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A MULTISECTORAL CONSISTENCY PLANNING MODEL

[TECHNICAL REPORT PP93-08]

BY

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[STRICTLY FOR INTERNAL CIRCULATION WITHIN PROJECT IMPLEMENTATION TEAM]

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PREFACE

The implementation of this project involves collaboration between the National Planning Commission of the Presidency [NPC] as the Commissioning Agency; the United Nations Department of Economic and Social Development Programme [UNDESD], New York; the United Nations Development Programme [UNDP] Lagos; the Centre for World Food Studies [SOW-VU], Free University Amsterdam, Netherlands; and the Centre for Econometric and Allied Research, [CEAR], University of Ibadan, Ibadan, Nigeria.

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In 1992, five Technical Reports, [PP92-001 - PP92-005] were produced under the series. Documentation of CEAR's output in 1993 as a continuation of the series begins with Technical Paper No. PP93-01.

In this Technical Report [PP93-08], we present a revised version of Technical Report [PP92-004] which was presented at Project Seminar/Workshop held in Lagos in July 1992. This report represents a documentation of further work that has since taken place towards improving model specification, solution algorithm, and development of data base. As much as the refinement and fine tuning process would have to be undertaken on a continuing basis, we have been able to ascertain on the basis of simulation trial runs, its adequacy in handling the specific applications for which it was designed within the context of formulating the Perspective Plan.

Any shortcomings left in this Technical Report remain the sole responsibility of CEAR.

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A MULTISECTORAL CONSISTENCY PLANNING MODEL

1 Introduction

In this section, we examine in detail the characteristic features of the particular type of multisectoral consistency model we have chosen to implement for the specific purpose of this project. Our choice was guided by a number of considerations which are explained along with the presentation. Chief among these were the considerations of cost effectiveness of the resource inputs available within the time allocated, relevance to the Nigerian data situation; and robustness as well as flexibility in applications. The general considerations underlying our choice of model type are discussed further in the following section.

1.1 Model Characteristics for a Planning Context

We begin by outlining some of the characteristic features of the Nigerian economy that need to be taken into consideration in specifying a working model for planning purposes. The characteristic features described below do not by any means represent an exhaustive list, neither should they be thought of as features that would fit a prototype model. They are based on some of the observed features, which the structure and workings of the Nigerian economy appears to share with other developing African countries. It is to be expected that the extent to which each characteristic, can be given prominence, relative to the others, would vary between economies. This would have to be taken into account in specifying the structural equations for the Nigeria economy.

In general the Nigerian economy shares the following features with other developing African economies. First, the production, consumption and trade patterns are characterized by:

(a) Concentration of Agriculture in one, or at best a few commodities with high value added, such as cocoa, groundnut and palm produce, in the case of Nigeria.

(b) Domestic capital formation, dominated by public sector investment; fixed capital assets often concentrated in a few key sectors such as energy, infrastructure, transport and communication.

(c) An import substituting manufacturing sector concentrated on light manufacturing, and largely financed by foreign capital, through multinational corporation subsidiaries with a pronounced dependence on imported raw material inputs.

(d) The level and pace of modern sector economic activities being dictated largely by the ability to earn necessary foreign exchange to finance imports of machinery and raw materials.

(v) The dualism of the economy, with the large subsistence traditional sector dominated by peasant agriculture and cottage industries.

Given these general characteristics, one would expect the specification of a Klein-type model for a country like Nigeria for example, to put into consideration some of the following aspects. First one would expect the model to possess some of the features that should be emphasized in modelling developing countries in general. These include the need to take into account the weak data base; the dualism; income redistribution considerations; the rudimentary capital market; the debt relationships; the heavy reliance on imported inputs

and export of primary products; the presence of disguised unemployment, high level of inflation; and the need to emphasize supply side relationships [Klein, 1966; 1986].

Also in general, one would expect that a multisectoral disaggregation is more likely to be based on an input-output national income account sectoring of the economy into major activity sectors. For these, simple Leontief production relations would suffice in determining the level of output. In this scheme, the value added in one sector is likely to be adequately explained by the gross output in other sectors. We next turn to modelling economic activity in the key sectors.

2 Modelling Activities in the Key Sectors

2.1 Supply Side Equations

Agricultural Sector: Estimation of standard neo-classical production functions could run into difficult specification and estimation problems, due to unavailability of adequate data on labour and capital. However it should be quite feasible to estimate simple Leontief type production functions, in which a log-linear specification can be used to specify value added as a function of independent variables such as rainfall, acreage, fertilizer inputs, among others.

The Manufacturing Sector: Our limited experience in modelling the Nigerian economy has shown that standard Cobb-Douglas production function fits very well on available data in this sector.

Service Sectors: In the energy, transport and communication sectors, gross output and value added can be expressed as function of output in the directly productive sectors, in particular agriculture and manufacturing sectors, again using simple Leontief production functions.

Mining Sector: Value added in the mining sector often can be derived as a function of capital formation in mining, or sometimes as a function of gross output. Where there is a dominant single mineral such as petroleum, and where it is unlikely that the exports of such a commodity would have an infinitely elastic supply curve, income or demand in the importing countries, or variables such as prices at the international commodity market could serve as relevant explanatory variables for value added in such cases.

The Construction Sector: Value added in this sector, can be explained as a function of total capital formation and the general level of economic activity as indicated by the level of total GDP.

2.2 Demand Equations:

Consumption: The problem here is likely to be that of being able to obtain desired disaggregation of consumption into durables, non-durables or as between private and government consumption. Otherwise there should be no difficulty in specifying standard consumption function for both private and government consumption, taking into account the high marginal propensity to consume and import. Given the difficulty in determining the level of consumption of the non-formal traditional sector, and hence the magnitude of private consumption, it may sometimes be helpful to estimate total and government consumption, and obtain private consumption as a residual or as the difference between total and government consumption.

Investment: In most developing economies, Nigeria being no exception, emphasis is placed on government capital formation which is treated as a policy variable, especially in the allocation of total government investment expenditure between different sectors. Total investment or induced component of it, where distinction is made between autonomous and induced investment often can be derived as a function of government revenue or total disposable income.

Foreign Sector: Imports can be obtained as a function of the level of income or level of domestic activity and the level of exports with an appropriate lag of a year or two, while

exports can be obtained as a function of domestic productive capacity and export quantities, as opposed to activity variables or income in the importing countries. This would be a reasonable assumption to make for Nigeria for which the small country argument would apply.

2.3 Linkage with a Perspective Planning Model

As has been emphasized in the section preceding this, it is important that the Klein-type model be linked with a perspective planning model, for policy analysis emphasis as well as planning applications context. The purpose of the latter would be to cover the important aspects of the process of economic growth with supply side emphasis.

Here, there is a wide class of models capable of adaptation to long term or perspective planning needs. A survey by Manne contains an excellent summary of the various types which have found applications in actual planning situations (Manne, 1974). Classifying these by their solution techniques or implementation methodology, one may categorize them into broad categories viz, optimization models; consistency dynamic input-output models; static input-output models, optimal control models (linear and quadratic); multilevel programming models; strict linear programming models; linear quadratic optimal control models; optimization dynamic input-output models, mixed integer programming models and goal programming models. A careful consideration of these in relation to the context of the Nigerian economy would suggest that, the simple Leontief dynamic input-output consistency model as in Johansen (1960, 1974) and Longva et al. (1985) could be one of the simplest models whose implementation should be quite feasible regardless of our well

known poor data situation. We now proceed to describing some of the broad characteristics of this model.

In the model, provision can be made for covering the most important aspects of economic growth processes, with emphasis on explaining the factors responsible for economic growth - supply side components, especially population growth, capital formation and technical progress.

The interindustry transactions of the economy as represented in an I-O technological coefficient matrix forms the core of the model. Economic activities and economic units are classified into production sectors. Similarly output of goods and services are classified by origin or use, such as sectors for imports, exports, private consumption, government consumption, private investment, government capital formation and inventory. Classification of goods and services are carried out in such a way as to link classification of industries closely with the classification of commodities, making allowance for non-competitive imports. In addition to commodities, each production sector is assumed to absorb primary inputs that is labour, and capital. Simple Leontief functions are then used to aggregate the commodities and services into activity sectors.

Furthermore in specifying the model, close conceptual and empirical links are maintained with the country's system of national accounts. The parameters of the production and consumption sub-models can be estimated econometrically using national accounts time series data, while the fixed coefficients of the activities, that is the I-O coefficients are estimated from the national accounts for whatever base year is selected for

the model. These can be updated regularly often with the lag between the base year and the current year being determined by how frequently the latest I-0 table can be put together.

The resulting empirical solution would then ordinarily emphasize how the economy works, or alternatively the workings of the model as a tool in policy analyses for planning purposes. For more detailed discussion on this see CEAR (1989) monograph on the 1980 I-0 table of the Nigerian Economy.

2.4 Some Likely Implementation Constraints

The various efforts thus far to develop operational individual country Klein-type models for application purposes in developing countries have been inhibited by various types of problems, some of which may also be relevant, to the Nigerian situation.

(i) First among these is the wide spread problem regarding weak data base. The general lack of a strong statistical data base for comprehensive modelling is a common characteristic of virtually all developing African countries. The problem of course is not that the mass of information is not there. Rather the problem has to do with the absence, not necessarily at the Federal Office of Statistics, but in its primary data sources, of adequate well trained and experienced personnel with the know-how to translate the mass of data into usable form, on a consistent, continuous and systematic basis. There is the need to develop a consistent data gathering culture that will ensure that relevant socioeconomic Statistics required on a continuing basis for effective planning purposes are made available on a timely basis, and organized in such a way, that would readily be amenable to easy storage and retrieval when needed. This would of course require some substantial investment in

personnel training, and investment in data processing equipment, particularly computers, which at the moment are lacking in most primary sources. One is aware of the recent efforts made by the Federal Government the Ministry of Budget and Planning and the Federal Office of Statistics (FOS) in the establishment of a National Databank. On successful implementation and functioning, this problem is expected to be gradually resolved. Perhaps, the only foreseeable snag will be the relative unavailability of historical time series and cross-sectional data on important economic and social variables.

(ii) The second related problem is that of necessary computing hardware and software. Prior to the recent advancements in computing technology, especially in the area of software development to go along with the now ubiquitous and affordable Personal Computers (PCs), accessibility to regular computing facility was a major draw back to modelling and modelling applications in most African Countries. Quite until late 1986 there was no single PC in the ministry of finance and planning. This would hardly constitute any serious constraint to any major modelling effort both now and in the near future, given the increasing capacity of the highly affordable PCs to handle jobs, that were until recently the exclusive preserves of main frame computers only. The initial investment and servicing requirements of the latter were cumbersome or unaffordable.

The Centre for Econometric and Allied Research (CEAR) is adequately well equipped with respect to availability of personal computer hardware and software, possessing facilities for developing comprehensive and large models and for carrying out various kinds of analyses on large masses of data which may be derived from primary or secondary sources.

3 Basis for model type selection

3.1 The stage of development of the economy

First we considered the present stage of development of the Nigerian economy, and what the corresponding planning needs are likely to be. In our judgement, the planner, in a developing economy like Nigeria's given its present state of development, requires a framework whereby he would be able to test the consistency of alternative resource allocation programmes, and evaluate the trade-offs among key economic variables involved in the planning process, as a basis for choosing between policy alternatives. Multisectoral models have been found to be best suited to handling planning problems of this nature, compared with for example the highly aggregative models of the Harrod - Domar type. The emphasis in a multisectoral consistency model is placed on being able to assess the compatibility of key or critical aspects of a plan with other aspects, especially in relation to whatever social objectives the policy maker may want to achieve over the planning period. Such broad objectives may include; pursuit of self-reliance or reduction of excessive dependence on imports; Diversification of production base; a more equitable income distribution structure; or achieving greater role for the private vis-a-vis the public sector, or similar other objectives as may be set from time to time, as targets over a given plan period.

3.2 Consistency Consideration

One of the implications of the above consideration, for the choice of an appropriate model, is the need to select a model which allows for the highest possible level of sectoral

disaggregation, and which is able to bring out explicitly the extent of intersectoral interdependence existing in the economy.

For this purpose the framework that appears to lend itself readily to meeting this need, is a closed Leontief model, in which consumption vector and other demand elements along with the output vector, are solved for endogenously in a matrix inversion process, which allows us to calculate supply requirements as functions of exogenous demand. The system allows for great flexibility as policy variables can easily be converted into variables to be estimated endogenously or vice-versa. The more of the former we have, the more the model is regarded as closed as opposed to being open. In essence we focus on demand - supply balances along with whatever technical or behavioural relationships we may wish to include in the model. We are then able to examine the behaviour of the endogenous variables of the model in solution feed back loops, or in an iterative process, which aims at ensuring mutual consistency between such variables at convergence.

In other words we begin our specification with an open Leontief model and proceed to closing the model through interaction with the policy maker, whose judgement on the behaviour and specification of key policy instruments provides a basis for closing the model. To a large extent such interaction ensures that whatever policy assumptions are made, are close to behavioural or institutional reality as much as possible. This basic consistency solution may then be expanded or augmented, depending on the planners perception of the key problems within the economy, for which the model may be capable of providing a basis for analysing different, and relevant policy alternatives. Some of the considerations that provide a basis for closing the model would include, by way of illustration, some or all of the

following; i) employment generation consideration; ii) relieving balance-of-payments constraint; iii) Project choice for desired diversification of production base; iv) reducing dependence on imports; desired level of investment to achieve desired rates of growth; and v) import substitution strategy.

3.3 Feasibility Consideration - Supply Side:

A consistent plan does not necessarily guarantee feasibility from a macroeconomic point of view. It merely answers the mathematical or technical aspect of resource allocation problem in the planning process. It is quite possible to have a technically feasible development plan, that is a plan which is internally consistent, but which may not be feasible. To ensure feasibility, we have to introduce supply side considerations. Consequently our choice of model type is also partly guided by the need to select a framework which allows for explicit introduction of supply side considerations.

There are at least three possible alternative ways of introducing supply side considerations explicitly into the model, thereby providing for feasibility tests, in addition to consistency checks (Blitzer et al. 1975, p. 130);

(i) First, we may accomplish this by explicitly introducing an economy wide optimization model of the Static Linear Programming type or the dynamic programming type. We could then seek to optimize specified objective functions, subject to primary resource constraints being imposed on variables such as initial capital stock, savings, or labour supply and the like. A solution of the model would then enable us to evaluate the

economy's capacity to allocate resources consistently in order to satisfy given demand targets, subject to overall primary resource availability or supply capacity.

(ii) An alternative approach would be to convert the consistency Leontief model into a general equilibrium model, in which both demand and supply adjustments are made to attain equilibrium. Under the assumption that the economic agents operating within the economy respond to price signals, endogenous price determination becomes the mechanism for achieving such equilibrating adjustment process.

(iii) In a third option we could limit ourselves to a basic input-output model for carrying out simulation studies, but supplement this with direct communication between model builders and the major actors within the economy who formulate and assume responsibility for implementing policy. The aim of this kind of interaction could then be that of determining what particular set of simulation results are considered feasible. In other words determining what is feasible, becomes partly a technical consideration, and partly a value judgement consideration, depending on the policy maker's perception of how the economy works, and what the critical policy problems should be, again in relation to specified social objectives. The model solution process becomes an iterative process in which alternative simulations are obtained, subject to information supplied exogenously by the policy makers. This process continues until solution obtained conforms with what, in the policy maker's judgement would constitute a feasible programme. The planners would of course be expected to base their judgement on their observation of how both the private and public sectors would react to alternative plan proposals, or specific policies to be included in the plan. In the simulation process either a static I-0 or dynamic I-0 framework can be

employed, in tracing the structural changes that may be required to move from one set of targets to another, based on trade-offs between different policy alternatives. In the former we trace the process by mapping parametric variations of the static model for each given target year, whereas in the latter the model endogenously traces the time path, once required values of relevant exogenous variables and the initial values of the endogenous variables are supplied. The speed of convergence to what is considered feasible would then of course depend on the amount of relevant information the planner is able to provide at each stage of the recursive process in which we seek to increase social efficiency.

This particular approach may appear cumbersome, as it is very much likely to depend on intelligent guesses, which may render it less technically efficient, compared with other methods such as the optimizing models approach. However it has the obvious advantages of,

(a) being suited to situations where data paucity is a major constraining factor to developing and implementing more sophisticated models.

(b) Secondly it makes for increased participation of the policy maker in the plan formulation process.

(c) Thirdly such a multisectoral simulation model is more likely to be far cheaper to implement compared with optimization programming models, thereby allowing room for consideration of a wider range of policy options and alternatives, which cost and technical requirement considerations may reduce considerably if more sophisticated models were to be employed. Consequently they are likely to have a greater appeal to the average policy maker.

For the purpose of this study we have adopted a combination of alternatives (ii) and (iii); that is, in addition to expanding the basic input-output model into a general equilibrium model, in which prices are solved for endogenously as an allocative mechanism, allowance is also made for interactive iterative process, in which the policy maker's inputs and reactions will be crucial to determining what is considered to be an internally consistent and feasible, if not necessarily optimal development plan.

3.4 Optimality Considerations

Optimality considerations at the macro level often runs into the problem of how to define an appropriate societal objective function. In the real world we are likely to be wanting to optimize several goals, some of which may be conflicting. A dynamic iterative simulation model which we have adopted for this study provides a way of dealing with this problem. A satisficing approach, which emphasizes target or goal realization as opposed to global optimization approach can be adopted in handling what from the planner, policy maker's point of view, are key projects or policy goals as may be envisaged in a development programme. A dynamic simulation process can then be applied, to ensure that such satisficing projects or policy objectives are mutually consistent.

The input-output based planning model developed in this study provides a framework for carrying out both static as well as dynamic tests of feasibility, as a basis for selecting between alternative plan packages or development programmes. Unlike a classical linear programming model which is often too complicated and costly a routine to adopt effectively as a macro framework in a planning process, an input-output dynamic simulation model

should be relatively easier and less expensive to maintain. At the same time it offers greater flexibility in handling a wide variety of policy questions in the process of determining policy trade-offs, associated with tracing the structural changes that may be required to move from one set of targets or desired state of the economy unto another.

More often than not, the feasibility of a plan package can be judged from relatively simple computations made outside the model, based on results that can easily be extracted from the model. It should therefore be possible, using the type of multisectoral simulation model developed in this project for the Nigerian economy, to quickly work out a considerable number of alternative consistent plans at the lowest cost possible in terms of time, data, and computational cost requirements, as well as provide a relatively inexpensive even if not most efficient way of selecting between such consistent alternative plans.

3.5 Robustness Considerations

Another major argument in favour of developing a simulation multisectoral consistency model for the Nigerian economy is its flexibility and adaptability, which makes it applicable not only to long term, or perspective planning context only, but also to short-term and medium term planning, as may be found necessary. In other words it easily achieves the economy of providing a simple implementable framework, which makes for easy integration of the entire planning process, in which short term budgeting allocations would need to be harmonized with medium term resource allocation priorities, and which in turn should be dovetailed into longer term growth considerations. Supplementing a simulation multisectoral consistency model with other model types, such as medium-term econometric

models, further enhances this capability by widening the scope of the kind of questions for which model applications may be expected to provide answers.

4 **Model Specification**

In specifying the multisectoral simulation model for the Nigerian economy, emphasis is placed on the need to present an application oriented multisectoral macroeconomic model, that would be useful in analysing the structure of the economy and the quantification of economy wide effects of policies, and development planning strategies and scenarios. Particular attention has also been paid to the existing structure and institutions of the economy that are likely to remain for quite some time. Emphasis on feasibility under the prevailing data situation has considerably influenced the level of sophistication and complication of the model. Nevertheless, we are convinced that the model, in its present form, captures the essential features and workings of contemporary Nigerian economy, and it is capable of providing useful inputs into short-, medium- and long-term development plan formulation as well as ex-ante economy-wide policy impact analysis and measurements.

This by no means suggests that there is a single and unique way of specifying the structure and workings of the economy. The model adopted here happens to be a convenient one given the available data and information. In any case, as the economy further develops and its present structure changes, and, the data situation improves, the model can be modified and extended to take advantage of such developments.

The model, in its present form, belongs to a subset of the class of multisectoral macroeconomic models, in which the rental price of capital and wage rates do not necessarily correspond to those that would clear the capital and labour markets. The primary reason is that there is very little available empirical data to support the view point that there may be real world economies in which both wage rate and rental price of capital

are set by the free interplay of demand and supply forces. Moreover, the underlying assumption in models in which rental price of capital and wage rates are endogenized, namely, that the economy is operating at full employment level, may be quite unrealistic for an economy like Nigeria's, which is confronted with severe unemployment problems, and in which the financial capital constraints, particularly in naira terms, can always be relaxed by taking necessary monetary policy measures.

In addition, for a number of reasons the possibility of using endogenously determined and 'market clearing' wage rates and rental price of capital as guides for policy formulation may be quite remote in the Nigerian context. First, such a set of prices may be unacceptable in a society that aims at reducing income inequality while, at the same time, it is trying to reduce unemployment. Secondly, the discipline required in the area of monetary and fiscal policies are unlikely to be forthcoming. Thirdly, the structure of output consistent with 'market' prices may not be politically and socially acceptable. Finally, the institutional framework required for such prices to be realized is still quite weak. The Nigerian capital market is still rudimentary and, the economy is yet to be reasonably monetized, with the bulk of the labour force still outside the monetized modern sector.

Against this background, the main features of the model in which prices are basically cost determined are presented next. There, are seven blocks in the model, namely, production; household transactions; price formation; Government Transactions; Savings-Investment; Income allocation; and Current Account Balance blocks.

4.1 Definition of Variables and Parameters

The following variables are used in the model. Classification of each as exogenous or endogenous varies with the desired emphasis by the policy maker and this affects model solution.

All matrices are represented by single capital letters and all vectors by lower case letters. Scalars are given by either single Greek letters or a set of at least three capital letters.

