

**RAPPORTER**

**NATIONAL ACCOUNTS OF NORWAY**  
**SYSTEM AND METHODS OF ESTIMATION**

BY  
ERLING J. FLØTTUM

**STATISTISK SENTRALBYRÅ**  
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## PREFACE

This publication presents a description of how the system of national accounts in Norway is constructed and how the actual compilation of national accounts estimates is carried out. An important aim has been to provide background information on sources and methods of estimation such that the users of national accounts data better can assess the quality of the national accounts.

The Central Bureau of Statistics has over the last 10 years carried out a complete revision of the Norwegian national accounts in accordance with the recommendations made by the United Nations in the publication "A System of National Accounts" which was issued in 1968. The first revised figures according to the new system were published in March 1973. Work on extending revised time series and coverage has continued since then. More work still remains for the current compilation to comprise the complete system of national accounts. The Central Bureau of Statistics nonetheless finds it is due time to issue a comprehensive publication on national accounts methodology, with relevant information on the revised system and the established practices.

The present publication consists of six chapters. First, in the introductory chapter a brief history of significant national accounting work carried out in Norway is presented. In the three subsequent chapters the new system of national accounts is described: concepts and definitions, the accounting system and, finally, the main classifications included in the national accounts. The last two chapters describe the practical implementation of the new system, with a description of the sources and methods used and a brief summary of the computer routines used in the preparation of the accounts.

A more comprehensive version of this publication is available in Norwegian, issued as No. 45 in the series Social Economic Studies, Nasjonalregnskapet i Norge - System og beregningsmetoder. That publication also contains appendices with a summary of the most important accounts and classifications. More detailed technical information on the computations is available in Norwegian only. A publication issued as No. 1 in the series "Standards for Norwegian Statistics" contains the accounting system in both Norwegian and English.

Central Bureau of Statistics, Oslo, 1 July 1981

Odd Aukrust

The American Red Cross is a national organization that provides relief and assistance to the needy. It is a non-profit organization that is supported by the generosity of the American people. The American Red Cross is a member of the International Red Cross and Red Crescent Movement, which is a global organization that provides relief and assistance to the needy in times of disaster and conflict.

The American Red Cross has a long history of providing relief and assistance to the needy. It was founded in 1881 and has since then provided relief and assistance to the needy in times of disaster and conflict. The American Red Cross has provided relief and assistance to the needy in times of disaster and conflict for over a century.

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## 1. INTRODUCTION\*

### 1.1. History

#### The earliest developments

The first calculations of national income in Norway were made at the end of the last century by A.N. Kiær, the first director of the Central Bureau of Statistics.<sup>1)</sup> These calculations were carried out on the basis of the number of people in different occupations and the results of an extensive survey on income conditions. In accordance with international tradition in the period up to the Second World War, the emphasis primarily focused on arriving at one specific figure, i.e. the national income.

#### Developments between 1930 and 1952

The idea of complete national accounts began to emerge in the first half of the 1930s. Under the leadership of Professor Ragnar Frisch at the University of Oslo, research was carried out in the period 1932 - 1943 on theoretical and practical problems for developing such national accounts. These efforts did not result in a complete numerical specification, although the theoretical work proved to be fundamental for the development of national accounts in Norway.

Calculations of national income were taken up by the Central Bureau of Statistics in 1943. One of the aims of this work was to quantify Norway's capital loss as a result of the German occupation. Calculations of national income were carried out for the years 1935 - 1943, and this work was in principle drawn up as national accounts.

The work on national accounts of the type we have today was started in the Central Bureau of Statistics in 1946. This project was led by Dr. Odd Aukrust who was responsible for the theoretical work, planned the calculations, and was in charge of the daily administration of this work. The national accounts based on the new system were completed in 1952 and covered the periods 1930 - 1939 and 1946 - 1951.

Both the basic data and the interest shown by the public authorities in production-oriented problems contributed to a decision to develop the national accounts by using the production approach rather than the income approach. Detailed annual statistics for manufacturing industries, for example, had existed since 1927. The accounts were based on a double book-keeping system in which all real flows of goods and services between the sectors of production and to final uses were identified. It had a strong industrial specification, implemented throughout a systematic distinction between private and public activity with detailed information on production, public and private consumption, public and private investments, imports and exports.<sup>2)</sup> The calculations were carried so far that the accounts showed public and private disposable income and saving. Already at that time the figures were given at both current and constant prices with relevant volume and price indices. The theoretical principles on which the accounts were based, were presented in a separate publication.<sup>3)</sup>

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\* The author wishes to thank several members of the National Accounts and Balance of Payments Division of the Central Bureau of Statistics of Norway, in particular Mr. Erik Homb and Mr. Nils Terje Furunes, for valuable support in the drafting of this publication.

1) Director Kiær first calculated the national income for 1891 in 1893 and was later also responsible for figures covering the years 1898, 1906 and 1912. 2) The accounts contained, inter alia, 51 production sectors and 25 categories of final use. 3) Dr. Odd Aukrust's thesis "National Accounts. Theoretical Principles" (Social Economic Studies No. 4 from the Central Bureau of Statistics).

## Developments since 1952

The national accounts have on the whole retained the form they assumed in 1952, although many important improvements were gradually made. One important development in the field of technology was that the national accounting work in Norway was drawn up for EDP around 1960. The work on long-time series was given high priority in the 1950s, when the most important time series in the national accounts were extended backwards, first to 1900 and then all the way back to 1865. Two publications issued by the Central Bureau in 1965 and 1966 came to reflect these long-time series.<sup>1)</sup>

Since 1952 the Central Bureau has carried out two extensive revisions of national accounts figures, the first in the years 1956 - 1962 and the second focused on the years 1969 - 1973. The latter also included both expansions and calculations for earlier years. The objective of the first major revision was to revise the figures by means of new statistics. The second major revision had a more extensive objective, to bring the concepts and classifications in accordance with the United Nations' new System of National Accounts - SNA - from 1968, and to come one step further in developing income and outlay and capital finance accounts co-ordinated with the production and commodity accounts. The degree of specification in the accounts was also expanded several times during this period, adapting to the demands which the development of economic models placed on the national accounts.

The national accounts figures which have been computed throughout these years were not only limited to national figures for the respective calendar years. Calculations of quarterly national accounts figures started in 1953 and continued until 1970. Regional national accounts were published for the year 1965 while subsequent publications on national accounts by county have contained figures for 1973 and for 1976.

### 1.2. The Norwegian system of national accounts

The work on drawing up a revised national accounting system based on the new SNA began in 1969. The first revised figures were published in March 1973.<sup>2)</sup> The new recommendations from the United Nations were followed on all essential points, entailing substantial changes in certain definitions and classifications.<sup>3)</sup> At the same time, a numerical revision of the national accounts was carried out on points where new statistics have made it possible to improve earlier computations.

The starting point for these revisions was the framework provided by the summary matrix in the SNA.<sup>4)</sup> The main features of this accounting framework have been used as a basis for the scope elaborated in an accounting system for the Norwegian national accounts. The specifications of this accounting system are largely based on the SNA classifications.

Among the classifications which were included with the extension of the accounts, was a specification of financial assets and liabilities which made it possible to incorporate in the national accounts the financial accounts with a specification of financial assets and liabilities prepared by the Central Bureau of Statistics since 1952.

Before describing the actual system of accounts, it may be appropriate to outline in brief some of the characteristics of the Norwegian accounts. The following important characteristics may be mentioned:

1) "National Accounts 1865 - 1960" as the most detailed national accounts publication ever published in Norway and "Long-Term Trends in the Norwegian Economy" (Social Economic Studies No. 16). 2) "Weekly Bulletin of Statistics", No. 10, 1973 and "Economic Survey of 1972" from the Central Bureau of Statistics. 3) As far as changes in definitions are concerned, this in particular had an impact on the size of the gross capital formation figures. Like the other Nordic countries, Norway had originally chosen to consider expenses for repairs and maintenance as part of gross capital formation. 4) See table 2.1 in "A System of National Accounts" for an illustration of the complete system.

- a) The integration of annual input-output tables in the national accounts.
- b) The strong emphasis on commodity flows and commodity balances.
- c) The incorporation of detailed specifications.
- d) The main emphasis on production, consumption expenditure and capital formation accounts rather than on income and outlay and capital finance accounts.
- e) The introduction of the entire SNA matrix as an accounting framework.
- f) The role of the national accounts as a basis for integrating and co-ordinating economic statistics as a whole.

Norway is one of few countries that has input-output tables integrated in the annual accounts. Several factors have made this possible.<sup>1)</sup> Input-output tables have been integrated in the national accounts ever since 1952. In Norway, the national accounts have to a large extent been used as an empirical basis for the economic models constructed for use in the work on national budgeting and macro-economic planning as a whole. The current national budgeting model MODIS IV has built in such a sector-commodity and commodity-sector input-output structure which is used in the national accounts and with approximately the same degree of specification.

Based on the commodity nomenclature used in industrial statistics and external trade statistics, it has been possible to incorporate a detailed set of commodity flows in the final national accounts. Similarly, different value components for each commodity flow have been introduced.<sup>2)</sup> The heavy emphasis on commodity flows and commodity balances has a positive effect on the consistency in the accounts, including the constant-price estimates.

Characteristics like integrated input-output tables and the emphasis on commodity flows are closely related to another special characteristic of the accounts: the detailed degree of specification. The background for this wealth of details may primarily be found in parts of the primary statistics available and the model building tradition in Norway.

The implementation of the new SNA has thus far been concentrated on the production, consumption expenditure and capital formation accounts. This reflects the particular interest the public authorities have shown in the real flows in economy. Also, the statistical base has been considerably better for production statistics than for income and financial statistics.<sup>3)</sup>

Introducing the entire SNA matrix as an accounting framework is, inter alia, an expression of the positive attitude in following up on United Nations recommendations.<sup>4)</sup>

In Norway, considerable emphasis has been placed on having the national accounts play a co-ordinating and integrating role in relation to other economic statistics, inter alia, for the use of joint definitions, classifications etc. In the Central Bureau of Statistics, a main policy in the development has been that primary statistics have been established with a view to the needs of the national accounts, and this in turn has provided the basis for the construction of economic planning and national budgeting models in close connection with the national accounts. The fact that these activities have been institutionalized within the Central Bureau of Statistics, with the work on national accounts and economic modelling within the same administrative division, has been of great importance.

### 1.3. Publication routines of the national accounts

The publication of national accounts figures in Norway follows certain routines which are unchanged from year to year. With respect to the annual accounts, preliminary national accounts estimates are first computed in three different versions before final estimates are available around 20 months after the end of the year of account.

1) The input-output structure is one of the main features of the new SNA; model-builders have shown a considerable interest in national accounts with built-in input-output tables, and the large data masses which are necessary to draw up these current input-output tables have traditionally existed. 2) One aim is to arrive at commodity flows expressed in basic values, but the breakdown also allows for an explicit treatment of commodity taxes and subsidies both in the national accounts and in MODIS. The accounting system thus provides an adequate framework for the treatment of value added tax throughout the entire system of commodity flows. 3) "The production approach" thus has been the main approach used for computing gross domestic product (see section 5.1 on main approaches used). 4) Recently, work has continued on developing routines for current computations of the income and outlay and capital finance accounts based on the accounting system drawn up in accordance with the principles from the SNA matrix.

The three versions of preliminary accounts which are presented for a given year of account have been given the following "designations": "Economic Survey<sup>1)</sup> accounts", "March accounts" and "November accounts". The fourth version results in final accounts.<sup>2)</sup>

Economic Survey accounts figures for a given year are published at the end of January or beginning of February in the subsequent year. The figures are computed at the end of the year on the basis of current figures from the accounts of the preceding year and indicators for the first 10 (possibly 11) months of the given year of account. The Economic Survey accounts figures are published on a relatively aggregated level, also comprising tables which fall outside the production and commodity accounts.<sup>3)</sup>

The March accounts are normally prepared in March the following year, based on indicators for all months in the year of account and figures on values for the preceding year. The figures are published in the Weekly Bulletin of Statistics in April. The table set is identical to that presented in "Economic Survey". More detailed figures are published some months later in the annual national accounts publication. The detailed figures from the March accounts each year are utilized for updating the structural data base of the model MODIS IV. This model is of great importance for the national budgeting work of the Ministry of Finance. The March accounts figures are available soon enough for use as data base for the revised national budget which is presented in the spring.

The November accounts (which is worked out in November the year following the year of account) differ quite substantially from the Economic Survey accounts and the March accounts in that a number of the indicators which were used to prepare the latter accounts have been replaced by final value figures in the November accounts. The basis of calculation is final accounts for the preceding year and not preliminary accounts as for the previous two versions. The figures from the November accounts (year t) are published first time along with final accounts for the preceding year (year t-1) and the Economic Survey accounts for the following year (year t+1) in "Economic Survey". The level of specification is the same in all three versions of preliminary accounts. An important reason why the reliability of the figures increases considerably in the November accounts is that main figures from the manufacturing statistics are available in due time.

Most of the resources devoted to the current national accounting work is allocated to the annual accounts, i.e. the preliminary and final accounts. The estimates covered by these accounting versions are confined mainly to the production and commodity accounts (see section 3.2 and sections 5.1 through 5.5). However, work is also carried out in computing current estimates for the rest of the accounts (see sections 3.3 and 5.6 below).

In addition, it should be mentioned that balance of payments data are prepared on a current basis (monthly, quarterly and annually) and are fully integrated in the national accounts (see section 5.7). For the three years 1965, 1973 and 1976 national accounts data have been prepared by region or county (see section 5.8). Quarterly national accounts data have also been compiled in certain periods (see section 5.9). Input-output publications have not been published regularly, only on an ad hoc basis.

## 2. CONCEPTS AND DEFINITIONS

### 2.1. Introduction

The purpose of the following three chapters - concepts and definitions, system of national accounts and classifications - is to describe and illustrate the contents of the Norwegian national accounts. When the accounting framework is presented and, hopefully, some knowledge of the national accounts is acquired, the last two chapters of this publication will describe to the readers in considerable detail how the national accounts figures in Norway are computed.

1) Annual publications from the Central Bureau of Statistics. 2) Figures from final accounts, however, are normally revised in connection with main revisions which incorporate new levels from censuses every ten years or so. 3) Income and outlay tables for general government and for the private sector, disposable income for Norway, increase in national wealth etc.

A brief introduction to the basic concepts of national accounts is given in section 2.2. The main emphasis is here placed on concepts of the nation, such as gross domestic product, net domestic product etc. which play a principal role in the accounts. Section 2.3 presents a list of those concepts which occur in the tables of the annual national accounts publication. This list contains a systematic description of the content or definition of each concept. This methodology publication might be considered as a technical supplement to the annual national accounts publications, with one of its major goals to guide the users of national accounts estimates towards a more thorough understanding of the concepts and definitions used. In order to focus specially on concepts with altered content, section 2.4 accounts for the new definitions in the national accounts publication resulted from the revised national accounting system based on the present SNA.

## 2.2. Basic concepts and valuation

The national accounts contain several thousand time-series. In order to have a summary of these figures, aggregates are presented in the tables of the current national accounts publications and which might serve as a starting-point for the description on concepts and definitions used in the national accounts, presented in section 2.3. below.

Gross domestic product is considered the most important of the national aggregates. No other concept in the national accounts has played such a significant role for the current appraisal of the economic situation of the country. In general, it is observed that gross domestic product is expressed at market prices in the national accounts tables. However, sometimes the readers might come across expressions like purchasers' values, producers' values, basic values and factor cost.

Primarily, the question of valuation is restricted to the situation with transactions or commodity flows which possibly could be split up into components of volume and price. Indirectly gross domestic product also falls into this category, since it is obtained as the difference between gross output and intermediate consumption which are both divided into value components of volume and price.

In Norway, the commodity flows are expressed both in purchasers' values, producers' values and basic values (approximate basic values). This means a good deal of flexibility in respect of different value components. The detailed flows and the emphasis on indirect taxes and subsidies linked to the commodity flows have impact on a limited number of commodities, except that the value added tax plays a significant role in the construction of the integrated input-output tables formed by the commodity flows. For more detailed information about the value components, see other sections (3.2.4 - 4.3 - 5.4.4 and others).

## 2.3. Concepts and definitions in the national accounts publication

A list of concepts that appear in the annual national accounts publication is presented below, with a definition or description of their content. The list is given by table sections in the national accounts publication, as follows:

- a) Domestic product
- b) Consumption
- c) Capital formation, consumption of capital and real capital
- d) Factor income, compensation of employees etc.
- e) Balance of payments, disposable income, private and general government income and expenditure and saving

### a) Domestic product

Gross domestic product    Gross output less intermediate consumption.  
 Gross domestic product is also equal to the gross value of goods and services to final uses in purchasers' values less imports of goods and services valued cif.  
 Gross domestic product is also equal to the sum of compensation of employees, operation surplus, consumption of fixed capital and net indirect taxes (indirect taxes including customs duties less subsidies).

Net domestic product      Gross domestic product less consumption of fixed capital.

b) Consumption

Private final consumption expenditure	The value of goods and services used by the country's households or by consumer organizations (private associations and institutions of a non-profit nature) in the course of a period. The item comprises the outlays of resident households and individuals on consumer durables (excluding dwellings), semi-durable consumer goods, non-durable consumer goods and services less their net sales of second-hand goods etc. (see also section 5.3.1).
Specified consumption	The item comprises consumption outlays in Norway of resident households and individuals as well as foreigners in the course of a period. Specified consumption is otherwise equal to private final consumption expenditure less direct purchases abroad by resident households plus direct purchases in Norway by non-resident households.
Direct purchases abroad by resident households	The item includes personal outlays of Norwegians in other countries as tourists, diplomatic and military personnel etc., seasonal workers and border workers who are residents of Norway, as well as outlays in connection with business trips abroad (due to statistical reasons).
Direct purchases in Norway by non-resident households	The item comprises foreigners' expenditures in Norway which are included in the two export categories "travel" and "direct purchases in Norway by other non-residents".
Government final consumption expenditure	The value of goods and services which general government produces for its own use on current account, i.e. gross output less sales of goods and services. Gross output in general government is equal to the sum of the government's purchases of goods and services (intermediate consumption), consumption of fixed capital, compensation of employees and indirect taxes (if they occur). Sales of goods and services relate to goods and services provided by general government to business enterprises, private consumers, other countries or public institutions in return for payments (fees). (See also section 5.3.2.)
Civilian government consumption expenditure	Civilian government consumption expenditure comprises remuneration to civilian personnel in central government (including social insurance administration) and local government (excluding building and construction workers), other current government expenditure on goods and services for civilian purposes and consumption of government fixed capital. Expenditure on civilian building and construction projects, motor vehicles, machinery and equipment etc. is counted as part of the country's gross capital formation.
Military government consumption expenditure	Military government consumption expenditure comprises remuneration to military personnel and all expenditures on current acquisitions and building and construction projects for the defence, excluding family dwellings.
Central government consumption expenditure	The item comprises consumption of central government fixed capital, compensation of employees and expenditure on goods and services used by the central government (including social insurance administration) for regular administrative purposes less goods and services provided by this government sector to others in return for payments (fees).
Local government consumption expenditure	The item comprises consumption of local government fixed capital, compensation of employees and expenditure on goods and services used by local government for current administrative purposes less goods and services provided by local government to others in return for payments (fees).

c) Capital formation, consumption of capital and real capital

Gross capital formation	Gross fixed capital formation and increase in stocks.
Gross fixed capital formation	The outlays of industries and general government on additions of new durable goods to their stocks of fixed assets less their net sales of similar second-hand and scrapped goods.

