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HANDBOOK OF NATIONAL ACCOUNTS FOR AFRICA

V. The National Accounts of the Federation of Rhodesia and Nyasaland for 1962, adjusted to conform to the International System of National Accounts.
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A. HISTORICAL REVIEW

Prior to the date of Federation (October 1953) there was no attempt to provide comprehensive national income estimates for the three territories in Central Africa, although they had a common currency and, particularly in the case of Southern Rhodesia and Northern Rhodesia, shared a number of common services.

Greater attention by national accountants has been devoted to Southern Rhodesia than to either Northern Rhodesia or Nyasaland. A historical series of net geographical product in the money economy is available for Southern Rhodesia back to 1924 whereas the earliest available figures for Northern Rhodesia and Nyasaland relate to 1938.

a) Southern Rhodesia

The first estimate of national income for Southern Rhodesia was made by Mr. L. Cripps and presented in a lecture before the Rhodesia Scientific Association in Salisbury in January 1924. The first systematic estimates, however, were produced by Professor S.H. Frankel assisted by Mr. H. Herzfeld in 1945. These estimates were required by the Commission of Inquiry into the Mining Industry of Southern Rhodesia in order to assess the relative importance of the industry to the economy. They related to the years 1924 to 1943, inclusive. The estimates and notes on the estimates were published in the Report of the Mining Commission dated 1945.

Professor Frankel's estimates were restricted to the money economy and although described as national income estimates actually related in modern terminology to the net geographical product of Southern Rhodesia, which for all practical purposes corresponded to net domestic product. The estimates were built up from the product approach and summed the net product of European agriculture, mining and manufacturing. An estimate for services was made by
applying the same relationship between services and other sectors as in the Union of South Africa. The sales of agricultural produce by the rural household sector were omitted. These sales would, however, have been of little significance in the years 1924 to 1943.

Official estimates of the national income were first published in the Economic and Statistical Bulletin of Southern Rhodesia of 7th January 1947 for the years 1942 to 1944. The domestic product was in these estimates arrived at by the income approach and this set the pattern for all future estimates. The estimates followed the system set out by Stone and Meade in a paper published in the Journal of the Royal Economic Society, September 1941.

The first articulated set of accounts for Southern Rhodesia was drawn up and published in a white paper issued with the budget for 1948/49. The system of accounts for Southern Rhodesia attempted to embody the latest principles and took into account the recommendations contained in the League of Nations' "Measurement of National Income and the Construction of Social Accounts" which appeared in 1947.

Further estimates were published from time to time in the Southern Rhodesia Economic and Statistical Bulletin and in the Financial Statement issued with the budget. The most important subsequent publication, however, was produced in May 1952. "The National Income and Social Accounts of Southern Rhodesia, 1946-1951" published as a separate volume by the Central African Statistical Office, contained an articulated set of appropriation accounts, capital accounts and a summary national income and expenditure table, together with a table providing historical series on net geographical product for the years 1939 to 1951. An industrial classification of net geographical output was given for 1948, 1949 and 1950. Estimates of African subsistence income were included but at what is now believed to be a very low level.

No imputations were made for agricultural rural household services.
b) Northern Rhodesia and Nyasaland

National accounts for both Northern Rhodesia and Nyasaland were constructed by Phyllis Denne for 1938 and 1945. (The Measurement of Colonial National Income, Cambridge University Press 1948, and Colonial Social Accounting, Cambridge University Press 1953). Her estimates included the value of non-marketed production of the rural household sector.

The first official estimates for Northern Rhodesia were published by the Central African Statistical Office in a special report in May 1950, entitled "The National Income and Social Accounts of Northern Rhodesia, 1945 and 1949". This report adopted the principles set out in the League of Nations' "Measurement of National Income and the Construction of Social Accounts". It included a complete set of appropriation accounts, capital accounts and national income and expenditure tables. Net concepts were used throughout. For example, in the construction of the national income profits of companies were entered net of allowances for depreciation of capital. The value of non-marketed production of the rural household sector was excluded.

A second report of Northern Rhodesia, "The National Income and Social Accounts of Northern Rhodesia 1945-1953" was published by the Central African Statistical Office in December 1954. This second report was an extension of the first and included tables on the industrial origin of the net domestic product and a nominal valuation of subsistence output in the summary tables of national income and expenditure.

Other estimates for Northern Rhodesia were published from time to time in the Economic and Statistical Bulletin of Northern Rhodesia. Nothing, however, was produced by the Central African Statistical Office for Nyasaland until after the Federation came into being.


c) Federation of Rhodesia and Nyasaland

Annual estimates of the national income of the Federation were prepared by the Central Statistical Office for publication in the annual Economic Report tabled in the Federal Assembly at the time of the budget. The first two Economic Reports for 1954 and 1955 contained only a single table on the national income and expenditure of the Federation which together covered the years 1950 to 1954. Later Economic Reports in addition included personal income and outlay accounts, capital accounts, appropriation accounts of corporations, government current accounts and a table on business enterprises covering receipts, outlay and income payments. Estimates of territorial gross domestic product and industrial origin of the gross domestic product for the Federation were first introduced in the Economic Report for 1960.

Since 1960 the Central Statistical Office has published annual reports on the national accounts of the Federation of Rhodesia and Nyasaland. These reports have been published in June or July of each year and have covered the years 1954 to the year preceding publication. The reports have been as comprehensive as possible and were designed to cover the individual territories and sectors for each territory in considerable detail as well as the Federation as a whole.

The series of annual reports has undergone a number of changes in concept and principle, particularly affecting the treatment of imputed financial services, imputed pension funds of government and the rural household sector. The present position as reflected in the latest volume of national accounts for the period 1954-1962 is discussed in the sections which follow with particular reference to any differences with the Intermediate System proposed in E/CN.14/221.

d) Main sources

The more significant sources of national accounts estimates for Central Africa may be summarised as follows :
Southern Rhodesia

Report of the Commission of Enquiry into the Mining Industry of Southern Rhodesia (Government Stationary Office, 1945)


Northern Rhodesia and Nyasaland


Phyllis Deane : Colonial Social Accounting (Cambridge University Press).


The Federation of Rhodesia and Nyasaland


Economic Reports presented to the Federal Assembly (Government Salisbury).


National Accounts of the Federation of Rhodesia and Nyasaland (An annual series issued by the Central Statistical Office, Salisbury, the first issue of which was published in 1954).

8. MAIN CHARACTERISTICS OF THE INSTITUTES

a) Basic Approach.

The conceptual framework of the national accounts of the Federation and the principles governing their construction were generally in accordance with the United Nations' "A System of National Accounts and Supporting Tables" and "Concepts and Definitions of Capital Formation", but suitably modified to meet the difficulties and the needs of Central Africa.
There were divergences from the Intermediate System which will be mentioned in detail in the next section. By suitable rearrangement of series published in the Federation's national accounts all the tables of the Intermediate System are obtainable, with the exception of Tables 1, 2, 3 and the left hand side of Table 4. The tables of the Intermediate System completed for the Federation are given at the end of this chapter.

There are striking and important differences in the economic structures of the three territories which constituted the Federation, and it was of fundamental importance that gross domestic product estimates analysed by industry should be produced by territory in order to reveal the changing structure and development of the respective economies. National income (or national disposable income) estimates were, on the other hand, restricted to the Federation as a whole due to the difficulty of producing rest of the world accounts for each territory.

The gross concept was used consistently in the summary tables of the national accounts as the appropriate information for the estimation of consumption of fixed capital at replacement cost was not available. Supplementary tables were published in the national accounts volume, however, in which estimated financial provisions for depreciation were shown. The estimates of financial provisions covered all enterprises other than ownership of dwellings.

