AN ECONOMIC ANALYSIS OF TOBACCO PROCESSING INDUSTRY

IN WESTERN AND KWARA STATES OF NIGERIA

BY

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ABSTRACT

The objective of this study is to assess the economic performance of tobacco processing industry in Western and Kwara States of Nigeria. After a brief discussion of the development of tobacco industry in Nigeria, some technical aspects of tobacco leaf production, cigarettes manufacture, and blackfat manufacture were discussed. Three firms were selected for the study. These are Nigerian Tobacco Company Limited, Philip Morris (Nigeria) Limited and Premier Tobacco Company Limited.

The data used for the study were obtained from two main sources. The Federal Office of Statistics, Lagos; and through questionnaires and personal interviews with the selected tobacco processing firms.

Investigations on the economic characteristics of the selected firms indicated that the firms differed not only in year of establishment, but also in ownership patterns (private vs. quasi government), size of capital, labour employment; output size, and value-added to the Nigerian economy.

The largest firm (NTC), employed 3,302 workers in 1973 whilst Philip Morris (Nigeria) Limited, which is a medium-sized firm, employed 836 workers during the same period. The smallest firm, Premier Tobacco Company, employed only 40 workers during

the same year.

Also in terms of capital investment, NTC invested ₦15,000,000 in 1973, Philip Morris invested ₦2,400,604, and Premier Tobacco Company invested only ₦746,150 during the same period.

In terms of value-added, NTC contributed ₦21,415,604 whilst Philip Morris added ₦6,582,758 and PTC added only ₦33,350 to the economy for the year 1973.

The analysis of costs and returns involved in cigarettes manufacture revealed considerable disparity in the cost outlay and in the net returns to each firm. In 1973, for instance, the total cost for NTC was ₦31,887,419; that of Philip Morris was ₦10,130,457; while that of PTC was only ₦102,877. The net returns were ₦18,387,581 for NTC, ₦5,313,804 for Philip Morris and ₦14,346 for PTC for the same period.

From the balance sheets and income statements of these firms, a financial analysis was carried out. This analysis revealed some favourable liquidity and solvency ratios for each firm and thus, each firm could easily qualify for loans advancement from financial institutions for the period under review.

Using some time series data collected from the firms, production functions for tobacco processing industry were estimated. The estimated functions revealed that the level of productivities of tobacco leaf input, labour, and capital inputs varied from one firm to the other whilst excise tax had some negative effects on cigarettes manufacture. The sum of elasticity coefficients (which was less than one) implied a decreasing return to scale.

The policy implication of the study stressed the need to check smuggling of cigarettes into the country from the neighbouring countries and the need for expansion and better management of the cigarette firms.

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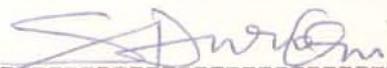
To my beloved mother

IBIOLASEMISI   ASHABI

CERTIFICATION BY SUPERVISOR

I certify that this work was carried out by Mr. D. A. Adio in the Department of Agricultural Economics, University of Ibadan, Ibadan, Nigeria.

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INTRODUCTION

(a) <u>Role of Tobacco Processing Industry in Nigerian Economy</u>

Tobacco Processing Industry is one of the four largest import-substituting industries in Nigeria, the others being beer, cement and textiles. In 1964 these four industries accounted for 40.00 per cent of industrial output and 21.00 per cent of industrial employment. In 1969 the four industries accounted for 63.00 per cent of industrial output and 29.00 per cent of industrial employment. However, by 1972 these four industries accounted for only 30.00 per cent of industrial output and 28.00 per cent of industrial employment. /1 7

Despite the increase in consumption of tobacco products over the years, the annual importation of tobacco products into Nigeria has declined following accelerated growth of domestic tobacco processing industry. The growth in this industry has therefore conserved our foreign exchange earnings to a large extent.

Table 1.1 shows that the annual importation of cigarettes declined from 53,975,000 cigarettes in 1965 to 15,000 cigarettes in 1974; while the quantity of unmanufactured tobacco imported declined from 122,926 kgs in 1965 to 23,134 kgs in 1969, thereafter the quantity has increased to 558,835 kgs in 1974. The

Table 1.1: Tobacco Imports into Nigeria (1965-74).

Year	Cigarettes		Unmanufactured Tobacco		Total Value of Tobacco Imports (₦'000)
	Number ('000)	Value (₦'000)	Kg. ('000)	Value (₦'000)	
1965	53,975	162	123	1,906	2,068
1966	89,235	286	141	2,142	2,428
1967	1,540	216	82	1,430	1,646
1968	899	44	36	714	758
1969	71	22	23	368	390
1970	107	46	46	1,040	1,086
1971	76	28	32	760	788
1972	60	28	36	532	560
1973	17	16	165	287	303
1974	15	14	559	973	.987

Source: <u>Annual Abstracts of Statistics</u>, Federal Office of Statistics, Lagos, 1966 - 1975.

quantity of imported unmanufactured tobacco is used for the
manufacture of some international brands of cigarettes.

In addition to conservation of foreign exchange earnings
the industry is a source of revenue to the government. Revenues
accrue from excise duties and profit tax on tobacco. For ins-
tance, in 1972 the Nigerian Tobacco Company Limited (N.T.C.)
which is the major firm in the industry paid a tax of ₦0.816
million. This tax increased to ₦1.089 million in 1973 and ₦3.616
million in 1974. Philip Morris Tobacco Company Limited also paid
tax of ₦0.22 million in 1972 and ₦0.60 million in 1973. Premier
Tobacco Company is still enjoying the tax free period since it is
still treated as an "infant industry."

Just as foreign exchange earning products are important
to a developing economy, import substituting commodities are
equally important. Import-substitution commodities have the
dual role of encouraging development in both the agricultural
and industrial sectors apart from reducing the country's expen-
diture on foreign purchases. If the industry grows to the extent
of exporting part of its production the expected foreign exchange
earning will increase by the value added which formerly accrued
to other countries.

Tobacco is an import-substituting crop. The development of

the tobacco leaf production owed much to the development in tobacco processing firms. As a means of ensuring regular and cheap supply of raw materials to their factories these firms encouraged farmers to plant tobacco. The annual requirement of the factories totalled about 100,000 tonnes. At an average of 0.35 hectare per farmer and an average yield of 2841 kgs per hectare about 100,000 farmers are estimated to be involved in the production. At an average price of ₦112 per tonne this gives a gross annual income of ₦11.2 million to the rural people.

Total labour requirement for tobacco production is about 350 man-days per hectare, therefore a total of 12,319,605 man-days would be required and if we assume 300 working days per year, this gives us approximately 41,065 man-years. The processing firms employ a total of 4,178 staff per annum. Table 1.2 presents the labour employment structure in the industry.

Thus when the farmers are included, the industry offers full time employment to about 45,243 Nigerian citizens within the given year. Tobacco industry is labour intensive, especially the production of tobacco leaves. This aspect of production does not require a highly skilled labour force. This feature of the industry makes it particularly attractive to a country like Nigeria where there is an abundance of unskilled labour.

Table 1.2: Labour and Management Employment by the Firms in

Tobacco Industry, 1973.

Category of Labour	N.T.C.	Philip Morris	Premier Tobacco Company	Total
(a) Professional/ Admin./Managerial	142	63	3	208
(i) Nigerian	115	52	2	169
(ii) Non-Nigerian	27	11	1	39
(b) Clerical and other Office Workers	860	485	5	1,350
(c) Operatives*	2,300	288	32	2,620
Total	3,302	836	40	4,178

*Operatives is made up of skilled and unskilled labour.

Source: Industrial Statistics, Federal Office of Statistics, Lagos, 1976.

The value added by the processing industry is presented in table 1.3. A close look at the table reveals that the gross value added by the establishments increased between 1962 and 1972 from ₦8,961,000 to ₦43,141,000.

This industry's contribution to agricultural development in Nigeria cannot be measured solely in terms of employment and cash returns. It has contributed to social and community development, particularly the development of necessary infrastructures such as training of farmers and education in the form of award of scholarships to the deserving children of tobacco farmers, investment in research projects to develop disease-resistant and high-yielding tobacco varieties, fertilizer trials to evolve recommendation with respect to types and dosages. The extension systems and organisations of the farmers into effective units have been models which many producers of other cash and food crops have adopted. In these various forms the industry is contributing to Nigeria's agricultural revolution and helping to transform the areas where tobacco is grown into centres of rural change and progress.

Table 1.3:   Value Added by Tobacco Industrial Enterprises
(1963 - 1973)

Year	No. of Establishments	No. of Labour Employed	Wages and Salaries (₦'000)	Gross Output (₦'000)	Industrial Cost (₦'000)	Value Added (₦'000)	Net Capital Expenditure (₦'000)	Non-Industrial Costs (₦'000)
1962	12	2,550	650	14,697	5,736	8,961	2,183	-
1963	10	1,652	459	11,855	3,558	8,297	1,513	76
1964	11	2,556	707	14,465	4,233	10,232	566	6,535
1965	9	2,563	929	16,014	4,231	11,783	456	7,254
1966	8	2,480	880	13,596	3,846	9,750	619	6,426
1967	8	2,529	982	14,309	3,854	10,456	455	6,867
1968	8	3,026	1,267	12,399	3,881	8,518	718	10,133
1969	4	2,330	966	12,382	3,339	9,043	582	-
1970	4	3,170	1,135	22,143	4,878	17,266	511	14,512
1971	5	4,228	2,587	28,342	6,860	21,482	1,013	16,436
1972	5	4,188	5,219	57,353	14,212	43,141	3,003	33,006
1973	3	4,200	6,375	57,908	12,310	45,597	1,830	33,862

Source: Industrial Statistics, Federal Office of Statistics, Lagos, 1976.

(b)   Objective of the Study

The primary objective is to assess the economic performance of the tobacco industry in two States of Nigeria, namely: Western and Kwara. The assessment will cover the following specific objectives:

(i) to evaluate the costs and returns derived from cigarette manufacture by the three firms within the industry;

(ii) to estimate the returns on capital and to compare the financial ratios obtained in the firms within the industry;

(iii) to estimate production function for the Nigerian Tobacco Processing Industry; and

(iv) to make appropriate policy recommendations on the organisation, conduct and performance of the tobacco firms.

Plan of the Study

Chapter one presents the role of tobacco industry in Nigerian economy. The objectives, plan of the study, relevant previous studies and methodology are also stated in this chapter.

In the second chapter is presented the development of tobacco industry in Nigeria.

Presented in the third chapter are the technical aspects
of tobacco leaf production. Also discussed in this chapter are
the technical and skill requirements for cigarettes and black
fat manufacture. The channels of cigarettes distribution are
also discussed in this chapter.

The fourth chapter presents an analysis of costs and
returns derived from tobacco processing. Chapter five analyses
the financial statements of the firms in the industry.

Chapter six presents the production functions for tobacco
processing industry, while the seventh chapter discusses some
policy implications and conclusions of the study.

(c) Literature Review

Up to date few economic studies have been undertaken on
Tobacco Industry in Nigeria, but surprisingly none of the
studies concerned itself with the economic aspect of cigarette
manufacture.

Oyeleye, D.A. /60_7 (1969), in his study confirmed that the
location of tobacco farms depends on soil type and weather con-
ditions suitable for tobacco cultivation. As a result of
suitability of Oyo Division's soil and weather for the crop
cultivation, there has been wide acceptance and rapid development
of tobacco leaf production in the division. He found that

tobacco has become a major cash crop hence larger hectarage of land was being devoted to the crop than for arable food crops.

The next five studies [55, 9, 54, 65 and 3] are on the economics (Cost and Returns) of tobacco leaf production in different parts of Oyo and Kwara States.

Oluwole, O.O. [55] (1970) showed in his study that fixed costs are more efficiently used at the larger scales of operation in the flue-cured tobacco production. The study also showed that there was a higher efficiency in terms of returns in production among four hectare-tobacco farms (Family Units) compared with the twenty-four hectare-farms.

Anthonio, Q.B.O. and Oshun [9] (1972), in their study showed that the average cost of producing an hectare of tobacco was ₦51.77 of which labour cost constituted about 50 per cent. They also found that the average revenue per hectare was ₦105.74. Grade IV tobacco leaf contributed the highest proportion to revenue. It was also found that the size C farms (0.86 - 1.21 hectares) had the highest efficiency of 2.56 (Revenue/Cost) while 0.04 to 0.40 hectare farms had an efficiency value of 2.00.

Oludimu, O. [54] in 1974 showed in his study that in Ogbomosho area, 35 per cent of the farms surveyed was devoted

to tobacco leaf production, 34 per cent was for tubers while maize took up 25 per cent. The average size of tobacco farms was 1.49 hectares, that of yam was 0.95 hectare while between 0.40 and 0.81 hectare were, on the average, for each of maize, melon and cassava. He also found that the average cost per hectare of tobacco leaf production was ₦65.46, the average gross revenue per hectare was ₦142.54, while the net revenue was ₦77.09.

Simpson, K. [65] (1975) showed that the average cost of producing an hectare of tobacco leaf in Oyo, Ogbomosho and Ejigbo areas was ₦99.22, the average gross revenue per hectare was ₦154.57 and the net revenue per hectare was ₦55.35. He also found that labour and fertilizer costs accounted for over 70 per cent of the cost of production.

Adewumi, A.B.C. [3] (1975) in his study of tobacco production in Ilorin area indicated that labour cost accounted for 50 per cent of the average total costs in 1973 and 1974. Fertilizer costs in the two years was about 15 per cent and barn rent was 16.68 per cent. Average total cost per hectare was ₦372.75 and ₦395.67 in the two years. Average gross revenue per hectare was ₦641.09 and ₦830.86 from the same period. Average net revenue per hectare was ₦268.34 and

₦435.19 for the two years respectively. The least
average cost per hectare was found among the largest farms -
3.2 to 3.8 hectares while the highest was found among smallest
farms (0.8 to 1.4 hectares). This was due to the fact that
tobacco leaf production is a labour intensive crop. Consequently,
there was an inverse relationship between revenue and the size
of farm.

The last two studies, ⌊5, 8⌋ are on analysis of factors
that influence the adoption of new ideas and improved practices
among tobacco leaf farmers.

Akinwowo, A. and Basu, A.C. ⌊5⌋ (1969) found that 64 per
cent of tobacco growers in their study area were between 16 and
35 years of age. Being young, the farmers readily accepted new
ideas and tried out new techniques in farming. They also found
out that because tobacco farmers usually form themselves into
Tobacco Growing Associations - and in pursuance of the asso-
ciation's objective (to promote economic interests of its members
and benefits of all) members usually adopt new farming practices.
The study showed, in addition, that functional literacy programme
among tobacco growers helped a lot in training them for efficient
production of high quality tobacco. Up to 95 per cent of the
tobacco farmers who benefitted from the programmes were found to

be high adopters of new farming ideas. Religious afiliation and family size were found not to have any significant influence on adoption of new farming ideas and practices.

Anthonio, Q.B.O. and Patel, A.U. [8] (1971) showed in their study that in adopting improved practices, tobacco farmers were influenced by personal contact with company extension agents. They found that most of the high adopters had larger families than low adopters. A majority of high adopters were found to be non-christians but more progressive in outlook and more active in local organisations than low adopters. These are partially in contrary to the results of Akinwowo and Basu's study. With respect to the situational characteristics, Anthonio and Patel found that majority of the high adopters borrowed money from relatives, had smaller land holdings and more personal contacts with change agents - Field Instructors and Extension Officers.

(d) Methodology

(i) Sources of Data

For this study, data were obtained from the three firms in tobacco industry in the country. However, data collection was limited to only three tobacco processing factories located in Oyo and Kwara States. Specifically, the factories where

data were collected are:

    (1) N.T.C. factory at Ibadan, Oyo State.

    (2) Philip Morris factory at Ilorin, Kwara State.

    (3) Premier Tobacco factory at Oyo, Oyo State.

Two other factories which belong to N.T.C. and which are located at Port Harcourt in Rivers State and Zaria in Kaduna State were not visited due to constraint imposed by limited funds. Secondly the two factories had no accumulated data at the Industrial Survey section of the Federal Office of Statistics, Lagos.

(ii) Method of Data Collection

    The Federal Office of Statistics, Lagos, sends out questionnaires annually to N.T.C., Philip Morris and Premier Tobacco factories to collect information on location, form of ownership and year of establishment of the firms. It also includes sources of capital, employment composition, wages and salaries, cost of raw materials, fuel, electricity, output, sales of products, values of inventories at beginning and end of period (annual) and value of fixed assets and capital expenditure.

    Attempts were made to update the above data by the use of similar questionnaires and direct visits to the companies to obtain the required data. However, only one of the companies,

the Premier Tobacco Company, cooperated. Thus all analysis in

this study is based on data accumulated by Federal Office of

Statistics/and Philip Morris. Analysis with regards to black
                on NTC

fat was based on direct data collected from Premier Tobacco

Company since its returns to Federal Office of Statistics was

found for only a year. Samples of Federal Office of Statistics

and questionnaires used for Premier Tobacco Company are shown

in the appendix.

(iii) Problems and Limitations of Data Collected

One of the major problems of this study was that of

obtaining reliable and dependable data. Originally, it was

planned that data would be collected from the individual firms

through personal interview using appropriate questionnaires.

