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# NATIONAL ACCOUNTING PRACTICES IN SEVENTY COUNTRIES

Volume II (Incan - Philippines)

# **UNITED NATIONS**

DEPARTMENT OF INTERNATIONAL ECONOMIC AND SOCIAL AFFAIRS STATISTICAL OFFICE

STUDIES IN METHODS

Series F No. 26

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# NATIONAL ACCOUNTING PRACTICES IN SEVENTY COUNTRIES

A supplement to the Yearbook of National Accounts Statistics

Volume II



UNITED NATIONS New York, 1979

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### COMPOSITION OF THIS PUBLICATION

# National Accounting Practices in Seventy Countries is published in three volumes, arranged as follows:

# Volume I

### Introduction

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Austria	Denmark	Ghana
Bolivia	Dominican Republic	Greece
Botswana	Egypt	Honduras
Brazil	El Salvador	Hong Kong
Canada	Ethiopia	India
Chile	Fiji	Indonesia

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Country papers:

# Volume III

Country papers:

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Puerto Rico	Sri Lanka	and Northern Ireland
Republic of Korea	Sudan	United Republic of Tanzania
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#### IRAN

The presentation that follows is mainly based on information contained in <u>National Income of Iran, 1338-50 (1959-72)</u>, 1/ issued in 1975, and the preceding publication, <u>National Income of Iran, 1962-67</u>, issued by the Economic Research Department, Bank Markazi Iran, in September 1969. A report on the problems of national accounting concepts and methodology in Iran, submitted to an interregional seminar held at Caracas in 1975 has also been used. Supplementary information was received from the Statistical Centre of Iran in February 1978.

#### Introduction

#### History

The first estimates of national income in Iran were made by foreign economists in 1957. The absence of information on such basic statistics as population, consumption or production made these estimates less reliable than they might have been.

In 1963, the Plan Organization estimated national income for the years 1958-1961 by using the production approach. The Bank Markazi Iran, which had been entrusted with the official duty of developing a system of national accounts, used the expenditure approach to measure national income.

Systematic work on national accounts compilation according to the revised SNA format was initiated in 1973 by the Statistical Centre of Iran.

Bank Markazi Iran published a comprehensive set of national accounts tables in 1974 in <u>National Income of Iran 1338-50 (1959-72). 1/</u>

#### Approaches used

#### Gross domestic product

The main approach used to estimate the gross domestic product is the production approach.

#### Gross domestic product by kind of economic activity

In most instances the production approach is used to estimate value added, but the income approach is applied for producers of government services and industries comprising the oil sector, the construction sector, communication, banking and insurance and part of other services. The commodity-flow approach is used to estimate the trade sector.

<sup>&</sup>lt;u>1</u>/ Bank Markazi Iran, Bureau of National Accounts, <u>National Income of Iran</u> <u>1338-50 (1959-72)</u> (Teheran, Bank Nelli Iran Press, 1974).

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure and exports and imports of goods and services. It is used in combination with the commodity-flow approach for private final consumption expenditure, and these two approaches are also used for each separate part of gross fixed capital formation, i.e., the expenditure approach for buildings and constructions and the commodity-flow approach for machinery and equipment. Increase in stocks is not estimated.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

#### Gross domestic product by kind of economic activity

Annual surveys of agriculture Accounting data from the oil companies Annual surveys of mining Annual surveys of manufacturing Accounting data from public enterprises Government budgets and accounts Household budget surveys Annual surveys of urban construction activity Urban Establishment Listing, 1973 Labour force surveys

Cost structure of the gross domestic product

Government accounts

#### Expenditure on the gross domestic product

Government accounts Household budget surveys Annual surveys of urban construction activity Foreign trade statistics

#### Methods and sources of estimation

Current prices

#### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

#### Agriculture, hunting, forestry and fishing

The agricultural estimates are based primarily on the annual surveys of agriculture carried out by the Statistical Centre of Iran, but are supplemented by information obtained from the Ministry of Agriculture and other government agencies. These estimates are then checked systematically against the results of the annual household budget surveys (adjusted for imports, exports and non-household consumption), and the necessary corrections are made so as to ensure internal consistency within the national accounts framework. The estimates are compiled both at the national level and by region. The prices used are average harvest prices, collected and compiled for a wide range of agricultural crops. The results of the 1973 Agricultural Census provide a new basis for rechecking the earlier estimates.

Data on the production of red meat are estimated on the basis of information supplied by slaughterhouses in the urban areas, adjusted for exports and imports, and the results of expenditure surveys in rural areas conducted by the Statistical Centre of Iran. These data are converted into current-price estimates by using the wholesale price index for raw materials of animal origin. Production figures for white meat are estimated on the basis of <u>per capita</u> consumption estimates and by applying unit prices from the wholesale price index material. Similar methods are used for eggs, game and honey. Milk production is estimated by taking into account the number of milk-giving livestock and the quantity of milk produced during the milking period, inflated by using the wholesale price index for food of animal origin.

Intermediate consumption is computed on the basis of information supplied by the relevant government agencies, and from data on domestic production and imports. Statistics covering the production and value of chemical fertilizers are obtained from the Chemical Institute of Iran. An estimate of water consumption for the area under cultivation was worked out in 1960, providing a basis for a ratio of water consumption per hectare.

Statistics concerning the production of forest wood are obtained from the Forestry Department, converted to current prices by using the wholesale price index for domestic lumber. Charcoal production is valued by taking into consideration the quantity produced and the wholesale price index for charcoal. The value of other forest production is obtained from foreign trade statistics. Intermediate consumption is not estimated for forestry.

For fishing, the basic source of data is the Iran Fisheries Company, which provides information confined to the northern fisheries. The rentals paid to the Iran Fisheries Company are used as a measure of output with respect to free-lance fishermen operating in interior rivers. For the southern areas, data on fish consumption from the urban family expenditure survey for four southern cities have been used.

#### Mining and quarrying

Like the data for large manufacturing establishments (see under "Manufacturing" below), mining estimates are compiled at both the national and the regional levels, using as a source the annual mining surveys and the 1973 census of mining carried out by the Statistical Centre of Iran.

The value added of oil production is calculated by using the income approach. The requisite information is obtained from the National Iranian Oil Company. The sum of wages and salaries, rentals, interests, depreciation charges for movable and immovable properties, net profits and Iran's share according to the agreement in force prior to the participation agreement are included in the balue added of oil production. Pipeline operations are also included, whereas value added by petrochemical industries is subsumed under manufacturing.

#### Manufacturing

The manufacturing estimates for large establishments, employing more than 10 workers, are based on the results of annual surveys of manufacturing carried out by the Statistical Centre of Iran. The gross output, intermediate consumption and value added of small establishments are estimated globally, as a function of the output etc. of large establishments by region. Estimates for total manufacturing are compiled at both the national and the regional levels.

# Electricity, gas and water

The estimates of gross output, intermediate consumption and value added are compiled primarily on the basis of information obtained from the establishments concerned and from the economic analysis of government sector accounts.

#### Construction

The estimates for private urban new construction are adapted from the results of Bank Markazi's annual surveys of urban construction activity. The main adjustment made is the addition of estimated contractos' profits, since the average construction costs underlying the survey estimates of construction values include intermediate consumption and labour costs only. The requisite information is obtained through discussions with construction engineers. Private construction in rural areas is estimated from the SCI 1973 listing of rural construction projects and average prices adapted from the Bank Markazi surveys (small cities). Expenditure on extensions, maintenance and repairs is estimated from household budget data and partial information on similar expenditures by the government and business sectors.

General government construction expenditures and similar expenditures of public corporations and non-corporate enterprises are derived from the economic analysis of the government sector accounts, carried out by the National Accounts Division of the Statistical Centre of Iran.

In order to calculate the value added for each category of construction, separate ratios are computed for each year on the basis of information supplied by construction engineers on the changes that occurred in profit margins and relative construction costs (labour and material inputs) during the period 1971-1974.

#### Wholesale and retail trade, restaurants and hotels

The commodity-flow method is used for the estimation of value added of the trade sector, on the basis of estimated annual changes in the value of traded goods (domestic production and imports).

Bench-mark estimates of gross output, intermediate consumption and value added have been compiled separately for wholesale and retail trade for 1973. They are computed from information on the number of wholesale and retail establishments in urban areas and total and average employment in accordance with the Urban Establishment Listing, and information on average sales revenue, cost of goods sold, wage payments and current operating costs, in accordance with the 1975 survey of distributive trades conducted in the city of Rasht. For rural areas estimates are made from the number of retail establishments in these areas and average gross revenue and value added per establishment.

Restaurants and hotels are included in community, social and personal services.

#### Transport, storage and communication

In the transportation sector, firm estimates are obtained for railways, air transport, ports and navigation, based on financial statements of the organizations involved and/or data derived from the government budgets. The contribution of trucks, buses and taxi cabs is estimated, in general, as the product of the number of licensed vehicles operating and estimated gross revenue, intermediate consumption and value added per vehicle. The latter information is collected from selected establishments in each sub-branch. Value added for other means of transportation, such as three-wheeled vehicles, is calculated by the Statistics Department of the Central Bank. Data from the 1966 household budget survey have also been used.

For communication, value added is estimated by using the income approach with data from the income accounts of the Telephone Company of Iran and the budget of the Ministry of Post, Telegraph and Telephone.

#### Financing, insurance, real estate and business services

Value added for the organized section of banking is calculated by using the income approach with relevant data taken from the income accounts of banks in Iran. Value added for the unorganized section is assumed to be 30 per cent of the total value added for banking, based on the distribution of credits. The profit estimates supplied by the banks are ensured in accordance with national accounting concepts, and adjustments may at times be necessary. For insurance, information is supplied by the National Insurance Institute, i.e., the official supervisory body.

Value added of residential housing includes rent from occupied premises and rental value of occupied houses where no rent is paid. The estimates are based on <u>per capita</u> rent data from the household budget surveys carried out by the Statistical Centre of Iran for urban and rural areas separately, population data, and the rental component of the cost of living index. Business services are included in community, social and personal services.

#### Community, social and personal services

Estimates of value added for general government are derived directly from the economic analysis of the government sector accounts carried out annually by the National Accounts Division. Separate estimates are compiled for central government, givernment non-profit institutions, the Social Insurance Institute and municipalities. For private and business services and private non-profit institutions, the estimates of gross revenue, intermediate consumption and value added are compiled for all major sub-branches from information on the number of operating establishments in urban areas and total and average employment obtained from the 1973 Urban Establishment Listing, information on average wages derived from the labour force surveys, and data on household expenditure on services in urban and rural areas taken from the household budget surveys of the Statistical Centre.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

The Government accounts form the basis for the estimates of government final consumption expenduture. The classification of government consumption expenditure by the Ministry of Finance is not fully adapted to national accounts requirements, so it is necessary to reallocate items according to an allocation key set up for this purpose. For certain items of sizeable expenditure, no breakdown is published at all. In order to measure the consumption expenditure of the Plan Organization, use is made of its financial reports. The actual budget of the Social Insurance Organization is referred to and the consumption expenditure obtained from the pertinent books. The consumption expenditure of government non-profit institutions is also estimated. The municipal budget accounts provide the basis for the consumption expenditure estimates of municipalities. Salaries, allowances, other employee compensation, purchase of office equipment and expendable items, rentals and, in general, all expenditure incurred in connexion with purchases of goods and performance of services are considered as consumption expenditure. Data on total expenditure are obtained after an estimate for non-coverage is made.

#### Private final consumption expenditure

Private consumption expenditure is estimated from the annual household budget surveys and by using the commodity-flow method. For many items, substantially different estimates are yielded by the two approaches, and much effort is devoted to reconciling the conflicting sources. A major source of difficulty is that the annual manufacturing surveys cover establishments with more than 10 workers only, whereas a large part of the production of certain commodities takes place in smaller establishments.

The household budget surveys used in the estimation are the urban household expenditure surveys conducted by the Central Bank of Iran, and the urban and rural sample surveys conducted by the Statistical Centre of Iran.

The Ministry of Economy publishes data on the final consumption of goods produced in Iran at factor cost. To change them into consumption data at market prices, indirect taxes of all kinds have to be added, adjustments are made for customs duties, also including commercial profit taxes, domestic transportation fares to the final consumer and all other charges at the wholesale and retail levels. The public sector's consumption expenditure is then subtracted from the aggregate consumption expenditure.

#### Increase in stocks

Owing to a lack of statistics, this item is not estimated.

#### Gross fixed capital formation

For buildings and constructions in the private sector, the estimates are based on the annual surveys of urban construction activity and other surveys and sources described under "Constuction" above. Data on investment in construction by the public sector are derived from the economic analysis of the government sector accounts.

Investment in machinery and equipment is estimated by using the commodity-flow method. The value of capital goods produced domestically is estimated on the basis of annual industrial statistics, and in order to arrive at purchasers' prices, 25 per cent is added to the factor value of home-produced capital goods. As regards imports of capital goods, foreign trade statistics are used as the basic source, to which the following expenses are added to the stated value: customs duties and commercial profit tax on non-exempt goods, transportation expenses from the port of entry to final destination of the goods, installation charges, trade mark-ups and some other minor expenses.

#### Exports and imports of goods and services

Estimates of exports and imports of goods and services are taken from the balance of payments on current account. Foreign trade statistics are of special importance in this context as a basic statistical source.

#### Cost structure of the gross domestic product

#### Compensation of employees

Compensation of employees is not estimated separately but is combined with operating surplus as a residual when subtracting consumption of fixed capital and net indirect taxes from gross domestic product.

#### Operating surplus

See under "Compensation of employees" above.

#### Consumption of fixed capital

Figures on depreciation expenses are generally not available. For that reason, consumption of fixed capital has been assumed at 5 per cent of the gross domestic product, bearing in mind the data for other similar countries.

#### Indirect taxes and subsidies

The estimates of indirect taxes and subsidies are made on the basis of the government accounts. For government monopoly, the income surplus is regarded as an indirect tax, whereas the deficit is counted as a subsidy.

#### Constant prices

#### Gross domestic product by kind of economic activity

Gross domestic product by kind of economic activity is estimated at constant prices, but no information is available on the methods used to derive the constantprice figures.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

For wages and salaries, the current values are deflated by an index of wage rates for government employees, for purchases of goods and services deflated by the cost of living index of the urban areas combined.

#### Private final consumption expenditure

Private consumption expenditure is deflated by the cost-of-living index of the urban areas combined and the cost-of-living index of small cities relating to rural areas.

#### Increase in stocks

This item is not estimated.

#### Gross fixed capital formation

For building and construction, current estimates of the private sector are deflated by the wholesale price index of building materials for residential units, and deflated by the wholesale price index of building materials in general in the case of public construction. For machinery and equipment, the deflators are the wholesale price index of home-produced and home-consumed goods for goods produced domestically, and the wholesale price index of imported goods for goods imported to the country.

#### Exports and imports of goods and services

Exports and imports of goods and services are deflated by group indexes of the wholesale price index, relating to exported goods and imported goods, respectively.

#### IRAQ

The presentation that follows is mainly based on detailed information contained in a handbook entitled <u>Technical Note on the Estimation of National</u> <u>Income of the Republic of Iraq, 1962-1965</u>, written by a United Nations expert in economic statistics in 1967. Supplementary information was received from the Central Statistical Organization of the Ministry of Planning in January 1978.

#### Introduction

#### History

In 1958, K. G. Fenelon published <u>National Income and Expenditure 1950-1956</u>, a study of national income and expenditure making use of available data and providing a framework for presenting national income for Iraq.

An attempt by Dr. Khayer-El-Din-Haseeb to estimate the national income of Iraq for the period 1953-1961 was published in the <u>Quarterly Journal of the Iraqi</u> <u>Federation of Industries</u> (Al-Sina'i) in 1963.

Input-Output and Social Accounts of Iraq 1960-1963 1/ was published by the Ministry of Planning in 1965.

The handbook on the estimation of national income from which this presentation has largely been drawn was prepared in 1967 by a United Nations expert in economic statistics, with reference to the national income estimates for 1962-1965.

An estimate of national income and gross domestic product at current and constant prices for 1964-1976 was published by the National Accounts Department in the Central Statistical Organization.

#### Approaches used

#### Gross domestic product

The main approach used to estimate the gross domestic product is the production approach.

#### Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of most industries. The income approach is used for transport and storage, most private services and producers of government services. The commodity-flow approach is used to estimate gross output of the trade sector.

<sup>1/</sup> Taher Hamdi Kanaan, <u>Input-Output and Social Accounts of Iraq 1960-1963</u> (Baghdad, Ministry of Planning, 1965).

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, increase in stocks, and exports and imports of goods and services. A combination of the commodity-flow approach and the expenditure approach is used for gross fixed capital formation, whereas the commodity-flow approach alone is used to estimate private final consumption expenditure.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

# Gross domestic product by kind of economic activity

Agricultural surveys Industrial surveys Construction surveys Transport surveys Services surveys Internal trade surveys Government accounts The final accounts of institutions in the private and socialist sectors

#### Cost structure of the gross domestic product

Industrial surveys Government accounts

#### Expenditure of the gross domestic product

Government accounts Family budget surveys Industrial surveys Construction surveys External trade surveys The Iraqi balance of payments

#### Methods and sources of estimation

Current prices

#### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

#### Agriculture, hunting, forestry and fishing

For the estimation of field crops, data of the Central Statistical Organization are used. The data cover areas cultivated, the average yield, and the quantity and value of each crop at farm price. The prices of the crops are based on the production survey conducted by the Central Statistical Organization.

The production of vegetables by various types is estimated from the data of the Ministry of Agriculture, and the valuation is made by using the farm prices collected by the Central Statistical Organization. Results of the 1971 agriculture census are used for the number of fruitful trees and average production per tree, taking into consideration the seedlings planted yearly and the average age per tree until it yields its output. The quantity produced for each kind of fruit is obtained by applying the average production per tree, valued at farm prices. The census conducted by the Central Statistical Office, which includes data on quantities and values, forms the basis for the estimates of date and straw production.

Intermediate consumption includes seeds, chemical and natural fertilizers, animal feeds, agricultural machinery and insecticides. These inputs are estimated individually.

The estimation of livestock products is based on sample surveys conducted by the Central Statistical Organization. The number of animals by age and sex and the quantity of wool are obtained from these surveys. The quantity of meat is estimated by multiplying the number of animals slaughtered in the abbatoirs by the average weight of the animals. However the number of animals slaughtered outside the abbatoirs (about 30-40 per cent of those slaughtered inside) has been estimated on the basis of foreign trade statistics (export of skins and guts). The quantity and value of eggs and poultry at factor cost are obtained by adding exports to and subtracting imports from the total consumption of eggs and poultry, which is estimated by means of family budget surveys. Estimation of the milk output is based on the animal production survey. The intermediate consumption of the livestock sector includes animal feeds, which are usually estimated.

There are no direct methods of estimating the forestry output. It is usually based on the quantity of timber used in the manufacturing industries after adjusting for imported timber and self-employed carpenters. The price used is an adjusted price that carpentry industries pay for a cubic metre. Intermediate consumption has been estimated at 5 per cent of the gross output.

For fishing, data are obtained from the State Fisheries Company. The estimate of the quantity of sea and river fish is based on the above-mentioned data from the State Fisheries Company, valued at factor cost.

#### Mining and quarrying

The estimate of the output of crude oil, natural gas and sulphur is based on the final accounts of the producing companies, from which data on the quantity and value of production and other factors of the value added are obtained. The output of other mining and quarrying industries, such as stone-breaking etc., has been estimated indirectly from the intermediate inputs of the construction and non-metallic industries.

#### Manufacturing

The data on manufacturing are obtained from the industrial surveys conducted by the Central Statistical Organization on a yearly and quarterly basis. The data collected include information on the number of establishments, the number of employees, wages and salaries, quantities and values of commodities produced, value of services, quantity and value of inputs, quantity and value of electricity consumed, changes in stocks and capital formation. The industrial surveys cover all large-scale industrial establishments employing 10 or more workers and all small-scale industries employing less than 10 workers.

#### Electricity, gas and water

The data for this sector are obtained from the balance sheets and final accounts of the establishments that produce electricity and water. The Industrial Department of the Central Statistical Organization issues reports on electricity and water, which include data on quantities and values of the electricity and water produced, wages and salaries paid, the number of employees and intermediate consumption. From these two sources value added can be calculated both by the production method and the income method.

#### Construction

The estimate of gross value added in the construction sector is based on the reports of the Central Statistical Organization, covering both private buildings and public buildings and construction. The data from these reports consist of the following: (a) the number and total cost of the buildings constructed during the year, distributed according to economic activity, (b) the number and total cost of constructions built during the year, distributed according to economic activity, (c) the quantity and value of intermediate inputs for buildings and construction during the year, (d) the average number of employees and their wages, and (e) the components of the building and construction costs.

A second source is the data on fixed capital formation, which are based on the national development planning budget, including the expenditure of development plans on buildings and construction.

#### Wholesale and retail trade, restaurants and hotels

The data used to estimate value added in the trade sector are taken from government final accounts, the internal trade survey and the hotel survey. From these data the number of retail and wholesale shops, the number of employees and their wages, the values of sales and purchases, the values of expenditure and rent, and the value of changes in stocks and depreciation are obtained.

As regards restaurants and hotels, a survey for services and hotels is used to obtain the number of establishments, the number of employees, wages and salaries, revenues, purchases, and expenditure of electricity and water, fuel, insurance, advertisement and rent. Value added is estimated from these data.

#### Transport, storage and communication

The data used for this sector are obtained from the final accounts of public establishments and the reports issued by the Central Statistical Organization.

The value-added components for the public sector are wages and salaries, net profit, net interest paid, depreciation, indirect taxes and subsidies. The gross value of output is obtained by adding intermediate consumption to value added.

#### Financing, insurance, real estate and business services

Data on banking, insurance and other financing establishments have been obtained directly from these establishments. All banks and insurance companies in Iraq have been nationalized, and data on their operations are published at regular intervals.

The value added of real-estate brokers has been estimated by using the data on the services survey comprising the following items: revenue and sales, purchases, expenditure and wages. With regard to ownership of dwellings, the estimate is based on the rent survey conducted by the Ministry of Finance for the purpose of estate taxes, and the family budget surveys are used to impute rents in the rural and urban areas.

Business services are included in community, social and personal services.

#### Community, social and personal services

For the estimation of public administration and defence and government services relating to education and health, data on wages, salaries and allowances are obtained from the final government accounts published annually by the Ministry of Finance and the balance sheets and final accounts of semi-governmental institutions. For the estimation of intermediate consumption, the same sources are used.

As regards the estimation of other private services, the data of the services survey comprising the number of establishments, the number of employees and their wages, sales and revenues, annual rents, purchases and expenditure, are used to obtain the value of output, intermediate consumption and value added. The family budget surveys are used to cover the deficiency of the data.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

The estimates of government final consumption expenditure consist of wages, salaries and allowances, and intermediate consumption of goods and services for the central Government, local administration and municipalities, and semi-governmental institutions. The data relating to these bodies are taken from their final accounts.

#### Private final consumption expenditure

The estimate of private final consumption expenditure is obtained as a residual for some years, while family budget surveys are used for other years, as in 1971.

#### Increase in stocks

The data for the estimation of increase in stocks, and stocks of raw

materials, semi-products and finished products at the beginning and end of the period are obtained from the final accounts of the establishments of the trade, transport and communication sectors. The industrial surveys provide similar estimates for the manufacturing industries.

#### Gross fixed capital formation

Two methods are used for the estimation of gross fixed capital formation, the expenditure method and the commodity-flow method. The gross fixed capital formation is classified according to economic activities and kinds of assets. Data are obtained from the ordinary budget, actual expenditure of the development planning budget, final accounts of the establishments and companies, actual accounts of the local administration and municipalities, various reports and statistical surveys, reports related to residential and non-residential buildings and industrial surveys. Foreign trade statistics provide data on imports of capital goods in c.i.f. values.

#### Exports and imports of goods and services

Exports and imports of goods and services are estimated from foreign trade statistics and balance-of-payments data.

#### Cost structure of the gross domestic product

#### Compensation of employees

The estimates of compensation of employees in the socialist sector are obtained from the final accounts of the Government and companies. For the private sector, the data are obtained from service surveys and internal trade surveys.

#### Operating surplus

Operating surplus is equal to value added at producers' prices minus wages and salaries, consumption of fixed capital and net indirect taxes. Since no attempt has been made to impute wages and salaries for the agricultural sector, total value added for that sector is included in this item.

#### Consumption of fixed capital formation

The depreciation estimates are prepared according to kinds of fixed assets, excluding the reclamation of desert lands and plantation, roads and dams, and are based on the estimate of fixed capital formation, taking into consideration the prices of fixed assets and the average age of each kind of asset.

#### Indirect taxes and subsidies

The data on indirect taxes and subsidies are obtained from the actual accounts of the Government (ordinary budget), or from the final accounts of the establishments of the socialist sector.

#### Constant prices

# Gross domestic product by kind of economic activity

Gross domestic product by kind of economic activity at constant prices is estimated taking 1964, 1969 and 1974 as base years.

# Expenditure on the gross domestic product

An attempt has been made to estimate the gross domestic product at constant prices.

#### IRELAND

The presentation that follows is mainly based on information prepared by the Statistical Office of the European Communities in 1976 in an annex report entitled "Basic statistics needed for the ESA accounts and tables: present situation and prospects for improvements", together with information taken from the report prepared by the United Nations Secretariat entitled "Country practices in national accounting at constant prices" (E/CN.3/464). Supplementary information was received from Central Statistics Office at Dublin in October 1978.

#### Introduction

#### History

The first official national accounts estimates of Ireland were published in the White Paper on National Income and Expenditure, 1938-44.

Starting with the publication in 1951 of <u>Tables of National Income and</u> <u>Expenditure, 1938 and 1944-50</u>, estimates have been prepared annually by the Central Statistics Office.

In 1959 the Central Statistics Office issued the first publication in the series National Income and Expenditure.

In 1973, national accounting data for Ireland appeared for the first time in a national accounts publication of the European Economic Community.

#### Approaches used

#### Gross domestic product

As a rule, the income approach is used to estimate the gross domestic product.

# Gross domestic product by kind of economic activity

The income approach is used to estimate the value added of all sectors except agriculture, for which the production approach is used. As regards the manufacturing industry, the income approach is used to estimate value added in broad groups of industries, whereas the production approach is used to estimate the operating surplus part of value added in greater detail.

# Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, increase in stocks, and exports and imports of goods and services. The commodity-flow approach is used to estimate private final consumption expenditure, the expenditure approach being used for checking purposes. Most of gross fixed capital formation is also estimated by means of the commodity-flow approach, but the expenditure approach is used for building and construction and government capital formation.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

#### Gross demestic product by kind of economic activity

Agricultural surveys Annual censuses of industrial production Annual inquiries of building and construction activity Censuses of distribution (every five years) Monthly turnover statistics Accounts of public transport enterprises Annual reports of financial enterprises Returns to the revenue authorities Government accounts Direct inquiries into various industries

#### Cost structure of the gross domestic product

Government accounts Returns to the revenue authorities (income-tax data) Annual censuses of industrial production Labour cost surveys

#### Expenditure on the gross domestic product

Government accounts Annual censuses of industrial production Surveys of family budgets Annual stocks inquiries External trade statistics Balance-of-payments data

#### Methods and sources of estimation

Current prices

#### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

Agriculture, hunting, forestry and fishing

Annual estimates of agricultural output are calculated on a commodity basis for crops, livestock and livestock products. The preparation of these estimates, including estimates of expenses and income, involves the collection of numerous statistics of quantities and values from various sources. Much of the information is collected annually, such as the annual June enumeration of crops, livestock, males engaged in farmwork, machinery, etc., estimates of crop yields obtained by the Agricultural Advisory Officers on a sample basis and forwarded to the Department of Agriculture, winter livestock enumeration and enumeration of pig stocks. Information is also obtained through the administrative procedures of the Department of Agriculture and Fisheries, and by using data collected by the Central Statistics Office through inquiries relating to industrial production, foreign trade statistics and price statistics.

In compiling the national estimate of agricultural output and income, the concept of the "national farm" is used. Gross agricultural output may include the value of changes in livestock numbers during the year. In principle, the commodities are valued at the prices that farmers actually receive for them. For a number of important items such as wheat, barley, sugar-beet, milk sold to creameries, cattle and pigs slaughtered in factories, etc., the total quantities purchased and amounts paid by the purchasers are available from various inquiries, and adjustments are made for marketing margins and, if possible, for transport costs. In the case of live exports, the f.o.b. export value, less an allowance for marketing margins, is taken as the output value. For the remaining items mart or market prices are used as the basis of valuation. Produce consumed by persons on farms is assumed to be identical in quality with what is sold and is valued accordingly.

Net agricultural output is obtained by subtracting the estimated amount paid by farmers for fertilizers, feeds and seeds purchased from merchants. Income arising in agriculture is derived from the net output by deducting addional inputs and by adding certain subsidies. Production data of compound feeds are obtained at quarterly intervals through the Department of Agriculture and Fisheries. Annual data on fertilizer production are obtained from the same Department. Inputs of seeds are compiled indirectly from acreages and seedling rates, due allowance being made for imported seeds. Estimates of the additional non-factor input expenses are based on data derived from the annual censuses of industrial production, import data on machinery, and data relating to various expenses compiled from the National Farm Survey 1955/56-1957/58, the latter being adjusted annually by the available indicators of quantity and/or price of these costs.

Own-account consumption of food and fuel is estimated at agricultural prices and is included in agricultural income and household consumption. The value of own-account construction on farms is also estimated.

The value added of forestry is taken as wages and salaries paid to employees working in forestry and administration. Information on wages and salaries in state forestry is supplied by the Forest and Wildlife Service of the Department of Fisheries. For non-state forestry the estimates are based on information on wage rates and population census data on the number of persons engaged in forestry activities. For fishing the value estimates of sea-fish landed and catches of inland fish are made by the Department of Fisheries. Value added is derived from the breakdown of these estimates, supplemented by data from the accounts of fishing concerns. The value added of hunting is not considered.

#### Mining and quarrying

Annual censuses provide figures on production and intermediate consumption (inputs of materials and fuel broken down by main products), wages and salaries, stock variations and employment. These censuses, which are conducted for manufacturing industries and for mining, quarrying and turf production, generally cover enterprises employing more than three persons.

#### Manufacturing

The estimates are based on annual censuses providing data on production and inputs of materials and fuel, wages and salaries, stock variations and employment. They cover enterprises employing more than three persons, but in some cases detailed data are provided only for enterprises employing more than 10 persons. The results are made available after a delay of approximately 30 months. There are also quarterly surveys of turnover and employment, which in the case of turnover are now being conducted on a monthly basis. Figures for operating surpluses are obtained from revenue data, but the annual census figures are used to obtain more detailed estimates.

For small-scale manufacturing, the number of persons engaged is derived as the difference between population census data and data from the production census, interpolated for intercensal years and projected forward. They are multiplied by figures of average income per person based on figures from the production census.

#### Electricity, gas and water

The estimates are based on annual inquiries.

#### Construction

The estimates for construction are based on annual inquiries into building and construction activity. The gross operating surplus is derived from data supplied by the Revenue Commissioners, while wages and salaries are estimated from the number of persons employed and their average wage rates. A similar method to the one used for small-scale manufacturing is used for small-scale construction.

#### Wholesale and retail trade, restaurants and hotels

Censuses of distribution provide bench-mark data for turnover, purchases of products, wages and salaries and some intermediate inputs at five-year intervals. Monthly turnover figures from a sample of 2,500 establishments are used to update the figures in intervening years, together with annual estimates of the number of employees and trends in earnings in other sectors. Operating surplus figures are obtained from revenue accounts.

For restaurants and hotels, annual surveys cover output of lodging and catering, while the breakdown of intermediate inputs is based on revenue data.

#### Transport, storage and communication

Transport in Ireland is mainly provided by public enterprises. Published accounts are available for each sector, i.e., railways, road transport, water transport and air transport, and the operating surplus is taken from these accounts. Supplementary information can be obtained from the revenue accounts. Information on the income of employees of private road freight services is obtained through a special inquiry. For individual taxi-cab owners the estimates are made by ascertaining the number of taxi-cabs registered and imputing an income to them.

#### Financing, insurance, real estate and business services

For banking and insurance, annual reports of financial enterprises are available. Figures of wages and salaries are obtained from direct surveys, while data on operating surplus and intermediate consumption are obtained from revenue statistics.

For real estate and business services, employee income is estimated on the basis of data from the population census and imputed average income, while operating surplus estimates are derived from revenue accounts. Imputed rents of owner-occupied dwellings are estimated by obtaining from the population census a classification of rented and owner-occupied dwellings according to size of dwellings. The imputed rent is taken as the average rent paid for similar dwellings in similar locations. For intercensal years the trend in imputed rents is taken to be the same as the trend in actual rents.

#### Community, social and personal services

For other market services no general surveys are available to show the various flows. Estimates for these private services are based on the results of inquiries into wages and salaries and on trends in operating surplus taken from revenue data.

For non-market services, the figures for the central Government are taken directly from the accounts of the State, the social security funds and a number of other special funds, which are made available within 12 months. The figures for local authorities are available in a condensed form from the Department of the Environment (local taxation returns) and from the Department of Health (health authority accounts), but also from the accounts of other institutions included in this subsector (regional agricultural bodies, vocational schools, etc.). The budgets of the local authorities are not made available in a harmonized form.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

In estimating central government expenditure, the appropriation accounts of the various ministries, the finance accounts, the accounts of the extrabudgetary funds, the accounts of the Industrial Development Authority, and the commercial accounts of the Post Office are all used. The estimates for the local authorities are based on data received from the Department of the Environment and the Department of Health. Separate accounts are also available for the regional agricultural bodies and vocational schools, etc. The figures from the Department of the Environment are not as detailed as those for the central Government and are also less reliable. There is a considerable delay in preparing these estimates. Information for social security funds is obtained from the same sources as for the central Government. The figures shown in the economic accounts are on a cash basis, calculated on a financial-year basis up to 1973/74, changing to a calendar year basis for 1974 onwards. An analysis of general government expenditure by purpose is published annually.

#### Private final consumption expenditure

The commodity-flow method is used to calculate the final consumption of households. Surveys of urban family budgets carried out in 1952/53 and 1965/66 and the national family budgets in 1973 provide a means of checking the estimates. A small-scale continuous urban survey has been introduced from 1974, covering the years between major national surveys. Comprehensive data on turnover in the retail trade are also available, and these are used to provide provisional over-all estimates.

The statistical sources for the commodity-flow calculations are figures for transactions in goods and services obtained from the censuses of industrial production and the statistics of imports and exports of merchandise. Use is also made of agricultural statistics, special inquiries and data supplied by the Revenue Commissioner. Other annual surveys provide data on stocks and employment. Items that can reasonably be aggregated in volume terms are valued at national average retail prices (except for home-produced food and fuel consumed on farms, which are valued at average agricultural prices), while the other items are aggregated at appropriate producers' or import prices and adjusted for distribution costs. A variety of methods is used for estimating the personal expenditure on services.

Final consumption of households in the economic territory also includes collective consumption of private non-profit institutions serving households. As regards the breakdown of consumption by object, the table is fairly complete, but only partial detail is provided for medical care and health expenses. Packaged tours are included in transport services.

#### Increase in stocks

This item represents the estimated values of the change in livestock numbers on farms and the physical increase in non-agricultural stocks and work in progress during the year. In the estimation it is necessary to deduct an adjustment for changes in the prices at which opening stocks are valued. In building up the new agricultural stock figures, account is taken of changes in distribution stocks from annual sample inquiries, industrial stocks from stocks inquiries and censuses of industrial production, and stockpiles of strategic commodities from the Department of Agriculture.

#### Gross fixed capital formation

The commodity-flow method is used to estimate gross fixed capital formation, except in the case of building and construction, for which the production surveys include information on purchases of capital goods. The estimates for housing are based on data showing the number and prices of housing units, while direct sources are available for general government. For other home-produced capital goods the values are obtained from production census data, deductions being made for exports (including re-exports) and distribution margins being added where appropriate. The corresponding imported capital goods are obtained from detailed import returns, with additions for distribution margins.

Gross fixed capital formation is broken down by product and by branch of use.

#### Exports and imports of goods and services

The balance of payments is the ultimate statistical source for the rest-ofthe-world sector. External trade statistics are used to estimate exports and imports of merchandise, but are adjusted for balance-of-payments purposes. Figures for other main headings are prepared by means of special studies and surveys. Data are obtained from the credit institutions only in respect of transactions effected by these institutions.

#### Cost structure of the gross domestic product

#### Compensation of employees

For agriculture, the estimates of compensation of employees are based on wage rates and the number of farm workers given in the 1971 census and updated by annual surveys conducted by the Central Statistics Office in the agricultural sphere; for the industrial sectors they are based on the censuses of industrial production and a supplementary calculation by applying average earnings to persons not covered by the industrial censuses; for trade the estimates are based on surveys conducted at intervals and updated by indexes of earnings; for transport they are based on annual surveys conducted among airline, railway and shipping companies and for private road haulers; for credit and insurance the estimates are also based on annual surveys; and for other market services they are mainly based on wage and salary rates and the number of employees in the branch.

So far imputed social contributions have only been partially recorded; the amount of wages and salaries paid by general government in the event of illness are regarded as part of this item. However, it has not yet proved possible to extend this to cover enterprises.

#### Operating surplus

Property and entrepreneurial income is calculated from returns made to the revenue authorities, supplemented by information in the government accounts and in the published accounts of certain state companies. These sources cover all limited companies with capital over a certain amount, 20 per cent of the limited companies with capital less than this amount, 5 per cent of sole proprietorships, branches of foreign companies, and other corporate bodies, including the Central Bank, Post Office and Post Office savings banks, etc. In the grossing of the sample data, account is taken of under-coverage and understatement, etc.

#### Consumption of fixed capital

Separate estimates of depreciation are made for the main sectors. For the agricultural sector the estimate is based on the national farm survey,

extrapolated by using capital formation data for machinery, vehicles and equipment. In the case of private enterprises included in the other sectors, depreciation is broadly taken as the income tax wear-and-tear and other allowances. For public authorities an estimate of government buildings is included, and depreciation of dwellings is also estimated.

#### Indirect taxes and subsidies

Total indirect taxes and subsidies are estimated from the government accounts. Taxes linked to production and imports, and subsidies, are not broken down by branch. The recording of taxes linked to production and imports accrued to the institutions of the European Communities and the subsidies granted by these institutions is treated as required by the ESA system.

#### Constant prices

#### Gross domestic product by kind of economic activity

#### Agriculture, hunting, forestry and fishing

Double deflation is used for agriculture; output quantities are revalued at base-year prices and weighted by base-year output values; some input items are also revalued at base-year prices while others are deflated by appropriate price indexes or extrapolated by volume indexes. For forestry and fishing, the number of persons employed and current quantities are multiplied by base-year wage rates and prices, respectively.

#### Mining and quarrying

Value added is extrapolated by the industrial production index.

#### Manufacturing

Value added is extrapolated by the industrial production index, weighting index numbers for the individual industries by their respective net outputs. The indicators are mainly based on the values of gross output adjusted for price changes.

#### Electricity, gas and water

Value added is extrapolated by the industrial production index.

#### Construction

Value added is extrapolated by using input of materials and labour as a proxy for output indicators.

#### Wholesale and retail trade, restaurants and hotels

Value added of the trade sector is extrapolated by volume indexes constructed from constant-price data on final uses by product (and in particular on household consumption).

#### Transport, storage and communication

Value added is extrapolated by volume indexes for output, such as passengermiles, freight ton-miles, etc.

# Financing, insurance, real estate and business services

For banks and insurance enterprises, value added is extrapolated by volume indexes for output and for rents it is extrapolated by using a volume indicator of the stock of dwellings coupled with population census data.

# Community, social and personal services

For non-market services, value added is extrapolated by the number of employees, but for local authorities it is deflated by a price index based on a derived index of civil service pay; for education it is extrapolated by the number of teachers and pupils, and for most other private services it is extrapolated by indicators of the volume of output.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

Price deflation is used; current estimates are deflated by the index of remuneration rates of employees engaged in public administration and defence, and the general wholesale price index.

#### Private final consumption expenditure

Direct revaluation at base-year prices is used for items for which information is available on the quantities consumed. Current data are otherwise deflated by the price indexes that are available for the individual goods and services.

#### Increase in stocks

Current estimates are deflated by appropriate price indexes.

#### Gross fixed capital formation

Price deflation is used; certain constituents of the general wholesale price index are used to deflate general categories of capital goods.

#### Exports and imports of goods and services

Price deflation is used; merchandise exports and imports are deflated by official export and import unit value indexes. Invisible items are deflated mainly by the consumer price index.

#### ISRAEL

The presentation that follows is mainly based on information contained in <u>Mational Income and Expenditure 1950-1968</u>, published by the Central Eurecu of Statistics in 1970 and in the chapter on national income and expenditure in the <u>Statistical Abstract of Israel 1976</u>. Supplementary information was received from Central Bureau of Statistics, Jerusalem, in June 1978.

#### Introduction

#### History

In 1952 the Central Bureau of Statistics published <u>Israel's Economy in 1950</u> by Dr. A. L. Gaathon, based on input-output studies.

In 1957-1958 the Israel Central Bureau of Statistics and the Falk Center published the work of Dr. Daniel Creamer and Harold Lubell on Israel's National Income and Israel's National Expenditure for the years 1950-1954. These estimates were the first to be compiled according to the recommendations of the United Nations Statistical Office. They were used as bench-mark data for the estimates for succeeding years.

In 1964 the Central Bureau of Statistics issued Israel's National Income and Expenditure 1950-1962, which included detailed information on sources and methods of computation.

Israel's National Income and Expenditure 1950-1968 was published in 1970 by the Central Bureau of Statistics. The introduction to the publication includes a description of the principal changes made in the methods of estimation, as well as explanations of new tables and refinements of the data.

#### Approaches used

#### Gross domestic product

In general the expenditure approach is used to estimate the gross domestic product.

# Gross domestic product by kind of economic activity

The production approach is used to estimate value added of the agricultural sector. For all other branches the income approach is used, in that income accrued is obtained directly from the sum of payments to production factors. Estimates for recent years have been extrapolated by using the production approach.

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure and exports and imports of goods and services. The commodity-flow approach is combined with the expenditure approach in the cases of private final consumption expenditure and gross capital formation.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

Gross domestic product by kind of economic activity

Annual agricultural statistics Survey of industry and crafts, 1968/69 Annual surveys of industry and crafts Quarterly surveys of building area starts and completions Income-tax files Trade survey, 1968/69 Annual wholesale and retail trade surveys up to 1973/74 inclusive Current surveys of the hotel industry Reports of transport establishments Surveys of the transport and communications industries Government reports and accounts Current surveys of private non-profit institutions

# Cost structure of the gross domestic product

Government reports and accounts Income-tax files and assessments Wage and salary payments obtained from surveys of various industries

# Expenditure on the gross domestic product

Government reports and accounts Reports of large companies and institutions Family expenditure surveys Surveys of private non-profit institutions Surveys of industry, transport and communication and several tranches of the services Quarterly surveys of building area starts and completions Current surveys of inventory changes (by economic branch) Foreign trade statistics

#### Methods and sources of estimation

#### Current prices

#### Gross domestic product by kind of economic activity

This table by kind of economic activity is prepared in net factor values. Estimates of the consumption of fixed capital and indirect taxes less subsidies as totals only and not by industry.

#### Agriculture, hunting, forestry and fishing

The estimate of total income orginating in agriculture is obtained as the difference between the value of agricultural output and purchased input. Separate estimates are also prepared for wages, interest charges and rent, and the net profit component is obtained as the balance after deducting these payments from the estimated total income originating in agriculture. Data on output and input are based mainly on the agricultural statistics series prepared by the Central Bureau of Statistics, after adjusting them from the agricultural year to the budget year.