I. Prices, Cost and Mark-ups:

p^T = 1 x n vector of sectoral market prices

p_r^T = 1 x n vector of sectoral prices of imported
intermediate inputs in foreign currency
(dollars per unit)

p^{*T} = 1 x n vector of producer prices

P^{-1} = n x n diagonal matrix of inverse of sectoral
market prices

c^T = 1 x n vector of sectoral per unit producers Cost

M = n x n diagonal matrix of sectoral per unit profit
mark-ups

H = n x n diagonal matrix of sectoral per unit
indirect tax mark-ups

II. Technological Coefficients:

A_d = $n \times n$ matrix of locally sourced intermediate inputs per unit of output

A_f = $n \times n$ matrix of imported intermediate inputs per unit of output

III. Rates:

w^T = $1 \times n$ vector of sectoral per unit wages

d^T = $1 \times n$ vector of sectoral per unit depreciation allowance

r_p^T = $1 \times n$ vector of sectoral per unit private operating surplus

r_g^T = $1 \times n$ vector of sectoral per unit government (oil revenue inclusive) operating surplus

r^T = $r_p^T + r_g^T$, $1 \times n$ vector of sectoral per unit total operating surplus

n^T = $1 \times n$ vector of sectoral per unit royalty

t^T = $1 \times n$ vector of sectoral per unit indirect taxes

IV. Magnitudes

q = $n \times 1$ vector of sectoral gross output

m^c = $n \times 1$ vector of real imports of finished goods and services by sectors

m^{nc} = $n \times 1$ vector of real sectoral imports of intermediate inputs and services by sectors

x = $n \times 1$ vector of real exports by sectors

g = $n \times 1$ vector of real government expenditures by sectors

- consr = $n \times 1$ vector of real sectoral consumption expenditure by sectors
 \mathbf{g}_0 = $n \times 1$ vector of real autonomous sectoral government expenditures by sectors
 i_t = $n \times 1$ vector of real investment in period t by sector

V. Other Coefficients (Proportions), Rates and Constants:

- γ = per unit duty on imported inputs
 λ = exchange rate (naira per dollar)
 θ = per unit duty on imports of finished goods
 = per unit duty on exports
 = proportion of dollar value of crude oil proceeds not monetized
 = direct tax rate
 η = proportion of excess of government revenue over autonomous expenditure allocated to induced government expenditures
 ρ = savings rate
 e = $n \times 1$ vector of sectoral government expenditures,
 s = $n \times 1$ vector of the sectoral expenditure shares
 v_t = $n \times 1$ vector of sectoral investment coefficient in period t
 f = $n \times 1$ vector of coefficient of sectoral final demand
 u^T = $1 \times n$ unit vector
 I = $n \times n$ identity matrix
 GBS_t = nominal government budget surplus in period t

GREV	=	nominal government revenue
CONS	=	total nominal consumption expenditure
TRANS	=	transfers (direct subsidies)
NPY	=	nominal private income
NSAV _t	=	nominal savings in period t
RINV _{t+1}	=	real investible funds in period t+1
GDP	=	nominal gross domestic product at factor cost
GPI	=	general price index
RGDP	=	real gross domestic product at factor cost
CAB	=	current account balance
GWB	=	total nominal government wage bill
COX	=	crude oil exports proceeds in dollars
DCG	=	domestic credit to government
FCG	=	foreign credit to government
TDC	=	total (domestic and foreign) debt charges

4.2 **Production Block**

Production relation is assumed to be of the Leontief type in which sectoral production can be described by the usual input-output balance equation. The familiar solution of the input-output model yields the level of sectoral output that is consistent with a specified level of final demand. By definition, final demand is composed of government consumption expenditure, private consumption expenditure, investment, exports and imports

of final goods. Within the model structure, three components of final demand have been somewhat endogenized. These are, government consumption expenditure, private consumption expenditure and investment expenditure.

Exports and imports of final goods are assumed exogenously determined. Due to data problems, it was not possible for us to endogenise sectoral imports of finished goods. We were unable to obtain sectoral disaggregation of import prices. Nigeria really fits the small country assumption in respect of most of her exports, except perhaps, in the case of crude oil. It is also clear that crude oil production and, hence, exports are exogenously determined. It, therefore, seems reasonable to assume that exports are exogenously determined.

It is common knowledge that production in all key sectors of the Nigerian economy is directly and/or indirectly dependent on imported inputs, especially raw materials. This feature of the Nigerian economy has made foreign exchange availability quite a major and a binding constraint. Therefore, it is important that an economy-wide model of the Nigerian economy should be able to trace the impacts of development policy and programme scenarios on the imported input requirements.

Even though we have assumed that wage rate and the rental price of capital are not endogenously determined, it is important to be able to determine the labour and capital requirements needed to support a particular production plan, or the impacts of development policies and programmes on these demands for primary inputs. At the moment, data on labour and capital stock by type, their sectoral distributions and per unit requirements are

not available. As soon as they become available, the model can be applied to provide these valuable inputs into policy and plan formulation.

Against this background, the production block of the model can be specified as follows:

$$q = A_d q + g + \text{consr} + i_t + x - m_c \quad (4.1)$$

All variables are as defined earlier. Solving for sectoral output yields:

$$q^* = (I - A_d)^{-1} \cdot (g + \text{consr} + i_t + x - m_c) \quad (4.2)$$

The imported raw materials required to support the production plan (q^*) are as follows:

$$m^{nc*} = A_r q^* \quad (4.3)$$

4.3 Price Block

Prices, in this model are assumed to be cost-determined. In other words, producer prices are assumed to be determined on the basis of mark-ups on costs, while market prices are producer prices plus subsidies (positive or negative). The per unit of output producer cost comprises cost of locally produced inputs as well as costs of imported intermediate inputs, wages, and allowance for depreciation, all measured in per unit gross output terms. Under a mark-up pricing system, per unit profits are mark-ups on costs, while per unit subsidies or indirect taxes such as excise duties are also fixed as mark-ups on producer prices, to yield market prices.

Since the I-0 table includes distributive trade and transportation as activity sectors, this facilitates the computation of mark-up prices without undue difficulty.

In symbols, the price formation block of the model can be specified as follows:

Let sectoral producer cost be expressed as:

$$c^T = p^T A_d + (1 + \gamma) \cdot \lambda \cdot p^T A_f + w^T + d^T \quad (4.4)$$

Producer prices can also be expressed thus

$$p^{*T} = c^T (I + M) \quad (4.5)$$

Market prices can therefore be written as

$$p^T = p^{*T} (I + H) \quad (4.6)$$

Equation (4.6) can be elaborated upon using equations (4.4) and (4.5) and simplified to obtain:

$$p^T = VDB^{-1} \quad (4.7)$$

where

$$V = [w^T + d^T + (1 + \gamma) \cdot \lambda \cdot p^T A_f]$$

$$B = [I - A_d \cdot (I + M) \cdot (I + H)]$$

$$D = (I + M) \cdot (I + H)$$

The cost-determined sectoral market prices specified in equation (4.7) can be used to analyze the sectoral price effects of several policies that can have direct and/or indirect costs and, hence, price implications. It can be used to analyze sectoral price effects of changes in wage policies, and excise duties for example. It is also useful in tracing sectoral price effects of trade and exchange rate policies involving changes in import duties and exchange rates. Implications of alternative mark-up pricing regimes on sectoral prices can be examined with the aid of this price equation. The equation can also be used to measure

the effect of changes in these variables under alternative assumptions regarding the proportions of cost induced price increases that are passed on to consumers.

4.4 Government Transactions Block

Government transactions are divided into two broad but related set of activities, namely, government revenues or receipts, and expenditure on final goods and services. For now no distinction is being made between the various levels of government, which are all being lumped together in the government sector. Consequently, interesting issues relating to revenue allocation formula and their impacts on the revenue and expenditure profiles of the various levels of government are, being, ignored. It may be necessary later to extend the model to accommodate these distinctions. When the model is regionalized to state and, possibly, local government levels, these issues can be meaningfully examined.

Beginning with the revenue side, the main sources of government revenue are assumed to be direct and indirect taxes, profits (losses) from government investments, royalties on mineral including oil products and import and export duties.

Ordinarily, total government expenditure would be composed of overhead costs, personnel costs and debt servicing charges. The overhead costs component consist of real government expenditures on goods and services, while the personnel cost is mainly made up of government wage bill. Both of these can be related to other variables within this model so that they can either be endogenously determined or treated as pre-determined variables. In this model, overhead costs representing government expenditure on final goods and services will be regarded as being endogenously determined. It is this item of expenditure

that will be very sensitive to government revenue profile and government expansionary and contractionary fiscal policy measures.

Against this background, total and sectoral distribution of real government expenditure on final goods and services can be regarded as predetermined. Generally, both the level and structure of real government expenditure on final goods and services can be expected to be quite sensitive to the political and social problems that may be confronting the government of the day, and how these are being tackled. It is therefore important to specify this component of government expenditure in a way that will be flexible enough to accommodate a wide range of alternative government fiscal policy measures.

Towards this end, real sectoral government expenditures will be disaggregated into two components namely, the autonomous and the induced parts. The autonomous parts will be regarded as predetermined while the induced parts will depend generally on the excess of government revenue over total nominal autonomous government expenditure. With this specification, not only can the structures of both autonomous and induced government expenditure be altered to reflect the priorities of government, the level of total government expenditure can be made quite sensitive to government credit and budgetary policy measures.

The specification of the relevant relations should be capable of handling expansionary, contractionary and balanced budget policy regimes.

In symbols, the government transactions block of the model can be specified as follows:

Let nominal government revenue be defined as:

$$\text{GREV} = z^T \cdot q + k \quad (4.8)$$

where

$$z^T = [(w^T + r_p^T) + t^T + r_g^T + n^T + \lambda \cdot u^T \cdot A_f];$$

and

$$k = u^T(\theta \cdot \lambda \cdot m^c + .x)$$

The real sectoral government expenditure described above can be written as:

$$g = g_0 + e(\eta / p^T e)(\text{GREV} - p^T g_0) \quad (4.9)$$

Nominal government budget surplus, therefore can be written as:

$$\text{GBS} = \text{GREV} - p^T \cdot g \quad (4.10)$$

4.5 Household Transactions Block

Nominal household income is assumed to be composed of wages, investment profits and transfer (direct subsidies). Direct taxes are assumed to be proportional to income. Income tax rates are assumed to differ according to sources of taxable income. Ordinarily, direct tax rates on wage income is assumed to be different from those on profit (or dividend) incomes. Moreover, under a progressive tax structure, direct tax rates may vary even among wage earners.

Savings also is assumed to bear a proportional relationship to income. Savings behaviour may also differ according to source and level of income. Ordinarily, savings rate out of wage income would be different from that out of profit and rent income, whereas there may be no savings at all from transfers (direct subsidies).

Real household consumption demand may also differ as between various classes of income earners. There may be differences according to locational, household composition and cultural factors. Therefore, although real private consumption demand are made function of sectoral market prices and total consumption expenditure, the intensity of demand for various commodities may differ according to the income class, location, culture and other characteristics of the consuming households. The specific features of consumer demand functions may also differ according to the kind of utility function being assumed.

Obviously, this block has a lot of interesting complexities for which allowance can be made as much as possible. However, the contemporary Nigerian data situation imposes a limit to the degree of complexity that can be reflected. Therefore, nominal household income is treated simply as consisting of wages, private profits and direct subsidies. A constant proportion of household income is assumed saved regardless of the sources.

A Cobb-Douglas utility function has been imposed on the utility maximizing households, subject to the usual budget constraints, to yield a set of sectoral demand equations characterized by unitary price and income elasticities. This set of demand functions satisfies the budget constraints and homogeneity conditions. Nevertheless, as soon as it becomes feasible, the various sectoral elasticities should be estimated and inserted into the model.

In symbols, the private income, expenditures and savings block can be specified as follows:

Let Private income be defined as:

$$\text{NPY} = (w^T + r_p^T)q \quad (4.11)$$

Given savings and income tax rates, total nominal income available to be spent on goods and services, that is, total nominal consumption expenditure can be written as

$$\text{CONS} = (1 - \tau)(1 - \rho)\text{NPY} + \text{TRANS} \quad (4.12)$$

The real sectoral consumption expenditures derivable from the Cobb-Douglas utility maximization process constrained by the total nominal consumption expenditure specified in equation (4.12) is,

$$\text{consr} = P^{-1}\text{sCONS} \quad (4.13)$$

4.6 Savings - Investment Block

Nominal national savings is assumed to be the sum of government budget surplus, private savings, and the excess of export proceeds over imports. Total nominal savings is equated with nominal investible funds. Total real investible funds is given by the nominal investible funds divided by the weighted sum of sectoral prices, the weights in the current period being the sectoral investment coefficients in the preceding period. Sectoral allocation of the real investible funds can be treated as a policy variable. For the purposes of specification, however, the sectoral allocation parameter is taken to be the initial sectoral investment coefficients.

The savings-investment block can thus be specified as follows:

$$\text{NSAV}_t = \text{GBS}_t + (1 - \tau)\rho\text{NPY}_t + p^T_t (x_t - m_t^{\text{nc}} - m_t^{\text{c}}) \quad (4.14)$$

$$\text{RINV}_{t+1} = (\text{NSAV}_t / p^T_{t+1} \cdot v_t) \quad (4.15)$$

$$i_{t+1} = \text{RINV}_{t+1} \cdot v_t \quad (4.16)$$

Since Nigeria is a developing country, recognition of investment lag is down played. Moreover, because the bulk of Nigeria's investment goods are imported, one year lag is assumed to be adequate to allow for delivery lags. It must be acknowledged, however, that one year may be unrealistic for certain category of goods, especially where the imports are required to develop capital goods industry. In any case, the model can be easily modified to allow for different lag structures across sectors.

4.7 Income Allocation Block

For a given vector of sectoral outputs, it is assumed there is a corresponding gross domestic product (GDP). By definition, GDP at factor cost is the sum of compensation of employees, operating surplus and depreciation allowance generally referred to as consumption of fixed capital. Taking operating surplus as an approximation of returns to entrepreneurship (profit income) and compensation of employees as wage income, it is a simple matter calculating the shares of these two components in the GDP. Changes in these shares corresponding to sectoral outputs that are consistent with alternative development policy scenarios could provide reasonable bases for assessing their functional income allocation consequences.

In symbols, the foregoing can be written as:

$$\text{GDP} = (w^T + r^T + d^T).q \quad (4.17)$$

where

$$r^T = r_p^T + r_g^T$$

Taking the general price index (GPI) as the weighted sum of all sectoral prices, the weights being given by the sectoral final demand coefficients, total real GDP (RGDP) can be computed as:

$$\text{RGDP} = \text{GDP}/\text{GPI} \quad (4.18)$$

where

$$\text{GPI} = \mathbf{p}^T \cdot \mathbf{f}$$

4.8 Current Account Balance Block

One of the main characteristic features of the Nigerian economy, is excessive dependence on the rest of the world for final consumer goods, capital goods, raw materials and services. In the near future, public sector policies are likely to be directed at marginalising the role of external sector in the national economy especially in the medium to longer-term. It is thus imperative for a planning model to provide insights into the balance of payments implications of these and other likely development policies.

Defining current account balance (CAB) to mean the excess of export earnings over and above the value of imported intermediate and final goods and services, it can be seen that the (CAB) effects of a public policy measure would depend on the relative impacts of the policy on output of import dependent sectors. The influence of trade and exchange rate policies on imports of final goods and services can also be traced more comprehensively when this category of imports is properly endogenized.

In symbols, the (CAB) block of the model can be written as:

$$\text{CAB} = \mathbf{u}^T \cdot (\mathbf{x} - \mathbf{m}^c - \mathbf{m}^{nc}) \quad (4.19)$$

5 Data Requirements

The data needs are explicitly defined in the list of variables, parameters and notations, consisting mainly of National accounts data and coefficients obtained from the I-0 table.

6 Model Solution Algorithm

6.1 Introduction

This section deals fairly extensively with the steps taken to obtain a solution to the model earlier developed and discussed, as well as the solution algorithm.

6.2 Computer Algorithm and Solution Procedure

None of the existing software and in particularly those available at CEAR was found to be capable of, or well suited to obtaining a solution of the model. Hence, a Computer algorithm and code had to be developed specially to provide a solution to the model which was to be run on an IBM PC/AT computer with '286 microprocessor available at CEAR.

The computer algorithm and code developed and employed for the solution to the multisectoral consistency model is FORTRAN based. The code was compiled and linked using the Microsoft FORTRAN optimizing Compiler and Linker which are very efficient. Efficiency here is related to the time it takes to create the executable file for the program and the management of size of the executable file.

The solution algorithm has two major components. A first component, which was first developed was aimed at model verification or simulation for base period, while the second, which was later added, focus on simulation for other periods.

In the verification components we input parameter estimates obtained for our base period which was initially 1980, and later 1984, and aimed at regenerating sectoral prices, gross output and other relevant variables such as consumption demand, savings, disposable

income, sectoral balance of trade, and government expenditure. The process involved a number of iterations similar to the Gaussian method in which magnitudes generated in iteration i are compared with those generated for the same variables at iteration $i-1$ using a stipulated convergence criterion. If the criterion is not satisfied then the magnitudes obtained during iteration i are imputed as initial values for iteration $i+1$, and the procedure continues, with the application of the convergence criterion at each iteration until a satisfactory solution is obtained.

Within this verification component, three (3) subcomponents can be identified. A first part generates sectoral normalized prices, the second generates sectoral gross output while the third generates other sectoral magnitudes. In the price "reproduction block", unit sectoral prices were taken for the base period, mark-ups on profit and indirect taxes were derived before the prices were again recalculated. A similar procedure applies to the "output convergence block". In the "others block", we obtain all other magnitudes which, by the model structure, can only be generated after the output has converged.

The simulation component of the program is brought about by the need for the solution for other periods other than the base period, either based on same parameter estimates or different ones. The model is made dynamic by the introduction of sectoral investments, which are assumed to be a function of output in the immediately preceding period. The Gaussian method earlier mentioned is still used in each period to solve for gross output. In essence, convergence is obtained for each period's solution. Again once output converges all other magnitudes are calculated, including sectoral investment and national savings. Simulation can be carried out for as many periods as the random access memory

[RAM] of the computer would allow. It is also possible to introduce changes in the values of parameters at different time periods to reflect changes in the direction of policy or just to investigate the policy implications of such changes.

Finally, it should be mentioned that while the 1980 and 1984 I-0 tables employed were constructed the LOTUS 1-2-3 software version 2.0, the simulation program does its own balancing just to double check. As such, data fed into the program include intermediate sales and purchases, sectoral final demand components, and imported inputs, wages and salaries, operating surplus, and indirect taxes, as valued added components. All the coefficients relating to these magnitudes which are required for model solution are computed within the main program using the base year values.

In summary, the simulation program features a main program and three subroutines, `READER`, `FINDINV` and `MACAGG` respectively. Subroutine `READER`, reads in all data required, computes the I-0 table based on data read in, checks for consistency with actual I-0 table and finally solves for relevant endogenous variables after relevant parameters have been introduced. `FINDINV` subroutine is included to determine the inverse of matrices, particularly the inverse of the $(I-A)$ matrix required to compute sectoral gross output. This is useful for both the price generation and output convergence blocks in the main program. The `MACAGG` subroutine computes all macroaggregates required and featured in the model. This is done both after data is read in and after each period has converged. Printing of both intermediate and final results are done from all programs except the `FINDINV` subroutine. However, while only final results are kept, others are displayed on screen once obtained. The flow chart of the program is reproduced as Appendix I.

6.3 Base Solution of the Model

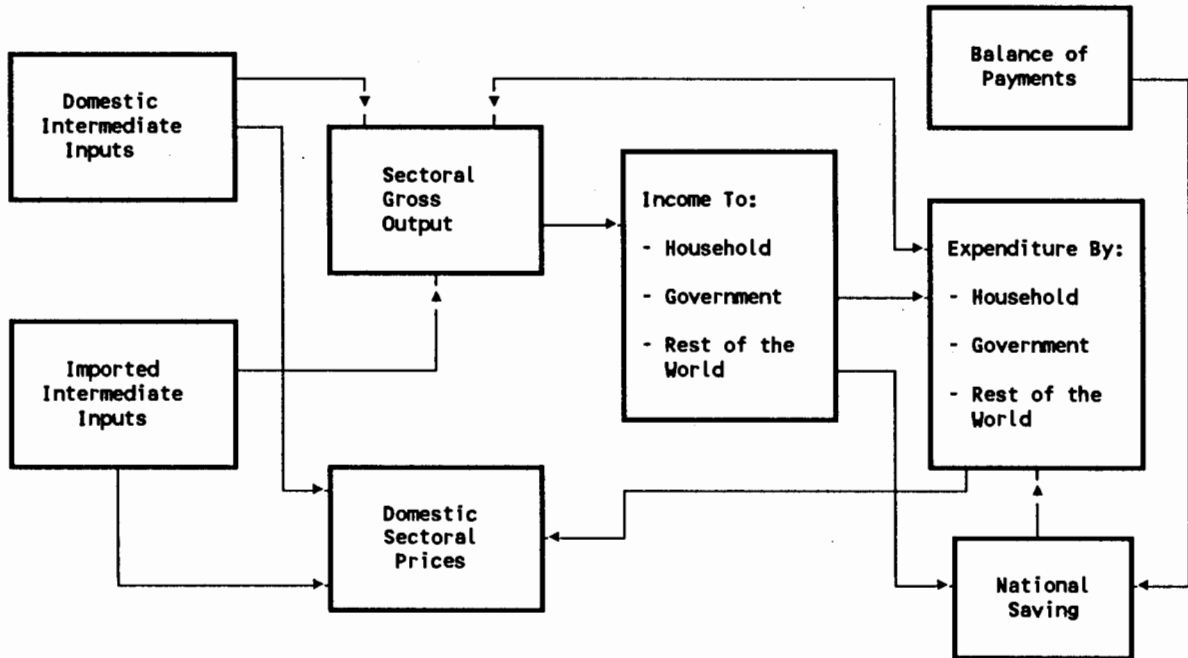
Having discussed the solution algorithm and for the model, we now discuss the base period or initial solution of the model. In this discussion we examine the workings or interrelationships of the model, the estimation and estimates of relevant model parameters and assumptions made in their derivation as well as the static solution or better still the replication of the 1980 Nigerian economy as depicted by the 1980 25 sector input-output table.

