocated in the future. The answer to the question of how much lower the future economic costs would be may be sought, in the first instance, by determining the past economic efficiency performance of the industry. This implies that we should also determine the variations in economic efficiency among firms in the industry. For the analysis of this issue, the estimates of unit social profit, effective rate of protection, and unit value added at world prices for the individual firms in the industry in 1973 are presented in Table 6.5.

The format of this table needs some amplification and justification. From the standpoint of economic analysis, the textile industry may be conceived as consisting of firms each of which is engaged in value-adding production process or processes. In terms of this definition of an industry given by Krueger and Merhav,[1] a textile commodity, such as cloth, is not made by a firm *per se*; instead, it is made by the thread and yarn producers, fabrics producers and cloth producers. The main textile products are therefore grouped by category of producers whose main production processes are correspondingly identified. To hide the identity of individual producers, alphabetic and numerical subscripts are used to represent the textile producers. The product categories as shown in the table are self-explanatory. The assignment of producers to individual product categories

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1. Krueger, A. O., The Benefits and Costs of Import Substitution in India: A Microeconomic Study, Minneapolis, University of Minnesota Press, 1975, p.83; Merhav, M., Technological Dependence, Monopoly, and Growth, London, Pergamon Press, 1969, pp.68-69.

Table 6.5 Estimates of Unit Social Profit, Effective Rate of Protection, and Unit Value Added at World Prices for the Nigerian Textile Industry, 1973

Textile Producers	Processes	Effective Rate of Protection (Percentage)	Unit Social Profit ₦	Unit Value Added at World Prices ₦
	1	2	3	4
Other Broadwoven N_7	Weaving and finishing	-7	0.289	0.637
Cotton Broadwoven D	Spinning, weaving and finishing	-8	0.288	0.444
Cotton Broadwoven K_2	Weaving and finishing	72	0.024	0.141
Cotton Broadwoven N_5	Spinning, weaving and finishing	29	0.017	0.116
Synthetic Broadwoven W_2	Spinning, weaving and finishing	59	0.013	0.223
Synthetic Broadwoven E	Weaving and finishing	49	-0.025	0.228
Knitted Fabrics K_3	Knitting and finishing	15	-0.026	0.203
Cotton Broadwoven U	Spinning, weaving and finishing	70	-0.041	0.036
Cotton Broadwoven S	Spinning, weaving and finishing	60	-0.044	0.073
Cotton Broadwoven A_2	Weaving and finishing	88	-0.061	0.012
Cotton Broadwoven K_1	Spinning, weaving and finishing	226	-0.109	-0.067
Cotton Broadwoven A_1	Spinning, weaving and finishing	11	-0.110	0.049
Thread and Yarn N_4	Spinning	75	-0.155	0.043
Cotton Broadwoven N_2	Spinning, weaving and finishing	89	-0.168	0.014
Cotton Broadwoven Z_2	Spinning, weaving and finishing	214	-0.187	-0.144

Table 6.5 continued...

Table 6.5 continued...

Textile Producers	Processes	Effective Rate of Protection (Percentage)	Unit Social Profit ₦	Unit Value Added at World Prices ₦
	1	2	3	4
Cotton Broadwoven N_6	Finishing	-1250	-0.189	-0.081
Thread and Yarn W_1	Spinning	43	-0.198	0.505
Cotton Broadwoven B	Spinning, weaving and finishing	68	-0.261	0.337
Synthetic Broadwoven N_1	Spinning, weaving and finishing	92	-0.335	0.056
Other Broadwoven A_3	Weaving and finishing	69	-0.375	0.378
Synthetic Broadwoven W_3	Spinning, weaving and finishing	-365	-0.472	-0.256
Cotton Broadwoven Z_1	Spinning and weaving	2665	-0.525	-0.436
Thread and Yarn N_3	Spinning	97	-0.585	0.054
Other Broadwoven T	Weaving and finishing	30	-0.602	0.824
Synthetic Broadwoven G	Weaving and finishing	272	-0.676	-0.291
Thread and Yarn F	Spinning	90	-1.140	0.041
Synthetic Broadwoven L	Spinning, weaving and finishing	-123	-2.949	-2.354
Cotton/Synthetic Broadwoven A_4	Weaving and finishing	229	-3.527	-2.362
Synthetic Broadwoven M	Weaving and finishing	158	-5.208	-1.858
Thread and Yarn C	Spinning	5520	-13.956	-6.666

was done after a careful study of the available quantitative and qualitative information. Moreover, the vertically integrated firms should, theoretically, be subdivided into their component plants according to the type of output produced, and then the corresponding unit social profit, effective rate of protection and unit value added at world prices should be computed. The nonavailability of data at the plant level for the individual producers prevents this aspect from being incorporated into the analysis. However, because the value of the final output of the individual producers embodies the values added in all the successively preceding stages of manufacture, the failure to reflect vertical integration in the analysis, as theory seems to suggest, has limited empirical import.

Detectable in column two of Table 6.5 are the magnitudes and variations of effective rates of protection implicit in the structure of protection which confronted the individual value-adding activities in the textile industry. These rates indicate the amount by which value added in a particular activity was raised by the structure of tariff protection. In other words, the rates show the amount by which the prices of inputs as well as the price of output of an activity was raised by the protective barriers facing the industry. In this respect, the rates indicate the extent of investment incentives which the structure of tariff protection implicitly accorded producers engaged in domestic value-adding production process or processes. Thus, the rates show the degree of competitiveness in the domestic textile value-adding processes, permitted by the protective structure, vis-à-vis foreign textile value-adding processes.

But the question may be raised that, since our unit of observation is the firm, we cannot validly employ the concept of effective rate of protection as shown in the table. This question readily comes to mind because one of the crucial assumptions underlying the theory of effective protection is that the physical input coefficients in the domestic production of similar

goods should be the same for all firms in the industry. This assumption implies that effective protection is an "industry concept" as opposed to a "firm concept". But it can be argued that the input coefficients may differ among firms which operate in the textile industry. The dissimilarity of input coefficients among textile firms may derive from the fact that some firms are more vertically integrated than others in the sense that some firms weave cloth and buy their yarn from independent spinning firms while other firms are both weavers and spinners. There may be, as argued in Section 5.2 of Chapter Five, some cost advantages in vertically integrated textile production. Thus, differences in input coefficients among firms due to vertical integration may mean that, for every given set of nominal prices, the effective prices may differ among firms in the industry. Furthermore, differences in input coefficients may simply be a reflection of differences in efficiency among firms in the industry: the efficient firms, which require less inputs per unit of output, would have lower costs and earn rents.[1] For these reasons, the use of *ex post* input, output and price data in our empirical analysis can reveal differences in effective rates of protection among firms in the Nigerian textile industry. Indeed, as the industry, as indicated above, is made up of firms which are engaged in value-adding production processes, it can be argued that the effective rates of protection computed for the industry are basically for the processes of textile production. Thus conceived, the effective rates of protection can be reported as shown in Table 6.5 because the available data permitted their computation. Krueger, in her empirical microeconomic study of the Indian automobile and anciliary industry, reported her estimated effective rates of

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1. Corden has identified these important modifications of the theory of effective protection. The textile industry forms the basis of his illustration of the implications of these modifications for the theory of effective protection. See Corden, W. M., The Theory of Protection, Oxford, Clarendon Press, 1971, pp.28-61.

protection for the individual firms.[1] As pointed out in Section 3.2.2 of Chapter Three, the effective rates of protection are used in this study as indices of the investment incentives which the protective tariff structure implicitly created for the textile producers.

A brief indication of the trends in the effective protection accorded the productive processes in the Nigerian textile industry is in order. As can be observed in column two of Table 6.5, the effective rates of protection varied widely among productive processes in the industry. For example, the rates ranged from -1250 per cent (single-process finishing cotton broadwoven producer N_6) to 5520 per cent (single-process spinning thread and yarn producer C). The mixed spinning and weaving process (cotton broadwoven Z_1) had the second highest effective rates of protection in the sample industry.

A further analysis of the evidence on tariff protection may be presented by estimating weighted average effective rates of protection for the production processes in the industry. As can be seen in Table 6.6, tariff protection, in 1973, generally discriminated in favour of the first two production processes of spinning and weaving and against the final production process of finishing. In comparison with the spinning and weaving processes, the weighted average effective rate of protection for the completely integrated spinning, weaving and finishing process was low. The low weighted average effective rate of protection for the completely integrated spinning, weaving and finishing process was partly due to the discrimination of tariff protection against the single-finishing process. This result of the analysis of tariff protection which confronted the industry in 1973 confirms the conclusion reached in the preceding chapter that the government used the tariff device to encourage backward integration in the production processes; that is, firms were encouraged to incorporate spinning and weaving into

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1. Krueger, A. O., *op. cit.*, pp.89-91.

Table 6.6 Weighted Average Effective Rates of Protection for 1961 and 1973

Process	Effective Rate of Protection (%)	
	1961[a]	1973[b]
Single-spinning process	76	95
Single-finishing process	191	-1250
Mixed weaving and finishing processes	-	155
Completely integrated spinning, weaving and finishing processes	105	23

Source: a - Kilby, P., Industrialization in an Open Economy: Nigeria 1945-1966, Cambridge, Cambridge University Press, 1969, p. 130.

b - Computed from Table 6.5. Such extreme effective rates of protection as 2665% and 5520% are excluded from the computation.

Note: The weights used in the computation of the average effective rates of protection are the shares of each of the observations in the total sample industry value added at world prices.

their production processes. This trend in tariff policy as revealed by the analysis of the 1973 data seems to be in contrast with that indicated by the 1961 data. For instance, on the basis of Kilby's estimates of effective rates of protection for 1961 presented in Table 6.6, it may be argued that, although there seemed to be an across-the-board tariff policy for all the production processes, there was a clear discrimination of the tariff policy in favour of the single-finishing process. This trend in the effective protection for the production processes in the industry between 1961 and 1973 seems consistent with the proposition advanced in Section 5.2 of the preceding chapter that import substitution usually begins in the finishing production process and continues by encouraging backward integration into the weaving and spinning processes.

The relationship between the extremely wide range of effective rates of protection accorded to the production processes and economic efficiency in the industry may be shown. There is a considerable concensus among most economists that any effective protection over 50 per cent could be

judged to be too high and that the greater the 50 *per cent* level was exceeded the more intolerable the uneconomical use of resources engendered by the protective structure would become. Little, Scitovsky and Scott explicitly found "it hard to believe that one could find plausible reasons for giving effective protection as high as 50 *per cent* for any industry".[1] Judged on the basis of this proposition, we can observe in Table 6.5 that twenty of the thirty value-adding activities in the Nigerian textile industry (67 *per cent* of the sample industry) were protected from foreign competition by effective rates greater than 50 *per cent*. In point of fact, the effective rates of protection indicated in the table would have been higher than what they were in 1973 but for the removal of specific licensing as a protective device in 1971. The almost complete reliance on protective tariffs after 1971 therefore allowed some varying degrees of foreign competition which presumably spurred some of the producers to greater economic efficiency relative to other producers. To test whether this observation is consistent with what actually happened in 1973, it is necessary to determine the relationship between unit social profit, which is the measure of economic efficiency presented below, and the effective rate of protection. In the regression analysis, we therefore regressed unit social profit (USP) as the dependent variable on effective rate of protection (ERP) as the independent variable. The hypothesis underlying this regression model has pointedly been stated by Little and Scott as follows: "investments in industries with low, zero or negative effective protection have been socially very profitable".[2] The regression results are as follows:

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1. I. M. D. Little, *et. al.*, Industry and Trade in Some Developing Countries: A Comparative Study, London, Oxford University Press, 1970, pp.158-159. For a similar view, see Krueger, A. O., *op. cit.*, pp.90-91.

2. I. M. D. Little and M. F. Scott (eds.), Using Shadow Prices, London, Heinemann Educational Books, 1976, p.8.

$$USP = -0.488 - 0.191ERP \qquad R^2: .63$$
$$(0.317) \quad (0.028) \qquad F: 47.7$$
$$6.8*$$

Number of observations = 30. The figures in parenthesis are the standard errors and the starred figure is the t-statistic found by dividing the regression coefficient by its corresponding standard error.

Clearly, the unit social profit was negatively correlated with the effective rate of protection and the regression coefficient was statistically significant at the 99 *per cent* confidence level. Thus, we may conclude that the tariff protective structure which confronted the industry encouraged resource misallocation because it created incentives which in turn pulled resources needlessly into the relatively inefficient activities within the industry.

But, as argued in Chapter Three, the unit social profit and the domestic resource cost criteria provide the most comprehensive and consistent basis for judging whether or not individual firms in the industry are efficient and for comparing the relative economic efficiency among firms in the industry. In that chapter, we concluded that, although the relative rankings of firms on the basis of both criteria might differ, they would consistently identify firms which are generally efficient or inefficient. Also in that chapter, we discussed the limitations of using relative rankings based on either criterion as an index of relative economic efficiency. We noted that, under the unit social profit criterion, the comparability of unit social profits among firms depends on the homogeneity of the output of the firms being compared. On this count, it may be argued that it is difficult to compare social profit *per* kilogram of each firm of the five thread and yarn firms with social profit *per* square metre of each firm of the twenty-five broadwoven fabrics firms shown in column three of Table 6.5.

In this respect, it may be pointed out that we can only compare the unit social profits among firms within the thread and yarn sector and the unit social profits among firms within the broadwoven fabrics sector. This empirical criticism of the unit social profit criterion is valid. However, to the extent that we can judge firms which have negative unit social profits in the thread and yarn sector as well as in the broadwoven fabrics sector as inefficient, the relative economic efficiency of firms in the two sectors can indirectly be compared. The indirect comparability of the unit social profits among firms in the two sectors may be enhanced when all the firms are ranked together in descending order of their levels of unit social profit as we have done in Table 6.5. We also pointed out in Chapter Three that as a consistent basis of evaluation the domestic resource cost ratio may break down in the presence of negative value added measured at world prices (international value added) which forms the denominator of the domestic resource cost ratio. This weakness of the domestic resource cost ratio may be accentuated by the requirement that the international value added should be net of repatriated payments made to foreign-owned resources. To ascertain the empirical significance of the criticisms of the unit social profit and the domestic resource cost criteria, a comparison of relative ranking of economic efficiency among firms in the industry based on these criteria can be discerned in Table 6.7. An interesting empirical finding which arises from the measured unit social profits and domestic resource cost ratios presented in this table is that the relative rankings of the most efficient seven firms according to the two measures coincide and that their relative rankings diverge as the domestic resource cost ratios of firms become negative. For example, the Spearman's rank correlation coefficient for unit social profits and domestic resource costs when all the firms with negative domestic resource costs are excluded from the observation is 0.853,

Table 6.7 Comparison of Relative Ranking of Economic Efficiency on the Basis of Unit Social Profit Criterion and on the Basis of Domestic Resource Cost Criterion

Textile Producers	Unit Social Profit		Domestic Resource Cost	
	₦	Ranking		Ranking
Other Broadwoven N_7	0.289	1	0.665	2
Cotton Broadwoven D	0.288	2	0.354	1
Cotton Broadwoven K_2	0.024	3	0.860	3
Cotton Broadwoven N_5	0.017	4	0.884	4
Synthetic Broadwoven W_2	0.013	5	1.024	5
Synthetic Broadwoven E	-0.025	6	1.252	7
Knitted Fabrics K_3	-0.026	7	1.238	6
Cotton Broadwoven U	-0.041	8	3.080	12
Cotton Broadwoven S	-0.044	9	1.828	8
Cotton Broadwoven A_2	-0.061	10	-6.636	28
Cotton Broadwoven K_1	-0.109	11	-0.591	22
Cotton Broadwoven A_1	-0.110	12	3.786	13
Thread and Yarn N_4	-0.155	13	9.900	14
Cotton Broadwoven N_2	-0.168	14	-16.545	29
Cotton Broadwoven Z_2	-0.187	15	-0.287	20
Cotton Broadwoven N_6	-0.189	16	-0.720	23
Thread and Yarn W_1	-0.198	17	14.298	15
Cotton Broadwoven B	-0.261	18	1.869	9
Synthetic Broadwoven N_1	-0.335	19	28.643	16
Other Broadwoven A_3	-0.375	20	2.469	11
Synthetic Broadwoven W_3	-0.472	21	-0.788	24
Cotton Broadwoven Z_1	-0.525	22	-0.200	18
Thread and Yarn N_3	-0.585	23	-79.875	30
Other Broadwoven T	-0.602	24	2.003	10
Synthetic Broadwoven G	-0.676	25	-1.203	26
Thread and Yarn F	-1.140	26	49.208	17
Synthetic Broadwoven L	-2.949	27	-0.250	19
Cotton/Synthetic Broadwoven A_4	-3.527	28	-0.454	21
Synthetic Broadwoven M	-5.208	29	-1.430	27
Thread and Yarn C	-13.956	30	-0.966	25

and, when all the firms with negative domestic resource costs are included in the observation, the Spearman's rank correlation coefficient is 0.681. The two Spearman's rank correlation coefficients are statistically significant at 1 *per cent* level. This result suggests that the unit social profit and the domestic resource cost criteria perform well in ranking the relative economic efficiency among firms in the industry. Two conclusions may be drawn from these results. Firstly, the criticism of the unit social profit criterion with respect to comparing the relative efficiency of the thread and yarn firms with that of the broadwoven fabrics firms is of limited empirical import. Secondly, although the Spearman's rank correlation coefficient when all the firms with negative domestic resource costs are excluded from the observation is greater than that when all the firms with negative domestic resource costs are included in the observation, the presence of firms with negative international value added does not greatly impair the role of the domestic resource cost ratio in ranking the relative efficiency among firms in the industry.

Because of the foregoing consideration and because, as argued in Chapter Three, under the unit social profit criterion, it is theoretically feasible to separate the appraisal of the industry's contribution to Nigerian economic growth in terms of efficient resource utilisation from that of the industry's foreign-exchange contribution, we use the unit social profit criterion as the basis for our ensuing discussion of efficiency performance of the industry. The unit social profits of the individual firms in the sample industry are presented in column three of Table 6.5. As these estimates will be used later on as the basis for comparing the actual efficiency performance with what would have happened under alternative trade regimes and for investigating the causes of variations in efficiency performance in the industry in the next chapters, it is necessary to test the sensitivity of the estimated unit social profits to the alternative

assumptions about some of the key parameters used in the calculation. The unit social profits presented in Table 6.5 were estimated on the basis of: (1) a 10 *per cent* accounting rate of interest; and (2) the assumption that shadow wage value is the same as the market wage value for all skill categories of labour. Table 6.8 presents the unit social profit estimates under alternative assumptions. Columns one and three present the unit social profits assuming, with actual market wage, a 6 *per cent* and a 15 *per cent* accounting rate of interest respectively. The fourth and fifth columns give the unit social profit estimates with 10 *per cent* accounting rate of interest and the respective assumptions that the shadow wage value of unskilled labour is equal to one-quarter of market wage value and that the shadow wage value of unskilled labour is zero. We assume, by implication, that the market cost of skilled labour correctly reflects the social cost of this category of labour. An inspection of Table 6.8 clearly shows that all the unit social profit estimates are satisfactorily stable with respect to reasonable variations in the parameters. All the estimated unit social profits are significantly correlated.[1]

The extent of economic inefficiency in the industry can be discerned in column three of Table 6.5. As shown in Chapter Three, firms in the industry with positive unit social profits can be judged as efficient while those with negative unit social profits can be regarded as inefficient. We also showed in that chapter that, as the firms are ranked together in descending order of their levels of unit social profit, the variations

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1. Simple correlations were calculated between all pairs of the unit social profit estimates which are presented in Table 6.8. The resulting correlation coefficients are as follows

	1	2	3	4
2	.9999			
3	.9994	.9998		
4	.9999	.9999	.9996	
5	.9978	.9976	.9970	.9985

Table 6.8 Unit Social Profit Estimates Under Alternative Assumptions

Textile Producers	With Actual Market Wage Accounting Rate of Interest of ...			With 10% Accounting Rate of Interest	
	6%	10%	15%	SWR of Unskilled Labour = 1/4 of Market Wage	SWR of Unskilled Labour = Zero
	1	2	3	4	5
Other Broadwoven N_7	0.318	0.289	0.249	0.320	0.416
Cotton Broadwoven D	0.294	0.288	0.280	0.299	0.333
Cotton Broadwoven K_2	0.034	0.024	0.011	0.036	0.073
Cotton Broadwoven N_5	0.023	0.017	0.008	0.029	0.066
Synthetic Broadwoven W_2	0.032	0.013	-0.013	0.027	0.071
Synthetic Broadwoven E	-0.005	-0.025	-0.052	-0.003	-0.066
Knitted Fabrics K_3	-0.006	-0.026	-0.045	-0.001	0.076
Cotton Broadwoven U	-0.036	-0.041	-0.049	-0.032	-0.004
Cotton Broadwoven S	-0.035	-0.044	-0.055	-0.033	0.002
Cotton Broadwoven A_2	-0.052	-0.061	-0.073	-0.058	-0.049
Cotton Broadwoven K_1	-0.102	-0.109	-0.118	-0.107	-0.101
Cotton Broadwoven A_1	-0.092	-0.110	-0.136	-0.098	-0.061
Thread and Yarn N_4	-0.142	-0.155	-0.173	-0.141	-0.097
Cotton Broadwoven N_2	-0.151	-0.168	-0.190	-0.157	-0.119
Cotton Broadwoven Z_2	-0.181	-0.187	-0.195	-0.185	-0.177

Table 6.8 continued...

Table 6.8 continued...

Textile Producers	With Actual Market Wage Accounting Rate of Interest of ...			With 10% Accounting Rate of Interest	
	6%	10%	15%	SWR of Unskilled Labour = $^1/_4$ of Market Wage	SWR of Unskilled Labour = Zero
	1	2	3	4	5
Cotton Broadwoven N_6	-0.178	-0.189	-0.204	-0.182	-0.158
Thread and Yarn W_1	-0.144	-0.198	-0.198	-0.099	0.117
Cotton Broadwoven B	-0.205	-0.261	-0.338	-0.213	-0.069
Synthetic Broadwoven N_1	-0.307	-0.335	-0.373	-0.297	-0.176
Other Broadwoven A_3	-0.271	-0.375	-0.515	-0.326	-0.175
Synthetic Broadwoven W_3	-0.449	-0.472	-0.503	-0.458	-0.415
Cotton Broadwoven Z_1	-0.517	-0.525	-0.535	-0.516	-0.486
Thread and Yarn N_3	-0.518	-0.585	-0.677	-0.540	-0.400
Other Broadwoven T	-0.434	-0.602	-0.831	-0.524	-0.504
Synthetic Broadwoven G	-0.627	-0.676	-0.744	-0.655	-0.547
Thread and Yarn F	-1.100	-1.140	-1.194	-0.934	-0.289
Synthetic Broadwoven L	-2.899	-2.949	-3.017	-2.881	-2.677
Cotton/Synthetic Broadwoven A_4	-3.463	-3.527	-3.624	-3.450	-3.217
Synthetic Broadwoven M	-4.967	-5.208	-5.534	-5.071	-4.660
Thread and Yarn C	-13.266	-13.956	-14.905	-13.391	-11.660

in unit social profits from one firm to another represent the intra-marginal rankings of relative inefficiency of firms in the industry. The general conclusion which may be drawn from the table is that the extent of economic inefficiency in the industry was extremely great and that relative inefficiency varied widely among the firms. For example, the most efficient firm in the industry achieved a unit social profit of NO.289 whereas the most inefficient firm sustained a unit social loss of ₦13.956. Only five out of the thirty firms in the sample industry (17 *per cent* of the sample industry) were efficient and the others were inefficient. In comparison with the synthetic broadwoven and the thread and yarn sectors of the industry, the firms in the cotton broadwoven sector achieved the least extent of inefficiency and the smallest variations in relative inefficiency. The most efficient firm in the cotton broadwoven sector achieved a unit social profit of ₦0.288 whereas the most inefficient firm in this sector sustained a unit social loss of ₦0.525. On the other hand, while the most efficient firm and the most inefficient firm in the synthetic broadwoven sector achieved a unit social profit of ₦0.013 and sustained a unit social loss of ₦5.208 respectively, the least inefficient firm and the most inefficient firm in the thread and yarn sector respectively sustained a unit social loss of ₦0.155 and a unit social loss of ₦13.956. Besides the fact that three out of the five efficient firms (10 *per cent* of the sample industry) were cotton broadwoven firms, eight out of the eleven least inefficient firms in the sample industry (62 *per cent* of all the sample cotton broadwoven firms) were in the cotton broadwoven sector. On the other hand, only one firm in the synthetic broadwoven sector can be classed as efficient and no firm can be classed as efficient in the thread and yarn sector. There is only one firm in each of the synthetic broadwoven and the thread and yarn sectors out of the eleven least inefficient firms in the sample industry.

Another related aspect of the relative economic inefficiency picture of the industry is the variations in the unit value added at world prices among firms in the industry. The unit value added at world prices of each firm represents the net addition to Nigerian national income which the firm generated. As can be observed in column four of Table 6.5, ten firms in the sample industry exhibit negative value added at world prices. Of the ten firms with negative value added at world prices, five, four and one were respectively in the synthetic broadwoven, the cotton broadwoven, and the thread and yarn sectors. This means that the net addition to national income which these firms generated is negative; in other words, the operations of these firms reduced the growth rate of the Nigerian economy. On this evidence, it can be argued that Nigerian economic growth could be maximised by shutting down such firms, exporting the domestic materials hitherto used in their production processes, reallocating the other resources which they had employed to alternative uses, and by importing the products which were meant to be replaced by domestic production. But this theoretical adjustment process is difficult to disentangle empirically. This is because, as a comparison of column four with column three of Table 6.5 indicates, some firms with negative value added at world prices were relatively less inefficient than those with positive value added. Although unit social profit is always negative when value added at world prices is negative, some firms with less inefficiency and less low unit social profits may not coincide with such firms with positive value added because of our empirical definitions of unit social profit and unit value added. In defining unit social profit, we may recall, on the basis of the formula represented by expression (3.5) in Chapter Three, we deducted the unit accounting costs of raw material and intermediate inputs and the unit social opportunity costs of the inputs of labour and capital from the unit accounting value of output,

and in defining value added on the basis of the same formula, we deducted the unit accounting costs of raw material and intermediate inputs from the unit accounting value of output. On the basis of these definitions, we can argue that the firms with negative value added were relatively less inefficient than those with positive value added because the social opportunity costs of the inputs of labour and capital employed by the former were relatively lower than those of the inputs of labour and capital used by the latter.[1]

Implicit in the results of the foregoing analysis of the variations in the economic inefficiency among firms in the industry is the general proposition that import-substituting industrial growth engendered by protectionism will result in a divergence between social and private profitability. In general, when domestic prices are severely distorted from opportunity costs because of tariffs, indirect taxes, and government intervention in the markets for capital, private profitability may provide a very imperfect guide to investment decisions from the standpoint of society. Given the high effective rates of protection granted to the production processes in the industry, the import-substitution firms should generally exhibit higher levels of private than social profitability. Table 6.9 which shows the distribution of private and social profitability among firms in the sample industry supports this hypothesis: with the exception of cotton broadwoven D, the unit private profit was higher than the unit social profit for all the firms in the industry. The correlation between social and private

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1. For example, the proportion of the unit social opportunity costs of the inputs of capital and labour to the total unit social costs of production for the cotton broadwoven K_1 is 17 *per cent* as compared with that of 27 *per cent* for the cotton broadwoven B. Also for the synthetic broadwoven W_3 and the other broadwoven T, the proportion of the unit social opportunity costs of the inputs of capital and labour to the total unit social costs of production were 11 *per cent* and 50 *per cent* respectively. The calculations were made from our worksheets.