#### Mining and quarrying

The estimates are based on industrial surveys carried out annually until 1972 and then in 1975, and information from income tax files. For the years in which surveys are lacking, estimates are interpolated and extrapolated using current production indexes.

#### Manufacturing

The estimates are based on industrial surveys carried out annually until 1972 and again in 1975, and information from income-tax files. For the years in which surveys are lacking, estimates are interpolated and extrapolated using current production indexes.

#### Electricity, gas and water

Data are supplied by the Israel Electric Corporation and the Water Authority Commission.

#### Construction

The estimates have been obtained as the total payments to factors of production, but have recently been extrapolated in accordance with changes in output by principal components. A fixed ratio is assumed between input and output at constant prices and differences between the price movements of inputs and outputs are taken into account. The estimate of wages is based on a special survey of wage and salary payments in the construction industry. The estimate of returns to capital is obtained as the difference between the total income originating in construction and payments of wages and salaries.

#### Wholesale and retail trade, restaurants and hotels

The survey of wholesale and retail trade in 1972/73 is used as a bench-mark

for extrapolating estimates for commerce. The extrapolation is based on changes in sales to final users.

The value added of the hotel industry is estimated by changes in revenue and inputs, as based on special current surveys of revenue and changes in input prices.

#### Transport, storage and communication

The estimates are based on annual reports of the postal and communication services, railways, shipping companies and airlines and on surveys of the trucking industry, the last of which was carried out for the year 1972/73.

# Financing, insurance, real estate and business services

Estimates for the financing and insurance industries are based on the consolidated reports prepared by the Supervisor of Banks and the Supervisor of Insurance.

Bench-mark estimate for residential rent for 1975 has been based on the family expenditure survey, extrapolated by the change in the value of inventories of dwellings.

#### Community, social and personal services

The value added of producers of government services is estimated on the basis of activity reports of the Accountant General and the Budget Provisions, supplementary data obtained from the Ministry of Finance, reports of the national institutions and financial reports of local authorities. Data on education and health are classified by type of service, financing and operating sector, i.e., government, local authorities and private non-profit institutions. For these activities the principal sources of data are the financial reports of the Accountant-General and the reports of the national institutions, the financial reports of local authorities, the financial reports of private non-profit institutions and their replies to questionnaires, the estimates of building starts and completions and a survey of family expenditure (1963/64).

For other services the estimates are derived from a sample of income tax files, a variety of other sources including indirect tax data for licence fees and expenditures for public entertainment, manpower data for estimated household services and kibbutz personal services.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

General government consumption expenditure is estimated on the basis of activity reports of the Accountant-General and the Budget Provisions, and supplementary data obtained from the Ministry of Finance. The consumption expenditure of the local authorities and national institutions is estimated on the basis of financial statements and budget proposals. By analysing the data sources, the expenditure of the central Government and of the local authorities is allocated to the proper accounts, i.e., current account, capital account and financial transactions account.

#### Private final consumption expenditure

Private final consumption expenditure is estimated by using a combination of the commodity-flow approach and the expenditure approach. Most of the consumption expenditure estimates on food, beverages and tobacco are based on data of quantities produced and marketed and on prices to the consumer. For most of the estimates of expenditure on housing and business services, the consumption of industrial products and part of the consumption expenditure on food products, use is made of the family expenditure surveys that are carried out every five or six years. For the intervening years the estimates are computed by extrapolating year-to-year changes by the commodity-flow approach.

#### Increase in stocks

Estimates of inventory changes in agriculture, fuel supplies and supplies of strategic stocks held by the Government are prepared by multiplying inventory stocks by their average prices. For industry and the wholesale trade, inventory changes are estimated by means of regular quarterly and annual surveys, in which firms report on the value of their inventories. The reported book value is then adjusted in order to approximate the value of the physical change in stocks. With respect to industry, this adjustment is made separately for each industrial division (two digits in the Standard Industrial Classification (SIC)) by type of inventory, taking into consideration the length of the period during which the stocks have been held, and using the appropriate price index (to the extent possible) for each branch and each type of inventory.

#### Gross fixed capital formation

Building and construction works are estimated by using two principal methods: one based on reports obtained directly from large companies and institutions and financial reports of the Government, local authorities and the national institutions: the other by multiplying data on the area under construction by the average cost per square metre for each type of construction. Estimates are compiled with respect to the area under construction for dwellings, industrial buildings, hotels, agricultural buildings and other public buildings. The Ministry of Housing supplies financial data on public buildings for residential purposes, as well as data on the building area under construction.

The commodity-flow method is the one usually used to estimate capital formation in machinery and equipment. The estimate of capital formation from imports is based on the tracing of investment goods imported according to the description in the customs tariff. The estimate of capital formation from local production is based on a monthly report of sales by product obtained from the principal producers, locating the investment goods and determining their economic destination. Quantitative data and prices of investment assets in agriculture are available separately.

#### Exports and imports of goods and services

The estimates of exports and imports of goods and services are based on foreign trade statistics and balance of payments data. The foreign trade data deal with overseas countries and do not include trade with the Administered Territories (Judaea and Samaria, the Gaza Strip and North Sinai, and the Golan Heights). The sources of the data are the forms submitted to the customs authorities by importers or exporters or their agents. In special cases data are derived from administrative summaries made by various institutions which concentrate the foreign trade commodity groups. A number of adjustments are made to accord with balance of payments concepts.

Data included in the balance of payments statistics are based on centralized reports of government offices and material received from those who deal in economic transactions with foreign factors.

#### Cost structure of the gross domestic product

# Compensation of employees

The estimates of wages and salaries are based on surveys of the industrial and construction branches, surveys of parts of the transportation branch, surveys of government and private non-profit institutions, services and parts of the business services. For branches where there are no surveys, estimates are based on employers' reports to the National Insurance Institute and estimates of supplementary payments.

# Operating surplus

Profits, interest payments and rents are estimated by industry by using the income approach. The estimates of net profit are calculated in accordance with methods of inventory evaluation employed by the establishments in some branches, thus including both capital gains or losses caused by changes in prices. The net amount of gains or losses is, however, deducted in the inventory adjustment item for the entire country.

# Consumption of fixed capital

Depreciation estimates are based on income tax assessments which take into account the historical cost of depreciable assets rather than replacement cost. An adjustment is, however, made for the difference between depreciation estimates based on balance sheet data and estimates at replacement cost.

#### Indirect taxes and subsidies

Estimates of indirect taxes are based on the financial reports of the Government and the local authorities. Also included in indirect taxes are current surpluses of such government and local authority enterprises as the post office, municipal water companies etc.

# Constant prices

# Gross domestic product by kind of economic activity

Gross domestic product by kind of economic activity is not estimated at constant prices.

# Expenditure on the gross domestic product

### Government final consumption expenditure

Wages and salaries are extrapolated by the number of government employees, adjusted to take into account the change in the grade structure. Purchases of goods and services are in most cases deflated by the relevant components of the consumer price index.

## Private final consumption expenditure

In most cases the current-price data are deflated by relevant components of the consumer price index. For most food consumption items, estimates at constant prices are computed by multiplying quantities currently consumed by prices in the tase year, gross rent is extrapolated by index of change in the stock of residential dwellings, and current quantities of fuel and power are revalued at base-year prices.

# Increase in stocks

Inventory changes in agriculture, fuel supplies and in strategic stocks held by the Government are estimated by multiplying current stocks by prices in the base year. For other branches, values at current prices are deflated by the wholesale price index appropriate for each branch and type of inventory.

## Gross fixed capital formation

Price deflation is used; current-price estimates for the various components are deflated by appropriate price indexes, such as the building cost index, input commodity price indexes, price indexes for imported commodities etc.

# Exports and imports of goods and services

Exports and imports of goods are deflated by price changes derived from value and quantity data of foreign trade statistics. Data on services are deflated by the change in price of each item, such as shipping prices, consumer price indexes abroad, etc.

## ITALY

The presentation that follows is mainly based on information prepared by the Statistical Office of the European Communities in 1976 in an annex report entitled "Basic statistics needed for the ESA accounts and tables: present situation and prospects for improvements". The report by the United Nations Secretariat entitled "Country practices in national accounting at constant prices" (E/CN.3/464) has also been used. Supplementary information was received from the Istituto Centrale di Statistica at Rome in November 1978.

# Introduction

#### History

The first official estimates of the national income of Italy were prepared in 1950 by the Istituto Centrale di Statistica and published in the journal <u>Annali</u> di Statistica (series VIII, vol. III).

In 1955 estimates were prepared for the first time by the expenditure approach, involving both the commodity-flow method and direct estimates of final expenditure. Estimates of this type have since been made annually and published in the <u>Annuario</u> Statistico Italiano and other publications of the Istituto Centrale di Statistica.

The ESA was introduced in 1975, using series dating back in general to 1970. The Istituto Centrale di Statistica for the first time adjusted the official estimates to conform to the present SNA.

#### Approaches used

#### Gross domestic product

Estimation of the gross domestic product is largely based on the production approach.

# Gross domestic product by kind of economic activity

The production approach is supplemented by the income approach for all industries to which the value-added survey is applied, since data on transactions in goods and services and distributive transactions are both included in that survey. The production approach is, however, the main approach used to estimate the value added of all industries, whereas the income approach is used to estimate the value added of the producers of government services.

### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, increase in stocks, and exports and imports of goods and services. For private final consumption expenditure and gross fixed capital formation, the expenditure approach is used in combination with the commodity-flow approach.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

#### Gross domestic product by kind of economic activity

Agricultural surveys General value-added surveys Construction surveys Surveys of financial institutions Government accounts Family budget surveys (quarterly) Product surveys

#### Cost structure of the gross domestic product

Agricultural surveys General value-added surveys Surveys of financial institutions Government accounts

#### Expenditure on the gross domestic product

Government accounts Family budget surveys General value-added surveys (including capital formation) Construction surveys Foreign trade statistics

#### Methods and sources of estimation

Current prices

# Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared at market prices, i.e. producers' values.

## Agriculture, hunting, forestry and fishing

Data on agricultural production and prices and part of the intermediate goods and services consumed are derived from current agricultural surveys, which consist solely of statistics of products. In 1975 a new survey was carried out, covering 6,000 farms that keep complete accounts and account for approximately 10 per cent of the total output. The information yielded by this new survey will be similar to that provided by the basic survey described under "Manufacturing" below, referred to as the "value-added" survey. It covers transactions in goods and services, distributive transactions and employment data. Crop surveys of wheat, maize, vines, olive and almond trees and citrus are conducted annually. The field work is carried out by local offices, measuring the areas under cultivation and the production of the various crops.

Information on gross marketable livestock production is available separately for beef and veal, horse-meat, pork, mutton and lamb, goat's meat, poultry and rabbit-meat; milk from covs, buffalo, sheep and goats; and eggs, honey and non-alimentary livestock production.

Agricultural services are included in the agricultural production sector.

For forestry a quarterly survey supplies data on the production of logging activities and the corresponding prices. The value added of fishing is calculated on the basis of data on the products unloaded in Italian ports, obtained from monthly surveys.

#### Mining and quarrying

The estimates are based on the value-added surveys and the product surveys (see under "Manufacturing").

#### Manufacturing

The estimates are based on value-added surveys, product surveys, and rapid surveys of large enterprises. The annual value-added survey is a basic survey covering all enterprises employing more than 20 persons (there are 40,000 such units). The results of this survey become available after a 15-month interval. and include transactions in goods and services (output, intermediate consumption, value added, gross fixed capital formation, change in stocks), distributive transactions (compensation of employees, actual interest, income of intangible assets and dividends, accident insurance transactions, value-added tax and other taxes linked to production and imports, and current taxes on income and wealth). the number of occupied persons (wage-earners and salary-earners and self employed) and nours worked by workers and apprentices. An additional question on the legal status of the enterprise concerned is also included. The survey does not, however, allow for a product-by-product analysis. The European Communities' NACE/CLIO classification is used for the breakdown of the value added and gross fixed capital formation aggregates.

A product survey is used as the basis for compiling the input-output tables. This survey is linked with the European Community surveys on industrial activity and generally covers units employing more than 50 persons. The results are available after 24 months and make it possible to carry out a product-by-product analysis of inputs and outputs, in terms of both value and quantity.

A rapid survey of large enterprises employing more than 250 wage-earners and salary-earners is also conducted annually, which is available within three months and provides information relating to the same main headings as those used for the value-added survey.

For manufacturing enterprises employing less than 20 persons a single survey was carried out in 1963. The bench-mark data have been extrapolated by the results obtained from the survey of large enterprises.

#### Electricity, gas and water

The estimates are based on the value-added surveys and the product surveys (see under "Manufacturing").

#### Construction

The basic sources mentioned above under "Manufacturing" are also used for the construction sector, but in addition the estimates are based on the results of a number of specific surveys carried out for the construction industry: surveys on the number of residential buildings, based on the number of building permits granted, surveys of public works with information from government agencies, and sample surveys of work in progress on building sites in the major areas covered by the local authorities.

# Wholesale and retail trade, restaurants and hotels

The main source used to estimate the value added of the trade sector is the general value-added survey. Large enterprises provide information annually on production, value added, cost of personnel, etc., classified by class of activity.

The gaps in the basic statistics relate mainly to enterprises employing less than 20 wage-earners or salary-earners, since their activities are not covered by direct surveys. As regards trade (and industry), the latest sample survey was carried out in 1963. This shortcoming is all the more unfortunate in that enterprises employing less than 20 wage-earners or salary-earners account for much of the activity in a number of areas, such as the retail and wholesale trade, catering and accommodation.

An indirect method of estimation is used for the gross output of the wholesale and retail trade, which consists in constructing an index of consumer goods, capital goods and goods for export that pass through the trade channels. Each of the above series is weighted in proportion to its respective trade margin derived from the 1970 input-output table.

The value-added surveys cover enterprises employing more than 20 persons, including hotels, restaurants and cafés.

#### Transport, storage and communication

The value-added surveys also cover the transport sectors. Further information is supplied directly by the relevant firms and public agencies.

# Financing, insurance, real estate and business services

Annual surveys are carried out among credit institutions, covering 97 per cent of the activity in question and classified into financial in intermediaries and such secondary activities as the leasing of immovable property and the collection of taxes for account. The results are available within 10 months. Special calculations are made for the small part of the activity not covered by the surveys. The financial accounts of this sector are obtained directly from an analysis of banking statistics carried out by the Banca d'Italia. Annual surveys are also carried out among insurance companies; they provide full coverage, insurance being classified as the main activity, and brokerage and leasing as secondary activities. These results become available within 12 months.

No specific information is available for real estate and business services.

# Community, social and personal services

There are numerous statistical sources available for general government, covering all economic and financial transactions. For the central Government the source is the Bilancio dello Stato, compiled by the Ragioneria generale dello Stato. These data are reclassified in accordance with ESA rules. For the local authorities, regions and provinces, the Istituto Centrale di Statistica compiles complete accounts after 39 months, and nearly complete accounts for the regions and provinces and local authorities with more than 100,000 inhabitants after nine months. For social security funds, complete accounts are available after 27 months, and after 15 months the results of a survey accounting for 80 per cent of all contributions and benefits are available. For other bodies included in general government, the Istituto Centrale di Statistica has the complete accounts and budget estimates of the main bodies concerned, with a long and a short time-lag, respectively.

Little information is available on private non-profit institutions serving households. Some data are available for the trade unions, political parties, etc., based on the figures supplied by these institutions. For other services, the Istituto Centrale di Statistica carries out a single direct survey of public hospitals. The other market services are valued indirectly, mostly on the basis of the results of the surveys of family budgets, which are conducted quarterly, the results becoming available after three months have elapsed.

# Expenditure on the gross domestic product

## Government final consumption expenditure

For the central Government the statistical sources for the estimation of all economic and financial transactions are data from the Bilancio dello Stato, reclassified in accordance with the rules of the ESA and compiled by the Ragioneria generale dello Stato. Complete accounts are available after 39 months for local authorities, regions, provinces and other bodies included in general government, and after 27 months for social security funds.

#### Private final consumption expenditure

The basic surveys used for recording the household consumption expenditure are the quarterly surveys of family budgets conducted by the Istituto Centrale di Statistica. Each year these surveys cover 36,000 households by rotation and in groups of 9,000 new families each quarter. This information is supplemented by estimates based on commodity flows, in order to include the final consumption of collective households, which is not covered by the family budget surveys. Other information (on health expenses) is supplied by separate surveys.

The Banca d'Italia carries out a survey of the main economic and financial transactions of households, covering between 5,000 and 6,000 units, but the results of this survey are only used for checking purposes; spot-checks show that the economic data correspond quite well to the information obtained from other sources.

The final consumption abroad by resident households and in the domestic market by non-resident households are estimated on the basis of the surveys carried out by the Banco d'Italia.

#### Increase in stocks

The main statistical source used for estimating changes in stocks is the value-added survey conducted for all enterprises employing more than 20 persons in the industrial sectors, construction, wholesale and retail trade, hotels, restaurants and cafés, and transport. The stocks recorded relate to industrial products only. With respect to valuation, the average price for the year worked out by the enterprise may conceal capital gains or losses.

# Gross fixed capital formation

For the estimation of gross fixed capital formation both the commodity-flow method and the expenditure method are used, the latter through a questionnaire attached to the value-added survey. The figures closely approximate those derived from the use of the commodity-flow method, the discrepancy between the two sets of information being only about 5 per cent.

Figures on government capital expenditure are available from the government accounts on a cash basis; this leads to a certain discrepancy, since in general the investment figures are recorded on an accrual basis.

A breakdown by product is available for gross fixed capital formation, besides the classification by type of capital goods and by kind of economic activity of the owner.

For building and construction, the Istituto Centrale di Statistico carries out specific surveys of the construction industry, for example, surveys on the number of residential buildings, tased on the number of permits granted, surveys of public works and sample surveys of work in progress (see under "Construction").

#### Exports and imports of goods and services

The estimates of exports and imports of goods and services are taken mainly from the balance of payments. The most important sources are the foreign trade statistics based on customs returns for merchandise. Other sources used are the results of surveys or the special calculations made for some services (e.g., transport, tourism, etc.), general government figures, and bank settlements for the other services. The balance-of-payments figures are adjusted somewhat for national accounting purposes, having been duly examined for the different transactions.

# Cost structure of the gross domestic product

# Compensation of employees

Compensation of employees of the industrial sector is valued on the basis of the results of two surveys: the value-added survey, which covers all firms with more than 20 employees, and a survey carried out by the Ministry of Labour and Social Security, which covers all firms with more than 10 employees. For the agricultural sector, the minimum contractual wages are taken as the basis of estimation, together with a survey of the compensation of permanent employees. For the service sector, compensation of employees is valued on the basis of surveys and inquiries carried out by other institutes; for those sectors not covered by surveys, evaluations are made on the basis of indirect factors.

Social security contributions are valued using the information supplied by the social security agencies. This information refers to the amounts paid to the social security funds by the employers.

#### Operating surplus

The flows of property and entrepreneurial income are adequately recorded. Information is obtained from the value-added surveys and from a study on actual interest received and paid by the various sectors, prepared on the basis of banking statistics.

# Consumption of fixed capital

Consumption of fixed capital is valued on the basis of time series of gross fixed capital formation at constant prices by product and by branch of economic activity. On the basis of the average economic life of each group of capital goods, consumption of fixed capital at 1970 prices is estimated by using the perpetual inventory method, assuming that the devaluation of the product is constant during its economic life. The current estimates are obtained by using the implicit price index of the corresponding gross fixed capital formation.

#### Indirect taxes and subsidies

Government sources provide the information for this item. Taxes linked to production and imports are broken down by branch according to the type of tax. The value-added tax was introduced in Italy in 1973; the net system of deductible value-added tax has been adopted both for value added at market prices and gross fixed capital formation. The proportion of indirect taxes collected by the institutions of the European Communities is valued on the basis of the data supplied by the Statistical Office of the Economic Communities.

Data on subsidies are classified by branch on the basis of the recipients indicated in the general government budgets, and a breakdown by product is available for the subsidies paid by the institutions of the European Communities.

# Constant prices

# Gross domestic product by kind of economic activity

# Agriculture, hunting, forestry and fishing

Double deflation is used; each product of agricultural output is valued at base-year prices and quantities of fertilizers, pesticides, seed, fodder and fuel as well, while other input items are extrapolated by appropriate quantity indicators. For forestry and logging, quantities of wood and other products proper are valued at base-year prices and input is deflated by appropriate price indexes. For fishing, the current quantities are also valued at base-year prices, and input is extrapolated by a quantum indicator based on gross output and selected inputs.

# Mining and quarrying

Double deflation is used; output is deflated by an index of wholesale prices, and inputs are deflated within the framework of an input-output table with 33 sectors referring to 1965.

# Manufacturing

Double deflation is used; the output of most industries is deflated by the index of wholesale prices; for printing and publishing it is deflated by a price index for magazines, newspapers and school-books; and for the manufacture of gramophones, photographic and miscellaneous equipment it is deflated by an index for annual earnings of workers. Inputs are deflated within the framework of the input-output table mentioned above.

# Electricity, gas and water

Double deflation is used; the output of electricity and water is deflated by the index of consumer prices and for gas it is deflated by the average index of consumer prices for three different kinds of gas. For input the same method is used as for mining and manufacturing.

#### Construction

Double deflation is used; output is deflated by a cost index of residential buildings, and deflated by a weighted index of labour and material costs for demolition work, whereas inputs are deflated within the framework of the input-output table.

# Wholesale and retail trade, restaurants and hotels

Double deflation is used; for the trade sector output is extrapolated by a quantity index obtained as a weighted average of constant-price estimates of final consumption, intermediate consumption and exports, using data from the input-output table of 1965 as weights, and also for inputs. For restaurants and hotels, the output of restaurants is deflated by a component of the consumer price index, whereas the output of hotels at constant prices is obtained by revaluation at base-year prices.

# Transport, storage and communication

Double deflation is used; outputs of the various subgroups are extrapolated by different kinds of quantity indicators, such as passenger-kilometres and ton-kilometres, employment data adjusted for changes in productivity, the quantities loaded and unloaded by Italian ships, the number of telephones in use, etc.; the output of services incidental to transport, however, is deflated by an index of wages and salaries and, as above, inputs are deflated within the framework of the 1965 input-output table.

## Financing, insurance, real estate and business services

Double deflation is used; for financial institutions and insurance, output is partly deflated by an average of the consumer and wholesale price indexes and partly extrapolated by quantum indexes of employment, the number of debtors, the number of current accounts, etc.; for ownership of dwellings the base-year values are extrapolated by an index of the number of rooms available in dwellings at the middle of each year. Again, inputs are deflated within the framework of the 1965 input-output table.

#### Community, social and personal services

For producers of government services, value added is deflated by price indexes for the different components; for example, wages and salaries are deflated by the arithmetic mean of the index for contractual salaries of civil servants in the central Government, classified by category and rank, and the index of average salaries for all civil servants.

The output of liberal professions is deflated by an implicit price index of the gross domestic product; for private education it is deflated by the appropriate component of the consumer price index and for public education it is extrapolated by the number of pupils graduated. For health services, output is deflated by a component of the consumer price index; for theatres, etc., it is deflated by the consumer price index relating to recreational services and for domestic services it is partly deflated by a component of the consumer price index and partly extrapolated by employment data; various personal services are deflated by other appropriate price indexes. Inputs of the various private services are deflated within the framework of the abovementioned input-output table, since double deflation is also used in these cases.

## Expenditure on the gross domestic product

## Government final consumption expenditure

Compensation of employees by category and grade is deflated by appropriate wage and salary indexes and purchases and sales of goods and services are deflated by appropriate price indexes, while the consumption of fixed capital in buildings is estimated as a certain percentage of the stock value at constant prices.

# Private final consumption expenditure

Most items of private final consumption expenditure are deflated by appropriate components of the consumer price index. Consumption of own-produced food is revalued at base-year prices and gross rent is extrapolated by the number of dwelling units; specially constructed price indexes are applied to a number of items.

# Increase in stocks

For agricultural products, the series for increase in stocks is revalued at base-year prices and for non-agricultural products it is deflated by appropriate price indexes.

# Gross fixed capital formation

For buildings and other construction, the current values are deflated by a cost index for residential buildings. Price deflation is also used for transport equipment with various types of deflators. Agricultural tractors are extrapolated by means of new registration data, whereas all other machinery and equipment are deflated by appropriate price or unit-value indexes.

# Exports and imports of goods and services

Exports and imports of merchandise are deflated by currently weighted unit-price indexes for exports and imports. Price deflation is also used for other goods and services; for transport the indexes used are derived from the total weight of the merchandise transported taking into account the average distance of the routes. For travel abroad, deflation is by indexes of consumer prices in countries visited by residents and for other series by the implicit price index for merchandise, transport and travel abroad.

#### JAPAN

The presentation that follows is mainly based on information in English compiled by the United Nations Statistical Office in the last half of the 1960s, and dating from the same period, information from the supplement to <u>Hundred-Year</u> <u>Statistics of the Japanese Economy</u>, published by Statistics Department of the Bank of Japan. The information on constant-price estimates is taken from "Country practices in national accounting at constant prices" (E/CN.3/464). Supplementary information was received from the Administrative Management Bureau of the Office of Statistical Standards in February 1978.

#### Introduction

# History

The first official estimates of the national income of Japan were made by the Cabinet Statistics Bureau in 1925, although private estimates date back to 1900.

In 1946 a National Income Research Office was established in the Ministry of Finance in order to start work on national income estimation, and estimates of gross national expenditure were made for the first time.

Comparable data on the prevailing set of national accounts for 1930-1961 were published in the White Paper on National Income in 1963.

In 1977, the National Income Division of the Economic Research Institute of the Economic Planning Agency, which has been responsible for the construction of national accounts since 1958, published national income statistics for 1975  $\underline{1}/$  covering the figures of the basic accounts and main and supplementary tables for national income and gross national expenditure.

National accounts estimates were being prepared in 1978 in accordance with the present SNA.

# Approaches used

#### Gross domestic product

The gross domestic product is for the most part estimated using the expenditure approach.

#### Gross domestic product by kind of economic activity

The estimates by industry had been made on the basis of the production approach, but in 1975 they were halted pending the establishment of the present

<sup>1/</sup> Government of Japan, Economic Planning Agency, <u>Annual Report on National</u> Income Statistics, No. 52 (January 1977).

SNA in 1978. The income approach is used to estimate the value added of producers of government services.

# Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, private final consumption expenditure, increase in stocks and exports and imports of goods and services. The commodity-flow approach is used to estimate gross fixed capital formation, supplemented by use of the expenditure approach to compile the estimates by investment sector.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

# Gross domestic product by kind of economic activity

Annual farm household economy surveys Annual censuses of manufacturers Monthly surveys of building construction Government accounts

# Cost structure of the gross domestic product

Government accounts Monthly labour force surveys Data on tax regulations Annual reports of corporate enterprises Annual reports on the survey of unincorporated enterprises

# Expenditure on the gross domestic product

Government accounts Household economy surveys Annual censuses of manufacturers Annual reports of corporate enterprises Foreign trade statistics

# Methods and sources of estimation

#### Current prices

# Gross domestic product by kind of economic activity

In 1975 the estimation of gross domestic product by kind of economic activity on the basis of the production approach ceased, but was scheduled to start up again after the switch to the present SNA in 1978. The table is prepared at market prices, i.e., producers' values.

# Agriculture, hunting, forestry and fishing

Two methods are used to calculate national income originating in these sectors, the first based on the estimation of national income components, such as income from unincorporated enterprises in agriculture, forestry etc., and wages and salaries etc., and the second based on production cost data of farm products. Both methods are used simultaneously and supplement each other. Additional information is obtained from input-output tables.

The average proprietor's income per farm household for the whole country has been calculated from the annual farm household economy survey. The number of proprietors by industries is derived from the latest census of population, extrapolated by data from the monthly labour force survey. The computed income of unincorporated enterprises is adjusted to account for stockpile valuation. Compensation of employees is calculated as the national average ratio of per household agricultural labour wages to per household agricultural income, derived from the survey of farm household economy, multiplied by the agricultural proprietors' income, which is estimated separately.

One of the main sources for computing national income originating in agriculture is the survey on the production cost of agricultural products. This survey is composed of surveys on the production cost of rice, wheat and barley, coccoons, other important agricultural products and livestock products. The survey on production cost of rice is conducted for almost 5,000 farm households selected by random sampling, and results are published in the annual report of the survey on the production cost of rice. The sample size of the other surveys mentioned above is considerably less than that of the rice survey. The data are collected from the households by means of bookkeeping interviews and actual measurement.

Other sources which have been used for the purpose of input-output tables include the decennial censuses of agriculture, the 1965 intercensal census of agriculture, annual sample censuses of agriculture, annual surveys of crop production (by area and utilization of land, and by yield) and surveys of sericulture.

For forestry and fishing, bench-mark estimates are made from production statistics, extrapolated by using the production index and the commodity price index. In the case of forestry, the sources are the decennial censuses of forestry, the annual basic survey of forestry, which covers output of fuel wood etc., the survey on forestry household economy, and the survey of producers of logs, which was conducted in 1968. For fishing, the sources are the fishery censuses, the intercensal fishery surveys conducted once a year, the survey of catches of domestic marine fisheries, mostly with monthly data, the survey of fishing and agriculture in inland waters, the annual economic survey of fisheries and surveys of marketing in producing areas and urban areas (conducted every 10 days and covering a sample of wholesalers, middlemen and retailers in the main cities).

# Mining and quarrying

Available statistics for the production approach, which replaced the income approach in the late 1960s, are derived from the census of establishments 1966, annual surveys of mining trends and other special surveys. All establishments and enterprises to which the Mining Law applies are covered by the survey of mining trends, information on production quantities and values, raw materials, fuels, electricity, wages and salaries, depreciation, taxes and other expenses being shown by establishment, and value of sales, business profits, fixed assets, investment, depreciation etc. being shown by enterprise.

# Manufacturing

The annual censuses of manufactures are the main source for the manufacturing estimates, with the establishment as the survey unit, furnishing information which includes the number of persons employed, total wages and salaries, value of raw materials, fuels and electricity consumed, value of different types of stocks, value of tangible fixed assets by type at the beginning of the year, value of shipment and stocks by commodity etc. A basic survey of smaller enterprises has been held every four to five years.

More current production statistics are obtained on a commodity basis from monthly samples of establishments, from which data on principal production and shipment stock in quantity are provided. All products not included in these production statistics are covered by special surveys based upon information from professional organizations and government agencies.

# Electricity, gas and water

The estimates of electricity and gas production are based on the sources described under "Manufacturing and mining", or on similar sources.

#### Construction

For private residential construction, statistics are only available on flat area measure and the number of houses. The value of newly constructed dwellings is derived from stock figures, multiplied by average construction costs per area. The value of factory construction is estimated by the product of total area and average construction cost per area. The Ministry of Construction is conducting a monthly statistical survey on building construction, with data on all buildings started, classified by type and investing sector, estimated cost and building period. On the basis of a sample from buildings started, monthly information is collected on real construction cost and length of building period in relation to the estimates.

For public construction, the estimates are based on government accounts and balance sheets of public enterprises.

### Others

No information is available on the sources and methods used in estimating the various services sectors, except that the estimates for public administration and defence are based on the government accounts.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

Government consumption expenditure is estimated separately from the accounts of the central Government and local governments. Government investment expenditure is subtracted from total government expenditure on goods and services to obtain government current expenditure on goods and services for both the central Government and local governments. The estimates are based on figures from the <u>Settlement Report</u> and other financial statements, but are adjusted to make the estimates consistent with the concept used in the national accounts. Adjustments made in the general accounts of the central Government are the deduction of duplication among various accounts, price adjustment expense, grants to deficit enterprises, investments and subscriptions, transfer expenditure, government bond expense etc. Government consumption expenditure according to government purposes are to be estimated after switching to the present SNA.

#### Private final consumption expenditure

Private consumption expenditure is estimated on the basis of various surveys; farm household expenditures are estimated from the results of the annual agricultural economy surveys, non-farm ordinary household expenditure from household economy surveys, which are conducted monthly, and one-man household expenditure based on consumption surveys held every five years and projected according to urban workers' family household expenses as shown in the household economy surveys. Data on population, the number of households and household members are estimated from the national census, the agricultural census and surveys etc. Extraordinary expenses are estimated and adjustment made for them.

## Increase in stocks

For the corporate sector, the estimates are based on the quarterly and annual reports of corporate enterprises. The outstanding inventory value of all corporations is estimated at the beginning and end of the year, with annual inventory changes added to the inventory value of newly established corporations. Other sources used are balance sheets of government enterprises, the farm household economy survey, the rice and wheat barley stock-in-hand survey, and per-proprietor increase in stock according to the proprietor economy survey and national wealth census.

## Gross fixed capital formation

The commodity-flow approach is basically used to estimate gross fixed capital formation by capital goods, whereas the expenditure approach is used to compile the estimates by investment sectors. The discrepancy due to the two different estimation methods is included as a statistical discrepancy item in the non-government sectors (industries) of the gross fixed capital formation table by kind of economic activity and as "adjustment items" in supplementary tables.

Three categories of capital goods are distinguished - machinery and tools, construction, and large animals and plants. Estimates of machinery and tools are based on industrial statistics, marine statistics, production statistics for railway rolling stock, foreign trade statistics, data on freight and margin rates, information from corporate enterprises on actual investment, etc. with respect to installation expenses, whereas repair expenses are included for large reconstruction or repairs and large machinery for increases in goods under construction, estimated from data in the industrial statistics.

Construction is treated in a production account, where input and value added are delivered to fixed capital formation. Animals are covered through increase in stock and estimated from agricultural statistics, whereas plants are estimated as increased orchard acreage multiplied by the price of nurturing grown orchards.

For the central Government and local governments, government enterprises and public corporations, data on capital expenditure are obtained from the financial accounts.

### Exports and imports of goods and services

The estimates of exports and imports of merchandise are based on the balance-of-payments table prepared by the Bank of Japan. Foreign trade statistics with respect to exports cover goods produced in Japan and exported, goods produced in foreign countries and re-exported, and goods re-shipped from bonded warehouses or bonded factories. In these cases the sources of data are export declarations, re-shipment declarations, export declarations for military goods etc. Invisible trade data are available, surveyed on the basis of various reports, which are compiled under the Foreign Exchange Control Law. The coverage for imports comprises goods produced in foreign countries and imported goods produced in Japan and re-imported, foreign goods placed in or transferred to bonded factories or warehouses, goods received in Japan before the granting of an import permit, etc. In these cases, import declarations, applications for approval of entrance of foreign goods into bonded warehouses, bonded factory warehouses and delivery before the granting of an import permit, import declarations for military goods, etc. are all used.

The estimation of exports and imports of services is also based on the balance-of-payments table. Various kinds of services defined by the balance-of-payments table are adjusted in accordance with the national income concept.

# Cost structure of the gross domestic product

# Compensation of employees

Wages and salaries are estimated by multiplying average <u>per capita</u> compensation by the number of employees. The number of employees is obtained by extrapolating population census figures, with estimates based on the number of employees in labour force surveys. Average wages are based on the Ministry of Labour's monthly labour survey, the Tax Administration Agency's survey of wages and salaries in private firms, and unpublished data of the National Personnel Authority, Ministry of Finance and Ministry of Home Affairs.

The estimate of salaries of executives is based on the annual reports of corporate enterprises. Tips are estimated by multiplying wages and salaries by the ratio of tips to total wages and salaries. Salaries of diet and local diet members are obtained from the settlement of general accounts and local government. The estimate of retirement allowances is based on data on tax regulations. Employees' rent subsidies are estimated on the basis of housing census data.

Social insurance contributions by employers are estimated by multiplying total social insurance by the ratio of the employers' share of total contributions.

#### Operating surplus

For estimating corporate profits, data on tax regulations are adjusted for national income purposes by adding other sources of corporate profits and subtracting part of the expenses included in profit as defined in the tax regulations. Surpluses of government enterprises are estimated by the profit-and-loss statement of each enterprise.

Interest payments realized on personal deposits are estimated from profit-andloss statements of financial institutions. In order to obtain the total interest payments realized, payments on government bonds and industrial debentures received by individuals are added to the result. Imputed interest is calculated as the excess of the investment income of financial institutions over their deposit interest payments to individuals. The amount also includes the net investment income of life insurance companies. The estimation of interest on consumers' debt is based on sources from pawn-house unions, the Ministry of Welfare's survey of public pawn-houses, the Bank of Japan's statistics on outstanding loans by industry, and the Ministry of Agriculture's survey on the financing of farmers. Interest on public debt is obtained from the settlement of general accounts and local government, and the payments of the Special Account for Refunding National Indebtedness.

The gross total rent for personally owned houses is estimted by multiplying the total rent of all houses by the ratio of personally owned buildings to the total number of privately owned buildings. From this amount repair charges, fire insurance costs, maintenance fees, depreciation and taxes for fixed assets are deducted to arrive at the net total rent for personally owned houses.

For proprietors' income, the national average income per household of farmers is obtained from the farm household economy survey each year and is multiplied by the number of farmers. A bench-mark estimate of the number of farm households is obtained from the report included in 1960 world agriculture and forestry industry census of the Ministry of Agriculture and Forestry, extrapolated by using the changes in the total number of farm households ascertained from the agriculture census of the Ministry of Agriculture and Forestry.

#### Consumption of fixed capital

Depreciation allowances of dwellings are estimated by multiplying the stock of residential building by the average rate of depreciation. The estimate of depreciation of incorporated enterprises is based on the annual reports of corporate enterprises. Damage of fixed capital resulting from accidents is obtained from the annual survey of casualty insurance companies and the settlement of general accounts.

#### Indirect taxes and subsidies

The estimate of indirect taxes and subsidies is based on the settlement of general accounts and local government.

#### Constant prices

# Gross domestic product by kind of economic activity

Gross domestic product by kind of economic activity is not estimated at constant prices.

# Expenditure on the gross domestic product

# Government final consumption expenditure

Compensation of employees is deflated by a weighted Laspeyres-type wage and salary index. Other expenditures are also deflated by a Laspeyres-type price index.

# Private final consumption expenditure

Private consumption expenditure at constant prices is calculated separately for farm households and non-farm households. In each case the expenditure is classified by broad subgroups and each item is deflated by an appropriate price index, mostly a component of the rural price index, the wholesale price index and the consumer price index.

# Increase in stocks

Stocks at the end of each period are deflated separately for corporations and other proprietors, and according to industry group, by applying appropriate price indexes. Price indexes for stocks of each industry are calculated on the basis of data collected for the wholesale price index.

# Gross fixed capital formation

For machinery and tools, each of the 43 groups is deflated by a relevant component of the wholesale price index; for construction they are deflated by an index of construction costs, and big equipment and plants are deflated by a specially constructed cost index.

# Exports and imports of goods and services

Price deflation is used; exports and imports of merchandise by commodity are deflated by means of appropriate components of export and import price indexes; exports of freight and insurance services are deflated by the index of freight per ton-kilometre weighted by type of ship; imports of freight and insurance services are deflated by commodity by means of components of the unit price index for imports of merchandise, while other transportation is deflated by the compound index of consumer price indexes in the principal foreign countries. Consumption by non-residents in Japan is deflated by the over-all urban consumer price index, and consumption by residents in foreign countries is deflated by a combination of the consumer price indexes of the United States of America and the countries of the European Economic Community.

#### JORDAN

The presentation that follows is mainly based on the comprehensive information on sources and methods contained in The National Accounts 1970-1974, published by the Department of Statistics of Jordan in October 1976. Supplementary information was received from the Department of Statistics in October 1977.

#### Introduction

# History

The national income was estimated in 1950, although commercial transactions, government expenditure, transportation, construction and leases were not included in the estimate.

In 1961 the Department of Statistics in the Ministry of National Economy published The National Income for Jordan in 1959, not only to provide national income data for the year 1959, but also as a base for future calculations on an annual basis.

An input-output table for Jordan for 1963 was published in 1965 in <u>The</u> <u>National Accounts, 1959-1963</u>. This represented the final stage in the development of commodity-flow statistics, which have been expanded and refined since their inception in 1961.

The Department of Statistics had to start making arbitrary estimates for the occupied West Bank from the accounting year 1967 onwards, with estimates not strictly comparable with those for previous years for Jordan as a whole.

In 1975 work was started on the preparation of national accounts statistics in accordance with the present SNA. Three years later the Department of Statistics, in co-operation with the Economic Commission for Western Asia, presented a report on Jordan's national accounts for 1952-1976, 1/ in accordance with the present SNA. Tables for the period 1952-1966 covered both the West Bank and the East Bank of Jordan, while tables for the period 1967-1976 covered the East Bank only.

#### Approaches used

#### Gross domestic product

The main approach used to estimate the gross domestic product is the production approach.

<sup>&</sup>lt;u>1</u>/<u>National Accounts in Jordan 1952-1976</u> (Amman, Department of Statistics, 1978).

# Gross domestic product by kind of economic activity

The production approach is used to estimate value added of most industries, such as agriculture, forestry and fishing, mining and manufacturing, wholesale and retail trade, while the income approach is used for a number of service sectors.

Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure and exports and imports of goods and services. This method is partly used for increase in stocks and gross fixed capital formation as well, although the commodity-flow approach is used to estimate investment in machinery and equipment. The commodity-flow approach is also used to estimate private final consumption expenditure.

# Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

Gross domestic product by kind of economic activity

Annual agricultural sample surveys Industrial census, 1974 Industrial sample surveys Records of public enterprises Inquiries into private building construction Sample surveys of the wholesale and retail trade conducted in 1967-1971 Government records Special surveys of different services

#### Cost structure of the gross domestic product

No information available

# Expenditure on the gross domestic product

Government records Building licence statistics Special surveys of construction and stocks External trade statistics

# Methods and sources of estimation

## Current prices

# Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared at factor costs.

# Agriculture, hunting, forestry and fishing

Annual agricultural sample surveys are undertaken on a country-wide basis, providing the Department of Statistics with agricultural production estimates for crops (grains and legumes, vegetables, fruits, vines and olives). The quantities obtained from these sample surveys have been valued at farm prices, which are assumed to be 75 per cent of the relevant wholesale prices in the case of grains and legumes and one third of the retail prices for vegetables. The ratio between farm prices and retail prices is for fruits and vines based on the result of a study in 1961. The production of tobacco is estimated by the Department of Statistics and the Ministry of Finance with farm prices based on the prices paid by local tobacco companies to farmers.

For sales of animals, the number of animals slaughtered in municipalities and refugee camps is obtained from the municipalities and the Ministry of Reconstruction and Development, adjusted to arrive at a total number of slaughterings for the country. Prices are based on inquiries referring to animal markets in Amman. Production of milk is estimated on the basis of the estimated number of animals in milk, average yield of milk per animal and prices based on estimates of the Veterinary Department. A similar procedure is used for the estimation of wool production. Egg and meat production is obtained from the Ministry of Agriculture, Veterinary Department data and estimates and inquiries made by the Department of Statistics. Prices are partly based on retail price data.

The estimates of seeds are made on the basis of the results of statistical surveys that give the average quantity of seed sown per dunum of each crop, valued at farm prices of the preceding year. In the case of vegetables and tobacco, the value of seeds has been estimated to be one fifteenth of their gross output. Machinery expenses are estimated on the basis of the number of tractors and a special cost inquiry in 1964. For fertilizers and insecticides, import values have been adjusted to account for duties, transport costs and trade margins. For irrigation expenses, bench-mark estimates are based on a sample survey in 1959 and assumed to move proportionately with vegetable production. For animal feed, the quantities used are based on the number of animals in existence each year and consumption of animal feed per head, estimated in 1964 by the Department of Statistics. The reduction in live-stock numbers is considered as a cost item and the increase in livestock numbers a credit item, and those estimates are very approximate.