Gross fixed capital formation (cont.)	The item includes acquisitions of reproducible and non-reproducible durable goods except land (but costs in connection with purchases and sales of land etc. is included), and less mineral deposits, timber tracts and the like for civilian use. The item also includes work in progress on construction projects, significant capital repairs, outlays on land improvement and changes in the stock of breeding animals, dairy cattle and the like (see also section 5.3.3).
Increase in stocks	The market value of the physical change during a period of account in stocks of materials, supplies, finished goods, work in progress except on construction projects, livestock raised for slaughter, merchandise held by resident industries as well as stocks of strategic materials and emergency stocks. In practice increase in stocks is often determined as the difference between the value of the stocks at the beginning and the end of the period (see also section 5.3.4). In Norway this item is calculated as the difference between total supply of commodities (gross output and imports) and the sum of other uses of commodities (private final consumption expenditure, gross fixed capital formation, exports and intermediate consumption including purchases of goods and services for general government).
Net domestic capital formation	Gross capital formation (including increase in stocks) less consumption of fixed capital.
Net fixed capital formation	Gross fixed capital formation less consumption of fixed capital.
Capitalized expenses	Outlays considered to be investment costs: In particular, "capitalized expenses on oil exploration and drilling, pipelines for oil and gas" are recorded as gross capital formation, including all expenditure in connection with oil drilling and oil exploration.
Consumption of fixed capital	The reduction in the value of fixed assets (productive capital including government fixed assets) which is due to wear and tear, foreseen obsolescence and the normal rate of accidental damage. Unforeseen obsolescence, main catastrophies and the depletion of natural resources are not taken into account (regarded as capital loss). (See also section 5.4.3.)
Real capital	Fixed capital plus stocks on a given date. The new value of real capital at the end of the year is determined as the sum of this and preceding years' gross capital formation which has not previously been entirely depreciated. The real capital is usually valued at written-down replacement costs which at the end of the year are equal to the sum of written-down gross capital formation for this and previous years.
Fixed capital of enterprises	Fixed assets in the production sectors of industries.
General government fixed capital	Fixed assets in the production sectors of general government.

d) Factor income, compensation of employees etc.

Indirect taxes	Taxes paid to general government by business enterprises in connection with purchases of goods and services, production, imports and sales (see also section 5.4.4).
General purchase tax	A general tax on goods and services levied on the value at the last stage of distribution.
Value added tax	A general tax on goods and services levied on the value at each stage of production and distribution. The tax basis is the difference between the gross value of production or sales value and the value of consumed or purchased goods and services at each stage. In principle, the value added tax (VAT) is levied on most domestic consumption, while goods and services for exports are exempt.
Investment levy	A tax levied on the value of purchases of durables etc. for investment purposes. The tax is also levied on part of intermediate consumption.

Commodity taxes	Taxes which in principle vary in proportion to the quantity or value of goods and services produced or sold. The item comprises a number of special taxes or excises on food, beverages and tobacco, electric energy, purchases of motor vehicles etc., petrol and miscellaneous goods and services. In addition, the general taxes are included (general purchase tax, value added tax and investment levy on capital goods).
Customs duty	Tax on imports which come under the Storting resolution concerning the Customs Tariff. The duty is stipulated either as a fixed amount per unit or as a fixed percentage of the value.
Indirect taxes to local government	Taxes collected by local government, primarily tax on real property.
Other indirect taxes	Indirect taxes which are not linked to commodities and which comprise the surplus in the State Wine Monopoly, duties on documents, tax on production of crude petroleum and natural gas, taxes through special funds administered by the Ministry of Finance, annual tax on motor cars etc. (paid by industries), part of the kilometre-tax, registration duty on motor vehicles, passenger fees for civil air transport and a number of smaller taxes.
Import taxes	Taxes on imported goods constituting an addition to cif-values, i.e. customs duty, value added tax and special excises or taxes on imports.
Refund of value added tax on fixed capital formation	Adjustment item which corresponds to the difference between gross fixed capital formation valued at purchasers' prices including value added tax and purchasers' prices excluding value added tax.
Collection of investment levy on fixed capital formation	Adjustment item which corresponds to the difference between gross fixed capital formation valued at purchasers' prices including the investment levy but excluding value added tax and purchasers' prices excluding both the investment levy and value added tax.
Subsidies	Payments of support from general government to the private sector in the capacity of business enterprises. The subsidies can be divided into commodity subsidies and other subsidies (subsidies not related to commodities). (See also section 5.4.4.)
Subsidies related to commodities	Also referred to as commodity subsidies. Subsidies which in principle vary in proportion to the quantity or value of the goods and services produced or sold. The item also include subsidies given as compensation for value added tax on some food.
Subsidies not related to commodities	Subsidies which are not linked to commodities. The item comprises that part of price subsidies for milk and milk products which is included as part of the implementation of the agricultural agreement, subsidies for grain growing, investment subsidies, subsidies from special funds administered by the Ministry of Finance, part of the subsidies from the Concentrated Feeds Fund and from the funds of the Price Directorate, price subsidies on Norwegian grain and flour, other subsidies from the appropriation account, contributions by the Norwegian Pools Limited, contributions to the Norwegian Broadcasting Corporation, subsidies to compensate for customs duties to shipyards etc., subsidies paid by local government and other subsidies like price subsidies for scheduled road transport and coastal services etc., certain subsidies to farmers and the unemployment insurance national reserve fund.
Subsidies (as refund of value added tax) on residential and social buildings	Grants to residential buildings in connection with the erection of new year-round dwellings and extensions, old-age homes and children's homes, private schools and non-State churches which with definite limitations may cover value added tax for the building. These grants are recorded as subsidies in the national accounts.
Factor income	Net domestic product less indirect taxes plus subsidies. Factor income is a measure of the remuneration obtained by the factors of production for their inputs and is divided into compensation of employees and operating surplus.
Compensation of employees	All payments of wages and salaries in cash and in kind plus employers' contributions to social security schemes and social contributions including contributions (net) to the Low Wages Fund. (See also section 5.4.1.)
Wages and salaries, including social contributions	Wages and salaries in cash plus wages and salaries in kind plus employers' contributions to private pension, family allowance, health and other casualty insurance, life insurance and similar schemes.
Employers' contributions to social security schemes	Employers' share of contributions to public social security schemes like the National Insurance Scheme, the State Pension Fund, the Pension Scheme for Pharmacists, the Pension Scheme for Seamen, the Pension Scheme for Fishermen and the Pension Scheme for Forestry Workers.

Operating surplus	Factor income less compensation of employees. The operating surplus is the amount remaining for interest on loan capital and as remuneration for inputs of own work and own capital. Operating surplus is equal to gross output less the sum of intermediate consumption, compensation of employees, consumption of fixed capital and indirect taxes reduced by subsidies (see also section 5.4.2).
Private operating income	Operating surplus less public net income from capital and net income of non-residents from investments in Norway.
Public net income from capital	The item comprises the sum of savings in State enterprises, taxes on State enterprises, net income transfers from State enterprises to central government, net interests and dividends in general government and municipal enterprises as well as operating surplus of municipal enterprises.
Net income of non-residents from investments in Norway	Interests, dividends etc. to the rest of the world less interests, dividends etc. from the rest of the world.
Income of self-employed in agriculture, forestry and fishing	Operating surplus less interest outlays in agriculture, forestry and fishing.
Income from dwellings	The item comprises operating surplus less interest outlays of the housing sector (dwellings).
Net interest income of households	Interest income less interest outlays for households or individuals.
Other private operating income	Total private operating income less income of self-employed in agriculture, forestry and fishing, income from dwellings and net interest income of households.
Private income from labour and capital	Private operating income plus compensation of employees. The item is otherwise obtained as total factor income less public net income from capital and net income of foreigners from investments in Norway.
Correction for imputed bank service charge	Imputed charge for banking services equal to the excess of interest income accruing to banks and similar financial institutions over the interest accruing to depositors.

e) Balance of payments, disposable income, private and general government income and expenditure and saving

Current account, balance of payments	That part of the balance of payments which comprises current transactions with the rest of the world. It consists of a balance of goods and services and a balance of interest and transfers (see also section 5.7).
Exports	Total value of the goods and services which are delivered to other countries in the course of a period (see also section 5.3.5).
Imports	Total value of the goods and services Norway has received from other countries in the course of a period (see also section 5.3.5).
Export surplus	Total exports less total imports.
Import surplus	Total imports less total exports.
Net interest and transfers from abroad	Interest etc. and transfers from abroad less interest etc. and transfers to abroad.
Surplus on current account, balance of payments	Exports surplus and net interest and transfers from abroad. The item appears as a balance on the current account of the balance of payments.
Changes in international reserves and other assets and liabilities not caused by transactions	The item comprises changes in assets and liabilities due to changes in exchange rates, other revaluations and allocation of SDRs in the IMF.
Changes in assets and liabilities due to changes in exchange rates	The item comprises changes in foreign exchange assets and loan liabilities due to exchange rate changes.
Transfers from general government	The item comprises social insurance and pension benefits and other transfers from general government to private consumers. Social insurance and pension benefits include old age pensions, disablement pension, occupational injury pension, survivor's benefits, benefits to unmarried mothers, war pensions, pensions to lumbermen, fishermen and sailors, local government supplements to statutory social security benefits, sickness benefit etc., daily allowance for the unemployed, other unemployment benefits, rehabilitation allowances, once-for-all allowance by death and redemption of pensions etc.

Transfers from general government (cont.)	Other transfers to private consumers are provided via the central government appropriations account, the State pension offices and local government as well as in the form of family allowances.
Transfers to households	Transfers to households as outlays for general government correspond to the item transfers from general government as income for the private sector.
Transfers from abroad	Transfers from the rest of the world in the form of maintenance, contributions, pensions and compensation, inheritance etc. to private individuals. No transfers from the rest of the world to the government sector are included for the time being.
Transfers to abroad	Transfers to the rest of the world, partly from private individuals in the form of maintenance, contributions, pensions and compensation, inheritance etc. and partly from general government in the form of central government transfers (development assistance etc.).
Direct taxes and contribution to social security funds	<p>Direct taxes are payments in respect of charges levied by the public authorities which do not involve the provision of an identifiable service to the payer, while contribution to social security funds are compulsory payments to public social security schemes which are organized as independent institutions.</p> <p>The item includes income taxes (personal and corporate), property taxes (personal and corporate), annual tax on motor vehicles (paid by individuals), death duties, fines, confiscations etc., other direct taxes, members' premium to social insurance administration, employers' contribution to social insurance administration and members' and employers' contributions to other social security funds etc.</p>
Transfers to general government	The item comprises fines, penalties etc. paid by private consumers to general government.
Property income for general government	The item comprises net income transfers from State enterprises to central government and interests and dividends in general government and municipal enterprises, as well as operating surplus of municipal enterprises.
Interest payments for general government	Interest on public debt.
Official international reserves	The item comprises the sum of the Bank of Norway's gold holdings, the Bank of Norway's bank deposits abroad and foreign securities, reserve position in the IMF and special drawing rights in the IMF.
Decrease in the net debt of Norway	Surplus on current account of the balance of payments plus changes in international reserves and other assets and liabilities not caused by transactions.
Capital account, balance of payments	That part of the balance of payments comprising the financial transactions (payment flows) with the rest of the world.
Increase in the net debt of Norway	Total net inflow on capital transactions from abroad plus net changes in assets and liabilities due to changes in exchange rates etc. (counterpart of item "decrease in the net debt of Norway").
Net capital inflow from abroad	The item includes net capital inflows from abroad to central government, financial institutions, shipping companies, local government and other public and private enterprises plus statistical discrepancy.
Net changes in assets and liabilities caused by exchange rate changes etc.	Contra-entry to the sum of changes in assets and liabilities due to changes in exchange rates and other revaluations which are added to total net inflow on capital transactions to arrive at the increase in the net debt of Norway.
International reserves and other foreign exchange reserves	<p>In Norway, international reserves and other foreign exchange reserves consist of the Bank of Norway's net international reserves, commercial and savings banks' net foreign exchange reserves and other private sectors' net foreign exchange reserves.</p> <p>Figures valued net mean that short-term loans from abroad and foreign deposits in Norwegian kroner in the Bank of Norway and other banks are deducted from the sum of official international reserves and other deposits abroad and foreign securities.</p>
Disposable income for Norway	Net domestic product plus net interest and transfers from abroad. The item expresses the income available to Norway for either consumption or saving.
Public disposable income	General government revenue from capital and taxes etc. less general government interest payments, transfers and subsidies plus saving in State enterprises.
Private disposable income	Disposable income for Norway less public disposable income. The item is also obtained as the sum of private income from labour and capital, transfers from government and transfers from the rest of the world less direct taxes and contribution to social security funds, transfers to government and transfers to the rest of the world.

Increase in national wealth	The item corresponds to the country's accumulation (saving). The item is obtained as the sum of private and public saving. Alternatively, the item is obtained as net domestic capital formation less increase in the foreign debt of Norway.
Private saving (increase in private capital)	Private disposable income less private final consumption expenditure.
Public saving (increase in public capital)	Public disposable income less government final consumption expenditure.

#### 2.4. New definitions in the national accounts publication

This section gives a brief survey of the most important changes in definitions which have been carried out in Norway compared with the definitions previously followed. The most important change in definition refers to the redefining of the value added concept. Capital formation figures now only comprises new investments and significant improvements and alterations.<sup>1)</sup> Repair and maintenance expenses thus are no longer counted as part of gross capital formation (and gross domestic product) as was the case in previous national accounts.<sup>2)</sup>

In accordance with the United Nations' recommendations on the treatment of the banking system, the item "imputed bank service charges" is not included in private final consumption expenditure but as a correction item for gross domestic product.

The definition of taxes has been altered somewhat. Previously, the concept of taxes in the national accounts registered partly taxes accrued in the year, partly the taxes which were actually paid and recorded in the accounts during the year. At present, accrued taxes are consistently used as a main concept, but information on tax payments is also available to a certain extent.<sup>3)</sup> Of less numerical importance is that certain government fees which previously were recorded as payments for goods and services, now are treated partly as transfers and partly as indirect taxes.

Hotel and restaurant services - as opposed to the former SNA treatment of recording the service element only - now include food and beverages valued at the full purchasers' prices of the hotels and restaurants.<sup>4)</sup>

Foreign seamen on Norwegian ships are considered "residents" in the revised national accounts. Wages and salaries paid to foreign seamen on Norwegian ships are therefore now counted as contributions to the gross domestic product. The treatment of work performed by Norwegian seamen on foreign ships, which was previously recorded as contributions to the gross and net domestic product, has been correspondingly altered.<sup>5)</sup>

Increase in standing timber is no longer considered capital formation and is not included in the production of the forestry sector.

In the new accounts, part of the livestock (breeding stock, dairy cattle and the like) is considered fixed assets and the changes in this livestock treated as gross fixed capital formation, as opposed to increase in stocks previously.

Another change in definitions of considerable importance carried out recently (in 1979), refers to expenditures on medical care as reimbursement from the National Insurance Institution to government health institutions. These expenditures are now classified as government final consumption expenditure as opposed to private final consumption expenditure previously.

### 3. SYSTEM OF NATIONAL ACCOUNTS

#### 3.1. Summary accounts

The national accounts distinguish between various basic economic processes: production, income formation, income redistribution, income use, capital formation etc. The relationships between these processes might be summarized in a system of four consolidated or summary accounts.

1) Net purchases of existing real capital by sector are also included, but have no relevance in this context. 2) This change in definition corresponded to a reduction of some 7 per cent in the gross domestic product in 1969. It should also be mentioned that the former Norwegian definition of gross capital formation was adopted before international co-operation in this field began in the 1950s. 3) In a period of rising taxes the new definition of taxes generally results in higher tax figures than previously. 4) The consumption items food and beverages are reduced by an equivalent amount. 5) These new definitions also affect oil production platforms etc. in the same way.

A. Production	Account for creation of values added, including the supply and disposition of goods and services.
B. Incomes	Account for income formation, income redistribution and use of income.
C. Accumulation	Account for gross accumulation and finance of gross accumulation.
D. Rest of the world	Account for transactions with the rest of the world.

The four summary accounts might be illustrated with figures from the national accounts. The concepts or items which occur in the summary accounts are listed in table 1.

Two sets of summary accounts are presented: main types of accounts in the national accounts in table 2 and consolidated accounts for Norway in table 3. In table 2 sub-accounts are introduced for the first two processes as well. Under production is presented a commodity account for the total supply and disposition of goods and services and a production account for the nation with gross domestic product as a residual. This residual is transferred to the first of the accounts belonging to the process of incomes. The income redistribution and the use of income and saving are illustrated through the presentation of separate accounts for the private sector and general government. Emphasis has been given to the transactions between the private sector, general government and the rest of the world.

Table 3 represents a somewhat more consolidated form, but the pattern of four summary accounts is maintained, as in table 2. The two sub-accounts for production, together with the account for income formation, are contracted to one account for gross domestic product by components and by uses.<sup>1)</sup> In table 3 the accounts on incomes appear as an account for formation and use of the disposable income of the nation.

1) The debit side shows the cost-structure of gross domestic product with operating surplus as a residual, while the credit side shows how the total is used on consumption expenditure, investment and exports less imports.

Table 1. Main concepts and relationships illustrated in tables 2 and 3. 1975. 1 000 million kroner

References	Main concepts	Relationships	Amounts
(1)	Gross output		313.2
(2)	Intermediate consumption		164.5
(3)	Gross domestic product (GDP)	(1)-(2)	148.7
	GDP by final uses:	(4)+(5)+(6)+(7)+ (8)-(9)	
(4)	Private final consumption expenditure		77.6
(5)	Government final consumption expenditure		28.7
(6)	Gross fixed capital formation		50.8
(7)	Increase in stocks		1.5
(8)	Exports		62.2
(9)	Imports		72.1
	Cost-structure of GDP:	(10)+(11)+(12)+ (13)-(14)	
(10)	Compensation of employees		86.2
(11)	Operating surplus		24.2
(12)	Consumption of fixed capital		21.1
(13)	Indirect taxes		26.5
(14)	Subsidies		9.3
(A)	Net domestic product	(3)-(12)	127.6
(15)	Interest, dividends etc. from abroad		1.8
(16)	Interest, dividends etc. to abroad		3.7
(B)	National income	(A)+(15)-(16)	125.7
(17)	Transfers from abroad	(18)+(19)	0.5
(18)	Transfers to general government		-
(19)	Transfers to private sector		0.5
(20)	Transfers to abroad	(21)+(22)	1.3
(21)	Transfers from general government		0.9
(22)	Transfers from private sector		0.4
(23)	Disposable income for Norway	(B)+(17)-(20)	124.9
(C)	Final consumption expenditure	(4)+(5)	106.3
(24)	Saving	(23)-(C)	18.6
(D)	Public disposable income	(13)-(14)+(18)- (21)+(25)+(26)+ (27)-(28)	40.5
(25)	Public net income from capital		0.8
(26)	Direct taxes and contributions to social security from private sector		43.5
(27)	Other transfers to government from private sector		0.0
(28)	Transfers to households from general government		20.1
(29)	Public saving	(D)-(5)	11.8
(30)	Private operating income	(11)-(25)+(15)- (16)	21.5
(E)	Private disposable income	(23)-(D)	84.4
(31)	Private saving	(E)-(4)	6.8
(F)	Net capital formation	(6)+(7)-(12)= (24)+(33)	31.2
(32)	Surplus on current account of the balance of payments (= net increase in the foreign debt of Norway)	(8)-(9)+(15)- (16)+(17)-(20)	-12.6
(33)	Net capital inflow from abroad	(-32)	12.6

Table 2. Main types of account in the national accounts. 1975. 1 000 million kroner

A. Production			
A.1. Account for total supply and disposition of goods and services			
(1) Gross output	313.2	(2) Intermediate consumption	164.5
(9) Imports	72.1	(4) Private final consumption expenditure	77.6
		(5) Government final consumption expenditure	28.7
		(6) Gross fixed capital formation	50.8
		(7) Increase in stocks	1.5
		(8) Exports	62.2
Total supply of goods and services	385.3	Total disposition of goods and services	385.3
A.2. Production account for the nation			
(2) Intermediate consumption	164.5	(1) Gross output	313.2
(3) Gross domestic product	148.7		
Gross output	313.2	Gross output	313.2
B. Incomes			
B.1. Account for income formation			
(10) Compensation of employees	86.2	(3) Gross domestic product	148.7
(12) Consumption of fixed capital	21.1		
(13) Indirect taxes	26.5		
(14) - Subsidies	9.3		
Operating surplus (11):			
(25) Public net income from capital	0.8		
(16) Interest, dividends etc. to abroad	3.7		
(15) - Interest, dividends etc. from abroad	1.8		
(30) Private operating income	21.5		
Total income formation	148.7	Total values added	148.7
B.2. Income account for private sector			
(4) Private final consumption expenditure	77.6	(10) Compensation of employees	86.2
(26) Direct taxes and contributions to social security from private sector	43.5	(30) Private operating income	21.5
(27) Other transfers to government from private sector	0.0	(28) Transfers to households from general government	20.1
(22) Transfers to abroad from private sector	0.4	(19) Transfers from abroad to private sector	0.5
(31) Private saving	6.8		
Total expenditure for private sector	128.3	Total income for private sector	128.3

Table 2 (cont.). Main types of account in the national accounts. 1975. 1 000 million kroner