Throughout the estimates the basis of valuation was at market prices, that is at actual transaction value in the open market. There were two exceptions: own account construction and income supplied in kind. Own account construction was valued at cost to the undertaking or person undertaking it exclusive of any profit margin which might accrue to an enterprise producing the same product for profit. Similarly, income in kind supplied to employees was valued at the cost of the employer rather than at the value to the employee. The valuation put on income in kind supplied by farmers to employees from their own production was the producer price which the farmer would have realised on sale of the particular commodity or commodities.
The main basic approach to the gross domestic product aggregate was through the separate estimation of the income items, wages and salaries, income from enterprise and rental income from ownership of buildings. All items were estimated territorially and for individual major industrial groups, from which the gross domestic product analysis by industry was readily obtainable for the three territories. The items of expenditure, consumption and capital formation and net exports of goods and services were separately estimated at the Federal level and equality with the gross domestic product aggregate at market prices for the Federation was achieved by means of a "statistical discrepancy" item.

The estimate of the gross domestic product aggregate at factor cost from the income side was considered as the basic one. This aggregate was therefore retained unadjusted for the current year's estimates. Government consumption and not exports of goods and services also remained unadjusted, but the estimates of private consumption and capital formation which could contain large absolute errors were subjected to adjustments until a tolerable "statistical discrepancy" was obtained without prejudice to the reasonableness of the estimates for private consumption and capital formation.

The industrial classification used throughout was the International Standard Industrial Classification. Estimates were, however, only completed in respect of the divisions of the I.S.I.C. although sufficient detail was available to compile separate figures for individual major groups and in certain cases individual groups. The unit of classification was basically the establishment but these were, for the greater part, identical with the enterprise. There were a number of instances, however, where there was internal inconsistency in the accounts. For example, wages and salaries were sometimes collected from a particular enterprise on the establishment basis but profits were collected on the enterprise basis.
In the volume of the national accounts covering the period 1954-1962, the profits of the banking, insurance and finance sector were calculated before receipt and payment of interest and dividends. This resulted in large negative profits. The treatment of the sector accorded with the Intermediate System, but it was a departure from past practice. In earlier volumes of the national accounts, gross profits of the sector were defined so as to include imputed financial services. Imputed charges for the financial services were made against the profits of the enterprises receiving the services and the expenditure of final consumers. The accounts were balanced by the inclusion of imputed interest flows. The system was abandoned in the interest of simplicity and as part of an effort to cleanse the national accounts of imputed flows as far as possible.

Two other important changes were introduced in the same volume of the national accounts for the Federation. They involved the treatment of government pension funds and imputed rent of government. In earlier volumes, where governments had no pension fund for their employees an imputed pension fund was set up in the government accounts. Imputed government contributions to the fund were made and these contributions added to the wages and salaries of the employees. The pension contributions of employees and the government were assumed to be lent to the government on interest and the imputed interest paid by government was added to its actual payments of interest. Actual pension payments of government, other than ex-gratis payments, paid out of revenue were treated as capital accounts transactions. The imputed pension funds were in the later publication removed from the national accounts and the entries were made according to the practice of the relevant governments. Pension contributions by employees made into revenue were treated as transfers from the household sector and, similarly, pension payments to employees from revenue were treated as transfers.

Imputed rental income of local government on its own buildings used to be included in the gross domestic product. The imputation was restricted to local government for which a valuation of buildings was available. The imputed rental income was later excluded.
b) Boundary of Production

The production boundary was defined so as to exclude the current services from durable consumers' goods including African traditional style housing, the initial cost of which was included in private consumption expenditure.

The African rural household sector was defined as comprising all African households (as opposed to large scale enterprise) engaged in farming, forestry or fishing, located in rural areas and in which the activities of the household were primarily directed towards production for their own use of food, fuel and accommodation. The estimates were at best order of magnitude figures. Production for own consumption was estimated on the basis of rural household population and per capita consumption requirements, taking each territory separately. The valuation of this production was on the basis of gazetted prices of the official marketing organizations less marketing expenses for the relevant commodities and nominal imputed prices for commodities not purchased by the official organizations. A nominal 25 per cent was added to the value of production for own consumption to allow for rural household services.

c) Domestic or National Concept

The main concept was gross domestic product, defined as the product of resident producers. Domestic expenditure included the expenditure on consumption and capital formation attributable to residents. The wages and salaries of consulate staff abroad were treated as part of the domestic product and the wages and salaries of foreign consular staff in the Federation were excluded from the domestic product. The expenditure by consulate staff abroad was included in domestic expenditure whereas the expenditure by foreign consulate staff in the Federation was excluded from domestic expenditure. These subtleties were, however, of little practical importance. No special provision
was made in the accounts for salaries paid to non-resident members of
the Federation's consular staff abroad and vice versa. In practice it
was assumed that all consular staff abroad were resident and all consular
staff of foreign governments in the Federation were non-resident.

Individuals were treated as residents of the Federation if domiciled
there for twelve months or more. There were exceptions to this rule in
the cases of consular staff and migrant workers. African migrant workers,
including indentured workers and certain European workers employed on
specific projects are generally required on termination of their contract
or period of registration to return to their native territory. The status
of these workers is not always clear but in general they may be regarded
as part of the "de jure" population of their native territory.

In practice, therefore, African workers from countries lying beyond
the borders of the Federation, but employed in the Federation, were treated
as non-residents in the national accounts. The Italian workers on the
Karibo project were also treated as non-residents. Conversely, African
workers from the Federation employed in South Africa were treated as
residents of the Federation.

Companies were in general classified as resident if they were located
in or operated in the Federation and were considered to be an integral
part of the country's economy. In the case of companies registered abroad,
but operating in the Federation, the local branch was treated as resident,
although the profits after tax of such branches were treated as payable
to the head office abroad. The capital transactions of branches were
also credited to the head office abroad.

The majority of insurance companies operating in the Federation were
controlled from the United Kingdom, the Republic of South Africa or
North America. The profits of non-life companies were credited to their
head homes abroad as were also their investments in the Federation. In
the case of life companies, investment in the Federation was entered as
an investment from abroad after deducting the increase in liabilities to
Federal policy holders, although the latter was in practice measured in
terms of the excess of premiums over claims plus the excess of investment income over management expenses. It was accordingly assumed that investment income of life companies was entirely attributable to the share of life funds of resident policy holders.

The section of the Rhodesia Railways operated on behalf of the Rhodesia Railways by the South African Railways and lying in the Bechuanaland Protectorate outside the Federation, was treated as a non-resident branch of the Rhodesia Railways. The net profits of this section were credited to the Rhodesia Railways in the rest of the world account. Investment in the section after deduction of depreciation was treated as an increase in assets abroad. The Rhodesia Railways operates in both Southern Rhodesia and Northern Rhodesia and its product was allocated between the two territories.

In a number of instances companies, although registered and incorporated abroad, had removed their domicile to the Federation. Although financial control may not have been vested in the Federation, managerial control was located there and the companies were treated as resident in the same way as companies registered in the Federation.

It has already been noted that the profits of branches after tax were credited to head offices abroad. This practice was not followed in the case of wholly owned subsidiaries, nor was there any allocation of profits of direct investment companies to the rest of the world according to the degree of external control. Investment income transactions of direct investment companies was limited to interest and dividend flows. Memoranda items giving the relevant information on reinvested profits of direct investment companies since 1960 were, however, given in the annual Balance of Payments Reports of the Federation.
V. MAIN PROBLEMS FROM THE INTERMEDIATE SYSTEM

The main divergence lies in the treatment of migrant workers. Although not explicitly stated, it is implied that migrant workers are treated as resident of the country of employment in the Intermediate System.

As already stated migrant workers were treated as non-residents in the Federation's accounts, but the change of definition required by the Intermediate System has been introduced in the set of tables for the Federation at the end of this chapter. For most economic analyses, the definition of migrant workers as residents of the country of employment is the more convenient one. It should be noted that the aggregate of national disposable income is not invariant to the change in definition of residence of migrant workers. Defined as residents of the country of origin, national disposable income is determined by the wages and salaries of the migrant workers; defined as residents of the country of employment, national disposable income is determined by the remittances of migrant workers. There are corresponding changes in the magnitude of private consumption.

The Working Group on the intermediate system recommended that imputed rural household services 'should be measured as the difference between the value of processed agricultural produce valued at retail prices ruling in markets near to the main producing areas and the value of unprocessed produce valued at producer prices'. It has been explained above that this method could not be applied in the Federation. Instead, an arbitrary 25 per cent was added to the value of production at producer prices to allow for the value of rural household services. The national value of rural household services was separately entered in the industrial origin table of the gross domestic product.