6.3.1 The Workings of the model

The key interrelationships emphasized in the model implementation which also actually form the basis of the model specification are summarised in Fig. 6.1. This diagram has been placed here in particular to enable policy makers who may not be technically oriented to understand the basis of the model both in respect of casual relationships and determinants of key macroeconomic variables.

The logic underlining the block diagram is that inputs (both intermediate and imported) are required over each of the economic sectors to produce output while also being determinants of prices of sectoral output. Out of the sale of output, income is generated for various sectors such as household and government, this income being used for consumption and/or investment purposes. Essentially, it is reflected in this block diagram that inputs affect both the volume of output and prices within the national economy. Level of expenditure or consumption also depends on price level, while national savings is influenced largely by national income and the balance of payment position. Though the details of the

FIGURE 6.1: STRUCTURAL RELATIONS OF THE MODEL



model specification are fairly more complex, the above provide a simple framework within which the analysis of model solution and results can be better understood.

The key equations of the economic system which were earlier discussed in detail under model specification may therefore be summarised as follows;

$$q_t = (I - A_d)^{-1} (g_t + \text{consr}_t + i_t + x_t - m^c) \quad (61)$$

$$P^T = VDB^{-1} \quad (62)$$

$$g = g_o + e(n/P^T e)(GREV - p^T g_o) \quad (63)$$

$$\text{consr} = P^{-1} s \text{CONS} \quad (64)$$

$$I_t = [\text{NSAV}_{t-1}/p^T_{t-1} v_{t-1}] \cdot v_t \quad (65)$$

where all variables are as previously defined.

Prices, as can be observed from these key relations in the model, are assumed fixed once they are determined at the beginning of each period. They assume the status of predetermined variables in solving the model for each period. The vector of prices can be endogenously influenced by, for example, an increase in import duties, or reduction in excise duties or an increase (decrease) in the prices of imported inputs, or by a devaluation. These price levels, once determined are capable of influencing some levels of sectoral allocation such as real consumption, real investment and nominal government expenditure, and ultimately real output.

6.3.2 Estimates of Relevant Model Parameters

In the model specification section we presented our model variables and parameters under a number of subsections which include prices, costs and mark-ups, technological coefficients; and other coefficients, rates and constants. For the base solution and subsequent initial simulation, sectoral market prices are normalised; that is assumed to be unity. All other prices such as producer prices, cost and mark-ups are determined within the price block of the model.

Technological coefficients featuring prominently in our model included domestic technological coefficients and coefficients derived from imported intermediate inputs. While the domestic coefficients, in matrix form are of order 25×25 sectors, the imported input coefficients, are of the order 25×1 . The domestic coefficients are computed in the conventional input-output fashion; $ad_{ij} = Q_{ij}/Q_j$ where Q_{ij} represents volume of output of sector i required by sector j and Q_j represents output of sector j . The imported input Coefficients a_{ij} are obtained for each sector by simply dividing total imports of intermediate inputs by total output. Of course, $Ad = [ad_{ij}]$ while $Af = [a_{ij}]$. The coefficients as were obtained for the 1980 25 sector I-0 table of the Nigerian economy are displayed in Appendix II.

All rates which indicate per unit wage rates, depreciation allowances, private and government operating surpluses, royalties and indirect taxes are obtained by dividing their respective sectoral magnitudes by the corresponding sectoral output. These are displayed in Appendix III.

Of the magnitudes, all except the real autonomous sectoral government expenditures assume their 1980 I-0 table entries. The real autonomous sectoral government expenditures are taken to be zero for the base solution since our primary aim at this period is to replicate our originally assumed structure of the economy as represented by the base year.

The other coefficients (proportions), rates and constants, per unit duty on imported inputs (γ) and per unit duty on imports of finished goods (θ) are assumed to be the same since total import duty could not be categorized adequately given the data situation. Hence, per unit import duty rate ($\gamma = \theta$) was obtained by dividing total import duty by total imports, thus giving a value of 0.121. Per unit duty on exports is obtained in a similar manner by dividing total export duty by value of total exports and found to be 0.000092. Tax rate (τ) is obtained from data from both the national accounts and the 1980 I-0 table, found to be 0.213. Private savings rate and per unit royalty are obtained to be 0.098 and 0.236 respectively. Other relevant magnitudes and coefficients required for model solution are displayed in Appendix IV.

Though variables relating to debt charges are represented in the model specification, they are not dealt with explicitly in our solution. As we earlier noted, the model specification is fairly general, thus allowing for more than a specific application (or area of concentration). The exclusion of external debt here though critical for our present national economic management is premised on the assumption that they (external debt) are more of exogenous policy variables than endogenous.

6.3.3 Base Solution

Given the fact that the model is non-stochastic, the base solution should, as much as possible, replicate the actual data in the initial period which in our own case happens to be 1980. It should be mentioned here that the choice of 1980 as the base period given the fact that one is in 1992 is based on the existence of the most recent and well developed input-output table for the Nigerian economy. CEAR has completed a similar table for 1984. Consequently, on-going model implementation are based on the use of the 1984 I-0 table as well as making adjustments for significant changes and developments in the Nigerian economy as they would have affected some of the relevant model parameters. These will be further adjusted from usable inputs from the on-going sectoral studies. In the base period solution, sectoral prices are identically set to unity.

In solving for the vector of gross output as specified in equation (6.1) above, given the initial period vectors of real government expenditure, household consumption and investment, all of which are treated as endogenous variables in subsequent periods, as well as exports and imports of final goods which are exogenously determined, an iterative procedure is adopted. The approach is to introduce initial period vector of gross sectoral output so determined, into equations (6.3) and (6.4) to calculate the corresponding sectoral allocation of government and household consumption expenditures respectively. In the base solution, sectoral investment allocation remains unchanged just as exports and import of final goods. The calculated vectors of government and household consumption expenditures are thus introduced into equation (6.7) to obtain a new vector of sectoral output. This new vector of sectoral output is

then substituted for in equations (6.3) and (6.4) and the whole process is repeated all over again.

This Gauss-Siedel iterative process continues until the current vector of sectoral outputs at time (t) converges to its corresponding initial value given by the corresponding value at time (t-1). At this point, the model is said to have converged. For the model to have replicated the base period data, in the initial period solution the difference between the vector of sectoral output at the point of convergence and that of the base period should be negligible, if any.

As a further test of correctness of the model, the base solution results and the base period actuals for sectoral intermediate input supply, government expenditure, household consumption expenditure, intermediate input demand, imported intermediate inputs and value added at market prices should not be significantly different one from the other. Similarly, computed vectors, such as total government revenue, expenditure and budget household income, expenditure and savings as well as balance of trade, should not be significantly different from their initial values.

The base solution/results and actual data are presented in Tables 5.1.1 - 5.1.3 (all tables in Appendix V). These tables present both the base results and actual values of the sectoral magnitudes of interest while showing in addition the percentage difference or deviation of the base result from the actual. A look at the percentage difference columns show not only that the model has successfully replicated the base data but also the extent to which it has done this. In all the instances the percentage deviation is less than ± 0.005 , being the specified convergence criterion in the computer program. Also,

convergence took on the average 10 iterations. The demonstrated ability of the model to replicate the data base tests for the correctness of the solution process as well as model's internal consistency which is impressive. Given this development, we are therefore in a position to proceed to relevant model applications and simulations for policy analysis.

The sectoral and aggregate simulated and actual values of gross output, intermediate requirements and household consumption demand are displayed in table 5.1.1. The Table 5.1.2 contains similar information on sectoral and aggregate intermediate input purchases (domestic and imported) and value-added (at market prices). Macroeconomic aggregate of relevance are displayed in table 5.1.3. Notice in this table the sources of government revenue (2-11), the expenditure of government (13-14), culminating in the government budget surplus (15). Household income (18) is generated from both total wages (16) and private operating surplus (17) while less direct taxes (19) it yields household disposable income (20), which less household consumption expenditure (21) yields household savings (22). Balance of trade (26) is obtained in the conventional manner by subtracting from the value of what is exported (23), the value of what is imported (24+25). Domestic savings ($25 = 27 + 28$) plus foreign savings (30) give the national savings (31). The final sub-section of table shows the derivation of value added at market prices.

6.4 Discussion of Initial Simulation Results.

What we discuss here are the outcomes of a simple scenario in which we attempt to look at the economy over a five year horizon (10-15 year projections would be undertaken within the perspective planning framework). This experiment assumes that the technology of the economy, and final demand and national saving patterns remain unchanged. A highly simplified though plausible assumption is made that the effective policy over this plan period, is the requirement that the total amount of saving accruing from the last period would be channelled into investment in the current period. Notice that since investment coefficients do not change, we assume same pattern of investment as in the base year over the next five years.

Here the dynamic simulation is such that once sectoral outputs are obtained, all other magnitudes are obtained including, the sectoral investment (i.e national savings) which is then fed in to the next period to determine the new level of sectoral and aggregate output. For each of the first three periods the model took on the average 15 iterations to convergence while for each of the remaining periods it took on the average 12 iterations.

In tables 5.2.1 - 5.2.3, we show the results of our experiment in which we assumed the economy to behave in a similar manner as in 1980, the base year. The tables 5.2.1 - 5.8.3 compare the various magnitudes at the end of the current period with the corresponding levels at the end of the previous period, while table 5.8.1-5.8.3 relates the fifth period solution to the base period. In actual planning application situation, one would of course expect the assumptions and the policy measures to be much more

complicated than this illustrative single policy measure. It should be mentioned that although the percentage differences that inform the extent of convergence are not displayed in these tables, they are generally based on the earlier convergence criterion.

A closer look at the gross output column in table 5.2.1 comparing the base year with the first period of the planning horizon reveals significant changes and growth in sectoral output to the extent that aggregate gross output grew by 27.88%. The rate of increase ranges between 116.08% as recorded for the vehicle assembly sector to 0.37% for the government sector. Of the 25 sectors only the non-metallic products, paper products, and building and construction sectors recorded over 50% increase in their gross output. The metal products, beverages and chemical products sectors recorded increases within the range of 40-50% while all others recorded percentage increases less than 40%. On the average, the industrial (or manufacturing) sector (7-18) recorded the highest sectoral gross output growth, followed by the non-manufacturing industrial sector (including utilities) (19-25) and the agricultural sector (1-4). These major sectors recorded average growth rates of 48%, 37% and 25% respectively.

While the aggregate intermediate sales increased by 38.75% the sectoral growth has varied between 27 and 51% excluding the government, crude oil and textile sectors which experienced 0%, 12% and 20% growth rates respectively. Indeed, Over this period intermediate sales grew at an average of 37% over all sectors. The rubber products sector experienced the highest rate of growth of 79% followed by the other mining and quarrying sector which experienced 51%. The vehicle assembly sector which experienced the highest output growth of 116% recorded a growth of 40% in

intermediate sales. The growth in the intermediate sales of the crude oil sector being about the lowest reflects its low degree of linkage with other sectors and the fact that the bulk of crude oil is exported.

Of the agricultural subsectors, the agricultural crops sector recorded the highest growth in both gross output and intermediate sales. The household consumption demand column reveals about the same development. All sectors recorded a growth rate of 24% in household consumption demand. This is due to the constant nature of the household demand composition assumed in the model. In this table we observe that on the aggregate household consumption demand increased at a lower rate than that of gross output which itself experienced a growth rate lower than that of the intermediate sales.

A rather revealing observation is made from the results in table 5.2.2. The growth in intermediate input purchases both from domestic and foreign sources at sectoral level grew at the same rate. These sectoral rates are also those recorded for gross output. This reflects that the growth in intermediate input transforms fully into growth in gross output and consequently, value added (at market prices). The different set of growth rates for intermediate sales is a result of the absorption of the surplus growth resulting from increases in total imports and fixed (constant) exports and imports of finished goods.

Of the sources of government revenue, in table 5.2.3 import duties from raw materials recorded the highest growth rate of 43.5% followed by excise duties with 31.9%, subsidies with 29.3% and direct taxes with 24.8%. Total government revenue

increased by 20%. Government budget surplus records 31%, household savings 24.8%, while balance of trade declined by 109.5% resulting in an increase of 9.98% in national savings. It is also observed that depreciation rate at 25% exceeds both the growth rate of operating surplus and national savings though it is less than the growth rate of domestic savings which is 29.8%.

The rates of growth of sectoral and aggregate economic variables seem to be consistent with both observed immediate historical growth rates and desired growth rates particularly since they are in nominal terms. We can deduce, based on the consistency feature of our methodology, that a 9.9% increase in national savings (and consequently investment of the same magnitude) will assure a 27.8% growth in output. One can deduce from the table that the depreciation rate is more than twice the savings rate. As such the impressive growth rates recorded for the relevant macroeconomic variables may not hold in reality Economic capacity is declining at a rate greater than that with which it is been replaced.

An examination of the developments between periods 1 and 2 as displayed in tables 5.3.1-5.3.3 reveal the above observation and assertion. There is significant decline in the growth rate of all sectoral and aggregate variables. Not only is this the case, the growth recorded over this period is on the average 10 times lower than the growth rate observed over the base period and period 1. Notice that the difference between growth rates of national savings and depreciation is about 15%.

The structure of output, intermediate sales and purchases and value added identified over the base and initial periods is again reflected in these tables. This is not

surprising since the relevant parameters are essentially the same. It is however pertinent to note here that there is still growth in all variables except the constants. Indeed, while national savings grew at 2.3%, depreciation grew at 5.1% over this period. The growth in savings is accounted for by the 5.85% growth in domestic savings and 2.85% decline in foreign savings.

The above feature in all the periods and in fact as at period 6 the average growth rate in the relevant economic variables had become less than 0.1 percent. Indeed, it is envisaged that as from this point on output would begin to decline and so would most other variables.

As earlier mentioned; tables 5.8.1-5.8.3 present a comparison between the model solutions for the base period and the last period of the planning period. We find that the structure and features of growth in all sectoral and aggregate relevant variables are essentially the similar to those found and highlighted in the comparison of results of base period with first period of the five year planning horizon. However, the growth rate are slightly higher for all variables though the growth rate over the first period accounts for over 70% of the growth rate over the five year period. For example while the growth in gross output is 37.4% over the five year period, it is 27.9% between the base year and period 1. Over this same periods of comparison, while growth in intermediate purchases was 38.7% it is 51.96% and valued added grew at 24.2% and 32.4% respectively. Over the five year period, government revenue grew by 26.9%, government budget surplus by 41.7%, household savings, by 33.4%, balance of trade declined by 146%, domestic savings by 39.9% and national savings by 13.4%. As

components of value added, wages grew by 34.4%, operating surplus by 31.3%, depreciation by 33.7%, excise duties by 42.8% and subsidies by 39%. Again it is obvious that the productive capacity of the economy declined steadily and considerably resulting from growth in national savings which is assumed to be transformed in totality to investment, which is less than the growth in depreciation. Growth in depreciation is almost 3 times the growth rate in national savings at 33% and 13% respectively.

One thing appears clear from the above rather naive analysis, if the economy is to make considerable headway, it should ensure that its surplus (savings) exceeds the rate of depreciation. When it is realised that among other things exports have been fixed (and to some extent) balance of trade, it should be realised that the difference between depreciation rate, and growth in savings is exaggerated since a zero growth rate is explicitly assumed for exports. Also, a consistent sectoral investment pattern was stipulated.

Such limiting specifications are to be corrected in the planning applications and as such our results will be expectedly considerably different. Scenario solutions are to be introduced once the model can be tested on realistic and more current data.

7 On-going Refinement of the Model Specification and Solution

On-going developmental work on the consistency planning model of the Nigerian economy is focusing on the following:

(a) Designing a more realistic simulation model in terms of the ability to introduce new values of policy parameters (eg. rate of import duty) and exogenous variables (eg. foreign debt charges) during the multi-period simulation runs. In the simple model presented here, these parameters and exogenous variables are held constant at base year levels during the entire simulation run.

(b) Use the results obtained from the CEAR MAC VI econometric models to inform the specification of the growth path of the exogenous variables such as autonomous foreign investment, foreign debt charges, exports, etc.

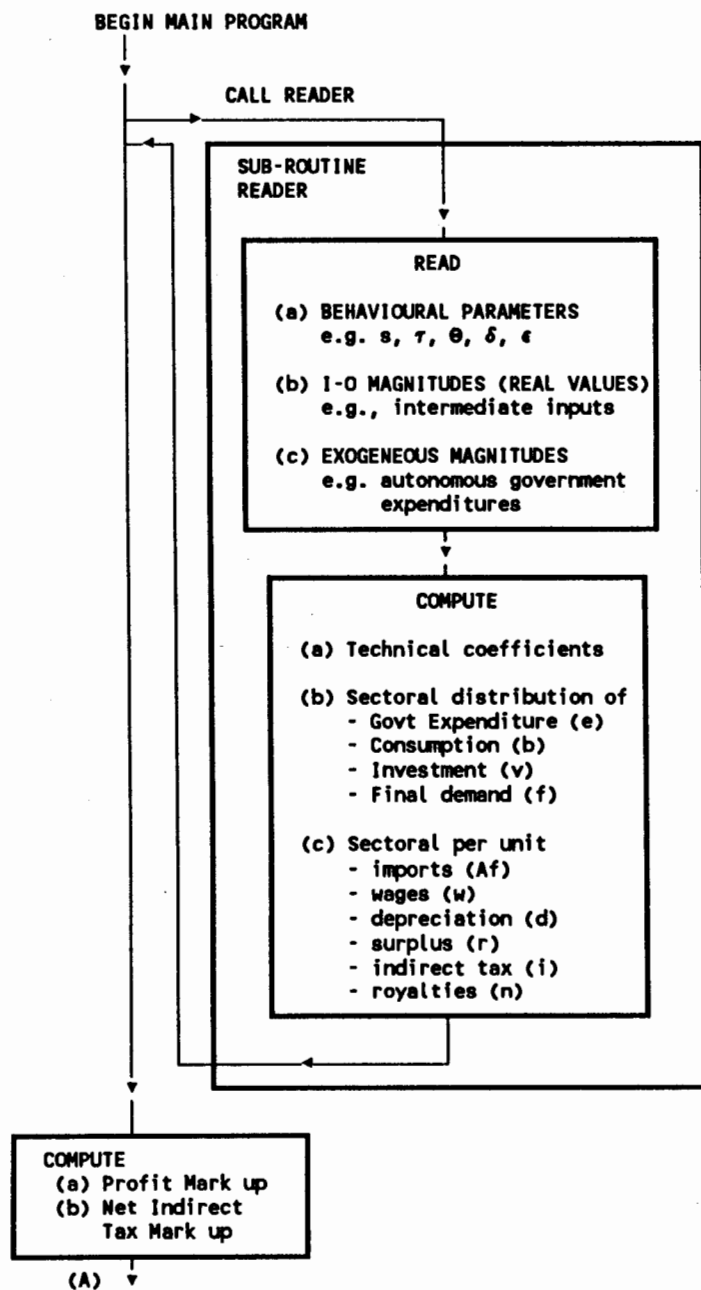
(c) Make it possible for the user to introduce new values of parameters and exogenous variables interactively, instead of in the present batch implementation mode. This would enable and boost the ability of the user to conduct real-time 'what-if' analyses.

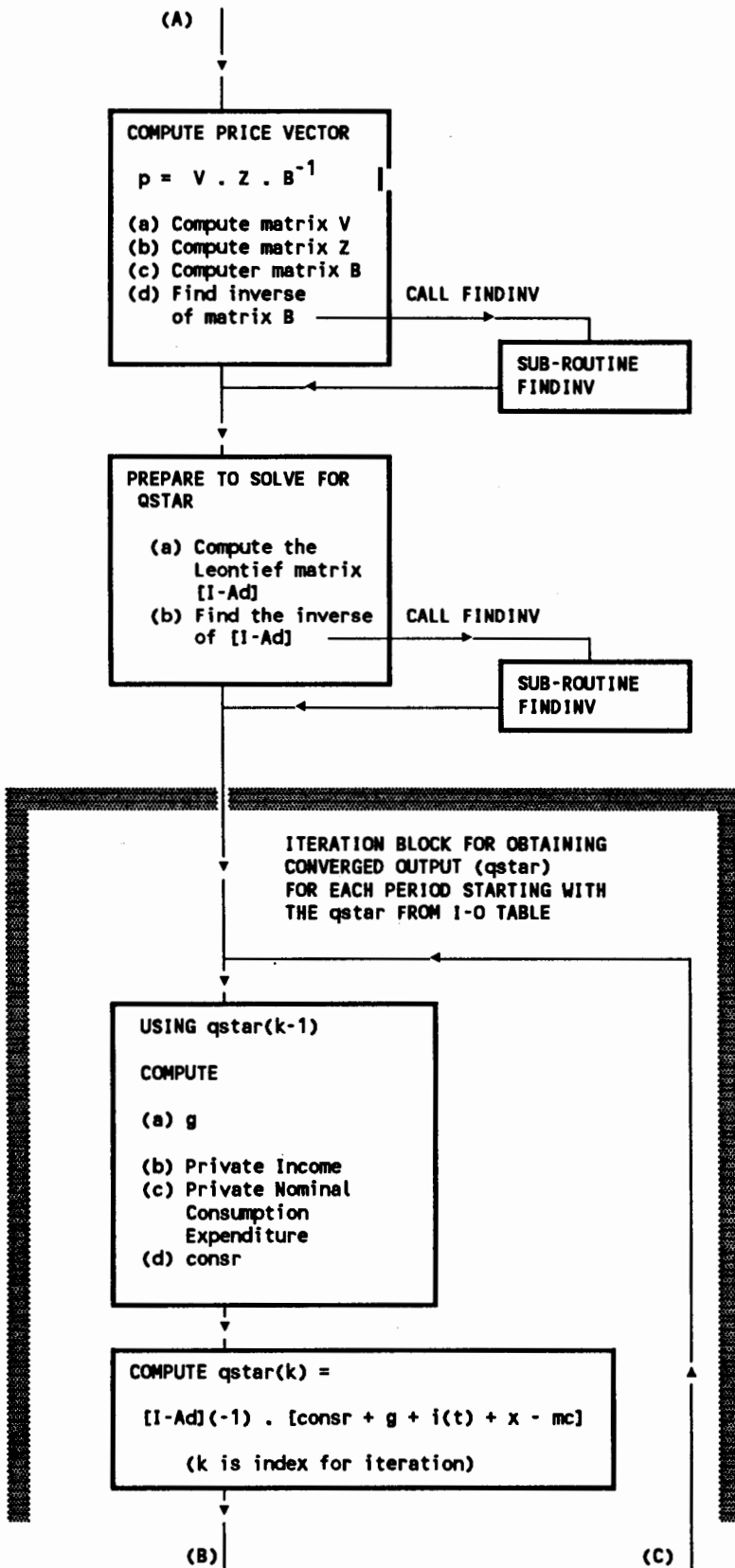
(d) Provide the simulated time series of all macro-economic aggregates which, by being pre-formatted by the software, can be easily exported to a graphics or data plotting software to generate graphical representations of the data.