B.3. Income account for general government			
(5) Government final consumption expenditure	28.7	(13) Indirect taxes	26.5
(14) Subsidies	9.3	(26) Direct taxes and contributions to social security from private sector	43.5
(28) Transfers to households from general government	20.1	(27) Other transfers to government from private sector	0.0
(21) Transfers to abroad from general government	0.9	(25) Public net income from capital	0.8
(29) Public saving	11.8	(18) Transfers from abroad to general government	-
Total expenditure for general government	70,8	Total income for general government	70.8
C. Accumulation			
C.1. Account for gross accumulation and finance of gross accumulation			
(6) Gross fixed capital formation	50.8	(12) Consumption of fixed capital	21.1
(7) Increase in stocks	1.5	(29) Public saving	11.8
		(31) Private saving	6.8
		(33) =(-32) Net capital inflow from abroad	12.6
Total gross accumulation	52.3	Total finance of gross accumulation	52.3
D. Rest of the world			
D.1. Account for rest of the world			
(8) Exports	62.2	(9) Imports	72.1
(15) Interest, dividends etc. from abroad	1.8	(16) Interest, dividends etc. to abroad	3.7
(18) Transfers from abroad to general government	-	(21) Transfers to abroad from general government	0.9
(19) Transfers from abroad to private sector	0.5	(22) Transfers to abroad from private sector	0.4
		(32) Surplus on current account of the balance of payments (= net increase in the foreign debt of Norway)	-12.6
Exports/inflow	64.5	Imports/outflow	64.5

Table 3. Consolidated accounts for Norway, 1975. 1 000 million kroner

A.3. Gross domestic product by components and uses			
(10) Compensation of employees	86.2	(4) Private final consumption expenditure	77.6
(11) Operating surplus	24.2	(5) Government final consumption expenditure	28.7
(12) Consumption of fixed capital	21.1	(6) Gross fixed capital formation	50.8
(13) Indirect taxes	26.5	(7) Increase in stocks	1.5
(14) - Subsidies	9.3	(8) Exports	62.2
		(9) - Imports	72.1
(3) Gross domestic product	148.7	(3) Gross domestic product	148.7
B.4. Disposable income for Norway, formation and use			
(4) Private final consumption expenditure	77.6	(10) Compensation of employees	86.2
(5) Government final consumption expenditure	28.7	(11) Operating surplus	24.2
(24) Saving	18.6	(13) Indirect taxes	26.5
		(14) - Subsidies	9.3
		(15) Interest, dividends etc. from abroad	1.8
		(16) - Interest, dividends etc. to abroad	3.7
		(17) Transfers from abroad	0.5
		(20) - Transfers to abroad	1.3
(23) Disposable income for Norway	124.9	(23) Disposable income for Norway	124.9
C.2. Gross capital formation and saving			
(6) Gross fixed capital formation	50.8	(12) Consumption of fixed capital	21.1
(7) Increase in stocks	1.5	(24) Saving	18.6
		(33) =(-32) Net capital inflow from abroad	12.6
Total gross accumulation	52.3	Total finance of gross accumulation	52.3
D.2. Account for rest of the world			
(8) Exports	62.2	(9) Imports	72.1
(15) Interest, dividends etc. from abroad	1.8	(16) Interest, dividends etc. to abroad	3.7
(17) Transfers from abroad	0.5	(20) Transfers to abroad	1.3
		(32) Surplus on current account of the balance of payments (= net increase in the foreign debt of Norway)	-12.6
Exports/inflow	64.5	Imports/outflow	64.5

### 3.2. Production and commodity accounts

#### 3.2.1. Introduction

The present Norwegian system of national accounts is a comprehensive system, based on the recommendations provided by the United Nations in the present SNA. The specifications which are used are set forth in an accounting system for the national accounts.<sup>1)</sup> The description that follows is to a large extent built around the construction of this accounting system.

When describing the comprehensive national accounts system, it may be expedient to divide the system into parts. On the computational level, there exists a relatively well-established division of the accounts which often serves as a main division of the national accounts. The two main parts are (i) production and commodity accounts and (ii) income and outlay and capital finance accounts, plus balance sheet accounts.

The production and commodity accounts constitute the core of the Norwegian national accounts (see section 3.2.2 on integrated input-output tables). The ledgers and main files of the national accounts (see section 6.2) contain this part of the accounts, which is reconciled into commodity balances and into values added of the various production sectors, aggregated into gross domestic product for the whole economy.

#### 3.2.2. Integrated input-output tables

The core of the national accounts consists of the industry-commodity input-output tables which, inter alia, provide a detailed summary of the supply and disposition of goods and services. One such table shows the origin of each commodity, i.e. which commodities are delivered from the various sectors. The other table shows the disposition of the commodities, i.e. which commodities are received by the various sectors.

The structure of the integrated input-output tables illustrates one of the main features of the new SNA, i.e. to bring the input-output tables closer to the data observed. The new tables are rectangular, whereas earlier versions included input-output tables on a quadratic form (usually sector-sector form, otherwise commodity-commodity form). In reality, quadratic tables are deduced from the rectangular industry-commodity and commodity-industry tables by using certain assumptions. The later tables now have to be transferred to quadratic tables by the analyst to enable input-output analysis from the inversion of an input-output matrix. The model-builder could decide upon the assumptions himself, e.g. based on the purpose of the analysis. Earlier, this choice was already made in the national accounts.

#### 3.2.3. The scope of the production and commodity accounts

The actual delimitation of the production and commodity accounts is seen from the structure of the accounting system. Five-digit codes are mainly used in the national accounts. The first two digits represent the type of account, while the other three digits apply to the detailed specifications within each type of account. Table 4 presents the types of account which wholly or partly belong to the production and commodity accounts. Connecting points with the income and outlay and capital finance accounts are marked with an asterisk.

1) The accounting system of the national accounts is published in the series "Standards for Norwegian Statistics" in 1980 with specifications given in Norwegian as well as in English.

Table 4. Types of account in the production and commodity accounts

1 Commodity accounts

- 10 Commodity accounts, basic values
  - 11 Commodity accounts, value added tax
  - 12 Commodity accounts, other indirect taxes on commodities
  - 13 Commodity accounts, subsidies on commodities
  - 14 Commodity accounts, basic values in wholesale and retail trade
  - 15 Commodity accounts, value added tax in wholesale and retail trade
  - 16 Commodity accounts, other indirect taxes on commodities in wholesale and retail trade
  - 17 Commodity accounts, subsidies on commodities in wholesale and retail trade
- 
- 18 Commodity accounts, producers' values
  - 19 Commodity accounts, gross trade and transport margins

2 Production accounts and special distribution accounts

- 20 Distribution and aggregate accounts for repairs, unspecified intermediate consumption and investments
- 21 Production accounts for central government and social insurance administration
- 22 Production accounts for local government
- 23 Production accounts for industries

3 Consumption accounts

- x 31 Consumption accounts for central government, including social insurance administration
- x 32 Consumption accounts for local government
- x 33 Consumption accounts for households

4 Income and outlay accounts

- x 41 Accounts for components of value added

5 Real capital accounts

- 54 Accounts for purchases/sales of existing real capital
- x 57 Accounts for real capital by functional sector, central government including social insurance administration
- x 58 Accounts for real capital by functional sector, local government
- x 59 Accounts for real capital by functional sector, industries

7 Accounts for rest of the world

- x 71 Accounts for current transactions, exports
- x 72 Accounts for current transactions, imports

The connecting points between the two major parts of the national accounts (marked with an asterisk) are located within the following main types of account: consumption accounts, income and outlay accounts, real capital accounts and accounts for the rest of the world. Deliveries to final consumption expenditure in central government (including social insurance administration), local government and households etc., are clearly parts of the production and commodity accounts. The counterparts, the income uses, are found in the income and outlay accounts of the institutional sectors. Corresponding treatment is given to the investment flows, which are distributed by functional sectors in the real capital accounts and by institutional sectors in the capital finance accounts. Accounts for purchases/sales of existing real capital are included in table 4, due to a net treatment. Exports and imports of goods and services are transferred to the account for current external transactions. This account might be regarded as an income and outlay account for the rest of the world. Finally, the accounts for components of value added are transferred to the income and outlay accounts of the institutional sectors.

### 3.2.4. Commodity accounts

The commodity accounts distinguish about 1 750 different groups of goods and services (commodities) in the final accounts, as compared with some 300 commodities in the preliminary accounts.

The commodity accounts register the supply of each commodity from three different classes of production accounts (central government including social insurance administration, local government and industries) and from imports. Between 5 and 10 per cent of the total supply is however recorded outside the commodity accounts in the national accounts.<sup>1)</sup>

In the Norwegian version, there is included an illustrative table giving an overview of the type of data which is included in the commodity accounts of the national accounts. Besides supply of commodities from nearly 190 production sectors and 21 import sectors, there are also included items which relate to special distribution accounts. Deliveries from the distribution accounts do not represent supplies of goods and services in addition to the deliveries from the production and import sectors.<sup>2)</sup>

The commodity accounts distribute the supply of commodities to the various uses. The commodities are either used as intermediate consumption by the three classes of production sectors or as final deliveries by 135 accounts for private consumption expenditure, 34 accounts for gross fixed capital formation by type of capital goods, 3 accounts for increase in stocks by type and 15 accounts for exports. Gross capital formation by type of capital goods is later entered as gross capital formation by kind of economic activity in the accounts for real capital. Government consumption expenditure does not emerge from the commodity accounts due to the SNA treatment of this item as sector deliveries.

The codes of the commodity accounts have two sections. One refers to type of commodity (the number of commodities in the accounts). The second refers to kind of value element introduced in the account for each commodity (i.e. basic value, producer's value etc; see section 2.2, table 4 in section 3.2.3 etc. for further details).

### 3.2.5. Production accounts

In the accounting system of the national accounts almost 190 production sectors are specified. In principle, the same sets of production accounts are specified for functional sectors of central government, local government and industries.<sup>3)</sup>

On the one side, the production accounts show gross output of the various production sectors and on the other side, intermediate consumption and value added of the same sectors. Gross output partly consists of commodities and partly of other goods and services (non-commodities).

In Norway only non-marketed services from producers of government services have been included among other goods and services. Gross output in general government consists of (i) production of goods and services sold in markets (entered in the commodity accounts) and (ii) non-marketed services not recorded in the commodity accounts, but delivered directly in the consumption accounts for general and local government as government final consumption expenditure.

Gross output in industries might be divided into gross output in wholesale and retail trade (gross trade and transport margins) and gross output in other domestic industries. The gross margins are subject to special treatment because they represent the difference between purchasers' values and producers' values. The margins are computed from the user side in the system of commodity flows, in contrast to other gross output which is computed directly from the production side.

In addition to the regular production accounts, it has proved useful to introduce some notional sectors (dummies) as adjustment items for gross domestic product. These dummies relate to various types of tax and subsidy adjustments as well as adjustments for imputed bank service charges.

1) Most important is gross output (the larger part of it) in general government, which is recorded as sector deliveries directly from the production account for general government to the consumption accounts for general government. Another item is direct purchases by non-residents in the domestic market. Finally, the non-commodity items include deliveries for purchases/sales of existing real capital. 2) A distribution sector receives only commodities as input and delivers one commodity as output. The gross product is zero, and the sector might be said to define the output commodity as the given combination of the input commodities. The main reason for constructing the distribution sectors is that it has only been possible to identify the flows of the main categories of some commodities (repairs etc.), not the individual commodity flows. 3) In 1975 the percentage share of gross domestic product for industries was some 85 per cent, as compared with somewhat less than 15 per cent for producers of government services.

### 3.2.6. Special distribution accounts

The special distribution accounts which are entered adherent to the production accounts, receive a great number of commodities, aggregate them and then distribute them to various uses as composed commodities. In terms of content, these accounts consist of three parts: (1) repairs and unspecified intermediate consumption etc., (2) gross fixed capital formation and (3) increases in stocks. The treatment introduced for repairs and unspecified intermediate consumption has the advantage that the detailed supply flows are entered in a few distribution sectors which in turn transfer the same few "distribution commodities" to final uses.<sup>1)</sup>

Gross capital formation has also found its way into these special distribution accounts, because the Norwegian system of national accounts includes different classifications of gross capital formation. All total, 34 types of capital goods are specified here. Finally, three accounts for increase in stocks are included.

In contrast to the procedure used for repairs and unspecified intermediate consumption, gross fixed capital formation and increase in stocks are not transferred to commodity accounts, but are instead recorded directly in the real capital accounts, where the alternative classification by kind of economic activity takes place.

### 3.3. Income and outlay and capital finance accounts and balance sheet accounts

#### 3.3.1. Introduction

As described above, the national accounts are divided into two main parts: (i) the production and commodity accounts and (ii) the income and outlay and capital finance accounts and balance sheet accounts. The links between these two parts are (1) the income formation from production as represented by the components of value added, and (2) the income spending from the disposition of goods and services. The transactions of the income and outlay and capital finance accounts are supplements to those of the production and commodity accounts. Besides showing figures representing transactions in a given period, balance sheets are also included with figures on holdings at the beginning and the end of the period.

It should be mentioned that most of the transactions for which estimates are prepared on a current basis, belong to the production and commodity accounts and the factor income accounts (components of value added). But also outside this scope a good number of items are estimated and published on an annual basis.<sup>2)</sup>

A complete reconciled computation of income and outlay accounts on a current basis has not yet been established. But work is under way and a detailed accounting system has been developed for this part along with the other part representing the production and commodity accounts.

#### 3.3.2. Summary of the income and outlay and capital finance transactions

The transaction items in the income and outlay and capital finance accounts consist of incomes and outlays and changes in real capital and financial assets and liabilities from transactions during the course of the period. Changes due to revaluations of real capital and financial assets and liabilities will be described in the section on balance sheet accounts.

The most essential pieces of information drawn from the income and outlay and capital finance transactions are those of the income and outlay accounts and the capital finance accounts for institutional sectors. In addition to the domestic institutional sectors, it is also possible to regard the rest of the world as an institutional sector. The account for current external transactions and the account for capital external transactions of the balance of payments constitute the relevant accounts for the rest of the world sector in this respect.

1) The accounting system contains 12 accounts for repairs and 10 accounts for unspecified intermediate consumption. 2) Inter alia, income and outlay accounts for general government and the private sector, the current account and capital account of the balance of payments, etc.

In summary, the main transaction items cover those of the income formation (components of the GDP), imports and exports of goods and services, gross capital formation, purchases/sales of existing real capital, income transfers of various kinds and transactions with financial assets and liabilities. Saving is a key item in the income and outlay accounts for the institutional sectors, whereas the same is the case for the surplus/deficit in the current account of the balance of payments.

### 3.3.3. The scope of the income and outlay and capital finance accounts

Table 5 presents the types of account which wholly or partly belong to the income and outlay and capital finance accounts. The accounting system specifies 25 such types of account, and these are summarized into the following seven classes:

- 1) Accounts which are common for the income and outlay and capital finance accounts and the production and commodity accounts
- 2) Income and outlay accounts for institutional sectors
- 3) Capital finance accounts for institutional sectors
- 4) Balance of payments
- 5) Income transfers
- 6) Transactions in financial assets and liabilities
- 7) Distribution and aggregate accounts (dummies)

Table 5. Types of account in the income and outlay and capital finance accounts

#### 3 Consumption accounts

- 1) 31 Consumption accounts for central government, including social insurance administration
- 1) 32 Consumption accounts for local government
- 1) 33 Consumption accounts for households

#### 4 Income and outlay accounts

- 1) 41 Accounts for components of value added
- 7) 42 Aggregate account for compensation of employees
- 7) 43 Distribution and aggregate accounts for indirect taxes and subsidies and direct taxes etc.
- 7) 45 Aggregate account for consumption of fixed capital
- 7) 46 Distribution accounts for consumption of fixed capital
- 7) 47 Factor income by institutional sector of origin
- 5) 48 Accounts for forms of income
- 2) 49 Income and outlay accounts

#### 5 Real capital accounts

- 7) 51 Aggregate account for increase in stocks
- 7) 52 Aggregate account for fixed capital formation
- 7) 53 Distribution accounts for fixed capital formation
- 7) 55 Aggregate account for purchases/sales of existing real capital
- 7) 56 Distribution accounts for purchases/sales of existing real capital
- 1) 57 Accounts for real capital by functional sector, central government including social insurance administration
- 1) 58 Accounts for real capital by functional sector, local government
- 1) 59 Accounts for real capital by functional sector, industries

#### 6 Capital finance accounts for institutional sectors

- 6) 61 Accounts for changes in assets and liabilities
- 3) 62 Capital finance accounts for institutional sectors

#### 7 Accounts for rest of the world

- 1) 71 Accounts for current transactions, exports
- 1) 72 Accounts for current transactions, imports
- 4) 73 Account for current external transactions
- 4) 74 Account for capital external transactions

### 3.3.4. Transaction accounts in the income and outlay and capital finance accounts

#### Income transfers

Income transfers consist of incomes (outlays) recorded in the accounts for forms of income. A large number of forms of income are specified in the accounting system (more than 40 items).

In the accounts for forms of income, the various items are normally linked to the income and outlay accounts for the institutional sectors and to the account for current external transactions. On the income side, various forms of factor income and income transfers are entered.<sup>1)</sup> Transfers as items of expenditure, on the other side, consist of direct taxes, interest, dividends etc.

#### Changes in assets and liabilities

The capital finance accounts for institutional sectors also include accounts for changes in assets and liabilities. In this case, the links are to the capital finance accounts for the institutional sectors and to the account for capital external transactions.

The accounting system includes both ordinary financial instruments (assets and liabilities) and more special adjustment items (see section 4.5 on other specifications).

### 3.3.5. Income and outlay and capital finance accounts for institutional sectors

#### Income and outlay accounts

The income and outlay accounts by institutional sector of receipt (type of account 49) must be considered key accounts within the income and outlay accounts (main type of account 4).

On the income side of these accounts, there are recorded deliveries from the distribution and aggregate accounts for indirect taxes and subsidies and direct taxes etc. (type of account 43) as income for general government (subsidies deducted) and from the accounts for forms of income as receipts of transfers and primary inputs.<sup>2)</sup>

On the outlay side of the accounts, there are three sets of recordings. First, recordings are made for central government consumption expenditure, local government consumption expenditure and private consumption expenditure transferred from the consumption accounts. Second, there are the disposed transfers, i.e. outlays of institutional sectors in the form of income transfers.<sup>3)</sup> Finally, there is saving as the balancing item, thereafter transferred to the capital finance accounts for the same institutional sectors.

#### Capital finance accounts

The capital finance accounts for institutional sectors (type of account 62) contain figures on both holdings and changes. On the credit side, saving is entered with transactions in financial liabilities, whereas the debit side contains items for net capital formation and transactions in financial assets.

#### Balance of payments

The core of the balance of payments consists of the current and capital external transactions accounts for the rest of the world.

The current external transactions account may be considered an income and outlay account for the rest of the world against Norway, i.e. similar to the accounts for institutional sectors shown in type of account 49. On the one side, income for the rest of the world is specified in terms of income transfers and imports (for Norway), the latter distributed on different import accounts. Corresponding

1) The factor income items are channelled through the accounts of factor income by institutional sector of origin, which are dummies included as links between the accounts for components of value added (by functional sector) and the accounts for forms of income. 2) Among the receipts of transfer are included interest income for the various sectors, transfers from abroad to general government and to the private sector and social security transfers to private consumers. Primary inputs include compensation of employees for private consumers and operating surplus for private unincorporated enterprises, the self-employed and for the State enterprises (and also for general government since the municipal enterprises are included in the local government sector). 3) The disposed transfers include, inter alia, interest outlays by institutional sector, direct taxes by institutional taxpayer sector, transfers from general government to abroad, private transfers to abroad and social security transfers.

entries are found on the other side for transfers from the rest of the world and exports distributed on various export accounts. The current account is balanced by the item surplus/deficit on the current account. This item is then transferred to the capital external transactions account in the same way as saving is for domestic transactions.

Similarly, the capital external transactions account may be compared to the capital finance accounts for institutional sectors in type of account 62.

### 3.3.6. Distribution and aggregate accounts in the income and outlay and capital finance accounts

The aggregate and distribution accounts which have been introduced in the national accounts, not least in the income and outlay and capital finance accounts, serve as aids in order to avoid introducing combinations in more than two dimensions. The designation aggregate account entails that the specifications which are part of such an account are combined in a sum which is carried further in the system under one code. The distribution accounts are introduced in order to prepare alternative classifications.<sup>1)</sup> In the end, the transactions all lead to the accounts for institutional sectors (of receipt).