Rural household services were formerly valued by the difference in the value of production for own consumption at urban market prices and producer prices but this method was abandoned at the time of the preparation of the national accounts for 1954 to 1962. The reason for the change was
the apparent over-valuation of rural household services resulting from the
imputation to the rural household sector of values added from distribution
and processing of the commodity at the point of exchange in the urban market.
Organised markets did not exist in the rural areas and it was also found
from observation that commodities were exchanged in the rural areas at
extraordinarily varying prices, which were frequently extortionate. The
determination of prices in the rural areas was influenced by the serious
imperfections in the market and the small fraction of overall production
which was exchanged. These prices should therefore be considered as
irrelevant to the valuation of either production or rural household
services.

Interest and dividends were regarded as transfer incomes paid out
of profits and, accordingly, profits were calculated before the receipt
or payment of interest and dividends. Royalties are treated in the same way
in the tables at the end of this chapter. Royalties accruing to government
from mining activities were treated in a different way in the published
national accounts of the Federation. Although royalties were treated as
part of the product of mining, the profits of mining enterprises were
calculated after payment of royalties, i.e. the product of mining was
made up of the three elements, wages and salaries, profits of enterprises
and royalties accruing to government and the British South Africa Company.
A separate entry for royalty incomes of government was made in the national
disposable income table published in the national accounts volume for the
Federation. The royalties paid to the British South Africa Company were
included in its profits and accordingly constituted part of the income of
corporations in the accounts of the Federation.

Rent is treated as a transfer income in the Intermediate System.
The profits of enterprises in any given industrial sector would be measured
before receipt or payment of rent to other sectors on rented property or
buildings used in the productive process. In the Federation's accounts,
rental payments were not included in the product of the enterprise despite
the fact that the income from the use of land and buildings owned and
used by enterprise in the course of its normal business was reflected in its product. The actual rental payments by the enterprise were included with the income of house and estate agents and rent collecting agencies under real estate in terms of the I.S.I.C. This treatment was a result of the nature and sources of information available. Income tax statistics showed the total rental income of individuals and companies but did not reveal the sources of the rental incomes. This problem could only be resolved with the development of national accounting from the product approach.

In the Federation's system of accounts, government enterprise was identified as a separate sector, for which separate appropriation and capital accounts were compiled. The enterprises were shown to retain all appropriations for undistributed profits. In the Intermediate System as in the SNA government enterprises are integrated with government. The enterprises of government in the Federation had a varying degree of immediate control over their operating surpluses and in practice not all surplus funds were surrendered to general government. Separate appropriation and capital accounts were compiled to show the actual transactions which took place. Government enterprises were shown to retain all appropriations for undistributed profits.

D. PROSPECTS OF COMPLETING ADDITIONAL TABLES OF THE INTERMEDIATE SYSTEM

Basic data were not available for completing tables 2, 3, 4 and 5 for the Federation. However, since the central importance of these tables was recognized, preparatory work had been started to obtain the necessary basic information needed to fill in these tables.

The Federation has now been dissolved into its three component territories, and the information about future work contained in the following refers to Southern Rhodesia alone. It is, however, known that the Statistical Office of Zambia also intends to make considerable effort to keep up and extend its national accounts estimates.
Tentative plans have been formulated for a programme of rural household socio-economic surveys for Southern Rhodesia. The surveys will be designed to provide, inter alia, information which will contribute to the completion of Table 5 of the Intermediate System; the Rural Household Account. The future of these socio-economic surveys is however dependent on the availability of funds, staff and the relative priority given to them by government. In addition, a three year programme of research into methods of measurement of crop production in Southern Rhodesia is nearly completed. The surveys will culminate in the provision of accurate and regular information on crop and pastoral production in the future. Reasonably reliable information may thus be expected to provide for the completion of Table 5 and the improvement of estimates of the rural household sector in the main gross domestic product and national disposable income aggregates.

Tables 2, 3 and the left hand side of Table 4 of the Intermediate System are given a very high priority in the future plans of the statistical office of Southern Rhodesia. Table 2 is the Account for Uses and Resources by Commodity Group, Table 3 the Analysis of Intermediate Consumption by Industry and the left hand side of Table 4 is the Production Account by Industry. On the basis of available censuses of employment and population, Table 1, the Inventory Account of Human Resources can already now be constructed for Southern Rhodesia.

Part of the required information for the table on uses and resources by commodity group and the product table is already available but is in need of considerable supplementation before work can start on their compilation. A number of schemes have been devised with the primary object of producing the desired information. For example, the scope of the annual industrial census has already been expended to provide information on purchases of services from other firms and will be further expanded to elicit information on the analysis of materials and supplies. The provision of data on material usage is at present voluntary but ultimately the information will be made compulsory when industrialists have been persuaded to maintain the appropriate records. The census of distribution of 1963 is also expected to provide in valuable information on turnover and purchases of the distribution and services sectors.
An experimental start has been made on the commodity flow analysis of imports for 1961 and 1962. The exercise is being treated as exploratory and methods are being devised to simplify and expedite the analysis in the future. The results of the 1961 analysis have already been published in supplementary tables in the National Accounts for 1954-1962. It may be of interest to note that it is intended to introduce a three digit I.S.I.C. code on the Hollerith cards for imports, which will indicate the industrial sector of direct importers of materials and supplies. Preliminary investigations reveal direct importing to a considerable degree and it is expected that the scheme to be introduced should narrow the field of estimation and error.

B. METHODS OF ESTIMATION

All the tables of the national accounts of the Federation were derived from the following 14 basic elements which are discussed below in order:

(i) the items of government current and capital accounts, analysed functionally and economically for each territory;

(ii) the items of the rest of the world current and capital accounts;

(iii) wages and salaries analysed by ethnic group and industry;

(iv) the rural household production, consumption and income from sales to the money economy for each territory;

(v) private unincorporated enterprise analysed by ethnic group and industry for each territory;

(vi) private corporations' profits analysed by industry for each territory;

(vii) public corporations' profits analysed by industry for each territory.
(viii) government enterprise profits analysed by industry for each territory;
(ix) personal income from ownership of dwellings for each territory;
(x) private consumption expenditure analysed by type of expenditure;
(xi) capital formation analysed by sector and type of asset for each territory;
(xii) the matrix of inter-sector investment income transactions
(xiii) the matrix of other transfer transactions between sectors;
(xiv) provisions for depreciation for unincorporated enterprise, public and private corporations, and government enterprise separately analysed by industry for each territory.

(i) Economic and functional analysis of government current and capital accounts

The United Nations "Manual for Economic and Functional Classification of Government Transactions" was used in the design of the functional and economic analysis of government accounts. There were four levels of government: native authorities, municipalities and town management boards and roads council, territorial governments and the Federal government. The special funds and agencies established by these authorities were included in government but government enterprises providing goods and services at a price to meet the cost of production and government financial enterprises buying or selling financial items at a price which met management expenses were excluded.

Separate current and capital accounts for local government, territorial central government and the Federal Government were published in the National Accounts of the Federation, together with supplementary tables on current and capital expenditures analysed by type of service. Local government was the combination of native authorities, municipalities and other local authorities.
The sources used for local government were:

1. Monthly trial balance sheets of native authorities.
2. Revenue and expenditure accounts of municipalities, town management boards, and road councils.
3. Final revenue and expenditure accounts of municipalities, town management boards and road councils.
4. Annual ad hoc returns from the more important municipalities on current year capital expenditures.

The sources used for Northern Rhodesia and Nyasaland local authorities were on a calendar year basis, while those for Southern Rhodesia municipalities and other local authorities were on a financial year basis ending June. The latter were therefore arbitrarily advanced by six months. Current year estimates were generally based on the budgets of the local authorities adjusted where necessary by the ad hoc information on capital expenditures. The estimates were subsequently revised as and when the audited accounts became available.