For over two months the executives of the two major firms did

not respond positively. They kept us in suspense and asked

us to wait until they obtained approval from their respective

head offices in Lagos. At the end of it all, they stated

that they could not give out any information because it would

amount to divulging their business secrets. Thus personal

interviews were abandoned for these two firms and the data used

for the firms are those obtained from Federal Office of Statistics

records. An examination of these data in respect of the two

cigarette manufacturing companies (N.T.C. and Philip Morris)
shows that the degree of accuracy and reliability of the data
are questionable. There is the possibility of manipulation
in specific cases as that of turn-over since the companies
think that the industrial survey serves the purpose of tax
assessment. Also, since there are only two companies manu-
facturing cigarettes in Nigeria, each is protecting its own
interest by not giving accurate information on its activities;
otherwise it will be too easy for the companies to find out
all about each other's position in the industry.

Data on Premier Tobacco Company on employment composition,
wages and salaries could be taken as reliable while the same
may not be true of data on raw materials and turn-over, for
similar reasons given above.

Because of these limitations imposed by data, care should
be taken in the use of these data for policy prescriptions.

CHAPTER II

DEVELOPMENT OF TOBACCO INDUSTRY IN NIGERIA /34_7

Tobacco was first introduced into Nigeria by Portuguese
merchants in the sixteenth century. /39/ Since then it has been
widely grown throughout the country especially in the savannah
zone, as a minor crop both for domestic use and local trade.

Imported manufactured cigarettes made their first appea-
rance in Nigerian markets in the 1890s. By 1911 the principal
overseas supplier, a large British firm, British-American Tobacco
Company (BATC) sent out its own representative to supervise and
promote the distribution of tobacco products. Nine years later,
in an effort to gain more control over the market and to foster
orderly development, the BATC established its own importing
agency and constructed depots for distribution and sales promo-
tion.

In the early 1930s BATC decided to investigate the possi-
bilities for local production. The advantages of local manu-
facture arose not from the differences in the cost of production,
but from the preferential tax treatment which the colonial
government was willing to grant a project which promised agri-
cultural as well as industrial development.

The cultivation of air-cured Virginian hybrids proved

feasible and with the continuing technical support of the
expatriate firm, commercial production was successfully under-
taken by small scale farmers in Ogbomosho area. Early in 1934,
BATC established a pilot cigarette factory at Oshogbo, and in
1937 a full-scale factory employing 160 workers was opened at
Ibadan. At the same time the cultivation of bright Virginian
type tobacco was commenced in Ogbomosho and Zaria areas.

The cigarette industry prospered, enjoying a virtually
uninterrupted growth in output from 30 million cigarettes in
1934 to nearly 5,000 million in 1965. As a result of war-time
scarcities, the local industry wasable to firmly establish
itself during the 1939-45 period. With increasing protection
and sterling area control restrictions on dollar imports, the
markets share of imports had fallen to a negligible level by
1952. A second plant was opened in Port Harcourt in 1956 and
a third in Zaria in 1959.

In 1961 the United Africa Company launched the country's
second cigarette producing company, Kwara Tobacco Company, which
began production in 1964. The company changed its name in 1969
to Philip Morris (Nigeria) Limited when the latter bought a
controlling interest of the original company. In the same year
the Premier Tobacco Company was formed by the Western Nigeria

Development Corporation, two Nigerian businessmen and a Small
American Tobacco Company to investigate possibilities of growing
and curing 'black fat.' This group planned to build a cigarette
factory once the production of black fat was securely established. [39]

Up to date there are only three firms in the Tobacco
Processing Industry of Nigeria, namely: the Nigerian Tobacco
Company Limited (NTC) which is the oldest and major company that
manufacture cigarettes; the second company is Philip Morris
(Nigeria) Limited which also manufactures cigarettes; and the
third firm is Premier Tobacco Company which manufactures black
fat. Table 2.1 presents the location and year of establishment
of each firm. Each firm will be discussed briefly.

Table 2.1: Location and Year of Establishment of Tobacco
Processing Firms In Nigeria (1976).

Firm	Year of Establishment	Location	State
(a) N. T. C.	1951	Ibadan	Oyo
	1956	Port Harcourt	Rivers
	1959	Zaria	Kaduna
(b) Philip Morris	1962	Ilorin	Kwara
(c) Premier Tobacco Company	1962	Oyo	Oyo

Source: Directory of Industrial Establishments, Federal
Office of Statistics, Lagos, 1976.

(✦) NIGERIAN TOBACCO COMPANY LIMITED, IBADAN

History and Business:

Before 1912 all tobacco products were imported and sold by the various trading companies. In 1912, the British-American Trading Company Limited (BATC) established a depot and sales organisation in the country to handle the distribution of its own products. In 1932 an American tobacco expert made a survey of likely areas suitable for local production of tobacco leaf. The BATC undertook experiments to find suitable varieties. As a result of these enquiries, small scale farmers were encouraged to grow Virginian tobacco whilst the company distributed the seeds free of charge. By 1934, 33.59 hectares of tobacco were grown in Southern Nigeria while three farmers in the North grew 0.10 hectare. /_38_7

Production was at first mainly concentrated around Ogbomosho where the quantity of leaf produced expanded rapidly, doubling in 1935 and again in 1936.

In 1937 the first full-scale factory was opened at Ibadan and on 17th March, 1951, Nigerian Tobacco Company Limited was incorporated as the successor to the British-American Tobacco Company. The Nigerian Tobacco Company Limited (NTC) was a private subsidiary of BATC which undertook cigarette and tobacco manufac-

turing and import business previously carried out by the parent
company. It was converted into a public company in 1960 when it
made its first public offer, and in 1961 it became one of the
first public companies to be quoted on the Lagos Stock Exchange. [347]

Its cigarette manufacturing activities are concentrated in
its three well-equipped modern factories at Ibadan, Port Harcourt
and Zaria where Benson and Hedges, State Express, Players Gold
Leaf, Varsity, High Society, Flight, Sweet Menthol and Three Rings
are among the brands manufactured.

Most of the tobacco leaves are supplied by the local farmers.
As an insurance against crop failure which might disrupt the flow
of raw materials to the factory, the company maintains substantial
stocks of tobacco leaf and direct production assistance to farmers.
High tobacco leaf quality and productivity are encouraged by
continuous research and field experimentation, direct distribution
of tobacco seeds, fertilizers and chemicals to planters and strict
enforcement of cultural practices and curing methods through its
field officers.

Variation in soil and climate in Nigeria enables four
types of tobacco to be successfully grown and cured, using
differing techniques. The four types are Nigerian Flue Cured
(NFC), Southern Nigeria Dark (SND), Northern Nigeria Bright
(NNB) and Zaria Bright (ZAB). The development of the major

areas of cultivation has been a steady process over the past
40 years, with each area having an interesting history of its own. [34]

Nigerian Flue-Cured Tobacco

Flue-cured tobacco is produced in specially constructed
curing barns, in which strung ripe tobacco leaves are hung on
hooks or racks and are then generally dried out (cured) using
heat conducted through flue pipes at specially regulated tempe-
ratures and humidity. This method of curing produces a bright
coloured leaf.

Flue curing trials started around Ago-Are and Okaka (both
in Oyo State) in 1940. In those early stages of development NTC
bought the uncured tobacco after the farmer had been shown how
to grow and harvest it, and the company accepted the responsi-
bility for curing and grading the leaf. But the objective always
was to encourage the farmers to cure the tobacco themselves, and
in 1954 NTC successfully promoted the operation of a barn site
by a group of farmers at Ilero, and bought from them bales of
cured and graded tobacco. With this break-through, a period of
rapid expansion followed.

NTC's assistance to tobacco farmers does not stop at teaching
them how to grow and cure the crop but also extends to encouraging
them to form themselves into the most effective groups or units

for producing successful results. Tobacco growing and curing is exerting and the work is intensive. It involves preparation of seedbeds, stumping, ploughing and ridging of fields, planting out of the seedlings, application of fertilizers and spraying of chemicals and various other stages of care for the plant. Even the harvesting is an extended process. The leaves on a tobacco plant mature at different times, depending on their position on the plant, and each leaf is harvested as it ripens. After the curing, the various leaves are sorted into different grades with regard to size, thickness, colour and certain other criteria. To ensure adequate commitment - and therefore adequate attention to the production process - NTC has helped to organise the farmers first into producer associations, and later into the even more effective Farmer Family Units.

The main growing area for flue cured tobacco is now around Iseyin. and involves about 8,000 farmers cultivating some 2,428 hectares annually. The number of independently owned barns now stands at 1,500 - a great improvement over the 40 that existed in 1950.

In 1971, NTC embarked on the development of new expansion areas for flue-cured tobacco in the Bendel and former East Central States. (Fig. 2.1).

Figure 2. I. Tobacco Growing Areas in Nigeria.

REFERENCE

Tobacco Area _ _ _ _ _ ∞
Factories _ _ _ _ _ _ _ △
Tobacco Investigation _ X
Native Tobacco _ _ _ _ T
Annual Isohyets _ _ _ _ ~
Regional Boundaries _ _ _ _
Major River Valleys _ _ _

Source :- Tobacco Growing in Nigeria by Dr J.T. Coppock, 1965

The system of Farmer Family Units has been made possible through the close cooperation of one of Nigeria's leading banks which has given loans to farmers to build their own curing barns and grading sheds. Repayment of this loan is made over a three or four year period, against a proportion of farmers' profits on tobacco sales. Again with the participation of this same bank, NTC has also been active in the field of agricultural mechanisation. Some twenty ploughing contractors, who with the bank's assistance own modern tractors with up-to-date equipment, now plough and ridge the land for the flue-cured crop. /39/

Southern Nigeria Dark or Air-cured Tobacco

The air-cured crop is grown in the Ogbomosho, Oyo and Ejigbo areas of Oyo State. It is a strong, dark tobacco cured under roofs and eaves of houses or in easily constructed drying sheds by individual farmers, who originally sold directly to NTC but now sell largely through Business Groups (BGs) or Family Producing Units (FPUs).

The procedure for sowing and harvesting the Southern Nigeria Dark tobacco is the same as with the flue-cured tobacco, the main difference is in the curing process. Also as farmers' plots are small (averaging a third of an hectare each) no system of mechanical cultivation has evolved. NTC, however, provides credit

and/or subsidy for the purchase of fertilizer and insecticides.

The company also gives free seeds and technical advice on tobacco

production, and provides an effective extension service.

About 10,000 hectares of air-cured tobacco is grown annually

by more than 15,000 farmers organised into 128 Business Groups

and 153 Family Producing Units. As is the case with those areas

where flue-cured tobacco is produced, NTC's contributions here

have been (i) to develop a valuable cash crop; (ii) to encourage

the farmers in organising themselves into committed, motivated

groups; and (iii) to introduce a strict farming calendar and the

discipline of crop rotation into an area otherwise bedevilled by

shifting cultivation. [35]

Northern Nigeria (and Zaria) Bright or Northern Air-cured Tobacco

This is an air-cured crop grown in the former North-Western,

Kano, North-Central and North Eastern States - with most of it

being produced in the former North-Western State (now Sokoto and

Niger States).

The so-called "native tobacco" has long been cultivated in

the former North-Western State and was mentioned in the journals
of travellers to Sokoto in the mid-nineteenth century. The pre-
sent Virginian variety grown for commercial manufacture was
introduced into the area by NTC in 1948 initially around Gusau
but with some plots around Isa district. Subsequent development
of the crop has been concentrated in the main river valleys:
the Rima and its tributaries; the Gagare and Bunsuri in Eastern
Sokoto; and the Sokoto and Zafara Rivers in Western Sokoto.
While the Zaria crop is rain-fed, the tobacco crop in the fadamas
or river valleys is virtually unique in that it is planted after
the end of the rains in October as the flood water recedes
thereby making use of the rich alluvial soil and the residual
soil moisture. It receives little or no rain.

The Northern crop is cured in grass shelters or "rumfas"
in January and February, the dry harmattan winds enabling the
desirable orange yellow colour to be obtained in the curing
process.

The rate of expansion of Northern Nigeria Bright or Zaria
Bright (NND/ZAB) crop has been very rapid. From an initial output
of 449,064 kgs in 1952, production rose to 2.59 million kgs. in
1965, 5.19 million kgs. in 1971 and 8.18 million kgs. in 1972.
By 1975, about 80,000 farmers produced 10.14 million kgs of NNB/
ZAB which was an all time record.

As she has done with farmers in other tobacco growing areas, NTC also tried to organise the farmers here into the most suitable producing units, the objective being to establish a system that would work in the best interest of everyone concerned. From the start of tobacco growing in Northern Nigeria until the early 1960s, farmers sold their tobacco leaves individually to the company, but with the great expansion of the crop, a direct farmer to company relationship became impossible to maintain. Other forms of associations were therefore tried prior to the adoption of the present system, namely tobacco village societies operating under cooperative control. /35_7

Marketing of Manufactured Tobacco.

The company markets its products through a comprehensive network of independent Nigerian distributors served by its twelve marketing branches at various locations in the country.

The subsidiary company, Marina Investments Limited, was incorporated in 1963 and has among its investments a 26 per cent holding (₦196,000) in the issued share capital of Nigerpak Limited.

Its second major investment of ₦232,818 was in Biscuits lending themselves well to NTC's established marketing network.

Management and Labour

The Company's general policy is determined by a Board of

eight directors. Presently, four of the directors are Nigerian including Chief J.O. Udoji, who is also chairman of the Board. Mr. W.J. Dickson, the Managing Director since January 1975, has over 20 years experience in the tobacco industry, and none of the other executive directors has less than ten years experience in the industry.

On 30th April, 1976, the company had a total of 3,447 employees. Of the 163 managers, only 16 are expatriates, and 5 of the 8 heads of departments are Nigerians, manifesting the company's vigorous Nigerianisation policy. Besides overseas training for managerial staff, the company has a Training Centre in Ibadan, running training programmes for various cadres of employees and an Extension Training Centre at Ago-Are for field workers.

Landed Property

The three cigarette factories located at Ibadan (1937), Port Harcourt (1956) and Zaria (1959) constitute the Company's major landed property with a total area of 18.50 hectares. The rest of its property is made up of mostly offices, depots and residential accommodation for company staff.

Incorporation and Capital History

The company's authorised share capital on incorporation in

1951 was ₦3 million divided into 1.5 million ordinary stock units of ₦2 each. This was increased to ₦10 million in 1954, ₦15 million in 1958, and to ₦25 million in June 1976. The company went public in 1960 when the first offer for sale of 400,000 stock in nominal value was made to the Nigerian public. In 1964 the shares were sub-divided into stock units of 50 kobo each, and another offer for sale of ₦500,000 shares in nominal value was made to the Nigerian public.

By 1966, a scrip* issue of 4 million ordinary stock units was made to existing stock holders on the basis of one new ordinary stock for every five already held. In 1970, another scrip issue (this time of 6 million ordinary stock units) was made to existing stock holders on the basis of one new ordinary stock unit for every four already held, thus bringing the issued and fully paid up share capital of the company just before the indigenisation decree to ₦15 million of which ₦13.515 million is beneficially held by BATC. The Nigerian public held ₦1.418 million while ₦57,000 only was held by other non-resident stockholders. /35/

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*A provisional certificate entitling the holder of a fractional share of stock or of other jointly owned property - certificate of a right to receive something as stock, money, etc.

Table 2.2:   Share Capital Holdings in NTC (1970)

STOCKHOLDERS	NO. OF STOCK UNITS	%
BATC	22,500,000	60.00
Resident(Nigerians)	15,857,763	39.00
Other non-resident	142,237	1.00
TOTAL	37,500,000	100.00

Source: NTC Annual Report and Accounts, 1970.

Table 2.2 presents the position before indigenisation decree. As a result of indigenisation, the issued and fully paid up share capital in the company rose to ₦18.750 million and is held by about 50,000 stockholders. Table 2.3 summarises the details.

Table 2.3: Share Capital Holdings in NTC (1976)

STOCKHOLDERS	NO. OF STOCK UNITS	%
BATC	27,050,000	60.00
Resident (Nigerians)	22,650,263	39.90
Other non-resident	879,737	0.10
TOTAL	50,550,000	100.00

Source: NTC Annual Report and Accounts, 1976.

(b) PHILIP MORRIS (NIGERIA) LIMITED

History and Business

From 1912 to 1961, the Nigerian Tobacco Company Limited remained a monopoly producer of manufactured cigarettes and mono-polistic buyer of cured tobacco leaf from registered growers. In 1961 the United Africa Company (UAC) initiated plans to launch the country's second cigarette producing company. This concern was formed in Ilorin, Kwara State in 1962 and the company was first registered as Kwara Tobacco Company Limited. At that time the company was owned by UAC in partnership with Northern Nigeria Investments Limited. In April 1967, Philip Morris Incorporated purchased a controlling interest in the company and at the begin-ning of 1969, its name was changed from Kwara Tobacco Company to Philip Morris (Nigeria) Limited.

The Company began production in its only Ilorin factory in 1964 with an initial capacity of 360 million cigarettes per annum. The bulk of tobacco leaf processed into cigarettes are supplied by farmers concentrated around Ogbomosho, Oyo and Ejigbo in Oyo State and around Ilorin, Gambari and Ode-Giwa in Kwara State. The organisation of farmers for production and procurement from them are very similar to those of the Nigerian Tobacco Company. The same is true of the Research and Development establishment to

back up leaf production.