### 3.3.7. Summary of the balance sheet accounts

The balance sheet accounts record holdings of financial assets and liabilities and real capital at the beginning and end of the period of account.

The holdings of financial assets and liabilities and real capital in the opening and closing balance sheet accounts form a sort of exterior framework for the entire system. The balances relate to a specific date, as of 1 January and 31 December respectively. Both for financial assets and real capital on the one hand and for financial liabilities and the balancing item net worth on the other, in principle holdings according to the opening balance plus changes according to the capital finance accounts and the revaluation accounts are equal to holdings according to the closing balance.

### 3.3.8. The scope of the balance sheet accounts

Table 6 presents the types of account which wholly or partly belong to the balance sheet accounts. The accounting system specifies 26 such types of account, and these are summarized into the following five classes (see first code column):

- 1) Accounts which are common for the balance sheets and the production and commodity accounts
- 2) Accounts which are common for the balance sheets and the income and outlay and capital finance accounts
- 3) Revaluation accounts
- 4) Opening and closing balance sheet accounts
- 5) Distribution and aggregate accounts (dummies)

1) Five such types of account are included under the income and outlay accounts and five other types of account under the capital finance accounts (see the table in section 3.3.3).

Table 6. Types of account in the balance sheet accounts

0 Opening balance sheet accounts

- 4) 01 Accounts for financial assets and liabilities
- 5)/4) 02 Aggregate account for net worth and real capital by type
- 5) 03 Distribution accounts for stocks
- 5)/4) 04 Aggregate account for stocks
- 5) 05 Distribution accounts for fixed capital by functional sector
- 5) 06 Aggregate account for fixed capital
- 5)/4) 07 Distribution accounts for fixed capital by institutional sector

5 Real capital accounts

- 1) 57 Accounts for real capital by functional sector, central government including social insurance administration
- 1) 58 Accounts for real capital by functional sector, local government
- 1) 59 Accounts for real capital by functional sector, industries

6 Capital finance accounts for institutional sectors

- 2) 62 Capital finance accounts for institutional sectors

7 Accounts for rest of the world

- 2) 74 Account for capital external transactions

8 Revaluation accounts

- 3) 81 Accounts for revaluation of financial assets and liabilities
- 5)/3) 82 Aggregate account for revaluation of net worth and real capital by type
- 5) 83 Distribution accounts for revaluation of stocks
- 5)/3) 84 Aggregate account for revaluation of stocks
- 5) 85 Distribution accounts for revaluation of fixed capital by functional sector
- 5) 86 Aggregate account for revaluation of fixed capital
- 5)/3) 87 Distribution accounts for revaluation of fixed capital by institutional sector

9 Closing balance sheet accounts

- 4) 91 Accounts for financial assets and liabilities
- 5)/4) 92 Aggregate account for net worth and real capital by type
- 5) 93 Distribution accounts for stocks
- 5)/4) 94 Aggregate account for stocks
- 5) 95 Distribution accounts for fixed capital by functional sector
- 5) 96 Aggregate account for fixed capital
- 5)/4) 97 Distribution accounts for fixed capital by institutional sector

3.3.9. Revaluation accounts

According to the SNA, holdings of financial and tangible assets and liabilities should be stated in market values. Changes in the market values of financial instruments which are due to price changes etc. are entered in the capital finance accounts as revaluations. For each institutional sector there is a revaluation account which shows revaluations of financial assets and tangible assets on the one hand and revaluations of financial liabilities and net worth on the other.

The market value for shares and bearer bonds may be different from the nominal value which is shown in the credit market statistics. For all other financial instruments it is assumed that market value is identical with nominal value. The revaluations include price changes for shares and bearer bonds, changes in value as a result of exchange rate changes for financial instruments issued in foreign currency, recorded write-ups and write-downs of financial instruments in the sectors for which accounts exist, price gains for tangible assets and other revaluations.

A recording principle involving the use of market values for both financial assets and liabilities will result in deviations from ordinary accounting practice in as much as financial liabilities are usually recorded in nominal values.

Finally, it may be mentioned that in practice the entire change in net worth will not be explained fully by saving and revaluations. A discrepancy often arises which is due to the use of different types of statistics for holdings and for flows which lead to saving. In other words, the change in net worth determined directly in the capital finance account usually will deviate from the results obtained from the income and outlay account. In this situation net worth in the opening balance sheet plus saving, revaluation of net worth and the discrepancy give net worth in the closing balance sheet.

#### 4. CLASSIFICATION

##### 4.1. Classification according to kind of economic activity

A distinction is made in the national accounts between functional and institutional units. A functional unit is a production unit, establishment or activity within general government which carries out a well defined specified activity or function. An industrial classification of functional units into production sectors means that units engaged in the same activity are placed in the same group. The classification of production sectors according to kind of economic activity is based on the Standard Industrial Classification in official Norwegian Statistics.<sup>1)</sup>

The specifications in the Norwegian Standard Industrial Classification are aggregated to national accounts production sectors. The sector codes in the accounting system of the national accounts do not refer to any specific standard coding system. On the other hand, the aggregated industrial sectors in the national accounts, with certain exceptions, generally correspond to the two-digit classification level in table 5.2 of the SNA.<sup>2)</sup>

The industrial classification is used for the production accounts, but has also been introduced for fixed capital formation and for fixed capital, although not as detailed as for the production accounts. No industrial specifications are given for increase in stocks.

In principle, the same industrial classification of the accounts for production and real capital by functional sector is carried out for each of the three institutional categories industries, central government and local government. Under gross fixed capital formation, the total estimate for industries is further divided into the sub-groups privately owned industries and publicly owned industries.<sup>3)</sup>

##### 4.2. Classification of institutional sectors

The income and outlay and capital finance accounts show how the incomes created in the production process are distributed, used or accumulated. Information on this is registered for institutionally-defined sectors. An institutional sector is delimited and defined on the basis of institutional conditions, primarily type of ownership or ownership category. Income and outlay and capital finance accounts (including for real capital), balance sheet accounts and revaluation accounts are drawn up for the institutional sectors.

At the moment, the national accounting system distinguishes between 17 institutional sectors, as well as the rest of the world which also might be considered a separate institutional sector. Of these, seven sectors relate to general government and State enterprises, eight sectors to financial institutions, while the rest of the economy in the accounting system is only split up into private enterprises and households including unincorporated enterprises. These two sectors combined make up "other Norwegian sectors" which thus far because of insufficient primary statistics, have been considered a residual sector.<sup>4)</sup>

1) The Norwegian Standard Industrial Classification has been drawn up on the basis of the United Nations' International Standard Industrial Classification of all Economic Activities (ISIC). 2) Table 5.2 of the SNA ("A System of National Accounts") specifies the classification according to the kind of economic activity which is recommended for the classification of activities in the national accounts. This table specifies 1-, 2- and 3-digit industrial codes which, with few exceptions, coincide with the 1968 edition of the ISIC. 3) Municipal enterprises are included under local government, however. 4) The national accounts will aim at providing a further breakdown of socio-economic groups when the primary statistics so permit.

The dichotomy between functionally-defined and institutionally-defined sectors is emphasized strongly in the new SNA. Table 5.1 of the SNA sets out a classification of institutional sectors recommended for use in the national accounts. The sector classification which has been adopted deviates somewhat from the SNA recommendations.<sup>1)</sup>

General government is specified in five institutional sectors compared with three sub-sectors in the SNA. It has been found convenient to allow the central government appropriations account be a separate sector with a presentation of accounting figures in book values as in the government accounts. The same applies for other central government accounts, social insurance administration and local government. The sector which comes in addition relates to a dummy sector for tax collection, introduced to record the differences between accrued values and book values. In the national accounts, direct and indirect taxes, subsidies and transfers are in principle registered in the year in which the amounts accrue. In the government accounts, on the other hand, it is the amount actually paid in the accounting year, i.e. the book value, that is registered. Another special feature is that municipal enterprises are included in local government due to data considerations.

The SNA specifies four sub-sectors for financial institutions, i.e. the central bank, other monetary institutions, insurance companies and pension funds as well as other financial institutions. In the Norwegian national accounts, the Bank of Norway appears as a separate sector while the other three sub-sectors are split up further into several sectors.

#### 4.3. Commodity specifications

A conspicuous feature of the Norwegian national accounts is the wealth of detailed commodity specifications. The integrated input-output tables in the accounts allow commodity flows at a level which is unusually detailed for national accounts.

In the final accounts close to 1 750 commodities are specified. These groups of goods and services are designated as national accounts commodities (NA-commodities), and are obtained by aggregating a considerably larger number of commodity numbers in the primary statistics. There are more than 5 000 commodity groups in external trade statistics and industrial statistics. These are aggregated to about 1 350 commodity groups in the national accounts. The remaining 400 groups of goods and services are distributed almost equally among goods produced in industries other than mining and manufacturing and different types of services.

In the preliminary accounts close to 360 commodities, designated as main commodities, are specified. This aggregated edition of the commodity list is created to avoid all the detailed work in the preliminary accounts.<sup>2)</sup>

The commodity specifications in the national accounts have for some time been classified according to a principle entailing that a commodity, to the extent possible, is only allocated to a specific category of use and in such a manner that the individual commodities within the NA-commodities are assumed to have the same trade and transport margins.

With regard to coding, NA-commodities are given a 4-digit commodity number which in reality is a 7-digit number in as much as a 3-digit code for the commodity's main supplier is placed in front of the commodity number. The commodity's main supplier is usually the production sector which has the largest production of the commodity. By this rule it is easy to aggregate NA-commodities to main commodities.

Theoretically, one should expect the same number of main commodities as production sectors (about 190), but practice has resulted in some deviations from this pattern. One type of deviation is due to the treatment of the value added tax in the national accounts, which requires a specification of a percentage rate for the value added tax for each main commodity (flow) in order to calculate the accrued values for VAT. Instead of weighting commodity flows which individually have different tax rates, the sector's main supplier has been divided up into several additional main commodities in the accounts. There is a relatively large inflation in the number of main commodities in the primary industries and in construction.

1) It comprises the main sectors general government, financial institutions, central government enterprises and other Norwegian sectors and entails that the SNA sector private non-profit institutions serving households is omitted due to data considerations. 2) The preliminary accounts are prepared at such an early time that the commodity details from industrial statistics are not available.

In the final accounts the following number of NA-commodities are specified for each of the main industries according to the main supplier principle:

	No. of NA-commodities
- Agriculture, hunting, forestry and fishing	138
- Mining and quarrying	53
- Manufacturing	1 298
- Electricity, gas and water	9
- Construction	19
- Wholesale and retail trade, restaurants and hotels	13
- Transport, storage and communication	54
- Financing, insurance, real estate and business services	25
- Community, social and personal services	80
Total	<u>1 689</u>

In addition to the NA-commodities which are linked to production, some 50 NA-commodities (main commodities) appear as a result of arrying the commodity flows over special distribution accounts.<sup>1)</sup>

Some of the production sectors are defined in such a manner that main commodities according to the main supplier principle will not be linked to them. This applies primarily to wholesale and retail trade, non-competitive imports and some of the dummy sectors under wholesale and retail trade.<sup>2)</sup>

No recommended classification system for commodity flows is found in "A System of National Accounts". The United Nations has none the less developed a classification system designated as "International Standard Classification of All Goods and Services" (ICGS). This system is only a few years old and has not assumed importance for the work on the classification of commodity flows in the Norwegian accounts.

#### 4.4. Classification of final consumption expenditure

This section deals with both the classifications of final consumption expenditure of households and government services. The final consumption expenditure of households is classified in considerable detail in the form of an object specification as well as by durability. Final consumption expenditure of government services is classified by purpose.

For the object specification of final consumption expenditure of households three different levels of aggregation have been introduced. The most detailed classification consists of about 135 consumption groups and is introduced in the accounting system. The other two levels of aggregation serve various analytical and publication purposes and comprise about 40 groups and 10 main groups respectively. All three levels of aggregation are used in the annual national accounts publication.

Besides, a durability code is linked to each of the consumption groups. Services of various types cover somewhat more than one fourth of the number of consumption groups or close to one third of the value of final consumption expenditure of households in the domestic market.

Table 6.1 of the SNA presents the recommended classification of household goods and services in the national accounts. A comparison between the SNA classification and the Norwegian classification of private final consumption expenditure does not reveal major deviations.

The durability codes which are introduced also coincide well with the recommendations presented in the same SNA table. No clear criterion is given in the SNA as to what shall be considered durable, semi-durable and non-durable goods, although in practice a durability of three years may be a reasonable boundary line between durable and semi-durable goods, while it is assumed that non-durable goods are consumed more or less immediately after purchase, in any case in the course of the first year.

The classification by purpose for government final consumption expenditure, introduces specifications which correspond well with the classification of the purposes of government in table 5.3 of the SNA. Altogether, 45 different purposes are specified, all of which are given for central government final consumption expenditure and 20 are given for local government final consumption expenditure.

1) Examples are different types of repairs and unspecified intermediate consumption which through the "distribution commodities" have been combined in a manageable number of commodities for proportional allotment as input in the different production sectors. Other commodities are related to different transactions on the current account of the balance of payments and packaging material is another important item. 2) Production is distributed among the entire range of commodities or those goods which might be relevant for wholesale and retail trade production (i.e. trade and transport margins). The dummy sectors include "collection of customs duties", "collection of VAT on imports" and "collection of special excises on imports", as well as two dummy sectors under financing in which intermediate consumption occurs only.

#### 4.5. Other classifications

The accounting system of the national accounts contains a number of other classifications in addition to the ones described above. On the expenditure side of the commodity accounts, there might be of interest to examine a little more closely the classification of gross fixed capital formation by type of capital goods, the specifications of changes in stocks and the classifications of exports and imports of goods and services. On the production side, the national accounts contain a supplementary industrial classification according to type of competition. For the components of value added, it is indicated below which specifications are used for consumption of fixed capital, indirect taxes and subsidies as well as compensation of employees. The classification of the primary factors - employment and real capital - are also dealt with, and finally, a brief description is provided of the classification set up in the income and outlay and capital finance accounts for forms of income and financial assets and liabilities.

##### Gross fixed capital formation

Gross fixed capital formation may be classified in various ways. The most important classifications are by kind of economic activity and by type of capital goods, although capital formation is also classified by commodities (in supply) and by institutional sectors in the capital finance accounts. The industrial classification of gross fixed capital formation according to functional sectors has been discussed in section 4.1 above. Such a classification according to functional sectors may be presented on the basis of two different principles - according to who has legal title to the asset or according to who uses the asset. The SNA recommends using ownership rights to the fixed asset as a criterion, and this is also followed in the Norwegian accounts.

A relatively detailed classification of gross fixed capital formation by type of capital goods has been introduced in the national accounts. The accounting system specifies 34 different types of fixed assets within 10 categories of capital formation corresponding to the aggregation level used in the national accounts publication.

Table 6.3 of the SNA shows the classification of gross fixed capital formation according to type recommended for use in the national accounts. A comparison between this table and the most detailed of the aggregated versions in the Norwegian accounts reveals some deviations which are primarily due to specific national conditions.<sup>1)</sup>

##### Increase in stocks

In practice, the residual computation of changes in stocks invites only commodity specifications. In addition to an aggregated item for all goods, however, there are special items which cover changes in stocks of fodder, livestock and stocks of timber and fuelwood and stocks of goods in progress.

Table 6.2 of the SNA provides the classification of stocks according to type which is recommended for use in the national accounts. This table contains an activity-oriented main classification of goods-producing industries, wholesale and retail trade, other industries and government services. It has not been possible to implement these specifications based on the method of computation followed in the Norwegian accounts.

##### Exports and imports

In the accounting system, 15 different groups for exports and 21 groups for imports are specified in the accounts for current transactions with the rest of the world. Merchandise exports and merchandise imports are each split up into two groups to indicate how much merchandise is registered according to the external trade statistics and how much is outside the scope of the external trade statistics.

Table 6.4 of the SNA provides the recommended classification of exports and imports of goods and services. It contains five main groups as well as two groups of adjustments. The specifications in the Norwegian accounts deviate somewhat from these recommendations.

1) The seven main groups in the SNA have become 10 (later 12) categories in Norway to allow more details on investments in ships and on capital formation tied to oil activities in the North Sea.

### Industries by type of competition

A supplementary industrial classification by competitive type has been drawn up for special analytical purposes. Sheltered industries are industries selling most of their production on the domestic market without significant foreign price competition. Industries exposed to competition are those for which it is assumed that most of their output is sold abroad or on the domestic market in competition with foreign goods (exporting industries and import-competing industries, respectively). This industrial classification has played a key role in the model versions which have been used in formulating Norwegian price and income distribution policy in recent years. The price and income model PRIM was formulated by the "Reporting Committee for the Income Settlements in 1966", with Dr. Odd Aukrust as chairman, and was later integrated in MODIS IV in 1974. The assumptions concerning the industries' ability to shift higher costs over to product prices play an important role in this model and are used as a basis for the classification into sheltered industries and industries exposed to competition.

Codes for type of competition are introduced for each of the production sectors in the national accounts.<sup>1)</sup> Export shares and import shares which are observed for the main commodities of the respective industrial sectors have been used, among others, as the criterion for the classification according to type of competition.

### Consumption of fixed capital

In as much as the consumption of fixed capital is included in the production accounts as a component of value added, the figures for the consumption of fixed capital will be distributed among the production sectors. The main categories of consumption of fixed capital will otherwise appear on the same level of specification as for gross fixed capital formation in order to obtain net fixed capital formation figures.<sup>2)</sup>

### Indirect taxes and subsidies

Detailed specifications by type of indirect taxes and subsidies have been introduced in the accounting system. Three different levels of aggregation are set forth, i.e. according to detailed types (62 types of indirect taxes and 32 types of subsidies), according to main categories corresponding to the publication version and according to aggregated categories corresponding to certain distribution accounts for indirect taxes and subsidies in the accounting system.

### Compensation of employees

Six different specifications are given for compensation of employees in the accounting system, while the SNA follows a breakdown into wages and salaries, employers' contributions to social security schemes and employers' contributions to private pension, family allowance, health and other casualty insurance, life insurance and similar schemes. In the Norwegian accounts, the first item is split up into wages and salaries in cash and payments in kind, and it has also been found appropriate to distinguish between the employers' contributions to the National Insurance Institution and employers' contributions to other social insurance schemes since the National Insurance Institution dominates in the social security system. From 1980 a new item "transfers from the Low Wages Fund, net" has been introduced.

### Employment

Employment data are not introduced in the accounts, but employment data by kind of economic activity in estimated man-years are published in the national accounts publication with the same industry details as for gross domestic product, factor income, compensation of employees etc. In addition, there is a further specification on the total for the number of man-years carried out by self-employed and the number of man-years carried out by employees.

1) The codes are S for sheltered activities, UK for export-oriented industries, HK for import-competing industries. For manufacturing the latter is further specified with I for the manufacture of capital goods and K for the manufacture of consumer goods. The letter code O is used in particular for extraction and pipeline transport of crude oil and natural gas. 94 industrial sectors are classified as sheltered activities, 60 sectors as import-competing industries and 18 sectors as exporting industries.  
2) In the accounting system, a classification of consumption of fixed capital is included which generally corresponds to the groups of capital goods used for gross fixed capital formation.

### Real capital

Real capital is specified in three main categories in the national accounts, i.e. fixed capital of enterprises, general government fixed capital and stocks. The detailed level of specification used has been drawn up in accordance with the corresponding specifications for gross fixed capital formation and consumption of fixed capital.

### Forms of income

A key classification in the income and outlay accounts relates to the classification according to forms of income. Here, a distinction is first made between income created in productive activity (factor income) and income which is redistributed (income transfers). With regard to factor income, the specification under compensation of employees as well as operating surplus have already been described above. In the case of income transfers, the accounting system specifies a number of incomes from capital, specifications for casualty insurance premiums and claims, 12 different items for direct taxes and social security contributions, 21 different items for transfers to private consumers and, finally, three items which include transfers between government sectors, other domestic transfers and transfers to and from abroad.

### Financial assets and liabilities

The classification of financial assets and liabilities are incorporated in the accounting system of the national accounts with 11 ordinary financial assets and liabilities which, in general, follow the classification of the SNA. In addition, there are some special accounts related to price differences and various corrections.<sup>1)</sup>

## 5. SOURCES AND METHODS OF ESTIMATION

The description that follows in sections 5.2 - 5.5 below refers to sources and methods used in the final accounts, unless the sources and methods used in the preliminary accounts are specifically referred to.