The sources used for territorial and Federal government were:

1. The estimates and financial statements of the territorial and Federal governments for the financial years ending June.
2. Noted monthly trial balance sheet current month and cumulative expenditures in the financial year of each government department.
3. Monthly revenue returns from the treasuries which in the case of the Northern territories included revenue on capital account.
4. Monthly and quarterly lease statements.
5. Auditor-General's reports for each government.
6. Miscellaneous other schedules and information collected from the governments.
7. Audited accounts of pension funds.
Apart from the agencies of government, the accounts of which only appeared on a financial year basis in the Auditor-General's reports, all government transactions were derivable on a calendar year basis. The accounts of agencies were advanced by six months.

In analysing the accounts, constant attention was given to whether an item of expenditure, although appearing in the revenue accounts, was of a capital nature. The surplus on current account of government as published in the national accounts did not accord with the surplus on revenue and expenditure accounts, because of these adjustments for capital items.

In consolidating central governments and central and local governments, all inter-government transactions were cancelled out, with the exception of inter-government rental payments. It was considered that a net rental receipt of consolidated government would reduce the gross domestic product unnecessarily.

(ii) The rest of the world account

This account was a straightforward reconstruction of the balance of payments by sectors. A full description of sources and methods for the balance of payments is to be found in the 'Balance of Payments of the Federation of Rhodesia and Nyasaland, 1954-1962'. (Central Statistical Office, 1963).

It should be noted that the balance of payments and hence the rest of the world account was produced at the Federal level with the result that the national disposable income table, the uses and resources table, appropriation accounts of corporations, the capital account and the personal income and expenditure account were also available at the Federal level only.

(iii) The analysis of wages and salaries

The estimates of wages and salaries were based on the following sources:
(1) 1956 census of African employment.

(2) 1961 census of employment covering all races.

(3) 1956 and 1961 censuses of non-African population, providing inter-alia information on earnings and employment.

(4) Quarterly sample surveys of earnings and employment in sectors other than Southern Rhodesia and Northern Rhodesia agriculture and mining.

(5) Annual censuses of agriculture in Southern Rhodesia and Northern Rhodesia and quarterly sample enquiries on employment in agriculture.

(6) Annual enquiry on income in kind received in Southern Rhodesia and Northern Rhodesia agriculture.

(7) Monthly returns on employment in the mining industry to the Southern Rhodesia and Northern Rhodesia Commissioners of Mines.

(8) Bi-annual sample enquiry on domestic servants.

(9) Annual returns from the Northern Rhodesia Chamber of Mines on employment, wages and salaries and income in kind in the copper, lead and zinc mines.

Estimates of the wages bill by industry and by race were produced by multiplying separate estimates of average employment and average earnings for each race and industry. Income in kind was valued at the cost to the employer and included a valuation of food, housing and clothing and employers' contributions to pension and provident funds. Food provided by farmers to employees from the produce of the farm was valued at the price the farmer would have obtained for his produce on the open market, which by and large was the scheduled price paid to the farmer by the official marketing organisations.

Employment of Africans by Africans in the rural household sector was not included in the estimates of wages and salaries. The wages and salaries of such employees were assumed to be embodied in the estimates of sales of produce and production for own consumption of the rural household sector.
(iv) **Production, consumption and income from sales of the rural household sector.**

The estimates of production for own consumption were based on estimates of the rural household population and assumed per capita consumption requirements and therefore, at best, represented orders of magnitude only. Stock changes and own-account capital formation in improved dwellings were included in the production estimates of the sector. Annual estimates of livestock holdings of the sector were provided by the territorial Ministries dealing with African agriculture and the changes were valued at current annual market prices. Informing on the improvement of dwellings was available for Southern Rhodesia only and was valued nominally.

Estimates of sales of produce by the rural household sector were produced on the basis of information provided by the respective territorial Ministries and information contained in the reports of the Grain Marketing Board operating in Northern Rhodesia and Southern Rhodesia and the Farmers' Marketing Board, operating in Nyasaland.

(v) **Private unincorporated enterprises**

Separate estimates were made for Africans and non-Africans. The estimate for Africans was based on trading and vehicle licences issued in Southern Rhodesia and Nyasaland. Since reliable information on licences was not available for Northern Rhodesia an arbitrary percentage of licences issued in Southern Rhodesia was applied. In the case of vehicle licences all licences for public conveyance and a proportion of private vehicle licences were assumed to have been issued to African unincorporated enterprises.

The income of African unincorporated enterprise was then crudely estimated by multiplying the number of licences, classified by industry, by an average income for each industry based on the average African wage in the industry. No allowance for depreciation were made.

Two types of estimates were made for non-Africans, namely one for agriculture in Northern and Southern Rhodesia and another for the other sectors in the three territories.
Separate input-output accounts for non-African agriculture in the two Rhodesias were constructed on the basis of:

1. the annual census of non-African agriculture in the Rhodesias.
2. the quarterly sample estimates of employment and average wages.
3. the annual sample enquiry into income in kind.
5. miscellaneous information from the Agricultural Departments.
6. miscellaneous information from agricultural suppliers, concerning animal feedstuffs, fertilisers, insecticides and dipping materials.

The methods used have been outlined in a paper "The Input-Output Accounts for European Agriculture in Southern Rhodesia and Northern Rhodesia." (Central Statistical Office, June 1962).

Net and gross estimates of income were derived from the input-output accounts, from which independent estimates of corporated agricultural income were deducted to arrive at the income from non-African unincorporated enterprise in agriculture in the Rhodesias.

The estimates for private unincorporated enterprises in other sectors in the three territories were put together using the following sources:

1. the 1956 census of non-African population providing information on numbers of self-employed and own-account workers by type of occupation.
2. the 1961 census of non-African population providing information on the type of occupation and earnings of self-employed and own-account workers and the distribution of earnings.
3. income tax statistics on earnings from sources other than employment by industry.
The census information provided the means of estimating the average net income of self-employed and own-account workers not subject to income tax. This average income was extrapolated on the basis of the trend of average wages and the relevant number of persons was extrapolated on the basis of population estimates, adjusted in particular industries where necessary according to other indicators, for example the trend in employment in the building industry.

The estimates of net income for the non-taxable were then combined with the income of the taxable as shown in the income tax statistics. For estimates of the taxable group in the more recent years where the income tax information was not yet available, the trend of estimated corporate profits had to be used in the absence of further definite information.

Independent but crude estimates of depreciation for each sector were used to arrive at the required gross income figures.

(vi) Profits of private corporations

The sources available for estimates under this heading included:

1. Annual balance sheets of public and private companies given or lent to the Central Statistical Office.

2. Quarterly returns on operating statistics of the Northern Rhodesia mining companies.

3. Annual questionnaires sent to companies operating in Northern Rhodesia and Nyasaland, all external companies operating in Southern Rhodesia, all manufacturing companies in Southern Rhodesia, and other companies in Southern Rhodesia, and other companies in Southern Rhodesia with nominal capital in excess of £20,000.

4. Ad hoc annual returns from certain major companies with peculiar conceptual problems.

5. Annual returns from commercial banks, building societies, insurance companies and finance houses.

The gross profits of the Northern Rhodesia mining companies were almost exactly estimated on the basis of quarterly returns and annual balance sheets. The profits as declared by the mining groups were, however, adjusted for minor capital expenditures charged by the companies to current account, income from the earnings of electricity plants which was re-allocated to the industry group "electricity and water" and to "stock appreciation".

The estimate for the "electricity and water" sector in Northern Rhodesia was obtained by simply combining the profits of the single private corporation operating there with the earnings from the electricity plants of the mining companies.

Profits of the "banking, insurance and finance" sector were estimated on the basis of annual returns. A reconciliation table was produced showing the difference between profits as defined for national accounting purposes and profits as defined in the normal profit and loss account. (The difference was net interest receipts which were readily estimated from balance sheet information).

For the other sectors gross profits were estimated on the basis of income tax statistics and separate depreciation estimates and extrapolated for the more recent years on the basis of information provided in the annual questionnaire and other economic indicators, such as total mining output or agricultural output or the index of manufacturing activity.