Philip Morris (Nigeria) Limited produces three of the four
types of tobacco grown in Nigeria. These are (i) Dark Air-cured
(DAC), (ii) Light-Air-cured (LAC) and (iii) Nigerian Flue-cured
(NFC) tobacco. Growing and curing of tobacco leaf under each
type is the same as that of the NTC described earlier. The
company purchased 170,000 kgs of NFC tobacco from 900 farmers in
1975, 371,000 kgs. of DAC from 4,500 farmers and 441,000 kgs. of
LAC from 4,700 farmers the same year. /36_7

The company's cigarette manufacturing activities are done
at the factory in Ilorin. Among the brands of cigarettes manu-
factured by the company are Target, Big Town, Gree Spot, Target
Menthol, Link and Mercedes.

Management and Labour

The company has a Board of Directors. A Managing Director
looks after the activities of the company with the help of other
executive directors.

In 1973 the company had a total of 836 employees with 52 of
the 63 professional/administrative/managerial posts being held by
Nigerians and the remaining 11 by non-Nigerians.

Landed Property

The only cigarette factory is located at Ilorin and it is

on a leasehold property. It consists mostly of offices, depots
and residential accommodation for company staff.

Incorporation and Capital History

Philip Morris (Nigeria) Limited is a private company. Its
authorised share capital on incorporation in 1962 was ₦2,400,072.
The Northern Nigeria Investments Limited contributed ₦80,002 while
the UAC had ₦2,320,070 of the total share capital.

(c). THE PREMIER TOBACCO COMPANY LIMITED, OYO

History and Business

The Premier Tobacco Company (PTC) grew out of the efforts
of the government Industrial Promotions Commission at Ibadan.
In 1961 the company was formed by the Western Nigeria Development
Corporation (WNDC), two Nigerian business-men and a small American
tobacco company. Their objective was to investigate possibilities
for growing and curing 'black fat'. This group planned to esta-
blish a cigarette factory once the production of 'black-fat' was
securely established.

The experience of the company up to date illustrates that
a favourable market alone is no guarantee of success. Growing
tobacco crop for Premier Tobacco Company is the same as for the
two other companies. The variety of tobacco crop grown is the
heavier and darker Burley. A crop failure in 1961 followed by

exhaustion of financial resources in the second season resulted
in non-payment to a large number of farmers and uncompleted
facilities for curing and storing of leaf. In 1964, PTC got a
second loan of ₦152,570 from Western Nigeria Development Corpo-
ration; and as of late 1976, the company was still suffering
from insufficient fund to finance its operations. This situation
has reduced the number of its farmers to a few found around Ilora,
Oyo State.   The company grows the bulk of its tobacco leaf
requirement itself.

Management and Labour

Owing to the financial instability of the company, the
number of its employees dropped year after year. In 1973 the
company had a total of 40 employees, it dropped to 38 in 1974 and
34 in 1975. Only 3 out of the number of its employees in 1973
and 1974 respectively belong to the administrative/professional/
managerial category. Only one out of the three was a non-
Nigerian. In 1975, there was only one Nigerian in the managerial
cadre.

Landed Property

Growing and curing 'black fat' are carried out at Oyo and
its environs, especially around Ilora. The curing activity is

done solely at Oyo. The company has 20.24 hectares of land.
Other properties of the company include offices and depots.

Incorporation and Capital History

On incorporation in 1961, the company's share capital was
₦112,000. The capital has not risen above this amount since some
shareholders have not paid fully for the number of shares they
held. 56,000 ordinary shares were at ₦2.00 each. Table 2.4
below shows how the company's shares are held.

Table 2.4: Share Capital Holdings In Premier Tobacco Company

Shareholders	No. of shares held	%
W. N. D. C.	26,600	47.50
Chief Odutola	14,150	25.27
Sir Bank Anthony	1,250	2.23
Falls City Tobacco Company	14,000	25.00
TOTAL	56,000	100.00

Source: From the Company's records.

CHAPTER III

TECHNICAL ASPECTS OF TOBACCO LEAF PRODUCTION, TOBACCO PRODUCTS MANUFACTURE AND MARKETING OF THE PRODUCTS

(a) The Ecology of Tobacco Production

Although tobacco is a tropical crop, the main centres of
production lie in the sub-tropics or tropical lands where the
climate is considerably modified by elevation. The chief reason
is that although the rate of growth is highest in the humid
tropics, a better quality leaf is obtained in areas where the
crop matures more slowly; in the United States and in Zimbabwe
the principal areas of commercial production, some 90 days
elapse between planting out and picking, compared with 50 days
in Southern Nigeria. Nevertheless, minor modifications of this
pattern of production are taking place in the growing of tobacco
as a peasant cash crop in tropical countries. /14 7

Production for manufacturing purposes needs close control
as quality of leaf is extremely important since varietal diffe-
rences account for differences in tobacco tastes.

Tobacco generally does best on light sandy loam soil rich
in humus, well drained and carefully fertilized soils (with
potash or lime). The soil should be clean cultivated, that is,
free of undergrowth and receive moisture regularly.

Tobacco is an annual crop which grows to a height of three

to six feet with large oval leaves that are usually sessile with clasping bases. The inflorescence bears pink flowers. Whilst the capsule-like fruits contain very tiny seeds; so tiny that approximately 400,000 of these seeds weigh one ounce. /_55_/

(b) <u>Technical Aspects of Tobacco Cultivation.</u>

    (i) <u>Nursery Establishment</u>

    The first phase in the production process is the nursery stage. In the south (Oyo and Kwara State) two crops of tobacco are grown in a year. The nursery activities for the two crops are the same except for the timing of the operations. For the first crop, the activities come up between October and April of the following year. For the second crop, the nursery work falls between mid-July and August. In the north (Zaria area) where only one crop is grown, seed is sown in May - June. Following is the discription of nursery activities for the first crop.

    By the end of October, the nursery site - which is usually near water supply, i.e. a river - should have been selected and properly cleared. Grass for nursery shade as well as nursery sticks are cut and stacked. The making of nursery shade starts by the last week in December. Seedbeds are made in January and by the third week of February or early March sowing of the seed-beds starts. Fertilizer is applied to the seedbeds a day previous

to sowing. A unit of 5 - 6 farm families uses a central
nursery and in some cases has contiguous farm land.

In the nursery, seed is broadcast mixed with fine sand or
ashes to aid even distribution as the seed is very fine. Alter-
natively the seed may be put into a watering - can and applied
through a rose. Seed-beds are usually partially sterilised by
burning a thick layer of grass and manure on the surface. Shade
is placed a few inches above the surface of the bed and raised
gradually as the seedlings develop. One quarter of an ounce
(level matchbox full) will plant 23 - 27 metres of seedbed, and
this will plant up one hectare in the field. Where skilled
supervision is present, fumigation of nursery beds and field
areas is practised using Ethylene dibromide (EDB) or Methyl
Bromide. The seedlings are constantly watered, and as the roots
become established, the rate of watering is reduced. The seed-
lings spend approximately 46 days in the nursery. The nursery
shades are then removed in preparation for transplanting after
the first rain. /55_7

(ii) Field Establishment.

For the first crop, clearing and ploughing of land for
field planting are carried out between November and December.
Ridging is usually done late in February of the following year.

Transplanting comes up between April and early May depending on when it starts to rain. For the second crop, transplanting is done in September. In the north (Zaria area) transplanting is done in July - August, and later planting is done along river banks.

Transplanting takes place very early in the morning and adequate steps are taken to prevent wilting of seedlings. The field is fertilised four days after transplanting. Supplying is done a week after transplanting. Weeding is done fourteen days after planting but this depends on the environment. One or two plants per stand are planted on flattened ridges, allowing 0.4 to 0.6 square metres per stand. Shade is sometimes necessary at transplanting for best results.

During the growth period, topping (i.e. removing of stray buds) followed by suckering takes place weekly in order to ensure leaves with high quality and minimal body injury. About two months after transplanting to the field, harvesting starts; it is carried out every four days. The leaves are sorted out, the unripe ones are allowed to mature on the plants and the harvested ones graded. Such grading is important as a means of differentiating the higher-quality products from the lower-quality ones. From transplanting to first reaping (picking) takes approximately forty-eight days and from first harvesting

to last reaping takes about forty-three days. On average, about 2,268 - 3,402 kgs. green leaves and up to 9,073 kgs per hectare are obtainable. Dry leaves weigh about 13 per cent of green weight. Hand cultivation in the field requires 120 - 140 man-days per hectare. /65_7

(c)   Tobacco Leaf - Curing and Grading

Leaf Curing

The leaves are picked when they start turning yellow, and thereafter they are threaded one inch apart on strings passed through the thick end of the petiole. The alternative is to have two or three leaves tied together and suspended over sticks. The "strings" or "sticks" are then put in a thatched-roof barn for gradual drying. Barns may be fitted with heated flues in areas where relative humidity is very high. Curing takes 4 - 6 weeks. In the dry areas of the north, leaf is retained in the barns throughout the dry season when the leaf is very britle and marketed when the rains begin again. /54_7

Grading

Tobacco may be divided into cigarette, pipe, cigar, cake or plug and blackfat tobacco. The main types of cigarette tobacco are flue-cured, aire-cured, fire-cured and burley. There are a large number of grades within each type. The lighter grades are used for Virginia type cigarettes, the heavier and darker types

for pipe and blackfat.

There are five different types of tobacco produced in
Nigeria.

    (i) Light-air cured tobacco

   (ii) Dark-air cured tobacco

  (iii) Burley

  (iv) Blackfat and

   (v) Flue-cured tobacco.

The difference between these types arise from curing
processes.

In air-curing no artificial heat is used and length of
curing may take about 3 - 6 weeks. The light type with yellow
colour is produced in the drier North. The dark type is produced
in the humid South where the humidity is high and during the
extended drying period the leaf colour changes from green to
brown and finally to dark brown.

Burley is a mild light form of air-cured tobacco; it matures
early and has a good response to close spacing and high topping.
In Burley tobacco, the whole plant is cut for stalk curing and
the leaves are not removed from the stem until after curing.

Blackfat is sugar-cured Burley tobacco and is used for
chewing and snuff. Details of its curing is given later under
(d) (ii)¼ - Processes of Black Fat Manufacture.

Flue-cured tobacco derives its name from the curing process
which takes place in barns. The leaves are light-coloured with

oily texture and aromatic taste. It is mainly used for filter cigarettes production, pipe and chewing tobacco.

With flue-curing the first 24 - 28 hours is used for yellowing with temperatures of 32°C. Humidity is kept high by putting wet sacks on the flues with the wet bulb thermometer reading -16°C below dry bulb. As yellowing progresses, the temperature is gradually increased first to 38°C, then 43°C and finally to 46°C.

Once yellowing is completed the colour is fixed by maintaining the temperature at 46°C during which the wet bulb thermometer reads -11°C below the dry bulb. The temperature is then raised gradually to 52°C with ventilation to dry out the leaves and gradually to 54°C to dry out the veins. Temperature thereafter rises by -15°C hourly to 71°C to dry out the mid ribs with ventilation being gradually closed. One barn 6 metres x 6 metres with eight tiers of leave racks is sufficient for 1.6 to 2.4 hectares depending on crop yield.

Each curing takes 4 to 5 days. The barn is completely filled in one day and with one type of leaf otherwise curing will be uneven. Sticks are placed 23 centimetres apart on the poles to allow proper air circulation. Tiers are at least 69 centimetres apart. Also 0.2 square metres of top and bottom

ventilation per 100 sticks (96 - 100 leaves) is provided inside
each barn.

Unstringing and grading follows curing. Proper grading
of tobacco is a specialised task which is performed by specially
trained operatives. There are six different grades recognised
in the Nigerian tobacco industry. In Oyo and Kwara States,
prices for the different grades are fixed by the tobacco
Advisory Committee. Grade I is the highest and most highly
valued. Grade VI tobacco is least valued. Grading criteria
include the position of the leaf on the plant, the shape and
size of the leaf, the elasticity and the texture, the absence
of spots and holes, the background colour and the general appea-
rance of the leaves. Each of these characters is kept within
fairly narrow limits for particular lots of tobacco leaves.
Table 3.1 shows the prices of different grades of tobacco by 1974.

Graded tobacco is then baled and sold to the respective
cigarette manufacturing firm as each company has its own farmers.
Tobacco growers for Premier Tobacco Company sell green tobacco
to the company for curing into black fat.

Table 3.1: Prices of Different Grades of Tobacco Leaf (1974)

Grades	Price/kg (kobo/kg)	Differences in Prices between grades (kobo/kg)		
Grade I	105	I & II	=	17
Grade II	88	II & III	=	32
Grade III	56	III & IV	=	13
Grade IV	43	IV & V	=	4
Grade V	39	V & VI	=	14
Grade VI	25			

Source: Simpson, K. "The Economics of Tobacco Production
In the Western State of Nigeria" (Final
Year Project Paper) 1975.

(d) Technical Aspects of Cigarette and Black-fat Manufacture

The tobacco processing industry plays an important role in Nigeria's industrial development. Many Nigerians are trained to acquire mechanical and manufacturing techniques in each of the Company's Engineering Workshop and factories. The NTC has three factories located at Ibadan, Port Harcourt and Zaria, while Philip Morris and Premier Tobacco have a factory each located at Ilorin and Oyo respectively. NTC and Philip Morris manufacture cigarettes while Premier Tobacco Company manufactures black fat.

(i)   Processes of Cigarette Manufacture

The cigarette making processes consist of four phases,
namely:

(1) the pre-primary manufacturing phase;

(2) the primary manufacturing phase;

(3) cigarette making phase; and

(4) cigarette packing phase.

Figure 3.1 shows the flow chart of cigarette manufacture.

Figure 3.1: Cigarette Manufacture Flow Chart

(1)   PRE-PRIMARY MANUFACTURING PHASE

Redrying and Regrading

Control and Holding Store

(2)   PRIMARY MAFACTURING PHASE

Cleaning and classifying unit
Blending unit
Cutting and drying unit

(3)   CIGARETTE MAKING PHASE

(4)   CIGARETTE PACKING PHASE
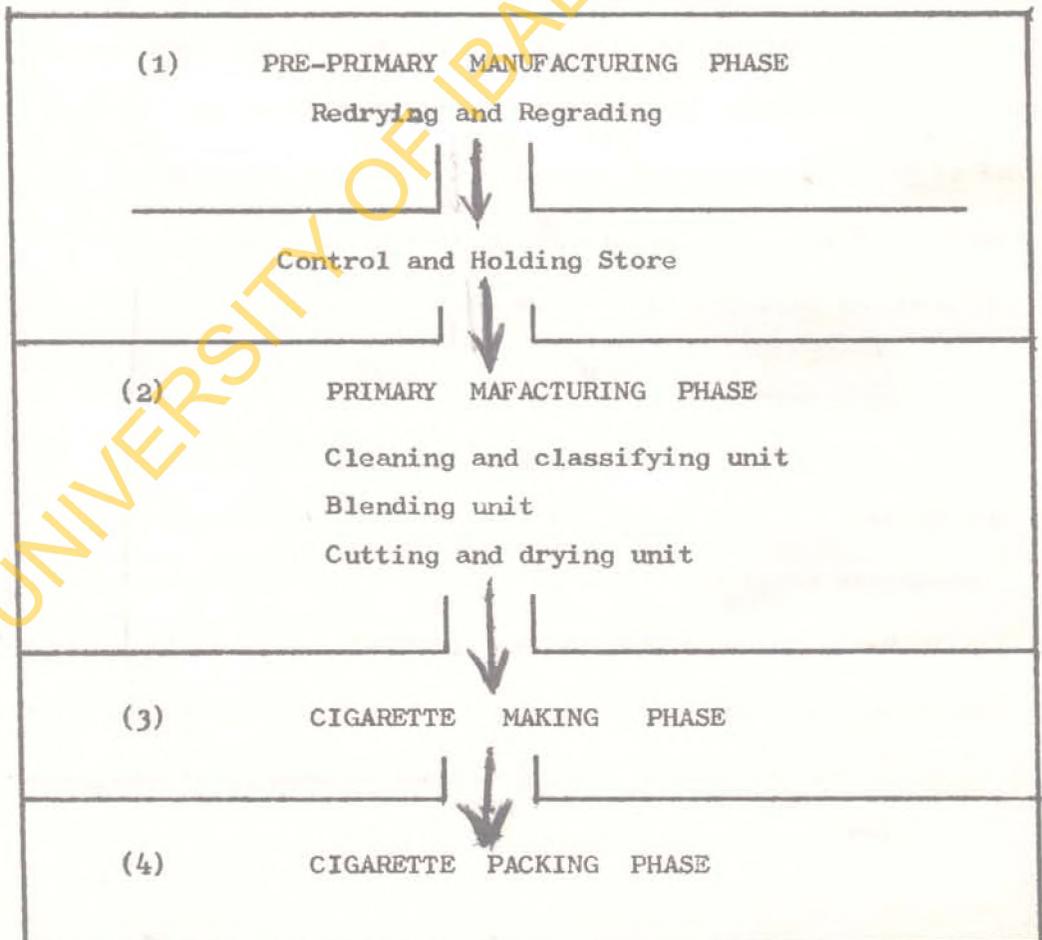
(1) Pre-Primary Manufacturing Phase

The primary aim of this phase is to recondition raw toba-
cco leaves for better handling. It involves redrying and regra-
ding of tobacco leaves purchased from the farmers. The purchased
tobacco leaves are first conveyed to redrying plants where the
moisture content is standardized, after being hydraulically
pressed and baled, the leaves are taken to control and holding
store (air-conditioned leaf stores) where it is quickly frozen
to kill any latent insect infestation and then stored to ripen
for at least one year at 17°C with a relative humidity of 62
per cent. As a necessary insurance against fluctuations in the
size of the crop, two years supply of raw tobacco leaves is in
store at any one time. Over ₦2.3 million is invested in these
facilities alone; and about ₦4 million is invested in tobacco
inventory itself by NTC.