Own-account construction on farms is estimated on the basis of the agricultural sample survey undertaken in 1960 and projected to other years in proportion to the annual volume of loans for construction projects granted by the Agricultural Credit Corporation.

All information about production estimates and prices for forest products are obtained from the Forestry Department. The fishing estimates are based on the quantity of fish caught at Aqaba, price information supplied by the organization responsible for the fishing industry and retail price data.

## Mining and quarrying

See under "Manufacturing" below.

#### Manufacturing

The estimates of industrial production have been based on the 1967 and 1974

Industrial Censuses, balance sheets and income and expenditure statements in 1970, analysis of large industrial companies and industrial sample surveys in remaining years, all of which cover the East Bank of Jordan only. Complete annual surveys of industrial establishments employing five persons or more are available, and other industrial establishments employing from one to four persons are covered by annual sample surveys. Industrial production in the West Bank is estimated on the basis of previous information on the total number of establishments in each industry and information on economic activity in the West Bank, provided by different persons and agencies. All values are prepared at current factor cost and thus exclude indirect taxes levied on these products.

# Electricity, gas and water

Information is obtained directly from electricity companies and from municipalities that undertake the task of electricity production. For water supply, information is obtained from the accounts of municipalities that are engaged in water supply activities. The contribution of the West Bank's enterprises and organizations has been arbitrarily estimated on the basis of previous information available to the Economic Division in the Department of Statistics.

### Construction

Value added of private building construction has been calculated from cost estimates obtained from special inquiries, data on area of construction deduced from building licences issued by the municipalities and from statistics of unlicensed buildings collected in 1965 by means of a special survey. Maintenance and repair of buildings are assumed to be 5 per cent of the rental value of the buildings.

The value of public construction is obtained from the records of the Ministry of Finance, the National Planning Council, the National Resources Authority, the Aqaba Port Authority, the Jordan Youth Organization and municipalities. The value added for each type of construction or expenditure has been estimated on the basis of special inquiries or cost studies undertaken by the Department of Statistics.

The value of construction for the West Bank has been arbitrarily estimated on the basis of information that was made available to the Economic Division of the Department of Statistics.

## Wholesale and retail trade, restaurants and hotels

Special sample surveys of wholesale and retail trade were carried out in 1967-1971 and supplemented by a systematic study of the origin and use of all goods imported and produced in the economy for 1975. Gross trade margins are generally estimated on the basis of the differences between import or producers' values and values at the final selling point (at purchasers' prices). Where final selling prices are not available, the trade margins are calculated on the basis of information obtained through informal inquiries among traders. Data on operating expenses as a proportion of total sales have been obtained from the sample surveys. An arbitrary estimate of the West Bank's contribution to the sector product has been included. Estimates for restaurants and hotels are based on the results of a complete survey of all classified hotels and restaurants. Small restaurants and coffeehouses are covered annually by sample surveys ranging in size from 10 to 15 per cent.

### Transport, storage and communication

Information on rail passenger and freight transport is obtained from Hejaz Railway Authority; information on the operations of Aqaba Port is supplied by the Agaba Port Authority, and the accounts of Alia Jordanian Airlines provide data on air transport. Value-added estimates relating to the leading and unloading of vessels at Agaba are obtained directly from the corporation concerned. Information on the activities of travel agencies has also been obtained, based on the number of American and European visitors to the country, their expenditure and the results of special inquiries. For bus operators, cost and revenue figures from a survey undertaken in 1974 are used, applied to the number of buses registered in these years, and taking into account changes in prices. Estimates for other forms of road transport are based on special inquiries. In the case of passenger transport these inquiries provide reasonable estimates of wages and salaries and other costs per vehicle, but profits per vehicle have to be estimated separately. For freight transport, information on revenue is taken from a commodity-flow analysis, carried out annually up to 1972.

#### Financing, insurance, real estate and business services

The estimates for banking are based on returns sent to the Department of Statistics by the various banks operating in the country. Information on the operations of insurance companies in Jordan has been collected by means of special surveys carried out in 1970-1974, which also covered the activities of foreign exchange dealers. No reliable information is, however, at present available on the activities of private money-lenders.

The income arising from ownership of dwellings represents the net rental value of all dwellings, whether or not they are owned by their occupiers. The estimates for the 16 largest municipalities in the country are based initially on the Ministry of Finance assessments of rental values for the urban property tax, and later adjusted upwards on the basis of a sample survey to take into account known under assessment in these areas. For other municipalities, the assessments of rental values by the Ministry of Finance have been used without any adjustment. For rural areas, the imputed rents per head of population have been assumed to be the same as those obtained for the smaller municipalities. The estimates of ownership of dwellings contain a portion that is actually considered as part of value added of other sectors (industry, trade, finance, etc.).

#### Community, social and personal services

The estimates for public administration and defence are based on the records of the Ministry of Finance and the National Planning Council and the accounts of the municipalities, and include wages, salaries, rents and other employment income paid by the central Government and the municipalities and the cost of administration and organization of the National Planning Council. Information regarding government health and education services is obtained from the records of the Ministry of Finance. Data on wages, salaries and rents paid by private education institutions are provided by the Ministry of Education and private schools, while those paid by private hospitals are provided by the institutions concerned. The incomes of private doctors, midwives, dentists, lawyers, engineers and public accountants (part of business services) are estimated by applying income estimates to the number of persons engaged in these professions as reported by the relevant professional organizations.

In order to obtain the income resulting from domestic services, estimates on the number of domestic servants and the wage rate are obtained from special inquiries. With regard to the operation of cinemas and film distribution, a country-wide survey has been undertaken as part of the accounting work. In 1965 a series of inquiries was initiated covering services that previously went unrecorded, such as tourist guides, porters, car washers etc.

Total value added in the service sector in the West Bank is based on the percentage contribution of the West Bank establishments in 1966 and on the basis of information that is made available to the Economic Section in the Department of Statistics.

#### Expenditure on the gross domestic product

# Government final consumption expenditure

The estimates represent central and municipal government consumption expenditure and are based on the records of the Ministry of Finance, the National Planning Council and municipalities. Government consumption expenditure is allotted for the purchase of goods and payment of wages and salaries by both the central Government and the municipalities.

### Private final consumption expenditure

The estimates of private final consumption expenditure have been built up from studies of the origin and use of the country's economic resources and from the more comprehensive input-output analysis made for the years 1967-1969. The development of reliable statistics on stock changes is still only in its early stages, and it should therefore be noted that the consumption figures may to some extent include changes in stocks. It should also be noted that a large volume of commodities imported into Jordan as grant-in-aid is not recorded anywhere and has thus affected the value of consumption expenditure by the same volume. Adjustments are made for the expenditure of Jordanian residents abroad and the expenditure of non-residents in Jordan, the latter comprising tourists, the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), charitable institutions and diplomatic missions.

## Increase in stocks

This item contains estimates of changes in the number and value of livestock herds and some other commodities (grains, etc.), in addition to which there is a balancing item. The estimates are approximate and based on inquiries in the manufacturing industry in most cases.

#### Gross fixed capital formation

For gross private fixed capital formation the estimates are based on building licence statistics, results of a special construction survey relating to unlicenced buildings and on imports of machinery, vehicles for public use and other equipment. Also included are the estimated value of farm construction and expenditure by UNRWA on construction projects. For machinery and equipment, local production is included and, where appropriate, customs duties and trade and transport margins for imported machinery and equipment are taken into account.

For gross fixed capital formation of general government, the expenditure on fixed capital of central and local government agencies includes the Aqaba Port Authority, the Natural Resources Authority and Al-Hussein Youth City, estimated from records of Ministry of Finance and the respective bodies.

### Exports and imports of goods and services

A summary of international transactions is derived from a rearrangement of the balance-of-payments estimates prepared by the Central Bank of Jordan. Exports and re-exports in f.o.b. values are recorded in the external trade statistics. Expenditure by foreign visitors is based on information derived from passport control and security records, information from travel agents and a special survey undertaken by the Department of Statistics. In the balance of payments, local expenditure by United Nations agencies and payments by charitable institutions, including the value of relief goods, are treated as official transfers, i.e., the value of relief goods is treated as a transfer payment to the private sector and local expenditure is treated as a foreign purchase of goods and services.

Imports in c.i.f. values are recorded in the external trade statistics. Expenditure by Jordanian residents abroad is estimated from the number of Jordanians travelling abroad and the assumed expenditure per person, together with exchange control records of expenditure on education abroad and other types of foreign travel.

# Cost structure of the gross domestic product

The distribution of income among employees, property owners and those working on their own account is estimated, building up totals from 10 sectors, but the figures should be considered as approximations. Estimates are also made for indirect taxes and consumption of fixed capital.

The sources and methods applied are based on income estimates, comprising wages and salaries, fringe benefits and compensation of employees, wages and salaries, fringe benefits of the armed forces and employers' contributions in savings, health and social securities; separate estimates are made for income of agricultural workers, income of skilled labourers such as engineers, medical doctors, merchants and industrialists, and for income from property and capital assets (rent, dividends, profits), including government income from property and investments.

#### Constant prices

# Gross domestic product by kind of economic activity

Gross domestic product by kind of economic activity is not estimated at constant prices.

#### Expenditure on the gross domestic product

The expenditure side of the gross domestic product is not estimated at constant prices.

# KENYA

The presentation that follows is mainly based on the comprehensive information submitted to the United Nations Statistical Office in 1975 in reply to the survey questionnaire for assessing sources, methods and reliability of national accounts, and a draft study on national accounting methods published by the Organisation for Economic Co-operation and Development in 1978. Supplementary information was received from the Central Bureau of Statistics in October 1977.

#### Introduction

#### History

Annual uniform series of estimates of the domestic income and product of Kenya were prepared for the first time in 1947 by the East African Statistical Department.

In 1959 a full revision of previous estimates for the years 1954-1958 appeared in the study <u>Domestic Income and Product in Kenya</u>, prepared by the Economics and Statistics Division of the Treasury.

With the advent of independence in 1963, the Central Bureau of Statistics became responsible for compiling national accounts statistics.

In 1967 previous estimates for the years 1963-1967 were completely revised.

Kenya published in 1972 its first report containing input-output tables for 1967, the work on which had been initiated in 1968. Input-output tables for 1971 were published in 1976.  $\underline{1}/$ 

In 1976 a full revision of previous estimates for the years 1972-1975 took place, implementing the methods and sources mentioned in the first draft of <u>Methods and Sources for National Accounts in Kenya</u>. Annual official estimates are published in the <u>Statistical Abstract</u> issued by the Central Bureau of Statistics of the Ministry of Economic Planning and Development.

# Approaches used

#### Gross domestic product

For the most part the production approach is used to estimate the gross domestic product.

<sup>1/</sup> Input/Output Tables for Kenya, 1971 (Nairobi, Central Bureau of Statistics, 1976).

#### Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of most industries. The expenditure and income approach is rarely used; construction and capital formation in residential and non-residentail buildings are based partly on the value of "completions" reported by municipalities, and other construction is derived from expenditure by private industry and government. The income approach is used for insurance and real estate only, where some use is made of income tax records.

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, and exports and imports of goods and services. The commodity-flow approach is used in estimating capital formation, but also combined with the expenditure approach. Private final consumption expenditure is obtained as a residual.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

# Gross domestic product by kind of economic activity

Annual large-farm censuses Annual integrated rural surveys Annual surveys of mining and quarrying Census of manufacturing industry, 1972 Annual sample surveys of manufacturing industry Monthly surveys of manufacturing output Rural enterprise survey, 1972 Annual surveys of building contractors Survey of distribution, 1967 and 1971 Annual reports of the East African Community corporations Government accounts Inquiry into business expectations Survey of employees and self-employed persons

# Cost structure of the gross domestic product

Survey of employees and self-employed persons Government accounts and reports

# Expenditure on the gross domestic product

Government accounts External trade statistics Balance-of-payments data

## Methods and sources of estimation

Current prices

#### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

# Agriculture, hunting, forestry and fishing

The major sources of information are the annual large-farm censuses, the annual integrated rural surveys and purchases by boards, co-operatives and large factories. The Ministry of Agriculture provides some supplementary information.

The large-farm censuses give information on the total production on large farms, and the difference between such figures and the amounts purchased by boards, co-operatives and large factories provides an estimate of quantities sold in the local markets. The integrated rural surveys provide annual information on production on small farms, the quantities and values of their sales to boards, co-operatives and large factories, sales in the local markets and consumption at the farms. The integrated rural survey takes a stratified multistage sample of small farms.

Both censuses provide information on the quantity and value of sales and quantities consumed on the farm. No allowance is made for wastage and losses. Where agricultural products are sold to boards and co-operatives, the prices paid by the boards are used. For other products the prices used are those obtained from the integrated rural survey, reflecting prices in the local markets. The value of livestock products is estimated in much the same way as for crops, using the same sources. Included in the output value is the value of the increase in herds. The value of land improvement is also included, with information from the censuses of large farms and the Ministry of Agriculture. The animals and animal products sold and consumed by nomadic tribes (the Masai) are covered in estimates of the non-monetary sector, together with the value of the output of all farms that sell less than 20 per cent of their output.

Intermediate consumption of insecticides, fertilizers, animal feeds and purchased seeds are estimated from the large-farm censuses and the integrated rural surveys. Information on other inputs is obtained from import statistics, large suppliers and the Ministry of Agriculture. Import figures are converted to purchasers' values by adding transport and distribution margins. Fodder is excluded from the value of output and from the intermediate consumption for livestock. The output of hunting is derived from the value of exports (ivory, etc.), to which is added an arbitrary 25 per cent to cover non-exported products. A rough estimate is made of input, referring to transport costs and ammunition.

Agricultural services consist of the services of the Kenya Tea Development Authority, the Coffee Research Foundation, the Tea Research Institute and the Agricultural Society of Kenya, and information is obtained directly from these bodies.

Forestry is not particularly important in Kenya and no censuses or surveys have been undertaken. The Forests Department provides information on the distribution of forest area by years to maturity of the trees. Calculations are made for all vintages and then summed. Information received from large farms on their forestry activities is poor; an assumption is made of the annual felling per hectare. Charcoal production is estimated from per capita consumption of rural and urban households and from exports, intermediate consumption being based on the technical relationship of wood to charcoal. In the non-monetary sector the value of output of firewood is estimated from the number of rural households in non-pastoral areas, etc.

The Fisheries Department provides estimates on the commercial catches at fishing centres from annual surveys, including the value of these catches to fishermen. It also provides estimates of the value of fish from fish ponds. The value of marine products is added from the export figures. Inputs are estimated on the basis of import statistics and estimates of the number of boats provided by the Fisheries Department.

## Mining and quarrying

Mining and quarrying are also relatively unimportant. The required information on gross output and intermediate consumption is obtained from the companies concerned. However, it seems probable that small-scale quarrying is often either omitted or included in the construction sector.

#### Manufacturing

A census of manufacturing industry was held in 1972 covering all establishments, regardless of size, in urban areas and all large establishments in rural areas. The information collected from each establishment included sales, value of increase in stocks of goods manufactured, intermediate consumption, increase in stocks of raw materials and fuel held, labour costs, number of employees, etc.

Surveys of manufacturing industry are undertaken annually. Firms employing 50 or more employees are fully covered, and a sample is taken of firms employing from 20 to 49 employees. For firms with less than 20 employees annual estimates are obtained by "blowing up" the value of gross output and intermediate consumption of such firms in the 1972 census. Data on the wage bill and employment are obtained from annual labour force surveys.

The census did not cover small-scale units in rural areas and neither do the annual surveys. A rural enterprise survey was therefore held in 1972. The activities covered included the processing of dairy products, grain milling, the manufacture of textiles, clothing, footwear, beer, soap, pottery and clay products, non-metallic mineral products and wood and cork products. Information on the value of output and intermediate consumption was obtained by interviews. The 1972 figures have been extrapolated in line with the current gross output of agriculture, forestry, fishing and hunting. Wage bill or employment data cannot be used, because the annual labour force surveys do not cover such enterprises.

The manufacturing activities of the East African Community corporations are also included, but only to the extent that they occur in Kenya.

The classification of the manufacturing industry is at the four-digit level. Firms are classified according to their major activity, and large-sized firms classify both the value of their output and their intermediate consumption by a broad commodity classification, detailed enough for commodity-flow purposes.

### Electricity, gas and water

For electricity, information is obtained from the two companies concerned. The municipalities provide information on their water undertakings, including a non-profit research and advisory board serving the water industry. In the non-monetary sector the estimate is based on the number of rural households, the estimated number of woman-hours spent a year in drawing water and the opportunity cost of such labour (with farm work as the alternative).

### Construction

For contractors, the bench-mark estimate is based on the 1972 census of industry, which covered all contractors in urban areas and large contractors in rural areas. Small contractors in rural areas were covered by the rural enterprise survey held in 1972. Annual information is obtained from all contractors with 50 or more employees and a sample of contractors with from five to 49 employees. Contractors with four employees or less are covered annually in the labour force survey. Their estimates of gross output and intermediate consumption are obtained by applying an increasing factor to the census figures.

From the large-farm censuses, information is obtained on own-account construction, 10 per cent is added to cover maintenance, and labour costs are put at 20 per cent of this value of output. The East African Power and Lighting Company provides the information needed on its own-account construction activities, and the other community corporations are also covered in this respect by using special returns. The activities of the Ministry of Works are included under this industry, the information being derived from Government accounts and a supplementary return by the Ministry sources of information. A special return enables the own-account building activity of the Forests Department to be separated from its other activities. All local authorities are covered and provide information on their own-account residential, non-residential and other construction. Additions are made to cover maintenance expenditure and labour costs.

In the non-monetary sector, the total number of huts in the region at the beginning of the year, the rate of growth of population and the length of life of the huts form the basis for the estimation of new hut building. The value of output is the number of huts built of each type, multiplied by its current cost, 15 per cent being added to cover maintenance. The costs are based on studies undertaken in 1966 of the cost of two types of hut. Input percentages are based on a case study.

# Wholesale and retail trade, restaurants and hotels

The 1967 survey of distribution collected bench-mark information on the value of output and intermediate consumption. Value added by each subdivision has subsequently been extrapolated by using the following indicators: the value of output of Kenya's manufactures, the value of output of Kenya's agricultural produce, total imports from Uganda and the United Republic of Tanzania and total imports from the rest of the world. A similar method is used for trade in petroleum products. Circulars are sent out to the various marketing boards with requests for information. The rural enterprise survey undertaken in 1972 provided a figure of value added for small retailers and wholesalers in rural areas. The value of the output of agriculture, fishing, forestry and hunting is used as an indicator to extrapolate the bench-mark value added of 1972. No commodity classification is available for the trade sector. Small retail shops and stalls are covered in the estimates, but not street hawkers and itinerant merchants.

Information on the value of output, intermediate consumption and value added for cafés and restaurants in urban areas and large cafés and restaurants in rural areas is provided by a survey conducted in 1968. Small cafés and restaurants and hotels in rural areas are covered in the rural enterprise survey of 1972, and extrapolated by an indicator of the value of output for agriculture, fishing, forestry and hunting. Otherwise, the annual labour force surveys provide figures on the wage bill for each size-category for the purpose of extrapolation.

## Transport, storage and communication

The sources of information for railway transport are the annual reports of the East African Railways Corporation and special questionnaires completed by it. Revenues from railway operations are allocated to the parent company and branches on the basis of passenger-miles and ton-miles operated and current expenditure.

For buses, data on the value of output, intermediate consumption and labour costs are obtainable from the Kenya Bus Services Company only, and their ratios are applied to other bus firms as well. Firms with 20 or more employees operating taxis and minibuses are surveyed annually, as are the private road transport firms, for which ratios are calculated and applied to the estimated labour costs of unsurveyed firms. Labour costs are based on vehicle registration data, the assumed number of operators and an average wage rate per operator.

Information on the East African National Shipping Line is obtained from its annual reports and from the answers to a special questionnaire. Since the shipping line is a joint undertaking by the East African partner States and Zambia, the parent-company branch approach is adopted. At present, the activities of small vessels are not covered. The services of East African Harbours are estimated from answers to a special questionnaire. Other supporting services are covered by data obtained from large offices and ratios are calculated on the basis of unsurveyed firms and the labour force surveys.

Information for the East African Airways is also obtained from a special questionnaire and from the annual reports. The data for private firms running charter services or undertaking crop spraying are obtained from circulars sent to the firms concerned. For private booking and travel agencies, annual surveys of firms with 20 or more employees are undertaken, and a similar method is used for storage and warehousing. East African Posts and Telecommunications is analysed in the same way as East African Harbours or East African Railways, the parent-company branch approach being adopted.

# Financing, insurance, real estate and business services

The Central Bank of Kenya provides information on its own activities and those of the commercial banks, and imputations are also made to obtain the value of services provided. Other financial institutions are similarly treated. Information on insurance is obtained by circulating a questionnaire to all insurance firms; most of these are branches of foreign companies, and do not know what actuarial reserves have been set aside against the premiums written. Income tax data are, however, available.

The value added of real estate is calculated as the net trade receipts of companies and individuals, as well as 50 per cent of the net rentals of companies, labour costs (obtained from the labour force survey) and interest paid (obtained from income-tax records).

For ownership of dwellings, a stratified multistage sample is taken annually to determine the number of houses of various types and their rents. The rents of owner-occupied houses are imputed as equal to average rents on similar rented properties. Intermediate consumption is put at 20 per cent of the aggregate rentals of privately owned houses, based on case studies. Rents of huts are also estimated, put at a level sufficient to cover maintenance costs and consumption of fixed capital and still yield a "normal" return on the value of the huts.

For business services, a survey was undertaken in 1972, and for each such service the value of output, intermediate consumption and value added have been obtained. The wage bill from the labour force surveys is used for extrapolation.

# Community, social and personal services

The main sources of information for the producers of government services are the accounts of the central Government and local governments, the East African Community, the relevant statutory boards and the National Security Fund. Imputations are made to cover free housing, free medical services, foreign technical assistance and consumption of fixed capital (on vehicles only). Information for producers of private non-profit services to households is obtained by circulating questionnaires to the bodies concerned.

For private services, a survey conducted in 1972 provided the bench-mark estimates of gross output, intermediate consumption and value added. These figures are extrapolated on the basis of the current wage bill obtained from the annual labour force surveys. Domestic services are, however, calculated from the estimated number of different types of servants and their estimated wage rates. The extrapolator is the entertainment tax paid in the case of cinemas. In rural areas, the rural enterprise survey undertaken in 1972 provided estimates of gross output, intermediate consumption and value added. In the absence of annual data, it is assumed that the rate of growth of these activities is two thirds of the growth rates for the corresponding activities in urban areas.

# Expenditure on the gross domestic product

#### Government final consumption expenditure

The main sources of information are the accounts of the central Government and local governments, the East African Community (General Fund Services), the relevant statutory boards and the National Security Fund. All government accounts are prepared on a cash basis, no attempt being made to convert the figures to commercial accounting practices. The expenditure of the Ministry of Defence on goods and services is treated as consumption, except for capital expenditure on military hospitals.

Government consumption expenditure is classified by purpose in nearly the same detail as the SNA, based on expenditure by department or subdepartment. The value of sales of goods and services to the public is subtracted from the sum of the costs in order to arrive at government consumption expenditure, using the revenue figures of the departments. For local and provincial governments, the information is gathered through annual questionnaires. Government enterprises are included under industries, but to the extent that the producers of government services purchase such outputs they are included in their intermediate consumption.

#### Private final consumption expenditure

Private consumption expenditure is obtained as a residual by subtracting from the gross domestic product at market prices all other components of expenditure. In the future it is hoped that direct estimates of private consumption expenditure will be available in detail. It may be mentioned that, for the purposes of the 1971 input-output table, private consumption expenditure was estimated by using the commodity-flow approach, supplemented by fragmentary data from household expenditure surveys in rural and urban areas.

#### Increase in stocks

Changes in stocks are recorded for agriculture, including the value of the increase in animal herds and "work in progress" in forestry (unlike the SNA), and for manufacturing, mining and quarrying, building and construction, electricity and wholesale and retail trade.

Information on agriculture is derived from the censuses of the large farms and the integrated rural survey. Changes in quantities are also obtainable from the marketing boards. The data for mining and quarrying, manufacturing, electricity and building and construction are obtained from the annual surveys or from company reports in the case of electricity, and refer to the increase in the value of stocks. An adjustment will be made to value the increase at the average price level of the current year. For wholesale and retail trade the present method will be changed, as a recent survey of distribution will provide bench-mark data for change in stocks, and annual surveys will be taken for the large wholesalers and retailers. Not enough information is available to classify the increase in stocks by commodity.

#### Gross fixed capital formation

The estimate of capital formation in building and construction is derived from "completions" and expenditure on other construction by producers of government services, industry, etc. The estimate derived from the expenditure side is larger than that obtained from the production side, and adjustments are made to reconcile the estimates.

Estimates covering the value of development of permanent crops such as tea, coffee and sisal and also capital development of forestry are included in gross fixed capital formation. From data provided by the large-farm censuses and the Ministry of Agriculture the value of land improvement is estimated, and it is hoped that the integrated rural surveys will cover land improvement on small farms as well. The situation is similar with respect to the value of additions to breeding stock, draught animals and dairy cattle, where the value of the increase in cattle on small farms and the value of the increase in all other types of animals are recorded as increase in stocks.

Estimates of expenditure on machinery and equipment are derived by using the commodity-flow method. The c.i.f. value of each import item that enters into the category of capital formation is extracted from the foreign trade report and added import duties. The annual surveys of manufacturing are the source of information for domestic production. Percentages are applied to both imported and domestically produced capital goods, since not all such outputs are entirely devoted to capital formation. Transport and distribution margins are then added to obtain values at purchasers' prices. The estimates of transport equipment are prepared in much the same way as they are for machinery and equipment, but expenditure on locomotives and rolling stock, aeroplanes and ships has to be allocated to partner States of the East African Community, either in proportion to ton-miles operated or in proportion to capital ownership. The value of imported spare parts for vehicles is estimated as 15 per cent, regarded as capital formation.

Special questionnaires are completed by the Ministry of Works and the Forest Department (and also by the municipalities) covering their own-account capital formation activities.

#### Exports and imports of goods and services

The sources of information for exports and imports of goods and services are the foreign trade reports and the balance-of-payments estimates. Adjustments are made in respect of coverage and valuation, but not for timing. Power purchased from Uganda is included in imports. Bunkerage is deducted from exports and film rentals from imports. Imports by the Community corporations are re-allocated. Landed oil imports reported by the oil companies are compared with the customs figures, and an adjustment is made accordingly. Information on transport services is obtained from the East African corporations involved. A questionnaire is sent to all insurance firms in Kenya; all premiums for insuring exports are a credit in Kenya's balance of payments and re-insurance and other types of insurance are entered under other services.

## Cost structure of the gross domestic product

## Compensation of employees

The annual surveys of employees and self-employed persons yield data on wages and salaries paid in most industries. For the following industries, however, other sources are used: the integrated rural survey covers those paid on small farms; for forestry, estimates are based on the number of loggers engaged in that sector as shown by the licences issued, and the current wage rate for casual labour in rural areas; for fishing, compensation of employees is estimated, on the advice of the Fisheries Department, as 25 per cent of the value added; for the transport sectors, annual reports and special surveys are used; and for domestic services data are collected from a panel of households. For producers of government services, data including wages and salaries in kind are taken from the government accounts, while the value added of producers of private non-profit services to households, taken as being equal to wages and salaries, is obtained from annual questionnaires sent to the bodies concerned.

## Operating surplus

Operating surplus, including consumption of fixed capital, is calculated as a residual.

### Consumption of fixed capital

This item is not estimated separately, but is included in the operating surplus.

## Indirect taxes and subsidies

Information on indirect taxes and subsidies is partly obtained from enterprises, for example, for large-scale manufacturing, and partly from government records.

## Constant prices

## Gross domestic product by kind of economic activity

## Agriculture, hunting, forestry and fishing

Double deflation is used for agriculture and also for the semi-monetary sector. For most outputs and inputs, current quantities are valued at base-year prices, but for some outputs and inputs for which the physical quantities are not known, current values are deflated by relevant price indexes. For agricultural services, value added is deflated by an index of agricultural wage rates. For hunting, trapping and game propagation, the base-year estimates are extrapolated by a quantity index of output, except for the export component, which is deflated by using the relevant export price index. For forestry a combination of deflation and extrapolation is used, and the double deflation method is used for fishing as well.

### Mining and quarrying

Double deflation is used; base-year estimates of gross output are extrapolated by indicators of physical output, and the same applies to inputs.

### Manufacturing

Double deflation is used; base-year estimates are extrapolated by using indicators of physical outputs and inputs, calculated at the three-digit level of activity and based on information on the 300 most important manufacturing products.

## Electricity, gas and water

The value added of electricity is extrapolated by an index of output in kilowatt-hours and a similar method is used for water supply.

## Construction

Double deflation is used; the value of output is derived by deflating the components of residential buildings and road construction by the appropriate cost indexes. For other construction, the deflator is a weighted average of the cost indexes for non-residential buildings and road construction. Base-year figures of intermediate consumption are extrapolated in line with the value of output. The revaluation method is used for hut-building.

#### Wholesale and retail trade, restaurants and hotels

For the trade sector, the procedure for obtaining the current-price estimates is repeated, except that the ratios are applied to values at constant prices. Adjustment is made for change in stocks, and the 1971 ratio of the value of output to value added is assumed to remain constant. For marketing boards base-year estimates are extrapolated by the pertinent index of throughputs at constant prices, for rural trade the base-year estimates are extrapolated by an index of the value at constant prices of small-farm output. For restaurants and hotels, value added is extrapolated by an index of hotel occupancy (beds).

#### Transport, storage and communication

For railways, base-year estimates are extrapolated by an index of railway revenues at constant prices, obtained by using the weighted average of revenue per ton-mile and the average revenue per passenger-journey. For bus transport, value added is deflated by an index of costs, while the value added of other land transport is extrapolated by a quality index based on the number of vehicles licensed. For water transport, value added is extrapolated by a quantity index based on the number of passenger-journeys and for air transport it is extrapolated by a volume index obtained by deflating current revenue by indexes of passenger revenue per passenger-mile, freight revenue per ton-mile and mail revenue per ton carried, whereas services allied to transport are deflated by an index of wage rates. For communication, value added is extrapolated by quantity indicators such as the number of postal boxes, the number of telephone subscribers or index of telegrams sent.

## Financing, insurance and real estate and business services

For financial institutions, insurance and real estate except ownership of dwellings, value added is deflated by the implicit price index of gross domestic product (adjusted for the sectors in question), for ownership of dwellings by an index of rents, and for each type of business service, by the relevant wage indexes.

## Community, social and personal services

For producers of government services, wages and salaries are extrapolated by an index of employment divided into various grades, whereas current data for other components are deflated by various price and cost indexes. For producers of private non-profit services to households, value added is either extrapolated by an index of employment or deflated by an index of wage rates derived from producers of government services. For services performed by the private sector, the current-price estimates are deflated by an index of wage rates in the urban sector; in the rural sector it is assumed that the growth at constant prices of the various services is two thirds that of comparable urban activities.

## Expenditure on the gross domestic product

## Government final consumption expenditure

Wages and salaries are extrapolated by an index of employment, while purchases of goods and services are deflated by various price indexes.

## Private final consumption expenditure

Private consumption expenditure at constant prices is obtained as a residual.

#### Increase in stocks

In most cases the value of stocks at current prices is deflated by a price index to obtain the value of stocks at constant prices, and subtraction provides the value of change in end-year stocks between consecutive years. The increase in the number of various types of animals is valued at base-year prices of the various categories of animals.

### Gross fixed capital formation

For building and construction, the current estimates are deflated by the building cost index for residential buildings, non-residential buildings and a weighted average of the index for road construction and non-residential buildings; for land improvement the expenditure is deflated by an index of wage rates, for dairy cattle, etc. by valuing the increase in the animal categories at constant prices, and for machinery and equipment the current-price estimates are deflated by the index of import prices referring to the relevant category of imports.

## Exports and imports of goods and services

Exports and imports of goods and services are deflated by price indexes that are obtained by combining the price indexes for eight different sections of foreign trade. The final indexes may be referred to as "Paascherized" Laspeyres indexes, since the geometric mean is applied.

## LESOTHO

The presentation that follows is mainly based on information contained in the latest editions of National Accounts issued by the Bureau of Statistics, in 1976 and 1977. Information from earlier issues of the same series (issued in 1967 and 1971) has also been used, together with supplementary information received from Bureau of Statistics in September 1978.

### Introduction

## History

The first report on national income and balance of payments was compiled by the Bureau of Statistics in 1967. The work was initiated by Mr. Michael Ward of the School of Applied Economics, of Cambridge University.

In 1975 national accounts for the six-year period from 1966/67 to 1971/72 were prepared by a United Nations expert who went to Lesotho in 1971.

Since 1976 the Bureau of Statistics has itself undertaken the preparation of national accounts estimates. The third report in the series <u>National Accounts</u> was issued in 1977.  $\underline{1}/$ 

#### Approaches used

#### Gross domestic product

Generally the production approach is used to estimate the gross domestic product.

#### Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of the different industries, since production data for most establishments outside the agricultural sector are gathered by means of questionnaires. The income approach is used to estimate the value added of producers of government services.

## Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, private final consumption expenditure, and exports and imports of goods and services. Information on gross capital formation is based on various sources, but from the fund aspect only.

<sup>1/</sup> National Accounts 1974/75 (Maseru, Bureau of Statistics, 1977).

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

#### Gross domestic product by kind of economic activity

Annual agricultural surveys Census of agriculture, 1970 Establishment data obtained from replies to questionnaires Rural household survey, 1967-1969 Government accounts

## Cost structure of the gross domestic product

Government accounts

Expenditure on the gross domestic product

Government accounts Rural household survey, 1967-1969 Urban household survey, 1972-1973 Foreign trade statistics

## Methods and sources of estimation

Current prices

### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

#### Agriculture, hunting, forestry and fishing

The Agricultural Division of the Bureau of Statistics carries out regular annual surveys of increasing scope. The last census of agriculture was conducted in 1970. With respect to cereal production, the production figures are estimated on the basis of the 1970 census of agriculture and the 1973 agricultural survey, and in so doing, account is taken of relevant facts such as the amount of rainfall over the eight-month period of soil preparation, planting, plant growth and crop maturity for each year since 1969. Production is valued at producers' prices, i.e. prices at which the farmers sell to traders. A 6 per cent allowance is made for wastage occurring during the various stages between crop maturity and the time the harvest reaches the homesteads. For the estimation of fruit and vegetable production, the results of the 1967-1969 rural household survey are used.

From the livestock balance sheets prepared by the Agricultural Division of the Bureau of Statistics it is possible to ascertain changes in stock estimates, to which the average values for different types of livestock are applied. For the estimation of meat production, average carcass weights are applied to the numbers of livestock slaughtered. Information on slaughtering in abattoirs is compiled and released annually by the Ministry of Health, whereas the number of slaughterings in areas outside the towns is estimated through the annual production surveys. Estimates of milk production are made on the basis of the number of milk cows, the average yield per cow and the average price for a unit of milk. The number of hides and skins is derived from the number of slaughterings shown in the 1973 livestock balance sheets, and the average prices obtained from butcheries are applied. Figures on the production and sale of wool and mohair (export values) are obtained from the Ministry of Agriculture. These figures are supplied by brokers in South Africa, where wool and mohair from Lesotho are sold.

## Mining and quarrying

The value of diamonds sold to licensed dealers by diggers is regarded as the value of diamonds exported from Lesotho. Most diamond-dealers are non-residents and it is difficult to get any information regarding the sale of Lesotho diamonds outside the country. The receipts from diamonds are regarded as a contribution by this sector to the gross domestic product. Figures on quantities and values of diamonds are obtained from the Department of Mines and Geology on a monthly basis.

#### Manufacturing

For manufacturing and crafts, information for national accounting purposes is collected through questionnaires prepared specially for manufacturing enterprises, while the 1967-1969 rural household consumption and expenditure survey provides a basis for the estimated values of handicrafts produced.

## Electricity, gas and water

The balance-sheets of the Lesotho Electricity Corporation and the accounts of the Water Branch of the Ministry of Works provide all the relevant details.

#### Construction

Special questionnaires are submitted to building contractors to obtain information that is used for assessing the contribution of this activity to the gross domestic product. Estimates of own-account construction are also included.

## Wholesale and retail trade, restaurants and hotels

Separate questionnaires for commerce and catering are submitted to larger enterprises engaged in these activities. An estimate of the contribution to the gross domestic product by small retail outlets has been made separately, based on the results of a survey conducted in 1970-1971.

## Transport, storage and communication

From the government accounts, supplemented by inquiries, it is possible to estimate the contribution made to the gross domestic product by postal and telecommunication services and the government garage (transport pool). Lesotho Airways supplies the accounts from which its contribution is assessed, and questionnaires are submitted to Maluti Treks and a number of individuals who own buses and taxis.

## Financing, insurance, real estate and business services

The information necessary for assessing the contribution of banking and insurance to the gross domestic product is collected by means of special inquiries directed at the banks and the headquarters of the insurance companies in South Africa. The contribution of banking is estimated in accordance with the recommendations in the new SNA, and a distinction is made between casualty and life insurance.

For ownership of dwellings, the government accounts provide information on rent received (and paid) by government, the returns by businesses and institutions contain information on cash rents paid to and received from individuals or households. An estimate of imputed rent has been based on the urban household survey of 1972-73.

A special questionnaire is designed for collecting information on business services.

### Community, social and personal services

Information relating to general government is obtained from the government accounts. Information on community, social and personal services and non-profit institutions is obtained by means of questionnaires, while special inquiries are made to gather information on services not otherwise covered.

## Expenditure on the gross domestic product

#### Government final consumption expenditure

The government accounts provide valuable and detailed information on the general government services. Commodity and non-commodity sales are deducted from the total expenditure (personal emoluments of all government employees and expenditure on goods and services by all government departments), in order to arrive at the final consumption expenditure. Expenditure incurred by government enterprises are identified and excluded from central government current expenditure on goods and services. The expenditure on goods and services is divided between wages and salaries and purchases of goods and services, and is classified by the type of service provided by the central authorities.

#### Private final consumption expenditure

The estimates are based on the final results of the rural household survey undertaken in 1967-1969 and the urban household survey carried out from May 1972 to May 1973 in six of the nine district towns. Recently this item has been estimated as a residual item in the gross domestic product and expenditure on gross domestic product account.

## Increase in stocks

This item is estimated from various sources, but mainly from questionnaire returns and the surveys mentioned above for the agriculture sector.

## Gross fixed capital formation

This item covers the value of purchases and own-account construction of fixed assets by government, private and public enterprises, individuals and non-profitmaking bodies such as churches. The value includes the labour involved in construction work, architects' and engineering consultants' fees, administrative expenses, etc. Various sources are used (questionnaires, etc.), but for the agriculture sector only, changes in stocks enter this aggregate.

## Exports and imports of goods and services

Exports and imports of merchandise as recorded in the official foreign trade statistics are adjusted for differences in coverage and valuation. Exports are recorded f.o.b. at the border of Lesotho, together with all other current receipts for services rendered to non-residents, and imports are also recorded f.o.b. at the point of dispatch instead of c.i.f. at the point of arrival of the consignment.

#### Cost structure of the gross domestic product

## Compensation of employees

The estimates are derived from the government accounts and other returns.

#### Operating surplus

The estimates of the operating surplus are derived from the production account of all sectors accounted for (residuals).

## Consumption of fixed capital

The estimates are obtained as given by respondents for depreciation of fixed assets. Consumption of fixed capital has not yet been estimated for the government sector or for the subsistence sector.

#### Indirect taxes and subsidies

Indirect taxes are split into import duties and other indirect taxes. Import duties constitute the share of the revenue that Lesotho receives under the new customs agreement concluded with Botswana, South Africa and Swaziland. The total amount of revenue received under this agreement is treated as indirect taxes. In the absence of any detailed information on the types and quantities of Lesotho's imports to which the existing customs tariff rates could be applied in order to derive "pure" customs duties, any attempt at estimating the non-duty element of the share would be pure guesswork.

Subsidy figures consist of government contributions to defray part of the operating expenses of government and other enterprises.

# Gross domestic product by kind of economic activity

Gross domestic product by kind of economic activity is not estimated at constant prices.

# Expenditure on the gross domestic product

The expenditure side of the gross domestic product is not estimated at constant prices.

#### LIBERIA

The presentation that follows is mainly based on the description of sources and methods received from the Ministry of Planning and Economic Affairs in November 1978, which is also included in a new publication on methodology issued in December 1978. 1/ Another source used is <u>Sources and Methods of Estimation</u> <u>of National Product, 1970-1973</u>, published by the Ministry of Planning and Economic Affairs in July 1975.

### Introduction

## History

Statistical data on national accounts first appeared in 1968 in the publication <u>National Income of Liberia 1966</u>, produced by the Department of Planning and Economic Affairs. These estimates of gross domestic product originating in the monetized sector were prepared by the Harvard Advisory Staff for 1964-1966, using the income approach. Time series data were also published for the years 1950-1960.

The Department changed to the production approach in 1969 after collecting data through specially designed national accounts questionnaires.

Sources and Methods of Estimation of National Product 1970-1973 was published by the Ministry of Planning and Economic Affairs in 1975, presenting a new series of gross domestic product estimates within the framework of the present SNA. For the first time both the monetized and subsistence sectors were covered.

A publication issued by the Ministry of Planning and Economic Affairs in December 1978, 1/ describes the additional sources, improved methods and new series that have been used from 1973 onwards.

#### Approaches used

#### Gross domestic product

The main approach used to estimate the gross domestic product is the income approach.

## Gross domestic product by kind of economic activity

The income approach is used to estimate the value added of most industries, although a combination of all three approaches - the production approach, the income approach and the expenditure approach - comes into play, thus making full use of the data available.

<sup>1/</sup> The New Series and Methodology for Estimating Gross Domestic Product, 1973 (Monrovia, Ministry of Planning and Economic Affairs, 1978).

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, increase in stocks, and exports and imports of goods and services. The commodity-flow approach is used to estimate private final consumption expenditure and gross fixed capital formation.

## Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

#### Gross domestic product by kind of economic activity

Financial accounts National accounts surveys (questionnaires) Income-tax files Government accounts Foreign trade statistics Reports from transport enterprises

## Cost structure of the gross domestic product

National accounts surveys Income-tax files Annual reports Financial accounts

## Expenditure on the gross domestic product

Government accounts Annual reports Foreign trade statistics

#### Methods and sources of estimation

Current prices

#### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

#### Agriculture, hunting, forestry and fishing

For rubber production, the components of value added are estimated from the financial accounts of the rubber concessions, the income tax statements of all rubber companies and from information obtained from local Liberian rubber farmers through the Rubber Planters Association of Liberia. "Other agriculture" includes all other food and cash crops such as coffee, cocoa, palm kernel and piassava. Based on income tax files, the trend in the movement of gross domestic product for reporting establishments is used. Breeding of livestock is very rare in Liberia.

The value added of forestry is arrived at from an input-output study of the industry, based on the national accounts surveys. Production, sales and price figures are obtained from the Concession Secretariat.

For fishing the components of value added have been obtained from the income tax files, but additional information is taken from the national accounts surveys.

## Mining and quarrying

For the mining of iron-ore, the components of value added are obtained directly from the financial accounts of the four iron-ore companies. After making the necessary adjustment, the components of value added are aggregated to arrive at the total value added for the iron-ore industry.

In the case of other mining, the only information available relates to the quantity and value of diamond exports. An adjustment is made to arrive at the actual value, allowing for the extent of border trade. An allowance of 20 per cent has also been made for costs. Gold-mining activity in Liberia is nominal and is not included in the estimates. Direct information is not available on the volume and value of quarry production; some estimates, however, are constructed on the basis of the reports of a few organized establishments and are applied to the bench-mark data.