### 5.1. Main approaches used

The most important global concept in the national accounts is gross domestic product. Before proceeding with a description of how its "building blocks" are estimated in detail, there might be of interest to examine the different approaches which could be used to determine gross domestic product. In principle, GDP can be estimated either by using the production approach, i.e. the sum of values added (gross output less intermediate consumption) of each producer, or by using the income approach, i.e. as the sum of the components of value added (compensation of employees, operating surplus, consumption of fixed capital and indirect taxes minus subsidies), or by using the expenditure approach as the sum of final uses, i.e. private final consumption expenditure, government final consumption expenditure, increase in stocks, gross fixed capital formation and exports minus imports.

In situations where the statistics on domestic production, exports and imports are more abundant and more reliable than statistics on incomes and expenditures, the production approach will mainly be used to determine the gross domestic product. This total is used to determine components of gross domestic product and gross domestic product by category of expenditure. Generally, private final consumption expenditure or increase in stocks are often computed residually among the categories of expenditure and operating surplus among the components. If the three approaches are used independently of each other, they may add up to three different figures for gross domestic product, raising the question as to the quality of the respective figures and the question whether the differences shall be hidden or shown explicitly as statistical discrepancy.

1) One such group is adjustments for deviations in time schedules for direct taxes, more specifically to handle the various concepts of assessment for direct taxes. Another group of the same nature relates to indirect taxes and subsidies with accounts for tax collectors' holdings for accrued, unpaid indirect taxes or accrued subsidies not yet paid out. Special accounts have also been introduced for the financial assets shares and bearer bonds which express the difference in price between nominal value and market value.

In practice, none of the single three approaches will be used in a pure sense. The production approach may be used for computing value added for most industries, but may for some industries be replaced by the expenditure approach or the income approach, inter alia because reliable data for intermediate consumption may not exist. The expenditure approach is often combined with the commodity-flow method, which starts with estimates of the supply of commodities in producers' values and proceeds to estimates for categories of expenditure expressed in purchasers' values by adding gross trade and transport margins.

In Norway, where production statistics are more developed than income and expenditure statistics, the production approach is clearly the main approach used for determining the gross domestic product. Gross domestic product compiled from the production side will in the next round be used to check the computation of its components and its final uses. Operating surplus must be computed as a residual figure. Moreover, in the Norwegian national accounts the changes in stocks on the whole are computed residually, due to the limited statistics on stocks and by having the current calculations incorporated with a detailed input-output structure.

The production approach is used to compute value added for almost all industrial sectors. This is done within the framework of detailed input-output tables and by making use of the commodity-flow method. The income approach is only used to compute value added in the government sectors and a few private service sectors such as education and research, welfare institutions and domestic services. The expenditure approach dominates in the computation of gross output for wholesale and retail trade in as much as the use of the commodity-flow method on the user side in the accounts determines the gross margins in wholesale and retail trade, while the production approach is used next to obtain the value added. The expenditure approach also plays a key role in computing gross output in the construction sector.

The income approach is the only feasible way of computing the contribution to gross domestic product from government services, due to the definition of output in the government production sectors equal to costs. This approach is otherwise used for private activities where reliable information on intermediate consumption is difficult to obtain or where there are theoretical problems in identifying the production. In some cases, gross output can most easily be determined as the sum of the components of value added and intermediate consumption.

The expenditure approach is used in connection with independent calculations of final uses. This approach is therefore normally applied for computing government final consumption expenditure based on government accounts and for exports (and imports) based on external trade statistics and other supplementary sources. The expenditure approach is also used as a main method in computing private final consumption expenditure and gross fixed capital formation in the Norwegian national accounts, but combined with the detailed commodity-flow method. Changes in stocks are primarily determined as the difference between supply and the sum of other uses for each commodity, adding up all commodities to arrive at a total figure.

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

### 5.2.1. Agriculture, hunting, forestry and fishing

#### Agriculture

In the national accounts the content of the agriculture sector is given by the following production accounts (sectors):

- "Agriculture, production of crops", which comprises the cultivation of all types of agricultural and horticultural crops such as hay and other animal feed, grains, potatoes, vegetables, fruit, berries, flowers and plants.
- "Agriculture, livestock production", which comprises the raising of domestic animals with or without affiliation to farm operations, such as the breeding of cattle, sheep and goats, pigs, poultry, bees, reindeer, fur-bearing animals and horses.

- "Services in connection with agriculture", which includes milk-recording and testing and insemination.
- "Hunting and game propagation", which comprises the hunting and catch of birds and land mammals as an economic activity.

The calculations of the items in the production accounts of agriculture are based on the detailed specifications in the aggregate account of agriculture, prepared by the Agricultural Budgeting Board.<sup>1)</sup> In addition, the reports presented by the Budgeting Board in connection with the national budget are used. The calculations for hunting and game propagation, however, are based on the Central Bureau's hunting statistics.

The Budgeting Board's calculations for the production of crops and horticultural products are largely based on the Central Bureau's annual agricultural statistics which in turn are based on sample surveys. From 1976 the sample includes 6 000 holdings. The production figures are obtained as the product of area and output per decare for the various crops. The quantity of grain sold and fodder and food grains for home consumption, however, is based on data for deliveries to the State Grain Corporation and contracted milling at rural mills. The domestic consumption of food grain is valued on the basis of a flour value per kilogram which corresponds to the value it would have had if sold to the State Grain Corporation. For the calculation of livestock production and purchases of means of production, the Budgeting Board also uses statistics from the farmers' own sales organizations. Feed for own use appears in the national accounts as an estimated internal delivery from the crop sector to livestock, computed on the basis of the Budgeting Board's table showing the supply of feed.

For the conversion of the figures from quantity to value, the price basis for most sales products and some fixed assets is found in price regulations, subsidy schemes and import schemes adopted in the agricultural agreements. The price calculation for those products and means of production not covered in the agreements is based on other available sources, such as price data from the Agricultural Price Reporting Office, price statistics from the sales organizations etc.

The calculations of value added for the agricultural sectors are primarily based on the Budgeting Board's data. When their figures are compared with the final figures in the national accounts, considerable deviations are found as a result of differences in definitions and principles related to the recording method.<sup>2)</sup> The most important corrections made for the purpose of national accounts are the following:

- The scope is expanded in the national accounts to include services in connection with agriculture, the hunting sector and some government services.
- The valuation is different. In the national accounts the production of goods and services is valued at producers' prices and intermediate consumption at purchasers' prices. In the Budgeting Board's material, on the other hand, value added tax is excluded and commodity subsidies added. This results in considerable deviations, particularly for gross output and intermediate consumption.
- Repairs and maintenance are considered intermediate consumption in the national accounts, while recorded as capital formation and consumption of fixed capital by the Agricultural Budgeting Board.
- Cross deliveries, which the Budgeting Board does not register, are introduced in the national accounts where agriculture is split up into several sub-sectors.

The corrections for commodity taxes and subsidies affect most agricultural commodities. The value added tax on gross output and intermediate consumption is added in connection with the processing of data. A number of subsidies must be deducted from the Budgeting Board's income figures. Other changes include a correction in the total value of grain for water content and quality. Some intermediate consumption is distributed between the two main sectors based on fixed keys of distribution.

In accordance with the recommendations in the SNA, livestock is divided into two categories. The Budgeting Board's figures for changes in livestock status are therefore distributed between changes in stocks and gross fixed capital formation.<sup>3)</sup>

1) Final and preliminary figures appear in annual publications from the Agricultural Budgeting Board, entitled "Jordbrukets totalregnskap og totalbudsjett". 2) E.g. gross output in the national accounts is 35-40 per cent higher than the Budgeting Board's figure for incomes (gross output). 3) Included as changes in stocks are now cattle under 1 year (70 per cent), oxen over 1 year, some heifers (20 per cent), slaughter hogs and hens; included as fixed capital formation are changes in the stock of horses, some cattle under 1 year (30 per cent), heifers (80 per cent), cows, sheep, goats and pigs over six months and fur-bearing animals.

With regard to production in the hunting sector, the volume is determined on the basis of the Central Bureau's hunting statistics, while the Budgeting Board's prices for other fowl, reindeer meat and foxskins are used for computing the value figures.

### Forestry

All work on felling and hauling (including timber floating and lorry transport paid by the forest owner) is considered forestry. It is assumed that a certain share of silviculture and construction of forest roads is carried out by the forestry's own production factors. In addition, incomes and costs in connection with the collection of wild berries and plants are included under forestry in the national accounts.

The basic material for the specification of gross output in forestry is provided in a table for the production account of forestry in the annual publication "Forestry Statistics", issued by the Central Bureau of Statistics. The production also comprises own-account investment work carried out by the sector's own factors of production, repairs and maintenance carried out by own factors of production as well as changes in the stock of timber and fuelwood in the forests.

Data on roundwood for sale and industrial production are provided by the District Forestry Boards and the respective managements of common forests and State forests. The reports are collected by the forest administration in each county and forwarded to the Central Bureau of Statistics which compiles the annual forestry statistics. Reliable data on value are available, since the forestation levy in forestry is computed on the basis of the gross value of fellings each year. Estimates and statements on volume and prices are used for a number of items. Wages for hourly paid work according to the contractual rates for felling and hauling are used as a price indicator for computing investment work, repairs and maintenance carried out by the sector's own factors of production. The specification of gross output for the collection of wild berries and plants is based on a very uncertain data base.

In recent years annual sample surveys have been carried out with the primary aim of investigating operating expenses in the forestry sector. The costs of silviculture are distributed between intermediate consumption and gross fixed capital formation, based on an evaluation of the different types of costs. The item "hire of horses and tractors from agriculture" is partly based on rough estimates.

There are certain deviations between the national accounts figures and corresponding figures in the aggregate account of forestry. Inter alia, value added tax is included in the national accounts, while excluded in the aggregate account of forestry. The figures on timber and cordwood for sale in forestry statistics are distributed among commodities in the national accounts based on assortment and assortment shares.

### Fishing

The fishing sector primarily includes ocean and coastal fishing consisting of the catch and landing of fish and shellfish, cleaning and icing of fish before delivery to processing plant or buyer, salting, filleting, freezing and other preparation aboard a fishing vessel, as well as the collection of seaweed and kelp. Moreover, it comprises sealing and whaling, while fresh water fishing is not incorporated in the national accounts. A new production sector was introduced in the accounts in 1979: hatching and breeding of fish etc.

Figures for fishing are to a large extent based on official statistics. The results from the fishery census in 1971 are used in the benchmark determination, while the current calculations of the items in the production account for fishing largely correspond to the detailed specifications of the aggregate account of the fishing industry, prepared by the National Accounts Division for the Fishery Budgeting Board.

The aggregate account primarily includes the registered landed value of fish etc. as well as the value of seal and whale catches, unregistered catches and fishermen's own consumption of the catch. Incomes also include the value of fishermen's own-account installation and maintenance on their own fixed assets. Subsidies paid to the fishermen through the sales associations are included in the fist-hand value while fees to the associations are deducted. Gross output in both the aggregate account and in the primary statistics is recorded excluding the value added tax, which is added in the national accounts.

The Directorate of Fisheries compiles statistics on registered fish catches etc. landed by Norwegian fishermen in Norway or directly abroad. Most of the information comes from the sales associations which have statutory protection for first-hand sales of fish. The figures for salmon and sea trout fisheries are provided by the Central Bureau of Statistics, while the figures on the collection of seaweed and kelp are obtained from special sources. Statistics on the registered landed value of fish etc. are published in the Directorate of Fisheries' weekly bulletin which also includes monthly and annual data. Annual figures are also published in NOS "Fishery Statistics". The primary statistics give figures for both quantity and value by fish species as well as categories of use, which are utilized in the distribution of commodities in the national accounts.

Statistics on sealing and small whaling are also compiled by the Directorate of Fisheries. The blubber value of seal catches is computed on the basis of quantity and price data, while the value of sealskins is computed residually from the total clearance value. The statistics on small whaling specifies the value and quantity of the total catch with certain specifications. There is no longer any regular whaling industry in Norway.

The figures on catch for own consumption are based on quantity data from the fishery census in 1971. The figures on quantity are extrapolated for subsequent years by assuming an annual decline in volume of 5 per cent converted to value by using prices for the registered landed value of fish delivered in the category "icing, fresh". Unregistered catches comprise fish sold directly to the consumers by the fishermen, the figures for which are uncertain and based on estimates made by the Directorate of Fisheries some years ago.

The levels of the national accounts figures for the fishermen's own-account installation, repairs and maintenance of own fixed assets are computed on the basis of figures in the fishery census, extrapolated on the basis of estimated man-weeks and hourly wages for similar economic activities.

The items repair and maintenance costs and fuel consumption are the most important sub-categories included in intermediate consumption. The calculations for payments to hired help on boathouses etc. are based on estimates, while purchased services relating to fishing vessels are based on the total value in the fishery census and (since 1972) on the item "repair work on fishing vessels" in industrial statistics. A similar system is applied for outside purchases relating to gear.

In the case of fuel, the Central Bureau of Statistics' fishery censuses are the basic source of data for figures on quantity, while the changes between the census years are based on the oil companies' sales data by consumer groups. The price basis is direct statements from the oil companies as well as the Price Directorate's price regulations for mineral oil products. The consumption of bait is computed on the basis of data on quantity and prices by fish species obtained from the Directorate of Fisheries. Other costs are also computed by the Directorate of Fisheries.

### 5.2.2. Mining and quarrying

Mining and quarrying include all extractive activity, i.e. the mining and production of ores, minerals, oil, natural gas, stone, sand and peat. In recent years, crude oil and natural gas production has dominated this industry completely, so that it seems natural to divide the description into one section on the production of crude oil and natural gas and another on other mining and quarrying.

#### Production of crude oil and natural gas

In addition to the actual production of crude oil and natural gas this activity includes own-account projects and drilling for crude oil and natural gas. The various aspects of oil activities are classified as different activities in accordance with the principles in the Norwegian Standard Industrial Classification.<sup>1)</sup>

Units have arisen in oil activities which require special treatment in a statistical context. This applies, for example, when several independent companies form a group with the purpose of exploring for and producing crude oil and natural gas. The group will choose an operator to handle the group's

1) Production of crude oil and natural gas belongs to mining and quarrying, oil drilling on a contractual basis to construction, wholesale trade in crude oil and natural gas is grouped under wholesale and retail trade, the operation of pipelines is considered part of the transport industry, while investment companies and holding companies which are primarily engaged in financing activities are classified under financial institutions.

activities, which entails that data for the group's industrial activity are possessed by the operator company and collected from that. The group is considered both an enterprise unit and an establishment, while the operator company is the reporting unit.

In 1980 crude oil is being produced from two major fields in the Norwegian sector of the North Sea and natural gas also from two such fields. Crude oil has been produced from Ekofisk since 1971 and from Statfjord since late 1979. Natural gas is produced from Ekofisk and Frigg. The oil from Ekofisk has been transported in an oil pipeline to Teesside, England since October 1975. Deliveries of natural gas through a pipeline from Ekofisk to Emden in the Federal Republic of Germany started in September 1977, whereas a British gas pipeline from Frigg to St.Fergus, Scotland was opened at about the same time. A second gas pipeline from Frigg to St.Fergus (Norwegian) began operations in August 1978.

The Central Bureau of Statistics has decided to register the border area which stretches across the continental shelves of two or more countries on the basis of the ownership principle, i.e. in accordance with the countries' ownership shares of oil/gas reserves.<sup>1)</sup> The shares are used for distributing production, intermediate consumption and capital formation in the border fields between Great Britain and Norway.

The data base for the production of crude oil is monthly and annual production figures obtained from the operators on the Norwegian continental shelf and annual figures for the value of crude oil collected in industrial statistics and which are based on values of invoices which the Central Bureau obtains through statistics of accounts. In the national accounts, however, the value of crude oil is based on prices in external trade statistics and figures on quantity from industrial statistics.

Since 1975 there has been an administrative stipulation of prices for oil produced on the Norwegian continental shelf. These prices are set ex post and they shall in principle reflect prices on sales between independent parties on a free market. These are called norm prices and are used to solve the control and administrative problems particularly with regard to taxation of oil companies.

The norm prices are stipulated by the Ministry of Oil and Energy for oil deliveries fob Teesside and cif North Sea harbour. However, by making use of information from the company that owns the pipeline between Ekofisk and Teesside and which provides a basis for distinguishing between transport costs and terminal costs at Teesside, it is possible to calculate transport costs per unit of oil and thus computing the value of crude oil fob Ekofisk. Correspondingly the value of crude oil fob Statfjord is calculated by deducting transport costs (by ships) from cif-value North Sea harbour.

Industrial statistics also provide data on quantities of natural gas produced. Monthly estimates on the value of exports of natural gas to Great Britain and Federal Republic of Germany were first available in 1979 through external trade statistics. The prices are computed on the basis of official British and West German import statistics. Supplementary calculations must be made to arrive at gas exports valued at fob-value Ekofisk and Frigg, based on certain assumptions.<sup>2)</sup>

The data base for intermediate consumption is poor. It has proved difficult to have direct imports for activities on the continental shelf registered in a satisfactory manner. Some information is collected from the operators, but these data do not provide a satisfactory basis for the distribution of the various goods and services required by the national accounts.

#### Other mining and quarrying

In the national accounts, mining and quarrying activities, apart from the production of crude oil and natural gas, are specified in four production sectors, i.e. "coal mining", "metal ore mining", "stone quarrying, clay and sand pits" and "other mining".

The data base for these production sectors is the annual industrial statistics, which are further described in the section below on manufacturing.

1) The Norwegian ownership shares in the spring 1980 are 84,09 per cent for Statfjord, 60,82 per cent for Frigg and 16,25 per cent for the Murchison field. 2) Terminal costs in Emden are at present assumed one-third of the total costs for the pipeline between Ekofisk and Emden. For the gas pipelines from Frigg it is assumed that the pipeline transport and terminal costs per unit of gas transported are the same as for the pipeline from Ekofisk to Emden. The procedures for estimating terminal and pipeline transport costs for gas are under revision.

### 5.2.3. Manufacturing

Manufacturing comprises economic activity in factories, workshops etc. (or in the worker's home) which involves the production of new products from raw materials and intermediate products through mechanical, chemical or manual production processes. Moreover, it includes repairs of machinery, ships and other manufactured products, excluding repairs of vehicles, household apparatus and goods for personal use. Such repairs are considered personal services.

The manufacturing sector is divided into nearly 100 production sectors in the national accounts.

The national accounts figures for manufacturing are based on the annual industrial statistics, (manufacturing statistics) which might be considered the most important primary statistics used in the national accounts calculations. This has been of considerable importance for the development and presentation of the Norwegian national accounts with the main emphasis placed on production data and detailed commodity flows. The annual integrated input-output tables would be inconceivable in the Norwegian accounts without the detailed industrial statistics.

Industrial statistics cover the industries mining and quarrying and manufacturing. Each year, complete annual reports are collected from all "large" establishments by the Central Bureau of Statistics.<sup>1)</sup> From "small" establishments annual reports are only collected on total employment, sales etc. One-man establishments are entirely excluded from the annual industrial statistics. The Central Bureau's Register of Establishments and Enterprises, which also shows the addition of new establishments, is utilized in the collection of statistical data. Since 1973 the Value Added Tax Register has been used for updating the Register of Establishments and Enterprises. Establishments engaged in activities which could be classified under several industrial groups are in principle classified under the activity which provides the largest contribution to the establishment's total value added. Ancillary units are classified under the same activity group as the principal establishment of the enterprise.

The value of gross output in the industrial statistics is recorded as the sum of a number of items (excluding the value added tax)<sup>2)</sup>. The prices recorded are prices at the production site, including the cost of packaging materials and transport by the establishment's own personnel and equipment, but excluding other charges for freight, forwarding, insurance etc. Other indirect taxes than the value added tax are included, whereas subsidies received from the government are not included.

Intermediate consumption (also excluding VAT), includes a number of items for large establishments.<sup>3)</sup> For small establishments, gross output, intermediate consumption and commodity figures are computed on the basis of complete information in the register on sales etc. and by using information specified by the smallest of the large establishments on the complete industrial statistics form. Figures for one-man establishments are computed separately on the basis of fixed keys from the latest census of establishments and the movement in hourly wage rates in manufacturing sectors.