(2) Primary Manufacturing Phase

This phase is made up of three sub-phases. Bales of un-
manufactured tobacco of different grades and types are drawn
from leaf stores as required and depending on the brand of ciga-
rettes to be manufactured from there it is taken to the first
sub-phase of cigarette manufacture.

Cleansing and Classifying Sub-phase

All grades and types of raw tobacco are mixed up here. It is then passed through a metal - detector machine. The purpose is to detect whether or not the leaves contain any foreign matter, specifically, metal. Then the leaves move to the second sub-phase.

Blending Sub-phase

Here the requisite number of 'hands' of each type of tobacco are stacked on trays to form an appropriate cigarette blend. In case of NTC, they are blended to thirteen different specifications.

Cutting and Drying Sub-phase

The trays automatically convey cleansed tobacco to a conditioning machine for softening. Another machine separates the individual leaves from the stalk of tobacco and cuts off the tips. After various other processes in other machines, which process the leaf and leaf stems separately, the tobacco is eventually cut into the fine shredded form called 'rag' or cut-tobacco, ready for the actual cigarette making. An average of 454 kgs of blended tobacco from sub-phase (ii) is processed per hour per cutter.

(3) Cigarette Making Phase

In this section of the factory, automatic cigarette-making

machines receive the cigarette paper and the rag and produce
the finished article.

In NTC there are two types of cigarette making machines:
(i) Mark V machine is capable of producing 1,200 cigarettes per
minute. (ii) Mark VIII machine is capable of producing 2,500 to
3,000 cigarettes per minute. The cigarettes produced could be
plain or with filter. Next the cigarettes are conveyed by
special trolleys to the next phase for packing.

(4) Cigarette Packing Phase.

Here, automatic machines pack the cigarettes in tens or
twenties, as the case may be, each packet is covered with a visco
film-water and air-proof cover, to ensure that cigarettes get to
the consumers very fresh. In turn the packets are packed into
bundles and large cartons in which they leave the factory.

At the end of this long process, the cartons of 10,000
cigarettes each are passed along conveyor belts to a room where
customs officials check for excise duty before the cigarettes
leave the factory.

(ii) Processes of Black fat Manufacture

Black fat is produced in specially constructed heating
rooms. Preparatory to curing for black fat, the leaves are
graded according to two specifications: leaves longer than 66 cms

which are tied into heads of 6 leaves each and those less than
66 cms are tied into heads of 5 leaves each.

These heads of leaves are then packed on boards and hung
in a sweating room for 48 hours. The sweating room has a boiler
which generates steam at $49^{\circ} - 71^{\circ}C$ for curing tobacco leaf.
After 48 hours, the heads of tobacco leaves are removed from
the sweating room and hung to dry for another 48 hours in the
heating room. After drying, they are packed into open wooden
boxes. These boxes are then sent through a steaming room.
Chemicals are applied immediately after steaming. The cured
leaves are packed in two different types of boxes. Six leaf-
heads are packed in rectangular boxes with a capacity of 200
heads whilst 5 leaf-heads are packed into the square boxes each
holding 525 heads.

The boxes are sealed up and placed - one type on the other
in the heating room for a fortnight to dry. The black fat is
ready at the end of the two week period.

Cigarette and Black fat Marketing

Black fat is produced mainly for export while marketing
of cigarettes by NTC and Philip Morris is very similar. Since
the network of product distribution in the two companies are
the same, only cigarette distribution by NTC is discussed.

Cigarette Distribution by NTC

The objective of NTC's distribution system is to get the company's products to the smoker, wherever he may be, at the right time and at the desired quality. To this end the company has established a market network throughout the country, using trained Nigerian distributors (who are independent businessmen and women specialising in tobacco products).

The system of using Nigerian distributors was introduced some twelve years ago. Before that time, the system was quite different. [39]

In 1911, British-American Tobacco Company (BATC) sent out a representative to study the West African market for imported cigarettes. Nine years later, the company set up a Nigerian depot for the distribution and sale of its products. From this depot BATC had bulk consignments broken down and sold to its various middlemen - wholesalers and stockists who invariably were the big foreign trading companies, and who in turn sold to retailers from whom the cigarettes eventually reached the consumer. This system continued in much the same form during a few decades that followed.

In 1962 however, a revolution in thinking took place when NTC decided to pioneer the development of a chain of indigeneous and independent businessmen who would ensure that the whole range

of the company's products are distributed regularly, even to

the remotest part of the country. The market strategy is to

stimulate demand for cigarettes at all social strata throughout

the country.

The country was divided into 60 zones each with a chosen

distributor. These 60 distributors jointly employ about 2,000

people serving some 750,000 retailers throughout the country.

Each distributor has a main shop in the principal town, and

branch shops distributed all over his zone. In some cases,

these branch shops are in remote areas that are all but inacce-

ssible by normal means of transport.

An NTC distributor is not a mere trader in tobacco pro-

ducts. He must have adequate financial backing and organising

ability, and is then trained and encouraged to develop and

reinforce his capital in order to expand his business and, by

building up a staff and a system of regular supply to all the

retailers in his demarcated zone, to stimulate active selling

in order to meet the challenge of competition. This is symbo-

lised by his ubiquitous branded sales vans as well as by the

activities of his trained and uniformed salesmen so well known

as they ply the streets and roads on their bicycles. The com-

pany sees it as a prime responsibility to ensure that the distri-

butors' staff are thoroughly and methodically trained to perform

the important task of contract with the public - particularly
that section of it that operates retail outlets for tobacco
products./ 34_7

These outlets come in different shapes and sizes, ranging
from supermarkets, hotels, restaurants and specialised tobacco-
nists shops, to wayside kiosks and stalls. Each of these, no
matter how big or small, receives daily attention from the
distributors' salesmen. They also benefit from the NTC whose
marketing staff complement the efforts of the distributors by
providing the outlets with basic structures required for holding
and displaying the products.

In the case of hotels and supermarkets (called "high grade
outlets") the company designs tobacco shops which compare with
the best in the world, tailored to fit the particular outlet -
all at no cost to the retailer. These shops are serviced by
the distributors' "bicycle boys" and salesmen, while regular
checks are carried out by the company's own staff, who listen
to the retailers' problems, and advise and assist them on the
display of their products, and on the handling of stocks.

Next to the high grade outlets are the kiosks, usually
painted in the colours of some of NTC's brands. These kiosks
are erected and assigned to a retailer.

Then there are the mass retail outlets, embracing the market "mammies", the wayside retailers and hawkers. They, too, are visited daily by the distributors' staff, who advise on buying decisions in relation to the brand trends in the retailers locality. The company's salesmen provide market display materials and make regular checks to ensure that, the cigarettes are being sold at the correct prices, and that all stocks are factory fresh. [34]

The frequent contact with retailers ensures that the company's and the distributors' staff are constantly on the move, reaching into every corner of the country, no matter how remote and no matter how difficult the terrain. As a result, the company, through its distributors, is able to achieve its objective of getting the cigarette to the consumers in good condition, at the right time and place and at standard cost.

ANALYSIS OF COSTS AND RETURNS

The objective of this chapter is to determine the costs
and returns accruing to the three firms in the tobacco industry
and also investigate the value-added and the nature of
financial returns to each of the three firms.

(a) Analysis of Costs

The cost items of each of the three tobacco firms can
be divided into two categories: the variable costs and
fixed costs.

(i) Variable Costs Analysis

The variable costs are the costs of production which
vary with output, though not necessarily proportionately
with output. These are the costs that will only be incurred
when production is carried out. The amount of these costs
depends on the kinds and quantities of variable inputs used.
Variable costs in the three companies include:

1. Cost of raw materials.

2. Cost of labour.

3. Cost of energy.

4. Plant maintenance (cost of repairs and
    maintenance of equipment).

5. Miscellaneous cost

6. Excise tax.

Analysis of the variable costs for the three companies are shown in tables 4.1, 4.2 and 4.3 respectively.

Cost of raw materials

The cost of raw materials for the three firms for the period, 1971 - 1973, are shown in tables 4.1, 4.2, and 4.3. It ranged from ₦7,121,826 in 1971 to ₦9,268,262 in 1973 for NTC, from ₦2,599,608 in 1971 to ₦3,260,330 in 1973 for Philip Morris and from ₦38,509 in 1971 to ₦59,974 in 1972 while that of 1973 was only ₦36,375 for PTC because of the volume of business done that year. The high cost of raw materials can be attributed to the fact that the tobacco processing industry depends solely on cured tobacco leaf as principal raw materials. The cost of cured tobacco leaf has been rising for the past four years. Similarly other raw material costs such as wrappings and flavours have been increasing rapidly. A basic characteristic of this industry is that it has no by-product.

Cost of Labour

The tobacco processing industry can be described as a high capital-intensive industry. It depends very much on

modern technology because of a lot of automation already acquired by the processing firms. Although all the processes of cigarette and black fat manufacture are done by automation, labour is engaged to operate the machines. The categories of labour engaged include unskilled, semi-skilled and skilled workers.

Table 4.1: Variable Cost for Nigerian Tobacco Company Limited, Ibadan, 1971-1973.

Cost Items	1971 (₦)	1972 (₦)	1973 (₦)
(a) Raw materials	7,121,826	7,121,825	9,268,262
(b) Labour cost	1,300,766	1,300,766	2,625,581
(c) Energy cost (Fuel and Electricity)	125,116	125,116	278,539
(d) Plant Maintenance	317,862	317,862	449,807
(e) Miscellaneous*	324,088	324,088	3,871,231
(f) Excise Tax	9,173,174	9,173,174	12,258,388
Total	18,362,832	18,362,832	28,751,808

*Miscellaneous: includes cost of stationery, telephone, postage, transport, and professional fees.

Source: Industrial Statistics, Federal Office of Statistics, Lagos, 1972 - 1974.

Table 4.2:   Variable Cost for Philip Morris, Ilorin, 1971-1973.

Cost Items	1971 (₦)	1972 (₦)	1973 (₦)
(a) Raw Materials	2,599,608	3,049,448	3,260,330
(b) Labour cost	959,770	977,816	911,550
(c) Energy Cost (Fuel and Electricity)	105,125	119,062	70,760
(d) Plant Maintenance	18,182	20,260	22,565
(e) Miscellaneous	901,059	1,166,614	1,180,212
(f) Excise Tax	3,244,593	3,080,428	3,075,870
Total	7,828,337	8,413,628	9,321,287

Source: Industrial Statistics, Federal Office of Statistics, Lagos, 1972-1974.

Table 4.3:   Variable Cost for Premier Tobacco Company, Oyo,
1971 - 1973.

Cost Items	1971 (N)	1972 (N)	1973 (N)
(a) Raw Materials	38,509	59,974	36,375
(b) Labour Cost	15,408	27,171	32,300
(c) Energy Cost (Fuel and Electricity)	710	484	386
(d) Plant Maintenance	1,234	162	186
(e) Miscellaneous	22,973	18,200	13,726
(f) Excise Tax	-	-	-
Total	78,834	105,991	82,973

Source: From the company's records, 1972 - 1974.

Labour cost (in terms of salaries and wages) ranged from ₦1,300,766 in 1971 to ₦2,625,581 in 1973 for NTC, from ₦959,770 in 1971 to ₦977,876 in 1972 and ₦911,550 in 1973 for Philip Morris and for PTC for the same period, it ranged from ₦15,408 to ₦32,300. The slightly low labour cost in Philip Morris in 1973 was due to a fall in the number of operatives from 396 in 1972 to 288 in 1973. Otherwise, the cost of labour was rising from one year to another since 1971. Details of labour structure in the three companies are shown in table 4.4.

Energy Cost

The cost of energy, in terms of fuel and electricity consumption, varied amongst the firms. The cost of energy consumed by NTC ranged from ₦125,116 in 1971 to ₦278,539 in 1973. Philip Morris had ₦102,125 in 1971, ₦119,062 in 1972 and ₦70,760 in 1973. The low cost of energy for 1973 for Philip Morris could be attributed to the low consumption of energy by the company that year. Similarly, energy cost in PTC ranged from ₦710 in 1971 to ₦386 in 1973. The declining cost of energy from one year to the other reflects the scale of operation of the company.

Plant Maintenance

The cost of plant maintenance as shown in tables 4.1, 4.2

Table 4.4:   Labour Structure in the three Tobacco Companies, 1971 - 1973 (Number of Employees)

Categories	Nigerian Tobacco Company, Ibadan			Philip Morris Ilorin			Premier Tobacco Company, Oyo		
	1971	1972	1973	1971	1972	1973	1971	1972	1973
(a) Professional/Administrative and Managerial:									
(i) Nigerians	44	44	115	44	53	52	2	2	2
(ii) Expatriates (Non-Nigerians)	13	13	27	15	13	11	1	1	1
(b) Clerical and other Office workers	329	329	860	272	373	485	3	4	5
(c) Operatives	1,362	1,362	2,300	574	396	288	28	28	33
Total Number of Employees	1,748	1,748	3,302	905	835	836	34	34	40

Source: Industrial Statistics, Federal Office of Statistics, Lagos, 1972--1974.

and 4.3 varied from one year to another for each firm. The

figures for NTC are ₦317,862 in 1971, ₦317,862 in 1972 and

₦449,807 in 1973. Philip Morris had ₦18,182 in 1971, ₦20,260

in 1972 and ₦22,565 in 1973 whilst PTC had ₦1,234 in 1971, ₦162

in 1972 and ₦182 in 1973. These figures reflect the number of

plants each firm employed in its operations. It seems that the

larger the size of the company the larger the use of manufacturing

machines.

Miscellaneous Cost

The cost of miscellaneous items which includes the cost

of stationery, postage, telephone, transport and professional

fees varied amongst the firms according to the type of product

and volume of business done. In NTC and Philip Morris, the cost

increased considerably from 1971 to 1973, whilst PTC had decli-

ning cost of miscellaneous items during the same period. The

divergence could be attributed to the number of cost items

charged to miscellaneous account.

Excise Tax

Since two of the three firms in the tobacco processing

industry pay excise tax on their products immediately after

manufacture and before sales of the products, excise tax is

classified as part of variable production cost. The NTC paid

₦9,173,174 in 1971, the same amount in 1972 and ₦12,258,388 in 1973. Philip Morris paid ₦3,244,593 in 1971, ₦3,080,428 in 1972 and ₦3,875,870 in 1973. PTC was exempted from paying the tax because the company was regarded as an infant industry.

(ii) Fixed Costs Analysis

Costs which are incurred even when no output is produced constitute fixed costs. These are sunk costs. They are the costs of a firm which do not vary with every change of output. Hence they have no bearing upon decisions regarding increase or decrease in production.

The fixed cost elements in the tobacco industrial enterprise can be itemised as cost of buildings, which include the processing house, offices, stores and workshop. They also include equipment costs which comprise the costs of different cigarette making machines. These fixed assets however wear out over time, a process called depreciation. Depreciation could, therefore, be regarded as a slow using up of a long lived asset. In addition, other fixed costs include rent on buildings and interest charges on borrowed funds.

In table 4.5, the annual fixed cost in 1973 amounted to ₦3,135,611 in the NTC, ₦809,170 in Philip Morris and ₦19,304 in PTC. Rank-wise these figures follows the size of each company

Table 4.5: Total cost of Production in the three Tobacco Companies, 1971-1973.

	Nigerian Tobacco Company, Ibadan			Philip Morris, Ilorin			Premier Tobacco Company, Oyo		
	1971 ₦	1972 ₦	1973 ₦	1971 ₦	1972 ₦	1973 ₦	1971 ₦	1972 ₦	1973 ₦
Variable Cost									
(a) Raw Materials	7,121,826	7,121,826	9,268,262	2,599,608	3,049,448	3,260,330	38,509	59,974	36,375
(b) Labour cost	1,300,766	1,300,766	2,625,581	959,770	977,816	911,550	15,408	27,171	32,300
(c) Energy cost	125,116	125,116	278,539	105,125	119.062	70,760	710	484	386
(d) Plant Maintenance	317,862	317,862	449,807	18,182	20,260	22,565	1,234	162	186
(e) Miscellaneous	324,088	324,088	3,871,231	901,059	1,166,614	1,180,212	22,973	18,200	13,726
(f) Excise tax	9,173,174	9,173,174	12,258,388	3,244,593	3,080,428	3,875,870	-	-	-
Fixed Cost									
(g) Depreciation on building	283,220	283,220	248,880	350,796	337,136	315,050	3,101	5,134	5,202
(h) Depreciation on Equipment	2,927,042	2,927,042	2,779,143	401,944	416,102	453,904	4,757	12,565	14,102
(i) Interests and Rent charges	18,992	18,992	107,588	650,946	359,468	40,216	800	200	600
Total Cost	21,592,086	21,592,086	31,887,419	8,632,023	9,526,334	10,130,457	87,492	123,890	102,877

Source: Industrial Statistics, Federal Office of Statistics, Lagos, 1972-1974.

Table 4.6: Operational Cost involved in Tobacco Industrial

Enterprises in percentages, 1973.