Table 6.9 Unit Social Profit, Unit Value Added at World Prices, Unit Private Profit and Unit Value Added at Domestic Prices for the Nigerian Textile Industry in 1973

Textile Producers	Processes	Unit Social Profit		Unit Value Added at World Prices	Unit Private Profit		Unit Value Added at Domestic Prices
		₦	Ranks	₦		Ranks	₦
Other Broadwoven N_7	Weaving and finishing	0.289	1	0.637	0.303	8	0.598
Cotton Broadwoven D	Spinning, weaving and finishing	0.288	2	0.444	0.265	10	0.412
Cotton Broadwoven K_2	Weaving and finishing	0.024	3	0.141	0.434	5	0.512
Cotton Broadwoven N_5	Spinning, weaving and finishing	0.017	4	0.116	0.076	15	0.163
Synthetic Broadwoven W_2	Spinning, weaving and finishing	0.013	5	0.223	0.364	6	0.538
Synthetic Broadwoven E	Weaving and finishing	-0.025	6	0.228	0.235	12	0.450
Knitted Fabrics K_3	Knitting and finishing	-0.026	7	0.203	0.041	19	0.239
Cotton Broadwoven U	Spinning, weaving and finishing	-0.041	8	0.036	0.054	17	0.121
Cotton Broadwoven S	Spinning, weaving and finishing	-0.044	9	0.073	0.083	14	0.183
Cotton Broadwoven A_2	Weaving and finishing	-0.061	10	0.012	0.047	18	0.102
Cotton Broadwoven K_1	Spinning, weaving and finishing	-0.109	11	-0.067	0.024	21	0.053
Cotton Broadwoven A_1	Spinning, weaving and finishing	-0.110	12	0.049	0.032	20	0.157
Thread and Yarn N_4	Spinning	-0.155	13	0.043	-0.004	22	0.169
Cotton Broadwoven N_2	Spinning, weaving and finishing	-0.168	14	0.014	-0.022	23	0.128
Cotton Broadwoven Z_2	Spinning, weaving and finishing	-0.187	15	-0.144	0.093	13	0.126

Table 6.9 continued...

Table 6.9 continued...

Textile Producers	Processes	Unit Social Profit		Unit Value Added at World Prices	Unit Private Profit		Unit Value Added at Domestic Prices
		₦	Ranks	₦	₦	Ranks	₦
Cotton Broadwoven N_6	Finishing	-0.189	16	-0.081	-0.094	25	-0.006
Thread and Yarn W_1	Spinning	-0.198	17	0.505	0.256	11	0.888
Cotton Broadwoven B	Spinning, weaving and finishing	-0.261	18	0.337	0.694	3	1.043
Synthetic Broadwoven N_1	Spinning, weaving and finishing	-0.335	19	0.056	0.343	7	0.683
Other Broadwoven A_3	Weaving and finishing	-0.375	20	0.378	0.623	4	1.211
Synthetic Broadwoven W_3	Spinning, weaving and finishing	-0.472	21	-0.256	-0.227	27	-0.055
Cotton Broadwoven Z_1	Spinning and weaving	-0.525	22	-0.436	-0.058	24	0.017
Thread and Yarn N_3	Spinning	-0.585	23	0.054	1.265	1	1.777
Other Broadwoven T	Weaving and finishing	-0.602	24	0.824	0.064	16	1.181
Synthetic Broadwoven G	Weaving and finishing	-0.676	25	-0.291	-0.121	26	0.169
Thread and Yarn F	Spinning	-1.140	26	0.041	-0.715	28	0.402
Synthetic Broadwoven L	Spinning, weaving and finishing	-2.949	27	-2.354	-1.558	29	-1.056
Cotton/Synthetic Broadwoven A_4	Weaving and finishing	-3.527	28	-2.362	0.980	2	1.831
Synthetic Broadwoven M	Weaving and finishing	-5.208	29	-1.858	0.278	9	3.210
Thread and Yarn C	Spinning	-13.956	30	-6.666	-5.793	30	0.123

Note: The Unit Private Profit for each of the firms was computed on the basis of the formula represented by expression (3.5) shown in chapter three. But, here all the outputs and inputs of the firms were evaluated at domestic market prices.

profitability in the industry was very weak. For instance, the Spearman's rank correlation coefficient for unit social profit and unit private profit is 0.258, and this rank correlation coefficient is statistically insignificant at 5 *per cent* level. But, as can be seen in Table 6.9, on the basis of domestic price valuation of the inputs and outputs of the industry, nine firms were inefficient because these firms had negative unit private profit. Three of these firms were in the cotton broadwoven sector (23 *per cent* of all sample firms in this sector), three were in the synthetic broadwoven sector (38 *per cent* of all sample firms in this sector), and three were in the thread and yarn sector (60 *per cent* of all sample firms in this sector). In fact, three firms in the sample industry had negative value added measured at domestic prices. Of these three firms, two are in the synthetic broadwoven sector.[1] This evidence further underlines the point made earlier that there were extremely wide variations in the efficiency performance of firms and sectors in the industry.

The wide differentials in relative economic efficiency performance of the individual firms and sectors in the industry have implications for future Nigerian industrial policy. If new resources are channelled into the relatively more efficient firms in the industry, the net addition to national income resulting from industrial growth will be greater than that which has occurred under the past resource allocation strategy. The more efficient firms could start export-oriented expansion as well as continue import substitution. For export production

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1. Although we will attempt an explanation of the observed inefficiency in the industry in Chapter Seven, we may note here that the continued operations of the firms in spite of their negative value added at domestic prices may be due to the multinational character of these firms. As the two firms with negative value added at domestic prices in the synthetic broadwoven sector were wholly subsidiaries of multinational concerns (as shown by the 1973 Nigerian Industrial Survey data used in the analysis), it can be argued that the continued operations of the two firms were consistent with the maximisation of profits by the multinational concerns in the context of their global investment strategies.

the Nigerian textile industry has the biggest potential in Africa.[1] This prospect has been given a fillip by the establishment of the Economic Community of West African States. But the Nigerian domestic demand for textile commodities is generally huge and it has not yet been met by domestic production. As a consequence, the textile firms are so concerned with catering for the domestic market that export expansion is given little or no priority in their investment decisions. For instance, the firms' executives in the industry were asked a multiple-choice question about the factors which determined their capacity expansion: (i) competitive pressures in the product market in Nigeria; (ii) the need to export to overseas markets; and (iii) the growing Nigerian market. Notably, out of the thirty-four respondents, none considered exports as a motive for output expansion, twenty respondents considered the growing Nigerian market as a decisive factor, whilst fourteen regarded competitive pressures in the product market as most important. The reply of one of the respondents to a question about the kind of incentive measures required for encouraging export production deserves quoting: "We have never considered exporting and would not do so while home consumption remains buoyant". Given the growth in domestic demand for textile commodities, the growth of the industry in the foreseeable future will therefore continue to be based on import substitution. This growth path will continue until such a time when a domestic demand constraint for textile commodities will have exhausted investment opportunites before export market possibilities can be exploited. This envisaged growth path for the industry is consistent with the experience of the classic pattern of capitalist industrialisation in some developing countries such as India, Pakistan and Brazil where the import-substitution phase preceded and strengthened the export-expansion phase.

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1. Arnold, G., Modern Nigeria, London, Longman, 1977, p.85.

6.4 Estimates of the net foreign exchange effects of import substitution in the industry

As we have argued in Chapter Five, the import-substituting development of the industry has been encouraged in order to save foreign exchange. It may be argued that the evaluation of the economic efficiency performance of the industry in terms of the objective of rapid economic growth, which we have undertaken in the preceding section, precludes a separate evaluation of the foreign exchange effects of the growth of the industry. Indeed, as argued in Chapter Three, theoretically, an *ex ante* evaluation of the economic efficiency of an investment project is not usually separated from that of the project's foreign exchange effects. But, as pointed out in that chapter, in a study of an *ex post* evaluation of import-substituting manufacturing investment activities, it may become necessary to separate the appraisal of their economic efficiency from that of their foreign exchange savings contribution. This may become necessary in a situation in which the process of import substitution in the consumer goods industries has been initiated and sustained largely by foreign private investors in an economy which has an insignificant intermediate and capital goods industries sector. It has been shown in Chapter Five that the import-substituting development of the Nigerian textile industry has been led largely by foreign private investors. The presence of foreign private investors in the industry may give rise to a significant repatriation of payments made to foreign factors of production from the industry. As a consequence, the net foreign exchange savings effects of the growth of the industry need to be estimated.

In general, the estimation procedure of the net foreign exchange savings effects of the growth of the industry derives mainly from the proposition that the saving of foreign exchange through the domestic production of tradable textile outputs requires an increased expenditure of foreign exchange on the importation of machinery, raw materials, spare parts,

intermediate inputs and other inputs necessitated by the expanded domestic manufacturing outputs in the industry. The increased expenditure of foreign exchange as a consequence of domestic production of textile outputs also includes the foreign exchange foregone which results from the increased utilisation of exportable inputs such as raw cotton in the production process. The textile outputs and the inputs required for their production can then be transformed appropriately into accounting values on the basis of the methods advocated in Chapter Three and as applied earlier in this chapter. Moreover, given the substantial presence of foreign private investments and the associated foreign skilled labour in the industry, there would also be an increased expenditure of foreign exchange through the repatriation of payments made to foreign factors of production. The payments to foreign-owned resources may include management fees, salaries, dividends, interest charges on long-term loans, and so on. We obtained appropriate data on the first three categories of payments and not on the rest.

In the computation of the net foreign exchange savings effects, we regard 50 *per cent* of the amount of salaries of expatriate labour services and of management fees as expatriate income which was transmitted abroad as specified by the Central Bank of Nigeria. We also assume that the dividend payments requiring the use of foreign exchange were considered proportional to the share of paid-up capital held by foreigners. We then transformed these out-payments into accounting values.

To determine the net foreign exchange savings or the net foreign exchange burden of import substitution in the industry, we therefore subtract the accounting costs of raw material and intermediate inputs and the accounting value of repatriated payments to foreign-owned resources, which represent the total foreign exchange expenditure, from the accounting value of output produced, which represents the total gross foreign exchange

saved.[1] In other words, the net foreign exchange effect of the growth of the industry is defined in terms of the value added measured at world prices generated by the industry minus the accounting value of repatriated payments to foreign-owned resources. The results of the computation are presented in Table 6.10. It must be emphasised, however, that the estimates of net foreign exchange savings or dissavings as shown in column five of this table may be regarded as underestimates of the actual foreign exchange implications of import substitution in the industry. This is because of the common practices by the foreign private firms of transfer pricing through the mechanism of high-pricing of imported inputs and the "intrafirm market segmentation for the activities of affiliates, [and] inter-firm technology contract cross-licensing".[2] Although transfer pricing effects are not adjusted for in our computation, the estimates presented in Table 6.10 can be used as the proxy foreign exchange effects of the growth of the industry.

Our discussion of the empirical evidence on the foreign exchange effects of the growth of the industry is undertaken for all the broadwoven activities taken together, for the main sectors of the industry, and for the individual firms. As can be seen in column three and row four of Table 6.11, all the broadwoven activities as a group in the industry were net users of foreign exchange: their loss of net foreign exchange *per* unit of output amounted to ₦5.718. This loss of net foreign exchange can be traced to two specific sources, namely, the operations of the activities in producing tradable broadwoven textiles and

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1. This formulation is adapted from the study by Osagie, E. and J. A. Oydabi, "Net Foreign Exchange Cost of Manufacturing Industries in Nigeria", The Economic Bulletin of Ghana, Vol. 4, No. 2, 1974, pp. 36-44.
2. Vaitsos, C. V., "Power, Knowledge and Development Policy: relations between transnational enterprises and developing countries", in Helleiner, G. K. (ed.), A World Divided: The Less Developed Countries in the International Economy, Cambridge, Cambridge University Press, 1976, p. 127.

Table 6.10 Estimates of Foreign Exchange Effects of Import Substitution in the Nigerian Textile Industry, 1973

Firm	Unit Value of Output at World Prices ₦	Unit Cost of Tradable Inputs at World Prices ₦	Unit Value Added at World Prices ₦	Repatriated Payments to Foreign Resources Per Unit of Output ₦	Net Foreign Exchange Per Unit of Output ₦	Unit Social Profit ₦	
	1	2	3	4	5	6	Ranks
Other Broadwoven N_7	1.555	0.918	0.637	0.114	0.523	0.289	1
Cotton Broadwoven D	1.461	1.017	0.444	0.003	0.441	0.288	2
Cotton Broadwoven K_2	0.915	0.774	0.141	0.005	0.136	0.024	3
Cotton Broadwoven N_5	0.212	0.096	0.116	0.004	0.112	0.017	4
Synthetic Broadwoven W_2	0.802	0.579	0.223	0.018	0.205	0.013	5
Synthetic Broadwoven E	1.481	1.253	0.228	0.026	0.202	-0.025	6
Knitted Fabrics K_3	1.083	0.880	0.203	0.018	0.185	-0.026	7
Cotton Broadwoven U	0.346	0.310	0.036	0.011	0.025	-0.041	8
Cotton Broadwoven S	0.381	0.308	0.073	0.009	0.064	-0.044	9
Cotton Broadwoven A_2	0.246	0.234	0.012	0.023	-0.011	-0.061	10
Cotton Broadwoven K_1	0.151	0.218	-0.067	0.004	-0.071	-0.109	11
Cotton Broadwoven A_1	0.366	0.317	0.049	0.007	0.042	-0.110	12
Thread and Yarn N_4	0.432	0.389	0.043	0.023	0.020	-0.155	13
Cotton Broadwoven N_2	0.261	0.247	0.014	0.025	-0.011	-0.168	14
Cotton Broadwoven Z_2	0.173	0.317	-0.144	0.006	-0.150	-0.187	15

Table 6.10 continued...

Table 6.10 continued...

Firm	Unit Value of Output at World Prices ₦	Unit Cost of Tradable Inputs at World Prices ₦	Unit Value Added at World Prices ₦	Repatriated Payments to Foreign Resources Per Unit of Output ₦	Net Foreign Exchange Per Unit of Output ₦	Unit Social Profit ₦	
	1	2	3	4	5	6	Ranks
Cotton Broadwoven N_6	0.203	0.284	-0.081	0.069	-0.150	-0.189	16
Thread and Yarn W_1	1.519	1.014	0.505	0.035	0.470	-0.198	17
Cotton Broadwoven B	1.946	1.609	0.337	0.017	0.320	-0.261	18
Synthetic Broadwoven N_1	1.446	1.390	0.056	0.043	0.013	-0.335	19
Other Broadwoven A_3	2.722	2.344	0.378	0.073	0.305	-0.375	20
Synthetic Broadwoven W_3	1.538	1.794	-0.256	0.018	-0.274	-0.472	21
Cotton Broadwoven Z_1	0.118	0.554	-0.436	0.010	-0.446	-0.525	22
Thread and Yarn N_3	3.079	3.025	0.054	0.062	-0.008	-0.585	23
Other Broadwoven T	2.231	1.407	0.824	0.112	0.712	-0.602	24
Synthetic Broadwoven G	0.571	0.862	-0.291	0.029	-0.320	-0.676	25
Thread and Yarn F	1.155	1.114	0.041	0.017	0.024	-1.140	26
Synthetic Broadwoven L	0.433	2.787	-2.354	0.030	-2.384	-2.949	27
Cotton/Synthetic Broadwoven A_4	4.947	7.309	-2.362	0.464	-2.826	-3.527	28
Synthetic Broadwoven M	2.666	4.524	-1.858	0.485	-2.343	-5.208	29
Thread and Yarn C	10.866	17.532	-6.666	0.882	-7.548	-13.956	30

Table 6.11 Foreign Exchange Effects by Main Sectors in the Nigerian Textile Industry, 1973

	Unit Value Added At World Prices (₦)	Repatriated Payments to Foreign Resources Per Unit of Output (₦)	Net Foreign Exchange Per Unit of Output (₦)	2 as a Percentage of 1
	1	2	3	4
1. Cotton Broadwoven	0.662	0.193	0.469	29.2
2. Synthetic Broadwoven	-6.614	1.113	-7.727	16.8
3. Other Broadwoven	1.839	0.299	1.54	16.3
4. All Broadwoven	-4.113	1.605	-5.718	39.0
5. Thread and Yarn	-6.023	1.019	-7.042	16.9

Source: Computed from Table 6.10.

the repatriation of payments made to foreign-owned resources. Usually, value added measured at world prices represents the addition to foreign exchange savings arising from tradable manufacturing activities. But, if a tradable manufacturing activity exhibits negative value added at world prices, then the activity sustains a loss of foreign exchange in its production operations because the activity's foreign exchange cost of raw material and intermediate inputs exceeds its foreign exchange value of output. In this case, the operation of such an activity aggravates rather than alleviates the shortage of foreign exchange of a country. On this interpretation, as can be seen in column one and row four of the table, the broadwoven activities taken together generated negative unit value added at world prices of ₦4.113. This implies that their operations resulted in a loss of foreign exchange amounting to ₦4.113; to this extent, it can be argued that their operations aggravated rather than alleviated the problem of foreign exchange shortage in Nigeria. This problem of foreign exchange shortage created by the operations of the broadwoven activities was worsened by the fact that the loss of foreign exchange *per* unit of output through repatriated payments to foreign-owned resources for these activities was ₦1.605. The foreign exchange loss due to repatriated payments to foreign resources as a proportion of the foreign exchange loss arising from the production operations of these activities was 39 *per cent*. Thus, we may conclude that, although the foreign exchange cost of the broadwoven activities resulting from repatriation of payments to foreign-owned resources was substantial, the accentuation of the problem of foreign exchange shortage by these activities resulted mainly from the inefficiency of their overall productive operations.

Of the four main sectors shown in Table 6.11, the cotton broadwoven and the other broadwoven sectors were net savers of foreign exchange whilst the synthetic broadwoven and the thread and yarn sectors were the net users

of foreign exchange in the industry. The cotton broadwoven sector was the greatest net foreign-exchange saving sector whilst the synthetic broadwoven sector was the greatest net foreign-exchange using sector: the net foreign exchange saved *per* unit of output in the former was ₦0.469 whilst the net foreign exchange lost *per* unit of output in the latter was ₦7.727. As can be seen in column four of the table, the foreign exchange loss due to repatriated payments to foreign resources as a proportion of the foreign exchange saving arising from the production operations in the cotton broadwoven sector was 29.2 *per cent*. This result implies that the proportion of the net addition to national income retained in the Nigerian economy which arose from import substituting production in the cotton broadwoven sector was 70.8 *per cent*. For the other main sectors of the industry, the foreign exchange loss due to repatriated payments to foreign resources as a proportion of the foreign exchange loss or saving arising from their production operations was about 17 *per cent*. Thus, we may conclude that, although the cotton broadwoven sector was the greatest net foreign-exchange saving sector in the industry, the foreign exchange cost due to repatriation of payments to foreign-owned resources from this sector was greater than that from the synthetic broadwoven and the thread and yarn sectors. But we may note that the overall foreign exchange cost of the operations in the synthetic broadwoven and the thread and yarn sectors was largely a reflection of the inefficiency of these sectors' productive operations rather than of the repatriation of payments to foreign-owned resources.

The analysis of the foreign exchange effects at the level of individual firms in the industry may be undertaken on the basis of columns five and six of Table 6.10. In the analysis, we seek to demonstrate empirically the hypothesis, advanced in Chapter Three, that, in an *ex post* evaluation, there might be a divergence between the economic efficiency consideration and the foreign-exchange saving aspect of import-substituting activities

depending on the extent to which foreign-owned resources were important in their development. In general, it can be argued that higher unit social profit means more foreign exchange saving. For instance comparing column six with column five of Table 6.10, one may observe that the only five efficient firms in the sample industry were equally the net foreign-exchange saving firms, and the four relatively least inefficient firms in the industry were also the net foreign-exchange saving firms. On the other hand, the four relatively most inefficient firms in the sample industry were relatively the largest net foreign-exchange users. For the remaining firms, however, the notable relationship seems to be that the net foreign-exchange using firms achieved less relative economic inefficiency than the net foreign-exchange saving firms. For example, such net foreign-exchange using firms as the cotton broadwoven A_2 and cotton broadwoven K_1 were relatively less inefficient than such net foreign-exchange saving firms as the cotton broadwoven A_1 and thread and yarn N_4. Similarly, such net foreign-exchange using firms as the cotton broadwoven N_2, cotton broadwoven Z_2 and cotton broadwoven N_6 were relatively less inefficient than such net foreign-exchange saving firms as the thread and yarn W_1, cotton broadwoven B, synthetic broadwoven N_1 and other broadwoven A_3. To determine the strength of these direct and inverse relationships between the relative economic efficiency (or inefficiency) performance and the relative foreign-exchange saving capacities among the firms, we computed the Spearman's rank correlation coefficient for all the firms' unit social profit and net foreign exchange *per* unit of output. The Spearman's rank correlation coefficient is 0.624, and it is statistically significant at 5 *per cent* level. This result suggests that there was a correspondence rather than a divergence between the efficiency and the foreign exchange aspects of the economic performance of the industry. However, the fact that the Spearman's rank correlation is not "perfect", in the sense that all the thirty observations of unit social profit and net foreign exchange *per* unit of output do not have the same rank numbers may be explained partly by the repatriation of

payments to foreign-owned resources. This observation is supported by the fact that the repatriation from the industry of payments made to foreign resources was substantial.

6.5 Conclusions

The main conclusion to which one is led by the preceding analysis is that, judged against the objectives of the achievement of rapid economic growth and of foreign exchange savings, the development of the Nigerian textile industry through import substitution has been extremely socially inefficient. Of the thirty firms in the sample industry evaluated, only five firms were socially efficient and the remaining twenty-five firms were socially inefficient. There have been extremely wide variations in relative inefficiency among firms and sectors within the industry. The relatively least inefficient firms have been in the cotton broadwoven sector whilst the relatively most inefficient firms have been in the synthetic broadwoven and the thread and yarn sectors. Given the fact that the net addition to national income, as indicated by value added at world prices, which ten firms generated was negative, the operations of firms in the industry generally reduced the growth rate of the Nigerian economy. Moreover, the fact that the broadwoven activities as a group exhibited negative value added at world prices meant that the production operations in these activities aggravated rather than alleviated the problem of foreign exchange shortage in Nigeria. This problem was further worsened by a repatriation of payments made to foreign-owned resources. The cotton broadwoven and the other broadwoven sectors were net savers of foreign exchange whilst the synthetic broadwoven and the thread and yarn sectors were the net users of foreign exchange in the industry. The cotton broadwoven sector was the greatest net foreign-exchange saving sector whilst the synthetic broadwoven sector was the greatest net foreign-exchange using sector. Although the cotton broadwoven sector was the greatest net foreign-exchange saving sector in the industry, the foreign exchange cost due to repatriation of payments to foreign-owned resources from this sector was greater than that from the

synthetic broadwoven and the thread and yarn sectors. The foreign exchange cost of firms in the synthetic broadwoven and the thread and yarn sectors was mainly a reflection of the inefficiency of the firms' productive operations rather than of the repatriation of payments to foreign-owned resources. Hence, on the basis of the available empirical evidence, we may conclude that the import substitution in the industry has been not only inefficient but also the import-substitution process has become a part of the worsening balance-of-payments syndrome in Nigeria, rather than an escape route from it.

Another major conclusion to be drawn from the empirical analysis is that there was a very weak correlation between social profitability and private profitability in the industry. This meant that, from the standpoint of Nigerian society, private profitability was a very imperfect guide to investment decisions in the industry. This phenomenon was largely a product of an environment of a high and differentiated structure of tariff protection in which the industry developed. In this respect, we found that the range of effective rates of protection implicitly given to production activities was extremely wide, and, in establishing the relationship between relative economic efficiency and the structure of tariff protection, we found that unit social profits were negatively correlated with effective rates of protection in the industry.

CHAPTER SEVEN

The Determinants of the Economic Inefficiency in the Nigerian Textile Industry

7.1 Introduction

We have demonstrated in the preceding chapter that the Nigerian textile industry as a whole was extremely inefficient and that there were wide differentials in relative economic inefficiency among firms and sectors in the industry. It was implicitly shown in that chapter that the overall economic inefficiency of the industry was significantly related to the restrictive trade policies used to encourage its development. Given the objectives and the actual mechanisms of import-substituting development of the industry, discussed in Chapters Five and Six, we attempt, in this chapter, a more systematic identification and assessment of the factors which could explain the efficiency performance of the industry. In general terms, we examine some of the factors in the Nigerian economic environment which could possibly explain the overall economic inefficiency of the industry. We also discuss, on the basis of some preliminary tests, four hypotheses about the variations in economic efficiency among firms in the industry: (1) infant-industry considerations; (2) economies of scale; (3) relative factor intensities; and (4) "X-efficiency" or efficiency of input use. The results of the preliminary tests, based on regression analysis, are presented in Appendix 7.M and we tentatively refer to them in our discussion but point out the difficulties of testing these hypotheses and the weaknesses of our preliminary regression results.