The National Accounts Division receives the industrial statistics data on magnetic tape for use in the national accounts calculations. In addition to the estimates made for one-man establishments and a few other adjustments, the recoding work only normally remains before the figures are available in a national accounts form. Value figures by commodity and by industry must be recoded to the respective national accounts codes for commodity and sector. The recoding files must be updated and expanded each year from the information provided by the specialized division on new commodity numbers and changes in commodity numbers.

The computed value added tax as an addition to the gross output and intermediate consumption is derived within the input-output tables (see indirect taxes below). Other adjustments relate to insurance premiums which are computed according to national accounts principles and certain repair outlays which are excluded from the calculations of repair in the national accounts.

1) In general, establishments having an annual average of at least 5 employees are considered large, but for 10 of the industrial sectors the limit is fixed at minimum 3 employees and for still another 10 sectors all establishments are considered large. 2) Gross output is specified on the following components: sales value of goods produced on own account, receipts for repair work for customers, receipts for mounting or installation of own products and merchandise, receipts for contract work carried out for others, receipts for other work carried out during the year, value of own-account investment work, value of own-account repair work, rental receipts and the change in stocks of work-in-progress. 3) Raw and auxiliary materials used as direct input in the manufacturing process, fuels and electricity consumed, purchases of ready-made packaging materials as well as raw materials for the manufacture thereof, other inputs consumed during the year, cost of repair work done by others, cost of contract work done by others, rental outlays, other working expenses, cost of own-account repair work as well as investment levy which is not included in any of the abovementioned items.

#### 5.2.4. Electricity, gas and water

The concept of establishment in this sector includes both the actual production activity and the distribution of power and water irrespective of whether the distribution plant extends over several municipalities. Three production sectors within this industry are specified in the national accounts:

- "Electricity supply" which comprises the production, transforming, transmission and distribution of electric power.
- "Gas supply" which comprises the production of gas and distribution of gas through a pipeline network.
- "Water supply" which comprises the collection, purification and distribution of water as well as the production and distribution of steam and hot water.

The statistical source for computing gross output and intermediate consumption for electricity supply is the annual electricity statistics which are production statistics like the manufacturing statistics. The statistics cover distribution plants and power-producing electricity stations which are based on the sale of electric power with a machine capacity of at least 100kW, as well as electric power stations supplying an enterprise' own manufacturing activity of the capacity is at least 500 kW.

The gross output of electric power is defined as the sum of a number of items.<sup>1)</sup> Intermediate consumption is likewise specified into various items in the primary statistics.<sup>2)</sup> Data on the gas supply are provided annually by the gasworks on employment, production, intermediate consumption etc., also published in the electricity statistics. The value added tax must, for the national accounts, be computed and added to the data on value provided by the electricity statistics. The computations for water supply are based on figures in the local government accounts. The waterworks are, however, not included in local government of the national accounts, but are instead classified among the industries.

#### 5.2.5. Construction

Construction comprises all activities directly related to the erection, alteration, maintenance (aside from daily upkeep) and tearing down of buildings and to the construction and repair of civil engineering works. The digging of mine shafts etc. and drilling for oil and natural gas are classified under mining and quarrying if the work is carried out on own-account basis, but under construction when the activity is effected on a contractual basis for others. The production of prefabricated houses, cottages, garages etc. for erection in a location other than the production site is considered manufacturing industry, while assembly etc. on the building site is classified under the building sector (i.e. construction).

Two production sectors are specified under construction in the national accounts, i.e. construction proper and drilling for oil and gas.

#### Construction

The construction sector shall register all activities on building and construction sites,<sup>3)</sup> but not services of architects and building consultants which are included in business services.

Gross output in the construction sector comprises all building and construction activities.<sup>4)</sup> All building and construction activity is therefore assumed to take place in the construction sector either by means of the sector's own manpower or with hired manpower. Employees engaged in public works are considered employed in the construction sector, i.e. there is no item for the leasing of production factors which is entered in the production of the producers of government services.

1) Deliveries of power to establishments within the enterprise, sales of regular power to others, sales of occasional power to others, sales of electric power to other electricity stations, exports of electric power, transit conveyance and transforming income, receipts for mounting or installation for others, receipts for repair work for others, the value of own-account fixed capital formation carried out by the establishment's own employees, the value of own-account repair work, rental receipts from buildings and plants, as well as rental receipts from the lease of machinery. 2) These specifications are rather similar to those provided by the manufacturing statistics. 3) I.e. foundation work, erection, tearing down, repair and maintenance, installment of permanent fixture in buildings and on civil engineering works as well as the planning and administration of such activities. 4) For sectors other than construction proper the activity is entered in the output as leasing of own-account factors of production (intermediate consumption) to the construction sector, value equal to the compensation of own employees who are engaged in the building and construction work on the sector's own productive capital. All building and construction materials etc. used in these projects will be included as intermediate consumption in the construction sector.

The construction sector's production account delivers 18 commodities which at present, due to the lack of primary material, are partly classified according to the owner's industry and not according to the type of building and construction. The following specifications of buildings and construction are at present made for the commodity flows of the national accounts:

Civilian buildings	Construction of dwellings Construction of leisure homes Construction of housing barracks, huts, boathouses etc. Construction of non-residential buildings for agriculture, forestry and fishing Construction of government buildings for education, health and social work Construction of other non-residential government buildings Repair of dwellings Repair of non-residential buildings
Civilian construction	Land improvements in agriculture and forestry Construction of mining and manufacturing plants Construction of electricity plants Construction of roads Construction of other public works Construction of other facilities (communication plants etc.) Repair of civil engineering works
Military buildings	Construction and repair of military buildings
Military construction	Building and repair of military constructions

The most important sources for computing the items on the production account of the construction sector are: a) sector data on repairs and new investments in buildings and construction based on economic statistics for the Norwegian State Railways, the Post Office, the Norwegian Telecommunications Administration, the manufacturing sectors etc. as well as the central and local government accounts, b) construction statistics, c) building statistics, d) figures from industrial statistics and external trade statistics on supply of building materials, e) employment and wage statistics and f) input price calculations.

Gross output is initially determined from the user side as the sum of the sectors' investments, repairs and maintenance of buildings and construction. The figures for investments in dwellings are mainly computed on the basis of data on the number of dwellings, dwelling area and price per dwelling or dwelling area unit. The sources used are the annual statistics of the Housing Bank, the Report to the Storting on the activities of the Agricultural Bank and building statistics. The repair of dwellings is assumed to follow a trend slightly under the volume trend for consumption of fixed capital on dwellings and presupposes that most of the dwellings are new, while the price movement is determined on the basis of an input price index.

Investments in buildings for business purposes are computed by means of data in building statistics on building completions and starts as well as using an input price index. Repairs of such buildings, which to a large extent relate to repairs in the sector letting of other buildings, are estimated to follow the change in value of the sector's gross output. Deliveries from the construction sector to repairs and investments in government sectors are determined on the basis of central and local government accounts. For users other than real estate and general government, repairs and investments in buildings and construction are computed on the basis of economic statistics or computed as an estimate.

Gross output figures for military buildings and facilities are transferred to the account for government final consumption expenditure and not to gross fixed capital formation.<sup>1)</sup>

Gross output in the construction sector derived from the user side is checked and reconciled with the gross output figure in construction statistics. Gross output by commodity can thereafter be derived from the user sectors' final investment figures. However, some additions must be made to the final gross output figure of construction statistics in order to correspond to the concepts of national accounts.<sup>2)</sup>

1) Except military dwellings, which are considered capital formation and included in the commodity group dwellings above. 2) I.e. prefabricated houses from manufacturing industry, leasing of production factors to the construction sector, materials for own-account work on own fixed assets, operating surplus in one-man establishments, materials for one-man establishments, output value added tax and the value of construction work by people building their own houses.

Intermediate consumption on the construction sector has been determined as the sum of several components.<sup>1)</sup> The item "other intermediate consumption" is first estimated on the basis of percentage shares of gross output (excluding prefabricated houses) in previous years, but is in the next round checked and reconciled with the level and development of figures on intermediate consumption from construction statistics in order to harmonize with the concepts of the national accounts.

The final figures in the national accounts in intermediate consumption in the construction sector are determined in connection with the balancing of commodities for building materials. This distribution of commodities, however, will be heavily marked by estimation. It is envisaged that the quality of intermediate consumption figures can be improved somewhat by utilizing results becoming available from the structural surveys of the construction industry.

#### Oil and gas exploration and drilling

This production sector comprises drilling for crude oil and natural gas, laying of pipelines and other construction activity relating to oil and gas production carried out as special activities on a contractual basis. An establishment which leases drilling platforms with crew is considered a construction establishment, but not a foreign oil drilling company which drills on the Norwegian part of the continental shelf based on an assignment from Norwegian licensees, even though remaining there for more than one year. These oil drilling services are considered imports.

The most important source for computing gross output in this sector is construction statistics. The information the Central Bureau collects for the annual construction statistics from establishments engaged in oil drilling is somewhat different from the information obtained from other construction establishments. In a separate questionnaire for oil drilling etc. data are requested on gross income earned in Norwegian and foreign areas distributed according to the type of terms. Deliveries which come directly from abroad without entering Norwegian customs are specified for capital formation and total consumption of commodities, based on considerations for the recording methods of the balance of payments and the national accounts.

In addition to the annual construction statistics, the quarterly investment statistics are used as a source for the computations in the preliminary accounts.

Gross output in the oil exploration and drilling sector is delivered to gross fixed capital formation (and exports). The method applied in Norway which classifies all such expenditure as gross fixed capital formation, i.e. a full capitalization of expenses for oil drilling and oil exploration, has been motivated on the basis of similar activities in mining, and data considerations. There has been a desire to avoid large negative figures for value added in the oil production sector as a result of sizeable expenses and no production during the initial years. The drilling of dry wells is depreciated in one year.

#### 5.2.6. Wholesale and retail trade and restaurants and hotels

##### Wholesale and retail trade

Only one wholesale and retail trade sector is specified in the national accounts. The sector has not been divided up into several production sectors due to the lack of primary statistics (production statistics) and the special technical treatment given to wholesale and retail trade in the national accounts. For this sector the gross output computations have the nature of residual calculations from the user side in the input-output table.

Gross output in the wholesale and retail trade sector is in practice defined as the difference between the commodities' purchasers' values for the final consumer and the commodities' producers' values, (values ex factory or import cif-values). The production concept in wholesale and retail trade thus generally corresponds to the gross trade and transport margin. Gross output is distributed among the entire range of commodities traded. Besides gross margins, commissions and some other transactions have been included in the gross output of wholesale and retail trade.

1) I.e. prefabricated houses from manufacturing industry, leasing of production factors to the construction sector, unspecified intermediate consumption, repairs and maintenance and other intermediate consumption.

The part of gross output which consists of gross margins is computed from the user side based on deliveries of commodities to intermediate consumption and final uses. Gross margins are of greatest importance for deliveries of commodities to private final consumption expenditure. When computing gross margins here, we normally start by computing estimates in current purchasers' values. Based on last year's accounts and primary statistics which show annual changes in, inter alia, retail sales distributed by branches, value indices are constructed for the various consumption groups in current purchasers' values (see the section of private final consumption expenditure).

During the last major revision the Central Bureau of Statistics collected, primarily from government bodies and various trade organizations, information on gross margin percentages for the various categories of consumption groups, both at the retail level and at the wholesale level as well as scattered information about the pattern of distribution (wholesale shares etc.). Through this "direct method", along with indirect computational results based on price data and information from the survey of consumer expenditure in 1967, a level for the figures on consumption with accompanying gross margins was established for that year.

Based on purchasers' values and gross margin percentages, current producers' values can be computed. By using, inter alia, price material for the consumer price index and the wholesale price index, we arrive at preliminary purchasers' values and producers' values at both current and constant prices. After the figures on consumption are computed this far, different types of evaluations enter the picture during the work on distributing the commodities.<sup>1)</sup>

For deliveries to uses other than private final consumption expenditure, the routines for computation are developed in a manner similar to that for private final consumption expenditure. Based on industrial statistics, information is obtained, e.g., on consumption of raw materials etc. at current purchasers' prices after an addition for estimated VAT. The conversion from purchasers' values to producers' values is made on the user side of the input-output table in these cases, too. There are two factors which make the calculations of gross margins for this uses more uncertain. First, the gross margin percentages were not revised during the last major revision. Second, there is no way of checking the price indices for purchasers' values as is the case with the consumer price index for private final consumption expenditure.

Numerically, the gross trade and transport margins account for more than 95 per cent of the gross output in wholesale and retail trade. The remainder consists of commissions etc., registration fees on second-hand cars, commissions for the National Football Pool etc. The overall gross margin percentage is about 20 per cent, measured in relation to the producers' value for all goods combined. Sales of goods in wholesale and retail trade, as normally defined, are 3-4 times higher than the gross output in wholesale and retail trade registered in the national accounts.

With regard to intermediate consumption in wholesale and retail trade, it is particularly transport services, rent and other services, as well as packaging materials etc. which are of importance. Transport costs which are incurred on the goods after leaving the factory gate are included in the gross trade and transport margins. A large share of the transport services, however, comes from sectors other than wholesale and retail trade and are therefore also registered as intermediate consumption in wholesale and retail trade. With respect to the rent item, a large share of the services delivered from the sector "letting of other buildings" goes to wholesale and retail trade.

The data base for computing intermediate consumption in wholesale and retail trade is weak. Aside from the last census of establishments, no figures have ever been available on total intermediate consumption in the wholesale and retail trade sector in primary statistics. The estimates are based on more or less fixed keys of distribution. Evaluations based on the changes in the operating surplus of wholesale and retail trade and the total input-output coefficient for wholesale and retail trade have often resulted in adjustments in intermediate consumption.

1) If the price indices used for deflating the basic values (producers' values) are reliable enough, it will be possible to obtain current adjustments in gross margins, even though the computational routines are based on the percentages of last year. Gross margins at current prices may also be adjusted as a result of analyses of the figures for changes in stocks and percentages over time on the commodity level for the most important consumer goods. There is, however, a lack of suitable statistics on stocks, and no direct statistics on margins are available on a systematic basis.

## Restaurants and hotels

The production sector restaurants and hotels in the national accounts comprises the services letting of rooms, serving of food and drink.<sup>1)</sup> In the national accounts the classification of commodities is made on the basis of services provided, independent of the establishment unit. The same procedure is used in the primary statistics.<sup>2)</sup>

The value of gross output for letting of rooms is initially defined as equal to gross sales for hostels according to the last census of establishments. For current computations this level is extrapolated by means of a volume index computed on the basis of the number of guest-nights in hotels and a price index which more specifically is the sub-index "expenditure at hotels and boarding-houses" from the consumer price index.

The services delivered for the serving of beer are computed by multiplying the serving price per litre with the number of litres of beer sold for each of the three tax classes of beer. The value of gross output for the serving of wine and spirits is fixed equal to consumers' expenditure on wine and spirits at restaurants etc. which is computed by the State Wine Monopoly. The last census of establishments is used as a starting point for computing the serving of food, including soft drinks. Gross sales for serving of food is determined residually as the difference between total gross sales at restaurants and hotels and computed gross sales for the serving of beer, wine and spirits as well as letting of rooms. This level of gross output is extrapolated for current computations by means of a weighted average of the volume indices for letting of rooms, serving of beer, wine and spirits combined with the consumer price index for food at restaurants.

The computations of intermediate consumption rest on a weak basis for some commodity groups, but precise figures on purchases of wine and spirits are obtained from the State Wine Monopoly and in the case of beer the volume served and purchase prices (from the Oslo breweries) for each of the three classes are known. For a good part of other intermediate consumption we must use information on the consumption of goods for members of the Norwegian Hotel and Restaurant Association in a specific benchmark year, extrapolated in line with gross output for other years.

## 5.2.7. Transport, storage and communication

### Railway transport

Railway transport comprises only the transport of goods and passengers by rail. The Norwegian State Railways' workshops are included in manufacturing, their road transport services in the sector scheduled road transport and work on new plants in the construction sector. In the national accounts, nine different services (NA-commodities) are specified, of which passenger transport and the transport of goods account for some 85 per cent of the total gross output.

The accounts from the Norwegian State Railways containing figures on the operations of the State railways represent the most important source for computing gross output in the railway transport sector. An estimate for free trips is added to the item passenger traffic. An amount is also added for income from private railways as specified in the transport and communication statistics. The railways' services are delivered to intermediate consumption, exports and private final consumption expenditure.

Intermediate consumption in the railway transport sector is determined as the sum of repair and maintenance costs and costs of materials relating to the operation, collected from the Norwegian State Railways on special forms with specifications of commodities.

### Scheduled road transport

This sector comprises the transport of passengers and goods by bus. Six groups of services are specified in the national accounts, of which passenger transport and moving expenses and freight cover more than 85 per cent of the sector's gross output.

1) This applies whether they take place in licensed restaurants, other restaurants and cafés, hotels, camping sites or hostels (boardinghouses, inns, tourist lodges, youth hostels and other hostels).

2) Hotel services will thus be included under both rental of rooms and serving.

The calculations for scheduled road transport are based on the scheduled road transport statistics. Gross output for transport of passengers by bus also includes transport of school children and other transport on contract plus estimate for free trips. For moving expenses and freight by bus, the income items gross receipts from ordinary freight services, milk transport and other contract services are included. Services from the scheduled road transport sector are distributed between intermediate consumption and private final consumption expenditure.

Intermediate consumption in the scheduled road transport sector is computed by adding and adjusting 15 items in the form for scheduled road transport statistics.

#### Tramway and subway transport

Provision of tramway and subway transport comprises passenger transport, hire of vehicles and advertising income (minor item). Most of the production relates to passenger receipts which the tramway companies receive through the sale of tickets. An estimate is made for free trips in this case as well.

The annual reports from the five tramway companies in Norway are used as sources for the computations. The entire production in the sector is delivered to private final consumption expenditure.

The above-mentioned sources are also used to compute intermediate consumption, but data from industrial statistics for tramway workshops are used for estimating maintenance of rolling stock.

#### Taxis and other unscheduled passenger transport by road

This sector comprises passenger transport by taxi and touring bus as well as the rental of automobiles with drivers. In practice, however, most of the touring bus transport is included in the sector scheduled road transport as the bus companies handle most of the sightseeing bus transport.

A bench-mark level has been determined on the basis of the latest census of establishments. The publication "Bil og vei", issued by the Norwegian Road Federation, contains figures on the taxi fleet at the end of each year. The annual average is used as a volume indicator for gross output in the sector. The consumer price index for expenditure on taxis is used as a price index. Somewhat more than half of gross output is allocated to private final consumption expenditure, while the remainder goes to intermediate consumption.

A level for intermediate consumption in the sector has been estimated from data on costs of owning and operating cars, obtained from the Norwegian Road Federation. On a current basis the trend in volume of intermediate consumption is assumed to be the same as for gross output. For prices, the price movement for various mineral oil products is also used.

#### Unscheduled freight transport by road

The sector comprises unscheduled transport by lorry or van, tractor, weasel etc. carried out as a separate activity, as well as the rental of lorries or vans with drivers.

The computations of the commodity group "moving expenses and freight" must be based on index calculations starting with the latest census of establishments. The development in transportation volume between the last two censuses of establishments is estimated by using the results from special censuses of lorries in the period and other special statistics on lorries published by the Central Bureau of Statistics. By using these data sources, we arrive at the number of ton-kilometres as a measure of capacity for each category, and it is the movement in the sum of ton-kilometres which is used for the volume index. The development in the maximum price for lorry transport is used as a price index. An estimated 3,5 per cent of the gross output is allocated to private final consumption expenditure, while the remainder goes to intermediate consumption.

The most important commodity used as intermediate consumption in the sector is repair of vehicles etc. for which the volume index is estimated to follow the index of gross output, while the price index is obtained from the Institute of Transport Economics' cost indices for lorry transport. The value index for most of the input goods in the sector is estimated to follow a corresponding value index for gross output.

### Supporting services to land transport

In the national accounts, the sector "supporting services to land transport" specifies goods and transport centrals and other supporting services to land transport, besides government services in connection with expenditure for roads and streets.

Gross output for goods and transport centrals is determined on the basis of the combined gross output for the sectors scheduled road transport, taxis and other unscheduled passenger transport by road and unscheduled freight transport by road. For other supporting services to land transport, one of the volume indicators used consists of the movement in the figure for the average motor vehicle fleet, while the other indicator is developed as the number of passenger cars rented out. The price index is also weighted, composed of various group indices in the consumer price index etc.

Intermediate consumption is estimated at 33 per cent of the value of gross output.