I T E M	Nigerian Tobacco Company, Ibadan	Philip Morris, Ilorin	Premier Tobacco Company, Oyo
Raw material cost	29.07	32.19	35.36
Labour cost	8.23	8.99	31.39
Energy cost	0.88	0.69	0.38
Plant Maintenance	1.41	0.22	0.18
Miscellaneous	12.14	11.66	13.34
Excise tax	38.44	38.26	-
Fixed cost	9.83	7.99	19.35
Total	100.00	100.00	100.00

Source: Calculated from the Industrial Survey records of Federal Office of Statistics, Lagos, 1972-1974.

but in table 4.6 the figures represent 9.83 per cent of the operational cost in 1973 in the NTC, 7.99 per cent in Philip Morris and 19.35 per cent in PTC during the same period. The percentage in respect of PTC is highest while there is not much difference between NTC and Philip Morris percentages.

Considering the total cost of production (i.e. variable and fixed costs) in 1973 for example, that of NTC was highest of the three companies. This was an indication of the company's scale of operation. It could also be due to the ability of the company to invest more money in the business. That of Philip Morris was next while that of PTC was least.

The cost figures compiled for the three firms are shown in table 4.6. A close look at the table indicates that there is a gulf of difference in the magnitudes of total costs for each company for the years 1971-1973. Whilst the total cost was ₦31,887,419 for NT C in 1973, it was ₦10,130,457 for Philip Morris and only ₦102,877 for PTC. The variation in the magnitude of total costs as explained earlier is due to the **diffe**-rences in the scale of operation.

In order to have a better insight of the relative proportion of each cost item, table 4.6, is constructed to show the percentages of various cost items for the year 1973. The contrast in the percentages of fixed cost items may be due to the

fact that large scale establishments are able to spread out
the fixed costs over large operations more than the small scale
firms.

(b) Analysis of Returns

The three firms obtained their returns from the sale of
their finished products which are all brands of cigarettes and
"black fat".

(i) Gross and Net Returns

In calculating total cost for the three companies, total
variable cost and total fixed cost are added together. In
1973, the total sales in the NTC amounted to ₦50,270,000 while
the total cost was ₦31,887,419. The net returns that year was
₦18,387,581. During the same period, the total sales value in
Philip Morris was ₦15,944,261, the total cost was ₦10,130,457
and the net returns was ₦5,813,804.

In the same year at PTC, the gross returns was ₦117,223,
the total cost was ₦102,877 while the net returns was only
₦14,346. The net returns to the three companies during the
period in which the activities of these firms were examined
varied very considerably. That of the NTC varied from ₦13,759,
760 in 1971 to ₦18,387,581 in 1973. For Philip Morris, it
varied from ₦4,866,890 in 1971 to ₦5,813,804 in 1973. During

the same period, the net returns to PTC varied from ₦33,315 to
₦14,346. Table 4.7 shows the net returns to each of the compa-
nies during 1971-1973.

(ii) Operating Efficiency

Operating efficiency of the companies can be defined as
the input-output ratio. It can also be measured as the firms
revenue over its total operating cost.

$$\text{Operating Efficiency Ratio} = \frac{\text{(Value of Gross Output)}}{\text{(Total Value of Input)}}$$

The ratios were computed for the three firms between
1971 and 1973, and the results obtained are presented in table
4.8. It can be observed from the table that the ratios for
each company seem to be consistent over the period for which
the ratios were computed. In 1973, the ratio for NTC was 1.58:1,
1.57:1 for Philip Morris and 1.14:1 for PTC. These ratios show
that NTC was most efficient, Philip Morris was next and PTC was
least efficient among the three companies.

(iii) Value-added by the Three Companies

Value-added approach is another important measure of
economic efficiency of each establishment and its contribution
to the gross national product. For a given enterprise, value-
added is the market price of a good less the cost of materials
used to fabricate that good. Value-added may be gross or net.
Gross value-added includes payments for taxes, interest, rent,

Table 4.7:   Gross and Net Returns of the Three Tobacco Companies, 1971-1973.

COST ITEM	NIGERIAN TOBACCO COMPANY			PHILIP MORRIS			PREMIER TOBACCO COMPANY		
	1971	1972	1973	1971	1972	1973	1971	1972	1973
	₦	₦	₦	₦	₦	₦	₦	₦	₦
Gross Returns	35,351,846	35,351,846	50,275,000	14,098,913	14,126,975	15,944,261	54,177	106,607	117,223
Total Variable Cost	18,362,832	18,362,832	28,751,808	7,828,337	8,413,628	9,321,287	78,834	105,991	82,973
Total Fixed Cost	3,210,262	3,210,262	3,135,611	1,403,686	1,112,706	809,170	8,658	17,899	19,904
Total Cost	21,592,086	21,592,086	31,887,419	9,230,023	9,526,334	10,130,457	87,492	123,890	102,877
Net Returns	13,759,760	13,759,760	18,387,581	4,866,890	4,600,641	5,813,804	(33,315)	(17,283)	14,346

Source: Industrial Statistics, Federal Office of Statistics, Lagos, 1972-1974.

Table 4.8: Operating Efficiency in the Three Tobacco

Companies, 1971-1973.

	Year	Value of Gross Output	Value of Input (Total cost)	Efficiency Ratio
Nigerian Tobacco Company	1971	35,351,846	21,592,086	1.64:1
	1972	35,351,846	21,592,086	1.64:1
	1973	50,275,000	31,887,419	1.58:1
Philip Morris	1971	14,098,913	8,632,023	1.63:1
	1972	14,126,975	9,526,334	1.48:1
	1973	15,944,261	10,130,457	1.57:1
Premier Tobacco Company	1971	54,177	87,492	0.62:1
	1972	106,607	123,890	0.86:1
	1973	117,223	102,877	1.14:1

Source: Calculated from the Industrial Survey records, Federal
Office of Statistics, Lagos, 1972-1974.

Table 4.9: Value-added by the Three Tobacco Companies, 1971-1973.

I T E M	Nigerian Tobacco Company			Philip Morris			Premier Tobacco Company		
	1971 ₦	1972 ₦	1973 ₦	1971 ₦	1972 ₦	1973 ₦	1971 ₦	1972 ₦	1973 ₦
Gross Proceeds (Sales value of product)	35,351,846	35,351,846	50,275,000	14,098,913	14,1: ,975	15,944,261	54,177	106,607	117,223
Industrial Cost (Cost of raw materials, fuel, electricity and plant maintenance, Excise Tax)	18,381,824	18,381,824	28,859,396	8,479,283	8,773,096	9,361,503	74,634	106,191	83,873
Net Value-Added	14,970,022	14,970,022	21,415,604	5,619,630	5,353,879	6,582,758	-20,457	416	33,350

Source: Industrial Statistics, Federal Office of Statistics, Lagos, 1972-1974.

profits, reserves for depreciation, and compensation to manage-
ment and other employees, including social security. Net value-
added excludes depreciation. The Gross National Product is the
total gross value-added by all the productive enterprises in the
economy. Gross value-added contributed by the three companies is
shown in table 4.9.

A careful study of the table indicates that the net value-
added contributed by the three firms in 1973 was ₦21,415,604 by
the NTC, ₦6,582,782 by Philip Morris and ₦33,350 by PTC. From
the above we can see that the total contributions from the
three firms to the national income in 1973 amounted to ₦28,031,736.

ANALYSIS OF FINANCIAL STATEMENTS

An analysis of financial statements of the three companies in the tobacco processing industry is done in this section. Some financial ratios, using the firms' Balance Sheets and income statements, are computed for the firms for the period of 1972 and 1973.

(a) Financial ratios and their use in business management` [2]

Financial ratios is a term used in describing significant relationships which exist between two pieces of financial data. These ratios can be used to evaluate, among other purposes, the financial condition and performance of a business organization. They can assist management in its basic functions such as forecasting and planning. In addition to indicating the economic performance and level of efficiency of a business establishment, they can also be used to improve the efficiency or raise the level of profits of the business establishment.

There are many reasons for the wide use of ratio analysis. Firstly, the ratios are easily calculated given all the accounting records. Secondly, these ratios allow easy comparison between similar firms within an industry. Such comparison gives us some insight into the relative financial conditions and performance of the firms. They are also readily understood by

various interested parties within and outside a firm. To all
members of the management who are not financially oriented, these
ratios can provide a basic overview for heads of departments, the
general manager and the Board of Directors.

Finally, the ratios are very helpful in showing the true
picture of the firms' financial position to interested parties
outside of management. These include creditors who are interested
in the liquidity of a firm seeking loan from them. Their claim on
the firms' assets is short term and the ability of a firm to pay
their claim is best judged by means of a thorough analysis of its
liquidity. Also the shareholders whose claim may be long-term
are interested in the cash-flow and the firm's ability to service
debt over the long run. The shareholder may evaluate this ability
by analysing the capital structure of the firm, the major sources
and uses of funds, its profitability over-time and projections of
future profitability. Similarly, bankers, suppliers of inputs
and the government could use ratios for purposes of evaluation
and analysis .

The firm may also use these ratios in determining its own
credit worthiness, especially when contemplating or bargaining
for outside funds.

(b) <u>Types of Financial Ratios</u>

      The following are a group of financial ratios designed for measuring economic performance and efficiency in specific areas of a business concern: Profitability ratios, Liquidity and Solvency ratios. Profitability and solvency ratios are computed from a firm's income statement or from both the income statement and the balance sheet. A combination of these ratios should be used when examining the financial condition and performance of a firm. Use of one ratio would not give sufficient information by which one could arrive at a right judgement on how sound is the financial position of a firm. In this study, only those ratios which can be derived from the available data are discussed.

(1) <u>Profitability Ratios</u>

      These ratios measure the efficiency of how well a business concern is being managed. There are two types of profitability ratios: those showing profitability in relation to sales and those showing profitability in relation to investment. Efficiency within the tobacco processing industry in this study is measured by:

      1(a) The rate of return on operating capital; the higher the ratio, the better for the firm.

1(b) Ratio of fixed cost to total revenue, this is

expected to be a small ratio.

1(c) Rate of return on volume of sales.

Table 5.1: Rate of Return On Operating Capital

Name of firm	Rate of Return (%)	
	1972	1973
Nigerian Tobacco Company	63.73	57.66
Philip Morris	48.29	57.39
Premier Tobacco Company	(13.95)*	13.94

*Negative rate of return is in bracket.

Source: Calculated from the firms' records.

Table 5.2: Ratio of Fixed Cost to Total Revenue

Name of firm	Ratio of Fixed Cost to Total Revenue (%)	
	1972	1973
Nigerian Tobacco Company	9.00	6.24
Philip Morris	7.08	5.07
Premier Tobacco Company	16.79	16.98

Source: Calculated from the firms' records.

(1a) Rate of Return On Operating Capital

Rate of return is defined as net return divided by the
total operating cost for the period under review. The rates
of return on operating capital are derived for the three firms
and the results are presented in table 5.1. The table shows
that in 1972 NTC had 63.73 per cent rate of return, Philip
Morris had 48.29 per cent while the Premier Tobacco Company had
a negative rate of return of 13.95 per cent. In 1973, the NTC,
Philip Morris and Premier Tobacco Company had 57.66, 57.39 and
13.94 rates of return respectively. The poor performance in
the Premier Tobacco Company may be attributed to the fact that
the company has never got sufficient funds for its operations.

(1b) Ratio of Fixed Cost to Total Revenue

This ratio indicates how efficiently the fixed assets are
being used. It is obtained by dividing total fixed cost by
total revenue for the specified accounting period. The ratio
is also expressed in percentage and the results derived for
the three firms are shown in table 5.2. The table shows that
in 1972 the calculated ratios ranged from 7.08 per cent to
16.98 per cent. These derived efficiency ratios lead us to
two conclusions: firstly, it could be seen in both years that
Philip Morris Tobacco Company was the most efficient. The NTC

was next while the Premier Tobacco Company (PTC) was the least efficient of the three firms.   Secondly, both NTC and Philip Morris were more efficient in 1973 while PTC was less efficient during the same period than in the previous year.

(1c) Rate of Return On Volume Of Sales

Another measure of profitability is the ratio of net earnings to the volume of sales. Usually, this ratio is defined as net earnings divided by the value of sales within an accounting period. It shows the effectiveness with which working capital was employed. Some businesses are slow selling with high profit margins while others sell large volumes and have small margins. In either case, the aim is to obtain a reasonable level of profit. The calculated ratios presented in table 5.3 indicate that returns on volume of sales were generally low for the two years. The divergence between net earnings and value of sales is a reflection of high operating expenses incurred by the three firms in the industry.

2. Liquidity Ratios

Liquidity, as used in business terminology, indicates the relative ease with which something of value can be converted into money. Liquidity ratios are the ratios used in judging a firm's ability to meet short-term obligations. Liquidity ratios

enable one to gain an insight into the immediate solvency of the firm and ability to remain solvent in face of reverses in its performance. The current ratio is widely used because of simplicity with which it could be calculated.

Table 5.3: Rates of Returns On Volume of Sales

Name of firm	Net Earnings on volume of sales (%)	
	1972	1973
Nigerian Tobacco Company	38.92	36.57
Philip Morris	32.57	36.46
Premier Tobacco Company	(16.21)*	12.24

*Negative return.

Source: Computed from the firms' records.

Table 5.4: Current Ratios of Firms in the tobacco

Processing Industry

Name of firm	Current Ratios	
	1972	1973
Nigerian Tobacco Company	1.22 : 1	1.32 : 1
Philip Morris	2.35 : 1	2.15 : 1
Premier Tobacco Company	10.94 : 1	4.51 : 1

Source: Computed from the firms' financial statements.

$$\text{Current Ratio} \quad = \quad \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

However, a more accurate guide to liquidity is the quick ratio

or acid-test ratio. This is defined as

$$\text{Acid-test-ratio} \quad = \quad \frac{\text{Current Assets-Inventories}}{\text{Current Liabilities}}$$

This ratio is different from the current ratio only in one respect,

it excludes inventories, the least liquid portion of current assets,

from the numerator. The acid-test-ratio concentrates on cash,

marketable securities, and receivables in relation to current

obligations and thus provides a more penetrating measure of liquidity than does the current ratio.

The acid-test-ratio could not be calculated for this study because of non-availability of data.

The current ratios calculated for the firms in the industry are presented in table 5.4. The higher the ratio, the greater the chance that a firm will be able to meet its immediate obligations and stay viable. A close look at the table reveals that the three firms could be regarded as being in a good financial position.

3. Solvency Ratios

A business concern is described as solvent if it can meet its immediate and long-term financial obligations and commitments. Really, the solvency ratios reflect the position of a business capital requirements which is being supplied by the owners. These ratios are useful to both people within and outside the business concern. From a creditor's point of view, solvency measures indicate the kinds of problems the lending body would encounter in recovering their money in the event of business failure. The ratios can therefore have considerable impact on the availability of outside fund to the business. The following formulae can be used to estimate the solvency of a

business concern.

(3a) Solvency $=\dfrac{\text{Net Worth}}{\text{Total Net Assets}}$

(3b) Solvency $=\dfrac{\text{Long-Term-Debt}}{\text{Capitalization}}$

Table 5.5: Solvency Ratios of the Firms In Tobacco

Processing Industry

Solvency $=\dfrac{\text{Net Worth}}{\text{Total Net Assets}}$

Name of firm	Solvency Ratio (%)	
	1972	1973
Nigerian Tobacco Company	87.75	83.48
Philip Morris	92.26	90.35
Premier Tobacco Company	58.27	68.24

Source: Calculated from the firms' financial statements.

The net worth/total net assets ratio indicates how a
business concern can cope with its immediate financial needs,
while long term debt/capitalisation ratio shows the ability of
the firm in meeting its future financial needs. This is the
ultimate solvency.

In addition, solvency ratios may lead to questions of
who controls the firms since as the creditors supply more and
more capital and thereby assume more risk, they can impose
restrictive measures on managerial independence. On the other
hand, solvency ratios may indicate that the firm should con-
sider borrowing more money with a subsequent opportunity of
increasing returns on their investment. Due to non-availability
of data, only one of the two formulae was used in this study in
measuring solvency ratios. The computed solvency ratios are
presented in table 5.5.

The net worth/total net assets in addition to a firm's
ability to meet its immediate financial obligations further
tells us the amount of capital owners contributed to the
business during the years under review. The table reveals that
owner's equity capital accounted for over 58 per cent of the
capital required by the three firms to support their net assets.
Hence, it should be easy for the firms to obtain additional

funds from the commercial lending houses. However, these results should be interpreted with caution since the items making up the ratios may be inappropriately valued.

In conclusion, two points about the financial analysis should be emphasized. Firstly, there is considerable difference in the rates of profits accruing to the three firms. While the NTC and Philip Morris had positive net returns, the other had negative net returns in 1972 but positive net returns in 1973. The variation in the rate of return may serve as a good index of efficiency among the firms.

Secondly, the three tobacco processing firms were in favourable financial positions for the two years under review. Thus, it is unlikely that they would have to borrow in order to meet their immediate financial obligations and even if they recourse to borrowing, their favourable solvency position should qualify them for loans from financial institutions.

CHAPTER VI

PRODUCTION FUNCTION FOR TOBACCO PROCESSING INDUSTRY

(a)   Need for Production Function Analysis

The cost and returns analysis carried out in chapter four was strictly a financial analysis of the performance of the firms in the tobacco processing industry. It did not explain the functional relationships between the input and output. In Nigeria where capital is a scarce resource, it is necessary to undertake an analysis of the relationships between inputs and outputs before more money is committed to any particular industry.