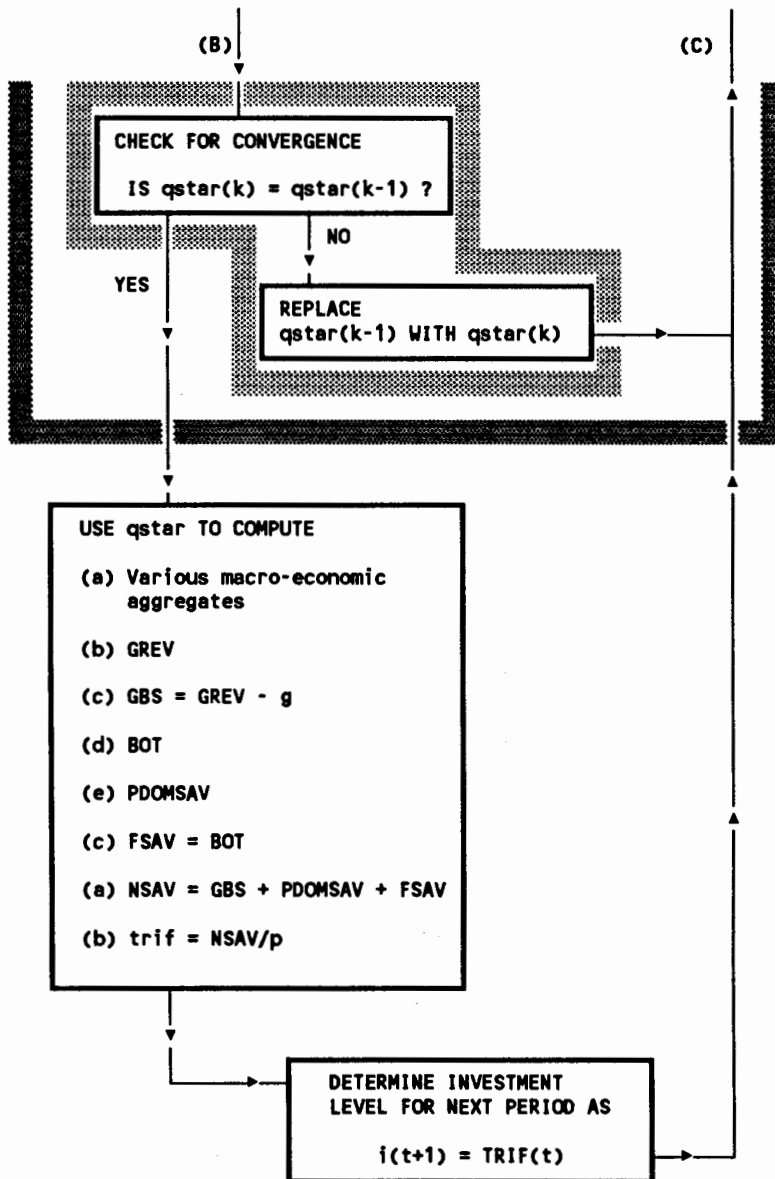
(e) Simulate the Nigerian economy using the simple model described here but with the input-output data for 1984, and later updates.

(f) Introduce behavioural relations into the model to make it truly dynamic.

APPENDIX I

SOLUTION AND SIMULATION ALGORITHM OF THE
MULTISECTORAL CONSISTENCY PLANNING MODEL



**LEGEND:**

PDOMSAV: Personal Domestic Savings
 NSAV: Nominal Total Savings
 BOT: Balance of Trade
 FSAV: Foreign Savings
 i: Investment
 trif: Total Real Investible Funds
 GREV: Government Revenue
 g: Government Expenditure
 GBS: Government Budget Surplus
 p: Price vector
 qstar: Sectoral Gross Output
 consr: Real Consumption Expenditure

APPENDIX II

1980 NIGERIAN INPUT-OUTPUT TECHNOLOGICAL COEFFICIENTS

COLUMN SECTOR	1	2	3	4	5	6	7	8	9	10
	11 21	12 22	13 23	14 24	15 25	16	17	18	19	20
ROW SECTOR 1	.0367598 .0005852 .0886167	.0000000 .0277105 .0000000	.0000000 .0001303 .0000000	.0000000 .0169647 .0000000	.0000000 .0000000 .2204448	.0000743 .0000000 .0000000	.0422488 .0000000 .0000000	.0105592 .0000000 .0000000	.0279482 .0000000 .0000000	.0407071 .0000000 .0000000
SECTOR 2	.0000000 .0000000 .0000000	.1927597 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0062728	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0104139 .0000000 .0000000
SECTOR 3	.0000000 .0484091 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000038 .0000000	.0000000 .0000046 .0058345	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0283807 .0000000
SECTOR 4	.0000000 .0000000 .0005604	.0000000 .0000000 .0002709	.0000000 .0001146 .0006225	.0000000 .0000000 .0032463	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0007572 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0224848 .0000000
SECTOR 5	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0023874 .0000000	.0000000 .0000000 .0000000	.0055579 .0000000 .0289861	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000
SECTOR 6	.0000000 .0000000 .0485283	.0000000 .0000000 .0000000	.0000000 .0000000 .0020495	.0000000 .0000000 .0000000	.0000000 .0029430 .0000000	.0000495 .0002010 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0535879 .0000000
SECTOR 7	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0070775 .0000000	.0022578 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0289315 .0000000 .0000000	.0265289 .0000000 .0000000	.0000000 .0000000 .0000000	.0155023 .0000000 .0000000
SECTOR 8	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0039847 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000
SECTOR 9	.0000000 .0092291 .0000000	.0000000 .0001896 .0000000	.0000000 .0000000 .0000000	.0000000 .0007804 .0000000	.0021376 .0000000 .0000000	.0000000 .0000000 .0000000	.0051251 .0000000 .0000000	.0000000 .0000000 .0000000	.0165866 .0000000 .0000000	.0061766 .0000000 .0000000
SECTOR 10	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000518 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0189240 .0000000 .0000000
SECTOR 11	.0000000 .0186867 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0000000 .0000000	.0000000 .0001203 .0000000	.0000000 .0037063 .0000000	.0000000 .0000000 .0000000	.0009691 .0000191 .0000000	.0000000 .0000000 .0000000	.0015493 .0000000 .0000000
SECTOR 12	.0000000 .0002978 .0000000	.0000000 .0032973 .0010692	.0000000 .0034578 .0000000	.0000000 .0000452 .0055463	.0000000 .0006587 .0000000	.0000000 .0004983 .0000000	.0086943 .0000188 .0000000	.0161427 .0000000 .0000000	.0000018 .0000000 .0000000	.0082452 .0000000 .0000000
SECTOR 13	.0000765 .0136639 .0010550	.0011474 .0183224 .0044905	.0000000 .0061404 .0737100	.0135116 .0083873 .0003263	.0039546 .0229784 .0000000	.0020053 .0130694 .0039001	.0105921 .0039001 .00988640	.0084501 .00988640 .0000000	.0293969 .0000000 .0000000	.0049690 .1077457 .0000000
SECTOR 14	.0000000 .0018054 .0000000	.0000000 .0000000 .0026729	.0000000 .0009490 .0000000	.0000000 .0018390 .0000000	.0000000 .0001181 .0000000	.0000000 .0004293 .0516750	.0004676 .0039001 .0000000	.0000000 .0000730 .0000000	.0000018 .0000000 .0000000	.0110028 .0000000 .0000000

COLUMN SECTOR	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25					
SECTOR 15	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0098640	.0000000	.0000000
	.0000391	.0000000	.0000000	.0000000	.0017851	.0006067	.0000000	.0000000	.0000000	.0000000
	.0039865	.0000000	.0000000	.0000000	.0000000					
SECTOR 16	.0000000	.0000000	.0000000	.0000000	.0004275	.0000000	.0000000	.0000000	.0000000	.0000000
	.0135630	.0000000	.0047388	.0001075	.0002033	.0103664	.0000000	.0000165	.0000000	.0521570
	.0062367	.0021383	.0083391	.0000000	.0000000					
SECTOR 17	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000
	.0000000	.0000000	.0000000	.0000000	.0000000	.0036978	.0000000	.0000000	.0000000	.0000000
	.0000000	.0000000	.0000000	.0000000	.0000000					
SECTOR 18	.0000000	.0005403	.0000000	.0000000	.0000000	.0000000	.0017278	.0079826	.0018667	.0589389
	.0327396	.0000178	.0047229	.0176523	.0002809	.0107617	.0012358	.0122095	.0000000	.0000000
	.0000000	.0000000	.0000000	.0000000	.0000000					
SECTOR 19	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000
	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000
	.0000000	.0000000	.0000000	.0000000	.0000000					
SECTOR 20	.0000000	.0034030	.0000000	.0036193	.0001069	.0042023	.0092446	.0085262	.0318560	.0186027
	.0062681	.0058823	.0050300	.0181029	.0125238	.0096295	.0050789	.0196675	.0000000	.0000000
	.0010550	.0042767	.0000000	.0028198	.0000532					
SECTOR 21	.0000000	.0000000	.0000000	.0012869	.0000000	.0000495	.0006927	.0052124	.0094372	.0026010
	.0063273	.0010904	.0020420	.0012625	.0009327	.0006752	.0000332	.0002135	.0000000	.0039994
	.0000000	.0032075	.0000000	.0007225	.0000000					
SECTOR 22	.0000000	.0009294	.0000000	.0016084	.0000000	.0007494	.0061450	.0192901	.0021364	.0005468
	.0117314	.0163209	.0242728	.0068279	.0037122	.0254089	.0049605	.0346350	.0000000	.0292794
	.0749022	.0288677	.0345752	.0012352	.0218412					
SECTOR 23	.0084241	.0013939	.0067539	.0008045	.0000000	.2561234	.0041803	.0078753	.0020279	.0001965
	.0232493	.0017099	.0022333	.0060163	.0008139	.0010926	.0004267	.0032269	.0000000	.0427931
	.0770120	.0085548	.0000000	.0128169	.0033765					
SECTOR 24	.0000000	.0000000	.0000000	.0006435	.0021376	.0000000	.0000882	.0053319	.0044010	.0004920
	.0072345	.0003004	.0034983	.0011996	.0000088	.0020395	.0000881	.0005903	.0000000	.0001628
	.0027429	.0001488	.0000000	.0030994	.0000066					
SECTOR 25	.0103354	.0034967	.1616969	.0316892	.0000000	.0090673	.1137679	.0753208	.0583455	.0303637
	.0580336	.0268217	.0379790	.1100499	.1690123	.0234419	.0512838	.0442781	.0000000	.0000000
	.0000000	.0008316	.0191249	.0000000	.0002907					

APPENDIX III

VALUES PER UNIT OF OUTPUT CALCULATED FROM THE
1980 INPUT-OUTPUT TABLE OF THE NIGERIAN ECONOMY

SECTOR	WAGES	DEPRECIATION	PRIVATE OPERATING SURPLUS	GOVERNMENT OPERATING SURPLUS	ROYALTIES	INDIRECT TAXES	SUBSIDIES
1	.287756600	.000000000	.642768700	.000000000	.000000000	.000000000	.000000000
2	.000000000	.000000000	.778552900	.000000000	.000000000	.000000000	.000000000
3	.009440121	.000000000	.699124300	.019098510	.000000000	.000000000	.000000000
4	.380795600	.102037100	.336385500	.000000000	.000000000	.000000000	.000000000
5	.030260830	.022501130	.670924000	.240216700	.000000000	.022543750	.003284595
6	.295692200	.005619206	.390026700	.004377980	.000000000	.000000000	.000000000
7	.091135420	.030292490	.370393800	.000000000	.000000000	.021520790	.003135553
8	.072424660	.058989970	.480295600	.000000000	.000000000	.027906370	.004065923
9	.140766600	.049131480	.265296200	.024071380	.000000000	.019267960	.002807317
10	.119977900	.022117930	.283550800	.011434570	.000000000	.018305600	.002667056
11	.100089600	.044707160	.362359300	.000000000	.000000000	.021053980	.003067529
12	.126268200	.024342340	.180396400	.065472320	.000000000	.020962960	.003054278
13	.069273430	.014742590	.248833300	.060207020	.000000000	.024096380	.003510809
14	.134636400	.031843240	.234306900	.021259590	.000000000	.017017260	.002479397
15	.163101700	.035696820	.188898200	.159968600	.000000000	.036584850	.005330362
16	.111031500	.023689680	.327452100	.000000000	.000000000	.019025790	.002772035
17	.039387900	.014655750	.064930640	.212090900	.000000000	.037726310	.005496673
18	.134879300	.030023430	.358126900	.000000000	.000000000	.020808050	.003031703
19	.995448500	.004551454	.000000000	.000000000	.236136100	.000000000	.000000000
20	.205423100	.258206500	.000000000	.191379500	.000000000	.000730508	.000106432
21	.125565300	.001002759	.435832600	.000000000	.000000000	.006236061	.000908586
22	.186555500	.016586000	.545193300	.000000000	.000000000	.000000000	.000000000
23	.329956900	.033528120	.176202000	.015987500	.000000000	.273243400	.026597140
24	1.028522000	.008653514	.000000000	.014618200	.000000000	.002614538	.085224910
25	.365717400	.011821250	.222589800	.102151800	.000000000	.009327849	.001359056

APPENDIX IV

MAGNITUDES AND COEFFICIENTS USED FOR THE SIMULATION

1. Total Royalties ('000)	3789500.00
2. Rates and Coefficients	
- Import duty	0.121
- Export duty	0.000092
- Direct tax rate	0.213
- Saving rate	0.098
- Royalty per unit	0.236
- Naira:Dollar exchange rate	1:1
- Proportion of excess of government revenues over initial autonomous government expenditure subsequently spent on induced government expenditure	0.0

APPENDIX V

BASE YEAR: 1985

SECTORAL GROSS OUTPUT, INTERMEDIATE REQUIREMENTS AND HOUSEHOLD CONSUMPTION DEMAND

SECTOR	GROSS OUTPUT			INTERMEDIATE SALES			HOUSEHOLD CONSUMPTION DEMAND		
	ACTUAL	BASE RUN	%DIFFERENCE	ACTUAL	BASE RUN	%DIFFERENCE	ACTUAL	BASE RUN	%DIFFERENCE
1 AGRICULTURE	8070664.82	8070671.00	0.000077	1542891.49	1542892.00	0.000033	6381123.17	6381130.00	0.000107
2 LIVESTOCK	2908802.17	2908807.00	0.000166	575110.93	575110.90	-0.000005	2398221.42	2398225.00	0.000149
3 FORESTRY	499671.57	499671.90	0.000066	45666.22	45666.22	0.000000	341507.40	341507.70	0.000088
4 FISHING	1602033.55	1602035.00	0.000091	19784.78	19784.78	0.000000	1645379.11	1645381.00	0.000115
5 CRUDE OIL	14666444.65	14666450.00	0.000036	145618.40	145618.40	0.000000	35.67	35.67	0.000000
6 OTHER MINING	1381504.59	1381506.00	0.000102	393184.71	393184.80	0.000023	761503.97	761504.80	0.000109
7 FOOD	1051980.38	1051981.00	0.000059	68942.40	68942.40	0.000000	732735.69	732736.40	0.000097
8 BEVERAGES	903858.61	903859.10	0.000054	4191.83	4191.83	0.000000	545716.66	545717.30	0.000117
9 TEXTILES	1039252.27	1039253.00	0.000070	59705.15	59705.15	0.000000	801634.70	801635.80	0.000137
10 LEATHER PROD	115614.37	115614.40	0.000026	2229.78	2229.78	0.000000	75417.66	75417.73	0.000093
11 WOOD PROD	470603.60	470603.90	0.000064	12888.21	12888.21	0.000000	291985.71	291986.10	0.000134
12 PAPER PROD	452103.57	452104.50	0.000206	45150.20	45150.20	0.000000	710050.39	710051.30	0.000128
13 CHEMICAL PROD	1288489.50	1288491.00	0.000116	570999.07	570999.10	0.000005	486237.97	486238.60	0.000130
14 RUBBER PROD	745399.08	745399.60	0.000070	80313.17	80313.17	0.000000	483982.06	483982.50	0.000091
15 NON-METALIC PROD	219382.86	219383.00	0.000064	39895.57	39895.56	-0.000025	76558.39	76558.47	0.000104
16 METAL PROD	809203.37	809204.00	0.000078	141190.38	141190.40	0.000014	613999.49	614000.10	0.000099
17 VEHICLE ASSEMBLY	904145.10	904147.80	0.000299	2992.29	2992.29	0.000000	2630089.70	2630093.00	0.000125
18 OTHERS	711342.82	711343.60	0.000110	72589.99	72589.99	0.000000	614727.35	614728.00	0.000106
19 GOVERNMENT	2014910.00	2014910.00	0.000000	0.00	0.00	0.000000	30232.17	30232.20	0.000099
20 ELECTRICITY & WATER	373384.15	373384.30	0.000040	184584.87	184584.90	0.000016	23670.74	23670.76	0.000084
21 BUILDING & CONSTR	7545142.00	7545143.00	0.000013	61033.53	61033.52	-0.000016	585735.33	585735.90	0.000097
22 DISTRIBUTION	10459361.23	10459360.00	-0.000012	1160535.26	1160535.52	0.000022	9271310.37	9271310.00	-0.000004
23 TRANSPORT	2999096.29	2999097.00	0.000024	1166626.94	1166627.00	0.000005	340846.96	340847.30	0.000100
24 COMMUNICATION	467095.81	467096.20	0.000083	76792.69	76792.70	0.000013	322216.23	322216.60	0.000115
25 MISCELLANEOUS	2105425.25	2105427.00	0.000083	860563.63	860564.60	0.000113	436391.86	436392.30	0.000101
TOTAL	63804911.61	63804943.30	0.000050	7333481.49	7333482.90	0.000019	30601310.17	30601334.53	0.000080

NOTE: %DIFFERENCE= (BASE RUN - ACTUAL)/ACTUAL *100

BASE YEAR: T A B L E 5.1.2

SECTORAL INTERMEDIATE INPUT PURCHASES AND VALUE ADDED
(ACTUAL AND BASE RUN)

SECTOR	INTERMEDIATE INPUT PURCH. (DOMESTIC)	INTERMEDIATE INPUT PURCH. (IMPORTED)	VALUE ADDED AT MARKET PRICES							
ACTUAL	BASE RUN	%DIFFERENCE	ACTUAL	BASE RUN	%DIFFERENCE	ACTUAL	BASE RUN	%DIFFERENCE		
1	AGRICULTURE	448695.31	448695.30	-0.00002	112012.00	112012.00	0.00000	7509957.51	7509957.00	-0.00007
2	LIVESTOCK	592436.15	592437.20	0.000177	51709.50	51709.50	0.00000	2264656.52	2264657.00	0.000021
3	FORESTRY	84170.09	84170.09	0.000000	51909.00	51909.00	0.00000	363592.49	363592.50	0.000003
4	FISHING	88786.54	88786.53	-0.000011	200832.00	200832.00	0.00000	1312415.01	1312415.00	-0.000001
5	CRUDE OIL	210054.91	210054.90	-0.000005	36901.00	36901.00	0.00000	14419488.74	14419490.00	0.000009
6	OTHER MINING	376212.63	376212.60	-0.000008	44157.00	44157.00	0.00000	961134.96	961135.00	0.000004
7	FOOD	248948.70	248948.70	0.000000	266304.00	266304.00	0.00000	536727.68	536727.80	0.000022
8	BEVERAGES	182627.65	182627.70	0.000027	146783.00	146783.00	0.00000	574447.96	574447.90	-0.000010
9	TEXTILES	191228.56	191228.60	0.000021	332839.00	332839.00	0.00000	515184.71	515184.70	-0.000002
10	LEATHER PROD	26502.48	26502.48	0.000000	36771.00	36771.00	0.00000	52340.89	52340.91	0.000038
11	WOOD PROD	118527.63	118527.60	-0.000025	104942.00	104942.00	0.00000	247133.97	247134.00	0.000012
12	PAPER PROD	45962.29	45962.30	0.000022	218795.00	218795.00	0.00000	187346.27	187346.30	0.000016
13	CHEMICAL PROD	135000.25	135000.30	0.000037	620516.00	620516.00	0.00000	532973.25	532973.30	0.000009
14	RUBBER PROD	141058.72	141058.70	-0.000014	278911.00	278911.00	0.00000	325429.36	325429.40	0.000012
15	NON-METALIC PROD	47407.79	47407.79	0.000000	44970.00	44970.00	0.00000	127005.07	127005.10	0.000024
16	METAL PROD	85513.57	85513.58	0.000012	336545.00	336545.00	0.00000	387144.80	387144.80	0.000000
17	VEHICLE ASSEMBLY	107322.81	107322.80	-0.000009	468351.00	468351.00	0.00000	328471.29	328471.30	0.000003
18	OTHERS	152080.36	152080.40	0.000026	174564.00	174564.00	0.00000	384698.46	384698.50	0.000010
19	GOVERNMENT	0.00	0.00	0.000000	0.00	0.00	0.00000	2014910.00	2014910.00	0.000000
20	ELECTRICITY & WATER	127171.12	127171.10	-0.000016	1410.00	1410.00	0.00000	244803.02	244803.00	-0.000008
21	BUILDING & CONSTR	2298971.54	2298972.00	0.000020	962580.77	962580.80	0.000003	4283589.69	4283590.00	0.000007
22	DISTRIBUTION	591257.56	591257.60	0.000007	2041000.00	2041000.00	0.00000	7827103.67	7827104.00	0.000004
23	TRANSPORT	415138.39	415138.40	0.000002	177720.90	177720.90	0.00000	2406237.00	2406237.00	0.000000
24	COMMUNICATION	13925.42	13925.42	0.000000	469.00	469.00	0.00000	452701.39	452701.40	0.000002
25	MISCELLANEOUS	604481.00	604481.00	0.000000	5568.00	5568.00	0.00000	1495376.25	1495376.00	-0.000017
TOTAL		7333481.47	7333483.09	0.000022	6716560.17	6716560.20	0.000000	49754869.96	49754871.91	0.000004