7.2 The Nigerian economic environment and overall inefficiency of the textile industry

It may be argued that the causes of the overall economic inefficiency of the industry are associated with the general economic environment of Nigeria in which the industry operates. This is because the environment could encourage misutilisation or under-utilisation of resources or it could create conditions which would result in high costs of some resources. In this section, we therefore relate, in a general way, the inefficiency performance of the industry to an aspect of the economic environment. The term economic environment as used here refers to all the factors which impinge upon the operation of firms in the industry and which are external to the firms. The factors include human resources, communications and transportation, electric power systems, educational training facilities, and other infrastructural facilities.[1] A discussion of the evolution and problems of infrastructural facilities and of the development of human resources in Nigeria is outside the scope of the present study; we merely attempt here to relate inefficiency in the textile industry to some aspects of these issues.

In general, and, indeed, by definition, the underdeveloped Nigerian economy experiences an acute shortage of managerial, technical and supervisory workers and an inadequate supply of all conceivable infrastructural facilities required for efficient industrial development. The inadequacies of the supply of the requisite skilled manpower and of infrastructural facilities may give rise to generally high costs of industrial production in Nigeria as compared with the relatively low costs of production in the more advanced industrialised countries. For instance, the shortage of

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1. For the definition of economic environment used here, see Schatz, S. P., "Development in an Adverse Economic Environment", in S. P. Schatz (ed.), South of the Sahara: Development in African Economies, London, Macmillan, 1972, p.28.

skilled manpower in the Nigerian textile industry, which the companies' executives interviewed regarded as one of the most important problems facing the industry, may have partly contributed to the generally high costs of the industry. The general shortage of skilled manpower in Nigeria partly accounted for the presence of expatriate skilled personnel in the industry. In 1973, the total number of persons employed in the sample industry studied was 33,419 whilst the number of expatriate persons employed was 568 - the share of expatriate labour employed in total labour employed was 1.7 *per cent*. On the other hand, while the total labour cost (including fringe benefits) of the sample industry was ₦20,058,530, the expatriate labour cost was ₦5,157,039 - the expatriate labour cost had a 25.7 *per cent* share in total labour cost. On the basis of this evidence, it may be argued that the disproportionately high share of expatriate labour cost in total labour cost which was partly a manifestation of the general shortage of Nigerian skilled manpower contributed to the overall high costs of the industry. This proposition derives partly from the fact that, for doing the same job as the Nigerian skilled workers, the expatriate skilled workers were paid higher wages and salaries including fringe benefits as compared with the remunerations of the Nigerian skilled workers as inducements for the expatriate skilled workers to work in Nigeria.

An illustration of the contribution of inadequate and unreliable infrastructural facilities to the high costs of the Nigerian textile industry can be given with respect to the costs of electricity for the industry as a whole. A cost comparison of electricity supply for industrial purposes in Nigeria as well as in the more advanced industrialised countries based on 400,000 Kilo-Watt-Hour (KWH) *per* month is presented in Table 7.1. It is evident from the table that the costs of electricity supply are extremely high in Nigeria in comparison to those in the more

Table 7.1 Cost Comparison of Electricity Supply for Nigeria and Other Countries in 1973

Country	Cost Per KWH in Naira	Percentage of Nigeria
Nigeria	0.0227	100
United Kingdom	0 0045	19.8
Japan	0.0069	30.4
United States of America	0.0127	55.9

Source: Skoup and Company Ltd., and Werner Textile Consultants, A Study of The Nigerian Textile Industry, unpublished report, Lagos, July 12, 1973, p.71.

advanced industrialised countries. Some of the Nigerian textile companies' executives claimed, during our personal interviews with them, that the tariff being charged in Nigeria was too high. In 1973, the sample industry's total cost of raw material and intermediate inputs was ₦87,594,500, while its cost of electricity was ₦4,389,980 - the share of the cost of electricity in total cost of raw material and intermediate inputs being 5 *per cent*. It may be argued, however, that this proportion of the cost of electricity in total cost of raw material and intermediate inputs is so small that it could not have significantly contributed to the industry's high costs of production. But this proportion as well as the costs shown in Table 7.1 was based on the assumption that the supply of electric power was continuous and that its voltage was constant. However, in the Nigerian situation where there were frequent electric power cuts and fluctuations in the voltage, there were added costs which were not reflected in the cost estimates of electricity already mentioned. Such cuts and fluctuations, as revealed in our interviews with the textile companies' executives, caused greater damage, and therefore more frequent replacement of electric motors and other electrical parts in the factories.

These therefore constituted the hidden electricity costs which, nontheless, may have contributed to the industry's high unit costs of production.

It may also be argued that other costs associated with the Nigerian economic environment, which include shipping delays and difficulties encountered in installing equipment in factories, may have contributed to the high unit costs of production in the industry. Schatz has shown, with respect to the Nigerian textile industry, how the difficulties and delays in obtaining and installing equipment can lead to higher costs of industrial production in an underdeveloped economy like Nigeria's than in a more developed economy.[1] The example, which he cited, is that of the boilers which were imported for the Textile Printers of Nigeria. It was discovered, after the boilers had arrived at the port, that they weighed forty-five tons instead of the expected thirty-seven tons. As a consequence, the intended means of transporting them across the River Niger to the site of the Textile Printers of Nigeria proved inadequate, and it took a full month rather than two days to get the boilers across. During this period, labour costs and similar costs continued to accrue. He mentioned another instance of a large textile firm which found that its looms had been improperly installed and partly for this reason, scrapped them and purchased new ones. Thus, he concludes that

> "because of the difficulties and delays in getting, installing, and beginning operation of equipment, starting a project in Nigeria requires, in the words of one expatriate, 'substantially more capital, especially working capital' than in a more developed economy".2

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1. *Ibid.*, pp.37-38.

2. *Ibid.*, p.38.

7.3 Infant-industry considerations

The argument, advanced in the preceding section, that the underdeveloped Nigerian economy experiences an acute shortage of managerial, technical and supervisory workers and an inadequate supply of all conceivable infrastructural facilities required for efficient industrial development might be formulated in terms of an infant-industry argument. In this context, can it be argued that the observed economic inefficiency of the Nigerian textile industry was a manifestation of infant-industry considerations? In other words, can it be argued that the length of time during which the industry had been in existence was not sufficient for it to have achieved efficiency by 1973? Or was the opposite more likely, in which case, can we regard the observed inefficiency of the industry as representing the fact that the industry had remained stunted at its "infancy"?

In order to suggest answers to these questions, it is necessary to state briefly the theoretical rationale for infant-industry considerations in the industrialisation process and to indicate briefly the expectation of Nigerian import-substitution policies. It is also necessary to indicate and evaluate the nature of the empirical evidence required for answering these questions.

Infant-industry considerations have long been held by economists as a justification for using tariff protection by late industrialisers to encourage industrialisation. The "infant-industry" strategy of industrialisation has invariably taken the form of import substitution in many developing countries. The infant-industry argument essentially derives its rationale from the historically verified process whereby industries may begin by the replacement of imports of manufactured goods by domestic

production and later evolve into significant producers for export markets.[1] According to this reasoning, temporary tariff protection could be given to a newly established manufacturing industry during the period of its "infancy" when its costs are likely to be relatively high because of lack of accumulated experience in production. As the industry matures through the process of learning by doing, it may become efficient (*i.e.* it may be able to reduce its overall costs of operation) and withstand foreign competition, and then, in such a situation, the protection could be removed. In this sense, an import-substitution process, stimulated by protection, may act as the necessary incubator of industrial experience which may lead ultimately to industrial efficiency. In general terms, the mechanisms for the ultimate achievement of industrial efficiency operate through the view that over time the labour force and the entrepreneurship in the new industry would gain experience through the learning-by-doing process, the products of the industry would improve, and the marketing ability of its salesmen would become more sophisticated. In this respect, Michaely has argued that the cost reduction in the overall operations of the industry which results from the learning-by-doing process over time is often manifested in changes in factor endowments and in factor productivity.[2] These changes in the conditions of production, he argues, may be a function of the accumulated production experience in the industry throughout the

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1. The infant-industry argument is commonly expounded in almost every text on the problems of industrialisation. In addition to the references cited in Chapters Two and Five with respect to the infant-industry argument, see Little, I., T. Scitovsky and M. Scott, Industry and Trade in Some Developing Countries: A Comparative Study, London, Oxford University Press, 1970, pp.118-121; Corden, W. M., Trade Policy and Economic Welfare, Oxford, Clarendon Press, 1974, pp.248-279.

2. For the detailed exposition of Michaely's argument about how a restrictive trade policy affects, through the learning-by-doing process, the growth process through changes in factor endowments and in factor productivity in an industry, see Michaely, M., Theory of Commercial Policy: Trade and Protection, Oxford, Philip Allan, 1977, pp.73-83.

length of time the industry has been in production. The accumulated production experience often takes the form of acquisition of new skills or knowledge by the industry's workers.

The implication of the foregoing theoretical rationale of the infant-industry argument for an optimal industrial development strategy is that it may be rational to have initially high-cost production processes or activities if it is expected that their costs will decline sufficiently over time. Such a strategy would be valid only if high-cost firms were new and were likely to experience dynamic internal economies or internal economies of time;[1] that is, such firms would achieve cost reductions the longer the time period over which they had begun production. This has been the expectation of restrictive trade policy-making with respect to import-substituting manufacturing development in Nigeria. For instance, in 1961, the then Federal Minister of Finance expounded the infant-industry argument as a basis for initiating Nigeria's industrialisation:

> "the governments are all resolved to encourage the growth of local industry by providing newly established industries with a degree of protection at least until they are strong enough to stand on their own feet."[2]

Subsequent industrial policy was based on this reasoning, and it was predicated on the expected gradual evolution from import substitution to export-oriented expansion as a manifestation of the achievement of greater efficiency in the form of a reduction to competitive levels of industrial costs of production over time.[3]

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1. Corden, W. M., Trade Policy and Economic Welfare, Oxford, Clarendon Press, 1974, p. 250.
2. Federal Ministry of Information, The Sovereignty Budget, Lagos, April, 1961, p. 49.
3. Federal Ministry of Information, Second National Development Plan 1970-74, Lagos, 1970, p. 143.

We may indicate and assess the nature of the available empirical evidence about the infant-industry considerations on the basis of our cross-sectional data for the industry. For this purpose, the following data could be used: an index of efficiency (unit social profit) for the individual firms, an index of new skill or knowledge acquired by workers (measure of skill-transfer to and within the industry) of the firms, and a measure of the length of time in production of firms (age of firms). The proxy age of each firm is defined to cover the period when the firm was in continuous production beginning with its first year of production up to and inclusive of 1973. Carrying out preliminary tests for the presence of infant-industry considerations, we may regress the unit social profit as a measure of efficiency of each firm on the age of each firm to determine the variation in the efficiency of the firms with respect to their length of time in continuous production. To indicate the skill acquired by workers over time, we need to define an index of skill intensity for each firm from the three skill categories of labour employed in the industry as defined in the Nigerian Industrial Survey data, namely, the expatriate skilled employees, the Nigerian skilled employees who belonged to the administrative, professional, and supervisory categories of labour, and the unskilled employees (operatives). We may define the index of skill intensity, as Solomon and Forsyth have done in their study of factor substitution, using Ghana's Annual Survey of Production data, as the ratio of skilled to unskilled employees.[1] We may therefore define four ratios, which may be related to the age of the individual firms, namely, the ratio of expatriate skilled employees plus Nigerian skilled employees to unskilled employees, the ratio of expatriate skilled

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1. Solomon, R. F. and D. J. C. Forsyth, "Substitution of Labour For Capital in the Foreign Sector: Some Further Evidence", Economic Journal, Vol.87, June 1977, pp.283-289.

employees to unskilled employees, the ratio of Nigerian skilled employees to unskilled employees, and the ratio of expatriate skilled employees to Nigerian skilled employees. It is assumed that the unskilled employees acquired skills, that both the Nigerian skilled and the expatriate skilled employees transferred skills over time, and that the expatriate employees were the most skilful and therefore transferred skills to the Nigerian skilled employees over time. The interpretation of the variation in the measure of skill intensity for each firm with respect to the age of the firm is suggested by Solomon and Forsyth who argue that the measure of skill intensity may be used as evidence for increased availability of technical expertise or skills for the firms' labour force. If a firm displays a lower skill intensity (that is, the firm has a lower ratio of skilled to unskilled employees) than another firm, then, they argue, the former has greater available technical expertise or skills than the latter. This is because, they contend, the lower ratio of skilled to unskilled employees would "appear to constitute *prima facie* evidence of the deployment of superior technical knowledge in the use of cheap local inputs (in this case unskilled labour) as substitutes for those in short supply (in this case skilled labour). . ."[1] This implies that if the unskilled employees actually learned by doing over time they would need less supervision and instruction from the skilled employees whose number employed in the production process would therefore fall over time.[2]

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1. *Ibid.*, p.285.

2. Michaely has suggested a theoretical formulation which underpins the process of learning by doing in the following terms:

> "It is possible that specialisation in a given industry, involving increased production in it, leads in time to cost reduction through the process known as 'learning by doing'. The emphasis on the time element here should be noticed. The cost reduction involved in this process does not arise from a production

The preliminary tests based on the preceding theoretical specifications and definitions are presented in Appendix 7.M (equations 1-5). As may be inferred from equation (1) and from equations (2-5), it would appear that the greater was the length of time in production of the firms in the industry the more inefficient they were, and that there was greater availability of technical expertise or skills for the firms' labour forces as their length of time in production increased. But it can be argued that, even on statistical grounds, this conclusion is far-fetched. This is because the proportions of the variations in the dependent variables accounted for by the explanatory variables as represented by the coefficients of determination are extremely small. This implies that other factors besides the age of the individual firms not specified

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> function specifying increasing returns to scale: these may be assumed to be constant. The contention is, rather, that the combination of the scale of production with the length of time of operation of the industry governs the change of conditions in the industry's production; or, in other words, that these conditions are a function of the accumulated production in the industry, throughout the period considered. Now, these 'changed conditions' may be described as either changes in factor endowments or in the industry's production function (its technology). If, in the production function, 'factors of production' are defined in minute detail, so that each 'factor' is strictly homogeneous, we may say that this accumulation of production has led to an increase in specific factors. Productive factors - primarily labour of various shades - have changed in nature, thus changing, by definition, factor quantities. For instance (this is probably one of the most important examples), unskilled labour, or labour of some other skill, can acquire particular skills specific to the industry under consideration. We may then say that the economy's factor endowment has changed: the amount of this specific factor - labour of a particular skill - has increased; whereas the amount . . . of labour of other skills, has diminished."

Michaely, M., *op. cit.*, p.74.

in our tests significantly accounted for the variations in efficiency of the firms and in availability of skills for the firms' labour forces. More fundamentally, it is difficult to test, on the basis of cross sectional data, dynamic arguments such as the changes in efficiency and in availability of technical expertise or skills over time. This is because the factors which significantly affect efficiency and technical expertise or skills change through time. For instance, efficiency of firms cannot be assumed to have a constant time profile because the prices of final products and of inputs required for producing them could vary at different rates over time. The availability of technical expertise or skills for the firms' labour forces may be influenced by changes over time in the industry's techniques of production which determine, in the first place, the skill categories of labour to be employed by the firms. Furthermore, changes over time in the ratios of skilled to unskilled employees may not indicate the skills which were being acquired. Such changes may merely reflect the fact that, in response to the requirements of Nigerianisation policy, foreign firms might recruit Nigerians as managers who were not actually given management functions to perform. This possibility has been indicated by the Second National Plan as follows:

> "Hitherto, many firms have placed a good number of Nigerians in management positions. But it is widely known that many of these indigenous 'managers' are not given management functions to perform, and are in effect little more than glorified clerks put up for 'window dressing'."[1]

The difficulty of testing the infant-industry hypothesis is further compounded by the fact that there is no specific time period which can serve as the norm for judging whether the industry is sufficiently old so that it can be expected to be efficient. The oldest firm and the youngest

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1. Federal Ministry of Information, National Development Plan 1970-74, p.288.

firm in the sample industry studied were seventeen and four years respectively. The average age of firms in the cotton broadwoven sector is eight years, and that of firms in the synthetic broadwoven sector is only four years. Given the fact that the modern Indian and the Pakistani textile industries, which have become increasing competitive in the export markets, are older than the modern Nigerian textile industry, it may be argued that the overall inefficiency of the Nigerian textile industry was in part a reflection of the relatively young age of the industry. In particular, given the fact that the average age of firms in the synthetic broadwoven sector is only four years, it may be argued that the length of time in production of firms in this sector is not sufficient for them to have achieved cost reductions over time.

7.4 Economies of scale

The investigation of the possible causes of the inefficiency of the Nigerian textile industry may further be undertaken by indicating the extent to which the existence of differing degrees of economies of scale accounted for the wide variations in the relative economic efficiency among firms. This investigation is necessary because the differentiated tariff and tax-incentive policies which were used to encourage backward integration in the industry aimed at enlarging the size of firms. We found in Chapter Five that there was a positive correlation between the size of firms and the degree of integration of their production processes in the cotton broadwoven sector which is the longest established and largest sector of the industry. The *a priori* expectation that firms in the industry would reap economies of scale through the use of tariff and tax-incentive policies to force them to integrate backwards is indicated by the Second National Plan in the following terms:

> "As the Nigerian market becomes more competitive, private investors are likely to become more responsive to measures that put their actual or potential competitors at an advantage. For example, if within the Textile Industry a firm that imports yarn for weaving is denied a tax holiday while a similar firm that undertakes both spinning and weaving . . . is granted tax concessions, the former is likely to seek to maintain its competitive position by carrying its backward integration further to the spinning stage."[1]

In obtaining preliminary empirical evidence on economies of scale on the basis of the 1973 cross sectional data of firms in the industry, we may measure, in the manner already indicated in Chapter Five, the economies-of-scale parameter by a direct estimation of a Cobb-Douglas production

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1. Federal Ministry of Information, Second National Development Plan 1970-74, p.285.

function through multiple regression analysis.[1] By fitting such a production function in which the elasticities of output with respect to the inputs of several factors employed by the firms in the industry are estimated, we can indicate whether or not the firms reaped economies of scale in their production processes. On the basis of such elasticities, we can say that the firms experienced increasing, constant, or diminishing returns to scale depending on whether the sum of the elasticities is greater than, equal to, or less than one. In estimating the elasticities for the firms, a linear logarithmic multiple regression equation may be defined, in which the accounting value of gross output of the individual firms depends on the accounting costs of the inputs of raw materials and intermediates, of capital, and of labour employed by the firms. In addition to the weaknesses of the method of directly estimating the economies-of-scale parameter through a Cobb-Douglas production function noted in Chapter Five, this estimation procedure omits the inputs of management. Hence, the estimates of economies of scale obtained directly from the production function may be biased downwards. For instance, it can be observed from the preliminary empirical evidence on economies of scale given in equation 6(a) of Appendix 7.M that the sign function with respect to the accounting cost of labour inputs is wrong. Alternative measures of economies of scale may therefore be necessary. The estimates of the elasticity of accounting value of gross output with respect to the total accounting cost of production of the firms and of the simple regression coefficient of total accounting cost of production are respectively given in equations 6(b) and 6(c). On the basis of these pieces of empirical evidence, it appears that, within the range of the observations of firms

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1. We re-examine here the issue of economies of scale as a part explanation of the wide variations in relative economic efficiency among firms in the industry because the evaluation of the operating investments in the industry in Chapter Six was undertaken by transforming the inputs and outputs of all the sample firms into accounting values.

covered, constant returns to scale applied in the industry. This conclusion corresponds to that reached in Chapter Five that firms in the industry did not reap economies of scale. Indeed, we concluded from our review, in that chapter, of the evidence on economies of scale, in the textile industries of other countries that scale economies have generally been unimportant in the development of the textile industry. To this extent, we may conclude that the observed wide variations in relative economic efficiency among the firms operating in the Nigerian textile industry were not related to the existence of differing degrees of economies of scale among them.

7.5 Relative factor intensities

In this section, we investigate the extent to which the choice of techniques of production made by the individual firms accounted for the wide variations in economic efficiency as represented by the variations in unit social profits among the firms in the Nigerian textile industry. As a basis for our discussion of the relationship between economic efficiency and choice of techniques of production in the industry, the inputs of capital and of labour employed by the firms in their production process have been evaluated at accounting prices as shown in the preceding chapter.

In general, as pointed out in Section 5.4 of Chapter 5, the relationship between economic efficiency and techniques of production in an industry depends mainly on such determinants of choice of techniques as the relative price of labour and capital available to the firms, the differences in objectives between different types of firm within the industry, and the nature of the market structure in which the firms operate. The fact that a variety of factors influence the choices of techniques of firms in varying degrees presumably accounts for a lack of consensus in the literature as to the precise general relationship between economic efficiency and techniques of production. As a prerequisite to the formulation of hypotheses for investigating the extent to which the adoption of different techniques by the firms accounted for the variations in economic efficiency in the Nigerian textile industry, it is necessary to illustrate briefly the lack of consensus on the issue of the precise relationship between economic efficiency and techniques of production. In the first place, the view is generally held that the adoption of capital-intensive methods which embody modern technology of the latest vintage in industrial production tends to result in greater economic efficiency. Helleiner and Stewart respectively express this general view as follows: "It is by now agreed that capital-intensity is not undesirable

per se in any particular activity; in many instances, it is socially efficient";[1] "it is generally true that the later techniques have some advantage compared with earlier in terms of this starting point, and for this reason are likely to have greater productivity and efficiency in relation to resource use".[2] In particular, Shepherd has argued, with respect to cotton-type textiles, that the greater textile export competitiveness of Taiwan and South Korea as compared with that of India in the 1960's was partly due to the fact that while Taiwan's and South Korea's textile industries adopted relatively more modern capital-intensive techniques, the textile industry of India used relatively more labour-intensive techniques.[3] In the second place, in a study of the timber industries in Ghana, in which the inputs of capital and labour were evaluated at accounting prices and in which therefore the relative price of capital and labour was explicitly taken into account, Page found that whilst higher capital-intensity of production was associated with relatively inefficient firms in the logging industry, higher capital-intensity of production was associated with relatively efficient firms in the furniture industry.[4]

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1. Helleiner, G. K., "International Technology Issues: Southern Needs and Northern Responses", in J. N. Bhagwati (ed.), The New International Economic Order: The North-South Debate, Cambridge, The MIT Press, 1977, p.306.

2. Stewart, F., Technology and Underdevelopment, London, Macmillan, 1977, p.3.

3. Shepherd, G., The Economics of International Trade in Cotton-Type Textiles, The World Bank, Economic Staff Working Paper No.111, July 26, 1971, pp.20-21.

4. Page, J. M., "The Social Efficiency of the Timber Industries in Ghana", in I. M. D. Little and M. F. Scott (eds.), Using Shadow Prices, London, Heinemann Educational Books, 1976, pp.116-118.

Two hypotheses, as implicitly suggested in Chapter Five, namely, the neoclassical and the structuralist may be offered as a basis for assessing the factors which could explain the relationship between economic efficiency and techniques of production in the Nigerian textile industry. The rationale of these hypotheses may briefly be stated. The neoclassical hypothesis is based on the recognition that two factors of production of labour and capital are required in the production process and that the question of choice of technique consists of choosing between techniques of differing labour and capital intensity. The relative price of labour and capital, given the substitutability between labour and capital, is regarded as the crucial determinant of choice of technique. As the relative price of labour and capital reflects the relative scarcity or abundance of these factors in a given country, the neoclassical hypothesis can be stated in terms of the Heckscher-Ohlin factor-proportions theory of international trade. The essence of this theory is that, given different factor supplies in different countries, relative factor prices will differ and so too will domestic commodity price ratios and factor combinations among the different countries. Given these conditions, countries with cheap labour will have a relative cost and price advantage in the manufacture of commodities which make abundant use of labour over countries with relatively expensive labour. On the other hand, countries relatively well endowed with capital will have a relative cost and price advantage in the production of manufactured goods which tend to require relatively large inputs of capital compared with labour. The implication of the factor-proportions theory is that, in order to engender efficient industrialisation in a labour-abundant developing country, industrial investment should be concentrated in labour-intensive activities at the expense of capital-intensive activities. If this hypothesis is valid for the Nigerian textile industry, then, assuming that the inputs of labour and

capital are evaluated at accounting prices, activities within the industry which adopted more labour-intensive methods of production should achieve relatively higher economic efficiency than those activities which adopted less labour-intensive methods of production. The structuralist hypothesis derives from the proposition that the choice of technique by firms in an industry may significantly be determined by the competitive conditions in the industry. In this respect, a firm may be compelled by the competitive conditions to search out the most productive technique it can obtain within the limits of its resources in order either to establish a dominant market position or to maintain its share of the market in the industry. As "the only way known so far to raise productivity is to make and use more and better, i.e. technically more efficient machines, not less and worse", the firm may "gain a competitive advantage over [its] rivals only by introducing more and better machinery" into its production process.[1] The structuralist hypothesis may therefore be formulated as follows: if the choice of techniques of production of firms in the Nigerian textile industry was significantly influenced by competitive pressures, then relatively higher capital intensity of production should be associated with relative economic efficiency in the industry.

The preliminary empirical evidence required for assessing the preceding hypotheses may be shown. We may regress our index of economic

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1. Merhav. M., Technological Dependence, Monopoly, and Growth, Oxford, Pergamon Press, 1969, p.53. Stewart has advanced a similar argument:

> "A system in which private firms compete, each with free access to foreign technology, may lead to oligopolistic competition via product differentiation - as it has in capitalist advanced countries - rather than competition via price. Such a structure may force each firm to adopt the most recent techniques in order to secure its market by providing the most recent product; in such a situation the technique is determined by the market in the context of the technology in use . . ."

Stewart, Frances, *op. cit.*, p.24.

efficiency (unit social profit) of individual firms in the sample industry on the ratio of accounting cost of capital input to accounting value of gross output of the firms (K/O), or on the ratio of accounting cost of capital input to accounting cost of labour input of the firms (K/L). The preliminary regression results are presented in equation 7(a) and 7(b) of Appendix 7.M. However, the objection may be raised that the K/O and K/L ratios are not useful empirically because, as argued in Section 5.4 of Chapter Five, associated with these ratios are the problems of measuring capital stock and of capacity utilisation. But, as our treatment of capital stock in Section 6.2 of Chapter Six explicitly recognised and incorporated the different vintages of different capital inputs, it may be argued that, to some extent, the problem of measuring capital stock has been taken care of in the analysis. The problem of capacity utilisation can be tackled by adjusting for excess capacity when estimating the K/O and K/L ratios. But, as the actual excess capacity in the industry, as shown in Appendix 7.N, was generally low, we assume that the firms produced at full capacity in 1973 so that we did not explicitly adjust for capacity utilisation in the K/O and K/L ratios used in the regression analysis.