Estimates of a firm's production functions are usually used for diagnostic purposes – in judging the degree of factor disequilibrium under different degrees of economic and market development. This is the basis for production function analysis of the firms in the Nigerian tobacco processing industry.

A production function is basically a mathematical representation that describes the relationship between the production of a given output and the factors affecting that production process. Production function analysis has been the traditional tool for analysing problems of resource productivity and returns to scale. /48/ It allows for a direct measurement of the parameters of resource productivity.

(b)   The Data Sources and Limitation

The data used in this analysis in respect of NTC and Philip Morris were derived from the returns of individual firms submitted to the Federal Office of Statistics, Lagos, during the annual industrial survey of 1966 through 1974.

For the NTC, data were obtained for 1966 through 1973 (with data for 1971 and 1972 being identical).

The data obtained for Philip Morris covered the period 1965 to 1973, although data for the years 1968 and 1969 for this company were identical.

Data in respect of the Premier Tobacco Company were obtained for the years 1970 to 1975 through the use of questionnaires.

An examination of these data revealed that the data obtained for NTC and Philip Morris were not absolutely correct since they were returns filed by the said companies with government agencies, and experience has shown that such returns do not always represent the absolutely true picture as far as each firm is concerned. Because of this limitation care must be taken in interpreting the results.

(c)   Estimating Procedure

There are many forms of production functions, among which are - linear, power, quadratic, spillman, square root and their

variants. Often, functions used for estimating firm sample
data include the power and/or linear forms because of their
relative ease of computation and the smaller degrees of freedom
involved in estimating the required parameters.

(i) <u>General Forms</u>: The linear production function takes
the general form of $Y = C + b_i X_i + e$ .. .. (6.1)

where

Y = dependent variable

X_i = independent or explanatory variables.

b_i = regression coefficients

C = constant term

i = 1, 2, 3, ..., n

e = error term.

The Cobb-Douglas (power) production function is of the
general form:

$$Y = CX_i^{b_i}$$ .. .. (6.2)

where

Y = dependent variable

X_i = independent variables

b_i = regression coefficients

C = constant term

$$i \quad = \quad 1, 2, 3, \ldots\ldots, n$$

b_i define the transformation ratio when the Xi's are of different magnitudes.

(ii) <u>Functional Forms</u>: Some of the more widely used functional forms and their properties are discussed below in terms of two or three variables.

Perhaps the most widely used functional form is the linear function which can be presented explicitly as follows:

$$Y \quad = C_o + a_1 x_1 + a_2 x_2 \quad \text{.. .. ..} \quad (6.3)$$

It is commonly used because of its simplicity and because it frequently fits the data.

The Cobb-Douglas power function is also widely used. Its functional form is explicitly presented as follows:

$$Y = C_o X_1^{c_1} \; X_2^{c_2}$$

$$\text{Log } Y \quad = C_o + C_1 \log X_1 + C_2 \log X_2 \quad \text{.. .. .. ..} \quad (6.4)$$

(Some writers refer to this as the logarithmic function).

The Cobb-Douglas power function is extensively used in estimating demand functions, and it is also widely used in estimating productions. The production function exhibits increasing, decreasing or constant returns to scale as

$$C_1 + C_2 \; > \; 1, \; C_1 + C_2 \; < 1, \text{ or } C_1 + C_2 \; = \; 1.$$

The Tobacco Processing Model

The major task of this section is to construct an econometric model for the tobacco processing industry. Such an econometric model is expected to portray the functional relationships between cigarette output and some selected inputs which are pertinent to cigarette production.

The Basic Model

The postulated relationship between the dependent and the selected independent variables can be implicitly presented in mathematical terms as follows:

$$Y = f(X_i, t/xj); \quad Vi = 1 - 4, \quad j = 5; \text{ in other words,}$$
$$Y = f(X_1, X_2, X_3, X_4, t/X_5)$$

where

Y = Number of cigarettes or units of black fat manufactured.

X_1 = Quantity of tobacco leaf available.

X_2 = Labour input cost.

X_3 = Excise tax.

X_4 = Other input costs.

X_5 = Size of manufacturing factory.

t = Time trend.

The Dependent Variable

Output of cigarettes or black fat is taken to be dependent variable. Though there are various brands of cigarettes produced, it is the total number of cigarettes or units of black fat manufactured in a year that is used in this study as the dependent variable.

The quantity of output will depend on the size of manufacturing factory, quantity of cured tobacco leaf available, labour costs and excise tax. Also the output will be influenced by the amount of delivery costs of raw materials used as well as industrial costs such as energy, repairs and maintenance costs.

The Independent Variables

(i) _Size of Manufacturing Factory_: This is an important variable and it is the number of cigarettes or units of black fat a manufacturing factory is capable of producing in a given year. There has, however, been no increase in the size of the three manufacturing factories during the period under consideration. The only way the NTC increased its production in 1973 was by increasing the number of production shifts from one to two per day. Since the capacities of the three firms are constant during 1965 - 1975, the size of manufacturing factory is being treated as a constant in the basic model.

(ii) <u>Quantity of tobacco leaf available</u>: This is another
important input variable. This is the total quantity of tobacco
leaf purchased in a given year plus that in store. From the
data collected in respect of the three firms, the proportion
of leaf in manufactured cigarette or black fat is above 97 per
cent. In like manner, the value of tobacco leaf constitutes
above 95 per cent of the raw materials costs. Hence, the quan-
tity of tobacco leaf available can be a reliable index of the
possible factory output in a given year. Tobacco leaf is
purchased in grades and it is the total quantity bought and
used in a year plus the cured quantity in store previously but
now used up that is utilized as the necessary variable in this
study.

(iii) <u>Labour Cost</u>: Labour is classified into two major
groups: (1) the professional/administrative/managerial group
and (2) the operatives(skilled and unskilled labour) group.

Usually, group (1) does not vary very significantly
with the level of output while group (2) varies visibly with
the level of output. The total cost of both groups is consi-
dered a labour variable in this study.

(iv) <u>Excise Tax</u>: This is the amount of tax paid on the
quantity of cigarettes or on units of black-fat manufactured in

a given year. The extent to which the rate of excise tax
restricts the quantity of cigarettes produced is the question
to be answered.

The NTC and Philip Morris (Nigeria) Limited paid tax while
PTC did not pay excise tax during the period under consideration
because PTC was an 'infant' industry then, and was understandably
exempted from paying such tax.

(v) <u>Time trend</u>: The time trend variable, t, is introduced
to take care of omitted and unquantifiable variables (like size
of factory, management, government effort in combating smuggling
of cigarettes into the country and cigarette prices over a
period of time). The inclusion of time trend reduces spurious-
ness in the included variables. $\sqrt{31\_7}$

The variation in the dependent variable not accounted for
by the variation in the independent variables could be attribu-
table to the time trend.

Other Input Costs

This is made up of inputs costs such as energy cost,
plant maintenance and other miscellaneous input cost. The
implicit form of the original model used for this regression
analysis was:

$$Y = f(X_{it}, U_t); \quad X_i = 1 - 3 \text{ or}$$

$$Y = f(X_1, X_2, X_{3-1}, U)$$

Where

Y = Quantity of cigarettes or black-fat manufactured.

X_1 = Average wage per labour.

X_2 = Average value per tonne of tobacco leaf.

X_{3-1} = Lagged excise tax per stick of cigarette.

U = error term.

For reference purposes this model will be denoted hereinafter as model (2) while the new model will be termed model (1). Variables such as other input costs and time trend were left out of the model. The definitions of the variables used then were as given below.

Quantity of cigarettes or black-fat manufactured

Output of cigarettes or black fat was also taken to be the dependent variable. The quantity of output was dependent on the current cost of labour, raw materials and the value of excise tax paid in the preceeding year.

Labour input cost

Labour was again classified into two major groups, namely:- (i) the professional/administrative/managerial group;

(ii) the operatives (skilled and unskilled labour) group.

Group (i) was treated as not varying significantly with the level of output since the number in this group remained fairly constant for the period under our analysis. Group (ii) was, however, observed to vary with the level of output; hence the average wage per labour (operatives) was considered as a good labour variable. The average wage was defined as follows:

$$\frac{\text{Total Wages}}{\text{Number of Operatives}} = \text{Average Wage}$$

Other variables like raw material cost and excise tax in the first model were defined similar to the same variables in the present model.

The explicit forms of the equations used in the regression analysis (model 2) are as follows:

Linear function

$$Y = a_0 + a_1 X_1 + a_2 X_2 + a_3 X_{3-1} \quad \cdots \quad \cdots \quad (6.5).$$

Cobb-Douglas Power Function

$$\text{Log } Y = a_0 + a_1 \log X_1 + a_2 \log X_2 + a_3 \log X_{3-1} \quad \cdots \quad (6.6).$$

where

Y, X_1, X_2, X_3 are as defined above, and the a's are

parameters.

The explicit forms of model (1) were given as follows:-

Linear Function

$$Y = a_o + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5 \qquad .. \quad .. \quad .. \quad (6.7)$$

Cobb-Douglas Power Function

$$\text{Log } Y = a_o + a_1\log X_1 + a_2\log X_2 + a_3\log X_3 + a_4\log X_4 + a_5\log X_5 \qquad .. \quad (6.8)$$

where,

Y, X_1, X_2, X_3, X_4, X_5, are as defined above, and the a's are

parameters.

The a's in equations 6.5 and 6.7 show the marginal productivities of individual independent variables. But in equations 6.6 and 6.8 they are the direct elasticities of production for the regression equation and thus represent the percentage increase in the output of Y for each one per cent increase in the input of respective resources, X_1.

In equations 6.6 and 6.8 if output increases by a greater percentage than inputs, the summation of the elasticities will be greater than one. But if output increases by the same rate as inputs, the elasticity is 1.0. Thirdly, it is possible to have a situation where the summation of elasticities is less than one. The first situation where $E > 1$ represents a condition of increasing returns to scale, situation two where $E = 1$ is one of

constant return to scale, and situation three where $E \angle 1$ is one of decreasing returns to scale.

The value of the coefficient of multiple determination (R^2), measures the percentage of the variance in the explained variable (Y) that is accounted for by the variance of all explanatory variables (X_i) in the regression equation taken in combination, for example R^2 measures the percentage of the total variance in Y that is explained by X_i. The higher the value of R^2 the higher percentage of variation in Y explained by the total variation in X_i. For instance, if $R^2 = 0.8453$, we say that approximately 85 per cent of the variation in Y can be explained by variation in X_i. The remaining 15 per cent of the variation in Y is not explained by the multiple regression equation.

The F-value measures the joint significance of the explanatory variables in the production function of the regression, while the t-value measures the significance of the individual explanatory variables.

Zero-order correlation coefficients between the variables included in the functions should not be beyond 0.80 which is the upper limit normally acceptable for this type of analysis. [23]

The criteria used in selecting the equations which best fit the data are the value of the multiple correlation coefficient (R^2), the significance of this R^2 using the F-test on it, the

significance of the various regression coefficients with respect to their corresponding t-ratios, and the appropriate sign of the parameters.

In view of the susceptibility of the time series data to auto-correlated errors, the residuals were calculated and the two equations for each firm were tested for serial correlation problems. The Durbin-Watson test /17/ was employed and the empirical results are presented below.

(d)   Empirical Results.

Two sets of results are presented below. The empirical results based on the first model (new) is presented first while that of the second (old) model is presented immediately after. In discussing the empirical results, certain important factors should be noted in connection with the expected signs of the parameters. Traditional production theory and previous studies on production functions for industries lead one to expect either positive or negative signs for X_1, X_2 and X_4 depending on the scale of production. Under a competitive market situation, X_3 is expected to be negative since an increase in excise tax is likely to reduce the quantity of cigarettes produced in a year.

(1) Production Functions for the Nigerian Tobacco
Company (Using Model 1)

Table 6.1 reveals a high performance of our model in terms
of the high values of R^2 for equations 6.7 and 6.8. The high
value of R^2 implies that the factors included as independent
variables are able to explain over 59 per cent of the variability
in cigarettes manufacture. Also the joint significance of the
explanatory variables is high since the F-test is significant
at 10 per cent level. But most of the individual regression
coefficients are not significant, even at the 50 per cent level.
The time trend takes account of the unexplained variation.

Because of suspected existence of multicollinearity between
the variables, a zero-order correlation matrix was computed and
the results obtained are presented in tables 6.2 and 6.3. A
critical look at these tables reveals that there are no major
serially-correlated errors between the independent variables.

Labour is observed to have the highest productivity level
(1.6049); while the quantity of tobacco leaf available has the
lowest productivity level (-1.1848). The elasticity of produc-
tion for equation 6.8 varies from 1.2315 for labour to -0.6873
for quantity of tobacco leaf. The implications and/or meanings
of the values and signs of these elasticity coefficients are that

Table 6.1:   Production Functions for Nigerian Tobacco Company (Model 1)

Equation	Dependent Variable	Constant term	Regression Coefficients					Computed R^2	Computed F-Value	Durbin Watson Statistics	Tabulated F-values and t-values at			
			Quantity of toba-cco leaf (X_1)	Wages (X_2)	Excise tax (X_3)	Other input costs (X_4)	Time trend (t) (t)				1%	5%	10%	50%
1. Linear Function	¥	1170.3	-1.1848 (0.1028)	1.6049 (0.5842)	-0.2799 (0.1947)	0.4398 (0.1654)	-2529 (0.2448)	0.9627	10.32*	1.1729	99.30 "2.998"	19.30 "1.875"	9.29 "1.415"	"0.711"
2. Cobb-Douglas Power Function	Y	5.1041	-0.6873 (0.1260)	1.2315 (0.1601)	-0.4878 (0.1432)	0.9087 (0.1737)	0.0203 (0.0093)	0.5925	0.58	0.9719	99.30 "2.998"	19.30 "1.415"	9.25 "1.415"	"0.711"

Figures in parenthesis represent the computed t-ratios .. .. (   )

Figures in quotation represent the tabulated   t-ratios .. ..   " "

For the F-Value:

* Denotes significance at the 10% level.

Table 6.2:   Nigerian Tobacco Company - Pair-wise Correlation

Coefficient (Linear Function)

(Model 1)

	Y	X_1	X_2	X_3	X_4	t
Y	1.00000					
X_1	0.94386	1.00000				
X_2	0.95019	0.90349	1.00000			
X_3	0.78046	0.92237	0.68524	1.00000		
X_4	0.88265	0.77098	0.81457	0.53078	1.00000	
t	0.72152	0.89273	0.75241	0.89377	0.46348	1.00000

Table 6.3: Nigerian Tobacco Company - Pair-wise Correlation
Coefficient (Power Function) (Model 1)

	Log Y	Log X_1	Log X_2	Log X_3	Log X_4	Log t
Log Y	1.00000					
Log X_1	0.93893	1.00000				
Log X_2	0.86260	0.82789	1.00000			
Log X_3	0.81763	0.94308	0.63026	1.00000		
Log X_4	0.64493	0.51912	0.48348	0.30018	1.00000	
Log t	0.72735	0.89079	0.67733	0.92677	0.15591	1.00000

the firm is labour-intensive; the more labour it uses the higher the labour productivity. The large stock of tobacco leaf kept in store every year could be responsible for the negative sign for the tobacco elasticity coefficient since the firm does not use all the tobacco leaf purchased in a year. A large proportion of the tobacco leaf purchased in a given year is kept in store for subsequent use.

The sum of elasticities is 0.9854, thus indicating that the firm is characterized by decreasing returns to scale. Hence, there is a limited scope for expansion of output on the current scale of operation.

(ii) Production Functions for Philip Morris (Nigeria) Limited
(Using Model 1)

The regression coefficients for equation 6.7 are left out of this analysis because of the unacceptable value of the coeffi-cient of multiple determination (1.0064).

Table 6.4 shows that most of the regression coefficients are not statistically significant. The value of R^2 is 0.9557 indicating that approximately 95 per cent of the variance in output could be explained by the factors included as independent variables in our model.

The significance of the explanatory variables (as indicated by t-ratio) shows that the coefficients of quantity of tobacco leaf is significant at 10 per cent level.

The value of calculated F-ratio is 12.94 and this is significant at 5 per cent level. This implies that the variables are jointly significant.

The zero order correlation matrix presented in table 6.5 shows that there are no serial correlation errors between the independent variables.

Considering the size of the coefficients for each factor, the quantity of tobacco leaf has the highest marginal value productivity. Wages have the lowest marginal value productivity and the sign is negative. This suggests that the company should cut down on the amount being spent on labour. This could be achieved by doing away with any section of the firm with inefficient labour.

The elasticities of production range from 0.9898 for tobacco leaf to -0.3658 for excise tax. The positive and high elasticity coefficients for labour and other input costs suggest the relative importance of the current price on the level of cigarette output.