NOTE: %DIFFERENCE= (BASE RUN - ACTUAL)/ACTUAL *100

MACROECONOMIC AGGREGATES
(ACTUAL AND BASE RUN)

NUMBER	MACRO AGGREGATES	ACTUAL	BASE RUN	%DIFFERENCE
1	G. PRICE INDEX	1.00	1.00	0.000000
2	DIRECT TAXES	9161100.00	9161104.00	0.000044
3	EXCISE DUTIES	1423760.00	1423760.00	0.000000
4	LESS SUBSIDIES	207440.00	207439.90	-0.000048
5	NET EXCISE DUTIES	1216320.00	1216320.10	0.000008
6	IMPORT DUTIES:FINAL GOODS	594961.17	594961.10	-0.000012
7	IMPORT DUTIES:RAW MATERIALS	812240.34	812240.30	-0.000005
8	TOTAL IMPORT DUTIES	1407201.51	1407201.40	-0.000008
9	EXPORT DUTIES	100.00	100.01	0.010000
10	ROYALTIES	3789500.00	3789500.00	0.000000
11	GOVERNMENT OPERATING SURPLUS	4256240.60	4256241.00	0.000009
12	GOVERNMENT REVENUE	19830462.11	19830466.51	0.000022
13	GOVERNMENT CONSUMPTION EXPENDITURE	5051370.00	5051370.00	0.000000
14	GOVERNMENT WAGE BILL	2005739.23	2005739.00	-0.000011
15	GOVERNMENT BUDGET SURPLUS	12773352.88	12773357.51	0.000036
16	WAGE INCOME:TOTAL WAGES	11883040.00	11883040.00	0.000000
17	PRIVATE OPERATING SURPLUS	31206729.40	31206730.00	0.000002
18	HOUSEHOLD INCOME	43089769.40	43089770.00	0.000001
19	LESS DIRECT TAXES	9161100.00	9161104.00	0.000044
20	HOUSEHOLD DISPOSABLE INCOME	33928669.40	33928666.00	-0.000010
21	LESS HOUSEHOLD CONSUMP. EXPENDITURE	30601310.17	30601330.00	0.000065
22	HOUSEHOLD SAVINGS	3327359.23	3327336.00	-0.000698
23	EXPORT EARNINGS	14307500.00	14307500.00	0.000000
24	LESS IMPORTS:FINISHED GOODS	4919840.00	4919839.00	-0.000020
25	LESS IMPORTS:INTERMEDIATE INPUTS	6716560.17	6716560.00	-0.000003
26	BALANCE OF TRADE	2671099.83	2671101.00	0.000044
27	HOUSEHOLD SAVINGS	3327359.23	3327336.00	-0.000698
28	GOVERNMENT BUDGET SURPLUS	12773352.88	12773357.51	0.000036
29	DOMESTIC SAVINGS	16100712.11	16100693.51	-0.000116
30	BALANCE OF TRADE	2671099.83	2671101.00	0.000044
31	NATIONAL SAVINGS	18771811.94	18771794.51	-0.000093
32	TOTAL WAGE BILL	11883040.00	11883040.00	0.000000
33	TOTAL OPERATING SURPLUS	35462970.00	35462971.00	0.000003
34	TOTAL DEPRECIATION	1192540.00	1192540.00	0.000000
35	TOTAL EXCISE DUTIES	1423760.00	1423760.00	0.000000
36	LESS TOTAL SUBSIDIES	207440.00	207439.90	-0.000048
37	VALUE ADDED MARKET PRICES (GDP)	49754870.00	49754871.10	0.000002

NOTE: %DIFFERENCE= (BASE RUN - ACTUAL)/ACTUAL *100

P E R I O D 1: T A B L E 5.2.1

SECTORAL GROSS OUTPUT, INTERMEDIATE REQUIREMENTS AND HOUSEHOLD CONSUMPTION DEMAND
(BASE YEAR AND PERIOD 1)

SECTOR	GROSS OUTPUT			INTERMEDIATE SALES			HOUSEHOLD CONSUMPTION DEMAND		
	BASE YEAR	PERIOD 1	%DIFFERENCE	BASE YEAR	PERIOD 1	%DIFFERENCE	BASE YEAR	PERIOD 1	%DIFFERENCE
1 AGRICULTURE	807067.1	1032279.0	27.504978	1542892.00	2118815.00	37.327499	6381130.00	7967930.00	24.867069
2 LIVESTOCK	2908807.00	3668515.00	26.117511	575110.90	724448.40	25.966731	2398225.00	2994593.00	24.867058
3 FORESTRY	499671.90	597554.10	19.589294	45666.22	58625.58	28.378438	341507.70	426430.60	24.867053
4 FISHING	1602035.00	2017245.00	25.917651	19784.78	25836.19	30.586188	1645381.00	2054538.00	24.867006
5 CRUDE OIL	14666450.00	15548030.00	6.010862	145618.40	163905.50	12.538234	35.67	44.54	24.866835
6 OTHER MINING	1381506.00	1912449.00	38.432189	393184.80	595403.10	51.430854	761504.80	950868.70	24.867066
7 FOOD	1051981.00	1428283.00	35.770798	68942.40	95563.34	38.613306	732736.40	914946.40	24.867060
8 BEVERAGES	903859.10	1272786.00	40.816860	4191.83	5691.28	35.770773	545717.30	681421.10	24.867051
9 TEXTILES	1039253.00	1421833.00	36.812980	59705.15	71956.91	20.520441	801635.80	1000979.00	24.867053
10 LEATHER PROD	115614.40	147137.50	27.265721	2229.78	2843.09	27.505404	75417.73	94171.91	24.867070
11 WOOD PROD	470603.90	645064.80	37.071707	12888.21	17780.80	37.961750	291986.10	364594.40	24.867040
12 PAPER PROD	452104.50	784340.50	73.486550	45150.20	61863.48	37.017067	710051.30	886620.10	24.867048
13 CHEMICAL PROD	1288491.00	1927210.00	49.571087	570999.10	753866.10	32.025795	486238.60	607151.80	24.867051
14 RUBBER PROD	745399.60	1033936.00	38.708956	80313.17	144172.80	79.513273	483982.50	604334.80	24.867077
15 NON-METALIC PROD	219383.00	398742.20	81.756198	39895.56	60110.22	50.668947	76558.47	95596.31	24.867059
16 METAL PROD	809204.00	1133034.00	40.018339	141190.40	194272.30	37.595970	614000.10	766683.90	24.867064
17 VEHICLE ASSEMBLY	904147.80	1953728.00	116.085025	2992.29	4189.76	40.018514	2630093.00	3284119.00	24.867029
18 OTHERS	711343.60	937989.50	31.861663	72589.99	100595.10	38.579851	614728.00	767592.80	24.867063
19 GOVERNMENT	2014910.00	2022428.00	0.373118	0.00	0.00	0.000000	30232.20	37750.06	24.867062
20 ELECTRICITY & WATER	373384.30	448230.50	20.045353	184584.90	253544.90	37.359502	23670.76	29556.98	24.867051
21 BUILDING & CONSTR	7545143.00	11571730.00	53.366609	61033.52	80412.13	31.750766	585735.90	731391.30	24.867077
22 DISTRIBUTION	10459360.00	13254200.00	26.720947	1160535.00	1649866.00	42.154260	9271310.00	11576810.00	24.867036
23 TRANSPORT	2999097.00	4065322.00	35.551534	1166627.00	1678271.00	43.896691	340847.30	425606.00	24.867059
24 COMMUNICATION	467096.20	569697.10	21.965689	76792.70	99267.78	29.267209	32216.60	402342.40	24.867061
25 MISCELLANEOUS	2105427.00	2514674.00	19.437720	860564.60	1213824.00	41.049725	436392.30	544910.30	24.867075
TOTAL	63804943.30	81596949.20	27.884996	7333482.90	10175124.76	38.748871	30601334.53	38210983.40	24.867049

NOTE: %ZDIFFERENCE= (PERIOD 1 - BASE YEAR)/BASE YEAR * 100

P E R I O D 1 : T A B L E 5.2.2

SECTORAL INTERMEDIATE INPUT PURCHASES AND VALUE ADDED
(BASE YEAR AND PERIOD 1)

SECTOR	INTERMEDIATE INPUT PURCH. (DOMESTIC)	INTERMEDIATE INPUT PURCH. (IMPORTED)	VALUE ADDED AT MARKET PRICES			
BASE YEAR	PERIOD 1	%DIFFERENCE	BASE YEAR	PERIOD 1	%DIFFERENCE	
1 AGRICULTURE	448695.30	573904.20	27.905135	750957.00	9605619.00	27.905113
2 LIVESTOCK	592437.20	747168.30	26.117715	2264657.00	2856133.00	26.117686
3 FORESTRY	84170.09	100658.50	19.589378	363592.50	434818.00	19.589375
4 FISHING	88786.53	111798.00	25.917732	1312415.00	1652564.00	25.917793
5 CRUDE OIL	210054.90	222681.00	6.010867	1441990.00	15286230.00	6.010892
6 OTHER MINING	376212.60	520799.80	38.432298	961135.00	1330521.00	38.432270
7 FOOD	248948.70	337999.80	35.770848	536727.80	728719.80	35.770832
8 BEVERAGES	182627.70	25170.70	40.816988	574447.90	808920.30	40.817000
9 TEXTILES	191228.60	261625.60	36.813054	515184.70	704839.90	36.813050
10 LEATHER PROD	26502.48	33728.59	27.265807	52340.91	66612.07	27.265785
11 WOOD PROD	118527.60	162467.90	37.071811	247134.00	338751.00	37.071791
12 PAPER PROD	45962.30	79738.58	73.486917	187346.30	325021.30	73.486906
13 CHEMICAL PROD	135000.30	201921.60	49.571244	532973.30	797174.80	49.571245
14 RUBBER PROD	141058.70	195661.30	38.709122	325429.40	451400.20	38.709102
15 NON-METALIC PROD	47407.79	86166.63	81.756282	127005.10	230839.70	81.756244
16 METAL PROD	85513.58	119734.70	40.018393	387144.80	542073.90	40.018386
17 VEHICLE ASSEMBLY	107322.80	231909.20	116.085585	328471.30	709779.30	116.085637
18 OTHERS	152080.40	200535.90	31.861839	384698.50	507270.30	31.861783
19 GOVERNMENT	0.00	0.00	0.000000	2014910.00	2022428.00	0.373118
20 ELECTRICITY & WATER	127171.10	152663.10	20.045435	244803.00	293874.80	20.045424
21 BUILDING & CONSTR	2298972.00	3525854.00	53.366548	4283590.00	6569595.00	53.366569
22 DISTRIBUTION	591257.60	749246.80	26.720921	7827104.00	9918576.00	26.720892
23 TRANSPORT	415138.40	562726.60	35.551565	2406237.00	3261692.00	35.551569
24 COMMUNICATION	13925.42	16984.25	21.965801	452701.40	552140.80	21.965781
25 MISCELLANEOUS	604481.00	721978.90	19.437815	1495376.00	1786045.00	19.437854
TOTAL	7333483.09	10175123.95	38.748857	6716560.20	9640181.58	43.528552
				49754871.91	61781639.17	24.172039

NOTE: %DIFFERENCE= (PERIOD 1 - BASE YEAR)/BASE YEAR * 100

MACROECONOMIC AGGREGATES
(BASE YEAR AND PERIOD 1)

NUMBER	MACRO AGGREGATES	BASE YEAR	PERIOD 1	%DIFFERENCE
1	G. PRICE INDEX	1.00	1.00	0.000000
2	DIRECT TAXES	9161104.00	11439200.00	24.867047
3	EXCISE DUTIES	1423760.00	1878541.00	31.942252
4	LESS SUBSIDIES	207439.90	268316.70	29.346717
5	NET EXCISE DUTIES	1216320.10	1610224.30	32.384912
6	IMPORT DUTIES:FINAL GOODS	594961.10	594961.10	0.000000
7	IMPORT DUTIES:RAW MATERIALS	812240.30	1165797.00	43.528584
8	TOTAL IMPORT DUTIES	1407201.40	1760758.10	25.124812
9	EXPORT DUTIES	100.01	100.01	0.000000
10	ROYALTIES	3789500.00	4123048.00	8.801900
11	GOVERNMENT OPERATING SURPLUS	4256241.00	4874091.00	14.516330
12	GOVERNMENT REVENUE	19830466.51	23807421.41	20.054772
13	GOVERNMENT CONSUMPTION EXPENDITURE	5051370.00	5051370.00	0.000000
14	GOVERNMENT WAGE BILL	2005739.00	2013223.00	0.373129
15	GOVERNMENT BUDGET SURPLUS	12773357.51	16742828.41	31.076175
16	WAGE INCOME:TOTAL WAGES	11883040.00	14928950.00	25.632414
17	PRIVATE OPERATING SURPLUS	31206730.00	38876010.00	24.575725
18	HOUSEHOLD INCOME	43089770.00	53804960.00	24.867132
19	LESS DIRECT TAXES	9161104.00	11439200.00	24.867047
20	HOUSEHOLD DISPOSABLE INCOME	33928666.00	42365760.00	24.867155
21	LESS HOUSEHOLD CONSUMP. EXPENDITURE	30601330.00	38210990.00	24.867089
22	HOUSEHOLD SAVINGS	3327336.00	4154770.00	24.867762
23	EXPORT EARNINGS	14307500.00	14307500.00	0.000000
24	LESS IMPORTS:FINISHED GOODS	4919839.00	4919839.00	0.000000
25	LESS IMPORTS:INTERMEDIATE INPUTS	6716560.00	9640181.00	43.528547
26	BALANCE OF TRADE	2671101.00	-252520.00	-109.453780
27	HOUSEHOLD SAVINGS	3327336.00	4154770.00	24.867762
28	GOVERNMENT BUDGET SURPLUS	12773357.51	16742828.41	31.076175
29	DOMESTIC SAVINGS	16100693.51	20897598.41	29.793157
30	BALANCE OF TRADE	2671101.00	-252520.00	-109.453780
31	NATIONAL SAVINGS	18771794.51	20645078.41	9.979248
32	TOTAL WAGE BILL	11883040.00	14928950.00	25.632414
33	TOTAL OPERATING SURPLUS	35462971.00	43750101.00	23.368403
34	TOTAL DEPRECIATION	1192540.00	1492363.00	25.141547
35	TOTAL EXCISE DUTIES	1423760.00	1878541.00	31.942252
36	LESS TOTAL SUBSIDIES	207439.90	268316.70	29.346717
37	VALUE ADDED MARKET PRICES (GDP)	49754871.10	61781638.30	24.172040

NOTE: %DIFFERENCE= (PERIOD 1 - BASE YEAR)/BASE YEAR * 100

P E R I O D 2 : T A B L E 5.3.1

SECTORAL GROSS OUTPUT, INTERMEDIATE REQUIREMENTS AND HOUSEHOLD CONSUMPTION DEMAND
(PERIOD 1 AND PERIOD 2)

SECTOR	GROSS OUTPUT		INTERMEDIATE SALES		HOUSEHOLD CONSUMPTION DEMAND				
	PERIOD 1	PERIOD 2	PERIOD 1	PERIOD 2	PERIOD 1	PERIOD 2			
1 AGRICULTURE	10322790.00	10897500.00	5.567390	2118815.00	2265784.00	6.936377	7967930.00	8372864.00	5.082048
2 LIVESTOCK	3668515.00	3862385.00	5.284700	724448.40	762557.60	5.260444	2994593.00	3146780.00	5.082060
3 FORESTRY	597554.10	62532.60	4.180124	58625.58	61932.66	5.641019	426430.60	448102.00	5.082046
4 FISHING	2017245.00	2123202.00	5.252560	25836.19	27380.45	5.977120	2054538.00	2158951.00	5.082067
5 CRUDE OIL	15548030.00	15773000.00	1.446336	163905.50	168572.20	2.847189	44.54	46.80	5.074091
6 OTHER MINING	1912449.00	2047940.00	7.084686	595403.10	647007.20	8.667086	950868.70	999192.30	5.082048
7 FOOD	1428283.00	1524311.00	6.723317	95563.34	102356.70	7.108751	914946.40	961444.40	5.082046
8 BEVERAGES	1272786.00	1366933.00	7.396923	5691.28	6073.93	6.723444	681421.10	716051.30	5.082056
9 TEXTILES	1421833.00	1519463.00	6.866489	71956.91	75083.41	4.344961	1000979.00	1051849.00	5.082025
10 LEATHER PROD	147137.50	155181.90	5.467267	2843.09	2999.60	5.504926	94171.91	98957.77	5.082046
11 WOOD PROD	645064.80	689585.40	6.901725	17780.80	19029.34	7.021844	364594.40	383123.30	5.082058
12 PAPER PROD	784340.50	869123.60	10.809476	61863.48	66128.52	6.894278	886620.10	931678.60	5.082053
13 CHEMICAL PROD	1927210.00	2090204.00	8.457511	753866.10	800531.80	6.190184	607151.80	638007.60	5.082057
14 RUBBER PROD	1033936.00	1107568.00	7.121524	144172.80	160469.00	11.303242	604334.80	635047.30	5.082034
15 NON-METALIC PROD	398742.20	444512.80	11.478745	60110.22	65268.80	8.581868	95596.31	100454.60	5.082089
16 METAL PROD	1133034.00	1215671.00	7.293426	194272.30	207818.20	6.972636	766683.90	805647.10	5.082042
17 VEHICLE ASSEMBLY	1953728.00	2221569.00	13.709227	4189.76	4495.34	7.293497	3284119.00	3451020.00	5.082063
18 OTHERS	937989.50	995827.00	6.166114	100595.10	107741.70	7.104322	767592.80	806602.20	5.082044
19 GOVERNMENT	2022428.00	2024346.00	0.094837	0.00	0.00	0.000000	37750.06	39668.53	5.082032
20 ELECTRICITY & WATER	448230.50	467330.30	4.261156	253544.90	271142.70	6.940704	29556.98	31059.08	5.082048
21 BUILDING & CONSTR	11571730.00	12599270.00	8.879744	80412.13	85357.32	6.149806	731391.30	768560.90	5.082040
22 DISTRIBUTION	13254200.00	13967410.00	5.381011	1649866.00	1774738.00	7.568615	11576810.00	12165150.00	5.082056
23 TRANSPORT	4065322.00	4337412.00	6.692951	1678271.00	1808837.00	7.779792	425606.00	447235.50	5.082048
24 COMMUNICATION	569697.10	595879.70	4.595881	99267.78	105003.20	5.777726	402342.40	422789.60	5.082040
25 MISCELLANEOUS	2514674.00	2619110.00	4.153063	1213824.00	1303972.00	7.426777	544910.30	572602.90	5.082047
TOTAL	81596949.20	86137267.30	5.564323	10175124.76	10900280.67	7.126752	38210983.40	40152885.78	5.082053

NOTE: *ZDIFFERENCE= (PERIOD 2 - PERIOD 1)/PERIOD 1 * 100

P E R I O D 2 : T A B L E 5.3.2

SECTORAL INTERMEDIATE INPUT PURCHASES AND VALUE ADDED
(PERIOD 1 AND PERIOD 2)