(vii) Profits of public corporations

Estimates with a high degree of accuracy were obtained from:

(1) annual accounts

(2) annual questionnaires

(3) quarterly returns from the Rhodesia Railways and the Central African Airways.
Although almost precise at the Federal level, the estimates of profits of the Federal public corporations generated in the respective territories were approximate because they were based on fairly arbitrary percentages of the total profits. The estimates for the official marketing boards were adjusted for "stock appreciation".

(viii) Profits of government enterprises

The profits of government enterprises were obtained from:

1. Auditor-General's Reports
2. the Post Office Savings Bank and Savings Certificates Annual Reports
3. Annual Reports of the Postmaster-General
4. the Southern Rhodesia Native Production and Marketing Development Fund Accounts

Those accounts of enterprises which were only available for the financial year ending 30th June were advanced by six months. As with Federal public corporations, arbitrary percentages had to be applied to obtain the required territorial allocation.

(ix) Personal income from ownership of dwellings

The main task was to estimate the number of dwelling units of the non-African population. Information on different types of buildings was available from the 1956 and 1961 censuses of population. Straight line interpolation of each type had been used for the inter-censal years and in the absence of direct information on housing construction (there was no classification of building activity) the extrapolation beyond the inter-censal period was based on population estimates and the trend of the inter-censal period.
Average rentals were available for each type of dwelling unit from the censuses and an index of rents was maintained. This information was used in the estimation of personal income from the ownership of dwellings. A classification of rented dwellings and imputed income of owner-occupiers was maintained in the national accounts.

(x) Private consumption expenditure analysed by type of expenditure

The major sources of the estimates under this heading were the following:

1. imports classified by commodity and end-use and re-exports classified by commodity
2. the annual census of industrial production
3. the index of industrial production, with sub-indices for specified industries
4. monthly manufacturers' sales of specified commodities
5. budget surveys for both Africans and non-Africans
6. excise returns on cigarettes and tobacco
7. market estimates of a limited number of important commodities provided to the Central Statistical Office by major producers
8. livestock slaughters and dairy statistics from direct returns and from the Federal Ministry of Agriculture
9. Government and municipal accounts for information on rental income from persons and sales of African beer.

There were four basic methods employed in arriving at the private consumption expenditure estimates:

1. known physical quantities of supplies multiplied by average retail prices
2. retained imports plus local production plus distributors' mark-ups.
(3) estimates of consumption provided by the trade itself—for example, European type beer.

(4) per capita consumption figures from budget surveys, grossed up by population figures and adjusted for the movement of prices.

A description follows of the methods of estimation used for the various items of consumer expenditure.

**Bread and Cereals**: Flour: local production less exports less industrial consumption plus retailers' mark-up. Maize meal: local production less exports of roller meal, i.e. where husk is removed, plus mark-up, plus farm retentions of maize for employees. Bread and bakery products: imports plus production plus mark-up.

**Meat**: Beef: weight from local slaughtering less industrial consumption and exports times a weighted average price of "cuts". Pig meat: industrial output plus mark-up, and butchers' slaughter plus mark-up, less exports. Sheep and goat meat: number slaughtered at average producer price plus mark-up.

**Fish**: Imports plus mark-up and an order of magnitude estimate to cover local production.

**Milk, cheese and eggs**: Milk: quantity of sales of fresh milk at current market price and retained imports plus production plus mark-up for preserved milk. Cheese: retained imports plus production plus mark-up. Eggs: budget survey technique.

**Oils and Fats**: Butter: quantities at current market prices. Other oils and fats: estimates on the basis of local production plus mark-up and checked with independent estimates of one of the major producers.

**Fruit and vegetables**: Fresh: budget survey technique. Preserved: imports plus production plus mark-up.
Sugar, preserves and confectionery: Sugar: available supply less industrial consumption at market price. Preserves and confectionery: imports plus production plus mark-up.

Tea and Coffee: Tea: retained production at price of most commonly used local brand and imports at price of most commonly used imported brand. Coffee: imports plus production plus mark-up.

Other Foods: Budget survey technique.


Tobacco: Local production at market prices and imports at market prices except for cigars which are at f.o.b. value plus mark-up.

Clothing, footwear and other personal effects: Retained imports and production plus mark-up.

Rent, rates and water: Personal income from property plus rental payments by Africans to local authorities plus the imputed value of rents in the income in kind estimates. Separate estimates of water charges and expenditure on repairs and maintenance for the non-African population were included.


Furniture, furnishings and household equipment: Imports plus production plus mark-up, the estimated annual series being smoothed out and the adjustments being carried through to stocks.


Transport and communication: Equipment: passenger cars estimated at 70 per cent of registrations at import cost plus mark-up; bicycles, motor cycles, scooters and caravans at imports plus production, if any, plus mark-up; allowance was also made for dealers' mark-up on second-hand car sales. Petrol: percentage of oil companies' sales to garages plus mark-up. Oil: a calculation pro-rata to petrol consumption. Repairs and maintenance, licences and insurances: all budget survey techniques. Tyres and tubes: based on average life of tyres and cost of replacement and retreading of the model size. Purchased transportation: passenger fare and excess baggage receipts of railways after deduction of a percentage for business travel; similarly for internal flights of the airways; budget survey approach for road transportation. Communication: based on budget surveys.

Recreation and entertainment: Budget survey method but for sports goods imports plus mark-up.

Financial Services: Operating expenses of life insurance companies and bank charges based on the number of personal accounts.

Religious Organisations: Operating expenses of religious bodies obtained from direct annual returns.

Other Services: Trade union and professional subscriptions, education and other services were estimated by budget survey methods.

Expenditure by residents abroad and expenditure of non-residents in the country: - Balance of payments estimates.

(xi) Capital formation

Gross domestic capital formation estimates were produced annually classified, by type of asset, by sector and by industrial use. The group
vehicles, plant, machinery and equipment was classified by ten sub-groups for the Federation. No subdivision of this category was possible for the territories. No division of building and works was attempted at either the territorial or Federal levels.

The sources of information can be enumerated as follows:

1. government accounts, supplemented by ad hoc enquiries,
2. questionnaire returns from public corporations,
3. questionnaire returns from private corporations,
4. questionnaire returns from non-agricultural unincorporated enterprises and non-profit making organisations, conducted on a sample basis and grossed up according to sampling fractions (these returns commenced from the calendar year 1962),
5. end-use tabulations of imports,
6. industrial census data of production of capital goods, extrapolated by sample returns,
7. industrial census data on capital formation,
8. census and quarterly returns from building and contracting enterprises on work done analysed according to work done for the official sector and for other sectors,
9. annual non-African agricultural censuses in Southern Rhodesia and Northern Rhodesia (for information on land under cultivation, irrigation and afforestation, numbers of fruit trees and numbers of tobacco barns, dams, tractors and vehicles),
10. the Southern Rhodesia Ministry of Local Government (for the information on the number of improved type of dwellings in the African rural areas),
11. published accounts of public and private corporations;
12. registration of motor vehicles.
Capital formation was classified by type according to the following categories: land improvement, mine development, building and works, vehicles, plant, machinery and equipment, and changes in stocks (inventories).

Land improvement. Territorial and Federal totals were obtained by combining recorded data from the analysis of government accounts and questionnaire returns with estimates for the non-African agricultural sector for Southern Rhodesia and Northern Rhodesia. In the case of the latter average cost values were applied to the extension of acreage under cultivation, irrigation and afforestation and to the increase in the numbers of different types of fruit trees. The non-African agricultural sector in Nyasaland was dealt with by direct questionnaire return from companies. The non-African agricultural unincorporated enterprise sector in Nyasaland which is of minor importance was ignored.

Mine development. The territorial and Federal figures were obtained from questionnaire returns and past published accounts of companies.

Building and works. The estimates for the public sector, viz. central and local government, government enterprise and public corporations, were obtained from the analysis of government accounts supplemented by ad hoc enquiries where necessary, questionnaire returns from public corporations and the published accounts of public corporations. The buildings and works of the Federal Government were analysed territorially according to information obtained from the Ministry of Works, the Ministry of Posts and Telegraphs and the Ministry of Transport.