Table 6.4:   Production Functions For Philip Morris (Nigeria) Ltd. (Model 1)

Equation	Dependent variable	Constant term	Regression Coefficient					R^2	Computed F-value	Durbin Watson Statistics	Tabulated F-value and t-value at			
			Quantity of tobacco leaf (X_1)	Wages (X_2)	Excise tax (X_3)	Other Input Costs (X_4)	Time trend (t)				1%	5%	10%	50%
Cobb-Douglas Power Function	Y	-.7567	0.9898 (1.4298)[+]	-0.1419 (0.0447)	-0.3658 (0.0206)	0.3243 (0.3062)	0.0071 (0.0066)	0.9557	12.94**	1.4049	28.24 "2.896"	9.01 "1.860"	5.31 "1.397"	"0.705"

Figures in parethesis represent the computed t-value   ..   ..   .. (   )

Figures in quotation represent the tabulated t-value   ..   ..   .. "   "

For the F-value:-

** denotes significance at the 5% level; and for the t-value

 + denotes significance at the 10% level.

Table 6.5: **Philip Morris (Nigeria) Ltd. - Pair-wise**
Correlation Coefficient (Power Function)

(Model 1)

	Log Y	Log X_1	Log X_2	Log X_3	Log X_4	Log t
Log Y	1.00000					
Log X_1	0.99581	1.00000				
Log X_2	0.92047	0.93528	1.00000			
Log X_3	0.98422	0.98777	0.97347	1.00000		
Log X_4	0.85690	0.83250	0.88829	0.89380	1.00000	
Log t	0.97359	0.96605	0.92441	0.97333	0.89923	1.00000

The sum of elasticities is 0.8155; therefore, the firm
is also characterized by decreasing returns to scale. Judging
from the results of this analysis, it seems that Philip Morris
(Nigeria) Limited also has limited scope for expansion of its
current output (not its market).

(:::) Production Function for Premier Tobacco Company (Model 1)

Results of empirical estimates of the firm show that the
value of R^2 in equations 6.7 and 6.8 explained 74 per cent and
97 per cent of the variation in the output of black-fat res-
pectively.

Being an infant establishment under the period covered in
this study, and because of the nature of its output it was
exempted from excise tax. A close look at these results
suggests a poor fit of the data from this firm into the model
in terms of statistical tests of significance. The t-ratios
for the regression coefficients are not significant even at
50 per cent level.

The zero order correlation matrix presented in tables 6.7
and 6.8 indicate no serially correlated errors between the inde-
pendent variables. The marginal value productivity is highest
for the quantity of tobacco while that of other input costs is
lowest (0.0012).

Table 1.3:   Value Added by Tobacco Industrial Enterprises

(1963 - 1973)

Year	No. of Establishments	No. of Labour Employed	Wages and Salaries (₦'000)	Gross Output (₦'000)	Industrial Cost (₦'000)	Value Added (₦'000)	Net Capital Expenditure (₦'000)	Non-Industrial Costs (₦'000)
1962	12	2,550	650	14,697	5,736	8,961	2,183	-
1963	10	1,652	459	11,855	3,558	8,297	1,513	76
1964	11	2,556	707	14,465	4,233	10,232	566	6,535
1965	9	2,563	929	16,014	4,231	11,783	456	7,254
1966	8	2,480	880	13,596	3,846	9,750	619	6,426
1967	8	2,529	982	14,309	3,854	10,456	455	6,867
1968	8	3,026	1,267	12,399	3,881	8,518	718	10,133
1969	4	2,330	966	12,382	3,339	9,043	582	-
1970	4	3,170	1,135	22,143	4,878	17,266	511	14,512
1971	5	4,228	2,587	28,342	6,860	21,482	1,013	16,436
1972	5	4,188	5,219	57,353	14,212	43,141	3,003	33,006
1973	3	4,200	6,375	57,908	12,310	45,597	1,830	33,862

Source: Industrial Statistics, Federal Office of Statistics, Lagos, 1976.

Table 6.6: Production Functions for Premier Tobacco Company (Model 1)

Equation	Dependent Variable	Constant term	Quantity of tobacco leaf (X_1)	Wages (X_2)	Excise tax (X_3)	Other input costs (X_4)	Time trend	R^2	Computed F-value	Durbin Watson statistics	Tabulated F-value and t-value at			
											1%	5%	10%	50%
1. Linear Function	Y	0.3230	0.0022 (0.2789)	0.0037 (0.0667)	–	0.0012 (0.0002)	51.441 (0.3760)	.0.7444	0.73	1.1606	5,625 "3.365"	225 "2.015"	55.83 "1.476"	"0.727"
2. Cobb-Douglas Power Function	Y	1.3335	0.3697 (0.4359)	0.1650 (0.4111)	–	0.1696 (0.5599)	0.2816 (1.3542)	0.9667	7.25	2.0094	5,625 "3.365"	225 "2.015"	55.83 "1.476"	"0.727"

Figures in parenthesis represent the computed t-values .. .. .. ( )

Figures in quotation represent the tabulated t-values .. .. .. " "

Table 6.7: Premier Tobacco Company - Pairwise Correlation

Coefficient: (Linear Function)(Model 1)

	Y	X_1	X_2	X_4	t
Y	1.000000				
X_1	0.90739	1.000000			
X_2	0.76680	0.94834	1.000000		
X_4	0.60005	0.32230	0.18394	1.000000	
t	0.99194	0.87286	0.74519	0.65088	1.000000

Table 6.8: Premier Tobacco Company - Pairwise Correlation

Coefficient: (Power Function)(Model 1)

	Log Y	Log X_1	Log X_2	Log X_4	Log t
Log Y	1.000000				
Log X_1	0.85456	1.000000			
Log X_2	0.64977	0.27597	1.000000		
Log X_4	0.79524	0.45091	0.62015	1.000000	
Log t	0.79296	0.46977	0.63581	0.43407	1.000000

The elasticities of production for equation 6.8 range from 0.1650 for labour to 0.3697 for quantity of tobacco leaf. These factors are thus suggestedly inelastic. The sum of elasticities is 0.9859. It suggests decreasing returns to scale for this firm, hence PTC also seems to have a limited scope for expanding its tobacco processing operations. Using this result it means that if all resources used for cigarettes manufacture are increased by 1 per cent, the value of output is increased by 0.9859 per cent. In other words, each unit of resources, on the average will add a lesser quantity of output than the previous unit.

Overall the foregoing analysis shows that the two equations are good for projection but not sufficiently adequate for prediction bearing in mind the significance of the individual regression coefficients.

(iv) Production Function for the Nigerian Tobacco Company

(Using Model 2)

Table 6.9 reveals a high performance of our model in terms of the high values of R^2 for equations 6.5 and 6.6. The high value of R^2 implies that the factors included as independent variables are able to explain over 60 per cent of the variability

in cigarettes manufacture. Also, most of the regression coeffi-
cients are statistically significant at 5 per cent level.

Judging from the significance of the independent variables,
the value of cured tobacco leaf plays a significant role in   -
explaining the variation in cigarette output since t-test shows
that it is highly significant at 1 per cent and 5 per cent levels.

Because of suspected existence of multicollinearity between
the variables, a zero order correlation matrix was computed and
the results obtained are presented in tables 6.10 and 6.11. A
critical look at this table reveals that there are no major
serially correlated errors between the independent variables.

Next we considered the size of the coefficients for each
factor (a's). Labour has the highest productivity level (1.3463);
whilst raw material variable has 0.0651 and the excise tax variable
was -0.0977. The elasticity of production for the two equations
varies from 0.1603 for labour to -0.5158 for excise tax. The
negative sign for excise tax elasticity coefficient is understand-
able since the greater the output, the greater the disincentive
on cigarettes manufacture. The positive but very small elasti-
city coefficients for labour and raw material suggests the use of
these inputs at a relatively efficient stage of production (stage II).

Table 6.9: Production Function for Nigerian Tobacco Company (Model 2)

	Dependent variable	Constant term	Regression Coefficients			R^2	Computed F-value	Durbin Watson Statistics	Tabulated F-values and t-values at		
			Wages (X_1)	Cost of tobacco leaf (X_2)	Excise tax $(X_3 - 1)$				1%	5%	10%
1. Linear Function	Y	807.80	1.3463 (1.440)+	0.0651 (5.7933)+++	-0.0977 (0.9486)	0.7047	3.18	1.716	16.69 "2.998"	6.59 "1.895"	4.19 "1.415"
2. Cobb-Douglas Function	Y	1.16	0.1603 (0.5869)	0.1276 (1.9555)++	-0.5158 (1.4256)+	0.6049	2.04	1.720	16.69 "2.998"	6.59 "1.895"	4.19 "1.415"

Figures in parenthesis represent the computed t-values .. .. .. (   )

Figures in quotation represent tabulated t-values .. .. .. "   "

F-value	t-value
***Significant at 1% level	+++ significant at 1% level
**Significant at 5% level	++ significant at 5% level
*Significant at 10% level	+ significant at 10% level.

Table 6.10: Nigerian Tobacco Company - Pairwise Correlation

Coefficients: (Linear Function)

(Model 2)

	Y	X_1	X_2	$X_3 - 1$
Y	1.000000			
X_1	0.78583	1.000000		
X_2	0.74855	0.85884	1.000000	
X_3-1	0.61605	0.44879	0.58679	1.000000

Table 6.11: Nigerian Tobacco Company - Pairwise Correlation

Coefficients: (Power Function)

(Model 2)

	Log Y	Log X_1	Log X_2	Log $X_3 - 1$
Log Y	1.000000			
Log X_1	0.57681	1.000000		
Log X_2	0.59976	0.71657	1.000000	
LogX_3-1	0.72015	0.44347	0.57259	1.000000

The sum of elasticities for equation 6.6 is 0.8037 thus indicating that the firm is characterized by decreasing returns to scale.

From the analysis it seems that there is very limited scope for expansion of output on the present scale of operation of the firm.

(v) Production Function for Phillip Morris (Nigeria) Limited (Using Model 2)

Table 6.12 shows that most of the regression coefficients are statistically significant at either 1 per cent or 5 per cent level. In equations 6.5 and 6.6 the values of R^2 are 0.9871 and 0.8984 respectively thus indicating that approximately more than 90 per cent of the variance in output could be explained by the factors included as independent variables in our model.

The significance of the explanatory variables (as indicated by t-ratio) shows that the coefficients of labour and raw material are significant at 1 per cent for equation 6.5 and they are respectively significant at 1 per cent and 5 per cent levels in equation 6.6. The coefficients of excise tax are not significant in the two equations.

The values of calculated F-ratios are 102.2 and 11.79 for

the two equations respectively. These are significant at 1 per cent level. This implies that the variables are jointly signifi- cant in output of the tobacco processing firm.

The zero order correlation matrix presented in tables 6.13 and 6.14 shows that there are no serial correlation errors between the independent variables.

Judging from the size of the coefficients for each factor, labour has 0.4958 and 0.38361 for equations 6.5 and 6.6 res- pectively. Similarly raw material variable has coefficients of 0.3233 and 0.3117 for the two equations while excise tax has negative values (-0.10055 and -0.62166) for the two equations respectively. The marginal value productivity of labour and that of cured tobacco leaf in equation 6.5 are very high and they have positive signs as expected.

The elasticities of production for equation 6.6 ranged from 0.3836 for labour to -0.2842 for excise tax. The positive and high elasticity coefficients for labour and raw material suggests the relative important effect of the current price on the level of cigarettes output. The sum of elasticities of equation 6.6 is 0.9054. Therefore, the firm is characterized by decreasing returns of scale.

Table 6.12: Production Functions for Philip Morris (Nigeria) Limited (Model 2)

Equation	Dependent variable	Constant term	Regression Coefficients			R^2	Computed F-value	Durbin Watson Statistics	Tabulated F-values and t-values at		
			Wages (X_1)	Cost of cured tobacco leaf (X_2)	Excise tax $(X_3 - 1)$				1%	5%	10%
1. Linear Function	Y	621.22	0.4958 $(3.5480)^{+++}$	0.3233 $(2.1775)^{+++}$	-0.1006 (0.9330)	0.9871	102.2***	2.375	16.69 "2.998"	6.59 "1.895"	4.19 "1.415"
2. Cobb-Douglas Function (Power)	Y	4.0313	0.3836 $(3.177)^{+++}$	0.3117 $(1.8877)^{++}$	-0.2842 (0.73151)	0.8984	11.79***	1.446	16.69 "2.998"	6.59 "1.895"	4.19 "1.415"

Figures in parenthesis represent the computed t-values .. .. (   )

Figures in quotation represent the tabulated t-values .. .. "   "

F-value	t-value
*** Significant at 1% level	+++ Significant at 1% level.
** Significant at 5% level	++ Significant at 5% level.
* Significant at 10% level	+ Significant at 10% level.

Table 6.13: Philip Morris (Nigeria) Limited - Pair-wise

Correlation Coefficients

(Linear Function), (Model 2)

	Y	X_1	X_2	$X_3 - 1$
Y	1.00000			
X_1	0.94866	1.00000		
X_2	-0.30997	-0.02182	1.00000	
$X_3 - 1$	0.85872	0.71689	-0.06206	1.00000

Table 6.14: Philip Morris (Nigeria) Limited - Pair-wise

Correlation Coefficients

(Power Function), Model 2)

	Y	Log X_1	Log X_2	Log X_3-1
Log Y	1.00000			
Log X_1	0.89744	1.00000		
Log X_2	-0.33483	-0.05973	1.00000	
Log X_3-1	0.77170	0.88543	-0.15863	1.00000

Judging from the results of this analysis, it seems that Philip Morris (Nigeria) Limited also has limited scope for expansion of its current cigarettes manufacture.

(vi) Production Function for Premier Tobacco Company

(Using Model 2)

Results of empirical estimates of the firm show that the values of R^2 in equations 6.5 and 6.6 explained 87 per cent and 93 per cent of the variation in the output of black fat respectively. A close look at these results shows a good performance of our model in terms of the statistical tests of significance. The t-ratios for the coefficients of labour and raw material were significant at 1 per cent and 5 per cent levels respectively.

The values of computed F-ratios were significant at 5 per cent level whilst the zero order correlation matrix presented in table 6.16 and 6.17 indicates no serially correlated errors between the independent variables. In equation 6.5 the marginal value productivity of tobacco leaf is much higher than that of labour (1.2863 > 0.0933).

Table 6.15: Production Functions for Premier Tobacco Company, (Model 2)

Equation	Dependent Variable	Constant term	Regression Coefficients			R^2	Computed F-value	Durbin Watson Statistics	Tabulated F-values and t-values at		
			Wages (X_1)	Cost of cured tobacco leaf (X_2)	Excise tax (X_3-1)				1%	5%	10%
1. Linear Function	Y	0.38987	0.0938 (3.9000)[+++]	1.2863 (2.7656)[+++]	-	0.8703	10.07**	3.0339	30.82 "3.365"	9.55 "2.015"	5.46 "1.476"
2. Cobb-Douglass Function (Power)	Y	0.21350	0.4759 (3.7525)[+++]	0.4616 (3.6157)[+++]	-	0.9261	18.79**	3.2738	30.82 "3.365"	9.55 "2.015"	5.46 "1.4767"

Figures in parenthesis represent the computed t-values .. .. .. (   )

Figures in quotation represent the tabulated t-values .. .. .. "   "

F-value
*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level.

t-value
+++ Significant at 1% level.
++ Significant at 5% level.
+ Significant at 10% level.

Table 6.16: Premier Tobacco Company - Pair-wise Correlation
Coefficients (Linear Function, Model 2).

	Y	X_1	X_2
Y	1.00000		
X_1	0.73466	1.00000	
X_2	0.46141	-0.14617	1.00000

Table 6.17: Premier Tobacco Company - Pair-wise Correlation
Coefficients (Power Function, Model 2).

	Log Y	Log X_1	Log X_2
Log Y	1.00000		
Log X_1	0.77710	1.00000	
Log X_2	0.52137	-0.05827	1.00000

The elasticities of production for the two equations are
fairly high. They are 0.4759 for wages and 0.4616 for the cost
of cured tobacco leaf. These coefficients are inelastic in
magnitude. The sum of elasticities for the equation is 0.9375.
This value suggests decreasing returns to scale for this firm
hence PTC has a limited scope for expanding its tobacco proce-
ssing operations under existing scale of operation. Using this
result it means that if all resources used for cigarettes manufac-
ture are increased by 1 per cent, the value of output is increased
by 0.9375 per cent for equation 6.6. Each unit of resources, on
the average will add a lesser quantity of output than the
previous unit.

CHAPTER VII

SUMMARY AND CONCLUSIONS

(a) Summary of Major Findings

This study was undertaken for the purpose of assessing
the economic performance of the tobacco processing industry in
Western and Kwara States of Nigeria.

Chapter one discusses the economic importance of Tobacco
Processing Industry to the Nigerian economy. The discussion
covers tobacco as an import-substituting industry; and its role
in generating substantial revenue in form of excise duties and
profit taxes to the Federal Government. This chapter also
covers a review of previous studies on tobacco industry. It
was clear from this review that none of the previous studies
focussed attention on the economic appraisal of tobacco pro-
cessing firms.

This study covered Western and Kwara States because
Western State is the major cigarette producing area of the
country. In fact, tobacco processing in Nigeria started at
Oshogbo in Western State in 1934. By the year 1976, two of the
three firms in the industry were located in Western State; whilst
the remaining firm was located in Kwara State.

The three firms selected for this study are Nigerian
Tobacco Company (Ltd.); Philip Morris and Premier Tobacco
Company.

NTC is a public limited liability company whilst Philip
Morris and the Premier Tobacco Company are private limited
liability companies.

In terms of capital investment and scale of operation,
NTC is the largest of the three firms. Philip Morris ranks
second whilst PTC is the smallest.

At the time of survey, over 60 per cent of the paid-up
capital of NTC and Philip Morris were contributed by non-
Nigerians and this was the primary reason why the bulk of
returns on paid-up capital were distributed outside the country.