SECTOR	INTERMEDIATE INPUT PURCH. (DOMESTIC)	INTERMEDIATE INPUT PURCH. (IMPORTED)	VALUE ADDED AT MARKET PRICES							
PERIOD 1	PERIOD 2	%DIFFERENCE PERIOD 1	PERIOD 2	%DIFFERENCE PERIOD 1	PERIOD 2	%DIFFERENCE PERIOD 1	PERIOD 2			
1	AGRICULTURE	573904.20	605855.80	5.567410	143269.10	151245.40	5.567355	9605619.00	10140400.00	5.567377
2	LIVESTOCK	747168.30	786653.80	5.284686	65214.84	68661.24	5.284687	2856133.00	3007071.00	5.284698
3	FORESTRY	100658.50	104866.10	4.180074	62077.65	64672.57	4.180120	434818.00	452993.90	4.180117
4	FISHING	111798.00	117670.30	5.252598	252883.10	266166.00	5.252585	1652564.00	1739365.00	5.252505
5	CRUDE OIL	222681.00	225903.10	1.446958	39119.07	39685.10	1.446941	15286230.00	15507410.00	1.446923
6	OTHER MINING	520799.80	557696.90	7.084699	61127.55	65458.25	7.084694	1330521.00	1424785.00	7.084743
7	FOOD	337999.80	360724.60	6.723318	361563.20	385872.20	6.723306	728719.80	777713.90	6.723311
8	BEVERAGES	257170.70	276193.30	7.396877	206695.40	221984.40	7.396875	808920.30	868755.10	7.396872
9	TEXTILES	261625.60	279590.20	6.866530	455367.20	486635.00	6.866502	704839.90	753237.80	6.866510
10	LEATHER PROD	33728.59	35572.60	5.467202	46796.91	49355.39	5.467199	66612.07	70253.90	5.467222
11	WOOD PROD	162467.90	173681.00	6.901733	143845.90	153773.70	6.901691	338751.00	362130.60	6.901707
12	PAPER PROD	73738.58	88357.90	10.809473	379580.70	420611.40	10.809480	325021.30	360154.30	10.809445
13	CHEMICAL PROD	201921.60	218999.10	8.457490	928113.50	1006609.00	8.457532	797174.80	864596.10	8.457530
14	RUBBER PROD	195661.30	209595.30	7.121490	386875.00	414426.20	7.121473	451400.20	483546.70	7.121508
15	NON-METALIC PROD	86166.63	96057.48	11.478748	81735.80	91118.05	11.478752	230839.70	257337.20	11.478745
16	METAL PROD	119734.70	128467.60	7.293541	471224.90	505593.70	7.293503	542073.90	581610.00	7.293489
17	VEHICLE ASSEMBLY	231909.20	263702.20	13.709245	1012039.30	1150782.00	13.709254	709779.30	807084.70	13.709247
18	OTHERS	200535.90	212901.20	6.166128	230183.30	244376.60	6.166086	507270.30	538549.20	6.166121
19	GOVERNMENT	0.00	0.00	0.000000	0.00	0.00	0.000000	202428.00	2024346.00	0.094837
20	ELECTRICITY & WATER	152663.10	159168.30	4.261148	1692.64	1764.77	4.261390	293874.80	306397.30	4.261168
21	BUILDING & CONSTR	3525854.00	3838942.00	8.879778	1476277.00	1607367.00	8.879770	6569595.00	7152960.00	8.879771
22	DISTRIBUTION	749246.80	789563.90	5.381017	2586374.00	2725547.00	5.381008	9918576.00	10452300.00	5.381055
23	TRANSPORT	562726.60	600389.60	6.692948	240903.50	257027.00	6.692929	3261692.00	3479995.00	6.692937
24	COMMUNICATION	16984.25	17764.82	4.595846	572.02	598.31	4.595993	552140.80	577516.60	4.595893
25	MISCELLANEOUS	721978.90	751963.10	4.153058	6650.30	6926.49	4.153046	1786045.00	1860220.00	4.153031
TOTAL		10175123.95	10900280.20	7.126756	9640181.58	10386256.77	7.39223	61781639.17	64850729.30	4.967641

NOTE: %ZDIFFERENCE= (PERIOD 2 - PERIOD 1)/PERIOD 1 * 100

MACROECONOMIC AGGREGATES
(PERIOD 1 AND PERIOD 2)

NUMBER	MACRO AGGREGATES	PERIOD 1	PERIOD 2	%DIFFERENCE
1	G. PRICE INDEX	1.00	1.00	0.00000
2	DIRECT TAXES	11439200.00	12020550.00	5.082086
3	EXCISE DUTIES	1878541.00	1994596.00	6.177933
4	LESS SUBSIDIES	268316.70	283851.00	5.789539
5	NET EXCISE DUTIES	1610224.30	1710745.00	6.242652
6	IMPORT DUTIES:FINAL GOODS	594961.10	594961.10	0.000000
7	IMPORT DUTIES:RAW MATERIALS	1165797.00	1256021.00	7.739255
8	TOTAL IMPORT DUTIES	1760758.10	1850982.10	5.124156
9	EXPORT DUTIES	100.01	100.01	0.000000
10	ROYALTIES	4123048.00	4208166.00	2.064444
11	GOVERNMENT OPERATING SURPLUS	4874091.00	5031760.00	3.234839
12	GOVERNMENT REVENUE	23807421.41	24822303.11	4.262880
13	GOVERNMENT CONSUMPTION EXPENDITURE	5051370.00	5051370.00	0.000000
14	GOVERNMENT WAGE BILL	2013223.00	2015133.00	0.094873
15	GOVERNMENT BUDGET SURPLUS	16742828.41	17755800.11	6.050183
16	WAGE INCOME: TOTAL WAGES	14928950.00	15706230.00	5.206528
17	PRIVATE OPERATING SURPLUS	38876010.00	40833120.00	5.034236
18	HOUSEHOLD INCOME	53804960.00	56539350.00	5.082041
19	LESS DIRECT TAXES	11439200.00	12020550.00	5.082086
20	HOUSEHOLD DISPOSABLE INCOME	42365760.00	44518800.00	5.082029
21	LESS HOUSEHOLD CONSUMP. EXPENDITURE	38210990.00	40152890.00	5.082046
22	HOUSEHOLD SAVINGS	4154770.00	4365910.00	5.081870
23	EXPORT EARNINGS	14307500.00	14307500.00	0.000000
24	LESS IMPORTS: FINISHED GOODS	4919839.00	4919839.00	0.000000
25	LESS IMPORTS: INTERMEDIATE INPUTS	9640181.00	10386260.00	7.739263
26	BALANCE OF TRADE	-252520.00	-998599.00	295.453429
27	HOUSEHOLD SAVINGS	4154770.00	4365910.00	5.081870
28	GOVERNMENT BUDGET SURPLUS	16742828.41	17755800.11	6.050183
29	DOMESTIC SAVINGS	20897598.41	22121710.11	5.857667
30	BALANCE OF TRADE	-252520.00	-998599.00	295.453429
31	NATIONAL SAVINGS	20645078.41	21123111.11	2.315480
32	TOTAL WAGE BILL	14928950.00	15706230.00	5.206528
33	TOTAL OPERATING SURPLUS	43750101.00	45864880.00	4.633769
34	TOTAL DEPRECIATION	1492363.00	1568874.00	5.126836
35	TOTAL EXCISE DUTIES	1878541.00	1994596.00	6.177933
36	LESS TOTAL SUBSIDIES	268316.70	283851.00	5.789539
37	VALUE ADDED MARKET PRICES (GDP)	61781638.30	64850729.00	4.967642

NOTE: %DIFFERENCE= (PERIOD 2 - PERIOD 1)/PERIOD 1 * 100

P E R I O D 3 : T A B L E S . 4 . 1

SECTORAL GROSS OUTPUT, INTERMEDIATE REQUIREMENTS AND HOUSEHOLD CONSUMPTION DEMAND
(PERIOD 2 AND PERIOD 3)

SECTOR	GROSS OUTPUT			INTERMEDIATE SALES			HOUSEHOLD CONSUMPTION DEMAND		
	PERIOD 2	PERIOD 3	%ZDIFFERENCE	PERIOD 2	PERIOD 3	%ZDIFFERENCE	PERIOD 2	PERIOD 3	%ZDIFFERENCE
1 AGRICULTURE	10897500.00	11044170.00	1.345905	2265784.00	2303289.00	1.655277	8372864.00	8476198.00	1.234154
2 LIVESTOCK	3862385.00	3911857.00	1.280867	762557.60	772282.40	1.275287	3146780.00	3185617.00	1.234182
3 FORESTRY	622532.60	628906.90	1.023930	61932.66	62776.60	1.362674	448102.00	453632.30	1.234161
4 FISHING	2123202.00	2150241.00	1.273501	27380.45	27774.53	1.439275	2158951.00	2185596.00	1.234164
5 CRUDE OIL	15773000.00	15830410.00	0.363376	168572.20	169763.00	0.706404	46.80	47.38	1.239316
6 OTHER MINING	2047940.00	2082516.00	1.688331	647007.20	6650176.00	2.035341	999192.30	1011524.00	1.234167
7 FOOD	1524311.00	1548816.00	1.607612	102356.70	104090.30	1.633685	961444.40	973310.30	1.234174
8 BEVERAGES	1366933.00	1390958.00	1.757594	6073.93	6171.57	1.607526	716051.30	724888.50	1.234157
9 TEXTILES	1519463.00	1544377.00	1.639658	75083.41	75881.27	1.062632	1051849.00	1064831.00	1.234208
10 LEATHER PROD	155181.90	157234.70	1.322895	2999.60	3039.54	1.331511	98957.77	100179.10	1.234193
11 WOOD PROD	689585.40	700946.60	1.647541	19029.34	19347.95	1.6274309	383123.30	387851.70	1.234172
12 PAPER PROD	869123.60	890759.30	2.489370	66128.52	67216.92	1.645886	931678.60	943177.10	1.234170
13 CHEMICAL PROD	2090204.00	2131799.00	1.989997	800531.80	812440.30	1.487574	638007.60	645881.60	1.234155
14 RUBBER PROD	1107568.00	1126358.00	1.696510	160469.00	164627.60	2.591529	635047.30	642884.80	1.234160
15 NON-METALIC PROD	444512.80	456192.90	2.627618	65268.80	66585.21	2.016905	100454.60	101694.30	1.234090
16 METAL PROD	1215671.00	1236760.00	1.734762	207818.20	211275.00	1.663377	805647.10	815590.10	1.234163
17 VEHICLE ASSEMBLY	2221569.00	2289919.00	3.076654	44995.34	4573.32	1.734685	3451020.00	3493611.00	1.234157
18 OTHERS	995827.00	1010587.00	1.482185	107741.70	109565.50	1.632752	806602.20	816557.00	1.234165
19 GOVERNMENT	2024346.00	2024836.00	0.024205	0.00	0.00	0.000000	39668.53	40158.11	0.000000
20 ELECTRICITY & WATER	467330.30	472204.50	1.042988	271142.70	275633.50	1.656250	31059.08	31442.40	1.234164
21 BUILDING & CONSTR	12599270.00	12861490.00	2.081232	85357.32	86619.30	1.478467	768560.90	778046.20	1.234164
22 DISTRIBUTION	13967410.00	1414940.00	1.303033	1774738.00	1806604.00	1.795533	12165150.00	12315290.00	1.234181
23 TRANSPORT	4337412.00	4406846.00	1.600816	1808837.00	1842156.00	1.842012	447235.50	452755.10	1.234160
24 COMMUNICATION	595879.70	602561.20	1.121283	105003.20	106466.80	1.393862	422789.60	428007.50	1.234160
25 MISCELLANEOUS	2619110.00	2645761.00	1.017559	1303972.00	1326977.00	1.764225	572602.90	579669.70	1.234154
TOTAL	86137267.30	87295917.10	1.345120	10900280.67	11095332.61	1.637681	40152885.78	40648440.19	1.234169

NOTE: %ZDIFFERENCE= (PERIOD 3 - PERIOD 2)/PERIOD 2 * 100

P E R I O D 3 : T A B L E 5.4.2

SECTORAL INTERMEDIATE INPUT PURCHASES AND VALUE ADDED
(PERIOD 2 AND PERIOD 3)

SECTOR	INTERMEDIATE INPUT PURCH. (DOMESTIC)	INTERMEDIATE INPUT PURCH. (IMPORTED)	VALUE ADDED AT MARKET PRICES							
PERIOD 2	PERIOD 3	PERIOD 2	PERIOD 3							
*ZDIFFERENCE	*ZDIFFERENCE	*ZDIFFERENCE	*ZDIFFERENCE							
1	AGRICULTURE	605855.80	614009.50	1.345815	151245.40	153280.90	1.345826	10140400.00	10276870.00	1.345805
2	LIVESTOCK	786653.80	796729.90	1.280881	69661.24	69540.71	1.280883	3007071.00	3045588.00	1.280881
3	FORESTRY	104866.10	105939.90	1.023972	64672.57	65334.77	1.023927	452993.90	457632.20	1.023921
4	FISHING	117670.30	119168.80	1.273473	266166.00	269555.60	1.273491	1739365.00	1761516.00	1.273511
5	CRUDE OIL	225903.10	226725.40	0.364006	39685.10	39829.55	0.363991	15507410.00	15563850.00	0.363955
6	OTHER MINING	557696.90	567112.70	1.688336	65458.25	66563.41	1.688343	1424785.00	1448840.00	1.688325
7	FOOD	360724.60	366523.80	1.607653	385872.20	392075.70	1.607657	777713.90	790216.80	1.607648
8	BEVERAGES	276193.30	281047.70	1.757610	221984.40	225886.00	1.757601	866755.10	884024.40	1.757607
9	TEXTILES	279590.20	284174.50	1.639650	486635.00	494614.20	1.639668	753237.80	765588.40	1.639668
10	LEATHER PROD	35572.60	36043.17	1.322844	49355.39	50008.29	1.322855	70253.90	71183.25	1.322845
11	WOOD PROD	173681.00	176542.50	1.647561	153773.70	156307.20	1.647551	362130.60	368096.90	1.647555
12	PAPER PROD	88357.90	90557.44	2.489353	420611.40	431081.90	2.489352	360154.30	369119.90	2.489377
13	CHEMICAL PROD	218999.10	223357.20	1.990008	1006609.00	1026640.00	1.989948	864596.10	881801.30	1.989970
14	RUBBER PROD	209595.30	213151.10	1.696508	414426.20	421456.90	1.696490	483546.70	491750.00	1.696486
15	NON-METALIC PROD	96057.48	98581.52	2.627635	91118.05	93512.30	2.627635	257337.20	264099.10	2.627642
16	METAL PROD	128467.60	130696.10	1.734679	505593.70	514364.20	1.734693	581610.00	591699.30	1.734719
17	VEHICLE ASSEMBLY	263702.20	271815.40	3.076652	1150782.00	1186188.00	3.076690	807084.70	831915.90	3.076654
18	OTHERS	212901.20	216056.70	1.482143	244376.60	247998.60	1.482139	538549.20	546531.20	1.482130
19	GOVERNMENT	0.00	0.00	0.000000	0.00	0.00	0.000000	2024346.00	2024836.00	0.024205
20	ELECTRICITY & WATER	159168.30	160828.40	1.042984	1764.77	1783.17	1.042629	306397.30	309592.90	1.042960
21	BUILDING & CONSTR	3838942.00	3918838.00	2.081198	1607367.00	1640820.00	2.081230	7152960.00	7301829.00	2.081222
22	DISTRIBUTION	789563.90	799852.50	1.303074	2725547.00	2761062.00	1.303041	10452300.00	10588500.00	1.303062
23	TRANSPORT	600389.60	610000.80	1.600827	257027.00	261141.50	1.600805	3479995.00	3535704.00	1.600836
24	COMMUNICATION	17764.82	17964.02	1.121317	598.31	605.02	1.121492	577516.60	583992.10	1.121266
25	MISCELLANEOUS	751963.10	759614.70	1.017550	6926.49	6996.97	1.017543	1860220.00	1879149.00	1.017568
TOTAL										
10900280.20 11085331.75 1.697677 10386256.77 10576646.89 1.833097 64850729.30 65633925.65 1.207691										

NOTE: *ZDIFFERENCE= (PERIOD 3 - PERIOD 2)/PERIOD 2 * 100

MACROECONOMIC AGGREGATES
(PERIOD 2 AND PERIOD 3)

NUMBER	MACRO AGGREGATES	PERIOD 2	PERIOD 3	%DIFFERENCE
1	G. PRICE INDEX	1.00	1.00	0.00000
2	DIRECT TAXES	12020550.00	12168900.00	1.234137
3	EXCISE DUTIES	1994596.00	2024212.00	1.484812
4	LESS SUBSIDIES	283851.00	287816.30	1.396965
5	NET EXCISE DUTIES	1710745.00	1736395.70	1.499388
6	IMPORT DUTIES:FINAL GOODS	594961.10	594961.10	0.000000
7	IMPORT DUTIES:RAW MATERIALS	1256021.00	1279045.00	1.833090
8	TOTAL IMPORT DUTIES	1850982.10	1874006.10	1.243880
9	EXPORT DUTIES	100.01	100.01	0.000000
10	ROYALTIES	4208166.00	4229888.00	0.516187
11	GOVERNMENT OPERATING SURPLUS	5031760.00	5071996.00	0.799641
12	GOVERNMENT REVENUE	24822303.11	25081285.81	1.043347
13	GOVERNMENT CONSUMPTION EXPENDITURE	5051370.00	5051370.00	0.000000
14	GOVERNMENT WAGE BILL	2015133.00	2015620.00	0.024167
15	GOVERNMENT BUDGET SURPLUS	1775800.11	18014295.81	1.455838
16	WAGE INCOME:TOTAL WAGES	15706230.00	15904580.00	1.262875
17	PRIVATE OPERATING SURPLUS	40833120.00	41332560.00	1.223125
18	HOUSEHOLD INCOME	56539350.00	57237140.00	1.234167
19	LESS DIRECT TAXES	12020550.00	12168900.00	1.234137
20	HOUSEHOLD DISPOSABLE INCOME	44518800.00	45068240.00	1.234175
21	LESS HOUSEHOLD CONSUMP. EXPENDITURE	40152890.00	40648440.00	1.234158
22	HOUSEHOLD SAVINGS	4365910.00	4419800.00	1.234336
23	EXPORT EARNINGS	14307500.00	14307500.00	0.000000
24	LESS IMPORTS:FINISHED GOODS	4919839.00	4919839.00	0.000000
25	LESS IMPORTS:INTERMEDIATE INPUTS	10386260.00	10576650.00	1.833095
26	BALANCE OF TRADE	-998599.00	-1188989.00	19.065711
27	HOUSEHOLD SAVINGS	4365910.00	4419800.00	1.234336
28	GOVERNMENT BUDGET SURPLUS	1775800.11	18014295.81	1.455838
29	DOMESTIC SAVINGS	2212170.11	22434095.81	1.412123
30	BALANCE OF TRADE	-998599.00	-1188989.00	19.065711
31	NATIONAL SAVINGS	2112311.11	21245106.81	0.577546
32	TOTAL WAGE BILL	15706230.00	15904580.00	1.262875
33	TOTAL OPERATING SURPLUS	45864880.00	46404556.00	1.176665
34	TOTAL DEPRECIATION	1568874.00	1588399.00	1.244523
35	TOTAL EXCISE DUTIES	1994596.00	2024212.00	1.484812
36	LESS TOTAL SUBSIDIES	283851.00	287816.30	1.396965
37	VALUE ADDED MARKET PRICES (GDP)	64850729.00	65633930.70	1.207699

NOTE: %DIFFERENCE= (PERIOD 3 - PERIOD 2)/PERIOD 2 * 100

P E R I O D 4: T A B L E 5.5.1

SECTORAL GROSS OUTPUT, INTERMEDIATE REQUIREMENTS AND HOUSEHOLD CONSUMPTION DEMAND
(PERIOD 3 AND PERIOD 4)

	GROSS OUTPUT				INTERMEDIATE SALES				HOUSEHOLD CONSUMPTION DEMAND			
	PERIOD 3	PERIOD 4	%DIFFERENCE	PERIOD 3	PERIOD 4	%DIFFERENCE	PERIOD 3	PERIOD 4	%DIFFERENCE	PERIOD 3	PERIOD 4	%DIFFERENCE
1 AGRICULTURE	11044170.00	11081590.00	0.338821	2303289.00	2312860.00	0.415536	8476198.00	8502568.00	0.311106			
2 LIVESTOCK	3911857.00	3924482.00	0.322737	772282.40	774764.10	0.321346	3185617.00	3195527.00	0.311086			
3 FORESTRY	628906.90	630533.50	0.258639	62776.60	62991.95	0.343042	453632.30	455043.60	0.311111			
4 FISHING	2150241.00	2157141.00	0.320894	27774.53	27879.09	0.362058	2185596.00	2192396.00	0.311128			
5 CRUDE OIL	15830410.00	15845060.00	0.092543	169763.00	170067.00	0.179073	47.38	47.53	0.316589			
6 OTHER MINING	2082516.00	2091339.00	0.423670	660176.00	663536.70	0.509061	1011524.00	1014671.00	0.311115			
7 FOOD	1548816.00	1555070.00	0.403792	104090.30	104532.70	0.425016	973310.30	976338.30	0.311103			
8 BEVERAGES	1390958.00	1397089.00	0.440775	6171.57	6196.49	0.403787	724888.50	727143.70	0.311110			
9 TEXTILES	1544377.00	1550735.00	0.411687	75881.27	76084.88	0.268327	1064831.00	1068144.00	0.311129			
10 LEATHER PROD	157234.70	157758.50	0.333133	3039.54	3049.73	0.335248	100179.10	100490.70	0.311043			
11 HOOD PROD	700946.60	703845.70	0.413598	19347.95	19429.26	0.420251	387851.70	389058.30	0.311098			
12 PAPER PROD	890759.30	896280.50	0.619831	67216.92	67494.67	0.413214	943177.10	946111.30	0.311097			
13 CHEMICAL PROD	2131799.00	2142413.00	0.497889	812440.30	815479.30	0.374058	645881.60	647891.00	0.311110			
14 RUBBER PROD	1126358.00	1131153.00	0.425708	164627.60	165688.80	0.644606	642884.80	644884.90	0.311113			
15 NON-METALIC PROD	456192.90	459173.60	0.653386	66585.21	66921.16	0.504541	101694.30	102010.70	0.311129			
16 METAL PROD	1236760.00	1242141.00	0.435088	211275.00	212157.10	0.417513	815590.10	818127.50	0.311112			
17 VEHICLE ASSEMBLY	2289919.00	2307362.00	0.761730	4573.32	4593.22	0.435132	3493611.00	3504480.00	0.311111			
18 OTHERS	1010587.00	1014353.00	0.372655	109565.50	110030.90	0.424769	816557.00	819097.40	0.311111			
19 GOVERNMENT	2024836.00	2024961.00	0.006173	0.00	0.00	0.000000	40158.11	40283.04	0.311095			
20 ELECTRICITY & WATER	472204.50	473448.30	0.263403	275633.50	276779.50	0.415769	31442.40	31540.22	0.311109			
21 BUILDING & CONSTR	12861490.00	12928410.00	0.520313	86619.30	86941.34	0.371788	778046.20	780466.80	0.311113			
22 DISTRIBUTION	14149410.00	14195860.00	0.328282	1806604.00	1814736.00	0.450126	12315290.00	12353600.00	0.311077			
23 TRANSPORT	4406846.00	4424565.00	0.402079	1842156.00	1850659.00	0.461579	452755.10	454163.70	0.311117			
24 COMMUNICATION	602561.20	604266.30	0.282975	106466.80	106840.30	0.350814	428007.50	429339.10	0.311116			
25 MISCELLANEOUS	2645761.00	2652562.00	0.257053	1326977.00	1328247.00	0.442359	579669.70	581473.10	0.311108			
TOTAL	87295917.10	87591592.40	0.338705	11085332.61	11132556.19	0.426001	40648440.19	40774896.89	0.311099			