The estimates of the totals for the private sector were obtained from the census and quarterly returns from building and contracting enterprises and estimates of own-account construction of the agricultural sector in Southern Rhodesia and Northern Rhodesia. Efforts were made to fill in the gaps arising from non-response of building and contracting enterprises on the basis of employment. The estimates of own-account construction of the agricultural sector in the two Rhodesias were particularly weak, for arbitrary assumptions had to be made of the
proportion of newly constructed dams and tobacco barns that were own-account constructed, the average cost of construction and the likely ratio of other building and construction on farms to tobacco barn and dam construction. (Various field enquiries of the Ministry of Agriculture assisted in this respect). Nominal cost values were in addition applied to the increases in the number of improved dwellings in the African rural areas in Southern Rhodesia.

Plant, machinery and equipment. The estimates were carried out at the Federal level on the basis of imported plant, machinery and equipment and local production. The estimates suffered from lack of reliable information on distributors’ mark-ups and changes in distributors’ stocks. Capital formation in passenger cars was poorly estimated by applying average prices of passenger vehicles to 30 per cent of registrations. (The figure of 30 per cent was purely arbitrary).

The capital formation in plant, machinery and equipment for the agricultural sector was separately estimated as an element of total plant, machinery and equipment for each territory from information given in the agricultural censuses for Southern Rhodesia and Northern Rhodesia, from direct returns from agricultural enterprises in Nyasaland, from the end-use tabulations of imports and from the analysis of government accounts.

The aggregates of recorded capital formation in plant, machinery and equipment in each territory were compared with the total estimate of plant, machinery and equipment for the Federation. The residual unrecorded amount was allocated pro rata to the recorded territorial capital formation to arrive at total capital formation in plant, machinery and equipment for each territory. This method was undoubtedly very weak but could only be improved on with the re-establishment of territorial foreign trade statistics. The unrecorded element, however, had been reduced considerably in recent years through the extension of questionnaire enquiries and the territorial allocation for these years was improved.

Stocks. The estimates were based on recorded data on changes in stocks from direct returns and industrial censuses and known physical
changes in stocks of minerals, livestock and grains of the marketing boards. The value of the known physical change in stocks was obtained by applying average annual market prices.

Sector allocation. The figures published for the official sector and private corporations were recorded amounts and those for the African rural household sector were estimates of own-account construction of improved dwellings in Southern Rhodesia. Capital formation in the personal sector including unincorporated enterprise was obtained by difference from the total estimate of capital formation.

Allocation by industrial use. Capital formation in agriculture was an estimate, whereas the data for other sectors were recorded figures. A large residual resulted but this had been narrowed notably in recent years.

(xii) Inter-sector Investment Income Transactions

The inter-sector investment income transactions were estimated as a separate exercise and subsequently fed into the appropriation accounts etc.

The sources of information included:

1. monthly returns from governments, public corporations and major companies on holdings of Federal and Territorial externally registered stock and earnings on such holdings;

2. the analysis by holder of locally registered stock provided by the Bank of Rhodesia and Nyasaland;

3. government accounts for an analysis of interest receipts by sector;

4. information provided by public corporations on payments of interest to other sectors;

5. income tax statistics providing information on interest and dividends earned in the Federation;

6. analysis of commercial bank advances by sector;

7. the sector analysis of investment income transactions in the balance of payments.
Government interest payments. Fairly comprehensive information was available on the payments by central government to each resident sector on its holdings of Federal and Territorial external stock. Interest on local stock of central government was estimated for each sector according to holdings of such stock.

The interest payments of local government after deduction of payments to central government were analysed by making separate estimates of payments to life insurance companies, pension funds, government enterprise and non-residents on known holdings by these sectors of local government stock. The unallocated residual was attributed to private corporations.

Government interest receipts. Receipts by central government from public corporations, local government (which is cancelled out on consolidation), government enterprises, households and non-residents were identifiable from the accounts and returns of government. The residual was attributed as before to private corporations.

Local government interest receipts were classified by receipts from central government, government enterprise and a residual attributed to private corporations.

Household interest payments. The estimates were built up by considering each type of financial institution in turn. The interest payments to commercial banks were estimated on the basis of advances to persons and the unincorporated enterprise sector at average overdraft rates. Payments to the Land Banks were estimated on the basis of an analysis of the loans of these banks, farmers and house-owners being separately identified. Interest payments to hire purchase finance companies were approximately estimated on the basis of an analysis of hire purchase by type of equipment, from which a proportion of total income from the household sector was deducted. The proportion was applied to the known total of interest receipts of the hire purchase companies. The entire mortgage interest receipts of building societies was allocated to the household sector. Although this was erroneous because part of the mortgage interest was derived from other sectors, the errors were
compensated to a certain degree in that there exist other corporations advancing mortgage loans to the private sector, for which separate estimates could not be made.

The interest receipts of the Northern Rhodesia African Housing Board were also included. In addition there was included a contra-entry of government interest receipts from the household sector.

The estimates resulted in a schedule of interest payments to government, private corporations and public corporations.

**Household income receipts.** Income tax statistics provided information on income receipts by persons from outside the Federation and inside the Federation. The latter were assumed to derive from private corporations and government. As interest receipts from government had been independently estimated, income from private corporations was obtained by difference. However, independent estimates of income of life insurance companies from private corporations were added to get the total receipts by the household sector from private corporations.

The interest payments of public corporations and government to pension funds were included. The entire interest payments of the Post Office Savings Bank and Post Office Savings Certificate Accounts, both classified as government enterprises were attributed to the household sector. This was the most reasonable assumption that could be made in the absence of a classification of deposit and certificate holders.

**Government enterprise payments:** The difference between identified payments to government and households and total interest payments was attributed to private corporations.

**Government enterprise receipts:** The total receipts were allocated between government and the rest of the world.

**Public corporations payments:** Payments to pension funds, treated as part of the household sector, were separately identified. Information on payments to the rest of the world was available from the balance of payments estimates and payments to government were available in government
accounts. Payments to private corporations other than the commercial banks were available from direct returns. The payments to commercial banks were estimated on the basis of advances to public corporations and the appropriate overdraft rate.

Public corporations receipts: Receipts from households, the rest of the world and government were already available. Interest receipts from companies were provided in annual returns from public corporations.

Private corporations receipts and payments: The sector classification of receipts and payments had become available in the course of estimating the income transactions of the individual sectors.

The matrix of investment income transactions between the rest of the world, government, household, government enterprise, public corporations and private corporations was checked to be completely self-balancing and the appropriate items were entered in the respective appropriation accounts etc.

(xiii) Other Transfers between Sectors

A procedure similar to that for investment income inter-sector transactions was followed, although it was not of the same complexity. A detailed sector analysis of government transfer receipts and payments was available from the analysis of government accounts and the rest of the world transfers were available from the balance of payments estimates. The identified transfers of government enterprise and public corporations obtained from an analysis of their balance sheets were also brought to account in the matrix of entries and counter-entries.

As far as direct taxes of government were concerned, poll tax, social security taxes and levies, other than the electricity levy or surcharge imposed on the Northern Rhodesia copper companies, were attributed to the household sector. The allocation of income tax to households and companies was based on income tax statistics, the household element being extrapolated on the basis of lagged wages and salaries and income from unincorporated enterprise and the company element obtained by difference.
(xiv) Provisions for Depreciation

A mention has already been made of the need for estimates of provisions for depreciation or, more strictly, wear and tear allowances etc. of the income tax authorities to obtain gross profit estimates of private corporations and unincorporated enterprises. These estimates were presented separately in supplementary tables in the national accounts together with recorded figures of provisions for depreciation for public corporations and government enterprise.

The estimates of provisions for depreciation were poor in the past, being based on sector ratios of depreciation provisions to net profits obtained from an analysis of balance sheets of private corporations. Direct information on income tax wear and tear, initial scrapping and capital expenditure redemption allowances, which provided the appropriate correction in adjusting taxable income figures to obtain gross profits, was becoming available.