The general observation that can be made on the basis of regression equations 7(a) and 7(b) is that the K/O ratio or the K/L ratio is significantly and positively correlated with unit social profits in the sample Nigerian textile industry studied. This evidence suggests that the choice of techniques by individual firms in the industry explained, to some extent, the variations in relative economic efficiency among the firms: the firms which adopted relatively more capital-intensive methods of production tended to be relatively efficient, whilst the firms which adopted relatively more labour-intensive methods of production tended to be relatively inefficient. On this interpretation, it can be argued that

considerations other than relative factor prices influenced choice of techniques in the Nigerian textile industry. Thus, we may conclude that the neoclassical hypothesis, as stated above, does not provide a satisfactory basis for explaining the utilisation of capital and labour inputs in the industry.

But it can be argued that it is the structuralist hypothesis that provides a satisfactory explanation of the positive correlation between relative economic efficiency and capital intensity in the industry. In other words, the choice of relatively efficient capital-intensive techniques of production by firms was made predominantly in response to competitive pressures in the industry. Kilby has indicated this viewpoint when he argues that in the Nigerian textile industry

> "investors with no prior interest in the market minimize their capital commitment . . . by the extensive use of second-hand machinery; and conversely, investors protecting established markets tend to employ more efficient capital-intensive processes".1

In general, the choice of techniques made by the firms was basically limited to the choice with respect to the use of relatively older equipment (second-hand textile equipment) or the use of relatively newer textile equipment.[2] The general characteristic of the choice of technique within this range is that the use of older equipment in the production process tends to give rise to greater labour intensity than the use of newer equipment. But firms using older equipment may encounter difficulties in obtaining spare parts in good time for maintaining the productive capacity

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1. Kilby, P., Industrialisation in an Open Economy: Nigeria 1945-1966, Cambridge, Cambridge University Press, 1969, p.118.

2. *Ibid.*, p.116; also see Pack, H., "The Choice of Technique and Employment in the Textile Industry", in A. S. Bhalla (ed.), Technology and Employment in Industry: A Case Study Approach, Geneva, International Labour Office, 1975, pp.153-173.

of the second-hand plant. As a consequence, to be competitive, firms using second-hand plant may replace their initial equipment with new equipment as soon as sufficient depreciation allowances and reserves have accumulated.

As demonstrated in Section 5.2 of Chapter Five, the competitive pressures in the industry, which generally compelled the firms to adopt more capital-intensive techniques relative to labour-intensive techniques, were manifested in market-protection investment activities which were undertaken by foreign private investors. The foreign private investors, which were motivated in their investment decisions to protect their markets in Nigeria, were basically two, namely, the established firms which first entered the industry to cater for their previous merchandise trade interests, and the overseas firms which later entered the industry to protect their threatened export market in the face of a rising tariff wall. The established firms adopted capital-intensive methods of production to anticipate prospective competition in the Nigerian market. For example, the first firm, Kaduna Textile Limited, to establish a successful modern textile factory for the protection of merchandise trade interests began by installing new and fully automatic looms so as to minimise labour training and maintenance problems and by installing fifteen-year old machinery in the spinning department. But

> "with the prospect of competition from 1960 onwards and availability of internal financing, all old spinning apparatus was replaced with the latest, highest speed equipment which reduced labour costs and substantially increased plant productivity, thus enabling the first manufacturer to secure as much of the market as possible before other local production commenced".1

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1. Kilby, P., *op. cit.*, p.117.

The overseas firms actually anticipated the ensuing competitive struggle with the established firms so that they planned, from the start, to secure a competitive advantage in the market by adopting capital-intensive techniques. The Arewa Textiles and the United Nigerian Textiles are amongst the examples of market-protecting overseas firms which "brought in completely new equipment for all operations" into the industry from the middle of the 1960's.[1]

As foreign firms played an important role in the development of the Nigerian textile industry, we may argue that the increasing adoption of capital-intensive methods of production by the firms in the industry was a reflection of the rapid technological advance in the textile industries of the developed countries during the late 1950's and in the 1960's.[2] Thus, it can be argued that the capital-intensive methods of production adopted in the Nigerian textile industry partly or completely embodied modern technology of the latest vintage because "actual technology in use" in an industry tends to be dictated "by the nature of world technology".[3] Given the important role played by foreign firms in the development of the Nigerian textile industry, we may hypothesise that the adoption of relatively efficient capital-intensive techniques by firms was a manifestation of the firms' differential access to modern technology through foreign investment and to scarce skilled manpower through expatriate skilled labour. In other words, we may hypothesise that the firms which had greater access to foreign private investment and expatriate skilled labour tended to adopt relatively efficient capital-intensive techniques.

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1. *Ibid.*, p.118.
2. For a discussion of the technological advance in the textile industries of developed countries, see Shepherd, G., *op. cit.*, pp.23-25.
3. Stewart, F., *op. cit.*, p.3.

This hypothesis derives its justification from the fact that, in 1973, foreign private investment, as measured by paid-up capital, was responsible for 60 *per cent* of the total investment in the sample industry studied and that, in the same year, the expatriate labour wage bill including fringe benefits, as shown earlier, accounted for 25.7 *per cent* of the total labour costs of the sample industry. Moreover, our questionnaire information shows that the foreign firms tended to use the capital-intensive techniques with which they were familiar. For example, when asked about the main sources of and the factors influencing their purchases of machinery, plant, and equipment, 56 *per cent* of our thirty-four respondent firms mentioned "through the parent company" and "machinery in use at head office overseas" as the most important source and factor respectively. In addition, there is a positive, though insignificant, correlation between economic efficiency and foreign private investment in the sample industry: the correlation coefficient for the unit social profit (which represents the index of economic efficiency of each firm) and the ratio of foreign equity capital to total equity capital investment (which is a proxy measure of foreign private investment for each firm) is 0.32.[1]

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1. Although the social benefits and social costs of an industrialisation programme largely initiated and sustained by foreign private investment have been themes subject to controversy and to varying degrees of interpretation in the literature, few economists would deny that foreign private investment could contribute to efficient industrial growth. It must be emphasised that, basically, the controvery does not deny the contribution of foreign private investment to efficient industrial growth, and that, rather, the controversy is fundamentally concerned with the nature, style and character of an industrialisation process which has been predominatly sustained by foreign private investment. The contribution of foreign private investment to efficient industrial growth stems from the possibility that foreign firms could use the much-needed package-resources of management experience, entrepreneurial abilities and technological skills in the process of domestic industrial production, and could simultaneously transfer these package-resources to the domestic labour force and entrepreneurs by means of training programmes and the process of learning by doing. The literature on the role and impact of foreign private investment in

Another plausible way of showing the relationship between economic efficiency and foreign private investment is to argue, given the usual association of skilled labour availability with foreign private investment, that the firms which had greater access to expatriate skilled labour tended to adopt relatively efficient capital-intensive techniques in the industry. This is because capital intensity is usually associated with skill intensity in terms of increasingly specialised skills required in the capital-intensive production process. This implies that capital-intensive techniques may require a different composition of industrial labour force as compared with labour-intensive techniques because the former make possible the division of complex operations which require various categories of skilled labour. In this respect, Arrighi has argued that whereas capital-intensive techniques are associated with such categories of labour as semi-skilled labour and high-level manpower which are characterised respectively by specialisation, regularity, and identification with a given job and by specialisation and educational qualifications other than training on the job; labour-intensive techniques are associated with such categories of labour as unskilled labour and skilled labour which are characterised respectively by versatility and lack of adaptation

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developing countries is enormous; suffice it to mention a few:

Lal, D., Appraising Foreign Investment in Developing Countries, London, Heinemann, 1975; Meier, G. M., "Export Substitution and Multinational Enterprises", in A. Cairncross and M. Puri (eds.), Employment, Income Distribution and Development Strategy: Problems of the Developing Countries, London, Macmillan, 1976, pp.140-153; Tamas Szentes, "Socioeconomic Effects of Two Patterns of Foreign Capital Investments, With Special Reference to East Africa", in P. C. W. Gutkind and I. Wallerstein (eds.), The Political Economy of Contemporary Africa, London, Sage Publications, 1976, pp.261-290; and Todaro, M. P., Economics For a Developing World, London, Longman, 1977, pp.343-346.

to the discipline of wage employment and by relative versatility.[1] As the expatriate skilled labour is likely to belong to the category of high-level manpower in the Nigerian textile industry, we may argue that the firms which had access to expatriate skilled labour would tend to be more efficient than those which had no access to this category of labour. Furthermore, it can be argued that as competitive pressures in the industry forced some of the firms to adopt the most recent capital-intensive techniques they would require, to be efficient, greater amounts of expatriate skilled labour. But, given the competitive pressures manifested in increased demand for skilled labour, the industry would "come to face an effectively inelastic labour supply, within an economy which in the aggregate may have 'unlimited supplies of labour'".[2] Such a situation might enable the firms which had access to greater amounts of expatriate skilled labour to achieve, *ceteris paribus*, competitive advantage over their rivals. Hence, we may conclude that the differential access to expatriate skilled labour may have been an important explanation as to why the capital-intensive firms were relatively more efficient than the labour-intensive firms in the highly competitive Nigerian textile industry.

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1. Arrighi, G., "International Corporations, Labour Aristocracies, and Economic Development in Tropical Africa", in G. Arrighi and J. S. Saul, Essays on the Political Economy of Africa, New York, Monthly Review Press, 1973, pp. 113-114.

2. Merhav, M., *op. cit.*, pp. 128-129.

7.6 The "X-efficiency" hypothesis

The neoclassical theory of the firm is usually premised on two kinds of efficiency assumptions. Firstly, it is assumed that the firm operates on its production possibility curve, whence the maximum output of the product is realised from each feasible combinations of factor inputs mainly of labour and capital. Secondly, given factor prices, it is assumed that the firm chooses the least-cost factor combination for each possible level of output of the product. These efficiency assumptions imply that the firm does not experience wasteful use of factor inputs in its production process. The absence of wasteful use of factor inputs in the production process implies, in turn, that the "X-inefficiency" of all firms in an industry is zero, that is, all the firms operate on their production possibility curves. But it can be argued that the more realistic assumption to make is that all the firms in the industry operate within their production possibility curves and that some firms operate closer to their production possibility curves than other firms in the same industry. This is basically the "X-efficiency" hypothesis which has been lucidly stated by Leibenstein as follows:

> ". . . firms and economies do not operate on an outer-bound production possibility surface consistent with their resources. Rather, they actually work on a production surface well within that outer bound. For a variety of reasons people and organisations normally work neither as hard nor as efficiently as they could. Two general types of movements are possible. One is along a production surface toward greater allocative efficiency and the other is from a lower surface to a higher one that involves greater degrees of X-efficiency. The data suggest that in a great many instances the amount to be gained by increasing allocative efficiency is trivial, while the amount to be gained by X-efficiency is frequently significant".1

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1. Leibenstein, H., Beyond Economic Man: A New Foundation For Microeconomics, London, Harvard University Press, 1976, pp.46-47. For a theoretical exposition and empirical review of the X-efficiency hypothesis, see pp.29-47 of this book.

He argued that the central catalyst responsible for improvement or worsening in X-inefficiency among firms is the degree of competition and adversity which the economic environment could impart to them. For instance, competitive pressures from other firms may lead to efforts towards cost reduction, and the absence of such pressures may allow costs to rise.

To investigate the extent to which X-inefficiency was present in the Nigerian textile industry and to which therefore X-inefficiency accounted for the overall inefficiency of the industry, some preliminary empirical evidence is required. For this purpose, we may regress the unit social profit (our index of economic efficiency) of each firm on the accounting costs of factor inputs *per* unit of international value added of each firm.[1] If X-inefficiency were present among the firms in the industry, we would expect a negative correlation between the unit social profits of the firms and the accounting costs of factor inputs *per* unit of international value added of the firms, implying that the relatively inefficient firms would use more of all factor inputs in their production process. Assuming a two-factor world of labour and capital in which skills and technical progress are respectively embodied in labour and capital, we may define the factor inputs in the preliminary statistical test as the accounting costs of the inputs of labour employed *per* naira of international value added and the accounting costs of the inputs of capital employed *per* naira of international value added. In the preliminary regression results presented in Appendix 7.M [equations 8(a)-8(c)], the

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1. Here, we follow Krueger's method for establishing our preliminary empirical evidence on X-inefficiency. In her study, Krueger obtained empirical evidence on X-inefficiency by regressing domestic resource cost (her index of economic efficiency) of each firm on the accounting costs of factor inputs *per* unit of international value added of each firm. See Krueger, A. O., The Benefits and Costs of Import Substitution in India: A Microeconomic Study, Minneapolis, University of Minnesota Press, 1975, pp.104-105.

observations with negative international value added were excluded from the regression analysis because they yielded negative accounting costs of capital employed and accounting costs of labour employed *per* naira of international value added - a fact which seems to have no discernible economic meaning. The objection may be raised, however, that the preliminary regression results do not represent X-inefficiency in a pure sense because the commodities produced by and the methods of production used by all the firms in the industry are not strictly identical. In theory, it is only when all the firms in an industry produce identical commodities with identical methods of production that a straightforward comparison of their relative X-inefficiency can be made.

Be that as it may, on the basis of the preliminary empirical evidence as represented by equations 8(a)-8(c) in Appendix 7.M, we may make two general observations about the extent to which X-inefficiency was present in the Nigerian textile industry. The first general observation is that, as can be seen in equation 8(a), the accounting costs of the inputs of capital and labour *per* unit of international value added are significantly and negatively correlated with unit social profits in the industry, implying that there was a strong association between the high-cost firms and their use of more inputs of labour and more inputs of capital employed *per* unit of international value added. This evidence indicates that there was X-inefficiency among the firms which operated in the industry. A plausible explanation of the existence of X-inefficiency among the firms is that the restrictive trade policies used for encouraging the development of the industry induced the firms to relax their cost-reducing efforts. In this respect, it can be argued that tariff protection sheltered X-inefficiency in the industry because the protected domestic product markets assured the firms a high level of private profitability mainly because the firms found that they were in a position to sell any

produced outputs in the protected domestic markets. This argument is supported by our findings in the preceding chapter that the industry was confronted by a high and differentiated tariff structure and that there was a marked divergence between social profitability and private profitability among the firms. The presence of X-inefficiency in the industry seems consistent with the general *a priori* expectation that tariff protection, through the creation of relatively noncompetitive conditions in the domestic markets as compared with the competitive conditions in the world markets, is exploited by relaxing cost-reducing efforts on the part of the firms. Bergsman attests to this general phenomenon as follows:

> ". . . many firms are simply not on their production possibility frontiers. Many instances of this common phenomenon, especially in less developed countries, owe their existence to protection. Protection not only permits domestic production that cannot compete with imports, but also permits domestic production, at noncompetitive costs, that could compete with imports if such competition were necessary for survival. Protection is thus a necessary condition for the existence of much 'X-inefficiency' . . .".[1]

Another plausible explanation of the existence of X-inefficiency in the industry derives from the competitive struggle, as noted earlier, between two categories of market-protecting foreign investors, namely, the established firms which first entered the industry to cater for their previous merchandise trade interests, and the overseas firms which later entered the industry to protect their threatened export market as increased import duties or other restrictive measures were being imposed on imported textiles. As the tariff wall rose or was expected to rise against imported textiles, these two categories of market-protecting foreign

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1. Bergsman, J., "Commercial Policy, Allocative Efficiency, And 'X-Efficiency'", Quarterly Journal of Economics, August 1974, pp. 410-411.

investors, which could be regarded as multinational firms, reacted by establishing textile factories in Nigeria. In general, such investment decisions made in response to real or imagined heightened competition in the Nigerian domestic market might lead to a build-up of capacity in excess of the immediate requirements of the domestic market. Such a build-up of capacity by the multinational firms could be regarded as rational because they aimed, generally, at defending their existing global markets including those in Nigeria. But it can be argued that, as their increased investments in the Nigerian textile industry were a part of their global investment strategies, the multinational firms' build-up of capacity might be accompanied by their relaxation of cost-reducing efforts which might be manifested in excess capacity. This point might be indicative of the fact that, although, as argued earlier, underutilisation of the actual level of capacity was generally low for the whole sample industry, such firms, as shown in Table 7.N of Appendix 7.N, as cotton broadwoven K_2, cotton broadwoven N_5, synthetic broadwoven E, knitted fabrics K_3 and other broadwoven T, which were wholly foreign-owned, experienced considerable excess capacity. Thus, it can be argued that the "defensive" investment decisions made by the established firms and the overseas firms presumably caused some of the firms in the industry to operate within their production possibility frontiers.

The second general observation about the presence of X-inefficiency in the industry is based on a comparison between the X-inefficiency associated with the utilisation of labour inputs and the X-inefficiency associated with the utilisation of capital inputs by the firms. For this purpose, we may compare the regression coefficient and its corresponding standard error and the coefficient of determination (R^2) of equation 8(b) with those of equation 8(c). We may deduce from this comparison that not only did the relatively high-cost firms (firms with relatively low unit

social profits) use more labour inputs and more capital inputs than the relatively low-cost firms (firms with relatively high unit social profits), but also the high-cost firms used more labour inputs than capital inputs. This implies that the X-inefficiency associated with the utilisation of capital inputs was less than the X-inefficiency associated with the utilisation of labour inputs in the firms' production processes. This observation implicitly confirms the conclusion reached in our earlier discussion of relative factor intensities that the relatively capital-intensive firms were relatively more efficient than the relatively labour-intensive firms. Thus, noting the explanations given earlier as to why the capital-intensive firms were relatively more efficient than the labour-intensive firms, we may argue that the existence of X-inefficiency in the industry was engendered more by human factors than by physical factors in the industry's production process. This argument is paralleled by that of the study of the Brazilian textile industry by the United Nations Economic Commission for Latin America:

> ". . . what might be called physical factors . . . do not explain the sharp variations in productivity levels in Brazilian mills. Consequently, after studying the limited data available, it must be concluded that the explanation of that part of the variation in productivity not attributable to the physical factors involved must be looked for in the human factors in the production process".1

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1. United Nations, ECLA, The Textile Industry in Latin America: II, Brazil, E/CN.12 623, October 1963, p.83.

7.7 Conclusions

The main conclusions reached in the preceding discussion of the factors which could explain the economic inefficiency of the Nigerian textile industry may be summarised. The overall inefficiency of the industry can be explained, in part, by the fact that the typically underdeveloped Nigerian economy experienced shortages of managerial, technical and supervisory manpower and inadequate supplies of all conceivable infrastructural facilities required for efficient industrial production. Given the inappropriate empirical evidence available for the testing of the infant-industry hypothesis, the question whether the observed economic inefficiency of the industry was a manifestation of infant-industry considerations could not conclusively be answered. However, given the fact that the inefficiency of the industry could partly be explained by the general characteristics of underdevelopment of the Nigerian economy, it can be argued that the overall inefficiency of the industry was partly a result of the fact that the length of time during which the industry had been in existence was not sufficient for it to have achieved efficiency by 1973.

The available evidence suggests that the observed wide efficiency differentials among the firms operating in the industry were not related to the existence of differing degrees of economies of scale among the firms. We reached a similar conclusion in Chapter Five that, as in the textile industries of other countries, scale economies have been unimportant in the development of the Nigerian textile industry. The main point which has emerged from the discussion of relative factor intensities in the industry is that, contrary to the neoclassical two-factor proportions hypothesis, the firms which adopted more capital-intensive methods of production were relatively more efficient than the firms which adopted

labour-intensive methods of production. This meant that factors other than the relative price of labour and capital were more important in explaining the optimal choice of techniques in the industry. We argued that the main explanations as to why firms tended to choose relatively efficient capital-intensive techniques could be sought on the basis of the structuralist hypothesis: the choice of the relatively efficient capital-intensive techniques was significantly influenced by the competitive pressures which were generated in the industry as a result of the entry of foreign firms into the industry to cater for their previous merchandise trade interests and to protect their export market in the face of a rising tariff wall. In this context, the firms tended to adopt the most recent capital-intensive techniques as a means of remaining efficient in the face of competitive pressures in the industry. Thus, the firms' actual adoption of relatively efficient capital-intensive techniques was determined mainly by the firms' differential access to modern technology through foreign private investment and to scarce skilled manpower through expatriate skilled labour.

Finally, the evidence suggests that there were marked variations in X-inefficiency among the firms which operated in the industry. The presence of X-inefficiency in the industry appears to be consistent with the general *a priori* expectation that tariff protection, through the creation of relatively noncompetitive conditions in the domestic market, was exploited by the firms by way of relaxing their cost-reducing efforts. It can also be argued that the "defensive" investment decisions made by the multinational firms operating in the industry presumably caused such firms to operate within their production possibility frontiers.

CHAPTER EIGHT

Alternative Strategies for Improving the Economic Performance of the Nigerian Textile Industry

8.1 Introduction

The main general conclusion drawn from the empirical evidence contained in chapters six and seven is that the economic performance of the import-substituting Nigerian textile industry was significantly influenced by the government protectionist policy and by the investment strategies of foreign firms which dominated the industry. It will be recalled that the empirical appraisal of the past economic performance of the industry has been undertaken in order to suggest, from the standpoint of industrial planning and policy, alternative strategies which can be pursued to improve the industry's performance. As we have argued in sections 2.6 and 2.7 of chapter two, the discussion of alternative strategies for reforming or implementing import-substitution programmes can be conducted in the context of two theoretical paradigms, namely, the neo-classical trade and welfare paradigm and the structuralist/Marxist dependency paradigm. It is therefore instructive to examine in this chapter the implications of these theoretical paradigms for suggesting and assessing, in the light of the available empirical evidence contained in chapters six and seven, the alternative strategies which can be used to improve the economic performance of the Nigerian textile industry. The alternative strategies

suggested within each of these theoretical paradigms will be discussed in turn in sections 8.2 and 8.3 and the main conclusions drawn from the discussion will be summarised in section 8.4.

8.2 The alternative strategies within the neo-classical trade and welfare paradigm

The alternative strategies to be discussed within this paradigm for improving the economic performance of the industry derive from the general implication of the neo-classical critique expounded in section 2.7 of chapter two: what was wrong with industrialisation based on import substitution was the poorly implemented import substitution programme and not import substitution *per se*. In this respect, the neo-classicals would argue that import substitution could be a rational strategy of industrialisation provided that the industries catering for the domestic market could compete with imported manufactures without long-run protection. In practice, however, not only did import-substitution policies, especially tariff and foreign exchange policies, tend to be permanent protective devices but also such policies tended to be excessive and indiscriminate in the sense that a high and differentiated structure of tariff protection permitted a wide range of economic costs both across industries and within an industry. This observation is consistent with the implication of the theoretical rationale of the world price rule discussed in chapter three for industrial planning in an open economy: that free trade is superior to restricted trade and that less-restricted trade is superior to more-restricted trade.

The foregoing recapitulation implies that the neo-classicals have a notion of a rational policy of tariff protection which may determine, in a second-best world, the height and structure of tariff protection which can be used to encourage efficient industrial production. Such a tariff policy may be regarded as "the optimum distribution of tariff protection"[1]

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1. Santiago Macario (ECLA) "Protectionism and Industrialisation in Latin America". Economic Bulletin for Latin America, Vol. IX, March 1964, p. 84.

between the various industries or the various activities in an industry. It can be argued that the optimum distribution of tariff protection is consistent with the optimum allocation of resources between the various industries or the various activities within an industry in the sense that efficient industries or activities may find such a distribution of tariff protection adequate and may therefore continue production, while inefficient industries or activities may find it intolerable and may therefore stop production or improve efficiency.[1]

8.2(i) Simulations based on rational policies of tariff protection

In order to discuss alternative second-best tariff policies (rational tariff policies) for improving the economic efficiency of the Nigerian textile industry, it may be necessary, as a prerequisite, to determine the economic costs of the high and differentiated structure of tariff protection under which the industry had developed. For this purpose, we may conduct simulations of the economic costs of the industry on the basis of the idea of optimum distribution of tariff protection. The simulations undertaken seek to answer the question: What could a more selective strategy of import substitution in the industry under more rational tariff policies have achieved? Asked differently, what would have been "reasonable" resource allocation patterns in the industry in contrast to that which actually prevailed? These questions require comparing the actual economic efficiency performance with what would have happened under an alternative allocation of the same resources which were committed to the development of the industry.

To answer these questions, we may generate economic costs of the industry under hypothetical resource allocation strategies on the assumption

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1. *Ibid.*, pp. 83-84.

that rational policies of tariff protection were pursued. The assumed rational tariff policies are based on the notion of uniform effective tariff protection. The adoption of the idea of uniform effective tariff protection in the simulations derives its justification from many economists' general acceptance of some case for protection of manufacturing activities under the rubric of infant-industry argument. In this respect, overall economic costs of protection implicit in a highly differentiated structure of tariff protection may be reduced if trade policies can be directed towards a gradual reduction of high effective rates of protection for some manufacturing activities and at the same time raising low effective rates for other activities until uniformity of the protective structure is attained for the whole industry.[1] We adopt the idea of uniform effective protection in the simulations because, as we have already shown in chapter six, the structure of differentiated tariff protection significantly influenced resource allocation patterns in the Nigerian textile industry.

The adoption of the notion of uniform effective tariff protection in the simulations is grounded on fairly sound economic arguments. The construction of a system of uniform effective protection for an industry provides all private firms equal incentives in all alternative activities which are oriented towards import substitution as well as export expansion. If the private firms have full knowledge of all profitable potentialities, the system of uniform effective protection might lead to greater social benefits than what would obtain under a differentiated protective tariff system. This would be the case because the system of uniform effective protection would enable the private firms to select, in their investment decisions, the most profitable alternatives which would be

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1. For a fuller exposition of the idea of uniform tariff protection, see Corden, W. M., Trade Policy and Economic Welfare, Oxford, Clarendon Press, 1974, pp. 375-378.

consistent with the maximisation of social profitability. This is because the private firms would avoid in their investment decisions very high cost activities because they would know that they would be unprofitable. Additionally, the system of uniform effective protection would expose the domestic firms to a greater degree of international competition; as a consequence, they could not easily relapse into productive complacency because of their potential monopoly positions in the domestic markets guaranteed by the otherwise high and differentiated protective tariff structure. Thus they would have greater incentives for seeking ways of improving productivity than when they were relatively sheltered from foreign competition. Finally, from a political viewpoint, the idea of a uniform effective protection "may well be preferable to the alternative of a haphazard tariff structure which, in the absence of simple guide-lines, is readily amenable to influence from pressure groups" in society.[1]

In applying the notion of uniform effective protection in our simulations we follow Krueger's empirical definition and application of this notion in her study of import substitution in the Indian automobile and ancillary industry.[2] Three hypothetical levels of uniform effective protection may therefore be defined for the value-adding activities of the Nigerian textile industry: (1) all the value-adding activities are uniformly protected to the point at which the naira costs (the domestic production costs) of import substitution could exceed the official exchange rate by 50 per cent; (2) uniform effective protection is accorded up to the point at which the naira costs could exceed the official rate of exchange by 100 per cent; and (3) we assume 150 per cent level of uniform

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1. *Ibid.*, p. 377.