#### Manufacturing

Information on production components is obtained from income tax files, semi-annual questionnaires and other supplementary series. An extrapolation is made for non-reporting establishments, in particular those of small size.

## Electricity, gas and water

The Liberia Electricity Corporation and the Liberia Water and Sewer Corporation are the only two establishments engaged in these activities; data on production, cost of production and components of value added are obtained directly from their annual reports and accounts and their replies to the national accounts questionnaires.

#### Construction

In compiling data on the construction industry, two main types of problem have been encountered. The first centres around the large number of small subcontractors in the industry, the second around the method of estimating the value of construction put in place. Because of these two problems, and given the sources of information and the resources available, the methodology adopted for this sector is mainly the commodity-flow approach. The method envisages estimation of the domestic production of commodities used in construction, adjusting for exports, imports and change in stocks. In addition, the commodity-flow approach requires supplementary information on transport costs, dealers' margins, etc., as the value of the material is to be determined at the site of construction. On the basis of a detailed six-digit analysis of import statistics, the value of imported construction materials is obtained, including import duties. Production statistics of locally produced construction materials have been collected, whereas trade and transport margins have been estimated by analysing data obtained from the major importers of construction materials through the national accounts questionnaires.

As substantial development of land is undertaken from time to time by the major plantations and mining companies, information on this activity is obtained directly from information supplied through the national accounts questionnaires.

## Wholesale and retail trade, restaurants and hotels

A combination of the production approach and the income approach has been followed in estimating the trade sector's contribution to the gross domestic product. The output of the trade sector is thus equal to the gross margin, which is the difference between the value of sales and purchases adjusted by the change in the value of stocks. The gross output of hotels and restaurants is derived in the same manner. The income tax paid by a complete coverage of industries in this sector and the technique of extrapolation are used to arrive at the value added.

The extrapolation process adopted involves separating the large establishments from the others, regarding them as self representing. The previous value added is extrapolated by the change registered by comparable establishments (excluding the large and new establishments), and finally, by identifying new establishments and treating them as an additional contributor to value added.

## Transport, storage and communication

The estimate of value added for this sector is pieced together from various sources, including replies to the national accounts questionnaires, income tax files, annual reports and information supplied by the Motor Vehicle Division of the Ministry of Finance, which is responsible for issuing licences. It is not possible to obtain information from all the establishments engaged in this sector, so the method used to obtain global estimates is an extrapolation technique basically similar to the one described under "Wholesale and retail trade, restaurants and hotels".

# Financing, insurance, real estate and business services

Financing covers five commercial banks, two development banks and one national bank, which serves as a central monetary institution. The gross output of this subsector is made equal to the sum of actual service charges and imputed service charges. Value added, on the other hand, is obtained by adding up the various components: wages, salaries and direct fees, depreciation allowances and operating surplus. The data required are obtained through a specially designed questionnaire.

The insurance subsector is not completely covered; it is therefore necessary to use as an indicator the reported change in comparable establishments in subsequent years, the principal sources being the income tax returns. Real estate and ownership of dwellings comprise the letting and operating of real estate. Value added consists of the net rental income accruing from ownership of dwellings and the product originating in the activities of real estate agencies. The estimates also include the imputed rental income of owner-occupied dwellings. Since no reliable information is at present available for this subsector, the estimates have been obtained by extrapolating an earlier estimate for 1967 by means of the population growth rate and the rent component of the consumer price index for Monrovia.

### Community, social and personal services

For producers of government services, the main source used to obtain value added is the detailed analysis of the central government accounts, made annually by the Ministry of Planning and Economic Affairs. Value added is made up of items from the recurrent budget and the development budget, covering compensation of employees; the consumption of fixed capital is not estimated.

The value added of the other private services has been obtained by extrapolation. The extrapolation process involves the estimation of the change in compensation of employees, interest, depreciation and operating surplus, obtained from the income tax files for comparable establishments.

## Expenditure on the gross domestic product

## Government final consumption expenditure

The data used are contained in <u>Government Accounts of Liberia</u>, published by the Ministry of Planning and Economic Affairs. The main sources from which this information is drawn are the monthly revenue and expenditure reports, which are published by the Ministry of Finance, reclassified and made to conform with the SNA. Since all government transactions are centralized, no problems exist with respect to local government transactions. The government enterprises have been excluded from the government accounts and grouped under the appropriate industries.

#### Private final consumption expenditure

The commodity-flow method is used to estimate private final consumption expenditure. Accordingly, the import statistics of consumer goods are analysed in detail and the c.i.f. value plus duty paid are obtained directly, while the trade and transport margin is put at 35 per cent of the c.i.f. value, as determined from a study. Since there is also the local production component of private consumption expenditure, estimates are obtained from the production statistics of goods and services. These two components are summed to obtain the global estimate.

#### Increase in stocks

The stocks estimated are limited to iron-ore stocks. There are two sources from which the stock figures are obtained - annual reports of the iron-ore companies and an analysis based on the difference between production and exports. In order to be consistent with the concepts of the expenditure approach, the estimates are based on the export figures. The change in stocks is obtained by finding the difference between the quantities produced by item and the quantities exported, and applying the average export prices. Data on the change in stocks in other sectors of the economy are not available.

#### Gross fixed capital formation

The method used to estimate this item is the commodity-flow approach. The starting point is local production of capital goods, to which are added imports of all capital goods less exports of similar goods. Because these flows are measured at the point of production and customs, adjustments are needed to obtain the full value of work put in place. The adjustments made cover transportation costs, trade mark-ups, duties paid, installation expenses and legal and other direct costs of acquisition.

For machinery and equipment, the estimates are based on foreign trade statistics. In Liberia practically all machinery and equipment are imported, and these components are therefore prepared by obtaining the mark-up value. For construction the estimates are prepared by analysing imports and local production of construction materials.

Land improvement and plantation or orchard development are also considered as part of capital formation. Since substantial development of plantations is carried out by the major rubber plantation companies, estimates of this component are prepared on the basis of the information supplied through the national accounts questionnaires.

Machinery and equipment parts are partly included in capital formation (50 per cent of all major parts), because they represent permanent improvement and a significant extension of the life of the machinery. Much of the importing of machinery and equipment is done by the concessions or other entities that invest in them directly. These imports are not subject to a trade mark-up, whereas the remainder are subject to a 20 per cent mark-up obtained by analysing national accounts questionnaires.

Apart from timber, cement, tiles, nails and blocks, most materials used in construction are imported. The value of imported construction materials, including import duties, is obtained on the basis of a detailed analysis of import statistics. Other local production statistics are available from the survey of establishments, while timber data are furnished by the Ministry of Agriculture. These statistics are adjusted for trade and transport margins, etc., estimated by analysing data obtained through the national accounts questionnaires. The value of construction put in place is taken to be the contribution of the construction sector to capital formation.

## Exports and imports of goods and services

The main sources on which these estimates are based are the foreign trade statistics. Figures on exports and imports are supplemented by estimates for non-factor services.

#### Cost structure of the gross domestic product

#### Compensation of employees

This item is estimated from income-tax files, replies to the national accounts questionnaires and various annual reports.

### Operating surplus

Operating surplus is also obtained from income-tax files, replies to the questionnaires and from annual reports and financial accounts. A number of adjustments are needed, however, to make this item conform to the concept of the SNA.

### Consumption of fixed capital

The figures are obtained from income tax files, replies to the national accounts questionnaires and from annual reports and financial accounts.

#### Indirect taxes and subsidies

The estimates are based on income-tax returns for the main activities, and cross-checked with figures from the publication Government Accounts of Liberia.

## Constant prices

## Gross domestic product by kind of economic activity

## Agriculture, hunting, forestry and fishing

The value added of agriculture, forestry and fishing is extrapolated by using a volume index based on production figures.

## Mining and quarrying

Value added is extrapolated by a specially constructed index of iron-ore production, and by using the volume of diamond production.

#### Manufacturing

Value added is generally deflated by price indexes. In the case of chemicals, however, value added is extrapolated by means of the quantity index of production.

## Electricity, gas and water

Value added is extrapolated by indexes of the production volume for electricity and water.

#### Construction

Value added is deflated by the price index of imports of construction materials.

## Wholesale and retail trade, restaurants and hotels

Value added is deflated by a price index made up of the components of imports and manufacturing.

#### Transport, storage and communication

Value added is extrapolated by a weighted volume index.

## Financing, insurance, real estate and business services

Value added for banks and insurance is extrapolated by an index of employment and for real estate by a population growth indicator.

## Community, social and personal services

For producers of government services, the base-year estimates are extrapolated by an employment index. For private services, value added at constant prices has been obtained by using a population index.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

This item includes compensation of employees, allowances to expatriates, and purchases of goods and services. The constant-price series is estimated by using employment data to extrapolate the base-year figures.

## Private final consumption expenditure

The current values are deflated by a specially constructed import price index.

## Increase in stocks

The base-year value for stocks of iron-ore is extrapolated by using a volume indicator.

## Gross fixed capital formation

This item is deflated by price indexes specially calculated for this purpose.

#### Exports and imports of goods and services

These items are deflated by suitable price indexes of exports and imports.

#### LIBYAN ARAB JAMAHIRIYA

The presentation that follows is mainly based on information contained in the publication <u>National Accounts Statistics of the Libyan Arab Republic, Sources</u> and <u>Methods</u>. <u>1</u>/ Supplementary information was received from the Secretariat of Planning through the resident representative of the United Nations Development Programme at Tripoli in January 1978.

## Introduction

## History

Work on compiling the national accounts of the Libyan Arab Jamahiriya started in mid-1967, when a United Nations expert was assigned to the National Accounts Section of the Ministry of Planning in Tripoli. Provisional estimates were reached in October 1967 for use in formulating the Second Five-Year Development Plan, 1968-1972.

A series of yearly publications was initiated in 1969, the first one being <u>Preliminary National Accounts</u> of Libya, 1962 to 1967. 2/

The first estimates according to the present SNA were published in 1974 by the Ministry of Planning in <u>National Accounts of Libya</u>, 1971-1973. The latest publication concerning the implementation of the present SNA is <u>National Accounts</u> of the Libyan Arab Jamahiriya, 1971-1976.

## Approaches used

#### Gross domestic product

As a general rule the production approach is used to estimate the gross domestic product.

#### Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of the most important industries, such as agriculture, forestry and fishing, mining and quarrying, and manufacturing. It is also used for electricity, gas and water, banking, insurance and ownership of dwellings. The income approach is used for transport, storage and communication, public administration and defence, educational services, health services and other services. The expenditure approach

2/ Preliminary National Accounts of Libya, 1962 to 1967 (Tripoli, Ministry of Planning, 1969).

<sup>1/</sup> National Accounts Statistics of the Libyan Arab Republic, Sources and Methods (Tripoli, Ministry of Planning, 1972).

is primarily used for the construction sector, while value added for the trade sector is based upon the use of the commodity-flow approach.

### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure and exports and imports of goods and services. The expenditure approach is also used for gross fixed capital formation, supported by the commodity-flow approach in the case of machinery and equipment. A mixture of approaches is used for the estimation of increase in stocks. For private final consumption expenditure, the commodity-flow approach has been used for the estimation of expenditure on goods, other approaches for the estimation of expenditure on services.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

## Gross domestic product by kind of economic activity

Reports of the Ministry of Agriculture Annual survey of the petroleum-mining industry Annual survey of large manufacturing establishments Annual accounting data of the General Electricity Corporation Government budgets and statements International Labour Organisation employment study, 1968 Annual reports and accounts for transport enterprises

## Cost structure of the gross domestic product

Government accounts

Annual survey of the petroleum-mining industry

## Expenditure on the gross domestic product

Government budgets and statements External trade statistics Balance-of-payments data

## Methods and sources of estimation

Current prices

## Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is now prepared at market prices, i.e., producers' values.

## Agriculture, hunting, forestry and fishing

Practically all data required for the estimation of the agriculture sector are supplied by the Ministry of Agriculture (Agriculture Statistics Division). The production figures include total agricultural production, regardless of whether sold in the market or consumed by the producer's household. The present method of collecting agricultural statistics is based on reports made by the local authorities of the Ministry of Agriculture. Figures from the agricultural census held in 1974 are used to correct the data derived from the reporting system for the country as a whole. Values of the following inputs are estimated annually: seeds, fertilizers, chemicals, fuel and lubricants, electricity, feeding stuffs and miscellaneous expenses. Most of the information on quantities and values are obtained from the Ministry of Agriculture, but adjustments and supplements have to be made.

The current statistics on forestry and fishing outputs, prices and value added were developed after the establishment of the Ministry of Food and Marine Wealth. Bench-mark data for forestry are obtained from the agricultural census, 1960, and it has been assumed that, as private disposable income increased throughout the period, the use of firewood must have decreased.

The domestic production of fishery products has been obtained as a balance between the estimated total domestic consumption of fishery products and the imported quantity of such products as shown in the external trade statistics. Changes in stocks of these products have not been considered.

## Mining and quarrying

Gross value added of the petroleum-mining sector now accounts for more than two thirds of the gross domestic product. This activity is carried out primarily by petroleum-mining concession-holding units (companies) and secondarily by non-concession-holding units engaged in prospecting and drilling activities on a contract basis.

The gross output of the concession-holding units is made up of the value of exports, the value of domestic sales, the value of changes in stocks, the cost of surveys and explorations treated as capital formation and the value of work done for others and other miscellaneous income receipts. The value of exports is that reported by companies exporting crude petroleum and is based on f.o.b. values. For the compilation of national accounts, the <u>Economic Bulletin</u> prepared by the Research Division of the Central Bank of Libya is used, the value of domestic sales is the value of crude petroleum consumed by the local refinery as reported in the annual survey of the petroleum mining industry, which also reports on changes in stocks, the cost of surveys, exploration, research etc. The value of work done for others includes total receipts from pipeline service and total receipts from drilling and other services undertaken for others.

The total value of current inputs consists of the cost of materials consumed and the value of services purchased, and these data are readily available from the annual survey of the petroleum-mining industry.

In 1970 the Statistical Department initiated a survey on the activities of the non-concession-holding units on an annual basis, and the results are published as a supplement to the main report of the annual survey of the petroleum-mining industry.

Other mining and quarrying consists mainly of stone quarrying, but no current information on this activity is available. A bench-mark estimate is prepared by using the employment figure from the 1964 population census and an estimated average annual income per person employed. This bench-mark figure is extrapolated in accordance with an assumed growth rate of 8-10 per cent per year.

## Manufacturing

The basic source of information is the annual survey conducted by the Statistical Department each year since 1965, published under the title <u>Report</u> of the Annual Survey of Large Manufacturing Establishments, In 1965 there was a complete industrial census covering mining, manufacturing, construction and electricity and gas, with estimates available separately for large and small manufacturing establishments. For large establishments employing five or more persons, a complete enumeration was adopted for all sectors; in the case of small establishments, only a sample was selected for survey.

Since 1966 the annual survey of large manufacturing establishments has been restricted to establishments employing 20 or more persons. The data derived from the annual surveys have been adjusted to exclude trade activity taking place within the manufacturing sector, and estimates have been worked out for gross output and value added contributed by establishments employing less than 20 persons (tentatively put at about 30 per cent of total manufacturing gross output).

The statistics on manufacturing are more elaborate and have been improved thanks to the co-operation of the Ministry of Industry and Mining, the Public Organization for Industry, the Industrial Research Centre, the Statistics Department and Industrial Section of the Ministry of Planning.

#### Electricity, gas and water

The National Accounts Section now obtains fairly accurate annual accounting data on the transactions of the two branches of the General Electricity Corporation, at Tripoli and Benghazi. A preliminary production and income account based on national accounting data has been compiled. A separate activity for water supply is estimated, on the basis of information obtained from 44 municipalities.

#### Construction

No census or survey has ever been conducted covering all establishments engaged in the construction sector. The only quantitative information available before 1968 was derived from a construction survey that formed part of the 1964 industrial census. Although the Statistical Department has conducted annual surveys from 1968 onwards, it has not been possible to obtain satisfactory comprehensive figures for the total value of output and value added on the basis of the production or income approach. The expenditure approach has therefore been used to estimate value added, as a percentage of the total expenditure on construction by all sectors of the economy. The main sources are thus the central government development and ordinary budgets, statements by municipalities on actual expenditure and the actual development expenditure of social security for general government, the annual surveys of the petroleum-mining industry and the annual surveys of large manufacturing establishments, while assumptions have been made for other sectors. The value of repairs and maintenance is in most sectors assumed to be 20 per cent of the total expenditure on construction investment by the sectors concerned. The estimated total expenditure on construction is accepted as being the total value of gross output by the construction sector. Value added has been calculated as a percentage of gross output, separately for general government, private sector, petroleum-mining and repairs and maintenance works, varying from 45 to 60 per cent.

## Wholesale and retail trade, restaurants and hotels

There are no comprehensive statistics that could be used for a direct compilation of value added originating in trade. The estimation is instead based on an indirect method, according to which the income accruing to the trade sector is estimated as a percentage of the value of goods transacted during the year.

The estimation of trade income from imports is based on the calculation of weighted average percentages for each of seven categories of imports, derived on the basis of estimated trade margins for each main commodity group within the import categories. The estimation of trade income from exports is based on an assumed percentage of total value of exports, excluding crude petroleum and natural liquefied gas. The method used for the estimation of trade income from domestic manufactures is first to estimate total value of domestic manufactures passing through trade channels and then to apply a weighted average percentage mark-up. A similar approach is used to estimate trade income from domestic primary production. From total gross margins a 12 per cent allowance is made for input costs.

Value added of restaurants and hotels is estimated on the basis of employment data, extrapolated from an International Labour Organisation study in 1968 on employment requirements in services, and a bench-mark estimate of average gross income per person in 1964, which has been extrapolated according to general observations about the trend of actual earnings per person engaged in services activities.

## Transport, storage and communication

For mechanized road transport, the estimation of value added is based on the number of vehicles in operation and the estimated value added per vehicle. The number of lorries, buses and taxi-cabs in operation is supplied by the Ministry of Communication (Road Department), and the estimated value added per vehicle has been made by the Statistical Department, mostly based on the findings of a special study on the trade structure in 1965. The extrapolation indexes are based on general observations. A slight decreasing trend is assumed on the number of animal carts ascertained from the 1964 population census. The required data for air transport are obtained from the reports and accounts of Libyan Arab Airlines. The required data for communication are obtained from analytical accounts referring to the annual actual expenditure of the Ministry of Communication. For both air transport and communication, the initial data refer to fiscal years ending on 31 March, but have been converted into calendar years. The services of light houses, ports etc. are included in the government sector.

## Financing, insurance, real estate and business services

Most of the data on banking are supplied by the banks themselves, through the Economic Research Division of the Central Bank of Libya. Rough estimates are made for banks which do not report, and a service charge is also imputed. Data on insurance are supplied by the Central Bank.

The method used to measure the income accrued from ownership of dwellings is based on the estimation of the number of dwelling units each year and on the application of an average annual rent per unit. Bench-mark numbers of seven different types of dwelling are obtained from the report of the 1964 population census. The statistics on the number of residential units completed each year cover Tripoli only, and other sources have to be taken into account for supplements. The average gross rent has been estimated by the Statistical Department for 1964 and adjusted each year by the change in the nation-wide rent index constructed for national accounting purposes. Finally, 5 per cent is subtracted from the estimated total gross rent to cover maintenance costs.

For business services the estimation of value added is based on employment data and estimated average annual gross income per person.

#### Community, social and personal services

For central government, the required data are derived from a standard classification of the analytical data on actual revenue and expenditure of central government. The basic sources are the annual reports on government accounts by the Head of the <u>Diwan</u> of Audit. For local authorities, the sources of information are the statements of revenue and expenditure of each municipality for each fiscal year. For the social security fund, the required data are supplied by the National Social Insurance Institution.

Value added originating from educational services is measured by total wages and salaries paid for educational services and estimated rent on the required buildings. With respect to the public sector, the statistical sources are the central government accounts for wages and salaries as well as other labour costs; value added generated by educational institutions supported by the Government is estimated separately. Educational income derived from the private sector is quite low in Libya and has been estimated on the basis of the estimated number of persons employed each year and the average annual earnings per person.

Gross income derived from health services is measured by wages and salaries paid by the public sector to doctors and other persons providing health services, plus income generated by health services provided by the private sector. For the public sector the sources are the Ministry of Health, the municipalities and the National Social Insurance Institution. For the private sector an estimate is made of the earnings of doctors engaged in private practice, including the earnings of government doctors from their private practices.

For other services the only realistic approach is to estimate the number of persons employed each year and to apply an average annual gross income per person. The employment figures are estimated from an International Labour Organisation study, classified by main categories of activity, and average annual gross income per person employed in each category is calculated approximately. The numerical information required for an assessment of the incomes in question is inadequate, so the procedure has to be based on existing official data, certain scatter information and assumptions about the level and trends of average annual salaries paid by the Government or earned in the private sector for services of a similar nature.

## Expenditure on the gross domestic product

## Government final consumption expenditure

The statistical sources for estimating the consumption expenditure of the central government are the annual analytical data on actual revenue and expenditure supplied by the Ministry of Finance, for local authorities the annual statements of actual revenue and expenditure of each municipality, and for the social security fund appropriate data supplied by the National Social Insurance Institution.

The classification by purpose suggested in the present SNA is followed as closely as possible. The classifications, both by purpose and by kind of expenditure, are made by characterizing the purpose and kind of each expenditure item presented in the analytical statements of the Ministry of Finance. In some cases, the budgetary data do not allow compensation of employees and purchases of goods and services to be estimated separately, and rough proportions only are shown. Some subitems of central government actual revenue are treated as sales of goods and services to enterprises and households and deducted from the purchases of goods and services.

#### Private final consumption expenditure

The commodity-flow method is used to estimate expenditure on consumer goods, and other approaches are used for the estimation of expenditure on services. The commodity-flow method is used because of the availability of external trade statistics by commodity and fairly good data on locally produced consumer goods, as well as on import duties by commodity, trade margins, average retail prices and other helpful information.

The value of income in kind, such as own-consumption of food and fuel and imputed rent of owner-occupied dwellings, is included in final consumption expenditure at an amount equivalent to the cost of such goods and the actual average rent prices. Medical care and health expenses paid by households are also included, while all government payments for such services are treated as government current expenditure. Education represents a similar case, only expenditure of private schools is included in private consumption expenditure. The different types of services are estimated on the basis of various kinds of indicators.

Expenditure by residents abroad and expenditure in the country by non-residents are estimated by the Central Bank of Libya for balance-of-payments purposes.

### Increase in stocks

Changes in livestock are estimated on the basis of data supplied by the Statistical Office of the Ministry of Agriculture. The value of change in stocks of crude oil has been estimated according to the respective data included in annual survey of the petroleum-mining industry, providing book value of stock rather than current value of physical changes. The value of change in stocks held by all other sectors is roughly estimated as a percentage (0.4-1.5 per cent) of gross domestic product excluding petroleum-mining, banking and insurance.

#### Gross fixed capital formation

The expenditure approach is used for the petroleum sector, and the annual survey of the petroleum-mining industry provides information on the distribution of value of new fixed capital items and the cost of surveying, exploration research etc. which could be treated as capital expenditure.

The expenditure approach has proved useful in measuring the value of capital formation in construction of all kinds, as well as in some other items of minor importance, and use the commodity-flow approach in measuring the value of capital formation in machinery and equipment. For general government capital expenditure, the most important source is the data on actual expenditure in the central government development budgets, together with the analytical data at the project level available in the files of the Ministry of Planning.

The analytical external trade data constitute a satisfactory starting point for the application of the commodity-flow method, but a number of adjustments are made in order to reach the final value paid by the users of capital goods; for machinery and equipment, duties paid and other costs are added to and the value of re-export is deducted from the c.i.f. value of imports.

#### Exports and imports of goods and services

The data used to estimate exports and imports of goods and services are supplied by the Central Bank of Libya, which is responsible for the preparation of the annual balance-of-payments statements. The breakdown and other information included in the explanatory notes of these statements are quite helpful in arranging the figures. Only a few estimates have to be made in connexion with certain items.

## Cost-structure of the gross domestic product

## Domestic factor incomes

Separate estimates are prepared for compensation of employees and for operating surplus, but no information is available on the methods of estimation used.

## Consumption of fixed capital

Different methods of estimation are used for the petroleum-mining sector and for all the other sectors of economic activity. It has been found reasonable to use numerical information from the annual survey of the petroleum-mining industry, but the figures supplied by the oil companies have been adjusted and supplemented for national accounting purposes. With respect to sectors other than petroleummining, the measurement of depreciation could not be satisfactorily related either to accounting data or to measurement of the growth of capital stock. The figures are therefore estimated not on the basis of statistical sources but by deducting a percentage of the gross domestic product according to international experience and judgement regarding the prevailing situation in the Libyan economy.

#### Indirect taxes and subsidies

Separate estimates are made for indirect taxes and subsidies, estimated on the basis of the existing analysis of the annual accounts of the central government and local authorities. The main components of the estimated value of indirect taxes are customs and excise, entertainment taxes, tobacco and salt monopolies, stamp duties and registration fees (business), public transport concession fees and work permits derived from central government accounts, and market tax, customs surtax, slaughter charges, industry and trade licence fees, precious metal stamping fees, entertainment tax, tax on industry, crafts and free occupation derived from the local authorities' accounts. Subsidies are estimated on the basis of whatever details are presented in both the ordinary and the development budgets.

#### Constant prices

## Gross domestic product by kind of economic activity

## Agriculture, hunting, forestry and fishing

Double deflation is used; the quantity of practically all output and input items of each year have been valued at average 1963-1965 prices.

#### Mining and quarrying

Value added is extrapolated by the quantity index of output in the case of crude oil production; for other activities in the petroleum sector the current value is deflated by a price index roughly reflecting changes in the cost of its main goods and services, and for other mining and quarrying activities it is extrapolated by an assumed annual rate of growth in real terms.

#### Manufacturing

Value added is deflated by a price index of domestic manufacturing goods.

#### Electricity, gas and water

Value added is extrapolated by the quantity index of output, using the index of power production.

#### Construction

Value added is extrapolated by the quantity index of output.

## Wholesale and retail trade, restaurants and hotels

Value added is deflated by the nation-wide cost-of-living index. This applies to both the trade sector and restaurants and hotels.

### Transport, storage and communication

For lorries, taxi-cabs, buses and carts, value added is extrapolated by the quantity indicator of the number of vehicles in operation, slightly adjusted for estimated changes in the real activity of the vehicles under consideration. For air transport and communication the current estimates are deflated by an estimated nation-wide cost-of-living index.

#### Financing, insurance, real estate and business services

Value added is deflated by the cost-of-living index for Tripoli, except in the case of ownership of dwellings, for which value added is extrapolated by the estimated mid-year stock of dwelling units by type of dwelling.

## Community, social and personal services

Value added is deflated by the cost-of-living index for Tripoli. This applies both to private and public services.

## Expenditure on the gross domestic product

## Government final consumption expenditure

For compensation of employees, current values are deflated by the cost-ofliving index for Tripoli, deflated by the same cost-of-living index for purchases of goods and services of domestic origin, while purchases of imported goods are deflated by the price index of imported consumer goods.

## Private final consumption expenditure

For items determined as a residual, the current values are deflated by the nation-wide cost-of-living index, while the procedure applied for the other items is much more analytical: for food, beverages and tobacco they are extrapolated by quantity indicators, for personal transport equipment they are extrapolated by the number of passenger cars etc., and for other items they are to a large extent deflated by the cost-of-living index for Tripoli.

#### Increase in stocks

For changes in animal stock, base-year values are extrapolated by changes in the number of each kind of animal. For crude oil, no revaluation of the value of changes of stocks was deemed necessary before 1969; later the price per barrel for 1964 was used. The value of changes in stocks held by all other sectors is deflated by the nation-wide cost-of-living index.

## Gross fixed capital formation

For residential houses and other buildings, current values are deflated by an approximate index, which would reflect changes in the average cost of some standard building units; for other construction they are deflated by very rough price indicators, as information is extremely limited; for machinery and equipment they are deflated by the unit value index referring to capital goods imported, while a rough price index is used to deflate the cost of other development expenditure.

### Exports and imports of goods and services

Current values of exports and imports are deflated by the unit value index of exports and imports respectively.

## MALAWI

The presentation that follows is mainly based on detailed explanatory notes in <u>National Accounts Report 1964-1971</u> published in 1974 by the National Statistical Office. Other sources used are the May 1974 report by the United Nations. Secretariat on country practices in national accounting at constant prices (E/CN.3/464) and supplementary information received from the National Statistical Office in July 1978.

## Introduction

## History

The first national accounts figures were calculated for 1938 and published in 1948 by the Cambridge University Press in <u>The Measurement of Colonial National</u> Incomes: an Experiment.

From 1954, during the Federal period, a set of conventional national accounts was prepared by the Central Statistical Office at Salisbury, and published 10 years later in <u>National Accounts and Balance of Payments of Northern Rhodesia</u>, <u>Nyasaland and Southern Rhodesia</u>, 1954-1963.

Following independence in 1964 the task of preparing national accounts for Malawi fell to the newly established National Statistical Office at Zomba.

The National Accounts Report, 1964-1967 was published by the National Statistical Office in 1968 as the first in a series of annual national accounts publications.

#### Approaches used

#### Gross domestic product

As a rule the production approach is used to estimate the gross domestic product.

#### Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of most industries. Although expenditure and income tables are also prepared, these are derived from the product table and cannot be used as cross-checks.

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, increase in stocks, investment in building and construction, and exports and imports of goods and services. The commodity-flow approach is used to estimate the gross capital formation of transport equipment, plant and machinery, whereas private final consumption expenditure is estimated as a residual.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

## Gross domestic product by kind of economic activity

Annual reports of the Agricultural Development and Marketing Corporation National sample survey of agriculture, 1968/69 Annual surveys of economic activities for larger enterprises Sample agricultural surveys Quarterly building inquiries Quarterly employment and earnings inquiries Public sector financial statistics The Accountant-General's annual reports

## Cost structure of the gross domestic product

Government accounts Quarterly employment and earnings inquiries

## Expenditure on the gross domestic product

Public sector financial statistics Annual surveys of economic activities for larger enterprises Annual reports of the Agricultural Development and Marketing Corporation Quarterly building inquiries Balance-of-payments reports

## Methods and sources of estimation

Current prices

#### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

## Agriculture, hunting, forestry and fishing

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The most important sources used to estimate agricultural output are the annual reports of the Agricultural Development and Marketing Corporation and reports on the various agricultural surveys undertaken by the National Statistical Office. The former source is used to estimate net income to farmers from sales of crops to the corporation. In arriving at net income, the expenditure on cotton spraying and 50 per cent of the expenditure on fertilizers, seeds and hand tools have been deducted from total farm receipts. Net income to farmers from

sales of crops to produce dealers other than the corporation is estimated from the external trade statistics. The main crops sold to produce dealers are cassava. sunflower seeds, ginger and rice. Net income is calculated as 50 per cent of the free-on-rail export value of these crops. The figures for net income from burley tobacco (sales of green leaf) are based on the annual economic surveys of the National Statistical Office. Net income to farmers from sales of crops in local village and urban markets is calculated from estimates of the annual consumption of main food crops by the African population. Data from agricultural and urban nousehold surveys have been used to determine the amounts of food purchased by the African population in estates and urban areas, and the relatively few Africans who live in rural areas but do not farm. The estimated amounts purchased by these groups have been valued at retail prices, including an element of trading income. Crops grown by smallholders for their own consumption are valued at producers' prices, obtained by deducting traders' margins from the retail prices collected in a number of centres throughout the country. Where no retail price is available, the corporation purchase price is used.

For livestock production, the estimated sales value to producers of cattle sold for slaughter is based on the annual reports of the Veterinary Department. The estimates in these reports are based on live-weight purchases by butchers and and the Cold Storage Commission. Other livestock production includes the estimated retail value of sales of pork, lamb, poultry and goat meat. "Take-off" rates, estimated by the Veterinary Department, are applied to the numbers of goats, sheep and pigs shown in the annual reports of the Veterinary Department. For chickens, the total numbers have been estimated from the 1968/69 national sample survey of agriculture. The same sources are used as the basis for the estimation of quantities consumed on the farms. Increase in herds is estimated from the annual livestock censuses of the Veterinary Department and the national sample survey of agriculture.

For the larger agricultural enterprises, the statistical source used is the annual economic survey of the National Statistical Office. The principal crops here are tea (leaf production) and tobacco, the latter covering both the growing and pre-auction processing of flue-cured and burley tobaccos.

For agricultural services etc., the financial statistics for the public sector are used to estimate the wage bill of the Veterinary Department and the Forestry Department employees engaged in forestry development and conservation.

For forestry, the National Statistical Office makes estimates of the retail value of firewood sales to the non-rural population, less the estimated cost of axes and hatchets. Non-marketed firewood is estimated on assumptions about quantities of wood consumed per household. Hunting is not covered in the estimates.

For fishing the landed value of the total fish catch, plus value added from the distribution of that part of the total which is sold fresh, is estimated by the Fisheries Department. Own consumption of fish is estimated as 10 per cent of the landed value of the total fish catch.

## Mining and quarrying

The estimates for larger enterprises are based on the annual economic survey (for sand, gravel and crushed stone production). The wage bill of the Geological Survey Department, regarded as a prospecting enterprise, is included.

#### Manufacturing

For larger manufacturing enterprises, the source used to estimate gross output and intermediate consumption is the annual economic survey (annual survey of economic activities - larger enterprises), which covers non-government enterprises employing 20 persons or more. Tea production covers black-tea production and tea packing and grading, whereas tobacco production covers post-auction grading and curing. The gross operating surplus of garages is shown under distribution.

The estimates for grain-milling are based on reported expenditure on grain-milling from agricultural sample surveys. Tailoring estimates are based on information from the Ministry of Trade and Industry on the estimated number of stores and average number of tailors employed per store. The estimates for alcoholic beverages are derived from reported earnings obtained from agricultural sample surveys. Value added of fish-curing includes a distribution margin; it is assumed that 50 per cent of the total catch is cured, and that curing doubles the value of each piece. Other production includes estimates of brick production based on data supplied by the Buildings Department; handicrafts and carpentry are both based on data from agricultural sample surveys and revised with data from the 1968/69 national sample survey of agriculture. Value added for rural households from milling their own grain and cassava is estimated as a residual from total consumption.

Certain government activities (the Government Printer, Forestry Department sawmills etc.) are also estimated on the basis of the annual economic surveys and the Accountant-General's reports.

## Electricity, gas and water

The sources for the estimates are the annual economic surveys and the public sector financial statistics.

#### Construction

For government construction the estimates cover value added of Ministry of Works building and civil engineering departments, and construction work undertaken by the Ministries of Transport and Natural Resources. The sources used are the annual reports of the Ministry of Works and Supplies, and estimates prepared by the National Statistical Office.

For larger private enterprises the sources are the quarterly building inquiries and the annual economic surveys. For other construction, including own-account construction, data from agricultural sample surveys provide an estimate of the total expenditure on building and construction in the rural areas. It has been assumed that the ratio of value added to total receipts for the larger enterprises applies equally to small operators. Rural building activity is estimated from the 1968/69 national sample survey of agriculture and extrapolated in line with the growth of population.

## Wholesale and retail trade, restaurants and hotels

The annual economic survey is the source used to estimate the activity of larger trade enterprises. Otherwise information is obtained from the annual

reviews of small businesses supplied by the Ministry of Trade and Industry, from which estimates are made of the number of stores in the four main towns, trading centres and villages. The wage component of gross output is derived from data on average employment per store and minimum wage rates. Estimates for gross operating profits are made on the assumption that gross operating profits are equal to wage payments for village stores and twice as high as the wage payments for other stores.

From the Accountant-General's annual reports value added is estimated for stores departments in the Ministries of Works and Supplies, Health and Post and Telecommunications.

The annual survey of economic activities is used to estimate the activity of restaurants and hotels.

## Transport, storage and communication

For larger enterprises the annual economic survey is the statistical source used, covering Malawi Railways Limited, the road passenger and freight operation of United Transport (Malawi) Limited, the Malawi Broadcasting Corporation, travel agents, and the administrative services provided by the Malawi African Road Transporters Authority.

For small transport operators and private taxi-cab services the annual reports of the Road Traffic Commissioner give the total number of road haulage vehicles and licensed taxi-cabs. In estimating the value added for small road haulage operators, it is assumed that average value added per vehicle for the larger operators applies equally to the small enterprises. Value added of taxi services is estimated on the assumption that the vehicles are written off over five years, and the return to owner drivers is equal to twice the minimum wage in the Blantyre area.

## Financing, insurance, real estate and business services

Value added of financial institutions is estimated on the basis of the quarterly employment inquiries and various other documents for the Reserve Bank of Malawi and the two commercial banks. Information from the Ministry of Finance is used in the case of the New Building Society and the insurance companies, whereas the Accountant-General's annual reports are used for the Post Office Savings Bank and the various government loan boards.

For rents of dwellings the public sector financial statistics provide data for the activities of the Malawi Housing Corporation, the Accountant-General's annual reports for the "economic" rent of government housing (actual rents paid plus estimated subsidies), whereas reports of the Commissioner for Taxes cover rents of individuals as declared for income tax purposes. Other rents include royalties and plot rents received by the Government and rents from property other than dwelling units (also based on income tax data).

Rental income of the owner-occupiers is imputed in both rural and urban areas. For rural dwellings information is obtained from the 1968/69 national sample survey of agriculture on the average life of dwelling units and construction costs. For dwellings in urban areas the estimates are based on information on rental payments as reported in the 1967 housing income survey. The annual survey of economic activities is also used to estimate value added of business services.

#### Community, social and personal services

Value added of public administration and defence is obtained from the detailed analysis of government accounts in the series <u>Public Sector Financial</u> Statistics, published annually by the Ministry of Finance since 1969.

For private education and health services the estimates are based on the quarterly employment and earnings inquiries. Besides, estimates are made of net earnings from traditional African medicine, based on expenditure data from agricultural sample surveys. Net income is obtained on the assumption that costs amount to 10 per cent of total receipts. Domestic services are estimated on the basis of annual inquiries of domestic servants. For other private services the annual economic surveys and quarterly employment and earnings inquiries are applied to larger enterprises. Otherwise, information is supplied by the Ministry of Trade and Industry regarding the number of canteens and bars, and the average employment per establishment. Value added is then estimated by assuming that minimum rural wages are paid and that gross operating profits per establishment amount to half of the wage bill.

#### Expenditure on the gross domestic product

## Government final consumption expenditure

This item has been arrived at by netting out rent from the total of Malawi Government Revenue Expenditure on Revenue and Development Account Expenditure and final consumption as shown in Public Sector Financial Statsitics.

#### Private final consumption expenditure

Monetary consumption is calculated as a residual. For 1968 an independent estimate obtained from income sample surveys shows a slightly lower figure for private consumption.

### Increase in stocks

Changes in recorded stocks of the monetary sector are taken from the annual economic surveys and the annual reports of the Agricultural Development and Marketing Corporation. No attempt has been made to ensure a common valuation system for stocks, and the figures include an element of stock appreciation. Unrecorded monetary stocks consist of imported consumer goods, for which the estimates are based on partial information from businessmen and the Ministry of Trade and Industry. Estimates for non-monetary stocks (cattle, sheep, goats, pigs and chickens) are estimated from the annual economic surveys, the annual reports of the Veterinary Department, and from the Agricultural Development and Marketing Corporation.

## Gross fixed capital formation

The gross fixed capital formation series relies basically on the commodityflow approach, except for building and construction where data are obtained directly from large enterprises and government as from 1967. For land improvement the statistical sources are the Ministry of Agriculture and Natural Resources and the Tea Association of Malawi, and the estimates cover capital costs involved in forestry operation and the cultivation of tea, cotton, estate tobacco, sugar and rice.

The capital formation estimates of transport equipment, plant and machinery are based on the commodity-flow method. For fixed operating and auxilliary equipment, installation costs are estimated at 25 per cent of the price of deliveries. Otehr equipment, such as tractors, road construction machinery and vehicles are valued at estimated delivered prices; 50 per cent of the value of spare parts at delivered prices is included as capital formation. As regards private cars and bicycles, 15 per cent are assumed to be imported by government and private industry and are treated as capital formation.

#### Exports and imports of goods and services

The table on external transactions is based on the current balance of payments report.

## Cost structure of the gross domestic product

#### Compensation of employees

The annual survey of economic activities is the source used to estimate compensation of employees. Data are reported by establishments to arrive at the final estimate.

#### Operating surplus

The annual survey of economic activities is also used to estimate operating surplus.

#### Consumption of fixed capital

The estimates are based on data from the annual survey of economic activities.

#### Indirect taxes and subsidies

Indirect taxes and subsidies are taken from the financial statistics of the public sector.

#### Constant prices

#### Gross domestic product by kind of economic activity

Gross domestic product by kind of economic activity is not estimated at constant prices.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

Price deflation is used; wages and salaries are deflated by an index of government wage and salary rates, and purchases of goods and services are deflated by the component of other goods in the wholesale price index for government stores.

## Private final consumption expenditure

The current-price estimate of private consumption expenditure is deflated by a weighted average of the retail price indexes for high and low income groups.

## Increase in stocks

Price deflation is used; current-price estimates are deflated by a unit value index for exports.

#### Gross fixed capital formation

Price deflation is used; for building and construction works the current estimates are deflated by unit value index for the input of building materials, for land improvement by minimum wage rates in rural areas, and for transport equipment, machinery and equipment by a unit-value index for imports.

## Exports and imports of goods and services

Exports and imports of goods and services are deflated by unit-value indexes for total exports and total imports.

#### MALAYSIA

The presentation that follows is mainly based on information contained in <u>National Accounts of West Malaysia, 1960-1968</u>, issued by the Department of Statistics in 1972, the United Nations report on country practices in national accounting at constant prices (E/CN.3/464) and a technical paper entitled "Methods of estimating national accounts for Malaysia", prepared by the Department of Statistics in March 1976. Supplementary information was received from the Department of Statistics in June 1978.

# Introduction

## History

The first national income estimates relating to the Federation of Malaya were prepared by F. C. Benham and published in 1951 in the study <u>The National Income of</u> <u>Malaya, 1947-1949</u>, in which he derived estimates of gross and net national product, capital formation and the balance of payments.

The first in a series of reports on the <u>National Accounts of the States of</u> <u>Malaya</u> was published in 1963 by the Department of Statistics at Kuala Lumpur, covering the period 1955-1961 and using an output approach showing inter-industry flows of goods and services.

Work on introducing a detailed commodity approach started in 1970, considerable improvements having been made in the basic statistics.

The first estimates prepared in accordance with the United Nations recommendations in the present SNA were published in 1973 in <u>Peninsular Malaysia</u> <u>National Accounts Report 1960-1971</u>.

The first estimates prepared in accordance with the present SNA with respect to Malaysia as a whole were made in 1977.

## Approaches used

## Gross domestic product

Generally the production approach is used to estimate the gross domestic product.

### Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of all industries, as a consequence of the introduction of a detailed commodity approach in the national accounting for Malaysia. The income approach is used for part of the private services, including domestic services, and also for the estimation of value added of producers of government services.