### Pipeline transport for oil and gas

Oil and gas transport by pipeline comprises the operation of pipelines for transporting crude oil, refined oil and natural gas. In the case of pipeline transport of oil and gas to installations abroad, certain boundary problems arise with regard to what part of the activity shall be considered Norwegian. It has proved to be more practical to use the ownership criterion rather than the territorial criterion for this delimitation. The pipeline from Ekofisk to Teesside which is owned by a Norwegian-registered company is therefore considered Norwegian even though most of the pipeline is located on the British side. Pumping stations, monitoring facilities etc. linked up to the pipelines in the British sector are also considered Norwegian. The installations at Teesside, on the other hand, are not included in Norwegian statistics. According to the same principles, the pipeline between Ekofisk and Emden is included in the Norwegian statistics as well as one of the two gas pipelines from the Frigg field to Scotland.

The data base for computing transport services from the pipelines going to England and the Federal Republic of Germany is the figures provided in the accounts of the Norwegian-registered company which cover the costs for transport. With regard to the gas pipeline to Scotland, we do not possess corresponding data from the accounts of the licensees. It has been assumed that the prices per unit transported are the same as for the pipeline between Ekofisk and Emden.

### Ocean transport

The sector comprises ocean transport of passengers and goods. The national accounts specify passenger transport, exports of shipping services (gross freight earnings) and the transport of goods in coastal trade, of which gross freight earnings in ocean transport dominate completely.

The main source for the computations is the shipping statistics for gross freight earnings and operating expenditure for ships in ocean transport.<sup>1)</sup>

Intermediate consumption in ocean transport is dominated by the shipping sector's operating expenditure abroad. Shipping statistics do not distinguish annually between total expenditure and domestic deliveries to ocean transport for all expenditure items, but every fifth year these statistics provide information on how much of each expenditure item is paid in Norwegian kroner. Known ratios between total and domestic deliveries are used to obtain an estimate for domestic deliveries for the intervening years. Insurance services which are delivered from foreign insurance companies are also included in operating expenditure abroad.<sup>2)</sup> Repair, maintenance and general average expenses are specified in the shipping statistics. For other components of intermediate consumption, the various

1) From these statistics the value of gross output in the sector is defined as the sum of voyage charters, liner freights, time charter hire from foreigners, bareboat hire from foreigners, compensation for expenses paid in connection with the operation of ships which are chartered bareboat to other countries, freight earnings from contracts of affreightment, freight earnings for possible coastal trade and freight earnings for hire/purchase excluding installment payments. 2) Insurance premiums paid to foreign insurance companies and deducting general average and freight compensation. A deduction must also be made for insurance received for ships which have been totally lost and been insured abroad.

items in the annual statistics have been split up using ratios from the statistics showing domestic deliveries.

#### Coastal and inland water transport

This sector comprises the transport of passengers and goods by ship and boat along the coast, rivers and inland waterways. Specified in the national accounts are car ferry services, passenger transport by ship, transport of goods, mail transport and leasing of ships. For data reasons the sector are divided into regular services, unscheduled transport in coastal waters and other coastal transport. Annual statistics are only available for regular services, while the figures for other groups are developed by means of indices.

Annual statistics for scheduled coastal and inland water transport are used for computing gross output of regular services. The production is partly allocated to private final consumption expenditure, partly to intermediate consumption. Indices of production for certain manufacturing and mining activities are used as volume indicators for unscheduled coastal water transport. The price index is a weighted index.<sup>1)</sup> A bench-mark level is determined on the basis of the latest census of establishments and other statistics such as for coastal transport of goods in 1965. In addition, an estimate of production is made for supply vessels in the North Sea, which has been developed with the same value index as for total Norwegian investments in oil activities in the North Sea. The value of gross output for other coastal and inland water transport is developed from an index of volume based on the sum weight of imports and exports by ship from external trade statistics and a price index which is the same as for unscheduled coastal trade.

Intermediate consumption in the coastal and inland water transport sector is determined on the basis of the annual statistics used in the case of regular services, while intermediate consumption for unscheduled coastal trade is estimated at 50 per cent of the value of gross output, and for other coastal and inland water transport at 40 per cent of the value of gross output.

#### Supporting services to water transport

In the national accounts, this sector includes shipping agent services, loading and unloading, harbour services and other supporting services to water transport. Lighthouse and pilot service administration is included in general government.

Aside from harbour services for which gross output is fixed equal to sales and rental receipts for harbour offices in local government statistics, the other groups are developed as the product of a volume index and a price index. The volume indices consist of different indicators.<sup>2)</sup> The price indices are various group indices from wage statistics and the consumer price index for rent and maintenance expenditure. Here as well, the latest census of establishments is used as a basis for determining the bench-mark estimate.

Intermediate consumption is based on fixed shares of the values of gross output, except that local government statistics are used for harbour services.

#### Air transport

The air transport sector in the national accounts covers the groups passenger transport, freight transport and mail transport, while supporting services to air transport is covered by a production account under central government. The sector is dominated by a multinational concern, SAS (Scandinavian Airlines System), which is given a special treatment in the national accounts. In accordance with the recommendations from the United Nations, the transactions concerning operation of aircraft have been allocated to each country on the basis of that country's share of the airline's capital in the concern.<sup>3)</sup>

1) The index for monthly earnings of seamen in scheduled coastal trade, the wholesale price index for machinery and transport equipment and several other indices are used to compile the price index for unscheduled coastal water transport. 2) Total import and exports by ship, the number of ton-kilometres in regular coastal services other than car ferries, average gross tonnage in the merchant fleet etc. and the total number of hours worked by longshoremen. 3) Norway owns two-sevenths of the share capital in SAS and the same ownership share is also used for the chartering company Scanair. The difference between 2/7 of the total traffic income (counted as Norwegian production) and the Norwegian use of services which is fixed equal to the amount the companies have registered as receipts in Norway is considered Norwegian exports. On the other hand, the difference between 2/7 of SAS and Scanair's total purchases of goods and services and the companies' purchases in Norway is treated as Norwegian imports.

Gross output is determined on the basis of annual and quarterly reports from SAS collected from the Central Bureau of Statistics in Stockholm (similarly for Scanair). Adjustments must be made for the deviation in accounting year, and the figures must also be converted from Swedish to Norwegian kroner. In order to compute production for the Norwegian companies, two separate forms containing economic data are used, one for larger airlines and one for companies using small aircraft. Gross output is delivered to intermediate consumption, gross fixed capital formation, private final consumption expenditure and exports.

By adding up relevant items in the sources mentioned above, we arrive at a total figure for intermediate consumption in the sector.

#### Services allied to transport and storage

This sector comprises seven different groups in the national accounts, i.e. services of travel agents, tourist offices and cottage rental agencies, ship brokerage services, aircraft brokerage services, other services allied to transport, storage consisting of the operation of storage facilities and warehouses as a separate activity and freight forwarding services which cover the handling of the transport of goods.

The computations of production for travel agencies, start with statistics on sales as well as a number of volume and price indices. Tourism statistics give the development in the number of overnight stays registered by two major cottage rental agencies, which along with a weighted price index for different wage indices determine the production of services in tourist offices and cottage rental agencies. The shipping statistics determine the movement in gross output for ship brokerage services and chartering, while aircraft brokerage services are computed by using freight and mail received and sent as an indicator along with a special wage index. The volume index for other services allied to transport is estimated on the basis of, inter alia, the development in the automobile fleet. The volume index for imports excluding ships combined with a wage and consumer price index are used for storage. The price index used for freight forwarding services is the same as for ship brokerage services, while the volume index is weighted with the volume of exports and imports (excluding ships) as well as the total index of industrial production. Benchmarks are based on the latest census of establishments.

Intermediate consumption in the sector is determined on the basis of fixed ratios of gross output which vary from 30 per cent to 55 per cent for the various service groups.

#### Communication

Communication consists of two production sectors in the national accounts: postal services and telecommunications. The central administrative activities of the Norwegian Postal Administration and the Norwegian Telecommunications Administration are classified under public administration, while the activities of the central offices of the Postal Giro and the Post Office Savings Bank belong to banking activities.

Gross output of the postal services includes postage, used stamps etc., services from the Post Office to the Postal Giro and services from the Post Office to the Post Office Savings Bank.

The computation of the Post Office's postage revenue starts with the total operating income provided in the explanation to the accounts of the Post Office published by the Norwegian Postal Administration. Services from the Post Office to the Postal Giro are fixed equal to the costs specified in a statement from the Postal Administration on postal giro services, less costs from the Postal Giro office in the accounts of the Post Office. Services from the Post Office to the Post Office Savings Bank are fixed equal to the item "remuneration from the Post Office Savings Bank" in the Post Office accounts. The Post Office accounts also provide the basis for computing intermediate consumption in the sector.

The production sector telecommunication services specifies telephone, telegraph, own-account fixed capital formation and the letting of production factors as separate groups.

The calculations of gross output for telephone and telephone services are based on the current account of the Telegraph Service. Production is delivered to intermediate consumption, private final consumption expenditure and exports. The same source also provides specifications for computing intermediate consumption in the sector, but the present computations are instead based on a special table prepared by the Norwegian Telecommunications Administration.

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

##### Financing

In the national accounts, financing is specified in three production sectors as well as two special dummy sectors for imputed bank service charges. The production sector banking comprises the Bank of Norway, the commercial banks, the savings banks, Postal Giro and the Post Office Savings Bank. Other financial institutions consist of activities carried out by the State banks, loan associations and financing companies as well as investment companies and holding companies which are primarily engaged in financing activities. The third production sector relates to financial services comprising security brokers, stock exchange activities, finance brokers, patent and licence brokers and other services related to financial activities.

Certain fundamental difficulties arise in connection with the computation of the banking sector. If only paid bank service charges should be taken as a measure of the banks' services, value added in the banking sector would be negative since administration expenses are often higher than actual commission income. The rest of the banks' income consists of net property income. In order to avoid undervaluing the services of the banking sectors, a value has therefore been computed for free banking services. Imputed bank service charges are entered as intermediate consumption in the dummy sectors and are considered an adjustment item for the gross domestic product.<sup>1)</sup>

Statistical sources for computing the production account for banking are the current accounts and the annual reports from the Bank of Norway, profit and loss accounts for the commercial and Savings banks, surveys of income and costs in the postal giro services from the Norwegian Postal Administration and reports on the activities of the Post Office Savings Bank.

Gross output for the Bank of Norway is determined as interest income, commissions and miscellaneous income, while intermediate consumption consists of administrative expenses and costs less wages and salaries and investments which are entered in the current account. Imputed bank service charges in deposit-financed banks are equal to net interest income plus cash credit commissions, while paid banking services are determined as commissions, fees etc. and other income. Gross output for Postal Giro comprises interest on postal giro funds and postage revenue, while gross output for the Post Office Savings Bank is computed as interest, commission etc. on bonds, account loans to the Treasury and mortgages plus miscellaneous income less interest paid to the depositors. Both gross output and intermediate consumption are computed from the annual reports on the activities of the Post Office Savings Bank.

Sources for computing gross output and intermediate consumption in the sector other financial institutions comprise the current accounts for the State banks, annual accounts for loan associations and annual accounts for private financing companies excluding leasing companies. Imputed service charges are also constructed for these sectors.

The data base is very limited for other financial services. A bench-mark for gross output in the sector is established on the basis of the latest census of establishments and developed for later years as for wages and salaries in commercial and savings banks. Intermediate consumption is fixed at 20 per cent of gross output in this production sector.

1) The dummy sectors produce a negative value added equal to intermediate consumption (i.e. there is no gross output). The total effect of this recording method is a higher gross output with unaltered value added and operating surplus for the entire economy.

## Insurance

Two production sectors are specified in the national accounts for insurance services: life insurance and non-life insurance.<sup>1)</sup> Life insurance comprises privately-organized life, annuity and pension insurance and life insurance intermediaries as well as joint bodies for life insurance companies. Non-life insurance comprises private companies and intermediaries providing insurance against risks of material damages, accidents, business interruptions and liability as well as joint bodies for casualty insurance companies.

It has also been necessary to introduce special imputed service charges for the insurance sectors, since a large part of the payments of premiums is used for claims and for the accumulation of reserves. In the case of life insurance it has been decided to compute services as the sum of income from premiums and the companies' interest income from insurance funds, outstanding claims reserve and bonus fund less claims paid and the increase in actuarial reserves. Gross output in non-life insurance is equal to premiums less claims, apportioned among periods.

The computations for the production sector life insurance are based on solid statistics, partly statements of accounts and partly official insurance statistics. Data from the Insurance Control Board are used as a source for computing gross output for the life insurance companies, supplemented with figures from credit market statistics.

For non-life insurance companies under the supervision of the Insurance Control Board and for foreign non-life insurance companies, the detailed data from the Insurance Control Board serve as the main source for computing gross output and intermediate consumption, while special information on accounts is available for other non-life insurance companies.

## Real estate

Real estate comprises activities connected to the ownership and use of dwellings and operation of commercial buildings as well as other services. Most of these activities are included in the production sectors for dwellings and letting of other buildings in the national accounts. Other real estate services have not been computed.

Under real estate, the housing sector (dwellings) is clearly the most important. In contrast to other private production sectors which generally produce marketed goods and services, the housing sector largely delivers non-marketed services, computed as private final consumption expenditure for those who live in their own dwellings. In principle, the value of gross output shall express the market value of the services of dwellings, i.e. the value that would have been obtained by adding up rents for all dwellings if the housing market had been a perfect rent market. However, only some dwellings are let out for rent at full market value, while the remainder consists of owner-occupied dwellings, co-operatives, dwellings subject to rent control etc. For this part of the housing sector a gross rent is imputed.

The indirect method of calculation chosen for computing gross output in the entire housing sector starts with a bench-mark for a base-year. Next, gross output is computed for later years by extrapolating gross output in the base-year by means of indicators for changes in all categories of dwellings.

Gross output in the base-year 1970 is computed as the sum of intermediate consumption, consumption of fixed capital, net indirect taxes, compensation of employees and operating surplus (referred to as the income approach). Intermediate consumption is in part specially estimated and in part computed along with sector calculations for insurance, water supply, sanitary services, technical services and repairs. Consumption of fixed capital, net indirect taxes and compensation of employees are computed independent of the other sector calculations. Operating surplus in the base-year is conventionally fixed at 2.7 per cent of the written-down replacement costs of dwellings. For other years, however, operating surplus is determined residually.

Current gross output i.e. housing service for years other than the base-year, is computed differently for dwellings erected prior to and after the base-year. Imputed market rents of dwellings

1) Social insurance is included in social security under public administration.

erected in the base-year and later are conventionally fixed at 6 per cent of half the gross capital formation in the year of account.<sup>1)</sup> The figures for each year are inflated by the consumer price index for rents. The value of services delivered by dwellings erected prior to the base-year is determined residually in the base-year. Based on the census of population, the amount for the tearing down of older dwellings has been computed in the base-year. The services delivered from dwellings erected prior to the base-year are also inflated by the consumer price index for rents. The entire value of repairs is considered part of gross output and is computed independently. Intermediate consumption is determined on the basis of the same method of calculation as outlined above for the base-year. Gross output in the housing sector is delivered in its entirety to private final consumption expenditure.

The second production sector - letting of other buildings (or commercial buildings) - comprises the letting of commercial buildings to a number of service industries as well as the letting of buildings and structures to the industrial sectors and to properties for which separate accounts are kept.

In general, the primary statistics are such that it is easier to obtain information on rental outlays than rental income, and it has therefore been decided to allow the rent in those cases where we do not know the party renting out the facilities, to be produced in the sector commercial buildings. This is also the case with letting of buildings and structures in mining and quarrying, manufacturing and electricity supply when the industrial and electricity statistics register higher rental outlays than rental income. Rent for commercial buildings is covered by statistics for the sectors financial institutions and insurance. Computations of intermediate consumption in the sector are to a large extent based on estimates.<sup>2)</sup>

#### Business services

Business services comprise a number of different services: 1) auditing and accounting, 2) legal services (legal aid and legal counselling), 3) advertising agencies including market surveys, window-decorating, commercial art work and decorative painting, 4) technical services,<sup>3)</sup> 5) electronic data processing and 6) other business services.<sup>4)</sup>

With regard to the current computations, gross output for the first group has been equated to the sales of auditing and accounting firms according to the census of establishments, extrapolated by value indices for subsequent years on the basis of employment data and a weighted average of wage indices for male and female salaried employees. The census of establishments is also the starting-point for computations of legal services, using the same price index as above and a volume index based on the number of owners in the sector. The computations for advertising agencies are based on data for computed sales published in the yearbook of the Norwegian Association of Advertising Agencies. The census of establishments also serves as a basis for computing technical services and other business services. Base-year estimates are developed by means of the same indices as for the group auditing and accounting. Electronic data processing was not specified in the latest census of establishments, but a complete survey of companies providing services in the field of administrative data processing has been utilized. The same method as that used for the group auditing and accounting is employed for subsequent years.

Most of the gross output from the sector is used as intermediate consumption to other sectors.<sup>5)</sup>

A production sector is also specified in the national accounts for rental and leasing of machinery and equipment for use in industry and trade. No primary statistics are available for this leasing activity except for sectors in mining, manufacturing and electricity supply.<sup>6)</sup>

1) It is assumed that half of gross capital formation results in dwelling completions in the year of calculation, the other half the following year. 2) With regard to insurance, sanitary services and water supply, the deliveries to the sector are computed in connection with the respective sector calculations. 3) Comprising architects, building consultants, technical consultants, town and regional planning, landscape architects and protection against oil pollution. 4) Comprising administrative and organizational services, copying services, job placement services, news agencies, credit information, debt collection, direct mail services, security guard services and other types of business services. 5) Part of the production in legal services and some from other business services are estimated as delivered to private final consumption expenditure and there are also scattered deliveries to exports and gross fixed capital formation. 6) Industrial statistics register higher rental outlays than rental income for machinery, and this difference is correspondingly entered as gross output in the rental and leasing sector. Intermediate consumption is estimated on the basis of employment and sales data for 1972 and extrapolated in proportion to gross output for subsequent years.

### 5.2.9. Community, social and personal services

A number of different types of service activities are included in this industry, covering public administration, sanitary and similar services, social and related community services, recreational and cultural services and personal and household services. In general, the production sectors in the national accounts fall in three different classes; close to 90 per cent of them consist of industries composed of establishments (privately owned and publicly owned), while the remaining two refer to producers of central government services and producers of local government services. In the following, it seems practical to describe government services and private services separately.

#### Government services

Most of the production sectors in general government belong to the major division community, social and personal services, accounting for more than 90 per cent of the total value added in general government. A list is provided below showing all government production sectors in the national accounts with corresponding major division.

Agriculture, hunting, forestry and fishing		
Agricultural services	C	
Forestry and logging	C	
Transport, storage and communication		
Supporting services to land transport	C	L
Supporting services to water transport	C	
Air transport	C	
Financing, insurance, real estate and business services		
Financial services	C	
Business services	C	
Community, social and personal services		
Public administration	C	L
Defence	C	
Sanitary and similar services		L
Education and research and scientific institutes	C	L
Health and veterinary services	C	L
Welfare services	C	L
Other social and related community services	C	L
Recreational and cultural services	C	L

( C = Producers of central government services)

( L = Producers of local government services)

All total, 14 production sectors are specified under central government (including social insurance administration) and 8 production sectors under local government. The sectors public administration, defence and education and research and scientific institutes cover more than 85 per cent of the value added in central government, while education and research and scientific institutes, health and veterinary services and public administration account for some 80 per cent of the value added in local government.

A new presentation of the production account was introduced for general government with the new SNA. Now, the cost side for each production sector includes as main items compensation of employees, consumption of fixed capital and intermediate consumption (purchases of goods and services including repairs) which together define gross output in the sector. On the expenditure side, government final consumption expenditure is obtained residually by deducting charges and fees (sales of goods and services) from gross output. Value added in the sector is thus equal to the sum of compensation of employees and consumption of fixed capital, i.e. operating surplus is equal to zero by definition.

The computations for the production sectors within central government and social insurance administration are mainly based on central government and social security accounts (budgets), although a small part also comes from other central government accounts (central government funds etc.). The central government's appropriations account serves as the data base for the production computations, with a full specification of the account's chapters and items using codes for, inter alia, types of expenditure and revenue. In addition, the national accounts require recoding to national accounting sectors (production sectors) and consumption purposes. For other central government accounts relevant items are added. Consumption of fixed capital in central government is computed by using distributional

keys based on accumulated investments. Contributions to the State Pension Fund for central government employees are considered part of the members' wages and salaries in the national accounts and are in general distributed among the sectors in proportion to wages and salaries.