2. Krueger, A. O., The Benefits and Costs of Import Substitution in India: A Microeconomic Study, Minneapolis, University of Minnesota Press, 1975, pp. 95-96.

effective protection. These alternative hypothetical levels of uniform effective protection imply, if it is assumed that all firms sell at the same price, that the domestic production costs of the value-adding activities are respectively higher by 50, 100 and 150 per cent than those of similar foreign value-adding activities. With the Nigerian official exchange rate in 1973 being 0.66 naira equal to 1 dollar, the 50 per cent level of protection would imply an effective exchange rate of 0.99 naira per dollar; 100 per cent would be equivalent to an exchange rate of 1.32 naira per dollar; and 150 per cent would correspond to 1.65 naira per dollar. These hypothetical protection strategies form our "Cut-off Rule" which determines the level of economic costs above which firms in the industry would not, theoretically, have started production. This "Cut-off Rule" implies that the resources actually employed in the activities whose costs exceeded the cut-off point ought to be reallocated to activities whose costs are below this cut-off mark.

On the basis of the hypothetical effective exchange rates as defined above, the produced outputs and the purchased inputs of resources of all the firms in the sample industry studied are transformed into accounting values and accounting costs on the basis of the methods enunciated in chapter three and applied in chapter six. The plausibility of these simulations is based on the assumption that each firm whose cost is below the cut-off point would have increased its scale of operations proportionately to its size in order to absorb the excess resources released by the above-the-cut-off-point firms. The rationale of this assumption is that, had the uniform effective protection been granted, the relatively more efficient firms would have been more profitable than the relatively more inefficient firms and, presumably, would therefore have expanded more

rapidly. It is further assumed in the simulations that the economic and political costs of this reallocation of resources are zero and that the process of the resource reallocation itself is harmonious and instantaneous. The estimates of the actual economic costs of import substitution in the Nigerian textile industry and the estimated hypothetical economic costs of each of the three alternative protection strategies in terms of unit social profit and unit value added at world prices for all the broadwoven activities of the industry and for each of its main sectors are presented in Table 8.1. Column one of this Table indicates the unit social profits of the various strategies, column two shows the unit value added at world prices associated with each of the strategies, and columns three and four show, respectively, the difference between hypothetical unit value added at world prices and actual unit value added at world prices, and the difference between hypothetical unit value added at world prices and actual unit value added at world prices as a percentage of actual unit value added at world prices. The actual unit social profit and the actual unit value added at world prices associated with the actual allocation are estimated from Table 6.5 of chapter six.

On the basis of Table 8.1, the probable effects of the hypothetical resource allocation strategies in comparison with the actual resource allocation may be interpreted. For all the broadwoven activities of the sample industry, with each of the three respective hypothetical levels of uniform effective protection the social losses sustained by the Nigerian economy, as a result of the operation of the industry would have been reduced in comparison with the social losses associated with the actual high and differentiated structure of tariff protection. Expressed differently, this phenomenon implies that the net addition to national income in

Table 8.1 Alternative Estimates of Excess Economic Cost of Protection

Cut-off Rule (Uniform Protection)	Unit Social Profit (N)	Unit Value Added at World Prices (N)	The difference between hypothetical Unit Value Added at World Prices and Actual Unit Value Added at World Prices (N)	The difference between hypothetical Unit Value Added at World Prices and Actual Unit Value Added at World Prices as a Percentage of Actual Unit Value Added at World Prices
	1	2	3	4
	ALL BROADWOVEN ACTIVITIES			
N0.99 per Dollar (50 per cent)	-10.264	1.070	5.148	126
N1.32 per Dollar (100 per cent)	-10.939	0.172	4.250	104
N1.65 per Dollar (150 per cent)	-11.724	-0.357	3.721	91
Actual Allocation	-16.086	-4.078		
	COTTON BROADWOVEN			
N0.99 per Dollar (50 per cent)	0.206	1.876	1.178	169
N1.32 per Dollar (100 per cent)	-0.170	1.311	0.614	88
N1.65 per Dollar (150 per cent)	-0.401	0.892	0.195	28
Actual Allocation	-1.366	0.697		
	SYNTHETIC BROADWOVEN			
N0.99 per Dollar (50 per cent)	-9.089	-1.790	4.824	73
N1.32 per Dollar (100 per cent)	-10.231	-1.981	4.633	70
N1.65 per Dollar (150 per cent)	-11.782	-2.297	4.317	65
Actual Allocation	-14.809	-6.614		
	OTHER BROADWOVEN			
N0.99 per Dollar (50 per cent)	-0.125	1.300	-0.539	-29
N1.32 per Dollar (100 per cent)	-0.475	0.716	-1.123	-61
N1.65 per Dollar (150 per cent)	-0.685	0.368	-1.471	-80
Actual Allocation	-0.688	1.839		
	THREAD AND YARN			
N0.99 per Dollar (50 per cent)	-9.703	-1.596	4.427	73
N1.32 per Dollar (100 per cent)	-10.026	-1.956	4.067	67
N1.65 per Dollar (150 per cent)	-10.569	-2.559	3.464	57
Actual Allocation	-16.003	-6.023		

Note: In interpreting this Table with respect to the sectors of the industry, we should bear in mind that the three hypothetical levels of uniform effective protection used in the simulations are relatively too high for the other broadwoven sector.

Table 8.1 Alternative Estimates of Excess Economic Cost of Protection

Cut-off Rule (Uniform Protection)	Unit Social Profit ($)	Unit Value Added at World Prices ($)	The difference between hypothetical Unit Value Added at World Prices and Actual Unit Value Added at World Prices ($)	The difference between hypothetical Unit Value Added at World Prices and Actual Unit Value Added at World Prices as a Percentage of Actual Unit Value Added at World Prices
	1	2	3	4
	ALL BROADWOVEN ACTIVITIES			
0.99 per Dollar (50 per cent)	-11.724	1.070	5.148	126
1.32 per Dollar (100 per cent)	-10.939	0.172	4.250	104
1.65 per Dollar (150 per cent)	-10.264	-0.357	3.721	91
Actual Allocation	-16.086	-4.078		
	COTTON BROADWOVEN			
0.99 per Dollar (50 per cent)	0.206	1.876	1.178	169
1.32 per Dollar (100 per cent)	-0.170	1.311	0.614	88
1.65 per Dollar (150 per cent)	-0.401	0.892	0.195	28
Actual Allocation	-1.366	0.697		
	SYNTHETIC BROADWOVEN			
0.99 per Dollar (50 per cent)	-11.782	-2.297	4.317	65
1.32 per Dollar (100 per cent)	-10.231	-1.981	4.633	70
1.65 per Dollar (150 per cent)	-9.089	-1.790	4.824	73
Actual Allocation	-14.809	-6.614		
	OTHER BROADWOVEN			
0.99 per Dollar (50 per cent)	-0.125	1.300	-0.539	-29
1.32 per Dollar (100 per cent)	-0.475	0.716	-1.123	-61
1.65 per Dollar (150 per cent)	-0.685	0.368	-1.471	-80
Actual Allocation	-0.688	1.839		
	THREAD AND YARN			
0.99 per Dollar (50 per cent)	-10.569	-2.559	3.464	57
1.32 per Dollar (100 per cent)	-10.026	-1.956	4.067	67
1.65 per Dollar (150 per cent)	-9.703	-1.596	4.427	73
Actual Allocation	-16.003	-6.023		

Note: In interpreting this Table with respect to the sectors of the industry, we should bear in mind that the three hypothetical levels of uniform effective protection used in the simulations are relatively too high for the other broadwoven sector whereas they are relatively too low for the synthetic broadwoven and the thread and yarn sectors.

terms of value added measured at world prices, generated by the same resources under each of the three hypothetical levels of uniform protection, would have been greater than the net addition to national income associated with the actual allocation. For example, the negative unit value added at world prices of 4.078 naira generated by the actual differentiated tariff structure would have been transformed into positive unit value added at world prices of 1.070 and 0.172 respectively under the levels of hypothetical uniform protection of 50 per cent and 100 per cent. Indeed, the net addition to national income under each of the hypothetical levels of uniform protection of 50 per cent, 100 per cent, and 150 per cent would have been greater, respectively, by 126 per cent, 104 per cent, and 91 per cent in comparison with the net subtraction from national income under the actual high and differentiated tariff structure. Another plausible interpretation of this result is that it would have been possible for Nigeria to have consumed a greater amount of broadwoven textiles than that which was actually consumed; alternatively, the overall rate of growth of the Nigerian economy would have been greater if the increased foreign exchange saved and/or earned was used for the purchase of imported materials and capital goods for the expansion of the economy's productive capacity. This interpretation implies that with each of the three hypothetical levels of uniform protection the contribution of the industry to the improvement of the current account of Nigeria's balance of payments would have been greater by 126 per cent, 104 per cent, and 91 per cent in comparison with the industry's contribution to the worsening of the country's balance of payments position. This would have been the case because the relatively more efficient firms in the industry would have expanded their output of broadwoven textiles through a more efficient

import-substitution strategy and/or an export-oriented strategy.

A similar interpretation of Table 8.1 can be made with respect to the major sectors of the industry. When compared with the other sectors, the cotton broadwoven sector would have made, under a uniform effective tariff structure, the greatest contribution to Nigerian economic growth in terms of efficient resource utilisation and in terms of foreign exchange savings or earnings. For instance, under the hypothetical uniform protection of 50 per cent, the unit social profit accruing to the Nigerian economy in this sector would have been 0.206 naira in comparison with actual unit social loss of 1.366 naira. Under the 50 per cent uniform protection, the hypothetical net addition to national income, represented by the unit value added at world prices, in the cotton broadwoven sector would have been greater by 169 per cent in comparison with the actual net addition to national income. Similarly, the synthetic broadwoven and the thread and yarn sectors would have been more efficient and would have saved/or earned a greater amount of foreign exchange. But the achievement in economic efficiency and foreign exchange savings or earnings by the synthetic broadwoven and the thread and yarn sectors would have been smaller absolutely and proportionately when compared with that by the cotton broadwoven sector. These interpretations suggest that the actual tariff structure which confronted the industry was excessive and indiscriminate. Indeed, the actual tariff structure so discriminated against the synthetic broadwoven and the thread and yarn sectors that their net subtraction from national income would have been smaller at each successive hypothetical level of uniform protection as compared with that under actual tariff structure. On the basis of these interpretations, we may conclude that Nigeria has greater comparative advantage in cotton

import-substitution strategy and/or an export-oriented strategy.

A similar interpretation of Table 8.1 can be made with respect to the major sectors of the industry. When compared with the other sectors, the cotton broadwoven sector would have made, under a uniform effective tariff structure, the greatest contribution to Nigerian economic growth in terms of efficient resource utilisation and in terms of foreign exchange savings or earnings. For instance, under the hypothetical uniform protection of 50 per cent, the unit social profit accruing to the Nigerian economy in this sector would have been 0.206 naira in comparis with actual unit social loss of 1.366 naira. Under the 50 per cent uniform protection, the hypothetical net addition to national income, represented by the unit value added at world prices, in the cotton broadwoven sector would have been greater by 169 per cent in comparison with the actual net addition to national income. Similarly, the synthetic broadwoven and the thread and yarn sectors would have been more efficient and would have saved/or earned a greater amount of foreign exchange. But the achievement in economic efficiency and foreign exchange savings or earnings by the synthetic broadwoven and the thread and yarn sectors would have been smaller absolutely and proportionately when compared wi h that by the cotton broadwoven sector. These interpretations suggest that the actual tariff structure which confronted the industry was excessive and indiscriminate. On the basis of these interpretations, we may conclude that Nigeria has greater comparative advantage in cotton

broadwoven textile production than in synthetic broadwoven textile and single-process-spinning production. This conclusion drawn from the simulations seems to be partly corroborated by the observation made in the Financial Times[1]:

> "Unfortunately, protection of domestic production of yarns and staple fibres is relatively low so there is insufficient incentive to develop the necessary spinning capacity to meet the needs of the finished fabric producers. In the opinion of some textile specialists increased protection is now needed at the lower levels of the production chain to maximise the use of local inputs, including Nigerian cotton, and - when petrochemical plants come onstream in the next decade - raw material for the synthetic fibres industry."

8.2(ii) Policy implications of the results of the simulations

The interpretations of the results of the simulations in the preceding sub-section have clearly shown that, by permitting a wide range of economic costs among activities and sectors in the industry, the highly differentiated levels of effective protection, under which the industry had developed, reduced its potential contribution to the overall rate of growth of Nigerian manufactured output. Basically, the existence of wide variations in economic costs among the industry's firms and sectors largely reflected differential structures of investment incentives which the tariff structure implicitly created for the industry. Given the existence of wide variations in economic costs among the industry's firms, it might be suggested that some of the existing highly inefficient firms should be shut down in order to maximise the industry's contribution to Nigerian economic growth. In this respect, the industry's contribution to the maximisation of Nigerian economic growth would be greater if resources invested in the existing relatively high-cost firms could be transferred to the relatively

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1. Financial Times Survey: Nigeria, Monday, February 14, 1977, p. 18.

low-cost firms within the industry and to other sectors of the economy. However, in the real world, we cannot advocate explicitly and seriously the shutting down of the existing highly inefficient firms. Three reasons may be given for this. Firstly, some proportion of the resources invested in the existing relatively high-cost firms is fixed and cannot readily be transferred to the relatively low-cost firms within the industry and to other enterprises in the economy. Secondly, the economic and political costs involved in the reallocation of the existing resources from the relatively inefficient firms are not simply zero as assumed in our simulations. Thirdly, as argued in chapter seven, the inefficiency of most of the firms presumably resulted, in part, from the comparatively young age of the modern Nigerian textile industry.

For these reasons, we argue that the feasible policy implication of the results of the simulations for improving the economic performance of the industry is that a more rational tariff structure, which will create a uniform structure of investment incentives for all the activities in the industry, may be designed. In other words, in order to achieve greater overall economic efficiency, we may design a tariff structure which can implicitly bring into some balance the relationship between the structure of investment incentives and the relative economic efficiencies of the industry's various activities. The resultant improvement in economic performance of the industry from the striking of such a balance can be achieved through encouraging continued import substitution as well as export-oriented production because some part of the increased output will inevitably be meant for the domestic market and the other part will become available for export. It is therefore instructive that, in planning for the improvement of the industry's economic performance,

what is required is a set of policies that will enable the rational selection of both import-substitution and export-oriented activities. To this end and in the context of the results of our simulations, planning for improving the industry's performance should take the form of rationalising the structure of effective tariff protection so as to make it more uniform for all the activities in the industry.

The upshot of the foregoing is that planning, on the basis of tariff protection, requires information about the relationship between economic efficiencies and effective rates of protection for the various activities in the industry in order to design a more rational structure of uniform effective protection for the industry. We have demonstrated theoretically and empirically in chapters three and six that there is, in general, an inverse association between economic efficiencies and effective rates of protection for industrial activities. This proposition implies that in planning for efficient industrial growth we should prefer industrial activities that require low effective rates of protection over those requiring high effective rates. But what should be the level of inefficiency in the industry that could justifiably be protected against foreign competition? Although there is no clear-cut norm for determining the level of inefficiency that could be protected, most neo-classical economists, as argued in chapter six, regard effective rates of protection of 50 per cent as the highest that can be tolerated from the standpoint of efficient resource allocation and utilisation. But a single uniform effective rate of protection cannot be recommended for the industry because of the wide variations in economic efficiency among its sectors. Instead, different uniform effective rates

of protection which reflect the sectoral differentials in the industry's economic efficiency may be recommended. Given the conclusion drawn from our simulations that Nigeria has greater comparative advantage in cotton broadwoven textile production than in synthetic broadwoven textile and single-process-spinning production, we suggest that the uniform effective rate of protection for the cotton broadwoven sector should be lower than that for the synthetic broadwoven and the thread and yarn sectors. The uniform effective rate of protection may lie between 20 and 30 per cent for the cotton broadwoven sector, whilst it may lie between 40 and 50 per cent for the synthetic broadwoven and the thread and yarn sectors.

But we must emphasise that, in practice, the process of tariff-making for the purpose of ensuring uniform effective rates of protection for a range of industrial activities is generally very difficult. The process of tariff-making in a typical developing country fundamentally reflects the conflicting motives of tariff revenue, balance of payments considerations, and protection for domestic industries under import-substitution programmes. Although uniform nominal rates of protection can easily be achieved for a range of products, these conflicting motives underlying tariff-making often give rise to a very complex structure of nominal rates of tariff on the basis of which uniform effective rates of protection must be designed for the range of industrial activities. The complex structure of nominal rates may arise, for instance, from the fact that protected industrial activities which use a high proportion of unprotected material inputs will need relatively low nominal rates if they are to have the same effective protection as other protected activities which use less of the unprotected material inputs. Similarly, those protected activities which use exportable inputs will need lower nominal rates than

other activities which do not use such inputs. Furthermore, the structure of nominal rates may change so frequently over time that the design of uniform rates of effective protection may become extremely difficult. The frequent changes in the structure of nominal rates derive mainly, as argued in chapters two and four, from the fact that tariff protection in developing countries, including Nigeria, was commonly the outcome not of a deliberate decision to encourage this or that line of production, but of import restrictions adopted as emergency measures for balance-of-payments reasons. This meant that if uniform effective protection was already provided only for those activities where there was some actual domestic production, an extension of the range of domestic production, in response to the adoption of import-restrictive measures in the face of recurrent balance of payments problems, would reduce the effective rates of products which used the newly protected product as input. As a consequence, the nominal rates of the products would be increased, leading to yet further nominal rate changes for products that would use the latter products as inputs. Because of these reasons, we may conclude as Corden does as follows:

> ". . . any fanaticism about effective rate uniformity should be avoided. There is a lot to be said for some tendency towards nominal rate uniformity. It may sometimes be best to have a small stock of three or four basic nominal rates out of which all effective rates are constructed, the aim being only to avoid excessive non-uniformity in effective rates without any pretence that complete uniformity in effective rates can or should be achieved."[1]

"To avoid excessive non-uniformity in effective rates" when planning for efficient industrial growth requires the establishment of an appropriate machinery for tariff-making. In Nigeria, the existing machinery for tariff-making is the main source of highly differentiated tariff structures which

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1. Corden, W. M., *op. cit.*, p. 378.

reflect the conflicting motives for tariff protection mentioned above. As a consequence, the existing machinery may not be suitable for tariff-making geared towards avoiding excessive non-uniformity in effective protection. Basically, the existing mechanics of tariff-making are very complicated. This is mainly because of bureaucratic tradition and inertia, and because of political pressures often exercised by industrialists and other pressure groups on politicians and bureaucrats. The tariff-making is the responsibility of the Tariff Advisory Committee (TAC) whose membership comprises the "Economic Ministries", namely, the Federal Ministries of Trade, Industries, Finance and Economic Development and the Economic and Financial Division of the Cabinet Office and the Board of Customs and Excise.[1] The Ministry of Finance plays a dominant role in the tariff-making process because a meeting of the TAC is convened only at the instance of this Ministry, because any recommendation made by the TAC must be accepted or rejected by the Ministry, and because of the necessity to maintain budget secrets the Ministry often decides alone on tariff schedules. The Central Bank occasionally advises the Ministry of Finance on the possible impact of proposed tariff changes on the country's balance of payments and foreign exchange reserves. If any recommendation made by the TAC is accepted by the Ministry of Finance, then such a recommendation goes to the Federal Executive Council for ratification, modification or rejection. If accepted by the Executive Council, the recommendation becomes effective, and the Board of Customs and Excise is charged with the responsibility of implementing it. But after tariff schedules have been announced, industrialists

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1. For a detailed description of the tariff-making machinery in Nigeria, see Oyelabi, J. A., "Tariffs, Domestic Prices and Industrial Growth in Nigeria", Nigerian Journal of Economic and Social Studies, Vol. 14, November 1972, pp. 275-299.

and other interest groups often make representations to the Ministry of Finance for special treatment. Where a strong case can be made, amendments will usually follow the announced tariff schedules. For the purpose of avoiding excessive non-uniformity in effective protection when planning for efficient industrial growth, this existing tariff-making machinery needs to be replaced by an independent tariff body to be located in the Central Planning Office of the Ministry of Economic Development. The independent tariff body should establish small "bands" of basic nominal tariff rates out of which all effective tariff rates can be constructed for various industrial activities having taken into account their need for protection. The need of the various industrial activities for protection can be determined on the basis of their relative economic efficiencies which can, in turn, be established through the methods of social cost-benefit analysis discussed in chapter three.

8.3 Alternative strategies within the structuralist/Marxist paradigm

The preceding discussion of the alternative neo-classical strategies has been premised on the assumption that factor and product price distortions were amongst the main problems of Nigerian industrialisation and that the removal of such distortions would provide one of the major solutions to the problems. But it can be argued as Stewart has done that the "removal of price distortions would . . . probably be ineffective because prices are only a small part of the story, and very likely a dependent, not independent part - the tail, not the dog" of the industrialisation process, and that "in the absence of an efficient alternative technology, changing prices would be unlikely to change much else".[1] Streeten has similarly emphasised factors other than price distortions which could significantly influence the industrialisation process: he argues that "much of the recent criticism of the inefficient, high-cost industrialisation behind high walls of protection and quantitative restrictions should be directed at the types of product and of technique which cater for a highly unequal income distribution and reflect entrenched vested interests".[2] These issues raised by Stewart and Streeten are, in general, at the heart of the structuralist/Marxist paradigm. Indeed, as argued in chapter two, to the structuralists/Marxists, the existing pattern of import-substituting industrialisation has been inherently undesirable *per se* insofar as it has built-in mechanisms for the encouragement of consumer

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1. Stewart, Frances, "Kenya: Strategies for Development", in Damachi, U. G., G. Routh and A. R. Ali Taka (eds.), Development Paths in Africa and China, London, Macmillan, 1976, p. 107.
2. Streeten, P., "Industrialisation in a United Development Strategy", in A. Cairncross and M. Puri (eds.), Employment, Income Distribution and Development Strategy: Problems of the Developing Countries, London, Macmillan, 1976, pp. 93-94.

goods industries at the expense of the technologically strategic capital goods industries. As this strategy of industrialisation has been sustained by progressively skewed income distribution, even the consumer goods industries have increasingly been oriented towards luxury durable consumer goods with a concomitant limitation on the creation of mass markets which could form the basis for the establishment of capital goods industries and the generation of independent technology.

But as argued in chapter two, it seems that the structuralist/Marxist paradigm does not provide any set of policy recommendations for the reform or implementation of an import-substituting industrialisation programme; instead, it is primarily concerned with analysing why import substitution has been an inefficient and insufficient strategy of industrialisation. It must be stressed that the structuralist/Marxist critical analysis of the consequences of this strategy of industrialisation has often taken the form of a general critique of the nature and character of contemporary processes of development. Although the structuralist/Marxist paradigm is not explicitly concerned with policy questions, some alternative strategies of industrialisation and development are, in general terms, implied by it. For instance, it can be argued that, as "technologies both determine and are determined by the objectives of development strategy" such as, amongst others, national income growth, distribution of the benefits of growth, and employment, the connections between choice of industrial technology, choice of industrial products, income and wealth distribution, and consumption patterns are important for policy decisions.[1] The general policy implication of the structuralist/Marxist analysis is that industrialisation should be a part of a development strategy oriented towards meeting the "basic needs" of the majority of the population. This requires a redistribution of

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1. *Ibid.*, p. 104.

income and wealth in favour of the masses of the people, the majority of whom live in abject poverty in the countryside, a different pattern of consumption, a different composition of products - capital and consumer goods - and different techniques. Then, the changed strategies of industrialisation and rural transformation should reflect changed income and wealth distribution, changed consumption patterns, changed composition of capital and consumer goods, and changed techniques of industrial and agricultural production. In this changed development strategy, industrialisation and agricultural development should be encouraged to act as two mutually supporting and consistent processes by generating greater linkages between them.

The discussion of changes in the strategies of industrialisation and development of the Nigerian economy may be conducted within the foregoing general framework of structuralist/Marxist alternative strategies. However, here, we examine only the alternative strategies which relate strictly to Nigerian industrialisation because this has been a study of industrialisation problems. Even in this connection, we discuss only the alternative strategies which may be used to engender an improvement in the economic performance of the Nigerian textile industry. We assume, in this respect, that the expected improvement in the industry's economic performance will be a part of the result of changes in the strategies of Nigerian industrialisation. The strategies which will be considered are associated with the establishment of a capital goods sector alongside a consumer goods sector. Therefore, for the remaining part of this section, we give a brief justification for the establishment of the capital goods sector; in the light of some of the main findings of this study, we identify the agents and mechanisms which may be used to establish the capital goods sector, and we

assess the likely contribution of the capital goods sector to the improvement of economic efficiency.