A good and common feature of these firms is that the
number of expatriates among the professional cadres were gra-
dually being replaced by Nigerians; a situation which conforms
with the nation's policy of indigenisation.

In chapter three, some technical aspects of tobacco leaf
production and the different technological processes involved
in tobacco products manufacture were discussed. The analysis of
this chapter indicated that processing of tobacco into cigarettes
differs from that of blackfat manufacture. This chapter also

discussed marketing of cigarettes and blackfat. It is revealed
that the distribution of cigarettes was entirely in the hands
of Nigerian businessmen and women, who are the main wholesalers
and retailers for these products. The system of using Nigerian
distributors was established in 1962 (by the NTC) with the
objective of getting cigarettes to the smoker. At present about
75 per cent of the blackfat manufacture are distributed in
export market, whilst the remaining 25 per cent is marketed
domestically.

A detailed analysis of costs and returns of the three
firms was undertaken in chapter four. It was noted that cost
items varied with size of each firm or the scale of its operation.
Detailed item of costs analysed included cost of raw materials,
excise taxes, labour cost and miscellaneous items.

The gross returns of each firm consisted of its total
value of sales whilst the net returns (or profit) was the diffe-
rence between gross returns and the total cost. For the period
under review (1972-73), the NTC and Philip Morris recorded
positive net returns, whilst the Premier Tobacco Company
recorded negative net returns. The negative net returns obtained
by Premier Tobacco Company in 1972 was largely due to the low
level of operation of this firm.

A detailed financial analysis of tobacco processing firms
was undertaken in chapter five. This involved the determination
of profitability ratios, liquidity ratios and solvency ratios
for the three firms. The results indicated that the three
firms were in good financial positions as indicated by their
liquidity ratios and their solvency ratios.

In chapter six, regression analysis was used in estima-
ting the cigarette production function. Both linear and power
functions were tried and both functions performed well. The
results of the regression analysis showed that both raw material
input and labour input were the major determinants of cigarettes
manufacture.

(b) Limitations of the Study

A major limitation of this study is the reliability of
data collected from the Federal Office of Statistics, (FOS)
Lagos. Unreliability of the data emanated from the fact that
these data were obtained mainly from returns of individual
firms filed with FOS annually. Since there are high chances
of errors with the FOS data, caution should be exercised in
interpreting the results of this analysis.

(c) <u>Policy Implication and Recommendations</u>

The results of this study provided some useful information on input-output relationships in tobacco industry. From the foregoing analysis, it is clear that NTC and Philip Morris firms were operating at a level of decreasing returns to scale - that is a situation in which successive application of inputs yields a lesser increase in production than the application just pre-ceeding. Based on these results it has been recommended that these firms can expand output rationally only by changing the scale of production. In performing this task, both the Federal Government and the three firms have some roles to play.

(i) <u>Government's Role</u>

The inflationary pressure in the country has created considerable problems for the industry. Wages for hired labour have increased to unprecedented levels and prices of other inputs, especially prices of cured tobacco leaves are sky-rocketing. Yet the selling prices of most brands of cigarettes have not been increased substantially. In order to meet the increasing demands for cigarettes in the country, the Federal Government through the Price Control Board, should permit some increase in the selling prices of cigarettes. If this is done,

the companies would be able to increase the profit position before tax and therefore generate more dividend for expansion. Furthermore, by improving their profit before tax position, the companies would be able to pay more taxes to the government, and thereby provide more revenue to the government.

The government should also put more efforts into curbing smuggling of foreign cigarettes into the country. In an effort to encourage rapid growth of tobacco industry, the Federal Government has put a total ban on importation of cigarettes into the country. However, in anticipation of large profits, some people are circumventing the system by smuggling cigarettes into the country. The fortunes of the tobacco companies have been ebbing since the late sixties when smuggling of cigarettes into the country started to assume alarming proportions.

Today except in large supermarkets and major hotels, every other stall around including itinerant hawkers sell smuggled cigarettes openly. The result has been some loss of revenue to the government. This was why NTC and of recent, Philip Morris have found it difficult to expand and employ more Nigerian workers.

Thus inflation and smuggling are the major problems affec-ting the growth and expansion of tobacco industry. These

problems deserve immediate action on the part of the government.

(ii) Manufacturers' Role

One will obviously appreciate that the Nigerian farmers who currently grow more than 95 per cent of the total tobacco requirements for the manufacture of cigarettes and blackfat are in no way insulated from the effects of inflation which has raised the cost of virtually all commodities in Nigeria.

A major strategy of lessening the inflationary squeeze on the farmers is for the tobacco companies to increase the price of tobacco purchased from the farmers. To do this however, requires the government to first restrain its controls on the companies in the industry, because at one end of the scale, all their selling prices are controlled by the Price Control Board whilst at the other end the Customs and Excise, and Taxation authorities take off a large part of the total value of their sales. When this occurs at a time of high inflation on manufacturing costs, the consequences are grave on the profit position of the firms.

On Nigerian participation in the companies, only in Premier Tobacco are Nigerians having more than 50 per cent of its share capital. The foreign partners and non-resident stockholders have about 60 per cent of the share capital in each of the other two

companies. Therefore, the two companies should as a matter of
policy allow more participation of Nigerians by offering them
more subscriptions of stock Units. The indigenisation of share
capital should at least rise to 50 per cent equity holding.

The three companies have fared well as far as Nigeriani-
sation policy in respect of labour employment is concerned.
There has been reduction in the number of expatriate managers
between 1965 and 1974 in each of the firms. On the other hand,
there has been considerable increase in the number of Nigerian
managers during the same period. A good proportion of the
companies' Nigerian staff now hold senior managerial positions.

On the whole, the industry provides direct employment for
over 4,000 Nigerians whose knowledge, skill and loyalty have
made the industry what it is, and whose efforts are helping the
the industry to play a major role in Nigerian's industrial
development.

(d) General Conclusions

In conclusion, it should be stressed that tobacco pro-
cessing industry has limited scope for expansion under the
present scale of operation since there is tendency towards
decreasing returns to scale in the industry. Therefore, the

future expansion of tobacco industry in Nigeria depends both
on government and on the firms. Government should relax its
control on price setting and tariff on the products; but con-
tinue its application of protective measures such as total ban
on importation of cigarettes and the curbing of cigarettes
smuggling into the country. The firms can operate on a larger
scale of production if sufficient incentive is provided for
farmers to grow more tobacco leaves. The increase in scale of
operation is likely to be beneficial to the firms by increasing
their profit positions; it is also likely to provide additional
employment for Nigerians within the industry, and generate more
revenues to the government through excise taxes.

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A P P E N D I X

Q U E S T I O N N A I R E

Name of Firm _____   Date _____

Location (Town/City) _____

Date of Establishment _____

Officer interviewed _____ Position _____

I. GENERAL

1 (a)   When was this firm started? _____

   (b)   When was production started? _____

   (c)   What form of business is it? _____

                (i) Public _____

                (ii) Private _____

                (iii) Public and Private _____

   (d)   (i) If the firm is a public company, what is the number

             of stockholders by the end of 1975? _____

          (ii) What is the value of issued and paid up capital

               by the end of 1975? _____

   (e) Name the other branches/businesses owned by the owners

       of this company _____

2(a) How much land is available for the use of this firm _____

     acres/or length _____ X breadth _____

(b) How did you acquire the land for the site?

       (i) By lease _____ at ₦_____ per annum.

      (ii) Outright purchase at ₦_____

     (iii) Gift _____

     (iv) Compulsory government acquisition_____

          with ₦ _____ compensation.

      (v) Others _____ (specify) _____

3. Why did you select this site for your business?

    (i) Availability of cheap labour supply _____

   (ii) Close to the source of raw materials _____

  (iii) Presence of large consumer market _____

  (iv) Availability of electricity or water _____

   (v) Availability of access roads, rails, seaport, etc._____

  (vi) Only place where land is available _____

 (vii) Government recommended it _____

(viii) Others (specify) _____

4. What type of tobacco cured leaf do you produce?

  (a) Air cured _____

  (b) Light air cured _____

  (c) Flue cured _____

  (d) Fat tobacco _____

 (e) Others (specify) _____

5. Tobacco Green Leaf Production.

	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960
Production (lbs)																
Total Acreage grown																
Yield per acre																
No. of Farmers																
No. of Units*																

*There are two types of units each depending on type of barn:

(i) 2-4 farmers in a group (Mark III barn for 3 acre-tobacco).

(ii) 5-7 farmers in a group (Mark V barn for 5 acre-tobacco).

II. INVESTMENT.

4. (a) What was the initial total investment in this

business? ₦ _____

(b) What is the current total investment?

₦ _____

5. What are the sources of this capital investment?

(i) Government ₦ _____

(ii) Foreign investment ₦ _____

(iii) Loan from commercial banks ₦ _____

Credit Corporation ₦ _____

(iv) Retained earnings ₦ _____

Sales of Shares ₦ _____

(v) Others (specify) _____

6. Please indicate the cost of your buildings and other

permanent structures, giving year of construction.

Building/Structure*	Year of Construction	Estimated Cost(₦)

*These include office space, factory, processing house, Stores,
Depots, Workshops, Laboratories, Fences (wire or wall) concrete
slabs etc. Respondent to categorize these himself.

7. (a) Give the up-to-date total investment in equipment

₦ _____

Type of Equipment* and Make	Year of Purchase	Purchase Price (₦)	Estimated Remaining Life(Yrs)	Annual Repair/ Maintenance Costs (₦)	Annual Insurance Costs (₦)	Annual Fuel Consump- tion	Annual Oil Consumption	Estimated Annual Use (Hrs. of Use)

*If sold during the year, Price ₦_____

7 (c) How much did you spend on fuel, oil, electricity

and insurance in

Year	Fuel		Oil		Electricity		Insurance
	Liters	(₦)	Liters	(₦)	Units	(₦)	(₦)
1975							
1974							
1973							
1972							
1971							
1970							
1969							
1968							
1967							
1966							
1965							
1964							
1963							
1962							
1961							
1960							
1959							
1958							
1957							
1956							
1955							
1954							
1953							
1952							
1951							

III.   LABOUR

8 (a)   Into what categories do you classify your workers?

e.g. Clerical, Technical, Administrative,

Managerial, Skilled, Unskilled etc. (specify)

(i) _____

(ii) _____

(iii) _____

(iv) _____

(v) _____

(vi) _____

(b) How many workers did you have under each listed above?

CATEGORY	19 75	19 74	19 73	19 72	19 71	19 70	19 69	19 68	19 67	19 66	19 65	19 64	19 63	19 62	19 61	19 60
(i)																
(ii)																
(iii)																
(iv)																
(v)																
(vi)																

9. How many shifts do you run per day?

Only one starting _____ a.m. and ending _____ p.m.

Two (Starting _____ ending _____
    (
    (Starting _____ ending _____

      (Starting _____ ending _____
Three (
      (Starting _____ ending _____
      (
      (Starting _____ ending _____

10 (a) What were the wage rates for the categories of workers

listed in 8 (a)?

Category	(1974 wage rate) Pre-Udoji	Present wage rate
(i)		
(ii)		
(iii)		
(iv)		
(v)		
(vi)		

10 (b) How much did you spend on total wages and salaries in:-

1975 ₦ _____	1968 ₦ _____	1959 ₦ _____
1974 ₦ _____	1967 _____	1958 ₦ _____
1973 _____	1966 _____	1957 _____
1972 _____	1965 _____	1956 _____
1971 _____	1964 _____	1955 _____
1970 _____	1963 _____	1954 _____
1969 _____	1962 _____	1953 _____
	1961 _____	1952 _____
	1960 _____	1951 _____

(c) How many employees are Nigerians, non-Nigerians?

	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965
Nigerians											
Non-Nigerians											

11. What are the main problems you have had regarding labour in this business?

    (i) Rapid turnover (i.e. frequent resignation) _____

    (ii) Frequent strike actions/work-to-rule/go-slow _____

    (iii) Shortage of skilled workers; what kind of skill? ____

    (iv) Low productivity or efficiency _____

    (v)   Others (specify) _____

12. Which of the following incentive programmes do you have for your employees?

Item	Total Cost (₦)				
	1975	1974	1973	1972	1971
i. Employers' NPF contribution					
ii. Private Pension Scheme					
iii. Medical Benefits (for employee & family)					
iv. Gifts of production					
v. Free or subsidized housing					
vi. Vocation allowance					
vii. Vehicle allowance					
viii. Housing loan scheme					
ix. Free lunch					
x. Canteen but no free food					
xi. Others (specify)					

13. How has the Udoji award affected

    (a) Your labour organisation? _____

    (b) Sales _____

    (c) Costs _____

IV. <u>RAW MATERIALS AND OTHER VARIABLE COSTS</u>

14. Please name your major materials giving the source, quantity,

    unit or total cost in 1974 and 1975.

Materials	Sources	Quantity Purchased (kg)		Unit or Total Cost (₦)	
		1974	1975	1974	1975

15. Give the total amount spent on transportation in

1975	₦ _____	1966	₦ _____	1959	₦ _____
1974	_____	1965	_____	1958	_____
1973	_____	1964	_____	1957	_____
1972	_____	1963	_____	1956	_____
1971	_____	1962	_____	1955	_____
1970	_____	1961	_____	1954	_____
1969	_____	1960	_____	1953	_____
1968	_____	1961	_____	1952	_____
1967	_____	1960	_____	1951	_____

16. Give the cost of each of the following:

Item	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956
(a) Insurance*																				
(b) Telephone and Postage																				
(c) Hired transport																				
(d) Advertising																				
(e) Consultancy fees																				
(f) Water																				
(g) Taxes																				
(h) Interest payments																				
(i) Others (specify)																				

*Excluding the insurance cost on equipments.

V. FINISHED PRODUCTS AND MARKETING

17. Name the finished products, total output and sale.

Product	1975		1974		1973	
	Total output	Total sales value	Total output	Total sales value	Total output	Total sales value
(a)						
(b)						
(c)						
(d)						
(e)						
(f)						
(g)						
(h)						
(i)						

18 (a)   What are your output and value for:

	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955
Total Output																					
Value																					

18 (b) To whom do you sell your products?

(i) Domestic buyers, approximate per cent

	% of 1975 Output	% of 1974 Output	% of 1973 Output	% of 1972 Output	% of 1971 Output
Government					
Other companies					
Other Distributors					
Appointed Agents					
Others (Specify)					

(ii) Foreign buyers, name them

a.					
b.					
c.					
d.					
e.					

18 (c) What is the number of your distributors and retailers for the following years:

	1975	1974	1973	1972	1971	1970	1969
Distributors							
Retailers							

19. What have been your major marketing problems so far?

    (a) Rising cost of production relative to selling price _____

    (b) Competition from other producers of our products _____

    (c) Competition from overseas producers of our products_____

    (d) Difficulties in collecting receivables _____

    (e) Local resistance to our product (consumers prefer the

        imported type) _____

    (f) Government product price controls _____

    (g) Increasing marketing costs _____

    (h) Others (specify) _____

20. What are the main problems facing your business expansion?

    (a) Lack of capital for additional investment _____

    (b) No demand for our finished products_____

    (c) Shortage of raw materials _____

    (d) Restriction on importation_____

    (e) Shortage of technical staff _____

    (f) Shortage of management personnel _____

    (g) Shortage of equipment repair/maintenance workers _____

    (h) Port congestion _____

    (i) Others (specify) _____

21. How do you set the prices of your products?

    (a) According to competitor's prices _____

(b) We apply unit cost plus a margin _____

(c) Government sets the price _____

(d) We adjust prices according to market information _____

(e) Others (specify) _____ _____

VI. MANAGERIAL FACTORS

22. (a) Do you have a market research department?

    Yes/No _____

(b) Do you carry out any research and development?

    Yes/No _____

(c) Do you consult any firm of business consultants?

    Yes/No _____

    If yes, who? _____

23. (a) Have you organised any in-service training for your

    employees?   Yes/No _____

(b) If yes, how many times? _____

24. (a) Have you tried to measure your workers labour

    productivity?   Yes/No _____

(b) How do you maintain product quality? _____

    _____

25. Is your firm cooperating with any other firm(s) in the

    industry with regards to:

(a) Procurement of raw materials? _____

(b) Joint processing/production? _____

(c) Marketing each other's products _____

26. Was your company exempted from taxes in 1975 as an infant

industry?   Yes/No _____

If no, what was your tax rate? _____ per cent.

27. Please give the value of your import and Excise duties in:

1975 ₦_____	1970 ₦_____	1965 ₦_____	1960 ₦_____
1974 ₦_____	1969 ₦_____	1964 _____	1959 _____
1973 _____	1968 _____	1963 _____	1958 _____
1972 _____	1967 _____	1962 _____	1957 _____
1971 _____	1966 _____	1961 _____	1956 _____

28 (a) What have been your problems since the indigenization decree

came into effect? _____

_____

_____

(b) Did your firm acquire any assets from another or others

as a result of this decree?   Yes/No _____

29. Please supply your management and staff organisational
    chart(s).

30. Please supply the Statement of Account/Balance Sheet of
    your business for 1975 and backwards (1935 - 1975).

31. Please supply any pamphlets, handouts etc. which provide
    details of your business - historical or operational.

32. Make any general comments you wish regarding your own
    business, the economy or other topics.

    _____

    _____

    _____

    _____

    _____