F. THE RELIABILITY OF THE ESTIMATES

The items of central government current and capital accounts were of a relatively high degree of accuracy as detailed expenditure schedules were received every quarter from all central government departments. The main weakness of the central government analysis, however, lay in the difficulty of identifying expenditure of a capital nature made from revenue votes. In the case of local government, the estimates for the current year were based on the published budgets of the municipalities, supplemented by direct information on total expenditures on revenue and loan votes for the larger municipalities. (Final accounts were available for a number of the smaller municipalities in Southern Rhodesia). A further timing difficulty arose because the budgets of municipalities in Southern Rhodesia were based on financial years ending 30th June. In the absence of any information for periods less than a year the budgets were received by six months. Estimates for local government were revised as final audited accounts were received. Native authorities present no problem as monthly trial balance sheets were made available to the Central Statistical Office.
The items of the rest of the world current and capital accounts varied greatly in reliability. A separate chapter would be required to discuss the respective items and their reliability. A broad indication of the accuracy of the key items will therefore have to suffice here.

The estimates of imports and exports of merchandise were good, the main weakness being the difficulty in making appropriate adjustments for timing variations. The figures for imports and exports of services were in total satisfactory, being based on a considerable number of direct returns from enterprises of all kinds. The estimates of investment income were also generally satisfactory: for government and public corporations they were exact; for private corporations there was a high degree of accuracy in total but household investment income receipts were approximate. The current estimates for household investment income receipts were order of magnitude figures until finalized when the income tax statistics become available. The estimates of transfers were perhaps the weakest category of current account estimates. No account was taken of assets of immigrants in the country of origin other than capital funds being transferred, and emigrants' funds were roughly estimated on a per capita basis, the per capita figures being taken as the average for immigrants. The estimates for remittances were fair only despite the existence of exchange control information. Estimates for other transfer transactions were good. The relevant items for migrant workers were broadly of the right order of magnitude although a higher degree of accuracy could be claimed for the element concerning Federal labour recruited through the Witwatersrand Native Labour Association for employment on the South African gold mines.

On capital account, the changes in assets and liabilities of general government, public corporations and the banking sector were known almost exactly.

The changes in long term assets and liabilities of private corporations were entered in the accounts as recorded. Although the estimates were not complete a high proportion of all transactions was believed to be covered.
The weakest estimates were those concerning short term changes in assets and liabilities arising particularly from merchandising transactions. Aside from the omission of assets of migrants in the capital account, the transactions of the household sector were fairly adequately reported.

The estimates of wages and salaries were reliable within the usual errors of sample enquiries. The estimates were based on five-yearly bench-mark censuses extrapolated by quarterly sample enquiries for all sectors other than mining and agriculture in the two Rhodesias, for which there were alternative and comprehensive sources of information. Efforts were concentrated in recent years on improving the estimates of income in kind contained in the wages and salaries and further improvements were expected to take place by widening the sample for certain groups, in particular missions and services, and collecting more regular returns for industries such as tobacco grading and packing where there is a marked seasonal fluctuation not adequately reflected in quarterly returns.

It has been made clear in the preceding sections that the estimates of the rural household sector were at best orders of magnitude. Considerable improvements were anticipated in the future at least as far as the estimates for Southern Rhodesia are concerned.

The estimates for private unincorporated enterprise were generally poor, although they were reasonably good for non-African private unincorporated enterprise. The estimates for African private unincorporated enterprise were based on the number of licenses and the average wage for Africans in the same industries. The non-African income was based on information from the censuses of population, income tax statistics and agricultural input-output analyses for the two Rhodesias.

The profits of private corporations (companies) were in total satisfactorily estimated but the quality of the estimates varied considerably for the various industrial groups. At the one end of the spectrum, the estimates of profits of Northern Rhodesia copper, lead and zinc mining companies were very good, being based on quarterly returns on operating profits supplemented by published balance sheet information and ad hoc
annual returns. At the other end, the profits of private corporations in the service sector were poorly estimated because there appeared to be little consistency in the coding of companies in the service group by the tax authorities and also because of the difficulty of extrapolating the income tax information to the current year. A general weakness of all the estimates, other than those for Northern Rhodesia mining, derived from the difficulty in the past in estimating the wear and tear allowances and interest allowances made by the income tax authorities in arriving at the taxable incomes of companies. This was later rectified since direct information on the allowances was reported to the Central Statistical Office.

The estimates of the profits of public corporations were good, the main weakness being the territorial allocation of profits of public corporations operating in two or more territories. There were minor difficulties in making appropriate timing adjustments for the smaller corporations.

The estimates for government enterprises profits were less satisfactory. There was the same difficulty of allocating Federal Government enterprises by territory as in the case of public corporations and the problem of making timing adjustments was, in addition, more acute. With the exception of four large enterprises of the Southern Rhodesia and Federal Governments, for which calendar year balance sheets were made available to the Central Statistical Office, the source for all other enterprises were the Auditor General's reports in respect to the financial years ended 30th June. The accounts of the latter therefore had to be advanced by six months.

Personal income from ownership of dwellings was reasonably well estimated on the basis of censuses of population and rent surveys, although the accuracy of current year estimates was impaired by the difficulty in providing the correct extrapolation of the number of dwelling units by type of unit obtained from the census of population.

The quality of the items of private consumption expenditure varied considerably. The accuracy of the estimates was related to the method
employed. Those estimates which were based on quantitative information for which retail price quotations were available were good, and such estimates predominated in the food groups. The estimates based on values of production and retained imports to which distributors' mark-ups had to be applied were fair, whereas the estimates based on budget surveys were poor. The overall order of magnitude of private consumption was believed to be reliable, although the year to year changes could be improved with more information on distributors' stocks.

The total capital formation was estimated separately for each type of asset. The estimates for land improvement were fair, being based on a nominal cost valuation of acreage, irrigation and information extension by non-African agricultural enterprises and recorded information from government accounts and questionnaire returns. Mine development was recorded from direct returns and the omissions were not considered to be serious. The estimates of capital formation in building and works were fair, although since they were based on data from annual censuses and quarterly returns, there were omissions particularly in the case of the smaller unincorporated enterprises and inconsistencies in returns of government building departments. Efforts to make good the omissions were based on employment data and data on the supply of building materials. The independent estimates of work done by private contractors for governments and work done by government departments did not satisfactorily tie in with the expenditures of governments on construction work as revealed by the government accounts and the government accounting figures were used. The estimates of investment in plant, machinery and equipment suffered from lack of information on changes in distributors' stocks and poor information on distributors' mark-ups. The territorial allocation of capital formation in plant, machinery and equipment was also weak as there was an unrecorded residual which had to be allocated arbitrarily.

The estimates of capital formation by sector and industrial use was generally recorded figures. There were, of course, residuals which in the case of the sector analysis were included in capital formation of households and in the case of the industrial analysis separately specified as unallocated.
The matrices of inter-sector investment income transactions and other transfer transactions were in general fairly reliable, the main weakness being the transfers with the rest of the world. The domestic transactions of private corporations tended to carry the errors of allocation, for example, interest payments to government were separately estimated or identified for the rest of the world, the household sector, government enterprise and public corporations and the residual was allocated to private corporations.