Given appropriate changes in income and wealth distribution, consumption patterns, and in the composition of products, which are reflected in appropriate changes in the strategies of industrialisation and development of a large-sized developing country like Nigeria, the establishment of the capital goods sector can be justified on a number of grounds. In general, the establishment of domestic industries which produce capital goods such as machines which make machines, or machines which make consumer goods will generate efficient industrialisation primarily because it can be argued that the establishment of a capital goods sector is an essential condition for domestic technological development. Stewart has stressed this point when she argues that "there are greater externalities to innovation in the capital goods sector than innovation elsewhere, and the capital goods sector is likely to benefit more than other parts of industry from externalities caused by innovations elsewhere".[1] More specifically, it is through the performance of two interrelated functions, namely, the facilitation of vertical integration within the manufacturing sector through the creation of potential backward and forward linkage effects, and the rapid building up of skills which are associated with technological change that the capital goods sector can act as a catalyst of rapid and efficient industrial expansion. This role of the capital goods sector rests mainly on the view that "capital goods are part of the technology package" in the sense that "the characteristics associated with a particular capital good include, for example, the nature and specification of the product, requirements for inputs, skill and managerial requirements, wage levels,

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1. Stewart, Frances, Technology and Underdevelopment, London, Macmillan, 1977, p. 152.

etc.".[1] The capital goods sector facilitates the vertical integration of, and the building up of skills within the manufacturing sector. The vertical integration of, and the accumulation of skills in the manufacturing sector may arise from the possibility that investment in capital goods industries may lead to the development of modern labour intensive technologies. The development of such technologies may expand both the productive capacity of the economy and the domestic market demand. As Arrighi has argued, the expansion of the domestic market demand consequent upon the growth of the capital goods sector may arise from the possibility that, in order to start or expand industrial production, it may first of all be necessary to establish or enlarge the industries which produce the means of production (machines which make machines, or machines which make consumer goods) the production of which requires the employment of workers who, through the receipt of wage payments, create a demand for consumption goods.[2] Furthermore, the possibility that the investment in the capital goods sector may encourage the production of capital goods which embody a modern labour intensive technology implies that the establishment or expansion of capital goods industries may quicken the diffusion of industrial

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1. *Ibid.*, p. 153.

2. Arrighi, G., "International Corporations, Labour Aristocracies, and Economic Development in Tropical Africa", in Arrighi, G. and J. S. Saul (ed.), Essays on the Political Economy of Africa, New York, Monthly Review Press, 1973, p. 115. The assumption underlying this pattern of development of the capital goods sector is that the demand for capital goods is largely autonomous in the sense that it is not induced by the existing size of the market and its growth. This assumption presupposes a type of behaviour which may characterise competitive capitalism or planned socialist economy. Szentes has specifically argued that in their industrialisation programmes "the socialist countries . . . started with and gave priority to the development of the heavy industries, and primarily machine manufacturing. It was on this basis that the most advanced socialist countries applied the achievements of the modern scientific and technological revolution." Szentes, Tamas, The Political Economy of Underdevelopment (Third Edition), Budapest, Akademiai Kiado, 1976, p. 307.

skills and experience through the learning-by-doing and training processes.

In planning for the integration of the capital goods sector within the Nigerian industrialisation process, what are the agents and mechanisms which may be used to encourage its establishment and expansion? Given the fact, as shown in chapters four, five and seven, that the Nigerian industrial policy has predominantly been geared towards the encouragement of foreign private investment and that foreign private investment has played an important role in the Nigerian industrialisation process, it may be suggested that the main agents to be used for the development of the capital goods sector should be the foreign private firms. This suggestion derives its rationale from the fact, as argued in chapter seven, that not only was there a positive correlation between economic efficiency and foreign private investment but also there was a positive correlation between the relative economic efficiency among firms and their relative capital intensity which was influenced by foreign private investment which in turn constituted the main vehicle for the transfer of modern technology to the textile industry. It stands to reason, therefore, that the foreign private firms could be encouraged to establish capital goods industries in the economy. In this respect, it can be argued, in theory, that the foreign private firms can establish capital goods industries in a developing economy because they usually "have the managerial and organisational capacity, the capital, the research and development skills, and the range of experience to respond to new market opportunities relatively quickly".[1] In practice, however, as argued in section 2.5 of chapter two, the import-substituting industrialisation process, propelled mainly by foreign private

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1. Helleiner, G. K., "The Role of Multinational Corporations in the Less Developed Countries' Trade in Technology", World Development, Vol. 3, No. 4, April 1975, p. 179.

firms, has characteristically been unable to move to the capital goods sector because, *inter alia*, of the investment strategies of the foreign firms which reflect their oligopolistic structure and which have biased the firms' investment activities against the capital goods sector. In the circumstance, what are the appropriate industrial policies or mechanisms which a developing country like Nigeria may devise to induce the foreign private firms to diffuse their potentially large reservoir of modern technologies through the establishment of capital goods industries in the economy?

To induce the foreign private firms to establish capital goods industries in the economy, it may be suggested that the Nigerian government should encourage the Nigerian firms to enter into collaboration agreements (in the form of licensing agreements and the granting of patents) with the foreign firms and/or the Nigerian government should form, through collaboration agreements, joint ventures with the foreign private firms.[1] As a strong indigenous capitalist class has largely been non-existent in Nigeria,[2] it can be argued that the Nigerian government joint ventures with the foreign private firms should be the main mechanism which could be used for the establishment and expansion of capital goods industries. In this respect, the Nigerian government should avoid the Indian experience which was primarily concerned with the rapid expansion of capital-goods capacity

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1. Foreign collaboration agreements have been used to encourage the development of capital goods industries in India. For a discussion of the scale of foreign collaboration agreements, of the industrial pattern of collaborations, and of some of the effects of collaboration agreements in India, see Lal, Deepak, Appraising Foreign Investment in Developing Countries, London, Heinemann, 1975, pp. 106-114.

2. For a discussion of the historical origins of the relative non-existence of a strong indigenous capitalist class in Nigeria, see Akeredolu-Ale, E. The Underdevelopment of Indigenous Entrepreneurship in Nigeria, Ibadan, Ibadan University Press, 1975, pp. 62-106.

in the 1950s and 1960s which depended largely on large-scale foreign firms which used mostly imported advanced technology. This approach did not lead to the generation of appropriately indigenous technical change in the Indian capital goods sector.[1] In Nigeria, machine-tools industries should therefore be established within the framework of small-scale government joint ventures with relatively small-scale multinational firms as the core of the capital goods sector because some have argued that machine-tools industries are uniquely productive of modern labour-intensive technology and easily amenable to small-scale management.[2] The formation of small-scale government joint ventures with relatively small-sized multinational firms is particularly advantageous for Nigeria because it will increase her bargaining strength vis-à-vis such foreign firms and because it is generally argued that smaller foreign firms have proved to be better partners for the developing countries than large foreign firms with respect to the use of foreign collaboration agreements for the generation of technological innovations. In this connection, Helleiner's argument is worth quoting at some length:

> "The types of research and development expenditure which are likely to generate more 'appropriate' production and consumption technologies for use in low-income countries are notably not those in which scale economies and large inputs of capital are required. Rather, they are likely to depend upon skills and experience; they can therefore emanate from relatively small multinational firms specialising in this type of innovation. Smaller firms have been quite successful in generating new technologies in some sectors in the past. Large firms, after all, often tend to be over-cautious, retain vested interests in older technologies, discourage creative endeavours through their team emphasis, and have ineffective communication and incentive systems; all of these factors can inhibit innovation and offset such

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1. Stewart, Frances, *op. cit.*, pp. 153-154.

2. *Ibid.*, p. 154.

> scale economies as they may enjoy. Imitation in new industries - the development of superior variants of the product or process - can frequently be managed by even the smallest firms employing only a few capable scientists and engineers."[1]

We must add, however, that the development of indigenous technological capacity by establishing a machine-tools sector in the Nigerian economy through the formation of government joint ventures with foreign private firms should be simultaneous with the making of efforts at creating a large reservoir of scientifically and technologically well trained indigenous manpower through formal educational and research institutions.

In the light of the main findings of this study contained in chapters five, six and seven, what will be the likely contribution of the development of domestic capital goods industries to economic efficiency? We found that the relatively more efficient firms in the textile industry used relatively advanced, capital-intensive foreign technology, and thus it can be argued that the development of domestic capital goods industries may contribute to greater inefficiency in the industry because the domestic capital goods industries may be inefficient initially. This implies that the textile industry as well as other industries which are linked to the capital goods industries will use high-cost capital inputs in their production processes if Nigerian consumer goods industries are forced to buy domestically produced capital goods rather than cheaper imported ones. The initial inefficiency of the capital goods industries will likely result from the general characteristics of underdevelopment of the Nigerian economy which are manifested, *inter alia*, in shortages of all categories of skilled manpower and in inadequate supplies of all conceivable infrastructural facilities. Perhaps, the initial inefficiency associated with

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1. Helleiner, G. K., "The Role of Multinational Corporations in the Less Developed Countries' Trade in Technology", *op. cit.*, p. 180.

the development of the capital goods industries may be a necessary cost which the Nigerian economy will have to bear on its progress towards industrialisation generated and sustained largely by modern indigenous technology.

8.4 Conclusions

The main conclusions to be drawn from the preceding discussion of the alternative neo-classical and structuralist/Marxist strategies for improving the economic performance of Nigerian industrialisation in the context of the textile industry may be summarised. The neo-classical strategies have been premised on the proposition that the existence of high and differential economic inefficiency in the industry derived mainly from a high and differentiated structure of tariff protection under which the industry developed. The high economic costs of this tariff structure for the main sectors of the industry have been shown by the results of our simulations conducted on the basis of the neo-classical notion of uniform effective tariff protection. The policy implication of this finding is that tariff-making for the purpose of improving the economic efficiency of the industry should avoid excessive non-uniformity in the structure of effective tariff protection. A single uniform effective rate of protection may not be designed for the whole industry because there were wide variations in the economic efficiency among the industry's main sectors; instead, different uniform effective rates of protection may be designed for the different sectors of the industry. As the cotton broadwoven sector was the least inefficient sector and the synthetic broadwoven and the thread and yarn sectors were the most inefficient sectors in the industry, we have argued that the uniform effective rate of protection for the cotton broadwoven sector should be lower than that for the synthetic broadwoven and the thread and yarn sectors.

Unlike the neo-classical paradigm, the structuralist/Marxist paradigm does not provide any precise, clear-cut policy options for improving the economic efficiency of import-substituting industrialisation because the

latter is primarily concerned with analysing the nature and character of economic development, of which import-substituting industrialisation is a part. Nevertheless, the general policy option implicit in the structuralist/Marxist paradigm is that an industrialisation strategy should be a part of a development strategy which should be oriented towards meeting the "basic needs" of the majority of the population and which should be manifested in changes in income and wealth distribution, consumption patterns, composition of capital and consumer goods, and in techniques of production. Given appropriate changes in income and wealth distribution, consumption patterns and in the composition of products in Nigeria, we have advocated the establishment of capital goods industries in the economy, through the formation of government joint ventures with foreign private firms on the basis of collaboration agreements, which would generate appropriate modern technology required for efficient production in the textile industry as well as in other industries. But in the light of the findings of this study, it would appear that the development of domestic capital goods industries would probably lead, initially, to greater economic inefficiency in the textile industry.

CHAPTER NINE

Summary of the Main Conclusions

The purpose of this study has been to appraise the economic consequences in terms of social costs and social benefits of import-substituting industrialisation (ISI) in the context of the Nigerian textile industry; in essence, it has been a study of the impact of Nigerian trade policies on resource allocation and growth in import-substituting manufacturing activities. The Nigerian ISI process has generally been encouraged, since 1957, in order to accelerate economic growth and to save foreign exchange. But persistent balance of payments problems provided the main context in which "inward-looking" trade policies had been pursued to promote the ISI process. The structure of the Nigerian ISI has been heavily biased in favour of low technology consumer goods such as textiles, food, drink and tobacco and against capital goods.

The growth and structural change of the Nigerian textile industry during the 1958-1973 period was predominantly a consequence of the "inward-looking" trade policies. The textile industry developed mainly under restrictive trade policies during a period when Nigeria experienced severe balance of payments problems. The restrictive trade policies generated competitive pressures which were manifested in market-protection investment activities by foreign private investors who established "tariff textile mills" in Nigeria and who therefore constituted the catalyst of expansion of the modern textile industry. On the basis of such

indices of growth performance as value added, square metres of fabrics produced, labour productivity and gross profits per square metre of fabrics, we found that the industry grew rapidly during the second half of the 1960s but declined absolutely after 1971. The growth performance of the industry largely reflected changes in trade regimes: during the second half of the 1960s, the industry faced a high protective wall which consisted more of quantitative restrictions and less of tariff restrictions, and, in April 1971, the protective structure was relatively liberalised as the system of quantitative restrictions was dismantled and replaced by tariff restrictions. Until the second half of the 1960s, the growth of the industry was almost completely dominated by the cotton broadwoven activity. But this sector together with the 'other' broadwoven sector began to experience growth deceleration in the early 1970s while the knitted and the synthetic sectors continued to exhibit growth impulses. The relative decline in the cotton broadwoven and the other broadwoven sectors in the early 1970s did not, however, reflect the exhaustion of import-substitution opportunities in these sectors because the Nigerian domestic demand for textile commodities of all kinds is huge and it has not yet been met by domestic production.

The major conclusion drawn from the application of the methods of social cost-benefit analysis is that the development of the industry through import substitution has been extremely inefficient. Of the thirty firms in the sample industry evaluated, only five firms were socially efficient and the remaining twenty-five firms were socially inefficient. There have been extremely wide variations in relative inefficiency among firms and sectors within the industry. The relatively least inefficient firms have been in the cotton broadwoven sector whilst the relatively most inefficient firms have been in the synthetic broadwoven

and the thread and yarn sectors. Given the fact that the net addition to national income, as indicated by value added at world prices, which ten firms generated was negative, we concluded that the operations of firms in the industry generally reduced the growth rate of the Nigerian economy. The fact that the broadwoven activities as a group exhibited negative value added at world prices meant that the production operations in these activities aggravated rather than alleviated the problem of foreign exchange shortage in Nigeria. This problem was further worsened by a substantial repatriation of payments made to foreign-owned resources. The cotton broadwoven and the other broadwoven sectors were net savers of foreign exchange whilst the synthetic broadwoven and the thread and yarn sectors were the net users of foreign exchange in the industry. The cotton broadwoven sector was the greatest net foreign-exchange saving sector whilst the synthetic broadwoven sector was the greatest net foreign-exchange using sector. But the foreign exchange cost due to repatriation of payments to foreign-owned resources from the cotton broadwoven sector was greater than that from the synthetic broadwoven and the thread and yarn sectors. Given the fact that the synthetic broadwoven and the thread and yarn sectors contained the relatively most inefficient firms in the industry, we argued that the foreign exchange cost of firms in these sectors was mainly a reflection of the inefficiency of the firms' productive operations rather than of the repatriation of payments to foreign-owned resources. Hence, the general conclusion which has emerged from the empirical analysis is that the import substitution in the industry has been not only inefficient but also the import-substitution process has become a part of the worsening balance-of-payments problem in Nigeria, rather than a solution of it.

Another major conclusion drawn from the empirical analysis is that there was a very weak correlation between social profitability and private

profitability in the industry. This meant that, from the standpoint of Nigerian society, private profitability was a very imperfect guide to investment decisions in the industry. This phenomenon was largely a product of an environment of a high and differentiated structure of tariff protection in which the industry developed. In this respect, we found that the range of effective rates of protection implicitly given to production activities was extremely wide. The empirical evidence suggests that the variations in effective rates of protection among production processes were related to the progress of import substitution in the industry. During the early stage of the import-substitution process, the tariff protection discriminated in favour of the single-process finishing-production activity, but, as the tariff device was progressively being used to encourage backward integration in the industry, tariff protection began to discriminate in favour of the weaving and spinning processes and against single-process finishing. In establishing the relationship between relative economic efficiency and the structure of tariff protection, we found that unit social profits were negatively and significantly correlated with effective rates of protection in the industry.

The major conclusions arising from our systematic identification and assessment of the factors such as the Nigerian economic environment, economies of scale, relative factor intensities and X-inefficiency which could possibly explain the observed overall economic inefficiency of the Nigerian textile industry need to be summarised. Firstly, in general, the inefficiency of the industry could partly be explained by the general characteristics of underdevelopment of the Nigerian economy, which were manifested in shortages of managerial, technical and supervisory manpower and inadequate supplies of all conceivable infrastructural facilities required for efficient industrial production. In addition, other costs

associated with the Nigerian economic environment, which conceivably arose from shipping delays and difficulties encountered in installing equipment in factories, may have contributed to the high unit costs of production in the industry. Secondly, the observed wide efficiency differentials among the firms operating in the industry were not related to the existence of differing degrees of economies of scale among the firms. This conclusion suggests that, as in the textile industries of some other countries, scale economies have been unimportant in the development of the Nigerian textile industry. Thirdly, the conclusion arising from the discussion of relative factor intensities in the industry is that the firms which adopted relatively more capital-intensive methods of production were relatively more efficient than the firms which adopted relatively more labour-intensive methods of production. As the social costs of labour and capital inputs were used in the investigation, this conclusion implies that factors other than the relative price of labour and capital were more important in explaining the optimal choice of techniques in the industry. We argued that the main explanations as to why firms tended to choose relatively efficient capital-intensive techniques could be sought on the basis of an aspect of the structuralist hypothesis: the choice of the relatively efficient capital-intensive techniques was significantly influenced by the competitive pressures which were generated in the industry as a result of the entry of foreign firms into the industry to cater for their previous merchandise trade interests and to protect their export market in the face of a rising tariff wall. In this context, the firms tended to adopt the most recent capital-intensive techniques as a means of remaining efficient and therefore of surviving in the face of competitive pressures in the industry. Given the important role played by foreign private investors in the development of the modern Nigerian textile

industry, we argued that the firms' adoption of relatively efficient capital-intensive techniques was determined mainly by the firms' differential access to modern technology through foreign private investment and to scarce skilled manpower through expatriate skilled labour. Fourthly and finally, there were marked variations in X-inefficiency among the firms in the industry. The presence of X-inefficiency in the industry appears to be consistent with the general *a priori* expectation that tariff protection, through the creation of, to some extent, non-competitive conditions in the domestic markets as compared with the competitive conditions in the world markets, was exploited by the firms by way of relaxing their cost-reducing efforts. We also argued that the "defensive" investment decisions made by the multinational firms operating in the industry presumably caused such firms to operate within their production possibility frontiers.

The general conclusion to be drawn from the empirical analysis and the explanations of the economic performance of the Nigerian textile industry is that the economic performance of the industry was significantly influenced by government protectionist policy as well as by investment strategies of foreign private firms.

The alternative strategies, implied by this general conclusion, for improving the economic performance of the textile industry in the context of the development and industrialisation of the Nigerian economy can be discussed within the neo-classical and the structuralist/Marxist paradigms. The alternative strategies within the neo-classical paradigm are premised on the proposition that the existence of high and differential economic inefficiency in the textile industry derived mainly from a high and differentiated structure of tariff protection. The high economic costs of this tariff structure for the main sectors of the industry have been shown

by means of simulations conducted on the basis of the neo-classical notion of uniform effective tariff protection. On the basis of the results of the simulations, we have recommended that, for the purpose of improving the economic efficiency of the industry, tariff-making must avoid excessive non-uniformity in the structure of effective tariff protection. As there were wide variations in the economic efficiency among the industry's sectors, different uniform effective rates of protection may be designed for the different sectors of the industry. Given that the cotton broadwoven sector was the least inefficient sector and the synthetic broadwoven and the thread and yarn sectors were the most inefficient sectors in the industry, we have suggested that the uniform effective rate of protection for the cotton broadwoven sector should be lower than that for the synthetic broadwoven and the thread and yarn sectors. The alternative strategies within the structuralist/Marxist paradigm are premised on the viewpoint that an industrialisation strategy should be a part of a Nigerian development strategy which should be oriented towards meeting the "basic needs" of the majority of the population and which should be manifested in changes in income and wealth distribution, consumption patterns, composition of capital and consumer goods, and in techniques of production. Given appropriate changes in income and wealth distribution, consumption patterns and in the composition of products in Nigeria, we have advocated the establishment of capital goods industries in the economy, through the formation of government joint ventures with foreign private firms on the basis of collaboration agreements, which will generate appropriate modern technology required for efficient production in the textile industry as well as in other industries. However, in the light of the findings of this study, the development of domestic capital goods industries will probably lead, initially, to greater economic inefficiency in the textile

industry as well as in other consumer goods industries. Nigeria may well regard such inefficiency as necessary costs of her progress towards an integrated modern industrialised economy.

Appendix 4.A: The Structure of Nigerian Imports
(₦ Million)

	1964	1968	1970	1971	1972	1973	1974	1975
CONSUMER GOODS:								
(a) Non-Durable Consumer								
(i) Food	48.6	32.2	62.2	93.2	99.4	131.4	166.4	353.8
(ii) Textiles	64.0	32.0	39.0	58.2	53.4	36.6	31.5	61.3
(iii) Others	71.6	51.8	78.4	125.6	118.5	138.7	173.6	353.0
(b) Durable Consumer Goods	17.6	9.2	24.4	43.0	51.3	62.9	68.5	191.7
Total	201.8	125.2	204.0	320.0	322.6	369.6	440.0	979.8
CAPITAL GOODS:								
(i) Capital Equipment	122.2	104.2	232.4	350.6	278.4	326.2	490.1	1135.9
(ii) Transport Equipment	38.0	30.2	78.8	111.4	88.3	116.0	124.9	371.1
(iii) Raw Materials	88.8	83.4	186.8	247.6	223.9	314.2	519.3	902.7
(iv) Fuel	39.0	29.2	22.0	9.0	9.8	13.6	55.4	100.2
Total	288.0	247.0	520.0	718.6	600.4	770.0	1189.7	2509.9
PASSENGER CARS:	17.2	5.8	13.8	25.0	60.2	76.6	97.0	220.3
GRAND TOTAL	507.0	378.0	737.8	1063.6	983.2	1216.2	1726.7	3710.0

Source: Federal Office of Statistics (Lagos), Review of External Trade, 1975, p. 29.

Appendix 4.B: The Structure of Nigerian Manufacturing Production: Value Added by Industry Groups (₦ Million)

	1957	1962	1967	1970	1971	1972	1973
CONSUMER GOODS:							
Food, Beverage and Tobacco	21.9	27.1	55.6	142.5	164.5	169.9	246.1
Clothing and Footwear	0.4	1.1	4.7	2.2	13.1	8.7	9.1
Wood and Furniture	3.6	11.4	8.5	10.1	11.9	15.9	15.1
Paper and Printing	1.9	3.6	6.2	21.0	19.7	24.5	31.8
Leather Products	0.1	0.1	0.8	1.3	1.7	2.3	2.8
Radio and T.V. Sets	-	-	-	2.7	3.3	3.8	2.2
Household Electrical Equipment	-	-	-	1.2	1.5	1.7	2.4
Sub-total	27.9	43.4	75.9	181.0	215.7	226.8	309.5
INTERMEDIATE GOODS:							
Textiles	2.3	5.0	27.4	92.9	77.3	76.3	78.1
Rubber Products	1.3	3.1	6.2	15.7	12.5	17.2	20.3
Chemicals and Petroleum Products	6.0	12.6	29.7	56.8	74.2	89.0	91.5
Miscellaneous Manufactures	-	0.3	1.8	20.1	27.5	31.9	36.6
Sub-total	9.5	20.9	65.0	185.5	191.5	214.4	226.5
CAPITAL GOODS:							
Non-metal Mineral Products	1.0	4.0	6.6	-	-	-	-
Metal Products	1.1	3.3	12.1	25.9	33.4	54.9	40.2
Machinery	-	0.1	1.3	0.8	0.8	0.9	0.3
Transport Equipment	2.4	10.3	14.3	1.1	1.1	0.4	3.8
Sub-total	4.5	17.7	34.4	27.8	35.3	56.2	44.3
GRAND TOTAL	41.9	82.0	175.3	394.2	442.5	494.9	580.0

Sources: (i) Federal Office of Statistics, Annual Abstract of Statistics, Various Years.
(ii) Federal Office of Statistics, Industrial Surveys, Various Years.

Appendix 5.C Principal Nigerian Textile Manufacturers

Manufacturer	Year Operation Began	Plant Capacity		% Shareholding		Nationality of Foreign Shareholders
		Installed	Utilised	Nigerian	Foreign	
Kaduna Textile Mills	1958	85 million yds *per* year	100%	66.7	33.3	British
West African Thread Company	1961	1.1 million Kg. *per* year	0.5 million Kg. *per* year	20	80	British
Northern Textile Manufacturers	1961	-	-	49.3	50.7	Japanese
Nigerian Textile Mills	1962	-	-	94	6	Italian American Swiss
Nortex	1962	376 looms	376 looms	83.7	16.3	Sudanese
Norspin	1963	240 looms	240 looms	7	93	British
Nornit	1963	1.5 million garments	0.9 million garments	7.5	92.5	Lebanese Egyptians
Textile Commodities	1964	-	-	100	-	-
Zamfara Textile Industries	1964	-	-	59.4	40.6	Sudanese
Nigerian Braiding Manufacturing	1964	-	-	-	100	Syrian

Appendix 5.C continued...

Appendix 5.C continued...

Manufacturer	Year Operation Began	Plant Capacity		% Shareholding		Nationality of Foreign Shareholders
		Installed	Utilised	Nigerian	Foreign	
Aba Textile Mills	1964	32 million metre *per* year	6.4 million metre *per* year	100	-	-
Arewa Textile	1965	3.6 million metre *per* month	88%	30	70	Japanese
United Nigeria Textiles	1965	9.52 million yds *per* month	70%	25.8	74.2	British Chinese Swiss
Kay Textiles	1965	-	-	-	100	-
Afprint Nigeria	1966	54.3 million m^2 *per* year	22.6 million m^2 *per* year	45.3	54.7	Indian British Japanese
Midwest Textiles	1966	27.4 million metre *per* year	13.7 million metre *per* year	90.0	10.0	German
Northern Nigeria Textiles	1967	-	-	28.6	71.4	Japanese
Fablon	1968	-	-	13.3	86.7	-

Appendix 5.C continued...

Appendix 5.C continued...

Manufacturer	Year Operation Began	Plant Capacity		% Shareholding		Nationality of Foreign Shareholders
		Installed	Utilised	Nigerian	Foreign	
Western Textile Industries Company	1968	16459.2 metre *per* day	10972.8 metre *per* day	42	58	American German Egyptian
Novelty Industrial Company	1969	-	-	-	100	British Syrian
Western Textile Mills	1969	5.5 million metre *per* year	3.7 million metre *per* year	-	100	Indian British
Zamfara Textile Industries [Kaduna]	1969	-	-	46.6	53.4	Sudanese
Assan Industries	1969	-	-	Mostly Foreign		
Spinners and Weavers	1970	-	-	Mostly Foreign		
Textile Utilities Manufacturers	1970	-	-	Mostly Foreign		
Jaybee Industries	1970	0.5 million Kg. *per* year	0.3 million Kg. *per* year	-	100	British Indian
Enpee Industries	1970	14630 metre daily	14630 metre daily	38.8	61.2	Indian
Atlantic Mercantile Company	1970	-	-	-	100	Lebanese

Appendix 5.C continued...