## Expenditure on the gross domestic product

The expenditure approach (by "commodity flow") is used to estimate government final consumption expenditure, private final consumption expenditure, increase in

stocks, gross fixed capital formation, and exports and imports of goods and services.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

## Gross domestic product by kind of economic activity

Agricultural area and crop-cutting survey Annual censuses of mining and quarrying Annual surveys of manufacturing industries Annual surveys of construction industries Government accounts Reports of public enterprises Household budget surveys Surveys of institutions and professions Census of the wholesale and retail trade Census of selected services trades in the urban areas Annual censuses of rubber estates Census of selected industries Annual censuses of palm oil, tea and coconut estates Balance-of-payments statistics Foreign trade statistics

## Cost structure of the gross domestic product

As above

### Expenditure on the gross domestic product

As above

#### Methods and sources of estimation

#### Current prices

## Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared at market prices, i.e., producers' values.

## Agriculture, hunting, forestry and fishing

The entire agricultural smallholding sector includes such activities as paddy cultivation, the growing of fruits and vegetables etc. The total output of this

industry includes production both for own consumption and for market sale. Information on the production volume of the various agricultural crops (excluding paddy) is largely based on Dr. Sedky's memorandum entitled "An attempt in estimating local production and consumption of food commodities". The estimates therein were originally based on the household budget survey of 1973 and updated with acreage, yield and price data for the various crops. Inputs are patterned after those found in the relevant agricultural economic bulletins issued by the Federal Agricultural Marketing Authority.

For paddy the Ministry of Agriculture's data on production are used. Information on prices received by farmers for their produce is derived from the National Padi Board's approved agents/dealers buying prices, rice mills' purchase prices and retail prices prior to 1972. These alternative sets of data are "verified" against each other and adjustments made to arrive at the farm producers' prices. From 1972 the Department has compiled a producer price index for all goods, both locally produced and imported, and these are used to estimate the preliminary and actual national accounts estimates. Farmers' consumption of their own produce is valued at producers' prices. Information on intermediate consumption is based on input coefficients extracted from the various reports of the economic survey of padi production in West Malaysia published by the Ministry of Agriculture in 1967/68.

Data on the production of palm oil, coconut, copra and tea are obtained from monthly and annual reports submitted by the estates. All factory operations on estates are included in the agriculture sector and not in manufacturing. Copra production by smallholders is calculated as a residual, using demand data from exports and local purchases by oil mills offset by estate production and imports. Intermediate consumption is patterned after adjustments on the results of special annual inquiries (estates only) conducted by the Department. The above comments also apply to the rubber-planting industry.

Statistics on livestock production are obtained from the Department of Veterinary Services. Data on the number of animals slaughtered and prices received by farmers, as well as retail prices for meat, are made available by that Department. The value of milk and egg production is also included here. Data on inputs except for animal feeds are weak, and are based on "partial" reports from the Federal Agricultural Marketing Authority on specific animals, e.g., pigs and poultry.

The total activity within forestry includes logging, production of firewood, charcoal, poles and various other minor forest products, including own-account production/consumption of fuel wood etc. The Department of Forestry supplies quantity data for these items, which are used after appropriate adjustments. In estimating the value of logs produced, the prices reported by sawmill operators in the annual surveys of manufacturing industries are used after adjustments have been made for transportation costs. Intermediate consumption is based on adjusted data derived from the census of loggers, 1972 (Peninsular Malaysia) and the Sarawak logging survey, 1970. Data from these sources are verified against relevant information pertaining to own-concession operations reported by sawmills in the annual surveys of manufacturing industries.

Information on marine fish landings, prices received by fishermen (landed prices) and retail prices is obtained from the Department of Fisheries. Salting, drying and other forms of fish preservation are treated as manufacturing activities

and are therefore excluded from the computation of the production value of fishing. Included in the fishing industry would be such activities as fish rearing in rice fields and other fresh water fish ponds. However, data pertaining to both volume of output and prices are weak, as little effort has been made to obtain information by means of direct surveys or special inquiries.

It is difficult to make direct estimates of the inputs used in each industry owing to the shortage of relevant statistical data. What happens, therefore, is that the direct estimates of inputs are eventually adjusted and reconciled with the total available supply of fertilizers, insecticides etc.

Estimates of agricultural services, hunting etc. are also included in the agriculture sector.

#### Mining and quarrying

For crude petroleum the value of production, inputs used and other related information are obtained directly from the oil companies extracting crude oil in Malaysia. For metal mining the results of the annual censuses of mining are used; these censuses elicit information on the production and inputs used, in terms of quantity and value, as well as of employment and pay-roll.

Production and related input data for stone-quarrying are obtained from the annual survey of stone-quarrying conducted by the Department of Statistics. Production data for other types of quarrying are indirectly derived as the aggregate of demand for quarry commodities emanating mainly from the construction and cement industries.

#### Manufacturing

The estimates of the gross value of production and intermediate consumption are based on the annual surveys of manufacturing industries. For the non-covered industries as well as those non-covered establishments below the employment "cutoff point" in the annual surveys, the results obtained from the censuses of manufacturing industries in 1968 and 1973 have been used as bench-marks. Considerable difficulties are encountered in getting an appropriate measure of the value of certain non-covered activities, because even in the 1973 census their coverage was limited to designated urban areas only.

# Electricity, gas and water

The data relating to electricity generation and water supply are obtained from the detailed accounts of the producers. Electricity generated by establishments in other industries for their own use is excluded from this sector.

#### Construction

The information obtained from the annual surveys of construction industries is supplemented by the results obtained from the analysis of government accounts and public corporations to get an over-all volume of construction activity. Separate estimates are made for rural and urban construction activities that are not within the scope of the construction surveys. These estimates are verified and reconciled against the available supply of construction materials obtained from the survey of manufacturing industries, import statistics, etc.

## Wholesale and retail trade, restaurants and hotels

The value of services rendered by the trade sector is calculated as the gross mark-up. In setting up sectoral accounts for each of the goods-producing industries, mark-ups (including transport costs) are added to the producers' values of the commodities or groups of commodities to obtain the purchasers' values. The total of these additions is treated as deliveries from the "distributive trades" industry to other industries. The mark-ups are calculated from a variety of sources, e.g., census of distributive trades (urban areas), import prices, ex-factory prices as reported by manufacturers and retail prices. Information on intermediate consumption of this industry is obtained from the same sources.

For restaurants and hotels, the estimates are based, after coverage adjustments, on information derived from the census of selected service trades in the urban areas of Peninsular Malaysia in 1971. Many difficulties are encountered in reducing the inputs on the form of gross purchase values into specific input commodities, but this is aided somewhat by informal discussions with a limited number of establishments in the industry.

## Transport, storage and communication

Included in this sector are the activities undertaken by the ports, the Malayan Railway Administration, the Postal and Telecommunications Departments, the Malaysian Airline System and the Malaysian International Shipping Corporation. The activities of the workshops belonging to the ports and the Malayan Railway were excluded from this industry and included in the manufacturing sector. Other land transport comprises commercial transportation by lorries, vans, buses, taxis and trishaws. The estimates of the value of production for road transport are made on the basis of the number of vehicles registered and information from the census of selected industries in 1971, which covered bus transport, taxi transport and road haulage. Estimates for services allied to transport are also based on information from this census.

# Financing, insurance, real estate and business services

Reliable and comprehensive data are supplied by the Central Bank in respect of itself, the commercial banks and the borrowing companies. In computing value added of banks, an amount for services rendered has been imputed equal to the amount of banking charges plus the excess of interest received over interest paid. For insurance companies, the services rendered have been calculated as the excess of premiums received over claims paid.

For ownership of dwellings, the gross value includes the rent actually paid on dwellings as well as imputed rent on owner-occupied dwellings. The preliminary results from the household expenditure survey in 1973 are used as the basis for this calculation.

Business services rendered by professionals in the private sector are valued by means of data collected from the annual census of professions and institutions. The professions included are accountants, architects, engineers, lawyers and surveyors. For those business services for which only partial data are available (e.g., advertising services) or for which no data are available, resort is made to the use of demand information (purchase values) as an approximation to output.

## Community, social and personal services

Information on producers of government services is derived from the analysis of government financial statements. Enterprises at all levels of government are segregated wherever data permit this, and are classified with the main body of industries.

Estimates relating to social and related community services pertaining to educational and medical facilities and services, both in terms of values of services rendered and costs of inputs incurred, are derived on the basis of the annual census of professions and institutions. Estimates for recreational and cultural services are based on the census of selected industries in 1971 as well as from an analysis of their detailed financial statements.

Estimates for personal and household services are derived, after coverage adjustments, on the basis of the census of selected service trades in the urban areas of Peninsular Malaysia (at that time known as West Malaysia) in 1971. The census covered hairdressing and beauty saloons, laundries and laundry services, and photographic studios. The census of manufacturing 1968 has been used for estimating repairs of motor vehicles. For services rendered by domestic servants remuneration, in principle, includes the value of free food and board and lodging provided, and calculations for this industry are based on employment data.

In the Malaysian accounts religious organizations have been the only ones to be classified under producers of private non-profit services to households. Estimates for this sector should be regarded as no more than a rough guess, since no direct inquiry has been made since 1962.

### Expenditure on the gross domestic product

## Government final consumption expenditure

Data on government expenditure are available in the annual accounts of the federal Government, the State governments, the municipalities, the local councils and statutory bodies. For current expenditure purposes, the federal Government accounts are divided into 79 accounting units. Each of the 13 States has its own accounts, current expenditure being specified by departments. The municipalities have a specification of accounting units similar to that used for States, while the local councils provide aggregates for each council. The statutory bodies follow their own classifications, which differ substantially from unit to unit.

The amount of data is large, and a number of the commodity transactions must be broken down into national account commodities by means of keys. The main problems encountered in the reclassification have been to identify the actual content of each item.

For Sabah and Sarawak (formerly East Malaysia), general government consumption expenditure is obtained from a detailed analysis of government transactions undertaken by the Department of Statistics.

### Private final consumption expenditure

The commodity-flow approach is used; estimates of private consumption expenditure have been made by allocating the available supply of consumer goods and ` services from import and local production to consumption accounts for the various component items.

# Increase in stocks

Estimates of changes in stocks are made for grains, livestock, mining, rubber and palm oil/kernel as well as for manufactured finished goods, goods in process and raw materials. Data for such estimates are derived from the annual censuses and the government accounts.

## Gross fixed capital formation

The scope of fixed capital formation employed in Malaysia is not limited to buildings and other structures, machines and equipment, but also covers investment in plantation and smallholders' perennial crops - rubber, palm oil, coconut and tea (the amount sunk into perennial crops before they begin to bear fruit).

For building and construction, the information is obtained from the annual surveys of construction industries, supplemented by the results obtained from the analysis of government accounts and public corporations to get an over-all volume of construction activity. The annual gross fixed capital formation of general government is estimated according to the annual financial reports submitted by each level of government. In general, the data supplied by the central Government and the State governments are more comprehensive and reliable than those provided by the local authorities. Gross fixed capital formation of public corporations is estimated according to their annual financial reports submitted to the national accounts division.

Data for the estimation of building and construction of private enterprises, private non-profit institutions and households are derived exclusively from the annual surveys of construction industries. An arbitrary amount is added for the value of rural construction, for which no data are available.

For Sabah and Sarawak, the level of construction activity undertaken by the public sector is obtained from the economic and functional classification of government transactions that the Department of Statistics undertakes for the whole of Malaysia. In addition, an assumption on the level of construction activity undertaken in the private sector has been made, based on the volume and value of construction materials available.

For the estimation of machinery and equipment, the commodity-flow approach is used, whereby all commodities from import statistics are allocated to end uses. To arrive at the final value of capital formation, mark-ups derived from the 1967 census of distributive trades, transport charges, indirect taxes etc. are added to the c.i.f. values. Data on the domestic production of machinery and equipment are provided by the annual surveys of manufacturing industries.

Data on gross fixed capital formation in machinery and equipment for Sabah and Sarawak are derived mainly from import statistics. The local component (which is low) is derived from the limited annual surveys of manufacturing industries. Data for the estimation of investment in perennial crops are derived from the annual censuses of the respective crops in both Peninsular Malaysia and Sabah and Sarawak.

#### Exports and imports of goods and services

Export and import statistics are classified according to the Brussels Tariff Nomenclature, later translated into the Standard International Trade Classification (SITC). Separate statistics are compiled for Peninsular Malaysia, Sabah and Sarawak. The data are recorded at the time of crossing the customs boundaries. Some of the exports, such as part of the rubber, tin and palm oil, are valued at stipulated prices, which may deviate from the actual prices obtained when sold.

# Cost structure of the gross domestic product

## Compensation of employees

The statistics covering output, input and government accounts also provide data on emoluments of employees. The basis for the estimates of the non-covered establishments, especially in agriculture, forestry and fishing is rather weak, and for Malaysia, only the census of population and the labour force survey give indications of employment by these industries.

## Operating surplus

This item is estimated as the excess of value added by resident producers over the sum of the costs of employee compensation, consumption of fixed capital and net indirect taxes. Since 1969, operating surplus has been estimated as a residual, including consumption of fixed capital.

#### Consumption of fixed capital

In the Malaysian national accounts it has not been possible to estimate the allowances for depreciation. Hence, operating surplus is inclusive of allowances for the consumption of fixed capital. Some rudimentary information is, however, collected on the depreciation allowable for taxation purposes through the various surveys and censuses conducted by the Department, but not reflecting the technical and economic life of the various assets.

#### Indirect taxes and subsidies

Indirect taxes are obtained from the government accounts, specified by a few types of taxes. The allocations according to industries and households are based on information from the production statistics, tax regulations and assumed relationships to known items.

#### Constant prices

# Gross domestic product by kind of economic activity

# Agriculture, hunting, forestry and fishing

Value added is extrapolated by a quantity index for output in agriculture, using acreage series, the index of production, the quantity produced etc. as indicators. For forestry and fishing, value added is extrapolated by a quantum index for output, based on the production of round timber, charcoal and firewood and the quantity of fish landed, respectively.

## Mining and quarrying

Value added is extrapolated by a quantity index for output.

## Manufacturing

Value added is extrapolated by quantity indicators for output; the trend in production, the quantities produced and output indexes of products are used as indicators, but in some industries the current estimates have been retained.

#### Electricity, gas and water

Value added is extrapolated by using the quantity of electricity generated as an indicator.

#### Construction

Estimates of current prices are retained.

#### Wholesale and retail trade, restaurants and hotels

Estimates of current prices are also retained for the trade sector.

## Transport, storage and communication

Value added is extrapolated by quantity indicators of output for the various transport sectors and communication.

## Financing, insurance, real estate and business services

For financial institutions and insurance, a 10 per cent growth rate is assumed, and for ownership of dwellings the estimates of current prices are retained.

## Community, social and personal services

For education and health, trends in the number of pupils and teachers and trends in the number of doctors, nurses and other personnel are used. For the remaining private services and for public administration and defence the currentprice estimates are retained.

## Expenditure on the gross domestic product

The expenditure side of the gross domestic product is not estimated at constant prices.

## MALTA

The presentation that follows is mainly based on information contained in the publication <u>National Accounts of the Maltese Islands, 1966-1975</u>, issued by the Central Office of Statistics in 1976. Supplementary information was received from Central Office of Statistics and Electoral Office at Valetta in March 1978.

## Introduction

## History

The first official estimates of the national income and expenditure were published in 1955 in the report <u>Economic Problems of Malta</u>, prepared jointly by T. Balogh and D. Seers.

In 1959 the Central Office of Statistics published estimates for the first time in the form of a national accounts system, and from that year onwards they have been published annually in the series National Accounts of the Maltese Islands.

#### Approaches used

#### Gross domestic product

The main approach used to estimate the gross domestic product is the income approach.

#### Gross domestic product by kind of economic activity

The income approach is used to estimate the value added of the different kinds of economic activities, except for agriculture and fishing, for which the production approach is used.

# Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure and exports and imports of goods and services. A combination of the expenditure approach and the commodity-flow approach is used for gross fixed capital formation and private final consumption expenditure, whereas the estimate of increase in stocks is obtained as a residual.

## Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

## Gross domestic product by kind of economic activity

Annual censuses of production

Reports of labour inspectors Government returns and accounts

Cost structure of the gross domestic product

Annual censuses of production Reports of labour inspectors Government returns and accounts

Expenditure on the gross domestic product

Government returns and accounts Annual censuses of production External trade statistics

Methods and sources of estimation

Current prices

### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

In the annual publication <u>National Accounts of the Maltese Islands</u> a table is included on gross domestic product by industry and type of income, besides industrial input and output tables. The table on gross domestic product by industry presents estimates separately for wages and salaries, and income from self-employment and other trading income for each of the following industries: agriculture and fishing, construction and quarrying, manufacturing including shipbuilding and repairs, transport and communications, wholesale and retail trade, insurance, banking and real estate, government enterprises, public administration, military services, private services, and property income from domestic sources. The contribution of each industry to the gross domestic product also includes provision for depreciation.

The income approach is used for the estimation, and information thereon is supplied below in the section dealing with the cost structure of the gross domestic product.

## Expenditure on the gross domestic product

#### Government final consumption expenditure

The estimate of government consumption expenditure is based on returns from all government departments. Excluded are current expenditure on national insurance benefits, subsidies and other grants to persons, and expenditure on fixed capital assets and on addition to stocks.

# Private final consumption expenditure

The estimate of private consumption expenditure represents expenditure on consumer goods and services by persons and non-profit-making bodies at market prices. This item has been estimated according to the new United Nations SNA.

## Increase in stocks

This item represents increase in the quantity of stocks and work in progress held by the Government and trading enterprises. The estimate is obtained as a residual, and as such contains the residual error.

#### Gross fixed capital formation

Gross fixed capital formation constitutes expenditure on fixed assets (buildings, plant and machinery, etc.) for the replacement of and addition to existing assets. The estimates are based on an analysis of government expenditure, import data and censuses of production.

## Exports and imports of goods and services

This item constitutes both visible and invisible trade of goods and services by residents of Malta with the rest of the world. The estimates are based on data available from trade returns, banking statistics and estimates of expenditure on services, supplemented by <u>ad hoc</u> inquiries.

#### Cost structure of the gross domestic product

## Compensation of employees

The estimates of income from employment represent cash earnings of wage earners and salaried employees. Employers' contributions to national insurance are included as supplements to wages and salaries. The estimates of employees' incomes in the private sector are taken from reports of labour inspectors after their annual visits to establishments other than those in the manufacturing, quarrying and construction sectors, figures for which are taken from the censuses of production. Government wages and salaries are estimated on the basis of department returns, while the services submit actual figures of their wage and salary bill.

#### Operating surplus

The estimate of income from farming and fishing represents the value of output less production costs in the agricultural and fishing sectors. Professional incomes are estimated from income tax data, whereas manufacturing profits are calculated on the basis of information obtained from the annual censuses of production. The results of <u>ad hoc</u> inquiries are used to assess profits of other activities.

Gross trading profits are arrived at by assessing wholesale and retail profits on the basis of calculated turnovers. Gross trading surplus of government enterprises covers the profits of government boards and corporations. Income from property is estimated on the basis of actual rents received by the Government, to which are added the rents earned by the private sector on the basis of data available through the census of population, housing and employment in 1967, and interests earned from local sources.

#### Consumption of fixed capital

No information is available.

#### Indirect taxes and subsidies

The main categories of indirect taxes are customs and excise duties, entertainment duties, business licences, stamp duties, and motor vehicle, radio and television licences.

Subsidies include incentive grants to farmers, fishing equipment subsidies, price-stabilization payments, fodder subsidy, contribution towards marketing costs of co-operative societies, and loss incurred on water and milk supplies.

### Constant prices

## Gross domestic product by kind of economic activity

Gross domestic product by kind of economic activity is not estimated at constant prices.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

Government consumption expenditure is divided into wages and other goods. The former item is deflated by the retail price index, while the latter is deflated by appropriate indexes.

### Private final consumption expenditure

In estimating private consumption expenditure, extensive use is made of the various subindexes that make up the retail price index.

#### Increase in stocks

No specific information is available.

## Gross fixed capital formation

Construction is deflated by an index based on the index of industrial production. Machinery is deflated by an index based on the price index of imports and machinery and transport equipment.

### Exports and imports of goods and services

Each category of exports and imports of goods and services is deflated by the appropriate index or indexes.

#### MAURITIUS

The presentation that follows is mainly based on the description of sources and methods received from the Central Statistical Office in November 1978.

#### Introduction

### History

The first official national income estimate for Mauritius was published in 1952 by the Central Statistical Office.

The National Income and National Accounts of Mauritius, 1948-1954 was published by the Central Statistical Office in 1956 and data on gross capital formation were made available in a separate publication.

Official estimates are currently published by the Central Statistical Office in the <u>Biennial Digest of Statistics</u>.

## Approaches used

## Gross domestic product

As a rule the production approach is used to estimate the gross domestic product.

## Gross domestic product by kind of economic activity

The production approach is used to the estimate value added of most industries. The income approach is used for some private services and for public administration and defence.

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure and exports and imports of goods and services. The commodity-flow approach is primarily used in the case of private final consumption expenditure, but is supplemented by the expenditure approach for expenditure on services. Both the commodity-flow approach and the expenditure approach are used to estimate gross fixed capital formation.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

## Gross domestic product by kind of economic activity

Annual reports of the Mauritius Chamber of Agriculture
Annual financial statements of the Mauritius Sugar Syndicate
Annual censuses of industrial production
Annual reports of the Central Electricity Board
Annual financial reports of the Government and the municipal and town
councils
Building records of the Ministry of Works
Income-tax statistics
Annual surveys of large service enterprises
Census of population, 1972
Financial statements of the Accountant-General's Department

## Cost-structure of the gross domestic product

Annual censuses of industrial production Annual financial reports of the Government and the municipal and town councils Income-tax statistics

#### Expenditure on the gross domestic product

Financial reports of the Government and municipal and town councils Census of population, 1972 Building records of the Ministry of Works Foreign trade reports Balance-of-payments statements

## Methods and sources of estimation

Current prices

# Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

# Agriculture, hunting, forestry and fishing

Estimates for agriculture, hunting, forestry and fishing are made on an item-by-item basis using special sources such as annual statistical returns, annual surveys and annual reports concerning each individual item. These are supplemented by direct inquiries among producers and distributors. Sugar production is estimated on the basis of annual statistical returns from the manufacturers, annual reports of the Chamber of Agriculture and annual financial statements of the Mauritius Sugar Syndicate.

# Mining and quarrying

The estimates for mining and quarrying refer only to salt production and sand quarries, and are provided directly by the salt producers and construction enterprises.

#### Manufacturing

The estimates for manufacturing are obtained by methods similar to those for agriculture. In the case of sugar and related products, the annual returns furnished by sugar factories and distilleries, the annual reports and statistics of the Chamber of Agriculture and the annual financial statements of the Mauritius Sugar Syndicate are used. In other cases the annual censuses of industrial production for establishments with 10 or more employees, the 1972 census of population and information from producers and retailers are the principal sources used.

## Electricity, gas and water

The estimates are based on information supplied by the Central Electricity Board and Central Water Authority, the annual financial reports of the Government and the municipal and town councils.

#### Construction

Figures for private construction are based on records of building permits issued by the Ministry of Works and the municipal and town councils. Information furnished by the building contractors, the annual financial reports of the Government and the municipal and town councils and information furnished by the Government Architect are used to make corresponding estimates for the public sector.

# Wholesale and retail trade, restaurants and hotels

For large establishments, the estimates are based on information supplied to the Income Tax Office, but extensive use is also made of imports and local production statistics.

For restaurants and hotels, special questionnaires on receipts and expenditure are sent to large enterprises. The total numbers of tourists and guest-nights are also available from the statistics of the Immigration Office.

## Transport, storage and communication

Special questionnaires on receipts and expenditure are sent to all large establishments. For government enterprises, information is readily available from the Accountant-General's records.

## Financing, insurance, real estate and business services

The most important sources are the Central Bank and income-tax returns of commercial banks and the annual reports of the Registrar of Insurance Companies. Special questionnaires are also sent to all insurance companies.

The estimates for ownership of dwellings are based on the 1972 census of population and records of building permits issued by the Ministry of Works and the municipal and town councils.

Business services are included in community, social and personal services.

# Community, social and personal services

For public administration and defence, detailed information is available from treasury records. For private services, extensive use is made of information contained in the population census and special questionnaires are also sent to large enterprises.

## Expenditure on the gross domestic product

## Government final consumption expenditure

General government consumption expenditure is estimated on the basis of the annual financial reports of the Government and the municipal and town councils.

#### Private final consumption expenditure

Private consumption expenditure is estimated primarily by the commodity-flow method. Figures of retained imports of consumer goods from abroad and from dependencies of Mauritius are extracted and reclassified from the foreign trade statistics, valued at market prices and added to the corresponding figures for local production, also valued at market prices. Sources of data include the 1972 census of population, the annual trade reports of the Customs Department, the annual financial reports of the Government and the municipalities and town councils and special surveys of wholesale and retail margins, costs and profits.

Expenditure on services and net private consumption expenditure abroad are estimated on the basis of data from the annual financial reports of the Government, the censuses, records of the Income Tax Office and the annual reports of the Ministry of Education. Though independently assessed, private consumption expenditure can be considered as a residual, since all adjustments are made to this item.

#### Increase in stocks

This item was not estimated until 1975, but annual estimates are now available.

#### Gross fixed capital formation

Information on new building is obtained from the records of building permits issued by the Ministry of Works, from the office records of the municipal and town councils and from the returns of industrial and building companies. The estimates for public works are based on the annual reports and records of the Ministry of Works and the financial accounts of the town councils. Investment in plantations is estimated mainly from the returns of agricultural concerns and from the annual reports of the Chamber of Agriculture and the Tobacco Board.

In estimating gross domestic capital formation in machinery and equipment, the commodity-flow method is used. Statistics of imports are derived from the annual trade reports of the Customs Department and returns from industrial firms and undertakings are used for verification. Charges for transport, trade margins and installation costs are added to the c.i.f. values. Domestic production figures are obtained from the annual returns of manufacturing firms.

# Exports and imports of goods and services

Estimates of exports and imports of goods and services are based on the annual trade reports of the Customs Department, the monthly returns from banks, records of the Post Office, the balance-of-payments statements and other official documents.

# Cost structure of the gross domestic product

#### Compensation of employees

All sugar estates with factories supply detailed figures of payments in cash and in kind. For the remaining section of the sugar industry, figures are worked out from employment records, statutory wage rates and the quantity of canes produced. For large establishments of other sectors, information is available from the questionnaires sent out in connexion with the census of production and income tax returns. Wages and salaries for the public sector are determined from an exhaustive survey of all government departments and ministries, carried out every six months.

#### Operating surplus

For all large establishments, information is available from questionnaires. Use is also made of income-tax statistics for interests and dividends paid. For government enterprises, figures are obtained from production accounts.

## Consumption of fixed capital

This item was included in the operating surplus until 1975. An attempt was made in 1976 to evaluate consumption of fixed capital. Since 1974, all sugar estates with factories provide data on their consumption of fixed capital on a replacement-cost basis. For other capital goods, the estimate is based on expected lifetime.

# Indirect taxes and subsidies

Figures on indirect taxes and subsidies are obtained from government and municipal council records.

## Constant prices

# Gross domestic product by kind of economic activity

Both extrapolation and price deflation methods are used. In cases where production is homogeneous, e.g., sugar production, value added is extrapolated by volume indexes. Otherwise, the current values are deflated by appropriate price indexes.

## Expenditure on the gross domestic product

The expenditure side of the gross domestic product has not been estimated at constant prices since 1966.

#### MEXICO

The presentation that follows is mainly based on information contained in <u>Estadísticas de la Oficina de Cuentas de Producción 1960-1976</u>, published by the Banco de México in 1977, and the United Nations report on country practices in national accounting at constant prices (E/CN.3/464). Supplementary information was received from the Banco de México in May 1978.

### Introduction

## History

The first estimates of national income of Mexico were prepared in 1939 by the Director-General for Statistics, Emilio Alanís Patiño.

When the Department of Economic Studies of the Banco de México was established in 1943, it became responsible for the preparation of national accounts estimates for Mexico.

In 1958 an input-output table for 1950 was published by the Bank in the study Estructura y Proyección de la Economía de Mexico, 1950, 1960, 1965. The Bank also published an input-output table for 1960 in 1965. Current methods of estimation make use of these input-output tables, which were prepared with the assistance of a United Nations national accounts adviser.

In 1969 the first national accounts estimates were prepared by the Bank in accordance with the present SNA in <u>Cuentas Nacionales y Acervos de Capital</u> <u>Consolidadas y por Tipo de Actividad Económica, 1950-1967.</u>

Estadísticas de la Oficina de Cuentas de Producción 1960-1976 was published by the Banco de México in 1977. Official estimates are published annually by the Bank in its Informe Annual.

## Approaches used

#### Gross domestic product

Generally the production approach is used to estimate the gross domestic product.

### Gross domestic product by kind of economic activity

The production approach is used to estimate value added of all industries in direct relation to the input-output table of 1960. The income approach or the expenditure approach is also used for some sectors, such as electricity production, telephone services, financial institutions and public administration and defence.

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, increase in stocks, and exports and imports of goods and services. The estimation of gross fixed capital formation is largely based on the commodityflow approach, whereas private final consumption expenditure is calculated as a residual.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

Gross domestic product by kind of economic activity

Economic censuses Agricultural statistics Industrial censuses Industrial inquiries Records of Petróleos Mexicanos Population censuses Government accounts Records of the Comisión Federal de Electricidad Records of other public enterprises and government agencies

# Cost structure of the gross domestic product

Government accounts Economic censuses Industrial censuses Industrial inquiries Records of public enterprises and government agencies

## Expenditure on the gross domestic product

Government accounts Economic censuses Industrial censuses Industrial inquiries Population censuses Records of public enterprises and government agencies Balance-of-payments data

## Methods and sources of estimation

#### Current prices

# Gross dcmestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared at market prices, i.e., producers' values.

The estimate of gross output, intermediate consumption and value added is made within the framework of 46 economic activities used in the input-output table 1960, from which extrapolations are made by means of respective value indexes. These value indexes are, in general, the product of respective price indexes and volume (quantity) indexes. The use of quantity indexes is briefly outlined below in the section on gross domestic product by kind of economic activity at constant prices. Estimates at current prices are obtained by applying a specially constructed price index to the corresponding estimates at constant prices. The information base for the volume indexes of the different sectors is described in greater detail below.

# Agriculture, hunting, forestry and fishing

The index for agricultural production is based on statistics of gross output of more than 60 commodities, primarily obtained from the Dirección de Economía Agrícola. These data are adjusted to the level of production in the base year according to the census of agriculture, and are also adjusted on the basis of periodical sample surveys of food crops.

The index for livestock production is based on statistics of animals slaughtered for domestic consumption and export, live animals exported and inventory changes. These statistics are furnished by the Secretaría de Agricultura y Ganadería and the Dirección General de Estadística. For input in both crop production and livestock production, the intermediate consumption of 1960 is extrapolated by value indexes for the principal components and principal commodities used.

There are no special calculations made for agricultural services and hunting, which are covered by apparent consumption, etc. Non-marketed agricultural production is included in the input-output table of the base year 1960.

The forestry index is compiled from production data of more than 20 products obtained from the Secretaría de Agricultura y Ganadería, while the input-output coefficients of 1960 are kept constant. Estimates at current prices are obtained by applying a specially constructed price index to the corresponding estimates at constant prices.

The index for the fishing industry is based on statistics supplied by the Dirección General de Pesca on the catch of various kinds of fish. These data relate only to fish caught by Mexican nationals. A fixed input-output ratio at constant prices is used, and the estimates at current prices are obtained by applying a specially constructed price index to the corresponding estimates at constant prices.

## Mining and quarrying

The mining index excludes petroleum extraction and is compiled on the basis of data from the Dirección General de Estadística, the Departamento Técnico de Minería and the Secretaría del Patrimonio Nacional. This index refers both to extraction and refinery operations. The intermediate consumption of 1960 is extrapolated by value indexes for the principal components and commodities used. The sources are direct surveys of establishments or enterprises, special questionnaires designed by the Dirección General de Estadística and surveys conducted by the Banco de México.

An index for the petroleum industry is compiled separately, and covers both extraction and refinery operations. The basic data are in this case furnished by Petróleos Mexicanos. The intermediate consumption of 1960 is extrapolated by value indexes for the principal components and commodities used.

A separate index for basic petrochemical products is compiled on the basis of data from Petróleos Mexicanos. The intermediate consumption of 1960 is extrapolated by value indexes for principal commodities used with final product prices.

## Manufacturing

The index for manufacturing covers 200 products classified in 28 industry classes and 13 industry groups. The individual classes, groups and products are weighted by their value of production. The basic data are obtained from the Dirección General de Estadística, the Secretaría de Agricultura y Ganadería and the Secretaría de Hacienda, and also through inquiries addressed directly to industry associations and manufacturers. Input is extrapolated by value indicators. The unit of observation in manufacturing statistics is the establishment. Smallscale manufacturing is estimated on the basis of a sample survey designed by the Dirección General de Estadística.

#### Electricity, gas and water

The main approach used is the income approach on the basis of data from the Comisión Federal de Electricidad. No estimates are made for water supply.

#### Construction

The index for construction is compiled on the basis of the apparent consumption of a few construction materials (production plus imports less exports of cement, asphalt, etc.). The data are obtained primarily from the Dirección General de Estadística, the Cámara de la Industria del Cemento, Petróleos Mexicanos, industrial inquiries, price indexes, minimum salaries, etc. Fixed input-output coefficients of 1960 are used and estimates at current prices are obtained by applying a specially constructed price index of principal construction materials and minimum wages to the corresponding estimates at constant prices.

## Wholesale and retail trade, restaurants and hotels

The index for wholesale and retail trade is based on estimates of trade margins on locally produced agricultural and manufactured goods and imported goods, taking into account the use of each commodity and the distributive stages involved. The sources used for the estimation of gross margins are the commercial censuses and special surveys. Input is extrapolated by a weighted value index. An index for restaurants and hotels is compiled on the basis of data from tourist numbers and hotel capacity. Prices are obtained from the Indice Nacional de Precios al Consumidor. Fixed input-output coefficients of 1960 are assumed to have remained constant.

## Transport, storage and communication

The index for transport and communications covers all means of transport and postal, telegraph and telephone services. The basic data are furnished by the Secretaría de Comunicaciones y Transportes, the Dirección General de Estadística, telephone companies and government accounts. Input is extrapolated by appropriate quantity indexes in the case of transport and storage, except for motor and ocean transport, for which the input-output coefficients are assumed to remain constant.

## Financing, insurance, real estate and business services

The income approach is used to estimate value added of financial institutions and insurance.

For real estate, output is extrapolated by the value index for housing construction and industrial rents, while the fixed input-output coefficient of the base year is used at constant prices. Estimates at current prices are obtained by applying a specially constructed price index of principal commodities applied to the corresponding estimates at constant prices. The population censuses and household budget surveys are used to impute the rents of owner-occupied dwellings.

Value added of business services is estimated on the basis of the industrial and economic censuses and current statistics of surveys.

### Commodity, social and personal services

The index for public administration and defence is obtained by compiling an index of wages, salaries and other compensation paid to government employees, using data from the agencies concerned.

The index for other services is compiled on the basis of the increases between years of population censuses and economic censuses in the number of persons engaged in these activities. Estimates at current prices are obtained by applying a specially constructed price index of principal commodities used to the corresponding estimates at constant prices.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

The estimates are obtained from the government accounts; the data and ratios of the Oficina de Cuentas Fiscales y Financieras are reclassified to conform to the national accounts definitions. The basic data refer to the federal government, state governments, territories and municipalities, and a number of dentralized organizations, whose incomes are not provided by sales in the market. For the latter, the values of the 1960 input-output table are extrapolated by means of a sample survey referring to federal government, state governments, territories and municipalities, and the Instituto Mexicano del Seguro Social.

## Private final consumption expenditure

Private final consumption expenditure is calculated as a residual.

# Increase in stocks

The estimate is based on stock figures at the beginning and end of the year as shown in the economic censuses of 1960 and 1970, and the results of a preliminary sample of the industrial census, 1975. These bench-mark estimates have been interpolated by means of indicators obtained from sample surveys of foreign investments, annual industrial inquiries and others, supplemented by data provided directly by Pemex and Conasupa. The stock figures are revalued by use of price indexes of a large number of commodities. The resulting differences represent changes in stocks, stock appreciation included.

# Gross fixed capital formation

The estimation of gross fixed capital formation is largely based on the commodity-flow method. This indirect method is used because of the lack of direct information on capital goods expenditure from enterprises and general government. From the input-output table of 1960 the figures are extrapolated by means of constructed value indexes for each of the principal components - buildings and structures, imports of capital goods, domestic production of machinery and equipment, and a miscellaneous item which includes changes in breeding stock, etc. The value indexes are constructed by using special quantity and price indexes, selected and weighted in an appropriate form. This is done separately for domestic production of machinery and equipment, imported capital goods and others.

### Exports and imports of goods and services

Exports and imports of goods and services are estimated from the table of external transactions, based on the balance of payments and which is prepared by the Oficina de Cuenta del Exterior.

#### Cost structure of the gross domestic product

#### Compensation of employees

The estimates are based either on direct current information, or on indicators, ratios, etc. used together with bench-mark information from the input-output table of 1960, the economic census of 1970 and sample data from the industrial census of 1975. The income approach, using current data on wages and salaries, etc., is applied for general government, petroleum and electricity production and financial institutions. Direct information is also partially available for the transport sector (railways, air transport and telephone services). In the case of manufacturing, use is made of ratios of wages and salaries to gross output taken from comparable annual sample surveys, and similar sample surveys are also used for mining and private services. For construction, trade and agriculture, employment indexes are constructed on the basis of data on personal occupation from the population censuses of 1960 and 1970, projected by production indexes and indexes of average wages, and complemented by information on minimum wages.

# Operating surplus

This item is estimated as a residual, as the difference between gross domestic product and the sum of compensation of employees, consumption of fixed capital and net indirect taxes.

### Consumption of fixed capital

The estimates are based on an approximation to the perpetual inventory method. Each year depreciation is estimated as a proportional part of the capital stock valued at replacement cost, the estimate being based on assumptions regarding the economic life of the fixed assets (15 years for machinery and equipment, 50 years for buildings and structures, based on the opinion of technical experts). The price indexes required are derived as implicit price indexes from the estimation of gross fixed capital at 1960 prices. From the requisite statistical elements the depreciation estimates are implemented through a computation programme.

## Indirect taxes and subsidies

Government accounts with the economic classification of revenues of the four government levels are used in the estimation of indirect taxes and subsidies. These data are provided by the Oficina de Cuentas Fiscales y Financieras.

#### Constant prices

#### Gross domestic product by kind of economic activity

#### Agriculture, hunting, forestry and fishing

Double deflation is used for all components. Gross output of crop production according to the input-output table of 1960 is extrapolated by means of a baseweighted production index. For output of livestock production a base-weighted index is used also. Input in both crop production and livestock production in the bench-mark year 1960 is extrapolated by quantity indexes for the principal components and commodities used. Forestry and logging output is extrapolated on the basis of information on quantities produced, while the input-output coefficients of 1960 are kept constant. Fishing output is extrapolated by a quantity index based on marine products, while input-output coefficients of 1960 are kept constant.

### Mining and quarrying

Double deflation is used; output is extrapolated by means of subindexes of output and input by a weighted quantity index.

#### Manufacturing

Double deflation is used; output is mostly extrapolated by specially constructed quantity indexes with 1960 as base year, but in a few cases it is deflated by specially constructed price indexes; input is extrapolated by quantity indicators.

# Electricity, gas and water

Double deflation is used; output is extrapolated by the quantity index of deflated sales of energy, whereas input is deflated by a specially constructed price index.

## Construction

Output is extrapolated by a weighted volume index of estimated consumption of construction materials, while input-output coefficients of 1960 are assumed to have remained constant.

#### Wholesale and retail trade, restaurants and hotels

Double deflation is used; output of the trade sector is extrapolated by means of indicators of the supply of commodities classified according to major destination, input extrapolated by a weighted quantity index; output of restaurants and hotels is extrapolated by the number of tourists, hotel capacity and the number of establishments, whereas input is based on a constant input-output coefficient.

#### Transport, storage and communication

Double deflation is used; output is extrapolated by various volume indicators, input is extrapolated by appropriate quantity indexes in the case of transport and storage, except for motor and ocean transport, for which input-output coefficients are assumed to have remained constant, and input of communication is deflated by a weighted index of the relevant wholesale prices.

# Financing, insurance, real estate and business services

Double deflation is used; output of financial institutions and insurance is extrapolated by an indicator of employment, while input is deflated by a price index of principal intermediate products; otherwise output is extrapolated by a volume index, while the input-output coefficient of the base year is assumed to have remained constant.

#### Community, social and personal services

No single typical approach is used for all components. For recreational services, double deflation is used, extrapolating output by various volume indicators and assuming the input-output coefficients to have remained constant. For other private services, various output indicators are used to extrapolate value added. For producers of government services, see under "Government final consumption expenditure" below.

## Expenditure on the gross domestic product

### Government final consumption expenditure

General government expenditure at current prices is deflated by a specially constructed price index covering wages and salaries and other prices of goods and services.

# Private final consumption expenditure

Private final consumption expenditure is calculated as a residual.

# Increase in stocks

The stock figures, revalued by use of the price index of a large number of commodities, are deflated by the gross domestic product implicit price index.

## Gross fixed capital formation

Gross domestic investment is estimated at constant prices in the first place, then current-price estimates are obtained by applying a specially constructed price index to the estimates at constant prices.

# Exports and imports of goods and services

Exports and imports of goods and services are deflated by specially constructed price indexes.

#### NETHERLANDS

The presentation that follows is mainly based on information prepared by the Statistical Office of the European Communities in 1976 in an annex report entitled "Basic statistics needed for the ESA accounts and tables: present situation and prospects for improvements". Material was also drawn from data compiled by the United Nations Statistical Office in 1971 and the report by the United Nations Secretariat on country practices in national accounting at constant prices (E/CN.3/464). Supplementary information was received from Netherlands Central Bureau of Statistics in May 1978.

#### Introduction

#### History

The first official national income estimates for the Netherlands were published in 1939 by the Central Bureau of Statistics, covering the period from 1921 to 1938 and using both the income and the production approach.

The first complete estimates of national accounts, relating to the years 1938, 1946 and 1947, were published in 1948.

The first estimates of national income by region were published in 1949 for the year 1946, and were followed up by regional accounts and input-output tables for the year 1960 (published in 1968).

The first quarterly figures concerning national income were published in 1950, covering the period 1949-1953.

The first two Netherlands publications on input-output tables were issued in 1960 in the series <u>De Produktie-Structuur van de Nederlandse Volkshuishouding</u>, covering the years 1948-1957.

The first estimates to conform to the present SNA were published in 1970 for the year 1969. Official estimates with descriptions are published annually by the Central Bureau of Statistics in Nationale Rekeningen (National Accounts).

## Approaches used

## Gross domestic product

The main approach used to estimate the gross domestic product is the production approach.

## Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of most industries. This is done within the framework of detailed input-output tables using the commodity-flow approach. As the compilation of input-output tables forms an integral part of the work on the national accounts data, the methods used for the compilation are the same in both respects. The commodity-flow approach is also applied to estimate mark-ups for trade and transport. The income approach is used to estimate value added of producers of government services, business services and most community, social and personal services.

# Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, and exports and imports of goods and services. The commodity-flow approach is particularly important for the estimation of private final consumption expenditure and gross fixed capital formation, although combined with the expenditure approach. The combined use of the commodity-flow approach and the expenditure approach is also applied in the case of increase in stocks.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

Gross domestic product by kind of economic activity

Annual surveys of agricultural production Annual surveys of industrial enterprises Surveys of building sites Annual transport surveys Decennial non-agricultural censuses Annual surveys of financial institutions Income-tax data Government accounts

# Cost structure of the gross domestic product

Annual surveys of industrial enterprises Social security data Government accounts

## Expenditure on the gross domestic product

Government accounts Annual surveys of industrial enterprises Surveys of building sites Turnover statistics for the retail trade Foreign trade statistics

## Current prices

#### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared at market prices, except for the amount of value-added tax for which breakdown by kind of economic activity is not available.