NOTE: %ZDIFFERENCE= (PERIOD 4 - PERIOD 3)/PERIOD 3 * 100

P E R I O D 4: T A B L E 5.5.2

SECTORAL INTERMEDIATE INPUT PURCHASES AND VALUE ADDED
(PERIOD 3 AND PERIOD 4)

SECTOR	INTERMEDIATE INPUT PURCH. (DOMESTIC)	INTERMEDIATE INPUT PURCH. (IMPORTED)	VALUE ADDED AT MARKET PRICES						
	PERIOD 3	PERIOD 4	%DIFFERENCE PERIOD 3 PERIOD 4	%DIFFERENCE PERIOD 3 PERIOD 4					
1 AGRICULTURE	614009.50	616090.30	0.338887	153280.90	153800.40	0.338920	10276870.00	10311700.00	0.338916
2 LIVESTOCK	796729.90	799301.10	0.322719	69540.71	69765.14	0.322732	3045588.00	3055417.00	0.322729
3 FORESTRY	105939.90	106213.90	0.258637	65394.77	65503.75	0.258637	457632.20	458815.90	0.258657
4 FISHING	119168.80	119551.20	0.320889	269555.60	270420.60	0.320899	1761516.00	1767169.00	0.320917
5 CRUDE OIL	226725.40	226935.20	0.092535	39829.55	39866.41	0.092544	15563850.00	15578260.00	0.092586
6 OTHER MINING	567112.70	569515.40	0.423672	66563.41	66845.42	0.423671	1448840.00	1454978.00	0.423649
7 FOOD	366523.80	368003.60	0.403739	392075.70	393658.70	0.403749	790216.80	793407.30	0.403750
8 BEVERAGES	281047.70	282286.50	0.440779	225886.00	226881.60	0.440753	884024.40	887921.00	0.440780
9 TEXTILES	284174.50	285344.30	0.411648	494614.20	496650.30	0.411654	765588.40	768740.10	0.411670
10 LEATHER PROD	36043.17	36163.26	0.333184	50008.29	50174.90	0.333165	71183.25	71420.41	0.333168
11 WOOD PROD	176542.50	177272.70	0.413611	156307.20	156953.70	0.413609	368096.90	369619.30	0.413587
12 PAPER PROD	90557.44	91118.76	0.619850	431081.90	433753.90	0.619836	369119.90	371407.80	0.619826
13 CHEMICAL PROD	223357.20	224469.30	0.497902	1026640.00	1031752.00	0.497935	881801.30	886191.80	0.497901
14 RUBBER PROD	213151.10	214058.50	0.425707	421456.90	423251.20	0.425737	491750.00	493843.40	0.425704
15 NON-METALIC PROD	90581.52	92225.63	0.653378	93512.30	94123.29	0.653379	264099.10	265824.70	0.653391
16 METAL PROD	130696.10	131264.80	0.435132	514364.20	516602.40	0.435139	591699.30	594273.90	0.435120
17 VEHICLE ASSEMBLY	271815.40	273885.80	0.761693	1186188.00	1195223.00	0.761684	831915.90	838252.60	0.761700
18 OTHERS	216056.70	216861.90	0.372680	247998.60	248922.90	0.372704	546531.20	548568.20	0.372714
19 GOVERNMENT	0.00	0.00	0.000000	0.00	0.00	0.000000	2024836.00	2024961.00	0.006173
20 ELECTRICITY & WATER	160828.40	161252.00	0.263386	1783.17	1787.87	0.263576	309592.90	310408.40	0.263410
21 BUILDING & CONSTR	3918838.00	3939228.00	0.520307	1640820.00	1649357.00	0.520289	7301829.00	7339820.00	0.520294
22 DISTRIBUTION	799852.50	802477.90	0.328236	2761062.00	2770126.00	0.328279	10588500.00	10623250.00	0.328186
23 TRANSPORT	610000.80	612453.40	0.402065	261141.50	262191.50	0.402081	3535704.00	3549920.00	0.402070
24 COMMUNICATION	17964.02	18014.85	0.282954	605.02	606.73	0.282635	583992.10	585644.70	0.282983
25 MISCELLANEOUS	759614.70	761567.40	0.257065	6996.97	7014.95	0.256968	1879149.00	1883979.00	0.257031
TOTAL	11065331.75	11132555.70	0.426004	10576646.89	10625233.66	0.459378	65633925.65	65833793.51	0.304519

NOTE: %ZDIFFERENCE= (PERIOD 4 - PERIOD 3)/PERIOD 3 * 100

MACROECONOMIC AGGREGATES
(PERIOD 3 AND PERIOD 4)

NUMBER	MACRO AGGREGATES	PERIOD 3	PERIOD 4	%DIFFERENCE
1	6. PRICE INDEX	1.00	1.00	0.000000
2	DIRECT TAXES	12168900.00	12206760.00	0.311121
3	EXCISE DUTIES	2024212.00	2031770.00	0.373380
4	LESS SUBSIDIES	287816.30	288827.90	0.351474
5	NET EXCISE DUTIES	1736395.70	1742942.10	0.377011
6	IMPORT DUTIES:FINAL GOODS	594961.10	594961.10	0.000000
7	IMPORT DUTIES:RAW MATERIALS	1279045.00	1284920.00	0.459327
8	TOTAL IMPORT DUTIES	1874006.10	1879881.10	0.313500
9	EXPORT DUTIES	100.01	100.01	0.000000
10	ROYALTIES	4229888.00	4235431.00	0.131044
11	GOVERNMENT OPERATING SURPLUS	5071996.00	5082263.00	0.202425
12	GOVERNMENT REVENUE	25081285.81	25147377.21	0.263509
13	GOVERNMENT CONSUMPTION EXPENDITURE	5051370.00	5051370.00	0.000000
14	GOVERNMENT WAGE BILL	2015620.00	2015744.00	0.006152
15	GOVERNMENT BUDGET SURPLUS	18014295.81	18080263.21	0.366195
16	WAGE INCOME:TOTAL WAGES	15904580.00	15955200.00	0.318273
17	PRIVATE OPERATING SURPLUS	41332560.00	41460010.00	0.308353
18	HOUSEHOLD INCOME	57237140.00	57415210.00	0.311109
19	LESS DIRECT TAXES	12168900.00	12206760.00	0.311121
20	HOUSEHOLD DISPOSABLE INCOME	45068240.00	45208450.00	0.311106
21	LESS HOUSEHOLD CONSUMP. EXPENDITURE	40648440.00	40774900.00	0.311107
22	HOUSEHOLD SAVINGS	4419600.00	4433550.00	0.311100
23	EXPORT EARNINGS	14307500.00	14307500.00	0.000000
24	LESS IMPORTS:FINISHED GOODS	4919839.00	4919839.00	0.000000
25	LESS IMPORTS:INTERMEDIATE INPUTS	10576650.00	10625230.00	0.459314
26	BALANCE OF TRADE	-1188989.00	-1237569.00	4.085824
27	HOUSEHOLD SAVINGS	4419800.00	4433550.00	0.311100
28	GOVERNMENT BUDGET SURPLUS	18014295.81	18080263.21	0.366195
29	DOMESTIC SAVINGS	22434095.81	22513813.21	0.355340
30	BALANCE OF TRADE	-1188989.00	-1237569.00	4.085824
31	NATIONAL SAVINGS	21245106.81	21276244.21	0.146563
32	TOTAL WAGE BILL	15904580.00	15955200.00	0.318273
33	TOTAL OPERATING SURPLUS	46404556.00	46542273.00	0.296775
34	TOTAL DEPRECIATION	1588399.00	1593382.00	0.313712
35	TOTAL EXCISE DUTIES	2024212.00	2031770.00	0.373380
36	LESS TOTAL SUBSIDIES	287816.30	288827.90	0.351474
37	VALUE ADDED MARKET PRICES (GDP)	65633930.70	65833797.10	0.304517

NOTE: %DIFFERENCE= (PERIOD 4 - PERIOD 3)/PERIOD 3 * 100

P E R I O D 5 : T A B L E 5.6.1

SECTORAL GROSS OUTPUT, INTERMEDIATE REQUIREMENTS AND HOUSEHOLD CONSUMPTION DEMAND
(PERIOD 4 AND PERIOD 5)

SECTOR	GROSS OUTPUT				INTERMEDIATE SALES				HOUSEHOLD CONSUMPTION DEMAND			
	PERIOD 4	PERIOD 5	%DIFFERENCE	PERIOD 4	PERIOD 5	%DIFFERENCE	PERIOD 4	PERIOD 5	%DIFFERENCE			
1 AGRICULTURE	11081590.00	11091140.00	0.086179	2312860.00	2315302.00	0.105584	8502568.00	8509296.00	0.079129			
2 LIVESTOCK	3924482.00	3927704.00	0.0082100	774764.10	775397.40	0.081741	3195527.00	3198056.00	0.079142			
3 FORESTRY	630533.50	630948.40	0.065801	62991.95	63046.89	0.087217	455043.60	455403.70	0.079135			
4 FISHING	2157141.00	2158901.00	0.081589	27875.09	27900.75	0.092054	2192396.00	2194130.00	0.079092			
5 CRUDE OIL	15845060.00	15848800.00	0.023604	170067.00	170144.50	0.045570	47.53	47.57	0.084157			
6 OTHER MINING	2091339.00	2093591.00	0.107682	663536.70	664394.10	0.129217	1014671.00	1015474.00	0.079139			
7 FOOD	1555070.00	1556665.00	0.102568	104532.70	104645.60	0.108004	976338.30	977110.80	0.079122			
8 BEVERAGES	1397089.00	1398653.00	0.111947	6196.49	6202.85	0.102639	727143.70	727719.10	0.079132			
9 TEXTILES	1550735.00	1552357.00	0.104596	76084.88	76136.82	0.068266	1068144.00	1068989.00	0.079109			
10 LEATHER PROD	157758.50	157892.20	0.084750	3049.73	3052.33	0.085253	100490.70	100570.20	0.079112			
11 WOOD PROD	703845.70	704585.40	0.105094	19429.26	19450.00	0.106746	389058.30	389366.10	0.079114			
12 PAPER PROD	896280.50	897689.30	0.157183	67494.67	67565.53	0.104986	946111.30	946859.90	0.079124			
13 CHEMICAL PROD	2142413.00	2145122.00	0.126446	815479.30	816254.70	0.095085	647891.00	648403.60	0.079118			
14 RUBBER PROD	1131153.00	1132376.00	0.108120	165688.80	165959.70	0.163499	644884.90	645395.10	0.079115			
15 NON-METALIC PROD	459173.60	459934.20	0.165645	66921.16	67006.88	0.128091	102010.70	102091.40	0.079109			
16 METAL PROD	1242141.00	1243514.00	0.110535	212157.10	212382.20	0.106101	818127.50	818774.90	0.079132			
17 VEHICLE ASSEMBLY	2307362.00	2311813.00	0.192904	4593.22	4598.29	0.110380	3504480.00	3507253.00	0.079124			
18 OTHERS	1014353.00	1015314.00	0.094740	110030.90	110149.60	0.107879	819097.40	819745.50	0.079124			
19 GOVERNMENT	2024961.00	2024993.00	0.001580	0.00	0.00	0.000000	40283.04	40314.92	0.079140			
20 ELECTRICITY & WATER	473448.30	473765.70	0.067040	276779.50	277071.90	0.105644	31540.22	31565.18	0.079137			
21 BUILDING & CONSTR	12928410.00	12945480.00	0.132035	86941.34	87023.49	0.094489	780466.80	781084.30	0.079119			
22 DISTRIBUTION	14195860.00	14207710.00	0.083475	1814736.00	1816811.00	0.114342	12363380.00	12363380.00	0.079167			
23 TRANSPORT	4424565.00	4429087.00	0.102202	1850659.00	1852829.00	0.117256	454163.70	454523.10	0.079134			
24 COMMUNICATION	604266.30	604701.30	0.071988	106840.30	106935.60	0.089199	429339.10	429678.80	0.079122			
25 MISCELLANEOUS	2652562.00	2654297.00	0.065408	1332847.00	1334345.00	0.112391	581473.10	581933.20	0.079127			
TOTAL	87591592.40	87667033.50	0.086128	11132556.19	11144606.13	0.108241	40774896.89	40807165.37	0.079138			

NOTE: %DIFFERENCE= (PERIOD 5 - PERIOD 4) / PERIOD 4 * 100

P E R I O D 5 : T A B L E 5.6.2

SECTORAL INTERMEDIATE INPUT PURCHASES AND VALUE ADDED
(PERIOD 4 AND PERIOD 5)

SECTOR	INTERMEDIATE INPUT PURCH. (DOMESTIC)	INTERMEDIATE INPUT PURCH. (IMPORTED)	VALUE ADDED AT MARKET PRICES
	PERIOD 4	PERIOD 5	MZDIFFERENCE PERIOD 4 PERIOD 5 MZDIFFERENCE
1 AGRICULTURE	616090.30	616621.30	0.086189 153800.40 153932.90 0.086151 10311700.00 10320590.00 0.086213
2 LIVESTOCK	799301.10	799957.30	0.082097 69765.14 69822.41 0.082090 3055417.00 3057925.00 0.082084
3 FORESTRY	106213.90	106283.80	0.065811 65503.75 65546.86 0.065813 458815.90 459117.00 0.065625
4 FISHING	119551.20	119648.80	0.081639 270420.60 270641.30 0.081614 1767169.00 1768611.00 0.081599
5 CRUDE OIL	226935.20	226988.70	0.023575 39866.41 39875.81 0.023579 15578260.00 15581930.00 0.023558
6 OTHER MINING	569515.40	570128.60	0.107670 66845.42 66917.40 0.107681 1454978.00 1456545.00 0.107699
7 FOOD	368003.60	368381.30	0.102635 393658.70 394062.70 0.102627 793407.30 794221.60 0.102633
8 BEVERAGES	282286.50	282602.60	0.111978 226881.60 227135.70 0.111997 887921.00 888915.10 0.111958
9 TEXTILES	285344.30	285642.90	0.104646 496650.30 497169.90 0.104621 768740.10 769544.30 0.104613
10 LEATHER PROD	36163.26	36193.90	0.084727 50174.90 50217.42 0.084744 71420.41 71480.93 0.084738
11 WOOD PROD	177272.70	177459.00	0.105092 156953.70 157118.60 0.105063 369619.30 370007.80 0.105108
12 PAPER PROD	91118.76	91261.97	0.157169 433753.90 434435.70 0.157186 371407.80 371991.60 0.157186
13 CHEMICAL PROD	224469.30	224753.10	0.126432 1031752.00 1033056.00 0.126387 886191.80 887312.20 0.126429
14 RUBBER PROD	214058.50	214290.00	0.108148 423251.20 423708.90 0.108139 493843.40 494377.50 0.108152
15 NON-METALIC PROD	99225.63	99390.00	0.165653 94123.29 94279.21 0.165655 265824.70 266265.00 0.165635
16 METAL PROD	131264.80	131409.90	0.110540 516602.40 517173.40 0.110530 594273.90 594930.80 0.110538
17 VEHICLE ASSEMBLY	273885.80	274414.20	0.192927 1195223.00 1197529.00 0.192935 838252.60 839869.60 0.192901
18 OTHERS	216861.90	217067.40	0.094761 248922.90 249158.80 0.094768 548568.20 549087.90 0.094738
19 GOVERNMENT	0.00	0.00	0.000000 0.00 0.00 0.000000 2024961.00 2024993.00 0.001580
20 ELECTRICITY & WATER	161252.00	161360.10	0.067038 1787.87 1789.07 0.067119 310408.40 310616.50 0.067041
21 BUILDING & CONSTR	3939228.00	3944431.00	0.132082 1649357.00 1651535.00 0.132051 7339820.00 7349513.00 0.132060
22 DISTRIBUTION	802477.90	803147.80	0.083479 2770126.00 2772438.00 0.083462 10623250.00 10632120.00 0.083496
23 TRANSPORT	612453.40	613079.30	0.102196 262191.50 262459.50 0.102215 354920.00 3553548.00 0.102199
24 COMMUNICATION	18014.85	18027.82	0.071996 606.73 607.17 0.072520 585644.70 586066.30 0.071989
25 MISCELLANEOUS	761567.40	762065.50	0.065405 7014.95 7019.54 0.065432 1883979.00 1885212.00 0.065447
TOTAL	1113255.70	1114606.29	0.108246 10625233.66 10637630.29 0.116672 6583793.51 65884791.13 0.077464

NOTE: MZDIFFERENCE= (PERIOD 5 - PERIOD 4)/PERIOD 4 * 100

MACROECONOMIC AGGREGATES
(PERIOD 4 AND PERIOD 5)

NUMBER	MACRO AGGREGATES	PERIOD 4	PERIOD 5	%DIFFERENCE
1	6. PRICE INDEX	1.00	1.00	0.00000
2	DIRECT TAXES	12206760.00	12216420.00	0.079136
3	EXCISE DUTIES	2031770.00	2033698.00	0.094893
4	LESS SUBSIDIES	288827.90	289086.10	0.089396
5	NET EXCISE DUTIES	1742942.10	1744611.90	0.095804
6	IMPORT DUTIES:FINAL GOODS	594961.10	594961.10	0.000000
7	IMPORT DUTIES:RAW MATERIALS	1284920.00	1286419.00	0.116661
8	TOTAL IMPORT DUTIES	1879881.10	1881380.10	0.079739
9	EXPORT DUTIES	100.01	100.01	0.000000
10	ROYALTIES	4235431.00	4236845.00	0.033385
11	GOVERNMENT OPERATING SURPLUS	5082263.00	5084883.00	0.051552
12	GOVERNMENT REVENUE	25147377.21	25164240.01	0.067056
13	GOVERNMENT CONSUMPTION EXPENDITURE	5051370.00	5051370.00	0.000000
14	GOVERNMENT WAGE BILL	2015744.00	2015776.00	0.001588
15	GOVERNMENT BUDGET SURPLUS	18080263.21	18097094.01	0.093089
16	WAGE INCOME:TOTAL WAGES	15955200.00	15968110.00	0.080914
17	PRIVATE OPERATING SURPLUS	41460010.00	41492530.00	0.078437
18	HOUSEHOLD INCOME	57415210.00	57460640.00	0.079125
19	LESS DIRECT TAXES	12206760.00	12216420.00	0.079136
20	HOUSEHOLD DISPOSABLE INCOME	45208450.00	45244220.00	0.079122
21	LESS HOUSEHOLD CONSUMP. EXPENDITURE	40774900.00	40807160.00	0.079117
22	HOUSEHOLD SAVINGS	4433550.00	4437060.00	0.079169
23	EXPORT EARNINGS	14307500.00	14307500.00	0.000000
24	LESS IMPORTS:FINISHED GOODS	4919839.00	4919839.00	0.000000
25	LESS IMPORTS:INTERMEDIATE INPUTS	10625230.00	10637630.00	0.116703
26	BALANCE OF TRADE	-1237569.00	-1249969.00	1.001964
27	HOUSEHOLD SAVINGS	4433550.00	4437060.00	0.079169
28	GOVERNMENT BUDGET SURPLUS	18080263.21	18097094.01	0.093089
29	DOMESTIC SAVINGS	22513813.21	22534154.01	0.090348
30	BALANCE OF TRADE	-1237569.00	-1249969.00	1.001964
31	NATIONAL SAVINGS	21276244.21	21284185.01	0.037322
32	TOTAL WAGE BILL	15955200.00	15968110.00	0.080914
33	TOTAL OPERATING SURPLUS	46542273.00	46577413.00	0.075501
34	TOTAL DEPRECIATION	1593382.00	1594653.00	0.079767
35	TOTAL EXCISE DUTIES	2031770.00	2033698.00	0.094893
36	LESS TOTAL SUBSIDIES	288827.90	289086.10	0.089396
37	VALUE ADDED MARKET PRICES (GDP)	65833797.10	65884787.90	0.077454

NOTE: *%DIFFERENCE=(PERIOD 5 - PERIOD 4)/PERIOD 4 * 100

T A B L E 5.7.1

SECTORAL GROSS OUTPUT, INTERMEDIATE REQUIREMENTS AND HOUSEHOLD CONSUMPTION DEMAND
(BASE YEAR AND PERIOD 5)