Appendix 5.C continued...

Manufacturer	Year Operation Began	Plant Capacity		% Shareholding		Nationality of Foreign Shareholders
		Installed	Utilised	Nigerian	Foreign	
Atlantic Textile	1970	-	-	-	100	Indian
Continental Textile Mills	1971	-	-	-	100	Chinese
Dalamal Textile Mills	1971	-	-	4.6	95.4	Indian
Madras Manufacturing Company	1971	-	-	-	100	Indian
Nigeria Teijin Textile	1971	0.4 million metre *per* month	0.3 million metre *per* month	-	100	Japanese
Nigerian Spinners and Dyers	1971	1.4 million Kg. yarn	66%	29	71	Lebanese British
Bagauda Textile Mill	1971	-	-	100	-	-
Kanotex	1971	-	-	25	75	Lebanese

Sources: Federal Ministry of Industries, Industrial Directory, 1975, pp.45-61, The 1973 Nigerian Industrial Survey by the Federal Office of Statistics;

and Data obtained through interviews.

Appendix 5.D Some Indicators of Growth Performance of Nigerian Textile Industry, 1964-1973

Year	Number of Persons Employed	Number of Establishments	Gross Output (₦'000)	Value Added (₦'000)	Wages and Salaries (₦'000)	Industrial Costs (₦'000)
1964	9381	46	18208	7716	3494	10492
1965	13416	55	41732	16656	4564	25076
1967	17167	56	58774	27082	7520	31690
1969	28516	68	127714	56940	11730	70772
1970	37203	75	206404	95018	16420	111386
1971	39976	106	197358	85348	20994	112012
1972	46897	131	185490	83481	25390	102008
1973	49011	125	208045	78859	27719	129186

Source: Federal Office of Statistics, Industrial Surveys, 1964-1973.

Appendix 5.E Some Firm Level Data for the Nigerian Textile Industry in 1973

Firms Represented by CODE	Number of Persons Employed	Gross Output ₦	Value Added ₦	Wages and Salaries Including Fringe Benefits ₦	Industrial Costs* ₦
A_1	2535	10753682	4612319	1647272	614163
A_2	3896	14367390	6028675	1338370	8338715
A_3	90	536191	233112	71723	303079
A_4	89	1103141	403420	97043	699721
B	427	1563880	711859	220681	852021
C	148	333554	28389	93725	305165
D	437	2941152	966033	220569	1975119
E	874	6157915	1984688	541178	4173227
F	437	399915	106969	276982	292946
G	188	399224	127791	94719	271433
K_1	4002	14883725	5622063	956042	9261662
K_2	118	1004000	481300	59185	522700
K_3	334	1439308	447184	173652	992124
L	169	241460	-349005	146702	590465
M	63	156806	78430	52559	78376
N_1	935	4880352	2238684	719069	2641668
N_2	3784	11441333	5378863	3372490	6062470
N_3	185	1146723	508372	100721	638351

Appendix 5.E continued...

Appendix 5.E continued...

Firms Represented by CODE	Number of Persons Employed	Gross Output ₦	Value Added ₦	Wages and Salaries Including Fringe Benefits ₦	Industrial Costs* ₦
N_4	1477	3922684	1175982	989398	2746702
N_5	1043	2139869	1382171	540957	757698
N_6	154	859941	184678	173137	675263
N_7	1003	3493044	1454005	488377	2039039
S	3612	14161393	6307881	2110440	7853512
T	216	359000	187500	105000	171500
U	4776	34630813	12817436	3761330	21813377
W_1	446	1742804	821989	474039	920815
W_2	353	2823612	1732695	339245	1090917
W_3	219	3149065	-96385	207188	3245450
Z_1	1003	1253472	241872	459637	1228600
Z_2	406	2261904	1350882	227100	911022

Note: Industrial costs cover the costs of raw materials, and intermediate inputs, and costs of fuel and electricity.

Source: The Federal Office of Statistics, Nigerian Industrial Survey, 1973.

Appendix 5.F Changes in the Import Duty Structure for Textile Goods

Description of Goods	*Per* Unit of	1957	1960	1962	1965	1967	1968	1969	1970	1971	1972	1973	
. COTTON GOODS													
Cotton Fibre												10%	for approved manufacturers
Cotton and cotton linters	Kg.	20%	20%	20%	33⅓%	33⅓%	33⅓%	33⅓%	33⅓%	33⅓%	33⅓%	33⅓%	for others
Combed or carded cotton	Kg.				"	"	"	"	"	"	"	33⅓%	
Woven Fabrics													
Grey unbleached for approved manufacturer	m^2					5K	7K	10K	12K	14K	14K	50K or 75%	
Other grey-unbleached or bleached	m^2					15K or 33⅓%	14K or 33⅓%	14K or 33⅓%	34K or 40%	34K or 40%	34K or 40%	50K or 75%	
White bleached Printed Piece dyed Colour woven Terry towel	m^2	20%	25%	29%	37%	88K or 50%	88K or 50%	88K or 50%	88K or 50%	88K or 50%	88K or 50%	75%	
Madras Brocade Damask	m^2					36K or 50%	36K or 50%	36K or 50%	84K or 100%	84K or 100%	84K or 100%	₦1.00 or 100%	
Suiting						"	"	"	34K or 40%	96K or 100%	96K or 100%	₦1.00 or 100%	

Appendix 5.F continued...

Appendix 5.F continued...

Description of Goods	*Per* Unit of	1957	1960	1962	1965	1967	1968	1969	1970	1971	1972	1973
Cotton Yarn												
(i) Yarn Not Put For Sale												
Yarn for approved manufacturer	Kg.	3K	3K	3K	3K	7K	7K	11K	18K	18K	18K	18K
Waste yarn for blankets and towels	Kg.					2K	2K	2K	4K	11K	11K	18K
Darning, crocheting and embroidery	Kg.					88K or 33⅓%	88K or 33⅓%		No	Change		
(ii) Yarn Put Up For Sale												
Yarn	Kg.					26K or 33⅓%	26K or 33⅓%		No	Change		18K
Sewing thread	Kg.					₦1.21 or 33⅓%			No	Change		
Darning, crocheting and embroidery	Kg.					88K or 33⅓%			No	Change		
2. SYNTHETIC GOODS												
Man-Made Fabrics												
Woven Fabrics												
White bleached Printed Piece dyed Yarn dyed	m^2	20%	25%	33⅓%	33⅓%	34K or 40%			No	Change		50K or 75%

Appendix 5.F continued...

ppendix 5.F continued...

Description of Goods	*Per* Unit of	1957	1960	1962	1965	1967	1968	1969	1970	1971	1972	1973
Brocade Damask Madras	m^2					34K or 40%	No	Change	84K or 100%	84K or 100%	84K of 100%	₦1.00 100%
Suiting	m^2					34K or 40%	No	Change		96K or 100%	96K or 100%	₦1.00 100%
Man-Made Yarn												
(i) Yarn Not Put Up For Retail Sale												
Yarn for approved manufacturer	Kg.				3K	7K	7K	11K	18K	18K	18K	18K
Waste yarn for blankets	Kg.				1K	2K	2K	2K	4K	11K	11K	11K
(ii) Yarn Put Up For Retail Sale												
Yarn	Kg.					26K or 33⅓%	No	Change				18K
Sewing thread	Kg.					₦1.21 or 33⅓%	No	Change				
Darning, crocheting and embroidery						88K or 33⅓%	No	Change				
KNITTED GOODS												
Interlock for singlets for approved manufacturers	Kg.					70K or 50%	No	Change				75%
Other interlock	Kg.					₦3.30 or 50%	No	Change				
Knitted (not interlocked) for approved manufacturer						70K or 50%	No	Change				

Appendix 5.F continued...

Appendix 5.F continued...

Description of Goods	*Per* Unit of	1957	1960	1962	1965	1967	1968	1969	1970	1971	1972	1973
Suiting	Kg.									96K or 100%	96K or 100%	50K or 100%
4. PILE AND CHENILLE GOODS												
Woven pile and chenille	m^2					60K or 50%	60K or 50%	60K or 50%	60K or 50%	96K or 100%	96K or 100%	96K or 100%
Narrow fabrics of pile and chenille	m^2					"	"	"	"	"	"	"
Other net fabrics and hand and mechanically made lace	m^2					34K or 40%	34K or 40%	34K or 40%	84K or 100%	84K or 100%	84K or 100%	96K or 100%
Embroidered pile and chenille	m^2					60K or 50%	60K or 50%	60K or 50%	84K or 100%	84K or 100%	84K or 100%	96K or 100%
Embroidery other than pile and chenille	m^2					34K or 40%	34K or 40%	34K or 40%	84K or 100%	84K or 100%	84K or 100%	96K or 100%
5. SILK GOODS												
Yarn for approved manufacturer	Kg.					33⅓%	33⅓%	33⅓%	33⅓%	33⅓%	33⅓%	33⅓%
Yarn put up for retail	Kg.					"	"	"	"	"	"	"
Woven Fabrics												
White bleached Printed Piece dyed	m^2					36K or 50%	36K or 50%	36K or 50%	36K or 50%	96K or 100%	96K or 100%	₦1.00 100%
Madras Brocade Damask	m^2					36K or 50%	36K or 50%	36K or 50%	84K or 100%	84K or 100%	84K or 100%	₦1.00 100%
Suiting	m^2					"	"	"	"	"	"	"

Sources: (i) Arthur D. Little Inc., Advisors to the Federal Ministry of Industries, The Nigerian Textile Industry Outlook And Policy Questions Facing Government, Unpublished Report, 1967, pp.73-74; (ii) Skoup and Company Ltd., and Werner

Appendix 5.G Structure of Import Duties on Textile Equipment

Tariff Item No.	Description of Equipment	1967	1968	1969	1970	1971	1972	1973
		%	%	%	%	%	%	%
84.36	Machine for extruding manmade textiles.	free	free	5	5	5	5	5
84.37	Weaving machines, knitting machines, and machines for making gimped yarn, lace, embroidery trimmings, braid or net, etc.							
	A: Imported by approved manufacturers or importers.	free	free	5	5	5	5	5
	B: Imported by others.	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓
84.38	Auxiliary machinery for use with machines of heading No.84.37 (e.g. dobbies, jacqnards, automatic stop-motions and shuttle, changing machines, parts and accessories such as spindles and spindle flyers, card clothing combs, extruding nipples, shuttles, etc.							
	A: Imported by approved manufacturers or importers.	free	free	5	5	5	5	5
	B: (i) Imported by approved manufacturers of parts and accessories falling within heading No.84.36, 84.37A and 84.38A.	5	5	10	10	5	5	5
	(ii) Imported by others.	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓
84.39	Machinery for the manufacture or finishing of felt in the piece or in shapes including felt-hat making machines and hat-making blocks.							
	A: Imported by approved manufacturers or importers.	free	free	5	5	5	5	5

Appendix 5.G continued...

Appendix 5.G continued...

Tariff Item No.	Description of Equipment	1967	1968	1969	1970	1971	1972	1973
		%	%	%	%	%	%	%
84.40	Machinery for washing, cleaning, drying, bleaching, dyeing, dressing, finishing or coating textile yarns, fabrics or made-textile articles, etc.							
	A: Imported by approved manufacturers or importers.	free	free	5	5	5	5	5
	B: Identifiable parts for A.	5	5	10	10	5	5	5
	C: Washing machines for domestic purposes:							
	(i) electrically operated;	40	40	40	40	40	40	40
	(ii) others;	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓
	(iii) parts;	"	"	"	"	"	"	"
84.41	Sewing machines and specially designed for sewing machines.							
	A: Industrial sewing machines and specialised furniture therewith imported by approved manufacturers.	free	free	5	5	5	5	5
	B: Sewing machines for domestic purposes:							
	(i) electrically operated;	40	40	40	40	40	40	40
	(ii) others;	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓
	C: Parts;							
	(i) components imported completely knocked down (CKD) for use in the assembly of sewing machines by an approved manufacturer;	15	15	15	15	15	15	15
	(ii) identifiable parts for A;	5	5	10	10	5	5	5
	(iii) specialised furniture not for A;	75	75	75	75	75	75	75
	(iv) other	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓	33⅓

Source: Skoup and Co. Ltd., and Werner Textile Consultants, *ibid.*, pp.206-207.

Appendix 5.H Total Consumption of Textiles by Fabric Type in Nigeria 1958-1972
(million square metre)

		1958	1959	1960	1961	1962	1963	1964	1965	1967	1968	1969	1970	1971	1972
COTTON BROADWOVEN															
GREY BAFT:	Domestic Production	7.1	10.5	13.5	17.8	20.0	17.4	27.0	38.5	36.6	38.1	37.6	38.1	60.5	45.6
	Imports	21.1	5.9	5.5	7.1	1.1	1.0	1.3	36.7	-	-	-	-	-	-
	Total	28.2	16.4	19.0	24.9	21.1	18.4	28.3	75.2	36.6	38.1	37.6	38.1	60.5	45.6
DYED:	Domestic Production	-	-	-	-	1.5	1.8	1.7	2.3	20.6	27.4	32.3	37.8	43.6	29.1
	Imports	24.7	22.2	35.4	39.5	32.9	42.2	42.5	39.2	12.5	3.8	2.9	3.4	7.5	10.1
	Total	24.7	22.2	35.4	39.5	34.4	44.0	44.2	41.5	33.1	31.2	35.2	41.2	51.1	39.2
BLEACHED:	Domestic Production	-	-	-	-	7.3	15.3	19.1	25.0	29.4	30.8	35.7	34.7	39.2	44.5
	Imports	36.4	26.9	27.5	40.5	23.3	19.6	20.8	19.3	5.8	2.6	0.9	0.2	2.7	3.1
	Total	36.4	26.9	27.5	40.5	30.6	34.9	39.9	44.3	35.2	33.4	36.6	34.9	41.9	42.6
COLOUR WOVEN:	Domestic Production	-	-	-	-	-	-	-	-	0.4	1.8	7.3	14.9	11.9	9.0
	Imports	18.7	15.4	20.1	25.5	15.4	17.0	19.1	18.0	10.6	2.2	0.3	0.3	3.7	5.7
	Total	18.7	15.4	20.1	25.5	15.4	17.0	19.1	18.0	11.0	4.0	7.6	15.2	15.6	14.7
PRINTS:	Domestic Production	-	-	-	-	-	-	1.7	45.6	71.2	98.2	144.9	161.8	152.8	111.7
	Imports	41.3	45.8	82.8	87.2	65.8	83.9	81.2	55.3	20.3	2.6	1.3	1.6	8.0	12.2
	Total	41.3	45.8	82.8	87.2	65.8	83.9	82.9	100.9	91.5	100.8	146.2	163.4	160.8	122.9

Appendix 5.H continued

Appendix 5.H continued...

		1958	1959	1960	1961	1962	1963	1964	1965	1967	1968	1969	1970	1971	1972
COTTON BROADWOVEN continued															
PILE AND CHENILLE:	Domestic Production									-	-	-	-	-	-
	Imports									11.2	3.2	3.5	2.7	4.5	2.3
	Total									11.2	3.2	3.5	2.7	4.5	2.3
SHEETING:	Domestic **Production**									-	-	-	-	-	-
	Imports									7.6	9.3	2.1	0.01	9.0	22.7
	Total									7.6	9.3	2.1	0.01	9.0	22.7
	Sub-Total:														
	Domestic **Production**	7.1	10.5	13.5	17.8	28.8	34.5	49.5	111.4	158.2	196.3	257.8	287.3	308	239.9
	Imports	163.3	122.1	176.8	199.8	138.5	163.7	164.9	168.5	68	23.7	11.0	8.2	35.4	56.1
SYNTHETIC BROADWOVEN															
SUITING:	Domestic **Production**									-	-	0.3	1.4	5.2	8.1
	Imports									3.0	0.9	0.7	1.0	2.7	2.0
	Total									3.0	0.9	1.0	2.4	7.9	10.1
BLEACHED:	Domestic **Production**									-	-	-	1.2	2.6	3.6
	Imports									1.2	0.3	0.3	0.3	3.7	2.7
	Total									1.2	0.3	0.3	1.5	6.3	6.3

Appendix 5.H continued...

Appendix 5.H continued...

		1958	1959	1960	1961	1962	1963	1964	1965	1967	1968	1969	1970	1971	1972
SYNTHETIC BROADWOVEN continued															
DYED:	Domestic Production									-	-	-	-	1.0	3.9
	Imports									15.2	4.1	0.8	7.3	34.8	29.6
	Total									15.2	4.1	0.8	7.3	35.8	33.5
PRINTS:	Domestic Production									-	-	-	-	-	2.9
	Imports									5.4	1.5	0.4	0.4	12.2	10.3
	Total									5.4	1.5	0.4	0.4	12.2	13.2
OTHER SYNTHETICS:	Domestic Production									-	-	-	-	0.1	0.5
	Imports									11.7	18.8	12.6	12.8	17.0	24.4
	Total									11.7	18.8	12.6	12.8	17.1	24.9
OTHER SYNTHETIC FILAMENTS:	Domestic Production									-	-	-	-	-	-
	Imports									4.4	1.3	1.0	1.2	13.9	10.2
	Total									4.4	1.3	1.0	1.2	13.9	10.2
FILAMENT & SPUN RAYON & ACETATE:	Domestic Production									-	-	-	-	-	-
	Imports									4.3	1.2	0.6	1.7	4.0	8.4
	Total									4.3	1.2	0.6	1.7	4.0	8.4

Appendix 5.H continued...

Appendix 5.H continued...

		1958	1959	1960	1961	1962	1963	1964	1965	1967	1968	1969	1970	1971	1972
SYNTHETIC BROADWOVEN continued															
	Sub-Total:														
	Domestic Production	-	-	-	-	-	-	-	-	-	-	-	2.6	8.9	19.0
	Imports	123.7	82.3	82.6	73.9	36.1	22.7	27.1	292.6	41.0	26.9	15.4	23.4	81.9	82.9
OTHER BROADWOVEN															
TERRY TOWELS:	Domestic Production									-	1.7	7.9	9.8	22.1	12.4
	Imports									0.3	0.04	0.02	0.04	0.7	0.6
	Total									0.3	1.74	7.92	9.84	22.8	13.0
BLANKETS:	Domestic Production									2.5	9.9	11.2	14.5	12.0	7.6
	Imports									3.6	8.0	2.9	2.3	6.8	2.9
	Total									6.1	17.9	14.1	16.8	18.8	10.5
DUSTERS:	Domestic Production									-	-	-	-	5.8	2.7
	Imports									-	-	-	-	-	-
	Total									-	-	-	-	5.8	2.7
HAND LOOM:	Domestic Production									9.8	12.5	15.7	18.6	33.5	28.2
	Imports									-	-	-	-	-	-
	Total									9.8	12.5	15.7	18.6	33.5	28.2

Appendix 5.H continued...

APPENDIX 5.H continued...

		1958	1959	1960	1961	1962	1963	1964	1965	1967	1968	1969	1970	1971	1972
OTHER BROADWOVEN continued															
TARPAULINS:	Domestic Production									-	-	-	-	-	-
	Imports									2.3	2.4	3.4	7.2	1.4	3.8
	Total									2.3	2.4	3.4	7.2	1.4	3.8
	Sub-Total:														
	Domestic Production									12.3	24.1	34.8	42.9	73.4	50.9
	Imports									6.2	10.4	6.3	9.5	8.9	7.3
KNITTED FABRICS															
COTTON SINGLE KNIT:	Domestic Production									1.1	2.0	3.5	4.9	5.5	5.0
	Imports									1.5	3.9	3.1	0.7	4.3	3.0
	Total									2.6	5.9	6.6	5.6	9.8	8.0
SYNTHETIC-DOUBLE KNIT:	Domestic Production									-	-	0.3	1.7	5.1	3.9
	Imports									-	-	-	-	-	-
	Total									-	-	0.3	1.7	5.1	3.9
SYNTHETIC-WARP KNIT:	Domestic Production									-	-	-	-	0.4	3.1
	Imports									1.0	3.6	2.8	0.4	3.4	2.1
	Total									1.0	3.6	2.8	0.4	3.8	5.2

Appendix 5.H continued...

Appendix 5.H continued...

		1958	1959	1960	1961	1962	1963	1964	1965	1967	1968	1969	1970	1971	1972
KNITTED FABRICS continued															
SOCKS:	Domestic Production									0.2	0.1	0.1	0.1	0.2	1.2
	Imports									-	-	-	-	-	-
	Total									0.2	0.1	0.1	0.1	0.2	1.2
HOSIERY:	Domestic Production									-	-	-	-	-	-
	Imports									3.6	3.1	1.7	0.1	3.6	2.3
	Total									3.6	3.1	1.7	0.1	3.6	2.3
MISCELLA-NEOUS:	Domestic Production									-	-	-	-	-	-
	Imports									0.1	-	0.2	0.1	0.2	0.2
	Total									0.1	-	0.2	0.1	0.2	0.2
	Sub-Total:														
	Domestic Production									1.3	2.1	3.9	6.7	11.2	13.2
	Imports									6.2	10.6	7.8	1.3	11.5	7.6
NARROW & SPECIALITY FABRICS										5.2	2.0	3.0	2.6	6.9	6.2
UNRECORDED IMPORTS										3.2	5.5	7.4	8.0	11.5	9.4
STOCK ADJUSTMENT										-	(0.2)	(1.0)	(3.5)	0.5	(1.7)
GRAND TOTAL FABRIC CONSUMPTION:															
	Domestic Production	7.1	10.5	13.5	17.8	28.8	34.5	49.5	111.4	177.0	224.3	298.5	338.6	407.8	328.1
	Imports	287	204.4	259.4	273.7	174.6	186.4	192.0	461.1	124.6	69.1	47.9	50.4	149.2	163.3

Source: Skoup and Company, Working Papers.

Appendix 5.R Excise Duty on Some Domestically Manufactured Textile Goods

Description of Goods	*Per* Unit of	1967	1968	1969	1970	1971	1972	1973
COTTON WOVEN FABRICS								
(i) Unbleached	m^2			2K	2K	4K	4K	4K
(ii) Bleached	m^2			2K	2K	6K	4K	4K
(iii) Embroidery, Lace and Net Fabrics Brocade	m^2					30K	12K	12K
(iv) Other	m^2			6K	6K	10K	6K	6K
SYNTHETIC WOVEN FABRICS								
(i) Embroidery, Lace and Fabrics	m^2					42K	12K or 10%	12K or 10%
(ii) Suiting	m^2					72K	72K	72K
(iii) Pile and Chenille Fabrics	m^2					12K	6K or 10%	6K or 10%
(iv) Other	m^2					48K	12K or 10%	12K or 10%
KNITTED FABRICS								
(i) Singlets	Kg					55K	55K	10%
(ii) Embroidery, Lace and Net Fabrics	m^2					30K	12K or 10%	12K or 10%
(iii) Suiting	m^2					60K	12K or 10%	12K or 10%
(iv) Pile and Chenille Fabrics	m^2					70K	12K or 10%	12K or 10%
(v) Other	m^2					18K	12K or 10%	12K or 10%
SOCKS	Kg		10%	10%	10%	10%	10%	10%
BLANKET	m^2	5%	10%	10%	10%	10%	5%	5%
THREAD	Kg	10%	10%	10%	10%	10%	10%	10%
TOWEL AND TOWELLING	m^2	10%	15%	15%	15%	15%	15%	15%

Source: Skoup and Co. Ltd., and Werner Textile Consultants, *ibid.*, p.209.

Appendix 6.I The Structure of Operating Investments in the Nigerian Textile Industry at 1973 Prices (in Naira)

Firm	Machinery and Equipment	Transport Equipment	Building and Construction	Total
A_1	6073455.4	86880	2786441.2	8946776.6
A_2	7141454.1	47259.4	1591605.8	8780319.3
A_3	103458.1	1654.8	301445.8	406558.7
A_4	177978.7	7629.7	-	185608.4
B	701498.1	6196.8	152805.2	860500.1
C	308398.1	2608.4	62814.8	373821.3
D	-	-	-	314516.1
E	1129819.3	20976.1	396520.6	1547316
F	85432.3	5071.6	150066.4	240570.3
G	491700.6	12214.8	160398.1	664313.5
K_1	7352218.7	-	3350565.8	10702784
K_2	103225.8	-	72580.6	175806.4
K_3	234431	4927.7	88020.6	327379.3
L	288751.6	508.4	150240.2	439500.2
M	60903.2	2541.9	58097	121542.1
N_1	1050574.8	20567.1	614132.2	1685274.1
N_2	8439039.3	99208.4	3360550.3	11898798
N_3	336488.4	7639.4	118400.6	462528.4
N_4	1611353.5	24863.2	566923.9	2203140.6
N_5	851091.6	8499.3	301996.1	1161587
N_6	415208.4	14633.5	268783.2	698625.1
N_7	849759.3	21471.6	597307.7	1468538.6
S	4482376.1	80927.7	941651.6	5504955.4
T	367260.6	12742.6	194172.9	574176.1
U	5823978	114640.6	3605920.6	9544539.2
W_1	257969	14763.9	170931	443663.9
W_2	884000	28293.5	286438.1	1198731.6
W_3	692851.6	13764.5	269367.1	975983.2
Z_1	773548.4	24000	580064.5	1377612.9
Z_2	777985.8	21913.5	624810.3	1424709.6

Appendix 6.J Annual Capital Consumption By Type in the Nigerian Textile Industry at the 1973 Market Cost When Discounted at Appropriate Accounting Rates of Interest (in Naira)

Firm	6%			10%			15%		
	Machinery and Equipment	Transport Equipment	Building and Construction	Machinery and Equipment	Transport Equipment	Building and Construction	Machinery and Equipment	Transport Equipment	Building and Construction
A_1	653412.1	17668.1	185191.1	824448.5	19948.3	284939.8	1060962.8	22956.9	419532.4
A_2	768312.6	9610.8	105780.5	969425.2	10851.1	162756.7	1247529.9	12487.7	239635.5
A_3	11130.5	336.5	20034.5	14044.0	380.0	30825.7	18072.9	437.3	45386.3
A_4	19147.8	1551.6	-	24159.9	1751.8	-	31090.8	2016.0	-
B	75470.6	1260.2	10155.7	95225.7	1422.8	15625.8	122543.7	1637.4	23006.7
C	33179.0	530.4	4174.8	41863.9	598.9	6423.4	53873.6	689.2	9457.5
D	-	-	-	-	-	-	-	-	-
E	121551.5	4265.8	26353.3	153368.7	4816.3	40548.0	197366.4	1272.6	59701.0
F	9191.2	1031.4	9973.6	11597.1	1164.5	15345.7	14924	1340.1	22594.3
G	52899.6	2484.0	10660.3	66746.5	2804.6	16402.2	85894.4	3227.6	24149.9
K_1	790987.7	-	222683.6	998035.8	-	342626.8	1284348	-	504468.2
K_2	11105.5	-	4823.8	14012.5	-	7422.0	18032.4	-	10927.9
K_3	25221.2	1002.1	585.0	31823.1	1131.4	9000.9	40952.4	1302.1	13252.6
L	31065.3	103.4	9985.2	39196.9	116.7	15363.5	50441.6	134.3	22620.5
M	6552.3	516.9	3861.2	8267.4	583.6	5941	10639.1	671.7	8747.2

Appendix 6.J continued...