## Agriculture, hunting, forestry and fishing

The main sources for agriculture are product-by-product data obtained from annual surveys of crop production and unpublished reports of semigovernmental marketing agencies. Current values are estimated by means of price statistics collected by the Bureau of Statistics and the Landbouw Economisch Instituut. The same method is also used for livestock production. As regards the structure of production costs, data are mainly provided by farm management surveys; these results are available every year. The consumption of products such as fertilizers and feeds is based on the output of manufacturing industries and imports.

Data on sales of horticulture produce in special markets are available, and are complete for most fruits and vegetables. For trees and flowers the figures are provided by export statistics and estimates by marketing agencies on sales within the country, and inputs are estimated from cost studies by the Landbouw Economisch Instituut. Net increase of livestock is estimated on the basis of frequent samples, which register the stock per category of animal, while the valuation is based on average annual prices per category derived from quotations on representative markets. Meat production is covered almost completely by the registration of slaughterhouses, while the estimates of milk output estimates are based on weekly reports of deliveries to dairies and a monthly sample of farmers on their total output of milk. A similar method is used for poultry, meat and egg production. Hay production is estimated on the basis of annual samples regarding the use of grassland. The valuation of these quantities is based on average annual prices. Own-account consumption is estimated from a monthly sample taken by a professional organization, providing ratios between output, own-account consumption and sales for various products. Figures of agricultural services are consolidated in the agricultural account.

Forestry is relatively unimportant in the Netherlands. Information on this sector is supplied by the government agencies concerned.

For fishing, the statistics include information on the catches landed by Netherlands boats, collected by professional and governmental organizations in this field, and supplemented by data from cost studies for various types of fishing boats. Hunting is not a relevant item.

#### Mining and quarrying

The information base for coal-mining, crude petroleum and natural gas production consists of data supplied by all individual enterprises. Coal-mining activity ceased in 1975. For salt mining, annual surveys are available in the form of production statistics. Figures for other activities (stone quarrying, clay and sand pits, etc.) are mainly estimated on the basis of quarterly figures of quantities.

## Manufacturing

The information base consists mainly of an annual survey in the form of production statistics for all enterprises with more than 10 employees. Bench-mark information is provided by a census of establishments, conducted every 10 years. This census covers all establishments and collects information by kind of economic activity, employment and gross output.

The annual survey covers transactions in the following goods and services: production, turnover broken down by main products, intermediate consumption and purchases broken down by main products and changes in stocks of products bought and sold; value added is derived from these transactions. As regards other transactions, the questionnaire also includes wages, social security contributions, taxes on production and other sources of income which are given on a voluntary basis. Data on the population employed and on wage and salary earners are also included in the survey. The survey gives a breakdown of production and intermediate consumption by main products, and additional questions are included on purchases of goods and services other than raw materials. At the present time, results are available within 15 months, but efforts have been made to reduce the time-lag by increasing automated processing and by analysing a certain proportion of the questionnaires received.

In principle, the unit of information is the establishment; efforts to split activities have, however, been made for the output and inputs of large enterprises.

Information obtained from the annual surveys generally refers to establishments with more than 50 employees. Medium-size establishments with 10-50 employees only provide information on sales and inputs, subdivided into broad groups. An adjustment for the output of small establishments is made on the basis of a ratio taken from the bench-mark census. The assumption is made that no changes in stocks take place in small and medium-size establishments, so that sales equal output in such cases.

Monthly product-by-product data are available on quantity and price indicators. Quarterly data are also available on turnover and wage and salary earners. Other transactions, such as intermediate consumption, value added, etc. are not included here.

# Electricity, gas and water

Here again the information base is the annual survey of enterprises (see under "Manufacturing" for more detailed information).

## Construction

In the private sector, data available from the survey of building sites cover progress achieved on current projects, broken down according to types of buildings or works. Direct data are available on capital expenditure by general government agencies. In addition, there is an annual survey of construction enterprises covering production (turnover), intermediate consumption, value added and employment, but these statistics, which are based on a sample, do not become available until much later, and they are used for purposes of comparison only. Inputs are therefore generally based on outputs of other industries (subcontractors); in addition, statistics on employment are used.

Building construction is covered by quarterly progress reports issued by the municipalities, which provide information on buildings started, completed or in progress with a production value of more than 2,000 guilders. The production value is estimated on the basis of the proportion of work completed; the Central Bureau of Statistics makes an adjustment for any excess over the budgeted cost. The production value of roads, waterworks, etc. is reported by the municipalities, provincial authorities and central government agencies.

The estimation of the production value of large-scale maintenance work is based on the total number of man-years spent on construction, obtained from the institution responsible for putting social security schemes into effect. The production value of small-scale maintenance work is estimated as a residual. Estimation of the production of special trade contractors is based on turnover and employment figures derived from a census of local units. An annual survey in the form of production statistics was due to be initiated in 1977.

## Wholesale and retail trade, restaurants and hotels

Bench-mark surveys are available for wholesale and retail trade relating to a given year. As a result of these surveys a programme of statistical surveys to be carried out at regular intervals is being prepared. In the case of the wholesale and retail trades, annual surveys are already planned on turnover purchases, structure of costs, value added and employment. The type of survey prepared will be similar to that used for the manufacturing industries. In addition, quarterly or monthly data are available on turnover.

The estimation of output in trade (which also includes transport margins) is based on trade margins for the wholesale and retail trades separately. In agriculture, where commodity flows are registered in quantities, the trade margins are estimated as the difference between producers' and purchasers' values per product. In other sectors, where flows are registered in values, percentage trade margins are estimated, partly based on information from trade journals and experts.

The input-structure of both the wholesale and the retail trade is taken from incidental studies for various branches of trade, wholesale trade being the weaker of the two in this respect.

For restaurants, hotels and cafés, a bench-mark census is available, giving data on turnover and purchases. In addition, enterprises are requested to fill in a list of working expenses on a voluntary basis. Monthly sample data on turnover are also used.

## Transport, storage and communication

Annual surveys covering production statistics are carried out for most subsectors of transport. The work programme provides for triennial surveys on each type of transport, so as to obtain more detailed data for this sector every three years. Information on railways and communication is derived directly from the few existing enterprises. Interurban public transportation by bus is covered by statements provided by government agencies.

# Financing, insurance, real estate and business services

The data required for the estimation of value added of credit institutions are collected on the basis of an annual survey of transactions in goods and services and distributive transactions.

In addition to an annual survey of transactions in goods and services and distributive transactions by insurance enterprises, the trading and capital assets accounts of the insurance enterprises are analysed. These accounts are drawn up in accordance with prescribed principles and must be presented each year to the Chamber of Insurance.

With respect to real estate (dwellings only), the value of production corresponds to total rents, including the imputed rents of owner-occupied houses. Cost accounts for houses are published by the Union of House-Owners and also by housing corporations. The census of housing (1956) serves as a basis for the quantity and rent of owner-occupied dwellings. A monthly adaptation is made to allow for additions based on information received from real-estate brokers, withdrawals based on information from local government agencies, and changes in rent based on the price index of (total) house rents.

For business services, the sources used are the same as for other private services mentioned below, i.e., income tax data, social security information, etc..

# Community, social and personal services

Considerable gaps still exist regarding other market services. For some of the subsectors, such as hospitals, broadcasting companies, etc., the information available is fairly detailed. The missing subsectors of private services are dealt with in the following manner: profits are derived from income-tax data, wages and salaries and social security payments from social security information; other costs are added as fixed percentage to profits broken down by subsector, with the help of various types of studies and accountants' reports. The value of production of private non-profit institutions consists only of compensation of employees.

For producers of government services the main sources are the accounts of its agencies. See under "Government final consumption expenditure" below for more detailed information.

### Expenditure on the gross domestic product

## Government final consumption expenditure

The main sources for estimating general government consumption expenditure are the final accounts of the various agencies. Central government information is standardized and fits directly into the national accounts. No special problems arise with respect to social security information. For local authorities, however, some difficulties remain with respect to data analysis, but a systematic method of analysing the accounts is currently being prepared, entailing harmonization of the local government accounts. For recent years, wages paid by local government have been estimated from data on employment and average earnings. Some local government accounts are subject to detailed analysis.

The final accounts of general government agencies present a complete picture of transactions in goods and services and distributive transactions. Furthermore, quarterly data on capital resources are available with a detailed breakdown on types of transaction. The management account data are only available after a considerable time-lag; meanwhile it is possible to use either budget figures (and revised figures) or treasury revenue and expenditure data.

### Private final consumption expenditure

Both the commodity-flow approach and the expenditure approach are used to estimate private consumption expenditure. The former is the main method used to measure "potential consumption", defined as the purchasers' value of the goods and services becoming available for consumption by households (constructed in the form of product balances). From this rather detailed list of goods and services available for consumption, groups are formed that sell through retail or other outlets, for which short-term indicators of sales exist. The information assessed on the basis of retail trade turnovers is not very satisfactory for the purposes of the annual data: the product-by-product breakdown of selling points varies considerably and the new types of shops are only included in the surveys after a certain lapse of time.

## Increase in stocks

For enterprises covered by the production surveys, data are included showing the value of stocks of finished goods and raw materials separately at the beginning and end of the year. After adjustments for price changes, an estimate is made of changes in these stocks. Changes in stocks of the trade sector are derived as a residual on the basis of the commodity-flow method and <u>ad hoc</u> information. Information on changes in quantities of livestock is also available, the quantities being valued at average annual prices.

Stocks and changes in stocks are, in principle, valued at replacement cost, i.e., finished products at average producers' prices and raw materials at average purchasers' prices. In order to come as close as possible to this valuation, the stocks are first expressed in quantities and are valued afterwards.

# Gross fixed capital formation

The commodity-flow method is used to estimate gross fixed capital formation. For the most part it is based on a separate identification of capital goods by their nature. Independent information is only available on gross fixed capital formation by government sector; gross fixed capital formation by enterprises is, therefore, estimated as a residual, which is allocated to the different users (industries) on the basis of their technical nature.

The valuation of capital goods not only implies the inclusion of producers' values of industrial goods and c.i.f. values of imported capital goods, but also includes any trade margins, import duties, cost of transport and packing material, as well as the costs of valuers, brokers and architects. Own construction work is valued at the cost incurred.

In the case of the construction sector, use is made of direct information on investment and government capital expenditure taken directly from government accounts. The commodity-flow estimates can be checked by means of direct annual surveys of enterprises. However, these surveys only cover enterprises employing more than 10 persons in industrial sectors and transport, and are for that reason not used directly for the estimation. For gross fixed capital formation in livestock, see increase in stocks.

#### Exports and imports of goods and services

The data are taken mainly from the same sources as those used for the balance of payments and incidentally from other sources. As regards merchandise, foreign trade statistics constitute the principal source. For services the data taken from the balance of payments are supplemented by results of surveys in the fields of transport, general government, insurance, etc. The c.i.f. adjustment of imports is carried out on the basis of data on the transport of imported products.

#### Cost structure of the gross domestic product

## Compensation of employees

The main source for the compilation of compensation of employees in enterprises by economic activity is the information obtained through the institutions which execute the social security schemes. This information is compared with the results of other sources, e.g., annual surveys in the form of production statistics. As regards general government, use is made of the final accounts of its institutions. A further breakdown, based on the same sources, is available for wages and salaries and social contributions, respectively.

### Operating surplus

This item is in the first place estimated as a residual within the framework of the annual input-output tables. Data on property and entrepreneurial income are only obtained piecemeal (or as net balances) and represent great statistical gaps.

# Consumption of fixed capital

The estimates are made by the Central Bureau of Statistics itself, and are not derived from figures provided by enterprises. They are based on the perpetual inventory method, which in turn is based on a study on national wealth published in 1960, from which the figures have been brought up-to-date annually by estimating investment and making adjustments for changes in prices. The annual depreciation for buildings is 1-1.5 per cent and for equipment, etc., 5-6 per cent; for transport equipment the percentage varies. The same method is followed for all sectors. Purchases of equipment by the Government are considered as consumption of fixed capital in the same year.

### Indirect taxes and subsidies

Information on indirect taxes and subsidies are provided by government agencies. The estimation of taxes linked to production and imports does not present any particular problems. The value-added tax is not imputed to the industries but is directly allocated to final demand. With regard to operating subsidies, certain levies are entered in the accounts as negative operating subsidies.

### Constant prices

#### Gross domestic product by kind of economic activity

### Agriculture, hunting, forestry and fishing

Double deflation is used for agriculture and fishing; current output quantities are valued at average base-year prices where information on quantities is available; otherwise they are deflated by representative price indexes. Some important input categories are obtained by valuing quantities at base-year prices, but part of the input is deflated by a representative price index. For forestry and logging, value added is extrapolated by a quantum index for output.

# Mining and quarrying

Value added is extrapolated by the industrial production index.

### Manufacturing

Value added is extrapolated by the industrial production index, covering the industrial production of all establishments, irrespective of size and including handicraft establishments. The series are based on several kinds of indicators, such as quantum of output, deflated values of output or sales and input quantities of basic materials, and are calculated as annual averages from monthly or quarterly series.

### Electricity, gas and water

Value added is extrapolated by the industrial production index.

### Construction

Value added is extrapolated by quantity indicators for output, obtained by deflating output by a production price index or a specially constructed price index based on estimates of the inputs of vares and raw raterials (for civil engineering and maintenance) and an export price index (for services rendered abroad).

## Wholesale and retail trade, restaurants and hotels

For wholesale trade, value added is extrapolated by quantity indicators of the output of the goods-producing industries, imports and components of expenditure. For retail trade the trade margins are deflated by the consumer price index. Value added of restaurants and hotels is extrapolated by a volume index obtained by deflating components of output by the relevant components of the consumer price index.

### Transport, storage and communication

No single typical approach is used for all components. Value added for land passenger transport is extrapolated by the number of passengers or passengerkilometres, for air transport by ton-kilometres of goods and passenger-kilometres transported, for airports by the number of landings and take-offs, for taxicabs and rented cars by the number of vehicles involved, for pipelines by the number of tons transported, and for other transport by ton-kilometres of goods transported. For communication, value added is extrapolated by quantity indicators of output.

### Financing, insurance, real estate and business services

Value added of financing and insurance is extrapolated by means of the volume index for output, obtained by deflating gross output at current prices by a specially constructed price index from the wage index and general index of wholesale prices. The same general approach is used for real estate and business services, extrapolated by the number of houses and estimated production value deflated by relevant price index, respectively.

### Community, social and personal services

For producers of government services, net value added is extrapolated by means of a value-added index, based on quantity data of factor services (manpower). For depreciation, price deflation is used. For private services, value added is extrapolated by output or related indexes, such as the number of days of treatment, the number of persons engaged and the number of tickets sold. For personal services, etc., estimated output is deflated by relevant price index numbers.

### Expenditure on the gross domestic product

### Government final consumption expenditure

Wages and salaries are extrapolated by employment data. The balance of other goods and services is deflated by price index numbers.

# Private final consumption expenditure

In most cases current value series by detailed expenditure groups are deflated by price indexes based on cost of living series re-weighted by national accounts figures. For gross rent, the number of dwellings is used as a volume indicator.

#### Increase in stocks

Current values are deflated by price index numbers with current weights which refer to goods included in the change in inventories for each year.

#### Gross fixed capital formation

Price deflation is used; for buildings and other construction the current values are deflated by price index numbers of the value of work done, for transport equipment, machinery and equipment, the current values are deflated by index numbers based on wholesale price series re-weighted by means of information from the input-output table.

### Exports and imports of goods and services

Export of merchandise is deflated by unit value index numbers of exports. The export of transport services is based on the current value of these services, deflated by price indexes. In some cases, quantity index numbers serve as an additional source of information. Consumption by non-residents is deflated by a weighted price index based on the main categories of tourist expenditure. Most of the remaining services are deflated by the price index for domestic sales.

Imports of merchandise are deflated by unit-value index numbers of imports. Price index numbers of imported services are not available; the total price index of merchandise is used instead as a deflator. Consumption by residents abroad is deflated by a weighted price index based on the main categories of tourist expenditure.

#### NIGERIA

The presentation that follows is mainly based on information contained in <u>Gross Domestic Product of Nigeria, 1958-59 to 1969-70</u>, published by the Federal Office of Statistics in November 1972, and supplemented by later reports on sources and methods, etc. by a United Nations expert in national accounts. Supplementary information was also received from the Federal Office of Statistics at Lagos in October 1978.

#### Introduction

History

The first national income estimate for Nigeria was made for the fiscal year 1950/51 and was published in 1953 in the study The National Income of Nigeria 1950-51.

A detailed inquiry was made in the period 1958-1961 by E. F. Jackson and P. N. C. Okigbo, and the results of their work appeared in <u>Nigerian National</u> <u>Accounts, 1950-57</u>, published in 1962 by the Federal Ministry of Economic Development.

The National Accounts Unit of the Federal Office of Statistics had completed estimates of the gross domestic product for the period 1958/59-1964/65 when the first United Nations expert arrived in December 1966.

In 1974, national accounts estimates for the period 1962/63-1973/74 were published by the Federal Office of Statistics in <u>Gross Domestic Product of Nigeria</u> <u>1962-63 to 1973-74</u>, which gave the gross domestic product at current and constant factor cost by kind of economic activity, and the composition of gross fixed capital formation by type of capital goods in current and constant purchasers' values.

In February 1978 the estimates were extended to 1975/76 in the publication <u>National Accounts of Nigeria 1960-61 to 1975-76</u>, providing continuous series from 1958/59 onwards.

### Approaches used

#### Gross domestic product

As a rule, the production approach is used to estimate the gross domestic product.

# Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of most industries. The income approach is used for producers of government services, but government accounts, etc. are also used to estimate the value added of water supply, part of construction and part of other services.

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, and exports and imports of goods and services. The expenditure approach is also used for the estimation of buildings and other construction and, in combination with the commodity-flow approach, for the estimation of investment in machinery and equipment. Private final consumption expenditure is estimated as a residual, which also includes increase in stocks.

### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

### Gross domestic product by kind of economic activity

National agriculture sample census, 1974/75 Rural economic surveys Household budget surveys Foreign trade statistics Annual reports of the Federal Ministry of Mines and Power Annual surveys of large manufacturing establishments Annual reports of various public enterprises Government budgets and accounts

### Cost structure of the gross domestic product

Government budgets and accounts Annual surveys of large manufacturing establishments

### Expenditure on the gross domestic product

Government budgets and accounts Annual surveys of large manufacturing establishments Foreign trade statistics Balance-of-payments accounts

#### Methods and sources of estimation

#### Current prices

### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

## Agriculture, hunting, forestry and fishing

The main sources of information are the annual farm surveys, reports on inquiries into the income and expenditure patterns of lower-income and middle-income households, and foreign trade statistics.

Surveys of farming households are conducted annually by the Federal Office of Statistics. Production estimates for 13 harvested crops are taken from these surveys, i.e., the national agriculture sample census in 1974/75 and rural economic surveys in other years. The valuation is made with the help of rural or farmers' prices collected by the Federal Office of Statistics. Value added is obtained by deducting seed input (ranging from 0 to 12 per cent) from the gross output.

Estimates of output of green vegetables, tomatoes, oranges, bananas, sugarcane, coconuts, pawpaw and pineapple are based on the average expenditure per household given in the reports on inquiries into the income and expenditure patterns referred to above, supplemented by export data. The values are reduced by 50 per cent to allow for trade and transport charges.

Foreign trade statistics provide the information for all other crops. The value of exports has been assumed to represent the output of these crops, with no adjustment for trade and transport charges. The output of cocoa, however, is estimated from information supplied by the Nigerian Produce Marketing Company, and the output of tobacco has been obtained from the two manufacturing companies.

The output of hides and skins has also been based on foreign trade statistics, adding 25 per cent of the quantity of net exports to allow for local consumption. The output of beef is estimated from the output of cattle hides, and a similar procedure has been followed in the case of goat-meat and mutton. The output of pork is based on the reported number of animals slaughtered and the assumed average yield per animal, and is evaluated on the basis of Lagos retail prices. The output of milk is based on the assumption that 30 per cent of the cattle are milk cows and assumptions on average annual milk yield, and is evaluated on the basis of the retail prices of sour milk. A similar procedure is applied to poultry and eggs. The output of other livestock products is assumed to be equivalent to their export value. No estimate has been made for intermediate consumption. Non-monetary activities relating to crops and the livestock industry are covered in the estimates, retail prices in rural markets being used to evaluate the major part of the subsistence crop production, and "national" prices being constructed as the simple average of prices prevailing in the main production areas.

Because of the lack of adequate information, it has not been possible to include non-characteristic agricultural production and other agricultural services such as the hire of agricultural machinery, crop dusting, fruit picking, forestry services and the operation of fish hatcheries.

The output of timber is estimated from the data on logs exported or used locally in activities such as building and the manufacture of furniture, transport and other equipment. The output of firewood is based on the estimated number of urban households and the average expenditure per household. In Nigeria it is argued that firewood is a free good in rural areas. A similar procedure is used for palm-wine, while the output of palm-fruits is estimated from the quantity of palm-kernels purchased by the marketing boards. Production data are not available for other forestry products; for these, production is considered to be equal to the value of exports. Costs of forestry services are not estimated. Data on the production of fish have been obtained from the Federal Fisheries Department, but the values are usually worked out by using the average retail prices of fresh fish collected in the various centres by the Federal Offices of Statistics.

# Mining and quarrying

The annual reports of the Petroleum Division in the Federal Ministry of Mines and Power furnish information on production and f.o.b. values of crude oil as well as the quantity of gas sold. The value of gas sold is, however, obtained from the Shell British Petroleum Development Company of Nigeria. The annual reports contain details of disbursements made by the oil companies.

Data on the production of metalliferious ores are also available in the annual reports received from the Federal Ministry of Mines and Power. The value of output is estimated by using average f.o.b. prices. Value added is assumed to be equivalent to 56.5 per cent of the output. Information on the output, inputs and price of coal is obtained from the annual reports of the Nigerian Coal Corporation. The value of sand and gravel is assumed to be 7 per cent of the value of building and construction works, based on the structure of building costs.

#### Manufacturing

Information on the values of output and intermediate consumption are obtained from the annual surveys of large manufacturing establishments conducted by the Federal Office of Statistics. These surveys cover establishments employing 10 or more persons. Both output and intermediate consumption are adjusted for non-response. Value added from the large establishments is marked up by 20 per cent to cover the contribution of small establishments. However, data for some medium establishments employing from five to nine persons have been collected for the year 1973, and for small establishments employing from one to four persons some information has been collected on a sample basis for the year 1974, both from urban and rural areas.

Activities of persons engaged in the production of durable goods, clothing and footwear in their homes was estimated in 1957 on the basis of average imputed earnings for each group of craftsmen, and for later years it has been projected by assuming a growth rate of 1 per cent.

### Electricity, gas and water

The estimates are based on the annual reports of the Electricity Corporation of Nigeria and the Niger Dams Authority (merged in 1973 to form the National Electric Power Authority), together with information on electricity generated by the Nigerian Electricity Supply Corporation and the African Timber and Plywood Company. The sources of information on water supply are actual expenditure of the federal Government and the regional and state governments, including annual accounts of water boards or corporations. Value added in the case of government departments is the sum of personal emoluments and allowances and 50 per cent of maintenance and repair expenses.

#### Construction

Data for estimating value added in construction activity are obtained from the accounts of public authorities, public corporations and government enterprises and non-profit institutions mainly financed and controlled by public authorities and from the survey of large establishments engaged in mining, manufacturing and distribution activities. Small concrete buildings are put up by households and small unincorporated enterprises, and their values are based on estimates of the value of cement used in such buildings. Mud-walled buildings are usually put up by households in urban and semi-urban areas, and their output is based on the need for such houses. It is assumed that a mud-walled house on the average is occupied by 10 persons and has an average life of 30 years; 60 per cent of the value of these buildings is regarded as value added. The values of other buildings are based on the actual or approved expenditure of public authorities, the annual accounts of statutory corporations and completed questionnaires from major companies and voluntary agencies. For the latter two categories of buildings, value added is assumed to be 56 and 52 per cent of their values. The sources of information and the method of estimation are the same for construction and repairs of roads and other civil engineering works as for other buildings.

#### Wholesale and retail trade, restaurants and hotels

It has been assumed that the distribution activity accounted for 12.5 per cent of the gross domestic product in the base year 1958/59. Value added is extrapolated by using an indicator relating to the real output of agriculture, livestock, forestry, fishing, manufacturing and crafts, mining and quarrying and imports of goods, and an implicit price index of the output of these industries and imports of goods. Separate estimates are prepared in respect of the marketing boards. The results of a new distribution survey have not yet been taken into account.

Restaurants and hotels are included in community, social and personal services.

### Transport, storage and communication

The bench-mark value added of road transport is based on the number of commercial vehicles (buses, lorries, trailers and saloon cars used as taxi-cabs). Commercial vehicles owned by the Government, public corporations, missions and schools are excluded. The value added of road transport on a current basis are made by projecting the 1958/59 figures by the estimated number of tractors and commercial vehicles, and using the consumer price index of transport services for five urban centres. The estimates of wages and salaries are based on assumptions relating to wage rates and the number of persons employed per vehicle, while the operating surplus is derived from the value of depreciation, which is based on an assumed life of five years per vehicle. The value added of railways is estimated from the annual reports of the Nigerian Railway Corporation. For harbours, the sources of information are the annual reports of the Nigerian Ports Authority. For water transport, the estimates of value added are based on the information obtained from the Niger River Transport and the annual reports of the Nigerian National Shipping Lines. Air transport covers the activities of Nigeria Airways and the Nigerian Civil Aviation Training Centre.

The sources of information for communication are the Federal Ministry of Communications and Nigerian External Telecommunications, Ltd. Broadcasting is also included, and the annual reports of the corporations engaged in this sector provide information on value added.

### Financing, insurance, real estate and business services

Estimates for this major division are not made separately, since these activities are included with community, social and personal services.

### Community, social and personal services

The sources of information for estimating the value added of producers of government services are the Accountant-General's reports and budgets of the public authorities. The fiscal year runs from 1 April to 31 March, which is also used as the accounting period for the national accounts. Compensation of employees constitutes value added. Provisional estimates are compiled from the approved estimates contained in the budget documents. The details available on the actual income and expenditure of the public authorities are in many cases not complete enough to permit the reclassification needed for a compilation of the production accounts, etc.

For private education, the sources of information are the Federal Ministry of Education, the National Universities Commission and other institutions, estimates based on the number of teachers and an assumed average salary per teacher. For private health institutions, including missions, the expenditure on personal emoluments is regarded as value added and in the absence of other information is assumed to grow at the same rate as for government institutions. Other services cover the activities of banking, insurance and other financial services, pools, cinemas, hotels and catering houses, trade unions, professions, ownership of dwellings and domestic services. For these industries, value added is assumed to grow at an average annual rate of 13.8 per cent.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

Government consumption expenditure is estimated from the annual economic analysis of the accounts of the public authorities made by the Federal Office of Statistics. The Accountant-General's report for the federal Government and state governments is published about two years after the reference period; budget estimates are used for the accounts of governments whose reports have not yet been published. There is also a considerable lapse of time before the annual accounts of many statutory corporations become available. In many cases there are not enough details to classify items properly.

#### Private final consumption expenditure

Private final consumption expenditure is estimated as a residual. It has not been possible to compile estimates of private consumption expenditure directly, owing to a lack of basic data for recent years. However, the urban consumer survey and the rural consumption inquiry for 1974/75 are likely to provide useful information.

### Increase in stocks

No separate estimate is made for this item; change in stocks in therefore included in the residual estimate of private final consumption expenditure. Separate estimates are, however, compiled in a few cases for which annual accounts are available, and the study on the supply and disposition of commodities for the year 1973/74 has been initiated.

### Gross fixed capital formation

Estimates of gross fixed capital formation are compiled by type of capital goods, it has not, however, been possible to compile estimates by kind of economic activity owing to inadequate data, although an attempt has been made to do so for some activities.

As regards machinery, transport equipment and other equipment, use is made of foreign trade statistics supplemented by information on import duties obtained from the Federal Office of Statistics. The import value of machinery, including the import duty, has been marked up by 33.3 per cent to allow for trade, transport and installation charges. The mark-up for transport equipment is 10 per cent (kept constant since 1958/59).

The values of small concrete buildings, constructed mainly by households, and small unincorporated enterprises are based on the value of cement used, and the basis for the values of mud-walled houses is the estimated population in need of such houses. Estimates of breeding stocks, draught animals, dairy cattle and the like have not been compiled.

For the oil sector, the estimates of gross capital formation have been compiled from the returns obtained from the oil companies. Investment data for coal-mining are compiled from the annual accounts of the Nigerian Coal Corporation. Gross fixed capital formation figures are compiled for manufacturing establishments employing 10 or more persons, but not for small establishments and crafts. Annual reports in respect of the Nigerian Steel Development Authority are available. The Nigerian Electricity Supply Corporation Ltd. is the source of the electricity estimates, while information for water supply is based on data obtained from water boards or corporations. As regards railway transport and overseas water transport, the estimates have been compiled from the annual accounts of the Nigerian Railway Corporation and the Nigerian National Shipping Line Ltd., respectively. In the case of general government services, the estimates take into account the actual expenditure of the federal Government, the state governments and local government authorities, to the extent that it is available.

### Exports and imports of goods and services

The main sources of information are the balance-of-payments accounts prepared by the Central Bank of Nigeria. These accounts adjust the visible trade data compiled by the Federal Office of Statistics and also supply data on services.

### Cost structure of the gross domestic product

Separate estimates of compensation of employees, operating surplus and consumption of fixed capital are not made. The sum of these components is calculated as a residual by deducting indirect taxes from and adding subsidies to the gross domestic product.

Information is obtained from government budgets and accounts and other sources such as the annual surveys of manufacturing establishments. For indirect taxes and subsidies the annual government accounts are used; other sources would yield incomplete data for these items.

#### Constant prices

### Gross domestic product by kind of economic activity

### Agriculture, hunting, forestry and fishing

For agriculture, the production of each crop is revalued at 1962/63 prices, except in the case of vegetables, oranges and tomatoes, for which current values are deflated by retail prices. For forestry, both revaluation (timber) and deflation (firewood, etc.) are used and for fishing values are deflated by an index of fish prices.

### Mining and quarrying

Value added is extrapolated by using a physical indicator relating to oil production, and by revaluing output at 1962/63 f.o.b. prices.

#### Manufacturing

Value added is deflated by an approximate producer price index specially constructed from appropriate components of the consumer price index.

### Electricity, gas and water

Value added for electricity is extrapolated by an indicator relating to electricity production; for water supply it is based on revenue figures.

#### Construction

Value added is deflated by an index of building costs.

### Wholesale and retail trade, restaurants and hotels

Value added is extrapolated by an indicator relating to the real output of agriculture, livestock, forestry, fishing, manufacturing and crafts, mining and quarrying and imports of goods.

# Transport, storage and communication

For some transport components, value added is extrapolated by quantity indexes relating to passenger-miles and ton-miles, for others it is deflated by indexes of passenger fares and freight rates (road transport) or wage indexes for government employees (air transport, part of water transport, and communication).

# Financing, insurance, real estate and business services

This item is not estimated separately, but is included in community, social and personal services.

# Community, social and personal services

Value added is deflated by a wage index for government employees in the case of producers of government services. For private services the constant-price estimates are calculated either from deflation by use of an index of wages and salaries, or simply by extrapolating base-year estimates by an assumed growth rate.

### Expenditure on the gross domestic product

The expenditure side of the gross domestic product is not estimated at constant prices.

### NORWAY

The presentation that follows is mainly based on information contained in Nasjonalregnskap, 1865-1960 (National Accounts, 1865-1960), published by the Central Bureau of Statistics of Norway in 1965, a number of recent documents and the revised annex (ST/ESA/STAT.79) to the report by the United Nations Secretariat on country practices in national accounting at constant prices (E/CN.3/464). Supplementary information was received from the Central Bureau of Statistics in February 1978.

### Introduction

#### History

The first estimate of the national income of Norway was made in 1893 for the year 1891, primarily on the basis of income statistics collected for taxation purposes.

During the Second World War, the Central Bureau of Statistics began work on national income estimates for the years 1935-1943, based conceptually on national accounting principles. The national product was estimated as the sum of value added in each industry and separate estimates were made for consumption, capital formation, exports and imports. The results were published in 1946 in Nasjonalinntekten i Norge, 1935-1943 (National Income in Norway, 1935-1943).

National accounting of the kind prevailing today started in 1946 with the establishment of a complete and detailed set of national accounts for the whole period of 1930-1939 and for the post-war years. The results were published in 1953 in <u>Nasjonalregnskap</u>, 1930-1939 og 1946-1951 (National Accounts, 1930-1939 and 1946-1951).

In 1954 the Bureau published further results of national accounts estimates in <u>Nasjonalregnskap (N.A.) 1900-1929</u> and <u>Nasjonalregnskap (N.A.) 1938 og 1948-1953</u>. These publications also included detailed descriptions of concepts, methods and data sources. The theoretical principles of Norwegian national accounts were described in Nasjonalregnskap-Teoretiske Prinsipper. 1/

Historical national accounts estimates were carried out as part of the international studies on economic growth organized by the International Association for Research in Income and Wealth. In 1965 the detailed results were published in <u>Nasjonalregnskap</u>, 1865-1960 and in <u>Langtidslinjer i Norsk</u>  $\frac{\emptyset$ konomi, 1865-1960 (Trends in the Norwegian Economy, 1865-1960). Besides presenting a continuous and rather detailed set of time series of national accounts for almost one hundred years, the volumes included detailed descriptions on concepts, methods and data sources.

<sup>1/</sup> Odd Aukrust, <u>Nasjonalregnskap-Teoretiske Prinsipper</u> (National Accounts-Theoretical Principles) (Oslo, Central Bureau of Statistics, 1955).

The first results of the implementation of the revised SNA were published in  $\frac{\emptyset$ konomisk Utsyn, 1972 (Economic Survey, 1972) giving estimates for the period 1968-1972, built up as aggregates from detailed flows within the framework of the outline matrix in A System of National Accounts. 2/

### Approaches used

#### Gross domestic product

The estimates of the gross domestic product are mainly based on the production approach.

#### Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of almost all industries. This is done within the framework of detailed input-output tables, using the commodity-flow method. In the annual final national accounts, the basic classification system includes more than 160 industries and 1,800 commodity categories (groups of goods and services). The input-output tables arranged as industry times commodity and commodity times industry tables also comprise intermediate inputs in more than 160 industries, 22 accounts of government services and a large number of end-use categories. On the supply side, 21 categories of imports of goods and services are specified. The income approach is used for producers of government services and part of other private services, such as domestic services. The expenditure approach is actually used in the case of the trade sector, as the use of the commodity-flow method on the expenditure side determines total gross margins or gross output of wholesale and retail trade, but applying the production approach in the next place to arrive at its value added.

### Expenditure on the gross domestic product

The expenditure approach is used to estimate government and private final consumption expenditure, gross fixed capital formation and exports and imports of goods and services within the framework of detailed input-output tables using the commodity-flow method. Change in stocks is primarily calculated as the difference between supply and other uses for each commodity and summed over all commodities.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

## Gross domestic product by kind of economic activity

Accounting data provided by the Agricultural Budgeting Board Annual industrial statistics Annual statistics of building and construction

<sup>2/</sup> United Nations publication, Sales No. E.69.XVII.3

Annual shipping statistics Government accounts Censuses of establishments (decennial) Annual credit-market statistics

### Cost structure of the gross domestic product

Social security statistics Quarterly earnings statistics Quarterly statistics on the labour market Government accounts Annual industrial statistics

# Expenditure on the gross domestic product

Government accounts Turnover statistics Household surveys of consumer expenditure Annual industrial statistics Quarterly investment inquiries External trade statistics

#### Methods and sources of estimation

Current prices

#### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of eccncmic activity is prepared at market prices, i.e., producers' values.

### Agriculture, hunting, forestry and fishing

The compilation of agricultural production estimates is based on the detailed items of the aggregate account of agriculture prepared by the Agricultural Budgeting Board. Their basic data consist largely of the annual agricultural statistics compiled by the Central Bureau of Statistics, which are based on information from the local agricultural committees and county gardeners. The Agricultural Budgeting Board also uses statistics furnished by various marketing co-operative organizations in order to estimate sales of livestock products and purchases of production means. Other sources are used and rough estimates made for some minor items.

Adequate statistics are also available on the prices of agricultural products and production means. Price information from the Agricultural Price Reporting Office or the marketing co-operatives is used for most commodities. Changes in stocks of cattle and forage are also estimated, the latter on the basis of an estimated forage account made up by the Agricultural Budgeting Board. In summary, the items of their aggregate agricultural account provide the National Accounts Unit, after some adjustments, with all the necessary information on the agricultural sector from gross output down to factor income.

For hunting the estimation is rather weak. It is based on the number of game felled, and the value of marketed wild berries estimated on the basis of external trade statistics and industrial statistics.

In the case of forestry the registration of quantities and values of the annual roundwood cut for sale and industrial production is most reliable, as the forestation levy is based on its gross output. Own-account consumption of firewood is estimated from censuses of forestry and available price data.

The Directorate of Fisheries estimates catch and first-hand transaction value of the different species of fish and sealing, based to a large extent on information from the fishermen's own marketing organizations. The value of the domestic consumption of fresh fish is estimated on the basis of fishery statistics on quantities delivered for domestic use and price data referring to sales of fresh fish to consumer. Fresh fish exported is recorded in the external trade statistics. The intermediate consumption consists mainly of expenses for repair and maintenance, fuel and baits, and is estimated on the basis of information from the fishery censuses, the industrial statistics, sales data of oil companies and data furnished by the Directorate of Fisheries.

# Mining and quarrying

For mining and quarrying the estimates are extracted from the annual industrial statistics, which also comprise data for mining and quarrying, including crude oil and natural gas production in the North Sea. Data on production and raw materials consumed are prepared by commodity, and other intermediate consumption has also been incorporated in the industrial statistics since 1972.

### Manufacturing

The annual industrial statistics are of the utmost importance for the compilation of national accounts estimates in Norway. They supply detailed information on gross output and intermediate consumption by industrial activity and by commodity for all establishments employing five or more persons (three persons in some groups, all establishments in others). Complete annual reports are collected from all large establishments. For small establishments annual reports are only collected on total employment, sales, etc. Individual businesses in which the owner himself works along are not included in the industrial statistics in general, but estimates for these have been made for national accounting purposes.

The industrial classificiation used corresponds to the Standard Industrial Classification which is based on ISIC. The collection of statistical data is based on the Bureau's Register of Establishments and Enterprises, which also shows the addition of new establishments. The commodity classification used is for the most part identical with the nomenclature of the Norwegian customs tariff, which is based on the Brussels Tariff Nomenclature (BTN) later changed to the Customs Co-operation Council Nomenclature (CCCN), but has been aggregated somewhat for the purpose of national accounts. Another adjustment to the basic industrial statistics data concerns the value-added tax, which is calculated on the basis of commodity flows in the national accounts, both with regard to output and input flows. Value-added tax is not included in the industrial statistics values.

### Electricity, gas and water

The annual publication <u>Electricity Statistics</u> is used as a basis for the estimates of this sector. The statistics are based on data collected from each individual electricity plant and also give information on gas supply. The value of electricity delivered to mining and manufacturing is estimated from the industrial statistics. Data on water supply are obtained from the municipal accounts, treating water supply enterprises as part of industry.

#### Construction

The annual statistics of building and construction work give information on the number of establishments, persons engaged, value of production, cost of materials and gross fixed capital formation, etc. The statistics also include building and construction work under the direction of the central Government and the municipalities. Complete annual reports are collected from all large establishments (10 or more persons), while only total employment, sales, etc. are covered in the annual reports from the small establishments. Oil-well drilling is covered by the inquiry. Investment data from industrial statistics and electricity statistics, annual building statistics on the number of dwellings, etc. and various accounting data from the Government and from government-owned enterprises such as the Norwegian State Railways, State Telegraph Administration, etc., are also important sources. Supply figures of material inputs for construction purposes are also used.

The estimation is carried out separately using the production and expenditure approaches in order to obtain more control over the figures. The weakest areas are considered to be building and repair work on dwellings, vacation and leisure homes and buildings used for business purposes.

### Wholesale and retail trade, restaurants and hotels

The commodity-flow approach is used to estimate the gross output of the trade sector. Gross output is measured as the total of trade and transport margins plus some minor items. The margins are estimated on the basis of the commodityflows that relate to the various uses of goods, as the aggregate difference between purchasers' values and producers' values. Bench-mark mark-ups for the different commodities, commodity groups, consumer groups, etc. have been made from information furnished by government agencies and various business organizations, from the results of the surveys of consumer expenditure or from price data (series of producers' prices and purchasers' prices). On the basis of these mark-ups and purchasers' values calculated on the different commodityflows and uses, the corresponding producers' values are arrived at as residuals, and thus also the total of gross margins. Adjustments will, however, occur at the commodity level as producers' values, purchasers' values, mark-ups and estimated change in stocks are checked against each other for adequacy. The estimation of intermediate consumption of the trade sector is to a large extent based on ratios from bench-mark years. A fairly large share consists of deliveries from the transport sectors, as the goods-transport margins are also included in the gross output of the trade sector. Customs duties, value-added tax on imports and other adjustment items relating to indirect taxes and subsidies are included as separate dummy sectors under wholesale and retail trade.

For restaurants and hotels the estimates are based on the number of guestnights according to hotel statistics, quantity data from the State Wine Monopoly on beer, wine and spirits consumed in restaurants, etc., consumer-price data and bench-mark data from the decennial censuses of establishments.

#### Transport, storage and communication

The estimates for railways are based on detailed accounting data. For tramway, subway and suburban railway transport, accounting data are also collected from the companies concerned. For other land transport, the statistical sources are the annual scheduled road transport statistics, data from censuses of establishments, the number of taxi-cabs and data on concessions. Particularly for hired motor-lorry transport, the estimation procedure is weak.

Estimates are made separately for ocean transport, coastal and inland water transport and supporting services to water transport. For ocean transport, annual data on gross output and intermediate consumption are collected by the Central Bureau of Statistics in close co-operation with the Norwegian Shipowners' Association. For regular coasting trade and inland water transport, data on gross output and intermediate consumption are collected by the Bureau. For non-scheduled transport in coastal trade the estimation is rather weak, but bench-mark data are available from the decennial censuses of establishments. Supporting services such as harbour administration are covered by government accounts, otherwise the census of establishments provides bench-mark estimates.

Air transport is estimated on the basis of accounting data. For Scandinavian Airlines (SAS), the Norwegian share of the company's receipts and expenses is stipulated as two sevenths of the total. Services allied to transport and storage are estimated mainly from the census of establishments, extrapolating the benchmark estimates by appropriate series of other transport sectors. For postal and telecommunication services, however, reliable sources are available in the form of detailed accounting data.

### Financing, insurance, real estate and business services

For financial institutions, summary accounts exist in the annual credit market statistics. A service charge is imputed in addition to the charges actually paid. Extracts of accounts are also used for insurance activities in addition to the annual insurance statistics. Social insurance is treated as part of producers of government services.

For dwellings, the bench-mark estimates are arrived at by employing the income approach. Operating surplus has been fixed at 2.7 per cent of reduced replacement cost of the dwelling stock in the base year, to reflect the average taxable income of owner-occupied dwellings. For other years the production approach is used, extrapolating gross output by using information on investments, repairs and clearing of old dwellings. The rental value is assumed at 6 per cent of half the gross investment for new dwellings, inflating the rents by the rent component of consumer price index. For non-dwellings the rental values in most cases are estimated in terms of the rental expenses of various sectors.