SECTOR	GROSS OUTPUT			INTERMEDIATE SALES			HOUSEHOLD CONSUMPTION DEMAND		
	BASE YEAR	PERIOD 5	%ZDIFFERENCE	BASE YEAR	PERIOD 5	%ZDIFFERENCE	BASE YEAR	PERIOD 5	%ZDIFFERENCE
1 AGRICULTURE	8070671.00	11091140.00	37.425252	1542892.00	2315302.00	50.062480	6381130.00	8509296.00	33.350927
2 LIVESTOCK	2908807.00	3927704.00	35.028003	575110.90	775397.40	34.825718	2398225.00	3198056.00	33.350957
3 FORESTRY	499671.90	630948.40	26.272540	45666.22	63046.89	38.060234	341507.70	455403.70	33.350932
4 FISHING	1602035.00	2158901.00	34.759915	19784.78	27900.75	41.021280	1645381.00	2194130.00	33.350877
5 CRUDE OIL	14666450.00	15848800.00	8.061596	145618.40	170144.50	16.842720	35.67	47.57	33.361368
6 OTHER MINING	1381506.00	2093591.00	51.544112	393184.80	664394.10	68.977565	761504.80	1015474.00	33.350965
7 FOOD	1051981.00	1556665.00	47.974631	68942.40	104645.60	51.786999	732736.40	977110.80	33.350929
8 BEVERAGES	903859.10	1398653.00	54.742371	4191.83	6202.85	47.974751	545717.30	727719.10	33.350931
9 TEXTILES	1039253.00	1552357.00	49.372386	59705.15	76136.82	27.521361	801635.80	1068989.00	33.350956
10 LEATHER PROD	115614.40	157892.20	36.567936	2229.78	3052.33	36.889290	75417.73	100570.20	33.350871
11 WOOD PROD	470603.90	704585.40	49.719414	12888.21	19450.00	50.913121	291986.10	389366.10	33.350903
12 PAPER PROD	452104.50	897689.30	98.557922	45150.20	67565.53	49.646137	710051.30	946859.90	33.350914
13 CHEMICAL PROD	1288491.00	2145122.00	66.483274	570999.10	816254.70	42.952012	486238.60	648403.60	33.350910
14 RUBBER PROD	745399.60	1132376.00	51.915295	80313.17	165959.70	106.640704	483982.50	645395.10	33.350917
15 NON-METALIC PROD	219383.00	459934.20	109.648970	39895.56	67006.88	67.955732	76558.47	102091.40	33.350889
16 METAL PROD	809204.00	1243514.00	53.671262	141190.40	212382.20	50.422550	614000.10	818774.90	33.350939
17 VEHICLE ASSEMBLY	904147.80	2311813.00	155.689722	2992.29	4598.29	53.671268	2630093.00	3507253.00	33.350912
18 OTHERS	711343.60	1015314.00	42.731867	72589.99	110149.60	51.742134	614728.00	819745.50	33.350929
19 GOVERNMENT	2014910.00	2024993.00	0.500419	0.00	0.00	0.000000	30232.20	40314.92	33.350930
20 ELECTRICITY & WATER	373384.30	473765.70	26.884205	184584.90	277071.90	50.105399	23670.76	31565.18	33.350936
21 BUILDING & CONSTR	7545143.00	12945480.00	71.573687	61033.52	87023.49	42.583108	585735.90	781084.30	33.350935
22 DISTRIBUTION	10459360.00	14207710.00	35.837279	1160535.00	1816811.00	56.549436	9271310.00	12363380.00	33.350950
23 TRANSPORT	2999097.00	4429087.00	47.680689	1166627.00	1852829.00	58.819314	340847.30	454523.10	33.350946
24 COMMUNICATION	467096.20	604701.30	29.459692	76792.70	106935.60	39.252299	322216.60	429678.80	33.350920
25 MISCELLANEOUS	2105427.00	2654297.00	26.069296	860584.60	1334345.00	55.054600	436392.30	581933.20	33.350932
TOTAL	63804943.30	87667033.50	37.398498	7333482.90	11144606.13	51.968802	30601334.53	40807165.37	33.350934

NOTE: %ZDIFFERENCE= (PERIOD 5 - BASE YEAR)/BASE YEAR * 100

T A B L E 5.7.2

SECTORAL INTERMEDIATE INPUT PURCHASES AND VALUE ADDED

(BASE YEAR AND PERIOD 5)

SECTOR	INTERMEDIATE INPUT PURCH. (DOMESTIC)	INTERMEDIATE INPUT PURCH. (IMPORTED)	VALUE ADDED AT MARKET PRICES						
BASE YEAR	PERIOD 5	%DIFFERENCE	BASE YEAR	PERIOD 5	%DIFFERENCE				
1 AGRICULTURE	448695.30	616621.30	37.425398	112012.00	153932.90	37.425365	750957.00	10320590.00	37.425421
2 LIVESTOCK	592437.20	799957.30	35.028202	51709.50	69822.41	35.028206	2264657.00	3057925.00	35.028174
3 FORESTRY	84170.09	106283.80	26.272646	51909.00	65546.86	26.272631	363592.50	459117.00	26.272407
4 FISHING	88786.53	119648.80	34.760081	200832.00	270641.30	34.760048	1312415.00	1768611.00	34.760042
5 CRUDE OIL	210054.90	226988.70	8.061607	36901.00	39875.81	8.061597	14419490.00	15581930.00	8.061589
6 OTHER MINING	376212.60	570128.60	51.544260	44157.00	66917.40	51.544263	9611135.00	1456545.00	51.544268
7 FOOD	248948.70	368381.30	47.974784	266304.00	394062.70	47.974758	536727.80	794221.60	47.974746
8 BEVERAGES	182627.70	282602.60	54.742462	146783.00	227135.70	54.742511	574447.90	888915.10	54.742510
9 TEXTILES	191228.60	285642.90	49.372479	332839.00	497169.90	49.372489	515184.70	769544.30	49.372507
10 LEATHER PROD	26502.48	36193.90	36.567974	36771.00	50217.42	36.568002	52340.91	71480.93	36.567992
11 WOOD PROD	118527.60	177459.00	49.719559	104942.00	157118.60	49.719464	247134.00	370007.80	49.719504
12 PAPER PROD	45962.30	91261.97	98.558318	218795.00	434435.70	98.558331	187346.30	371991.60	98.558285
13 CHEMICAL PROD	135000.30	224753.10	66.483408	620516.00	1033056.00	66.483378	532973.30	887312.20	66.483424
14 RUBBER PROD	141058.70	214290.00	51.915479	278911.00	423708.90	51.915450	325429.40	494377.50	51.915438
15 NON-METALIC PROD	47407.75	99390.00	109.649089	44970.00	94279.21	109.649122	127005.10	266265.00	109.649061
16 METAL PROD	85513.58	131409.90	53.671382	336545.00	517173.40	53.671396	387144.80	594930.80	53.671391
17 VEHICLE ASSEMBLY	107322.80	274414.20	155.690496	468351.00	1197529.00	155.690497	328471.30	839869.60	155.690406
18 OTHERS	152080.40	217067.40	42.732002	174564.00	249158.80	42.732064	384698.50	549087.90	42.732010
19 GOVERNMENT	0.00	0.00	0.000000	0.00	0.00	0.000000	2014910.00	2024993.00	0.500419
20 ELECTRICITY & WATER	127171.10	161360.10	26.884253	1410.00	1789.07	26.884397	244803.00	310616.50	26.884270
21 BUILDING & CONSTR	2298972.00	3944431.00	71.573686	962580.80	1651535.00	71.573649	4283590.00	7349513.00	71.573680
22 DISTRIBUTION	591257.60	803147.80	35.837205	2041000.00	2772438.00	35.837237	7827104.00	10632120.00	35.837214
23 TRANSPORT	415138.40	613079.30	47.680701	177220.90	262459.50	47.680717	2406237.00	3553548.00	47.680715
24 COMMUNICATION	13925.42	18027.82	29.459794	469.00	607.17	29.460554	452701.40	586066.30	29.459794
25 MISCELLANEOUS	604481.00	762065.50	26.069388	5568.00	7019.54	26.069325	1495376.00	1885212.00	26.069430
TOTAL	7333483.09	11144606.29	51.968801	6716560.20	10637630.29	58.379140	49754871.91	65884791.13	32.418773

NOTE: %DIFFERENCE = (PERIOD 5 - BASE YEAR)/BASE YEAR * 100

MACROECONOMIC AGGREGATES
(BASE YEAR AND PERIOD 5)

NUMBER	MACRO AGGREGATES	BASE YEAR	PERIOD 5	%DIFFERENCE
1	G. PRICE INDEX	1.00	1.00	0.00000
2	DIRECT TAXES	9161104.00	12216420.00	33.350959
3	EXCISE DUTIES	1423760.00	2033698.00	42.839945
4	LESS SUBSIDIES	207439.90	289086.10	39.358966
5	NET EXCISE DUTIES	1216320.10	1744611.90	43.433616
6	IMPORT DUTIES:FINAL GOODS	594961.10	594961.10	0.000000
7	IMPORT DUTIES:RAW MATERIALS	812240.30	1286419.00	58.379115
8	TOTAL IMPORT DUTIES	1407201.40	1881380.10	33.696577
9	EXPORT DUTIES	100.01	100.01	0.000000
10	ROYALTIES	3789500.00	4236845.00	11.804856
11	GOVERNMENT OPERATING SURPLUS	4256241.00	5084883.00	19.468869
12	GOVERNMENT REVENUE	19830466.51	25164240.01	26.896863
13	GOVERNMENT CONSUMPTION EXPENDITURE	5051370.00	5051370.00	0.000000
14	GOVERNMENT WAGE BILL	2005739.00	2015776.00	0.500414
15	GOVERNMENT BUDGET SURPLUS	12773357.51	18097094.01	41.678443
16	WAGE INCOME: TOTAL WAGES	11883040.00	15968110.00	34.377314
17	PRIVATE OPERATING SURPLUS	31206730.00	41492530.00	32.960198
18	HOUSEHOLD INCOME	43089770.00	57460640.00	33.351002
19	LESS DIRECT TAXES	9161104.00	12216420.00	33.350959
20	HOUSEHOLD DISPOSABLE INCOME	33928666.00	45244220.00	33.351014
21	LESS HOUSEHOLD CONSUMP. EXPENDITURE	30601330.00	40807160.00	33.350936
22	HOUSEHOLD SAVINGS	3327336.00	4437060.00	33.351726
23	EXPORT EARNINGS	14307500.00	14307500.00	0.000000
24	LESS IMPORTS:FINISHED GOODS	4919839.00	4919839.00	0.000000
25	LESS IMPORTS:INTERMEDIATE INPUTS	6716560.00	10637630.00	58.379141
26	BALANCE OF TRADE	2671101.00	-1249969.00	-146.796022
27	HOUSEHOLD SAVINGS	3327336.00	4437060.00	33.351726
28	GOVERNMENT BUDGET SURPLUS	12773357.51	18097094.01	41.678443
29	DOMESTIC SAVINGS	16100693.51	22534154.01	39.957661
30	BALANCE OF TRADE	2671101.00	-1249969.00	-146.796022
31	NATIONAL SAVINGS	18771794.51	21284185.01	13.383859
32	TOTAL WAGE BILL	11883040.00	15968110.00	34.377314
33	TOTAL OPERATING SURPLUS	35462971.00	46577413.00	31.340978
34	TOTAL DEPRECIATION	1192540.00	1594653.00	33.719037
35	TOTAL EXCISE DUTIES	1423760.00	2033698.00	42.839945
36	LESS TOTAL SUBSIDIES	207439.90	289086.10	39.358966
37	VALUE ADDED MARKET PRICES (GDP)	49754871.10	65884787.90	32.418769

NOTE: %DIFFERENCE= (PERIOD 5 - BASE YEAR)/BASE YEAR * 100

T R A 8 L E 5.8.1

SECTORAL GROSS OUTPUT, INTERMEDIATE REQUIREMENTS AND HOUSEHOLD CONSUMPTION DEMAND
(PERIOD 1 AND PERIOD 5)

SECTOR	GROSS OUTPUT		INTERMEDIATE SALES		HOUSEHOLD CONSUMPTION DEMAND	
	PERIOD 1	PERIOD 5	PERIOD 1	PERIOD 5	PERIOD 1	PERIOD 5
1 AGRICULTURE	10322790.00	11091140.00	7.443240	2118815.00	2315302.00	9.273438
2 LIVESTOCK	3668515.00	3927704.00	7.065229	724448.40	775397.40	7.032799
3 FORESTRY	597554.10	630948.40	5.588498	58625.58	63046.89	7.541606
4 FISHING	2017245.00	2158901.00	7.022251	25836.19	27900.75	7.990962
5 CRUDE OIL	15548030.00	15848800.00	1.934457	170144.50	170144.50	3.806462
6 OTHER MINING	1912449.00	2093591.00	9.471730	595403.10	664394.10	11.587276
7 FOOD	1428283.00	1556665.00	8.988555	95363.34	104645.60	9.503916
8 BEVERAGES	1272786.00	1398553.00	9.889034	5691.28	6202.85	8.988663
9 TEXTILES	1421833.00	1552357.00	9.179981	71956.91	76136.82	5.808907
10 LEATHER PROD	147137.50	157892.20	7.309286	2843.09	3052.33	7.359598
11 WOOD PROD	645064.80	704585.40	9.227073	17780.80	19450.00	9.387654
12 PAPER PROD	784340.50	897589.30	14.451479	61863.48	67565.53	9.217150
13 CHEMICAL PROD	1927210.00	2145122.00	11.307123	753866.10	816254.70	8.275820
14 RUBBER PROD	1033936.00	1132376.00	9.520899	144172.80	165959.70	15.111658
15 NON-METALIC PROD	398742.20	459934.20	15.346256	60110.22	67006.88	11.473357
16 METAL PROD	1133034.00	1243514.00	9.750811	194272.30	212382.20	9.321916
17 VEHICLE ASSEMBLY	1953728.00	2311813.00	18.328293	4189.76	4598.29	9.750678
18 OTHERS	937989.50	1015314.00	8.243642	100595.10	110149.60	9.497978
19 GOVERNMENT	2022428.00	2024993.00	0.126828	0.00	0.00	0.000000
20 ELECTRICITY & WATER	448230.50	473765.70	5.696890	253544.90	277071.90	9.279224
21 BUILDING & CONSTR	11571730.00	12945480.00	11.871604	80412.13	87023.49	8.221844
22 DISTRIBUTION	13254200.00	1420710.00	7.194022	1649866.00	1816811.00	10.118701
23 TRANSPORT	4065322.00	4429087.00	8.948000	1678271.00	1852829.00	10.401062
24 COMMUNICATION	569697.10	604701.30	6.144353	99267.78	106935.60	7.724379
25 MISCELLANEOUS	2514674.00	2654297.00	5.522330	1213824.00	1334345.00	9.929034
TOTAL	81596949.20	87667033.50	7.439107	10175124.76	11144606.13	9.527956

NOTE: %ZDIFFERENCE= (PERIOD 5 - PERIOD 1)/PERIOD 1 * 100

T A B L E 5.8.2

SECTORAL INTERMEDIATE INPUT PURCHASES AND VALUE ADDED
(PERIOD 1 AND PERIOD 5)

SECTOR	INTERMEDIATE INPUT PURCH. (DOMESTIC)	INTERMEDIATE INPUT PURCH. (IMPORTED)	VALUE ADDED AT MARKET PRICES							
	PERIOD 1	PERIOD 5	%DIFFERENCE							
1	AGRICULTURE	573904.20	616621.30	7.443246	143269.10	153932.90	7.443196	9605619.00	10320590.00	7.443258
2	LIVESTOCK	747168.30	799957.30	7.065209	65214.84	69822.41	7.065217	2856133.00	3057925.00	7.065217
3	FORESTRY	100659.50	106283.80	5.589500	62077.65	65546.86	5.589501	434818.00	459117.00	5.589315
4	FISHING	111798.00	119648.80	7.022308	252883.10	270641.30	7.022296	1652564.00	1768611.00	7.022239
5	CRUDE OIL	222681.00	226988.70	1.934471	39119.07	39875.81	1.934453	15286230.00	15581930.00	1.934421
6	OTHER MINING	520799.80	570128.60	9.471739	61127.55	66917.40	9.471752	1330521.00	1456545.00	9.471778
7	FOOD	337999.80	368381.30	9.988615	361563.20	394062.70	8.988608	728719.80	794221.60	8.988613
8	BEVERAGES	257170.70	282602.60	9.889113	206695.40	227135.70	9.889093	808920.30	888915.10	9.889083
9	TEXTILES	261625.60	285642.90	9.180027	455367.20	497169.90	9.179998	704839.90	769544.30	9.180014
10	LEATHER PROD	33728.59	36193.90	7.309259	46796.91	50217.42	7.309265	66612.07	71480.93	7.309276
11	WOOD PROD	162467.90	177459.00	9.227115	143845.90	157118.60	9.227027	338751.00	370007.80	9.227072
12	PAPER PROD	79738.58	91261.97	14.451461	379580.70	434435.70	14.451472	325021.30	371991.60	14.451453
13	CHEMICAL PROD	201921.60	224753.10	11.307111	928113.50	1033056.00	11.307076	797174.80	887312.20	11.307106
14	RUBBER PROD	195661.30	214290.00	9.520891	386875.00	423708.90	9.520879	451400.20	494377.50	9.520886
15	NON-METALIC PROD	86166.63	99390.00	15.346277	81735.80	94279.21	15.346286	230839.70	266265.00	15.346277
16	METAL PROD	119734.70	131409.90	9.750891	471224.90	517173.40	9.750864	542073.90	594930.80	9.750866
17	VEHICLE ASSEMBLY	231909.20	274414.20	18.328294	1012039.00	1197529.00	18.328345	709779.30	839869.60	18.328275
18	OTHERS	200535.90	217067.40	8.243661	230183.30	249158.80	8.243648	507270.30	549087.90	8.243652
19	GOVERNMENT	0.00	0.00	0.000000	0.00	0.00	0.000000	2022428.00	2024993.00	0.126828
20	ELECTRICITY & WATER	152663.10	161360.10	5.696858	1692.64	1789.07	5.697018	293874.80	310616.50	5.696882
21	BUILDING & CONSTR	3525854.00	3944431.00	11.871649	1476277.00	1651535.00	11.871620	6569595.00	7349513.00	11.871630
22	DISTRIBUTION	749246.80	803147.80	7.194025	2586374.00	2772438.00	7.194010	9918576.00	10632120.00	7.194017
23	TRANSPORT	562726.60	613079.30	8.947986	240903.50	262459.50	8.947981	3261692.00	3553548.00	8.947994
24	COMMUNICATION	16984.25	18027.82	6.144340	572.02	607.17	6.144890	552140.80	586066.30	6.144357
25	MISCELLANEOUS	721978.90	762065.50	5.552323	6650.30	7019.54	5.552231	1786045.00	1885212.00	5.552324
	TOTAL	10175123.95	11144606.29	9.527966	9640181.58	10637630.29	10.346783	61781639.17	65884791.13	6.641378

NOTE: %ZDIFFERENCE= (PERIOD 5 - PERIOD 1)/PERIOD 1 * 100

MACROECONOMIC AGGREGATES
(PERIOD 1 AND PERIOD 5)

NUMBER	MACRO AGGREGATES	PERIOD 1	PERIOD 5	%DIFFERENCE
1	G. PRICE INDEX	1.00	1.00	0.00000
2	DIRECT TAXES	1149200.00	12216420.00	6.794356
3	EXCISE DUTIES	1878541.00	2033698.00	8.259442
4	LESS SUBSIDIES	268316.70	289086.10	7.740629
5	NET EXCISE DUTIES	1610224.30	1744611.90	8.345893
6	IMPORT DUTIES:FINAL GOODS	594961.10	594961.10	0.000000
7	IMPORT DUTIES:RAW MATERIALS	1165797.00	1286419.00	10.346741
8	TOTAL IMPORT DUTIES	1760758.10	1881380.10	6.850572
9	EXPORT DUTIES	100.01	100.01	0.000000
10	ROYALTIES	4123048.00	4236845.00	2.760021
11	GOVERNMENT OPERATING SURPLUS	4874091.00	5084883.00	4.324745
12	GOVERNMENT REVENUE	23807421.41	25164240.01	5.699141
13	GOVERNMENT CONSUMPTION EXPENDITURE	5051370.00	5051370.00	0.000000
14	GOVERNMENT WAGE BILL	2013223.00	2015776.00	0.126812
15	GOVERNMENT BUDGET SURPLUS	16742828.41	18097094.01	8.088631
16	WAGE INCOME:TOTAL WAGES	14928950.00	15968110.00	6.960704
17	PRIVATE OPERATING SURPLUS	38876010.00	41492530.00	6.730423
18	HOUSEHOLD INCOME	53804960.00	57460640.00	6.794318
19	LESS DIRECT TAXES	11439200.00	12216420.00	6.794356
20	HOUSEHOLD DISPOSABLE INCOME	42365760.00	45244220.00	6.794307
21	LESS HOUSEHOLD CONSUMP. EXPENDITURE	38210990.00	40807160.00	6.794302
22	HOUSEHOLD SAVINGS	4154770.00	4437060.00	6.794359
23	EXPORT EARNINGS	14307500.00	14307500.00	0.000000
24	LESS IMPORTS:FINISHED GOODS	4919839.00	4919839.00	0.000000
25	LESS IMPORTS:INTERMEDIATE INPUTS	9640181.00	10637630.00	10.346787
26	BALANCE OF TRADE	-252520.00	-1249969.00	394.998020
27	HOUSEHOLD SAVINGS	4154770.00	4437060.00	6.794359
28	GOVERNMENT BUDGET SURPLUS	16742828.41	18097094.01	8.088631
29	DOMESTIC SAVINGS	20897598.41	22534154.01	7.831309
30	BALANCE OF TRADE	-252520.00	-1249969.00	394.998020
31	NATIONAL SAVINGS	20645078.41	21284185.01	3.095685
32	TOTAL WAGE BILL	14928950.00	15968110.00	6.960704
33	TOTAL OPERATING SURPLUS	43750101.00	46577413.00	6.462413
34	TOTAL DEPRECIATION	1492363.00	1594653.00	6.854231
35	TOTAL EXCISE DUTIES	1878541.00	2033698.00	8.259442
36	LESS TOTAL SUBSIDIES	268316.70	289086.10	7.740629
37	VALUE ADDED MARKET PRICES (GDP)	61781638.30	65884787.90	6.641374

NOTE: %DIFFERENCE= (PERIOD 5 - PERIOD 1)/PERIOD 1 * 100

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3. J. Iyaniwura, S. Dittoh, C. Iwunor, A. Aromolaran, Classification Scheme for the Nigerian Social Accounting Matrix (SAM), [PP92-003] CEAR, University of Ibadan, Ibadan Nigeria, Jan. 1992.
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