Appendix 6.J continued...

Firm	6%			10%			15%		
	Machinery and Equipment	Transport Equipment	Building and Construction	Machinery and Equipment	Transport Equipment	Building and Construction	Machinery and Equipment	Transport Equipment	Building and Construction
N_1	113026	4182.6	40816.1	142611.5	4722.3	62800.8	183523.3	5434.6	92465.0
N_2	907913.2	20175.3	223347.2	1145567.5	22779.0	343647.8	1474203.1	26214.5	505971.5
N_3	36201.1	1553.6	7869.1	45677	1754.1	12107.6	58780.6	2018.6	17826.6
N_4	173357.3	5056.2	37678.2	218735.1	5708.8	57973.3	281484.9	6569.8	85357.2
N_5	91564.6	1728.4	20071.1	115532.4	1951.5	30881.9	148675.9	2245.8	45469.2
N_6	44670.1	2975.9	17863.7	56363.0	3360	27485.6	72532.1	3866.7	40468.6
N_7	91421.3	4366.5	39698	115351.6	4930	61080.3	148443.2	5674.4	89931.9
S	482236	16457.7	62583.6	608465.5	18581.6	96292.7	783019.5	21384.1	141777
T	39511.7	2591.4	12905	49854.2	2925.8	19856	64156.2	3367.1	29235.1
U	626572.1	23313.6	239654.9	790582.9	26322.3	368739.3	1017381.9	30292.3	542915
W_1	27753.6	3002.4	11360.3	35018.3	3389.9	17479.3	45064.2	3901.2	25735.7
W_2	95105	5753.8	19037.1	119999.6	6496.4	29291	154424.6	7476.2	43126.7
W_3	74540.4	2799.2	17902.5	94052	3160.4	27545.3	121033.2	3637.1	40556.5
Z_1	83222.1	4880.7	38552	105006.2	5510.6	59317	135130	6341.7	87335.7
Z_2	83699.5	4456.4	41525.8	105608.6	5031.5	63892.7	135905.2	5790.3	94072.7

Appendix 6.K Annual Capital Consumption By Type in the Nigerian Textile Industry at the 1973 Accounting Cost When Discounted at Appropriate Accounting Rates of Interest (in Naira)

Firm	6%			10%			15%		
	Machinery and Equipment	Transport Equipment	Building and Construction	Machinery and Equipment	Transport Equipment	Building and Construction	Machinery and Equipment	Transport Equipment	Building and Construction
A_1	930786.4	14387.7	240507.9	1174428	12869.9	370051.7	1511343	18694.5	544847.3
A_2	1094462.3	7826.4	137377.3	1380947.5	8836.4	211372.3	1777108.1	10169.1	311214.9
A_3	15855.4	274.0	26018.8	20005.7	309.4	40033.4	25744.9	356.1	58943.2
A_4	27276.1	1263.5	-	34415.8	1426.5	-	44288.9	2618.2	-
B	107508.0	1026.2	13189.2	135649.1	1158.6	20293.2	174563.7	1333.4	29878.8
C	47263.5	431.9	5421.8	59635.2	487.7	8342.1	76743.0	561.2	12282.5
D	-	-	-	-	-	-	-	-	-
E	173150.3	3473.8	34225.1	218473.9	3922.1	52659.7	281148.7	1036.3	77533.8
F	13092.9	839.9	12952.7	16520.1	948.3	19929.5	21259.3	1091.3	29343.2
G	75355.6	2022.8	13844.5	95080.5	2283.9	21301.6	122356.7	2628.3	31363.5
K_1	1126763.1	-	289199.5	1421703.4	-	444969.9	1829555.5	-	655153.5
K_2	15819.8	-	6264.7	19960.8	-	9639.0	25687.2	-	14192.1
K_3	35927.6	816.0	759.7	45332.1	921.3	11689.5	58336.7	1060.3	17211.2
L	44252.6	84.2	12967.8	55836	95.0	19952.6	71854.1	109.4	29377.3
M	9333.8	420.9	5014.5	1176.9	475.2	7715.6	15155.4	547.0	11360

Appendix 6.K continued...

Appendix 6.K continued...

Firm	6%			10%			15%		
	Machinery and Equipment	Transport Equipment	Building and Construction	Machinery and Equipment	Transport Equipment	Building and Construction	Machinery and Equipment	Transport Equipment	Building and Construction
N_1	161005.7	3406	53007.9	203150.3	3845.5	81559.5	261429.2	4425.6	120084.4
N_2	1293323.6	16429.4	290061.3	1631862.5	18549.7	446295.8	2100004.4	21347.3	657105.8
N_3	51568.5	1265.1	10219.6	65067.0	1428.4	15724.2	83733	1643.8	23151.4
N_4	246947.7	4117.4	48933.2	311588.5	4648.9	75290	400975.6	5350	110853.5
N_5	130433.9	1407.5	26066.4	164576.1	1589.2	40106.4	211789.0	1828.8	59050.9
N_6	63632.6	2423.4	23199.6	80289.2	2736.2	35695.6	103322.1	3148.8	52556.6
N_7	130229.8	3555.8	51555.8	164318.5	4014.7	79325.1	211457.5	4620.8	116794.7
S	686945.9	13402	81277.4	866760	15131.6	125055.4	1115412.3	17413.8	184126
T	56284.5	2110.3	16759.7	71017.4	2382.6	25787	91390.6	2741.9	37967.7
U	892552.8	18985	311240.1	1126186.4	21435.1	478882.2	1449261.9	24668	705084.4
W_1	39535	2444.9	14753.6	49882.2	2760.5	22700.4	64194	3176.9	33423
W_2	135477.2	4685.5	24723.5	170939.6	5290.2	38040.3	219978.1	6088.1	56008.7
W_3	106182.9	2279.5	23250	133977.2	2573.6	35773.1	172412	2961.8	52670.8
Z_1	118550	3974.5	50067.5	149581.5	4487.5	77035.1	192492.9	5164.2	113423
Z_2	119230	3629	53929.6	150439.6	4097.3	82977.5	193597.1	4715.2	122172.3

Appendix 6.L Annual Capital Consumption in the Nigerian Textile Industry by Firms at 1973 Market Cost and Accounting Cost When Discounted at Appropriate Accounting Rates of Interest (in Naira)

Firm	MARKET COST			ACCOUNTING COST		
	6%	10%	15%	6%	10%	15%
A_1	856271.3	1129336.6	1503452.1	1185682	1557349.6	2074884.8
A_2	883703.9	1143033	1499653.1	1239666	1601156.2	2098492.1
A_3	31501.5	45249.7	63896.5	42148.2	60348.5	85044.2
A_4	20699.4	25911.7	33106.8	28539.6	35842.3	46907.1
B	86886.5	112274.3	147187.8	121723.4	157100.9	205775.9
C	37884.2	48886.2	64020.3	53117.2	68465	89586.7
D	39567.1	49023.9	61801.1	43963.4	54471	68667.9
E	152170.6	198733	258340	210849.2	275055.7	359718.8
F	20196.2	28107.3	38858.4	26885.5	37397.9	51693.8
G	66043.9	85953.3	113271.9	91222.9	118666	156348.5
K_1	1013671.3	1340662.6	17888816.2	1415962.6	1866673.3	2484709
K_2	15929.3	21434.5	28960.3	22084.5	29599.8	39879.3
K_3	26808.3	41955.4	55507.1	37503.3	57942.9	76608.2
L	41153.9	54677.1	73196.4	57304.6	75883.6	101340.8
M	10930.4	88792	20058	14769.2	19967.7	27062.4
N_1	158024.7	210134.6	281422.9	217419.6	288555.3	385939.2
N_2	1151435.7	1511994.3	2006389.1	1599814.3	2096708	2778457.5
N_3	45623.8	59538.7	78625.8	63053.2	82219.6	108528.2
N_4	216092.1	282417.2	373411.9	299998.3	391527.4	517179.1
N_5	113364.1	148365.8	196390.9	157907.8	206271.7	272668.7
N_6	65509.7	87208.6	116867.4	89255.6	118721	159027.5
N_7	135485.8	181361.9	244049.5	185341.4	247658.3	332873
S	561277.3	723339.8	946180.6	781625.3	1006947	1316952.1
T	55008.1	72636	96758.4	75154.5	99187	132100.2
U	889540.6	1185644.5	1590589.2	1222778.9	1626503.7	2179014.3
W_1	42116.3	55887.5	74701.1	56733.5	75343.1	100793.9
W_2	119895.9	155787	205030.5	164886.2	214270.1	282074.9
W_3	95242.1	124757.7	165226.8	131712.4	172323.9	228044.6
Z_1	126654.8	169833.8	228807.4	172592	231104.1	311080.1
Z_2	129681.7	174532.8	235768.2	176788.6	237514.4	320484.6

APPENDIX 7.M

The variables used in the estimated regression equations (1-5) below are defined as follows:

USPS = unit social profits of firms which represent the indices of their economic efficiency;

AGE = length of time in production of the firms;

RSK = the ratio of expatriate skilled employees plus Nigerian skilled employees to unskilled employees for each firm;

ESU = the ratio of expatriate skilled employees to unskilled employees for each firm;

NSU = the ratio of Nigerian skilled employees to unskilled employees for each firm;

ENS = the ratio of expatriate skilled employees to Nigerian skilled employees for each firm.

1. USPS = -0.027 - 1.998AGE
(0.012) (1.061)

R^2: .037

2. RSK = 0.080 - 0.754AGE
(0.015) (0.394)

R^2: .116

3. $ESU = \underset{(0.009)}{0.047} - \underset{(0.241)}{0.515AGE}$

R^2: .141

4. $NSU = \underset{(0.025)}{0.134} - \underset{(0.467)}{0.571AGE}$

R^2: .026

5. $ENS = \underset{(0.098)}{0.436} - \underset{(1.641)}{3.601AGE}$

R^2: .062

The number of observations for all the above five equations and for equations (6 and 7) below: 30. The figures in parentheses of all the equations above and below are the standard errors. The regression coefficients' significance for all the equations above and below is determined by dividing the size of the coefficients by their corresponding standard errors. The R^2 is the coefficient of determination.

6(a) If we define a linear logarithmic multiple regression equation in which the accounting value of gross output (Y) of the individual firms depends on the accounting values of the inputs of raw materials and intermediates (X_1) of capital (X_2), and of labour (X_3) employed by the firms, we can present the following estimated regression equation:

$$\log Y = \underset{(0.018)}{0.002} + \underset{(0.150)}{1.194}\log X_1 + \underset{(0.116)}{0.343}\log X_2 - \underset{(0.250)}{0.534}\log X_3$$

$R^2 = .989$

The sum of the elasticities of gross output with respect to the inputs of raw materials and intermediates, of capital, and of labour is 1.003.

6(b) We may measure directly the elasticity of accounting value of gross output with respect to the total accounting cost of production of the individual firms. For this purpose, we may estimate the linear logarithmic simple regression equation in which the accounting value of gross output (O) depends on the accounting cost of production (C). The regression result is as follows:

$$\log O = \underset{(0.540)}{-1.009} + \underset{(0.072)}{1.014} \log C$$

$$R^2 = .896$$

6(c) The relationship between the accounting value of gross output and the accounting cost of production of the firms may also be established through a simple regression equation in which the accounting value of gross output (VO) and the account cost of production (CP) are the dependent variable and the independent variable respectively. The estimated simple regression equation is the following:

$$VO = \underset{(0.060)}{0.051} + \underset{(0.027)}{0.982}CP$$

$$R^2 = .977$$

7(a) In this regression equation and in equation 7(b), the unit social profit (USP) depends on the ratio of accounting cost of capital input to accounting value of gross output (K/O), and on the ratio of accounting cost of capital input to accounting cost of labour input (K/L) respectively:

$$USP = \underset{(0.080)}{0.152} + \underset{(0.583)}{1.804}K/O$$

$$R^2: .551$$

7(b) USP = 0.547 + 1.912K/L
(0.403) (0.426)

R^2: .592

8(a) USP = -0.017 - 0.041LABI - 0.021CAPI
(0.014) (0.011) (0.008)

R^2: .606

8(b) USP = -0.034 - 0.044LABI
(0.024) (0.009)

R^2: .600

8(c) USP = -0.027 - 0.108CAPI
(0.083) (0.040)

R^2: .288

USP = unit social profit of each firm;

LABI = the accounting costs of the inputs of labour emplyed *per* naira of international value added of each firm;

CAPI = the acccunting costs of the inputs of capital employed *per* naira of international value added of each firm.

Number of observations = 20.

APPENDIX 7.N

Evidence on the Actual Level of Capacity Utilisation in the Nigerian Textile Industry

Two measures, namely, the modified version of the McGraw-Hill measure and the Winston time-measure are most commonly used to ascertain the actual level of capacity utilisation in manufacturing industries.[1] Firstly, the traditional McGraw-Hill measure of capacity utilisation is a subjective measure which is obtained by asking firms the percentage of the "full capacity" their plants were operated. In this context, "full capacity" is described as the maximum capacity to produce under "normal" circumstances. Capacity, in this respect, refers to the capacity to produce when all factors of production used are taken into account. In the modified traditional McGraw-Hill measure, "full capacity" is regarded as the capacity output which is associated with a given stock of plant and equipment. Secondly, the Winston time-measure of capacity utilisation gives the number of hours the plant is operated in a year as a percentage of 8,760 hours, the total number of hours available in a year. In this case, 24 hours a day and 365 days a year are associated with "full capacity" on the assumption that "full capacity" is equivalent to the continuous operation of the plant throughout the year.

The use of both the modified version of the McGraw-Hill and the Winston time measures to ascertain the actual level of capacity utilisation

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1. Lim, D., "Actual, Desired and Full Levels of Capital Utilisation in Malaysian Manufacturing", Journal of Development Studies, Vol.14, No.1, October 1977, pp.53-62.

requires direct information from firms. But we were unable, through our questionnaire and personal interviews, to obtain useful information on capacity utilisation from the firms in the Nigerian textile industry. In the circumstances, indirect evidence on capacity utilisation in the industry may be sought. Such evidence may be obtained on the basis of the unit social profit (USP) which we estimated in Chapter Six for the individual firms in the sample industry. In this respect, we may compare this USP with alternative unit social profit (USP_1) which is estimated on the assumption that capital is treated as a sunk cost - that is, we may estimate alternative unit social profit (USP_1) excluding capital costs. The comparison of USP with USP_1 will enable us to determine indirectly the extent to which underutilisation of capacity contributed to the raising of social costs or the lowering of social profits in the industry; thus, this comparison provides an indirect measure of the actual level of capacity utilisation in the industry in 1973.[1] The results of our computation are presented in Table 7.N and the comparison of USP with USP_1 can be discerned in the table. As can be seen in the table, the exclusion of capital costs from the computation of USP_1 caused only three firms or 12 *per cent* of the twenty-five sample firms classified as inefficient, on the basis of USP, to move into the efficient group. It seems, on the basis of this result, that underutilisation of capacity did not contribute significantly to the high level of inefficiency found in the industry. Thus, we may deduce from this evidence that excess capacity was generally low in the Nigerian textile industry in 1973 because we argued in Chapter Two that underutilisation of capacity is usually regarded as a major factor contributing to high level of inefficiency of import-substituting manufacturing activities.

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1. This procedure follows that by Page, see Page, J. M., "Development Policy and Economic Performance in Some Ghanaian Export Industries: An Analysis of Firm Level Data From Ghana's Timber and Wood Products Sector", D.Phil. thesis, Nuffield College, Oxford, January 1975, pp.345-346 and pp.351-352.

Table 7.N Unit Social Profit Including Capital Costs (USP) and Unit Social Profit Excluding Capital Costs (USP_1)

Textile Producers	Processes	USP ₦	USP_1 ₦	Increase of USP_1 Over USP ₦	% Increase of USP_1 Over USP
1		2	3	4	5
Other Broadwoven N_7	Weaving and finishing	0.289	0.406	0.117	40
Cotton Broadwoven D	Spinning, weaving and finishing	0.288	0.319	0.031	11
Cotton Broadwoven K_2	Weaving and finishing	0.024	0.063	0.039	163
Cotton Broadwoven N_5	Spinning, weaving and finishing	0.017	0.044	0.027	159
Synthetic Broadwoven W_2	Spinning, weaving and finishing	0.013	0.094	0.081	623
Synthetic Broadwoven E	Weaving and finishing	-0.025	0.060	0.085	340
Knitted Fabrics K_3	Knitting and finishing	-0.026	0.031	0.057	219
Cotton Broadwoven U	Spinning, weaving and finishing	-0.041	-0.018	0.023	56
Cotton Broadwoven S	Spinning, weaving and finishing	-0.044	-0.006	0.038	86
Cotton Broadwoven A_2	Weaving and finishing	-0.061	-0.021	0.040	66
Cotton Broadwoven K_1	Spinning, weaving and finishing	-0.109	-0.081	0.028	26
Cotton Broadwoven A_1	Spinning, weaving and finishing	-0.110	-0.033	0.077	70
Thread and Yarn N_4	Spinning	-0.155	-0.099	0.056	36
Cotton Broadwoven N_2	Spinning, weaving and finishing	-0.168	-0.098	0.070	42
Cotton Broadwoven Z_2	Spinning, weaving and finishing	-0.187	-0.165	0.022	12

Table 7.N continued...

Table 7.N continued...

Textile Producers	Processes	USP ₹	USP_1 ₹	Increase of USP_1 Over USP ₹	% Increase of USP_1 Over USP
	1	2	3	4	5
Cotton Broadwoven N_6	Finishing	-0.189	-0.145	0.044	23
Thread and Yarn W_1	Spinning	-0.198	-0.075	0.123	62
Cotton Broadwoven B	Spinning, weaving and finishing	-0.261	-0.012	0.249	95
Synthetic Broadwoven N_1	Spinning, weaving and finishing	-0.335	-0.223	0.112	33
Other Broadwoven A_3	Weaving and finishing	-0.375	-0.031	0.344	92
Synthetic Broadwoven W_3	Spinning, weaving and finishing	-0.472	-0.374	0.098	21
Cotton Broadwoven Z_1	Spinning and weaving	-0.525	-0.495	0.030	6
Thread and Yarn	Spinning	-0.585	-0.298	0.287	49
Other Broadwoven T	Weaving and finishing	-0.602	0.091	0.693	115
Synthetic Broadwoven G	Weaving and finishing	-0.676	-0.462	0.214	32
Thread and Yarn F	Spinning	-1.140	-1.000	0.140	12
Synthetic Broadwoven L	Spinning, weaving and finishing	-2.949	-2.746	0.203	7
Cotton/Synthetic Broadwoven A_4	Weaving and finishing	-3.527	-3.213	0.314	9
Synthetic Broadwoven M	Weaving and finishing	-5.208	-4.285	0.923	18
Thread and Yarn C	Spinning	-13.956	-10.879	3.077	22

APPENDIX Q.S

QUESTIONNAIRE ON COMPANIES' ACTIVITIES

IN THE NIGERIAN TEXTILE INDUSTRY

1. What is the form of ownership in your Company? (Tick in the bracket as appropriate.)

   (i) 100% Foreign Owned ( )
   (ii) 60% - 99% Foreign Owned ( )
   (iii) 50% - 59% Foreign Owned ( )
   (iv) Less than 50% Foreign Owned ( )
   (v) 100% Local Owned ( )
   (vi) Jointly Government and Foreign Owned ( )
   (vii) Jointly Indigenous Private and Foreign Owned ( )

2. From which of the following sources does your company purchase machinery, plants, and equipment? (Tick in the bracket as appropriate.)

   (i) Through the Parent Company ( )
   (ii) From Machinery Manufacturers directly ( )
   (iii) Through Machinery Supply Agents ( )

3. Indicate from the list below which factors influence the choice of machinery, plants, and equipment for purchase in your Company. (Tick in the bracket as appropriate.)

   (i) Technology in use in your Industry ( )
   (ii) Machinery in use at Head Office Overseas ( )
   (iii) Cost of labour input in Nigeria ( )
   (iv) Scarcity of skilled labour in Nigeria ( )
   (v) Competition in Product Market in Nigeria ( )
   (vi) Employment conditions in Nigeria ( )
   (vii) Nigerian Government depreciation/Capital Allowance incentive ( )
   (viii) Other factors: (Please, specify in the space provided.)

_____

_____

_____

_____

_____

4. (a) Show your factory's actual level of capacity utilisation in the following years:

Year	Actual Level of Capacity Utilisation
1965	_____
1966	_____
1967	_____
1968	_____
1969	_____
1970	_____
1971	_____
1972	_____
1973	_____
1974	_____
1975	_____

(b) If your factory's actual capacity utilisation is under 75%, which of the following are the primary causes? (Please check the appropriate degree of cause.)

		Primary	Secondary	Minor
(i)	Breakdown of equipment	( )	( )	( )
(ii)	Shortage of Spare Parts and Major equipment components	( )	( )	( )
(iii)	Shortage of demand	( )	( )	( )
(iv)	Changing pattern of demand for your product(s)	( )	( )	( )
(v)	Shortage of specialised skills	( )	( )	( )
(vi)	Shortage of working capital	( )	( )	( )
(vii)	Failure of public utilities (electricity)	( )	( )	( )
(viii)	Other causes (Please specify.)			
	_____	( )	( )	( )
	_____	( )	( )	( )
	_____	( )	( )	( )
	_____	( )	( )	( )
	_____	( )	( )	( )
(ix)	Shortage of raw materials	( )	( )	( )

(c) Do you operate single ( ), double shift ( ), third shift ( ) fourth shift ( ), fifth shift ( )?

5. Is the shortage of spare parts and major equipment components in your Company brought about by Government import licensing policy? Yes ( ) or No ( )

If 'yes', has your Company been devoting a considerable portion of its executive talent to obtaining the necessary licenses and clearances from government officials? Yes ( ) or No ( )

If 'yes', has the relationship between your executives and the government officials been cordial? (Please, comment precisely.)

_____

_____

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_____

_____

6. Indicate from the list below which factors determine capacity expansion in your Company. (Tick in the bracket as appropriate.)

(i)	Competitive pressures in the Product market in Nigeria	( )
(ii)	The need to export to overseas markets	( )
(iii)	The growing Nigerian market	( )

7. (a) By how much would the average cost be reduced if your Company's output were to expand by 100 percent? (Tick in the bracket as appropriate.)

(i)	Zero percent cost reduction	( )
(ii)	1% - 5% cost reduction	( )
(iii)	5% - 10% cost reduction	( )
(iv)	10% cost reduction	( )
(v)	10% - 15% cost reduction	( )
(vi)	15% - 20% cost reduction	( )
(vii)	20% cost reduction	( )
(viii)	Over 20% cost reduction	( )

(b) How would the 100 percent expansion in output be achieved? (Tick in the bracket as appropriate.)

(i) To use the current capacity by reorganisation ( )

(ii) To expand the current capacity significantly ( )

(iii) Different production methods would be required ( )

(iv) A shift to special purchase machine tools and continuous process operation would often be required for a larger scale of output ( )

8. How has your Company's average cost of production been behaving since the first year of production? (Tick in the bracket as appropriate.)

(i) Rising ( )

(ii) Falling ( )

(iii) Constant ( )

9. How do you rank the productivity of your workers compared with productivity elsewhere in the world where the type of equipment is similar to yours?

(i) Very high ( )

(ii) High ( )

(iii) Comparable ( )

(iv) Lower ( )

(v) Much lower ( )

Please, briefly explain how you evaluate this productivity measure:

_____

_____

_____

_____

_____

10. Are the prices you pay for your major equipment generally:

(i) Higher than their world market prices ( )

(ii) About the same as world market prices ( )

(iii) Lower than world market prices ( )

11. Please, indicate your Company's motivations for the initial investment in the textile manufacturing activities:

(i) to preserve the market for the parent company in face of rising duties or possible rise in duties ( )

(ii) to expand sales into a new market otherwise difficult by just exporting ( )

(iii) as a result of the parent company's strategy of investing in key global areas ( )

(iv) to forestall a major competitor's move or possible move into Nigeria ( )

(v) specific invitation from the Nigerian Government ( )

(vi) confidence in the long term prospects of the Nigerian Economy ( )

(vii) to take advantage of increased demand ( )

(viii) please, state other motives not mentioned

_____

_____

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_____

12. Rank the importance of the following incentives for your firm in terms of financial advantages:

(i)	Import prohibition	
(ii)	Exemption from import duty	
(iii)	Low import duties on approved goods	
(iv)	Import duty drawback	
(v)	Tax exemption through pioneer status	

13. Would you have started your firm in Nigeria without having been granted fiscal incentives? (Tick off.)

	Yes	No
(i) Definitely		
(ii) Probably		
(iii) Uncertain		

14. Do you find that the administrative problems from the incentives received are (tick off)

	Yes	No
(i) too time-consuming		
(ii) inefficient regarding time between application and approval		
(iii) costly in relation to the additional profit?		

15. State fully which additional incentives you would like to benefit in future from the

(i) Federal Government _____

_____

(ii) State Government _____

_____

(iii) Lending Institutions _____

_____

16. If your products were not being exported, state below which kind of Government incentives would induce you to start exporting.

_____

_____

_____

_____

_____

17. For which purpose is your firm a member of the Nigerian Textile Manufacturers' Association? (Tick as appropriate.)

(i) Exchange of experience (management, marketing, etc.) ( )

(ii) Discussion of problems concerning incentives ( )

(iii) Influencing Government decisions ( )

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