The financial provisions for depreciation were poorly estimated for the private sector on the basis of the relationship between financial provisions for depreciation and net profits from a sample of published accounts of private corporations adjusted according to information obtained through annual questionnaires, the average of which was expanding each year. The figures for public corporations and government enterprises were abstracted from published accounts supplemented where necessary by questionnaire returns. Although the estimates for depreciation were relegated to supplementary tables in the published national accounts, the errors in the estimates were still embodied in the main tables in so far as the estimates for depreciation had been used in measuring the wear and tear allowances of the income tax authorities and had had to be added to taxable incomes of unincorporated enterprise and private corporations in arriving at gross profits.
TABLE 35 - COMPOSITION OF GROSS DOMESTIC FIXED CAPITAL FORMATION IN 1963

<table>
<thead>
<tr>
<th>Type of Assets and by Origin</th>
<th>Retained Imports C.I.F.</th>
<th>Distribution margins and installation costs on retained imports</th>
<th>Other Domestic Production</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Land improvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Mine development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Building and works:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) residential buildings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) non-residential buildings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) other construction and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>work:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Vehicles, plant, machinery and equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Transport equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) railway transport</td>
<td>1.6</td>
<td>0.2</td>
<td></td>
<td>1.8</td>
</tr>
<tr>
<td>(b) road passenger vehicles</td>
<td>1.7</td>
<td>1.5</td>
<td>1.0</td>
<td>0.2</td>
</tr>
<tr>
<td>(c) road commercial vehicles</td>
<td>3.7</td>
<td>1.2</td>
<td>0.8</td>
<td>0.1</td>
</tr>
<tr>
<td>(d) other transport equipment</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Machinery and other equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) agricultural machinery and equipment</td>
<td>2.3</td>
<td>0.7</td>
<td>1.0</td>
<td>0.3</td>
</tr>
<tr>
<td>(b) mining and road construction machinery</td>
<td>5.6</td>
<td>0.2</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>(c) industrial machinery and equipment</td>
<td>9.2</td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d) telegraph, telephone and radio equipment</td>
<td>0.9</td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e) electrical machinery and equipment</td>
<td>2.8</td>
<td>0.4</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>(f) other</td>
<td>1.2</td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Gross domestic fixed capital formation: 29.2 7.7 58.0 0.7 95.6
### TABLE 1.8 (continued)

<table>
<thead>
<tr>
<th>Distribution margins and installation costs on retained imports</th>
<th>Other domestic production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retained imports C.I.F.</td>
<td>Local products at producer prices</td>
</tr>
</tbody>
</table>

**By type of purchaser:**

1. Rural household sector
2. Private unincorporated enterprises (and unrecorded)
3. Private corporations
4. Public corporations
5. Government enterprise
6. General government

**Gross domestic fixed capital formation:**

<table>
<thead>
<tr>
<th>By Industrial Use:</th>
<th>Distribution margins and installation costs on local products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry, fishing</td>
<td>10.0</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>19.7</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>4.8</td>
</tr>
<tr>
<td>Building and construction</td>
<td>0.5</td>
</tr>
<tr>
<td>Electricity, gas, water</td>
<td>9.5</td>
</tr>
<tr>
<td>Distribution</td>
<td>5.9</td>
</tr>
<tr>
<td>Banking, insurance and finance</td>
<td>0.7</td>
</tr>
<tr>
<td>Real estate</td>
<td>5.5</td>
</tr>
<tr>
<td>Ownership of dwellings</td>
<td></td>
</tr>
<tr>
<td>Transport, storage and communication</td>
<td>16.0</td>
</tr>
<tr>
<td>Public administration and defence</td>
<td>7.6</td>
</tr>
<tr>
<td>Education services (government only)</td>
<td>2.4</td>
</tr>
<tr>
<td>Medical and other health services (government only)</td>
<td>0.6</td>
</tr>
<tr>
<td>Other services industries</td>
<td>1.9</td>
</tr>
<tr>
<td>Unallocated</td>
<td>10.6</td>
</tr>
</tbody>
</table>

**Gross domestic fixed capital formation:**

95.7
<table>
<thead>
<tr>
<th>Table 16 - Total Uses and Resources in 1962</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Million</strong></td>
</tr>
<tr>
<td>16.1 Gross Domestic Product at Market Prices</td>
</tr>
<tr>
<td>16.2 Imports of Goods and Services</td>
</tr>
<tr>
<td>16.3 Private Consumption Expenditure</td>
</tr>
<tr>
<td>(1) Consumption from Own Production of Rural Households</td>
</tr>
<tr>
<td>(2) Other Private Consumption</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>16.4 General Government Consumption Expenditure</td>
</tr>
<tr>
<td>16.5 Own Account Capital Formation of Rural Households</td>
</tr>
<tr>
<td>16.6 Other Gross Domestic Fixed Capital Formation</td>
</tr>
<tr>
<td>16.7 Increase in Stocks</td>
</tr>
<tr>
<td>(1) of Primary Goods Produced and Retained by Rural Households</td>
</tr>
<tr>
<td>(2) of Other Goods</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>16.8 Total Domestic Expenditure</td>
</tr>
<tr>
<td>16.9 Exports of Goods and Services</td>
</tr>
<tr>
<td>16.10 Statistical Discrepancy</td>
</tr>
<tr>
<td><strong>Total Resources</strong></td>
</tr>
<tr>
<td><strong>Total Uses</strong></td>
</tr>
<tr>
<td>Table 17 - National Disposable Income by Type of Income Before Provision for Consumption of Fixed Capital in 1962 (£ million)</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>17.1 Compensation of employees</td>
</tr>
<tr>
<td>17.2 Income from rural households</td>
</tr>
<tr>
<td>(1) on sales to other sectors</td>
</tr>
<tr>
<td>(2) primary production retained for consumption</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td>17.3 Income from other enterprises</td>
</tr>
<tr>
<td>(1) unincorporated enterprises other than rural households</td>
</tr>
<tr>
<td>(2) companies(1)</td>
</tr>
<tr>
<td>(3) public corporations</td>
</tr>
<tr>
<td>(4) government-enterprises</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td>17.4 Household income from property (actual and imputed rent only)</td>
</tr>
<tr>
<td>17.5 General government income from property: rent (actual only)</td>
</tr>
<tr>
<td>17.6 Less: (i) interest, dividends and profits paid to the rest of the world</td>
</tr>
<tr>
<td>(ii) other transfers to the rest of the world (net)</td>
</tr>
<tr>
<td>National disposable income, before provision for consumption on fixed capital</td>
</tr>
</tbody>
</table>

\(1\) Including royalties accruing to general government.
### SUPPLEMENTARY TABLE I : NYASALAND

GROSS DOMESTIC PRODUCT \(^1\) BY TYPE OF INCOME BEFORE PROVISION FOR THE CONSUMPTION OF FIXED CAPITAL

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1 Compensation of employees</td>
<td>8.3</td>
<td>9.6</td>
<td>11.2</td>
<td>12.4</td>
<td>13.9</td>
<td>14.7</td>
<td>14.9</td>
<td>15.1</td>
<td>15.1</td>
</tr>
<tr>
<td>A.2 Income from rural households</td>
<td>20.2</td>
<td>21.4</td>
<td>22.3</td>
<td>21.7</td>
<td>22.5</td>
<td>23.2</td>
<td>23.4</td>
<td>24.3</td>
<td>25.6</td>
</tr>
<tr>
<td>A.3 Income from other enterprises</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) unincorporated enterprises other than rural households</td>
<td>1.7</td>
<td>2.0</td>
<td>2.3</td>
<td>2.9</td>
<td>3.0</td>
<td>3.4</td>
<td>3.7</td>
<td>3.9</td>
<td>4.2</td>
</tr>
<tr>
<td>(2) corporations (public and private)</td>
<td>3.8</td>
<td>3.6</td>
<td>3.3</td>
<td>3.7</td>
<td>3.5</td>
<td>2.8</td>
<td>4.3</td>
<td>4.4</td>
<td>3.8</td>
</tr>
<tr>
<td>(3) government enterprises</td>
<td></td>
<td></td>
<td></td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>(4) Compensation of employees</td>
<td>5.5</td>
<td>5.6</td>
<td>5.6</td>
<td>6.7</td>
<td>6.6</td>
<td>6.3</td>
<td>8.1</td>
<td>8.4</td>
<td>8.1</td>
</tr>
<tr>
<td>A.4 Households income from property</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>A.5 General government income from property</td>
<td>0.1</td>
<td></td>
<td></td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Gross domestic product at factor cost</td>
<td>34.3</td>
<td>36.9</td>
<td>39.6</td>
<td>41.3</td>
<td>43.5</td>
<td>44.7</td>
<td>47.0</td>
<td>48.5</td>
<td>49.4</td>
</tr>
</tbody>
</table>

\(^1\) Since Federation in 1953, the rest of the world account has been compiled at the Federal Level only and the appropriate territorial transfare for the calculation of national disposable income are not available.