Bench-mark estimates for business services are made from the censuses of establishments held every 10 years or so (latest census in 1974), extrapolated by various indicators, such as employment data and indexes of average wages. For advertising services, annual sales statistics are available for member establishments, to which 25 per cent is added for under-coverage and conformation of census level. Intermediate consumption of business services is mostly based on fixed ratios.

#### Community, social and personal services

For producers of government services the basic data are extracted from the national accounting classification of the municipal accounts and the central government accounts, including social insurance administration. When final accounts data are not available, corresponding budget data are used. Every item of the accounts is given codes for the production sector and the purpose of government expenditure. The purpose classification used is somewhat wider than the one recommended in the present SNA. Wages and salaries, including supplements referring to the pension schemes of the Government's own employees and an estimate of the consumption of fixed capital are added to arrive at value added of the producers of government services. Gross output is determined as the sum value added and intermediate consumption.

For private services, bench-mark estimates are to a large extent derived from the censuses of establishments, extrapolated by use of employment estimates and components of the consumer price index. Intermediate consumption is often formed as a fixed ratio. The income approach is used for education and welfare institutions on the basis of data on the number of teachers and students, government wages and subsidies and available cost data. For medical, dental and other health services, the estimates are based on annual reports of the National Health Insurance Institution, the number of practitioners, beds and patients, and available cost data, i.e., from the surveys of consumer expenditure on board per bed, cost data of nursing homes in Oslo, etc.. For recreational and cultural services, a variety of sources is used, such as annual receipts of cinemas, annual reports relating to betting, licence fees for radio and television, obtained from the annual report of the Norwegian Broadcasting Corporation, data from the surveys of consumer expenditure; for some commodities the results of the census of establishments are used as bench-marks. For domestic services, the value added is extrapolated by using estimated employment and the component of the consumer price index.

### Expenditure on the gross domestic product

### Government final consumption expenditure

The basic statistics used to estimate government final consumption expenditure are obtained from the government accounts. In order to secure a proper national accounting classification of the various items involved, it has been necessary to introduce some reclassification and to make use of supplementary information collected from government institutions. In calculating central Government expenditure, including that of the social insurance administration, the special accounts of the Treasury, the accounts of government funds and social security agencies and the budget accounts of the central Government have all undergone reclassification and processing. In the case of local government, each municipality prepares government accounts in accordance with the rational accounting classification, but in many cases further specifications are needed for the national accounts estimates, e.g., commodity specifications of government purchases of goods and services.

### Private final consumption expenditure

Private consumption expenditure is classified into approximately 140 consumer groups. For most groups relating to consumer goods, the current estimates are based on turnover statistics, i.e., detailed indexes of retail sales and corresponding information from the annual distribution statistics. For tobacco, some food and beverages, automobiles, radio and television, quantity indicators are used in combination with appropriate components of the consumer price index. Other quantity data available might also modify the turnover-compiled estimates. For most service-related consumer groups, the current estimates are made from sets of volume and price indexes.

By using the commodity-flow approach, all commodities belonging to a particular consumer group are extrapolated by the same value index. However, in the process of checking each commodity account for plausibility with respect to supply, change in stock, mark-up and distribution among different uses, the relative composition of the groups might be changed. When using retail sales indexes by trade industries as indicators, an estimated consumption matrix providing proper weights to the indexes has been established on the basis of purchase statistics on commodities for retail trade.

Bench-mark estimates are made from a detailed examination of the commodity flows, primarily by using reliable data on domestic production and imports by commodities, and piecing together information from various sources, including the household surveys on consumer expenditures. This examination involves minute work on each commodity (even at the BTN level) to establish some basic structure, including the fixation of bench-mark gross margins (see under "Wholesale and retail trade" above).

#### Increase in stocks

This item is in the first place estimated as a residual for each commodity, by deducting from gross domestic output and imports the estimates at producers' prices for uses other than change in stocks. Although extensive plausibility checks are made at the commodity level, the final estimates in practice represent a combination of change in stocks and statistical discrepancy.

# Gross fixed capital formation

A combination of the expenditure approach and the commodity-flow approach is used to estimate gross fixed capital formation. Investment data by type of capital goods are available for a number of sectors, from a variety of sources such as government accounts, accounts of public enterprises, annual industrial statistics, electricity statistics, aggregate accounts of the agricultural sector, various annual reports and accounting data of transport sectors and others, quarterly investment inquiries, in the industrial sectors and information on gross fixed capital formation contained in the annual statistics of building and construction. This information on investments expressed at purchasers' prices is combined with commodity-flow information, being especially important in the cases of machinery, transport equipment and other equipment. Mark-ups and shares of commodities for combined uses are usually kept constant as in the bench-mark year.

Gross fixed capital formation is recorded at purchasers' prices, which include investment levies, but exclude value-added tax. This intricate valuation principle has made it necessary to introduce a set of adjusting dummies from the general treatment of value-added tax. Also on the supply side dummies are introduced in order to make a proper estimate of the gross domestic product.

#### Exports and imports of goods and services

Exports and imports of goods and services are mainly based on information from the Bank of Norway and the Central Bureau of Statistics. The latter compiles the external trade statistics, and the shipping statistics, which provide annual estimates of gross freight and operating costs. A number of items are added to those covered by external trade statistics, for the most part services covered by the foreign exchange statistics compiled by the Bank of Norway. Some information is also taken from government accounts.

Crude oil and natural gas from the Norwegian part of the continental shelf is transported either through pipelines to the United Kingdom and the Federal Republic of Germany or by tankers to Norway or other countries. The oil transported by tankers to Norway is recorded as intermediate consumption. The oil and gas transported by pipelines and by tankers to other countries are recorded in the external trade statistics as exported goods. Pipeline transportation is recorded as services exported to the United Kingdom and the Federal Republic of Germany.

### Cost structure of the gross domestic product

#### Compensation of employees

The procedure used to estimate compensation of employees consists of adding up all available information on wages and salaries by branch of activity and completing the result by estimates for areas not covered. Wages and salaries as bench-mark data for the various activities are included in the censuses (census of establishments, etc.), extrapolations and current data are derived from the annual industrial statistics and other annual statistics, from quarterly earnings statistics, from various sectoral reports, etc. and from government accounts data. The number of wage-earners is primarily estimated from bench-mark data and changes according to the quarterly labour force surveys. The other elements of compensation of employees are mainly available from sources already mentioned, but also from special statistics on additional wage costs and sources used for other subjects.

Two different procedures are used, or may be used, to check the one described above. The first procedure, which is regularly used, consists in calculating wages and salaries indirectly from statistics which register fixed percentages of the total values, i.e., from contributions to social security schemes. These data on contributions are regularly published by the National Health Insurance Institution.

The second procedure is based on the results of tax statistics. There is a considerable time-lag in the statistics, which are compiled every third year or so.

#### Operating surplus

Operating surplus is arrived at as a residual when deducting compensation of employees, consumption of fixed capital and net indirect taxes from value added of the various economic activities.

### Consumption of fixed capital

Consumption of fixed capital is estimated by using the perpetual inventory method. Time series of gross investment figures at constant prices constitute the input of a calculation programme leading to capital stock estimates and estimates of consumption of fixed capital at constant prices. The calculation is carried out separately for approximately 100 different groups (by industry and capital type), and the results are inflated by using price indexes for corresponding groups of gross investments.

The calculation programme leads to straight-line depreciation over estimated lifetime. The lifetime estimates for the different groups are mainly based on assumptions in connexion with published results from investigations in other countries. It is possible to check the capital stock estimates against full fire-insurance values from the census of establishments and other capital stock measures from sectors of the economy that are not included in the census.

#### Indirect taxes and subsidies

Information about indirect taxes expressed on a cash basis is obtained from the government accounts. However, in order to adopt the recommendations made in the present SNA, indirect taxes are now calculated on an accrual basis using the commodity-flow method, tracing each possible type of commodity tax through the detailed commodity accounts and drawing on relevant information from the tax authorities. Non-commodity taxes are expressed on a cash basis.

The most important of the commodity taxes is the value-added tax, which has been fully incorporated in the detailed commodity-flow calculations. The gross treatment of the value-added tax, along with the other commodity taxes (and subsidies), enables the National Accounts Unit to calculate annual input-output tables in approximate basic values for use in national budgeting work.

In principle, subsidies are treated in the same way as indirect taxes, but in practice a larger share is expressed on a cash basis with data from the government accounts. Certain elements of the value-added tax are treated as subsidies in coping with reimbursements for selected food commodities, dwellings, etc.

#### Constant prices

#### Gross domestic product by kind of economic activity

# Agriculture, hunting, forestry and fishing

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. Approximate basic values for the current year are deflated by appropriate price indexes For output of crop and livestock products for sale and most of the consumption on farms, the current quantities are valued at base-year unit values. This also applies to forest products for sale or consumed on farms and changes in stocks of timber and wood in forests, as well as to fishing activities.

### Mining and quarrying

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. In the case of output, deliveries for export by commodity are deflated by export unit-value indexes, and deliveries for domestic use by commodity are deflated by appropriate wholesale price indexes or unit-value indexes based on annual production statistics.

#### Manufacturing

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. In the case of output, deliveries for export by commodity are deflated by export unit-value indexes; deliveries for domestic use by commodity are deflated either by appropriate wholesale price indexes or unit-value indexes based on annual production statistics, by price indexes calculated on the basis of input prices of materials, labour costs and consumption of fixed capital for the relevant industries, or by wage indexes for the relevant industries.

#### Electricity, gas and water

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. Electricity output is valued at the average prices in the different markets in the base year, while water supply is deflated by appropriate consumer price indexes.

#### Construction

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. Output is deflated by price indexes calculated on the basis of prices of inputs of material and labour costs, and contract drilling is measured by the number of holes drilled.

#### Wholesale and retail trade, restaurants and hotels

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. For each commodity the approximate basic value is deflated by an appropriate price index, and this constant-price estimate for each commodity is used as a basis for calculating trade margins at constant prices by using the same percentage addition for each component as in the base year. For restaurants and hotels, indicators such as the number of guest nights and the volume of alcoholic beverage delivered for serving are used for output extrapolation.

### Transport, storage and communication

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. For transport and storage, output is in most cases extrapolated by appropriate quantity indicators, but passenger transport is generally deflated by the component of the consumer price index, which is also applied to the deflation of the communication output.

### Financing, insurance, real estate and business services

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. For financial institutions and insurance, output is extrapolated by index of employment, except for motor vehicle insurance and paid bank services. The appropriate components of the consumer price index are applied to deflate motor vehicle insurance, and paid bank services are deflated by the price index of commissions. For real estate, including owneroccupied dwellings, output is in most cases deflated by the consumer price index for rent, whereas output of business services is extrapolated by the numbers employed.

### <u>Community</u>, social and personal services

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. For each of the 14 accounts of the central Government and the eight accounts of local government services, output is deflated by price indexes computed for inputs of materials, wages and salaries and consumption of fixed capital. For private services, output is in most cases deflated by components of the consumer price index or extrapolated by the numbers employed, but other indicators are also used, such as the index of wages, the number of hospital beds, etc.

#### Expenditure on the gross domestic product

### Government final consumption expenditure

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. Current values are deflated by appropriate price indexes.

### Private final consumption expenditure

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. Approximate basic values for the current year are deflated by appropriate price indexes, and the consumer price index is used to check and correct the deflated figures for private consumption expenditure in purchasers' values. For the service categories of private consumption expenditure, current values are in most cases deflated by group indexes of the consumer price index. For some categories, volume indicators are used to check the deflated figures, for example, for tobacco, some beverages, durable household goods, television sets and radio receivers and personal transport equipment (based on new registration of motor vehicles), etc.

### Increase in stocks

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. Current values of commodities are deflated by appropriate price indexes, resulting in the calculation of increase in stocks at constant prices as a residual.

# Gross fixed capital formation

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. Approximate basic values for the current year are deflated by appropriate price indexes, and data for purchasers' values are built up from separate constant-price estimates of approximate basic values, commodity taxes and subsidies and gross margins.

#### Exports and imports of goods and services

Double deflation and the commodity-flow approach are used within the framework of detailed annual input-output tables. Unit-value indexes are calculated for each commodity where possible, and special price indexes are calculated for exports and imports of ships. Gross receipts from shipping are deflated by the price index of gross freight earnings per gross ton by type of vessel, size of vessel and type of chartering. Exports of other goods and services are as far as possible calculated by the use of special price indexes, and personal expenditure by non-residents in the country is deflated by the total consumer price index. Expenditure by residents abroad is deflated by the cosumer price indexes of five foreign countries.

#### PAKISTAN

The presentation that follows is mainly based on information contained in the comprehensive explanatory notes of <u>National Accounts 1973-74 to 1976-77</u>, published by the Statistics Division of the Ministry of Finance, Planning and Provincial Co-ordination in May 1977. Supplementary information was received from the Statistics Division in March 1978.

### Introduction

### History

The first official national income estimate for Pakistan was made in 1950 by the Central Ministry of Economic Affairs, referring to the net domestic product at factor cost in the fiscal year 1948/49.

The Central Statistical Office started compiling and publishing figures of national accounts in 1952.

In 1962 an expert committee established by the Central Statistical Office to appraise existing national accounting work and to recommend a phased programme for the compilation of an integrated system of national accounts for Pakistan published its report.

The Statistics Division (formerly the Central Statistical Office) started compiling and publishing figures of expenditure on the national product in 1969, besides making estimates of gross and net national product in the series <u>National</u> <u>Accounts</u>.

#### Approaches used

### Gross domestic product

As a rule, the production approach is used to estimate the gross domestic product.

# Gross domestic product by kind of economic activity

The production approach is used to compute value added in agriculture, mining and quarrying, manufacturing, construction and electricity. The income approach is used to work out the income accruing from gas transmission and distribution, water supply, sanitation, transportation, storage, communication, trade, banking and insurance, ownership of dwellings, public administration and defence, and other services. The expenditure approach is employed to evaluate income from some services.

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption

expenditure, and exports and imports of goods and services. The gross capital formation estimates are partly based on the commodity-flow approach and partly on the expenditure approach. Private final consumption expenditure is derived as a residual, after making adjustments for all other flows.

### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

Gross domestic product by kind of economic activity

Government reports for agriculture, forestry and fishing Census of manufacturing industries, 1959/60 Government and private enterprise reports for electricity, gas and water Marketing reports Data from transport enterprises and financial institutions Population census, 1961 Government budgets Household income and expenditure surveys

### Cost structure of the gross domestic product

Government budgets

### Expenditure on the gross domestic product

Government budgets Rural construction surveys Sample surveys on gross capital information Foreign trade statistics Balance-of-payments statistics

# Methods and sources of estimates

#### Current prices

### Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

### Agriculture, hunting, forestry and fishing

Data on the production of major crops by district are obtained from the Ministry of Food and Agriculture and Under-Developed Areas and Land Reforms, and the Provincial Departments of Agriculture. The corresponding harvest prices are obtained from the Provincial Directorates of Land Records. The gross value at current factor cost (by district) is worked out by applying these prices to relative production figures, and is then aggregated to arrive at the national total. For minor crops the sources of information for production at the provincial level are the same as for major crops, but the harvest prices are taken at 80 per cent of the wholesale prices compiled and issued by the Department of Agricultural Marketing and Grading. To account for non-reporting and underreporting, the values of both major and minor crops are increased by 4 per cent. Because of the lack of data on by-products of crops, e.g., wheat straw and rice husk, no estimate of such by-products is included in this subsector.

Data on livestock products are obtained from the Department of Agricultural Marketing and Grading, including price data from their series of wholesale prices. The estimates at current prices are derived indirectly by applying the wholesale price index of livestock products to the estimates at constant prices.

The value added of crops is computed by deducting the cost of inputs such as seeds, fertilizers, water, pesticides, etc. from the total value of crops. As inputs for livestock come almost entirely from other agricultural subsectors, these have neither been included as an output of those subsectors nor deducted as inputs for livestock. For certain items no information is available, and these secondary inputs are assumed to be insignificant, no deduction being made for such costs.

The gross value in forestry as far as state forests are concerned is equivalent to the realizations at auction reported by the Provincial Departments of Agriculture. The corresponding estimates for private forests and non-forest areas are assumed at 30 per cent of the former. In order to obtain value added, a deduction of 3 per cent is made for inputs.

Production and price data covering commercial fishing in sea and inland water are obtained from the Provincial and Marine Fisheries Departments. For valuation at factor cost the wholesale prices are deflated by 10 per cent to obtain estimated prices paid to fishermen. Gross value added is computed by deducting input at 3 per cent.

### Mining and quarrying

The estimates of value added are based on the production and price data supplied by the Natural Resources Division and the Provincial Mineral Development Departments. In the bench-mark year, gross output is worked out by multiplying the output of each mineral by pit-head or well-head prices. For the current estimates, annual outputs and the index of wholesale prices for minerals are used. The value of inputs is estimated at 17 per cent of the gross output.

#### Manufacturing

The estimates of value added for large-scale manufacturing are mainly based on the census of manufacturing industries, 1959/60, with necessary adjustments for under-coverage and miscellaneous charges like water, stationery, telephone, banking costs and insurance premiums. Estimates for other years have been obtained by applying the quantum index of manufacturing to the bench-mark value added for 1959/60. For converting the series of value added at constant factor cost into current factor cost, the wholesale price index for the manufacturing groups is used. The basic statistics available for estimating value added of small-scale manufacturing are extremely weak. The estimate for the bench-mark year 1959/60 was computed on the basis of the number of persons engaged in small industries and an imputed gross value added per person. For other years a uniform growth rate of 3 per cent has been used in combination with the wholesale price index for manufacturing.

The statistical unit of the basic statistics is the establishment. Largescale manufacturing covers the establishments registered under section 2 (j) of the Factories Act, 1934.

### Electricity, gas and water

The estimates for electricity are based on the data furnished by the Water and Power Development Authority and the electric supply corporations and companies. The data on gas transmission and distribution are obtained from four gas companies. Since water and sanitary services are provided by local bodies, their value added is included in the public administration and defence sector.

### Construction

Owing to insufficient statistical information, the contribution of the construction sector is indirectly assessed on the basis of certain plausible assumptions. The main assumptions made for urban areas are that the cost of construction is 10 times the availability of cement for local consumption and that 40 per cent of the total cost equals the value added. For rural areas it has been assumed that the gross rent derived from household income and expenditure surveys constitutes 8 per cent of the cost of construction and that value added is 50 per cent thereof. This course provides the estimates for value added at constant factor cost, which are adjusted by the wholesale price index for manufacturing to arrive at current estimates. The value added of rural works is taken at 60 per cent of total expenditure. In the last few years the growth rate estimated for urban areas has also been applied to rural construction.

#### Wholesale and retail trade, restaurants and hotels

The value added of the trade sector is measured by net trade margins earned by traders on various types of products entering into wholesale and retail trade. The trade margins have been estimated through special studies undertaken for this purpose.

The quantum of agricultural products entering into trade is determined on the basis of various marketing reports and other sources. The ratios used in estimating the marketed part are 80, 40, 100 and 90 per cent respectively for rice, wheat and other food crops, cotton and other non-food crops, and 22.5 per cent and 90 per cent for milk and other livestock products, respectively. The trade margins calculated from the agricultural marketing studies range from 20 to 50 per cent. These margins are applied to marketed output to estimate the income arising from the marketing of agricultural crops. The trade margins of manufactured products are taken at 50 per cent of the value of products of largescale industries and 33 per cent for products of small-scale industries. For estimating value added of the import trade, only consumer goods imported on private account are covered, under the assumption that capital goods and raw materials are directly imported by the producers, and that goods cn government account are imported by the Government. A trade margin of 25 per cent is adopted for imported consumer goods.

In order to convert the constant-price estimates into current series, the consumer price index is used. A deduction of 5 per cent is made for inputs purchased from other sectors to arrive at value added.

Restaurants and hotels are included in community, social and personal services services.

### Transport, storage and communication

For railway transport, the basic data on wages, salaries, profit or loss, etc. are obtained from the railway headquarters. For buses, an estimate of value added at current prices is computed on the basis of the number of buses and the income per bus from income and expenditure data supplied by the road transport corporations. For lorries, taxi-cabs and auto-rickshaws the average number of persons employed per vehicle is worked out on the basis of data provided by the former West Pakistan Road Transport Corporation and some of the private transport organizations. The income per person in each category is estimated on the basis of data obtained from the findings of the Minimum Wage Board (1963) and the Manpower Survey (1961), projected according to the rate of annual increases in wages of the workers employed. These two factors provide the wage-bill per vehicle, which is further multiplied by the number of lorries, taxi-cabs and auto-rickshaws reported by the Provincial Road Transport Departments. Figures of net profits are based on limited inquiries in this field. The number of persons employed in non-mechanized road transport is derived by deducting the estimated number of persons engaged in mechanized road transport from the number of persons employed in all types of road transport as reported in the population census report of 1961, and applying the rate of population growth for other years. The net earnings per worker in 1961 is based on the data of the socio-economic survey of Rawalpindi and data from the Department of Manpower and Employment. The earnings for other years are increased by taking into consideration the increase in the earnings of mechanized road transport workers. The net value added so derived has been raised by 10 per cent to arrive at the gross value added of this subsector.

For air transport, data on wages, salaries and rent are supplied by the Pakistan International Airlines Corporation. The wages and salaries of Pakistani employees engaged by foreign airlines are estimated from their local offices.

For water transport, information on wages, profit, etc. accruing from the port of Karachi is obtained from the Karachi Port Trust. Similar data are collected from the National Shipping Corporation and the Pakistan Shipping Corporation to account for value added of the shipping subsector. Value added of inland and coastal transport covers registered vessels, launches and unregistered boats. The value added of the operation of registered crafts is based on the records of the manpower survey in 1961, and for other years the increase in the value added is estimated by taking into consideration the increase in other types of water transport.

The data for the communication sector are obtained from the Departments of Post Office, Telegraph and Telephone and Pakistan Television and Broadcasting Corporations.

## Financing, insurance, real estate and business services

The estimates of value added for banking institutions are based on the data made available by the State Bank of Pakistan. The value added of co-operative credit societies and banks is based on data available from the registrars of the co-operative societies. The value added of various financial corporations is based on the data supplied directly by these agencies. The basic data for estimating value added in insurance are supplied by the Controller, Department of Insurance, and the Pakistan Insurance Corporation.

For ownership of dwellings, the bench-mark data for occupied houses in rural and urban areas are obtained from the housing census in 1960. The number of occupied houses for other years is estimated by applying the geometric rate of growth observed during the intercensal period of 1950-1960. The gross rent data for urban and rural areas are taken from household income and expenditure surveys. From the gross rentals a deduction of 10 per cent is made to allow for current repairs and maintenance. Value added of real estate agencies is not estimated for want of relevant data.

#### Community, social and personal services

The contribution of public administration and defence consists of wages and salaries and pensions of government employees compiled from the budgets of federal, provincial and local governments. An imputation equal to 10 per cent of the wages and salaries is made on account of the rent of government-owned and governmentoccupied buildings.

The income approach is used to estimate the value added of all private services except launderers and barbers, whose income is estimated by using the expenditure approach. The number of persons engaged in the different occupations of private services is obtained from the population census of 1961 and extrapolated by the intercensal rate of growth in the working force of this sector. Data on net earnings of the persons engaged in the various occupations are obtained from the manpower survey in 1961 and available socio-economic surveys. In the case of hotel and cinema employees, it is assumed that their wages form 50 per cent of the total factor income originating in these establishments. The estimates at constant factor cost are adjusted by the consumer price index for converting them into current factor cost estimates.

# Expenditure on the gross domestic product

# Government final consumption expenditure

Expenditure estimates for each constituent of general government are made by analysing the relevant budgets. Within the limitations of current budgetary classification, the procedure is fairly straightforward with regard to federal and provincial governments. For local bodies, however, and specially the smaller ones, the budgets are difficult to obtain and the estimates, therefore, involve an element of estimation. A deduction from the current expenditure on goods and services is made for sales of goods and services other than surplus stores to enterprises and households. Sales of surplus stores are treated as a decrease in government stocks.

# Private final consumption expenditure

Private consumption expenditure is derived as the residual of the net national product at factor cost after adjustment for all other flows. Unlike the other components of expenditure, private consumption expenditure is not an independent estimate, and thus it includes an indeterminate statistical discrepancy.

### Increase in stocks

The basic information is received from the Planning Commission and refers to the value of physical change in raw materials, work in progress and finished goods held by enterprises and government stockpiles.

#### Gross fixed capital formation

The estimates of gross fixed capital formation are classified by economic sectors and not by type of capital goods.

For agriculture, investment in the construction of farm buildings, barns and sheds is based on the rural construction survey for the years 1959/60 to 1963/64 and the estimates have been projected by the straight-line method using 1963/64 data as bench marks. The investment in agricultural machinery and implements has been estimated by the commodity-flow method. The estimates of non-monetized investment are based on special studies carried out by various research workers, using bench-mark data for 1965/66. The estimates for the agriculture sector are underestimated, since they do not include the value of private monetized investments in land improvement, irrigation works, etc..

The estimates for mining and quarrying have been developed on the basis of data obtained in 1969/70 through inquiries into establishments, the Government and other organizations. For large-scale manufacturing, the estimates are based on sample surveys conducted to collect data on gross fixed capital formation in private establishments. Establishments belonging to the public sector are fully covered. No comprehensive source is available for small-scale manufacturing, and indicators such as could be developed from the Karachi small-industries survey in 1966 are used, projected on the basis of the population growth-rate. Machinery and transport equipment for the construction sector are estimated by using the commodity-flow method (as used for the agriculture sector), and the value of buildings in this sector is assumed to be nominal (not estimated). Investment data for private companies and autonomous bodies engaged in the generation of electricity and gas are collected through direct inquiries.

The investment estimates for land and water transport are prepared from the trade and domestic production data. Estimates for railway transport are based on the annual budgets, whereas reports by the departments concerned are used for communication. Investment data reported by Pakistan International Airlines Corporation and the National Shipping Corporation are also included. For banking, insurance and financial institutions the estimates are based on data collected through the annual questionnaire on fixed capital formation. The investment estimates of private residential constructions are made separately for rural and urban areas, based on the rural construction survey and census reports, respectively, and by using the growth of population, the average number of persons per household, the number of households per dwelling and the number of houses available for other years. The rural construction survey for 1963/64 has also been

used to estimate non-residential buildings in rural areas for the service sectors, extrapolated by the compound growth rate of the population. The corresponding investment estimates for urban areas are based on the housing census of 1960, also extrapolated by the growth-rate of the population (and the construction price index).

Expenditure estimates of capital items for the federal, provincial and local governments are based on the classification of their budgets.

### Exports and imports of goods and services

The estimates of exports and imports of goods are secured from the Statistics Division, while those for services are derived from the balance-of-payments statistics compiled by the State Bank of Pakistan. Gifts in cash or kind are included, but military equipment transferred between Governments are excluded.

#### Cost structure of the gross domestic product

### Domestic factor incomes

This item, consisting of compensation of employees and operating surplus, is arrived at as a residual, after subtracting the consumption of fixed capital and net indirect taxes from the gross domestic product.

### Consumption of fixed capital

In the absence of any reliable information on depreciation, a flat rate of 5 per cent of the gross value added is applied in all subsectors of agriculture, mining and quarrying, small-scale manufacturing, public administration and defence, and other private services, a flat rate of 10 per cent in large-scale manufacturing and parts of road transport, and a flat rate of 2.5 per cent and 2 per cent in the construction and trade sectors, respectively. Depreciation is worked out on the basis of provisions therefor in the budgets of the Water and Power Development Authority and the profit and loss accounts of gas and electricity companies. In parts of the transportation sector, depreciation is estimated on the basis of the life expectancy of the vehicles. For ownership of dwellings, a flat rate of depreciation has also been used, 20 per cent in rural areas and 25 per cent in urgan areas.

#### Indirect taxes and subsidies

Figures of indirect taxes and subsidies have been derived from budgets of the federal Government and the provincial and local governments.

#### Constant prices

# Gross domestic product by kind of economic activity

# Agriculture, hunting, forestry and fishing

Double deflation is used for agriculture; the gross values are computed by applying base-year prices to production in current years. For forestry the current values are deflated by the wholesale price index of timber and firewood; for fishing they are deflated by the wholesale price index of fish.

### Mining and quarrying

Gross value at constant factor cost is worked out by multiplying the annual output of each mineral by the base-year pit-head or well-head prices.

#### Manufacturing

Value added is extrapolated by a quantum index of manufacturing.

### Electricity, gas and water

Current value added is deflated by the wholesale price index for electricity and gas.

### Construction

Value added is extrapolated by a quantity index of output, based on the availability of cement for local consumption.

### Wholesale and retail trade, restaurants and hotels

Value added of the trade sector is obtained from the distribution of agriculture produce, manufactured and imported goods (after deducting for inputs). The consumer price index is used to convert the constant series into current values.

### Transport, storage and communication

Current estimates of value added are deflated by the consumer price index for industrial workers.

## Financing, insurance, real estate and business services

For banking and insurance, the current estimates are deflated by the consumer price index for commercial employees. For ownership of dwellings, value added is extrapolated by a quantity index for output, using the number of occupied houses as indicator.

#### Community, social and personal services

For public administration and defence, the current series are deflated by the consumer price index; for other services value added in most cases is extrapolated by using employment data.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

Compensation of employees is deflated by the consumer price index, and purchases of goods and services are deflated by the general wholesale price index.

# Private final consumption expenditure

Private consumption expenditure at constant prices is obtained as a residual.

### Increase in stocks

The current estimates are deflated by the general wholesale price index.

# Gross fixed capital formation

The estimates are based on the extrapolation by various quantity indicators of the sectors of the investors.

# Exports and imports of goods and services

Exports are deflated by the export price index and imports by the import price index.

#### PANAMA

The presentation that follows is mainly based on information contained in <u>Situación Económica, Cuentas Nacionales:</u> Años 1973 a 1975, published by the Dirección de Estadística y Censos in 1976, and the report by the United Nations Secretariat on country practices in national accounting at constant prices (E/CN.3/464). Supplementary information was received from the Dirección de Estadística y Censos, Controlaría General de la República, in May 1978.

### Introduction

### History

Systematic work on national accounting started in 1951 with the creation of a Special Studies Division in the Dirección de Estadística y Censo, charged with the responsibility of preparing national income and balance of payments estimates.

The first national income estimates, covering the period 1944-1952, were prepared in 1953 with the assistance of a United Nations national accounts adviser, and published in <u>El Ingreso Nacional y las Cuentas Nacionales de la República de</u> Panamá: <u>años 1944-1952</u>.

The Dirección de Estadística y Censo adopted in 1959, with some changes, the methodology employed by the Economic Commission for Latin America in its report El Desarrollo Económico de Panamá.

From 1960 the national accounts estimates have been published annually by the Direccion de Estadística y Censo in <u>Estadística Panameña, Serie C, Ingreso</u> Nacional, and from 1976 in the bulletin <u>Situación Económica</u>.

#### Approaches used

#### Gross domestic product

The main approach used to estimate the gross domestic product is the income approach.

### Gross domestic product by kind of economic activity

The income approach is used to estimate the value added of all kinds of economic activities except agriculture, forestry and fishing. Income statements filed with the Internal Revenue Service are used in a number of cases, but production indicators are also used in the extrapolation of income-tased estimates of the bench-mark year.

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, and exports and imports of goods and services. The commodity-flow

approach is used to estimate private final consumption expenditure; it is also used to a large extent, in the case of gross capital formation.

## Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

#### Gross domestic product by kind of economic activity

Current agricultural surveys Census of agriculture Censuses of manufacturing and electricity distribution Annual surveys of manufacturing and electricity distribution Censuses of construction, trade and services Inquiries to private enterprises Financial reports of central government and decentralized institutions Population censuses

# Cost structure of the gross domestic product

Financial reports of the central Government and decentralized institutions

External trade statistics

Accounting data of private enterprises

#### Expenditure on the gross domestic product

Financial reports of the central Government and decentralized
institutions
Registration statistics for industrial production
Balance-of-payments statistics
External trade statistics

# Methods and sources of estimation

#### Current prices

## Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared in factor values.

## Agriculture, hunting, forestry and fishing

Value added in agriculture, forestry and fishing is obtained by deducting inputs from the gross value of production in the sector. The census of agriculture is the principal source of quantitative data. Other sources used to estimate agricultural production include current agricultural surveys, intercensal rates of growth for estimating certain products for which current surveys are not available; external trade statistics are used for those products which constitute agricultural production for export (bananas, shrimps).

As regards prices, data from the current statistics on prices received by the agricultural producers are used. The prices in question relate to quotations from 75 markets in the country and are weighted according to relative importance of each product in the total production volume, by product and province, based on information derived from the agricultural census of 1961.

The method being used at present does not require annual input data in order to establish the value added. The following sources are used for the base year only: external trade statistics (imports), the agricultural census, authorized judgements of agronomists and specialists in this field, and special inquiries carried out among independent cattle farmers and cattle institutions in the country. The inputs of the different subsectors are estimated and classified according to whether they are of domestic or imported origin.

At present, separate data on non-marketed agricultural production are not available. The agricultural census and current agricultural surveys collect information only on quantities harvested, and not on quantities used for own consumption by the producer.

Agricultural services are not calculated, and there is no hunting for profit in Panama.

Value added in forestry is derived from a bench-mark estimate of sawn-wood produced, the number of persons engaged in this activity, and the ratio of output to employment obtained from periodical industrial inquiries carried out by the Dirección de Estadística y Censo.

In the case of fishing, estimates are based on fish landings in the Gulf of Panama as published in <u>Estadística Panameña</u>. Estimates of fish caught elsewhere are based on the number of persons engaged in fishing, obtained from the latest census of population.

## Mining and quarrying

This activity refers to the extraction of salt, sand and stone. Value added is estimated by extrapolating the bench-mark estimate by an index based on the gross value of production of each subsector at current prices.

#### Manufacturing

Value added of manufacturing is estimated by extrapolating the bench-mark estimate by an indicator based on the gross value of production by type of industrial activity.

## Electricity, gas and water

Value added of the bench-mark by subsector (sanitary services are also included here) is extrapolated by an indicator based on the gross value of production at current prices obtained from a unit-value indicator by product.

### Construction

Value added is estimated by extrapolating the bench-mark estimate by an indicator based on apparent consumption of construction materials, obtained from imports and domestic production valued at current prices. In order to include smaller units in the estimates of the bench-mark year, adjustments relating to the net income of independent workers have been made, calculated on the basis of employment data from the population census. Own-account construction is not estimated separately, but is included under the relevant activities.

#### Wholesale and retail trade, restaurants and hotels

Value added of wholesale and retail trade is extrapolated from the bench-mark year by an indicator based on the value at current prices of products marketed through wholesale and retail trade.

For restaurants and hotels, the base-year value is extrapolated by an index based on the expenditure of resident travellers abroad, the production of food, and domestic production and imports of alcoholic beverages.

#### Transport, storage and communication

The value added of transport, storage and communication is estimated on the basis of payments to the factors of production. Only communication can be estimated in detail, as no separate data are available for the different types of transport.

#### Financing, insurance, real estate and business services

The income approach is used for annual estimates of factor payments at current prices. For ownership of dwellings, value added is obtained by aggregating estimates for different geographical areas of the country. For business services, value added is estimated by using an indicator of patents registrations in force for operating business at the end of each year.

# Community, social and personal services

The contribution of public administration is obtained from financial reports relating to total factor payments in the central Government, and other parts of national government and municipalities.

The income approach is also used for other public services, including educational services, entertainment, medical services and health care and social security. For other private services, value added at constant prices is inflated by price indexes to arrive at value added at current prices.

### Expenditure on the gross domestic product

## Government final consumption expenditure

Estimates of government consumption expenditure are obtained from official documents such as the <u>Informes Anuales de la Controlaría General de la República</u> and <u>Informes Municipales or directly from the agencies concerned</u>.

### Private final consumption expenditure

Private consumption expenditure is estimated by means of the commodity-flow method, based on estimates of locally produced and imported consumer goods, grouped according to the United Nations classification. Net import data for each item of consumer goods are obtained from the external trade statistics and quantities multiplied by consumer prices obtained from <u>Estadística Panameña</u>. The values of locally produced consumer goods are based on estimates made by the Dirección de Estadística y Censo, supplemented by information from other sources. Increases in stocks are taken into account in preparing the estimates of private consumption expenditure.

#### Increase in stocks

Information on the import of cattle for reproduction is obtained from external trade statistics. Data on increase in stocks obtained from the manufacturing industries, wholesale and retail trade, electricity and public enterprises' capital are also used.

#### Gross fixed capital formation

The gross value of construction is obtained by added the cost of inputs of domestic and imported building materials to the estimated value added in the industry.

The expenditure on locally produced and imported capital goods is based on the commodity-flow method. The f.o.b. values of imported capital goods are obtained from external trade statistics and adjusted to purchasers' values on the basis of a study of a selected group of imported capital goods.

## Exports and imports of goods and services

Factor and non-factor services rendered by residents of Panama to the Canal Zone and to the Colón Free Zone are treated uniformly as non-factor services to the rest of the world. These services are, therefore, included in exports of goods and services (and the services component of the gross domestic product by kind of economic activity).

Exports and imports of merchandise are registered in the external trade statistics; the United States Embassy provides information on exports and imports to and from the Panama Canal Zone. The balance of payments is used for including the different services data, compiled regularly according to the different categories.

#### Cost structure of the gross domestic product

## Compensation of employees

Data on average wages and the percentage distribution of employees 15 years and more of age are used, based on weekly wages in the Republic by area according to the household surveys. Wages for one week are estimated on the basis of this information and multiplied by 52.2 to obtain wages for the year. To this information are added the yearly estimates for salaries earned in the public and private sectors, employers' contribution to social security schemes and an estimate of the incomes of self-employed workers.

#### Operating surplus

In current statistics, the operating surplus is compiled from different items, such as property income, saving and direct taxes.

## Consumption of fixed capital

The estimates are based on the accounting data of private enterprises, obtained from direct surveys, and financial information for all autoncmous and semi-autonomous entities included in the public sector. No estimates are made, however, for depreciation of government fixed capital.

#### Indirect taxes and subsidies

Indirect taxes are estimated from public finance statistics, details of the revenue figures of the Central Government, the municipalities and the Panamanian Institute of Tourism, classified according to the SNA recommendations.

Subsidies are extracted from the expenditure of the Central Government, the municipalities and the Panamanian Institute of Tourism, classified according to purpose.

### Constant prices

# Gross domestic product by kind of economic activity

#### Agriculture, hunting, forestry and fishing

For crop farming (for the domestic market), forestry, stock-farming and fishing, the current quantities are valued at base-year prices, for agricultural export commodities valued at base-year export prices.

#### Mining and quarrying

Value added is extrapolated by quantity indicators for output.

#### Manufacturing

For the manufacture of bakery products, textile goods and printing base year estimates are extrapolated by indexes of input quantities, for the repair of motor vehicles they are extrapolated by the number of vehicles in circulation, and for all other groups the base year estimates are extrapolated by quantum indexes of output.

# Electricity, gas and water

Value added is extrapolated by quantity indicators of output.

#### Construction

Value added is extrapolated by a quantity index of inputs.

#### Wholesale and retail trade, restaurants and hotels

The value added of the trade sector is extrapolated by a quantity index of output. For restaurants and hotels, value added is extrapolated by quantity indicators for output, based on tourist expenditure in Panama and quantities of food and beverages.

# Transport, storage and communication

Value added is extrapolated by quantity indicators of output.

#### Financing, insurance, real estate and business services

For banks, value added is extrapolated by the balance of loans and deposits at the end of each year; for ownership of dwellings in urban areas, the construction of new dwellings is used as indicator and for rural areas the base-year estimate is extrapolated by an index of rural population growth.

#### Community, social and personal services

For producers of government services, value added is extrapolated by the index of the number of government employees. For other private services, indicators such as the number of physicians and nurses, the numbers of students at private schools and other social statistics are used to extrapolate value added of the various types of services.

# Expenditure on the gross domestic product

#### Government final consumption expenditure

Compensation of employees is extrapolated by the number of persons employed. For purchases of goods and services, the current values are deflated by a combination of price indexes for imported and domestic products purchased by the Government.

# Private final consumption expenditure

Base-year estimates are extrapolated by means of indexes which refer to consumption at both current and constant prices. The final extimates are adjusted for the discrepancy between total demand and total supply.

#### Increase in stocks

Increase in stocks is not estimated at constant prices.

#### Gross fixed capital formation

Current values are deflated by a price index for inputs in the case of buildings and other construction. For transport equipment and machinery and equipment, baseyear estimates are extrapolated by a volume index obtained by deflating current values by an index based on the unit export value of machinery in supplier countries.

# Exports and imports of goods and services

Price deflation is used; for merchandise, current values are deflated by unitvalue indexes for exports and imports, for fuel sales to vessels in transit by a price index for petroleum products, for expenditure of crews by a price index for main articles purchased, for passenger fares by a unit-value index for railway tickets, and for travel abroad by indexes of consumper prices in countries visited by Panamanian nationals.

#### PAPUA NEW GUINEA

The presentation that follows is mainly based on information contained in the publication <u>National Accounts Statistics 1960/61-1973/74</u>, issued by the Bureau of Statistics at Port Moresby in November 1974. Supplementary information was received from the Bureau of Statistics in December 1977.

# Introduction

## History

National income estimates of the market economy for 1949/50 and 1950/51 were prepared by Professor T. W. Swan of the Australian National University in 1951.

The Reserve Bank of Australia carried out in 1961 a study of national income for the five years 1956/57 to 1960/61 on the same lines as the one conducted by Professor Swan. Subsequently, the former Australian Department of External Territories continued the work of Professor Swan and prepared national income estimates for Papua New Guinea covering the years 1960/61 to 1972/73.

Dr. M. L. Parker of the Australian National University prepared an inputoutput table for the year 1969/70 in 1973, based on the national income estimates of the Department of External Territories.

The first national accounts estimates for Papua New Guinea compiled on the basis of the present SNA were published in 1974. 1/

An input-output table for the year 1972/73 was prepared by a United Nations Development Programme (UNDP consultant in 1976, based on the revised national accounts estimates brought out by the Bureau of Statistics in 1974.

#### Approaches used

#### Gross domestic product

As a general rule the income approach is used to estimate the gross domestic product.

#### Gross domestic product by kind of economic activity

In general, the income approach is used to estimate value added of the various economic activities. Income tax statistics, supplemented by annual reports of public and private enterprises, are the principal comprehensive source of data for estimating contributions to the gross domestic product. However, the reporting unit

<sup>1/</sup> National Accounts Statistics 1960/61-1973/74, Principal Economic Accounts and Supporting Tables (Port Moresby, Bureau of Statistics, 1974).

in these statistics is the enterprise (legal entity) rather than the establishment and value added is defined as the sum of compensation of employees, operating surplus, consumption of fixed capital and net indirect taxes. Contributions to the gross domestic product by banks and other financial institutions have been estimated in accordance with the revised SNA recommendations.

#### Expenditure on the gross domestic product

The expenditure approach is used for all components, i.e., government and private final consumption expenditure, gross capital formation and net exports of goods and services. The commodity-flow approach is used for checking purposes in the case of a few items under private final consumption expenditure.

#### Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

# Gross domestic product by kind of economic activity

Income tax statistics Rural industries survey Secondary industry survey Survey of building activities Annual employment returns Survey of religious organizations Annual reports of private companies (e.g. Bougainville Copper, Ltd.) Annual reports of public enterprises and financial institutions Budget papers of the Papua New Guinea Government.

## Cost structure of the gross domestic product

As above

# Expenditure on the gross domestic product

Budget papers of the Papua New Guinea Government Survey of retail sales and selected services Private capital expenditure survey International trade statistics

## Methods and sources of estimation

Current prices

# Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared at market prices, i.e., producers' values.

The estimate of gross domestic product has been subdivided according to a classification by kind of economic activity that closely follows ISIC at the major division levels. There are only a few minor deviations in the major divisions of electricity, gas and water, wholesale and retail trade and community, social and personal services. This classification was devised by the Australian Bureau of Statistics in connexion with the 1966 population census. Establishment-type data are used to a large extent in the major divisions of mining and quarrying, electricity, gas and water, and communication, where almost the whole production is concentrated in a few enterprise units. For other kinds of economic activity it has generally not been possible to use establishment data, so most data relate to enterprises. The reason for this is that the principal comprehensive source of data available for estimating contributions to gross domestic product is income tax statistics. In an attempt to cover each classification category, adjustments are made to the results of various surveys and supplementary data are taken into account; for example, the Rural Industries Bulletin does not cover hunting, fishing and trapping, the Building Statistics Bulletin does not cover non-residential buildings and buildings constructed on rural holdings (for which building permits are not required), and the retail sales and selected services survey does not cover urban markets and small trade stores.

In Papua New Guinea much of the production either is not exchanged, or is not exchanged for money. However, in order to account for all production in the national accounts, national values have been attributed to such production. The most important types of productive activity valued in this way are non-market production and contributions of free and partially paid labour. Estimates for these activities are presented separately as sub-divisions of the relevant items as the amounts involved are quite substantial and based on a number of conjectures.

As indicated above, estimates of the gross domestic product by kind of economic activity are arrived at by subdividing the cost-structure components of the total gross domestic product into the various kinds of activity. The methodology adopted for the purpose is described in the following paragraphs.

Compensation of employees is classified into categories by kind of economic activity in accordance with the industry information on individuals' tax returns. If an individual has more than one source of income, he is allocated to the industry category corresponding to his major source of income and all of his income is classed in that category. Some adjustments to the taxation data are, however, made where additional or better information can be obtained from other sources.

Data on the operating surplus of private enterprises are similarly classified on the basis of information given in the company tax statistics and in the statistics of individuals' income other than wages and salaries. The industry categories of the operating surplus of public enterprises and a few others not covered by the taxation statistics are determined by the nature of their productive activities. Estimates do appear against the operating surplus of public authority and defence, because all the income recorded on an individual's tax return is classified under the industry corresponding to his major source of income. Thus, a public servant who is classified under that category may own a dwelling from which he earns income either by living in it himself or by letting it out; his salary would appear as compensation of employees and his operating surplus from his ownership of a dwelling would appear under operating surplus against it. In the case of indirect taxes and subsidies, the industry allocation has been made on the basis of the nature of indirect taxes and subsidies. Taxation data provide the basis for industry allocation of consumption of fixed capital. These data are supplemented by other information in respect of producers not covered by the taxation statistics. The value of all duties levied on imports by the public authorities is shown as a separate item.

## Expenditure on the gross domestic product

#### Government final consumption expenditure

The following government reports and papers provide most of the data needed to estimate this item: budget papers, annual reports of the Commissioner for Local Government and Australian budget papers. Special inquiries are made from the few Australian Government offices still operating in Papua New Guinea for information on their receipts and expenditure.

It is recognized that the current position of government revenue and expenditure data, particularly with regard to the boundaries to be applied in classifying information on revenue, expenditure, net lending and financing, is not at all satisfactory. An attempt is being made to adopt recognized standard concepts and definitions, for example, the classification of government final consumption expenditure by purpose, which should make it considerably easier to analyse these data.

## Private final consumption expenditure

The market component of household final consumption expenditure is estimated mainly from the results of the retail sales and selected services survey. Additional sources are used in estimating components not covered by this survey: budget papers, annual reports of the Transport Control Board, the Electricity Commission, the Department of Public Utilities, and universities, the population census, various surveys of urban markets and village industry and taxation data.

The estimate of household final consumption expenditure calculated by using the above sources of data is checked and supplemented for a few items by calculating a comparable estimate from the commodity-flow approach with the international trade statistics as the principal source of required information.

An estimate of production of food for own consumption by households other than those in the rural villages is calculated by using data from the <u>Rural</u> <u>Industries Bulletin</u> and the estimated consumption per head of population in urban areas. The non-market component of private final consumption expenditure relates to production by rural villagers for final consumption by rural village households. This covers production of food for own consumption, collection of firewood for own use, and services of owner-occupied dwellings. The present method of estimating own-account production of food could be termed an expenditure approach, as it attempts to estimate from dietary studies the total calorie intake of the rural village population and to allow for foodstuff purchased, in order to estimate the quantity of food grown for own consumption in the rural villages. To arrive at the corresponding values, average prices are calculated for each traditional food and applied to the quantity estimates. On the basis of the population census and information from the Department of Primary Industry the value of production of firewood for own consumption has been estimated by multiplying the average annual quantity of firewood used per family by the average price of firewood and the number of families gathering firewood for their own use. The non-market component of gross rent relates to construction and maintenance of housing. The total time spent on construction and maintenance of housing by rural villagers is estimated by multiplying population data series by the average number of days spent on this work by adult villagers, and valued at the ruling minimum wage rate in rural areas. The final consumption expenditure by missions is estimated from the annual statistics of religious organizations.

# Increase in stocks

The <u>Taxation Statistics Bulletin</u> is the main source of data, but for those producers not covered by taxation data, other sources are used, as for government and public enterprises, Bougainville Copper, Ltd. and religious organizations.

#### Gross fixed capital formation

The principal source of information on gross fixed capital formation by private industries is the capital expenditure survey. For private industries not covered by this survey other sources have been used, such as the <u>Building Statistics</u> <u>Bulletin</u>, the <u>Rural Industries Bulletin</u> and international trade statistics. The main sources of data for gross fixed capital formation by public industries are the annual reports of the public enterprises. Estimates are also prepared for producers of government services and for producers of private non-profit services to households (missions).

#### Exports and imports of goods and services

The principal sources of data for exports and imports of merchandise are the international trade statistics. Supplementary data on international settlements on communication and insurance services and exports and imports of other commodities like maintenance work abroad of resident airlines and non-resident airlines inside the country, direct purchases in the domestic market by non-resident households, etc. are collected and used in estimating exports and imports so as to conform to the requirements of the SNA as far as possible.

## Cost structure of the gross domestic product

## Compensation of employees

Data on wages and salaries actually paid, classified by kind of economic activity, are available from several sources, namely taxation statistics, statistics of religious organizations, and the <u>Labour Information Bulletin</u> published by the Department of Labour, which contains estimates based on the annual employment returns. Adjustments have to be made in order to allow for wages and salaries not covered by these sources. Wages have been imputed in some rural areas in respect of work provided for government and mission authorities. This information is shown separately in the national accounts tables. Estimates of supplements in the form of contributions made by employers to workers' compensation, pension and superannuation schemes are based on statistics on superannuation contributions. The value of other supplements such as accommodation, clothing and food rations has been estimated by using the information collected by the Labour Department.

#### Operating surplus

The market component of operating surplus is based largely on statistics compiled from taxation returns. That applies to all industry groups except mining and quarrying, electricity, gas and water, and transport, storage, etc. For some special cases, however, adjustments have to be made to the taxation data, for example by adding the imputed bank service charge, treating commodities consumed in the exploratory activities as current costs and not as capital costs. Allowance is made in the estimates for producers who are not required to submit taxation returns (e.g., public enterprises) and for producers who do not submit returns for various reasons, such as the small scale of their operations and the absence of financial records. For indigenous primary producers of crops for export, operating surplus is estimated as a residual, and the same also applies to certain goods sold in the urban markets. The operating surplus imputed for owner-occupied dwellings is calculated from information in the <u>Building Statistics Bulletin</u> or obtained from real-estate agents. The value of non-market production by rural villagers has been treated as the operating surplus of these producers.

#### Consumption of fixed capital

The taxation data provide aggregate information on the value of depreciation claimed by private enterprises and allowed by the Chief Collector of Taxes. For producers not covered in this way, other sources such as annual reports are used.

#### Indirect taxes and subsidies

The Papua New Guinea budget papers and the annual reports of the Commissioner for Local Government provide all the information needed to estimate indirect taxes and subsidies.

#### Constant prices

# Gross domestic product by kind of economic activity

Gross domestic product by kind of economic activity is not estimated at constant prices.

# Expenditure on the gross domestic product

## Government final consumption expenditure

The estimates relating to the contribution of free and partially paid labour have been dealt with by using quantity revaluation, in other words, the number of man-days each year has been multiplied by the wage-rate of the base year. Wages and salaries are revaluated by the quantity revaluation method, using the number of employees in each group as quantities. The other components of goods and services are deflated by appropriate indexes calculated from the import price index or by special purpose indexes calculated from relevant data, e.g., postal and telephone charges, electricity charges, etc.

#### Private final consumption expenditure

Quantity revaluation at base-year prices has been used for the non-market

component of this item, as the current value series has been calculated from quantity and price data. The market components are revalued by using appropriate indexes based on the relevant categories of the import price index, the consumer price index or specially collected price data.

### Increase in stocks

Increase in stocks relating to Bougainville Copper, Ltd. is revalued at baseyear prices using quantities and prices on world metal markets, for wholesale and retail trade the consumer price index is used as deflator, and for all other stocks an index based on the import price index is used as a deflator.

#### Gross fixed capital formation

The non-market components of this item are revalued by using the quantity revaluation method, the quantities being the man-days of labour employed. For buildings and other construction, the current values are revalued by using a combined index based on the import price index for building materials and an index of average wages of building and construction workers; transport equipment is revalued by using the relevant import price index, and machinery and other equipment are also revalued by using relevant import price indexes.

## Exports and imports of goods and services

In the case of exports of merchandise, the quantities of major items are multiplied by the base-year unit values. The residual items (by SITC sections or divisions) are deflated by the imputed price index (from the major export items). In the case of imports of merchandise, different SITC section and division totals are deflated by the equivalent group indexes of the import price index. Sea and air freight charges are reworked by applying the base-year unit charges to the quantity figures in different years. Passenger service charges are deflated by the corresponding indexes of fares specially compiled for the purpose. Other imports of services are deflated by suitable indexes; for example, an airline fuel index is used for the deflation of airport expenditure by airlines on fuel. Exports of service items are deflated in the same way.

#### PARAGUAY

The presentation that follows is mainly based on the comprehensive description of sources and methods used in national accounting received from the Banco Central del Paraguay in November 1978.

#### Introduction

#### History

The first estimates of the national income of Paraguay were prepared by C. Soler and M. Cirovich for the year 1946 and published in <u>Ensayo sobre la Renta</u> <u>Nacional en 1946</u>. A national income division (División de Cuentas Nacionales) was established in the Departmento de Estudios Económicos of the Banco Central in 1952.

In 1961 complete revision of the estimates beginning with the year 1950, was undertaken by the Banco Central, with a view to standardizing concepts and improving methods. The results were published in the study <u>Cuentas Nacionales del</u> <u>Paraguay, 1956-1961</u>.

The second edition in the series <u>Cuentas Nacionales</u> was published by the Banco Central in 1969.

In 1975, national accounts statistics for the period 1962-1974 were published in the eleventh edition of Cuentas Nacionales.

#### Approaches used

#### Gross domestic product

The gross domestic product is mainly estimated on the basis of the production approach.

#### Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of most industries. The income approach is used to estimate the value added of public administration and defence, part of transport and communication, and part of other private services. The gross output of the trade sector is based on the commodity-flow approach, applying a fixed percentage for value added.

#### Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure and exports and imports of goods and services. The commodity-flow approach is used for the estimation of gross fixed capital formation, increase in stock is estimated for livestock only, and private final consumption expenditure is arrived at as a residual.

## Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

# Gross domestic product by kind of economic activity

Agricultural data from the Ministerio de Agricultura y Ganadería <u>Boletín Estadístico</u> of the Banco Central del Paraguay Industrial censuses in 1955 and 1963 Data from building permits Government budgets Transport statistics Population and housing census, 1972

# Cost structure of the gross domestic product

Wage statistics Government budgets

# Expenditure on the gross domestic product

Government budgets Balance-of-payments data

## Methods and sources of estimation

#### Current prices

# Gross domestic product by kind of economic activity

The table of gross domestic product by kind of economic activity is prepared at market prices, i.e., producers' values.

# Agriculture, hunting, forestry and fishing

The agricultural production is estimated from two sources; the data supplied by the Ministerio de Agricultura y Ganadería, and the estimates prepared by the División de Cuentas Nacionales consistent with the nature of each agricultural product.

The value of agricultural production is obtained by multiplying quantities by prices. Data on produced quantities are furnished by the Ministerio de Agricultura y Ganadería and represent around 60 per cent of the total agricultural production. For the remaining 40 per cent indirect indicators are used, such as the rate of population growth and the intercensal growth-rate or the results of the sample production survey.

The Ministerio de Agricultura y Ganadería supplies information on prices paid to the producer for agricultural products for export. Wholesale and retail prices are also available, from which a specified percentage is deducted in order to arrive at producers' prices.

For livestock production, the principal sources of information are the Banco Central, the Dirección de Impuestos Internos, the Industrias Frigoríficas della Carne and the agricultural census, 1956.

The value of livestock production is estimated by type of livestock, values of slaughterings and stock changes being treated separately. The slaughtering of cattle is estimated on the basis of information provided by the Dirección de Impuestos Internos and the meat-processing industries, while stocks of cattle are determined on the basis of the 1956 agricultural census. The production of milk and eggs is estimated by using the coefficients of existing milk-cows and laying hens. The estimates of horses slaughtered are based on exports of horse meat. The prices of this sector are supplied by the Ministerio de Agricultura y Ganadería and the meat-processing industries.

The estimation of the inputs for the agriculture sector is made ty applying a percentage of the gross value of production, separting agricultural crops and livestock production since the costs are different in each case.

The information for hunting is obtained from the <u>Boletín Estadístico</u> of the Banco Central. The estimates are based on the volumes and values of exported pelts and furs from wild animals. The export value is reduced by 20 per cent for trade and transport margins.

For forestry the principal sources are the 1956 agricultural census, the 1963 industrial census, the <u>Boletín Estadístico</u> of the Banco Central, the 1972 population and housing census, a direct survey, etc. The logging sectors are also taken into account: for the forestry sector this is a principal activity and for the agriculture sector it is a supplementary activity. The volumes of both sectors are multiplied by current year prices.

For fishing information is also provided by the Banco Central. Value added is determined on the basis of fish quantities consumed in Asunción and other principal cities. Fish consumption is integrated into the food item of the cost-of-living index.

## Mining and quarrying

The production of mining and quarrying, including basalt and limestone, is estimated on the basis of the industrial production coefficients of lime and cement.

#### Manufacturing

Information is mainly drawn from the surveys of the Banco Central, the Boletin Estadístico and the industrial censuses held in 1955 and 1963. The production of each industrial group is multiplied by the respective prices to obtain the gross value of production. The value added of each sector is then determined on the basis of coefficients from the 1963 industrial census, applied to the gross production values.

# Electricity, gas and water

The value added of electricity is based on information from the Administración Nacional de Electricidad and on direct surveys and the 1963 industrial census. For water supply and sanitary services, the source used is the Corporación de Obras Sanitarios de Asunción, which provides annual estimates of value added at current prices.

## Construction

The source used is the production index for construction materials, supplemented by information furnished by the municipalities of Asunción and other cities. The index of construction materials includes the production and imports of products used in construction, like cement, lime, bricks, etc. This index is compared with the permits granted by the municipalities for civil construction, expressed in square metres, which are multiplied by the base-year value and later inflated by the implicit price index of construction materials.

#### Wholesale and retail trade, restaurants and hotels

In estimating the trade sector, the total value of goods flowing through domestic trade channels is first obtained by adding the values of locally manufactured goods, imported finished goods and agricultural products net of farm consumption. Value added of the trade sector is then assumed to be 30 per cent of this total. The trade sector also includes the financial services provided by banks, insurance companies and other financial institutions, data on value added being supplied by the Superintendencia de Bancos.

Restaurants and hotels are included in community- social and personal services.

### Transport, storage and communication

The Dirección de Tránsito de la Municipalidad de Asunción supplies information on the number of vehicles for the different categories of motor transport. These numbers are multiplied by the number of days worked and the gross income earned in the base year, thus obtaining the gross value of production, to which the value added coefficient is applied for each category of vehicle. For the other components of transport services, information is obtained directly from the respective enterprises (Compañías de Navegación Aérea, Fluvial de Cabotaje, Ferrocarril Carlos Antonio López, Administración de Transporte Eléctrico and Flota Mercante del Estado). The values at constant prices are inflated by the consumer price index. Non-mechanical transport is calculated on the basis of the index of agricultural production transported in rural areas by carts.

The value added of communication is estimated on the basis of information from the Dirección de Correos and the Administración Nacional de Telecomunicaciones.

# Financing, insurance, real estate and business services

Estimates for the financial institutions, including insurance, are included in wholesale and retail trade. For ownership of dwellings, the estimates are prepared on the basis of the number of dwellings by type of construction materials used. The number of dwellings ascertained from the 1972 population and housing census is projected by recorded growth rates for the urban and rural population and compared with the increase in the construction of dwellings. Value added is estimated by taking the prices of paid and imputed rents by category of dwelling and zone, and multiplying them by the increased number of dwellings.

Business services are included in community, social and personal services.

# Community, social and personal services

The value added of public administration and defence is estimated as the total compensation paid to government employees, based on information furnished by the Presupuesto General de la Nación.

For public and private education, information is supplied by the Ministerio de Educación, the Universidad Nacional de Asunción and the Universidad Católica. The value added of public education is determined directly from the Presupuesto General de Gastos de la Nación, while the value added of private education is estimated at constant prices by multiplying the number of students enrolled by the annual education costs plus registration fees and deducting 20 per cent for intermediate consumption. Direct information is obtained for public health services and social security services. For private health services the benchmark estimate is extrapolated by the number of practising physicians, dentists and midwives, information on which is provided by the Ministerio de Salud Pública y Bienestar Social.

For domestic services the bench-mark estimates are based on the wages paid in rural and urban areas and the corresponding figures for the number of persons engaged in this sector obtained from the 1972 population and housing census. Current estimates are obtained by multiplying actual annual wages by employment figures assumed to increase at a rate of 3.3 per cent in the urban area and 2.6 per cent in the rural area.

The information base for other services is the economic census held in 1963, from which a bench-mark value can be estimated, which is then projected by a specially constructed growth rate for other services.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

This item consists of payments of personal services and payments for purchases of goods and other non-factor services. The information is obtained from the Ministerio de Hacienda, which controls the budget of the public sector institutions.

#### Private final consumption expenditure

Private final consumption expenditure is estimated as a residual by deducting the other expenditure items from the gross domestic product.

#### Increase in stocks

In estimating change in stocks, only livestock is covered, and this is estimated as the annual increase of the cattle production minus quantities for consumption and industrial purposes. Stocks increase if the rate of cattle production exceeds the slaughtering rate; if the reverse is true, a decrease is recorded.

# Gross fixed capital formation

Gross fixed capital formation is estimated on the basis of import statistics for machinery, equipment, transport and communication. Domestic production of similar items and the gross value of production in the construction sector are also included.

#### Exports and imports of goods and services

Exports and imports of goods and services are estimated on the basis of information furnished by the División de Balanza de Pagos of the Banco Central.

## Cost structure of the gross domestic product

### Compensation of employees

The method used to estimate this item is to combine the information on the number of persons employed, by economic sectors, and the average wages paid in each productive sector.

#### Operating surplus

The operating surplus is estimated as a residual by deducting compensation of employees, consumption of fixed capital and indirect taxes net of subsidies from the gross domestic product at market prices.

## Consumption of fixed capital

This item is determined on the basis of the average lifetime of each type of capital good established in the respective depreciation tables.

#### Indirect taxes and subsidies

These items are based on information supplied by the Ministerio de Hacienda.

## Constant prices

Gross domestic product by kind of economic activity

#### Agriculture, hunting, forestry and fishing

Double deflation is used; for output the current quantities (or production) are revalued at base-year prices, for input a special coefficient is used for each subgroup. The value added of fishing is extrapolated by urban population growth.

# Mining and quarrying

The current quantities are revalued at base-year prices.

# Manufacturing

The production of each industrial group is revalued at base-year prices.

# Electricity, gas and water

The current values are deflated by the consumer price index.

# Construction

The value added is extrapolated by using construction figures in terms of square metres.

# Wholesale and retail trade, restaurants and hotels

Value added is deflated by a price index for trade.

# Transport, storage and communication

Value added is extrapolated by using quantity indicators.

# Financing, insurance, real estate and business services

The value added of ownership of dwellings is extrapolated by using quantity indicators.

## Community, social and personal services

The value added of government services is deflated by the consumer price index. The value added of public education and public health services is also deflated by the consumer price index, whereas the corresponding private services and domestic services are extrapolated by employment-type data. The value added of other private services is extrapolated by a volume index.

#### Expenditure on the gross domestic product

The expenditure side of the gross domestic product is estimated at constant prices, but no specific information is available on what sources and methods are used for the various items, except that the general wholesale price index is used as a deflator.

#### PHILIPPINES

The presentation that follows is based on information compiled by the Statistical Office of the United Nations in 1970 or thereabouts, "Country practices in national accounting at constant prices" (E/CN.3/464) issued by the United Nations Secretariat on 24 May 1974, and, in particular, detailed information received from the National Economic and Development Authority in December 1977.

## Introduction

#### History

The first national income estimates for the Philippines were estimates of the industrial origin of gross national product for the years 1938 and 1946, prepared in 1947 by the Joint Philippine-American Finance Commission.

A set of national accounts estimates for the years 1946-1951 was prepared in 1952 by the Department of Economic Research of the Central Bank, under the guidance of a United Nations national income adviser, and published in the report The National Income of the Philippines and its Distribution.

The responsibility for preparing the national accounts was transferred in 1957 to the Office of Statistical Coordination and Standards of the National Economic Council, later known as the National Economic and Development Authority.

In 1967 the first input-output study was published by the Office of Statistical Coordination and Standards.

In 1975 the first regional income estimates for the Philippines by industrial origin for 1967 were published by the Statistical Coordination Office of the National Economic and Development Authority. A project was set up jointly by the Authority and the Central Bank for the regular compilation of a flow-of-funds account for the Philippines.

An over-all revision of the national accounts to incorporate new sources of data aligning the conceptual framework to the present SNA was made in 1976, also shifting the base year for estimates at constant prices from 1967 to 1972.

A draft manual of sources and methods of estimation for the national accounts corresponding to the 1976 over-all revision was completed in 1977.

#### Approaches used

#### Gross domestic product

The main approach used to estimate the gross domestic product is the production approach.

# Gross domestic product by kind of economic activity

The production approach is used to estimate the value added of most industries. The income approach is used for producers of government services and a large part of private services; for construction the expenditure approach is also used.

## Expenditure on the gross domestic product

The expenditure approach is used to estimate government final consumption expenditure, private final consumption expenditure, increase in stocks, exports and imports of goods and services and capital formation in construction. The commodity-flow approach is used to estimate capital formation in machinery and equipment. The commodity-flow approach and income-elasticity approach are also used for private consumption expenditure.

# Main statistical sources

The following are the most important statistical sources on which the production and expenditure estimates of the national accounts are based:

## Gross domestic product by kind of economic activity

Census of agriculture, 1971 Integrated agricultural surveys Livestock and poultry surveys Economic census, 1972 Annual surveys of establishments Quarterly surveys of establishments Census of population and housing, 1970 (and 1960) Permit and assessment data of private construction National sample survey of households Government accounts and reports Household budget surveys

# Cost-structure of the gross domestic product

Government accounts and reports Economic census, 1972 Annual surveys of establishments Inter-industry accounts of the Philippines, 1969

# Expenditure on the gross domestic product

Government accounts and reports Household budget surveys Annual surveys of establishments Census of population and housing, 1970 (and 1960) Permit and assessment data for private construction Foreign trade statistics and balance-of-payments data

## Methods and sources of estimation

Current prices

# Gross domestic product by kind of economic activity

## Agriculture, hunting, forestry and fishing

The sources used for estimation of the agricultural sector are the census of agriculture, 1971, the integrated agricultural surveys and data collected through administrative agencies and producers' associations. The census includes data on human and land resources, farm input and output, and farm management and practices, including estimates of selected characteristics such as the number, size, and area of farms, farm equipment, land utilization and crop and livestock and poultry production. The integrated agricultural surveys include crop surveys, survey on prices received and paid by farmers and farm wages survey. It covers all farm households and is conducted five times a year. Final estimates on the volume and value of production of palay, corn, fruits, vegetables and commercial crops for each preceding semester are gathered during the major January and June rounds. Estimates of the supply and disposition of palay and corn are collected during the major rounds, while data on farm prices and farm wages are collected in all five rounds. The data are collected from a probability sample of 25,000 farms for the major rounds and from 12,000 farms for the minor rounds. Information on non-marketed production and own-account consumption of palay and corn are collected during the January and June rounds of the integrated agricultural surveys. The family income and expenditure surveys are another source of information.

The value of agricultural production is obtained by multiplying the volume of output by the average price received by farmers for the period. Agricultural cost ratios are obtained from special cost-of-production studies for selected commodities, from the 1969 input-output tables and through administrative and research institutions.

For livestock and poultry the sources are the 1971 census of agriculture, the livestock and poultry survey and administrative agencies. The livestock and poultry survey gathers data annually on the livestock and poultry count in commercial farms and households and the volume of meat production covering slaughterhouses and large commercial meat processors, and slaughtering carried out by private households. The value of production is obtained by multiplying the volume of output by the average price received by farmers for the period. Cost ratios are obtained from cost-of-production studies and from the 1969 input-output tables for the Philippines.

For forestry the sources are the 1972 economic census and current forestry statistics compiled from monthly reports of district foresters. Production of charcoal and the gathering of other forestry products are based on total forest charges, which make up 10 per cent of the market value of the gathered products. The weighted average of wholesale prices is used to obtain value of production. For fishery the sources are: (a) monthly reports from operators or commercial fishing vessels on the volume of catch, which are adjusted for understatements using regional raising factors derived from the results of the 1972 landing surveys in selected landing-places; (b) municipal treasurers' reports on fishpond hectarage, based on operators licence times a constant productivity per hectare; and (c) municipal and sustenance fishing estimates based on growthrates in selected municipalities. Estimated prices received by fishermen from auction sales are used to obtain the value of production. Cost ratios are obtained from cost-of-production studies and the 1969 input-output tables, updated using the wholesale prices of selected inputs.

## Mining and quarrying

Estimates are based on the annual reports from the Bureau of Mines, which contain extracts from reports of mining firms and city and municipal treasurers, the quarterly and annual surveys of establishments, the 1972 economic census and financial statements of mining firms.

Intermediate inputs at constant prices estimated from the 1972 economic census are inflated by specially constructed price indexes built from wholesale prices of major inputs, and subtracted from the value of production at current prices to arrive at value added.

# Manufacturing

The economic census, the annual surveys of establishments and the quarterly surveys of establishments are the principal sources of basic data used to estimate value added.

The annual surveys cover establishments employing 5-19 workers on a sample basis, and those employing 20 workers or more on a full enumeration basis. The data collected are similar to those collected in the economic census. For five out of 20 major industry groups the commodity-flow method is used instead of the survey and census results, supply and disposition ratios being taken from the 1969 input-output tables. Value added by factor share is also estimated from the annual surveys and economic census.

Income originating in the unorganized sector of manufacturing is obtained from an estimate of value added per worker derived from the 1972 economic census and updated by a consumer price index.

# Electricity, gas and water

Basic data are collected from the Manila Electric Company (a private entity) which provides quarterly statements on income earned and expenses incurred, from three government corporations, which furnish data on their operations regularly through questionnaires, from several other government agencies, which submit annual financial statements, and from the Commission on Audit, which consolidates annual reports of government electric plants and waterworks. Other sources of data are the economic census (1972), the annual surveys of establishments and the quarterly surveys of establishments.

From information available, a direct estimate can be made of value added by factor shares.

## Construction

Gross output of private construction is estimated on the basis of building construction statistics compiled by the National Census Statistics Office from reports of 1,522 municipal treasurers and city engineers on building permits issued.

For residential construction the declared value of construction is corrected for undervaluation using regional undervaluation ratios obtained from an <u>ad hoc</u> survey conducted by the National Census Statistics Office in 1974. In non-permit areas an estimate of the gross value of residential construction is obtained by estimating the number of new dwelling units from the 1960 and 1970 censuses of housing along with certain assumptions and then using an estimate of cost per dwelling unit, which is extrapolated from the results of an <u>ad hoc</u> survey undertaken by the National Economic and Development Authority in 1975 and supplemented by data on low-cost housing from the National Housing Authority.

For non-residential construction the building permit statistics are not used because they do not distinguish between government and private construction. Instead, data from the annual surveys of establishments on capital expenditure for buildings and other structures are used. Estimates of construction activities in the agricultural sector are mere extrapolations from a bench-mark derived from the 1956 survey of private capital formation in agriculture.

Data for national and local government construction come mainly from the annual report of the Commission on Audit. For government corporations, data are obtained through quarterly questionnaires.

Income originating from construction activities is estimated using the latest available value-added ratio from the annual surveys of construction establishments.

#### Wholesale and retail trade, restaurants and hotels

For wholesale and retail trade, the basic sources for estimating gross output and value added are the 1972 economic census, the annual surveys of establishments, the quarterly surveys of establishments and employment data of the labour force survey.

A bench-mark estimate of gross output in trade is taken from the economic census. Subsequent annual estimates are extrapolations of the bench-mark estimate, using the results of the quarterly and annual surveys of trade establishments. Value-added ratios derived from the annual surveys are then applied to the gross output (trade margin).

The economic census and trade establishment surveys do not cover ambulant pedlars and market stalls and vendors of meat, fish, vegetables and fruits, since these are not considered establishments. An undercoverage allowance is therefore made for these types of trade activities, using employment data from the labour force survey and an estimate of value added per worker.

For restaurants and hotels gross output in the 1972 economic census is used as a bench-mark estimate. For the "unorganized" sector, however, the 1971 family income and expenditure survey on household expenditure has been used and extrapolated by a consumer price index. Extrapolation of the bench-mark for the "organized" sector is done by using the growth-rates in gross receipts based on results of the annual surveys of establishments. The census and survey reports on the number of hotels is reconciled with the Department of Tourism count of hotels.

Value-added ratios are derived from results of the economic census and the annual surveys of establishments.

# Transportation, storage and communication

The main sources of data are the 1972 economic census, the annual and quarterly surveys of establishments, the financial reports of public road transport operators submitted to the Board of Transport, the financial report of the Philippine National Railways, and the tabulation of registered public utility vehicles by the Land Transportation Commission.

Secondary sources of data used as counterchecks and as indicators of gross output are the Bureau of Internal Revenue, the Securities and Exchange Commission, the Civil Aeronautics Board, the Conference of Inter-island Shipowners and Operators, the Board of Communication and the individual establishments concerned.

Value added is estimated by using the production approach, except in road transport, where the value added per unit approach is used owing to the disorganized nature of this subsector.

# Financing, insurance, real estate and business services

Data on the output, inputs and factor incomes of all banks and non-banks are taken from the consolidated financial statements compiled by the Central Bank every six months, except for the non-bank intermediaries owned and/or controlled by the Government, for which financial statements are obtained from the agencies themselves. The availability of good data on banks and non-banks makes it possible to estimate directly value added by factor shares.

The insurance sector covers insurance carriers dealing with all kinds of risks, insurance agents and brokers and insurance service agencies. Pension trust funds are included under non-banks.

All insurance firms operating in the Philippines submit annual financial statements to the Office of the Insurance Commissioner. These reports are tapped to meet the data requirements of estimation in the insurance sector.

Commissions from real-estate transactions are obtained as the product of the reported value of sales and the legal allowable rate of 5 per cent. Value-added ratios have been derived from the 1969 input-output table and the 1972 economic census. For developers and builders of real estate, the results of the economic census provide bench-mark estimates of gross output and value added through the production approach, and are extrapolated by the growth rates of real estate sales and mortgages. Rental of dwellings makes use of the family income and expenditure surveys for 1961, 1965 and 1971. Rental income is the product of the number of existing dwellings and average rental expenditure per dwelling unit stratified into three income brackets as in the family budget surveys. Rental expenditure bench-mark estimates are brought to current basis by the consumer price index. Rents of tenanted dwellings and imputed rents of owner-occupied dwellings are estimated separately by ratios derived from the budget surveys. The 1972 economic census and the quarterly and annual surveys of establishments are the basic sources for the business sector. The undercoverage of small own-account establishments by census and survey data is, however, substantial; as a result, data on the gross income of professions derived from income-tax returns are used instead for this portion of the sector. The production approach is adopted to estimate value added, using ratios obtained from the census of establishment surveys.

#### Community, social and personal services

For producers of government services, the basic data are obtained from the annual report of the Commission on Audit on the financial condition of the Government. Income originating in government services is estimated as the aggregate of reported actual expenditures on wages and salaries paid to employees, life and retirement insurance premiums and similar remunerations. It relates to all services of general government, including those of the social security system but excluding government enterprises.

For private educational services the 1972 economic census is used for the bench-mark estimate of gross output, extrapolated by a gross receipts index derived from the establishment surveys. Value added is obtained by using the production approach, with ratios obtained from the establishment surveys.

Bench-mark estimates of the gross output for the organized sector of private medical and health services and recreational services are obtained from the 1972 economic census and extrapolated by using composite price indexes constructed from a gross receipts index compiled by the Central Bank and an employment index derived from the labour force survey. Value-added ratios are derived from census results and the results of the annual surveys of establishments. For the unorganized sector, the basic sources for gross output are the income-tax returns of own-account professionals and data on expenditure for services of quack doctors in the 1971 family income and expenditure survey.

The value added of domestic services is the product of the number of persons employed and an estimate of value added per worker derived from family expenditure on wages for servants, brought to current terms by a wage index of housemaids. Gross output of the organized segment of this sector uses the 1972 economic census results adjusted by an undercoverage ratio as the bench-mark estimate, extrapolated by a composite index of employment and gross receipts. Value added for other services is derived from the establishment surveys. The scanty information on non-profit institutions limits the estimate of their contribution to the allowable 5 per cent deduction from net income for charitable contributions and donations, based on information from the Bureau of Internal Revenue.

#### Expenditure on the gross domestic product

#### Government final consumption expenditure

Estimates of government consumption expenditure are taken from the Commission on Audit reports for national and local government; those for the social security system are taken from the two offices administering it and from the Budget Commission, which also compiles data on revenues and expenditure of the national government by agency and shows more details. Data on government enterprises are taken from the Budget Commission. Data on fees and charges considered as purchases from government by business and households are taken from the Commission on Audit reports. Depreciation of government equipment and buildings is computed at replacement cost.

### Private final consumption expenditure

Consumption expenditure on each broad expenditure group is estimated by using the commodity-flow method. Where statistics are available in quantity terms. the value of final consumption by households and private non-profit institutions is obtained by multiplying consumption quantities by the appropriate retail prices. Where the commodity-flow method is applied to value terms, the values of the components are expressed at purchasers' values. In view of the fact that the data required for the commodity-flow method lag by at least one year, preliminary estimates are computed by using the income-elasticity approach. The family income and expenditure surveys for 1961, 1965 and 1971 provide bench-mark information on the levels and patterns of household expenditure by broad income groups. Current data on supply are derived from production figures available from the integrated agricultural surveys, livestock and poultry surveys, annual surveys of establishments, censuses, foreign trade statistics, food balance sheets compiled annually by the National Economic and Development Authority, estimates of the gross rental value of dwellings in the real estate sector, questionnaires sent to electricity, gas and water establishments, and reports of the Commission on Audit on utilities operated by local government. Mark-ups are derived from the results of censuses and trade establishment surveys. Retail prices are taken from the results of the integrated agricultural surveys, prices collected by the Central Bank and the National Census and Statistics Office.

#### Increase in stocks

Changes in stocks include estimates of changes in livestock and poultry inventories, quantity of farm stocks of palay and corn and those in the warehouses of the National Grain Authority, inventories of finished goods, work in process and supplies and materials in non-agricultural establishments. Sources of basic data are the integrated agricultural surveys, the livestock and poultry surveys and the results of establishment surveys and censuses.

## Gross fixed capital formation

Capital formation in construction is equal to the gross value of private and government construction, the sources and methods of estimation of which are already described in the section on gross domestic product by kind of economic activity.

The commodity-flow approach is used in the estimation of expenditure on durable equipment from domestic and foreign sources. The portion of net supply available for domestic use (total supply less inventories and exports) is divided between consumption and capital formation by means of allocation ratios for each type of equipment based on the results of a Central Bank questionnaire mailed in 1955. The average prevailing foreign exchange selling rate is used for the conversion of c.i.f. dollar values into Philippine pesos. The Bureau of Customs reports on imports by tariff heading showing the declared c.i.f. value in pesos, the estimated duty and tax due on the basis of advanced entry declarations. These data provide the basis for the calculation of tax mark-up ratios. The 1969 survey of importers of durable equipment by the Office of Statistical Coordination and Standards provided bench-mark data on importer-dealer ratios and the corresponding trade and transport mark-up ratios for each major group of durables. The trade mark-up ratios are updated by using the results of annual surveys of trade establishments.

# Exports and imports of goods and services

The primary sources of data for exports and imports of goods and services are the foreign trade statistics compiled by the National Census and Statistics Office (for merchandise exports and imports) and the balance of payments compiled by the Central Bank of the Philippines. Values of exports and imports are expressed in United States dollars, and these are converted to current pesos using the average exchange rates compiled by the Central Bank. Merchandise exports and imports are adjusted by removing returned goods, personal effects, goods temporarily exported and/or imported samples, and gifts and donations in kind. To merchandise exports is added the value of gold purchased by the Central Bank.

#### Cost structure of the gross domestic product

#### Compensation of employees

Annual data on the cost of production are available for the non-agricultural sectors with an average time-lag of two years, from the annual surveys of establishments and much sooner from reports of financial institutions, insurance companies and public utilities. A more detailed breakdown of costs is provided by the census results. For the agricultural sector, studies on production costs are used. From these sources, data on salaries and wages, fringe benefits in cash and in kind and employers' share of social security contributions are used to obtain an estimate of employees' compensation.

#### Operating surplus

Data from the same sources on profits before taxes, donations and/or charitable contributions and net interest payments are used to obtain an estimate of operating surplus.

#### Consumption of fixed capital

Estimates of depreciation based on acquisition cost are also available from these sources. For estimates of depreciation at replacement cost, a global estimate for all sectors is derived by estimating the cost of replacement of existing stock by the use of the perpetual inventory method. The global estimate is then allocated to each of the sectors, using a sectoral structure based on the reported levels of depreciation. In the global estimates the following average lifetime of assets are used: durable equipment - 10 years, dwellings - 25 years, non-residential buildings - 75 years.

## Indirect taxes and subsidies

The estimates are made on the basis of reports of the Commission on Audit, the Bureau of Internal Revenue, which uses a detailed classification by kind of activity, the Bureau of Customs, which breaks down import taxes by tariff headings, the Central Bank, which has data on export taxes by commodity, the Land Transportation Commission and the Bureau of Treasury.

#### Constant prices

# Gross domestic product by kind of economic activity

# Agriculture, hunting, forestry and fishing

Value added at constant prices is obtained by multiplying base-year estimates of unit value added by current estimates of the volume of production.

#### Mining and quarrying

The quantity of mineral production is currently valued at 1972 unit prices. Real value added for each mineral is then estimated by applying the base-year value added to the value of production expressed at 1972 prices.

### Manufacturing

Value added by subsector is deflated by price indexes derived from the wholesale prices of manufactured commodities compiled by the Central Bank and weights based on the production volume of the commodities monitored during the base year. In the absence of a producers' price index, double deflation could not be used.

## Electricity, gas and water

Double deflation is used; total output is deflated by a price index based on rates per unit for each sector. Intermediate inputs are deflated by a specially constructed input price index for each sector, based on the prices of major inputs using the input-structure of the sector as reported in the 1972 economic census.

#### Construction

Double deflation is used; gross output is deflated by a composite price index derived by using a wage-rate index and retail price index of construction materials weighted by the percentage ratios of labour and materials to total value of construction. Input is deflated by the retail price index for construction materials.

# Wholesale and retail trade, restaurants and hotels

Double deflation is used; the gross output of wholesale and retail trade is deflated by a wholesale price index and a retail price index, respectively. For inputs, a composite price index is constructed based on cost of materials and supplies and cost of travelling, communication and storage expenses. For hotels, gross output is deflated by a weighted price index for room rates, and input is deflated by a consumer price index. For restaurants, gross output is deflated by a price index of meal rates and inputs by a consumer price index for food.

#### Transport, storage and communication

For each subsector, value added is deflated by a composite price index made up of a labour component and an operating surplus component. The former is reflected by the index of average monthly earnings, and the latter by a consumer price index for transport, storage and communication.

# Financing, insurance, real estate and business services

For financing, insurance, real-estate agents, brokers and developers, value added is deflated by the consumer price index for the Philippines. For rental of dwellings the total number of dwellings by income class is multiplied by the average rental expenditure (also by income class) in 1972. For business services, value added is deflated by an index of monthly earnings.

### Community, social and personal services

Total government services in 1972 are extrapolated by an employment index constructed from data on employment by office.

For private educational services, value added is deflated by an index of tuition fees weighted by enrolment by level of education. A composite price index weighted by the pattern of family expenditure proper on medical and health services is used to deflate estimates of value added of medical and health services. For recreational services an index built up from average prices of admission fees to amusement and recreational facilities is used as a deflator. Real value added of domestic services is obtained by multiplying the number of persons engaged in this activity by the average salary per worker in 1972. For other personal services, weights based on the pattern of family expenditure are applied to selected rates of personal services to arrive at an index for deflating current-price estimates. For other services, value added at current prices is deflated by an implicit price index number for the rest of the private services.

## Expenditure on the gross domestic product

#### Government final consumption expenditure

Wages and salaries are extrapolated by an index of employment of government services. Other expenditure for travelling, communication, repairs and maintenance, freight services, other services, supplies and materials, rent, and military expenditure on construction and durable equipment are deflated by corresponding appropriate price indexes.

#### Private final consumption expenditure

Current-price estimates of consumption expenditure for each broad expenditure group are deflated by appropriate price indexes.

#### Increase in stocks

This item is deflated by appropriate price indexes for finished products and work in process, and by the wholesale price index for raw materials and supplies.

### Gross fixed capital formation

Gross value of construction is deflated by the composite price index described under "Construction" above. Estimates of expenditure on imported durable equipment at 1972 prices are arrived at by separately deflating the c.i.f. value and the mark-ups. The c.i.f. value in pesos of each commodity group is deflated by the unit price index multiplied by the foreign exchange rate relative. The mark-up is deflated by the wholesale price index for imported machinery and transport equipment. Locally produced durable equipment is deflated by the general wholesale price index of locally produced machinery and transport equipment.

#### Exports and imports of goods and services

For each of the top 20 exports of the year, the unit price in 1972 is applied to the quantity exported. The rest of the merchandise exports are deflated by a composite price index. Receipts from transport services are deflated by the general wholesale price index for mineral fuels. Receipts from insurance services, expenditure by non-resident households in the country and miscellaneous commodities are deflated by the consumer price index for the Philippines, while expenditure by foreign Governments in the country is deflated by the consumer price index for Manila.

Imports of merchandise are deflated by unit price indexes of imports available at the two-digit level of the commodity classification used in trade statistics. Payments for freight and other transport services are deflated by the wholesale price index of imported products (mineral fuels), while payments for insurance and other invisibles are deflated by the combined United States and Canadian indexes of consumer prices.

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