The computations for local government are based on information collected by the Central Bureau of Statistics on a specially designed form for expenditure and revenue in the local government accounts. As long as the figures for the accounts are not available, the calculations are based on a similar form for the budgets, although the specifications are not as detailed for the budgets as for the accounts. In the form from the municipalities the chapters are given codes for production sector and purpose, and totals for these are obtained on the basis of a national summary for all municipalities. The codes for the items on the form define compensation of employees, intermediate consumption (maintenance of buildings and construction and other operating expenditure) and fees (ordinary sales and rental receipts). In order to obtain figures on consumption of fixed capital, distributional keys based on accumulated investments are also employed for these sectors.

#### Sanitary and similar services

The production sector comprises sewage disposal, cleaning services and other sanitary and similar services.

Sewage disposal is included in a production sector within local government and is given the same treatment as government services. For private services, a bench-mark for gross output is determined as equal to gross sales in window-washing, cleaning and disinfecting and fumigating services according to the latest census of establishments. For other years, the wage and salary component is developed by using a value index based on the number of employees in the sector and a weighted average of wage indices for female and male industrial workers, while the remaining value of gross output is developed with a corresponding index.

Intermediate consumption is developed proportional to gross output. Gross output is distributed with 80 per cent to intermediate consumption and 20 per cent to private final consumption expenditure.

#### Education and research and scientific institutes

Education services consist mainly of government activities which are described above under government services. In the national accounts, the private activities are distributed among a number of NA-commodities.<sup>1)</sup> Research and scientific institutes are divided into two groups.

The computations for all commodity groups in private education follow a fixed pattern. Gross output is computed from the cost side as the sum of intermediate consumption and compensation of employees less subsidies.<sup>2)</sup> The bench-marks for wages and salaries and intermediate consumption are initially estimated on the basis of statistics on the number of teachers and students, average income for teachers and costs per student. For types of schools where such statistics are not available, an estimate is made on the basis of the number of schools. Subsidies are computed on the basis of central government accounts. Current figures for wages and salaries are computed on the basis of the development in the number of teachers and an index for wages and salaries in the education sector. Intermediate consumption is developed as a fixed proportion to subsidies and wages and salaries. Other volume indicators are also used. The calculations of production for research and scientific institutes are based on statistics from the research councils, which provide information on expenditure for research and development as well as other specifications.

#### Health and veterinary services

Health and veterinary services in the national accounts are specified in 11 different groups:

- 1) physicians providing non-institutional services, 2) dentists' services, 3) dental mechanics,
- 4) physiotherapeutic treatment, 5) private general hospitals which also include cottage hospitals,

1) Private kindergartens/nursery schools and primary schools, private schools under the Act concerning upper secondary education, private folk high schools, private vocational schools for agriculture, private schools for health and social services, other private upper secondary schools, universities and colleges (private) and other private educational institutions. 2) Consumption of fixed capital and operating surplus have been disregarded except for some of the sub-activities.

independent maternity homes and maternity clinics, 6) home nursing, 7) private specialized hospitals, 8) care of the mentally diseased and mentally retarded in the home, 9) day-care institutions for the mentally retarded, 10) private nursing homes and 11) veterinary services comprising veterinarians with private practice and animal hospitals.

For services provided by physicians in private practice and physiotherapists the calculations are based on the annual reports of the National Insurance Institution. The production computations for dentists and dental mechanics are based on estimates of gross turnover per private dentist in a base-year, developed by means of the number of dentists with private practice and the consumer price index for dental care. Gross output for private general hospitals and private nursing homes is computed as the sum of expenditure for board and costs excluding board, as well as a 10 per cent addition for the hospitals' out-patient departments.<sup>1)</sup> Veterinary services are computed by fixing gross output equal to expenditure for veterinarians as computed by the Agricultural Budgeting Board.

Intermediate consumption in the whole sector is obtained by adding up estimated intermediate consumption in all commodity groups. Veterinary services are delivered as intermediate consumption to agriculture, while private health services are delivered to private final consumption expenditure, except that 10 per cent of the production for private physicians and dentists is allocated to intermediate consumption in central and local government.

#### Welfare services

Welfare services comprise social welfare services for children and adolescents and social welfare services for old people.

Gross output in the sector welfare services is defined as total costs less subsidies. For private children's homes, the estimate for board expenditure is based on the figures in the survey of consumer expenditure. These figures are developed with the consumer price index for food and the number of places in children's homes. Other costs are computed on the basis of the accounts for homes for the aged in Oslo in 1967 and extrapolated with the number of places and local government wages and salaries in the sector as indicators. In the case of day-care institutions, data are available on, among other things, expenditure per child for private and local government day-care institutions. Costs for private homes for the aged are computed in the same way as for children's homes.

The entire gross output in the sector goes to private final consumption expenditure.

#### Business, professional and labour associations

This production sector comprises employers', wage-earners' and salaried employees' associations as well as other business, professional and labour associations.

The data base for the calculations in this sector is weak. Compensation of employees in a base-year is estimated on the basis of compensation per employee and employment figures from the population census and manpower statistics and derived figures are computed for intermediate consumption and repairs. In addition, figures for subsidies and consumption of fixed capital are computed. Indicators for the current computations are employment in the sector and the sector's wage and salary indices.

#### Other social and related community services

Other social and related community services comprise religious organizations and services rendered by political parties, associations and organizations working to promote ideological or cultural purposes.

The data base for the computations as well as the method of estimation used are the same as for the production sector business, professional and labour associations.

1) Expenditure for board is determined on the basis of estimated expenditure on food per person according to the survey of consumer expenditure, the consumer price index for food and the number of hospital beds, while costs excluding board are computed on the basis of figures from the accounts of the nursing homes in Oslo, as well as other statistical material. The number of beds has until now been a key indicator for the development in volume, but will probably be replaced by the development in operating expenditure from health statistics.

### Recreational and cultural services

As many as 16 groups of services are specified under this sector in the national accounts. Numerically, radio and television licences are the most important (the Norwegian Broadcasting Corporation's production and broadcasting of radio and television programmes). Other activities related to film comprise the hire of film, advertising film, production of feature films, documentaries and shorts, as well as motion picture projection. The production sector otherwise consists of concerts, circus etc., theatre attendance, own-account authors, other works of art, restaurant music, museums (which also include libraries), art galleries and botanical and zoological gardens and other recreational services which comprise the operation and rental of athletic facilities, swimming halls, bathing beaches and other outdoor pools, renting of sports equipment and athletic and sport associations. Finally, the sector covers some betting and lotteries.<sup>1)</sup>

The production of services for radio and television is computed as the Norwegian Broadcasting Corporation's radio and television licence fees obtained from annual reports. The production of feature films and film rental is computed on the basis of the receipts at cinemas and exports according to the external trade statistics. For advertising film, it is based on the use of cinema advertising computed for the Yearbook of the Norwegian Association of Advertising Agencies. Good statistics are found for motion picture projection. Production is fixed equal to receipts at all Norwegian cinemas. The bench-mark level for concerts, circus etc. is determined on the basis of the latest census of establishments and the survey of consumer expenditure in 1967, using an employment indicator and the consumer price index in the current computations. A similar method is employed for theatre attendance, whereas services from own-account authors are computed as the sum of expenditure on fees for the industrial sectors newspaper publishing and other publishing. For restaurant music, the trend in volume is estimated together with the consumer price index for theatre attendance. The computations for museums are based on a level for 1966 which is developed with a volume index and the total consumer price index, while services delivered from other recreational services are computed on the basis of the consumer survey using employment and the consumer price index as indicators for the development over time. Services from the Norwegian Pools Limited are determined from the annual accounts of this institution (total betting less winnings paid out). Services delivered from the Money Lottery are fixed equal to the lottery tax, plus an estimate for administrative expenses, and the same method of estimation is applied to services from race-track betting. The starting-point for other lotteries, bingo etc. is the consumer survey in 1967, developing this bench-mark with a weighted average of the development in volume for State betting.

By adding up intermediate consumption for each group, total intermediate consumption in the sector is obtained.

### Repair of motor vehicles, household appliances and goods for personal use

This production sector specifies seven groups in the national accounts.<sup>2)</sup>

The computations for this sector are in the process of being changed. The method of estimation which has been practiced so far, consists of developing from a bench-mark level current figures by using as indicators the average number of motor vehicles and cumulated figures for new car registrations the last three years and, inter alia, the consumer price index for car shop repairs.

Intermediate consumption in the sector is estimated on the basis of fixed input-output coefficients.

### Laundries, laundry services and cleaning and dyeing plants

This sector comprises the washing of clothes, towels etc., the supply of such goods on a rental basis as well as self-service laundries and dry cleaners, dyeing and pressing of clothing, cleaning of bedding, floor rugs and other textiles, and finally, the repair of clothing and other textiles.

1) State betting such as the Norwegian Pools Limited, the Money Lottery and race-track betting as well as non-State betting like bingo, lotteries etc. 2) Unspecified repairs, respectively, ships, boats and other floating stock, respectively cars, tractors, bicycles and other transport equipment, as well as own-account fixed capital formation on machinery and letting of production factors to construction.

The computations for this sector start with gross turnover for laundries and dry-cleaners in the latest census of establishments. The bench-mark levels are extrapolated by using employment figures for the sector and the consumer price index for laundering, cleaning, dyeing etc. Moreover, an estimated addition is made in the volume index for increase in productivity.

Gross output is allocated to intermediate consumption with 55 per cent, and private final consumption expenditure with 45 per cent, on the basis of results from the consumer expenditure survey in 1967. Intermediate consumption is computed as a fixed ratio of gross output.

#### Domestic services

Domestic services include housework, baby-sitting and child care, gardening and similar services rendered for private households.

The data base for the calculations is weak. The estimates were based on wage and salary data until 1961. Since then, a bench-mark has been developed with a value index constructed on the basis of the consumer price index for employment in the sector. Both gross output and value added in this sector are defined as equal to compensation of employees.

#### Miscellaneous personal services

The sector miscellaneous personal services in the national accounts comprise hairdressing and beauty care, photographers, funeral homes and other personal services.

For computing gross output in this sector, the level from the latest census of establishments is developed by means of employment figures and consumer price indices, although other indicators are used as well.

Gross output is allocated to private final consumption expenditure, except for 45 per cent of the production of services from photographers which is estimated as intermediate consumption. Intermediate consumption in the sector is computed as fixed ratios of gross output for the various groups.

### 5.3. Expenditure on the gross domestic product

#### 5.3.1. Private final consumption expenditure

Private final consumption expenditure comprises the value of goods and services which in the course of the year are used by the country's households or by consumer organizations. In the accounting system 135 categories of consumption are specified under private final consumption expenditure, distributed among 98 groups of consumer goods and 37 groups of services. The consumption groups are composed of a varying number of national accounts commodities. For publication and analytical purposes, the consumption groups are aggregated to the "40 classification" level and further to the "10 classification" level. The ten main categories have the following designations:

- |  |  |
|--|--|
| 1. Food  | 6. Medical care and health expenses                              |
| 2. Beverages and tobacco                             | 7. Transport and communication                                   |
| 3. Clothing and footwear                             | 8. Recreation, entertainment,<br>education and cultural services |
| 4. Rent, fuel and power                              | 9. Other goods and services                                      |
| 5. Furniture, furnishings<br>and household equipment | 10. Correction items   |

The last group "correction items" consists of direct purchases abroad by resident households less direct purchases in Norway by non-resident households.<sup>1)</sup> Private final consumption expenditure otherwise contains consumer durables, semi-durable consumer goods, non-durable goods, services of dwellings and other services. Consumer durables such as cars, furniture and electrical household equipment are considered consumed in the year they are acquired. An exception is made for dwellings for which an amount for imputed rent rather is included in private final consumption expenditure.

1) This implies that the other specifications of consumption cover purchases of consumer goods and services in the domestic market, while total private final consumption expenditure expresses purchases of consumer goods and services by Norwegians.

Goods and services are valued at purchasers' prices, i.e. prices agreed on between the buyer and seller after deductions for discounts, but without deductions for the seller's possible losses on accounts receivable.

With regard to the delimitation in respect of other magnitudes, it should be mentioned that the following items are included in private final consumption expenditure: 1) farmers' and fishermen's consumption of own products, 2) use of own dwelling, 3) goods and services furnished to employees free of charge by the establishments to the extent these are considered wages and salaries, 4) services from government for which payment is made, 5) direct purchases abroad by resident households and 6) domestic services (excluding work in own homes).

In connection with the computation of private final consumption expenditure, there is in principle a choice to be made between direct and indirect methods using different types of data bases. Direct methods are understood to mean those which allow for computing private final consumption expenditure from the user side directly, while indirect methods are primarily based on commodity-flow computations which determine private final consumption expenditure on the basis of supply figures. The direct method requires statistics on consumers' expenditures according to consumption groups. This can be obtained through consumer surveys. An intermediate solution would mean starting with sales statistics for retail trade, and on the basis of certain assumptions compute the sales values by consumption groups. The data base of sales statistics comprises the annual wholesale and retail trade statistics and the monthly index of retail sales. It is these two sources of data which form the main basis for the calculations of private final consumption expenditure in the final and preliminary accounts.

Bench-mark levels of private final consumption expenditure have been determined in the main revisions by the use of results from the consumer surveys and other sources such as data on the supply of commodities, revised margin percentages etc. Sales figures in wholesale and retail trade statistics have only been used as a basis for value indices to compute the changes from one year to the next. During the last major revision which was undertaken around 1970 in connection with the transition to the present SNA, the consumer survey for the year 1967 played a key role in the work on revisions. At that time, three types of computational changes were carried out in this field: 1) the value of consumption of services was subject to a considerable upward revision as a result of higher estimates for production in service industries, 2) margins were reduced substantially and 3) a considerable revision was made in terms of quality in the distribution of commodities.<sup>1)</sup>

With regard to the changes in private final consumption expenditure, the indices in the basic material of the monthly index of retail sales are used as value indicators for most categories of consumer goods in the preliminary accounts, and changes in the corresponding sales figures of the annual wholesale and retail trade statistics are used as value indicators in the final accounts. Even though annual consumer surveys now are available as additional sources of data, comparisons between figures from the consumer surveys and wholesale and retail trade statistics have shown discrepancies which are large enough to warrant maintaining the current practice. There also exist other data sources which are primarily used to check implicit volume indices estimated in the preliminary accounts, and to some extent in the final accounts.

The monthly index of retail sales is now prepared on the basis of sales data from a sample of establishments in retail trade.<sup>2)</sup> Prior to 1970 the basis was the tax authorities' figures on payments of turnover taxes.

The annual wholesale and retail trade statistics are prepared on the basis of information collected for checking the updating the Central Bureau's register of establishments and enterprises. New

1) During the work on the revision of margins several methods were employed, more or less combined with one another. The most direct method was carried out through interviews with specialists in the wholesale and retail trade sector. Margins were also established indirectly on the basis of price computations for food, beverages and tobacco and calculation of gross retail margins from wholesale and retail trade statistics. In addition, inflated figures from the consumer survey of 1967 were used. The time-consuming work on the distribution of commodities and shifting of commodities during the last major revision was carried through down to the detailed BTN-commodities (now CCCN-commodities). This included work on revising the distribution of commodities, moving commodities from one consumption group to another, introducing a new classification of consumption and a re-evaluation of primary data.

2) From 1 200 - 1 500 establishments in retail trade with periodic rotation (replacement) of the sample.

establishments are entered in the register primarily based on information from the employer registers and by utilizing the VAT register. The information, which is obtained directly from the establishments includes sales (and average employment) in the last calendar year and information for checking industry group, location etc.

When computing the first preliminary figures on value for private final consumption expenditure, the monthly index for retail trade is only available for the first 10 (or 11) months of the year in question, and consequently estimates must be made for the last part of the year. However, the index figures for the entire year are available for the second version of the preliminary accounts. While only the total index and sub-indices for the 8 main categories in retail trade are published from the material of the retail sales index, indices for all 33 industrial groups within retail trade are compiled each month for the National Accounts Division. These detailed sub-indices are used together with the detailed consumer price index material.

Instead of using individually more or less representative sub-indices in the index of retail sales for computing the various categories of consumer goods, weighted retail sales indices have been constructed on the basis of an estimated consumption matrix for use as value indices for the relevant consumption groups. The consumption matrix gives relationships between industrial groups (branches in wholesale and retail trade statistics) and the consumption groups in the national accounts.<sup>1)</sup> The basis for the matrix is statistics on purchases for retail trade which since 1969 have been prepared every 3-4 years and are based on data from a sample of some 3 000 establishments in retail trade.<sup>2)</sup> The commodity specification in the statistics on purchases for retail trade has covered about the same number of commodities as the categories of consumption groups in the national accounts.<sup>3)</sup> The weights of the value index in the national accounts are revised when new results from statistics on purchases are available and are held constant for the intervening years.

With the exception of 12 consumption groups, these weighted value indices are used to compute the entire consumption of consumer goods. All the material for the monthly index of retail sales is used, and the same approach makes corresponding use of annual wholesale and retail trade statistics. Relative changes in sales distributed among the same retail trades are here considered "final figures" for the corresponding preliminary data from the index of retail sales.

For 12 consumption groups, information is collected on quantity sold which along with a price index - usually a sub-index of the consumer price index - are assumed to provide a better result than that obtained by using the weighted value indices. The consumption groups to which this approach applies include butter, margarine etc., soft drinks, beer, cigars etc., cigarettes, smoking tobacco, other tobacco goods, purchases of cars etc., purchases of motorcycles and bicycles, television sets and radios etc.<sup>4)</sup>

Data on quantity sold are also collected for 21 of the groups of consumer goods which are determined by means of sales figures and the consumption matrix. These figures are used to check the computed deflated value indices, which will only be adjusted if the quantity indicators show consider-

1) A column in the matrix gives the sales of a specific branch distributed among the relevant consumption groups and thus a line in the matrix can in relative form give the distribution of the weights by branches for a specific consumption group. 2) For national accounting purposes, a correction has been made for sales which are assumed to relate to categories of expenditure other than private final consumption expenditure, and in this way a consumption matrix is obtained instead of a complete matrix of commodity sales. 3) The two classifications are naturally not identical. 4) A volume index is constructed for butter based on information from the Norwegian Dairies Sales Association on butter production, data on imports and exports from external trade statistics, as well as figures on stocks. The production index for the manufacturing sector "production of margarine" is used for margarine, edible oils etc. Quantity data from the producers on the number of litres of soft drinks and non-alcoholic beer and the number of litres of beer that are sold are used as volume indicators for these beverages. Data from the Directorate of Excise Taxes on the number of cigars and cigarettes sold as well as the number of tons sold of smoking tobacco, chewing tobacco etc. are used in computing the consumption of tobacco. For the category purchases of cars etc., the number of new registrations of passenger cars is used as a volume index, while the production index for the production of motor vehicles, motorcycles and bicycles and other means of transport is used for purchases of motorcycles and bicycles. With regard to car purchases, it may be mentioned that the Directorate of Roads provides figures on sales of passenger cars specified by private final consumption expenditure and gross fixed capital formation. Finally, figures on the number of appliances sold provided by the Directorate of Excise Taxes are used for the two consumption groups television sets and radios, record-players etc.

able deviations from the volume indices of the national accounts.<sup>1)</sup>

Private consumption expenditure on services is established by computing gross output in the service sectors. The basis for the preliminary figures may primarily be found in budget data and in some cases employment figures, while accounting figures play a greater role in the final accounts.<sup>2)</sup>

A brief description is provided below of the basis for current computations of the consumption of services in the same sequence as the service groups appear in the accounting system. Figures on the value of repairs of footwear from industrial statistics are used for repairs of footwear. The value index for dwellings is taken from the computations of production based on investment figures for dwellings as well as calculations for repairs and the tearing down of older dwellings. Deliveries of electricity directly for household consumption (and agriculture) specified in electricity statistics give a value indicator for the consumption of electricity in the final accounts. Employment data are among the data used as a basis for the volume index for cleaning, dyeing, laundering etc., while the volume index for repairs of furniture and furnishings is determined by using the production index for the manufacturing sector "production of furniture and fixtures". The consumption groups "insurance of furniture and household property" and "domestic services" are also computed on the basis of employment indicators.

With regard to health services, the number of dentists from health statistics is used as a measure of volume for the category dental services in the final accounts, while the groups "services of physicians" and "services of physiotherapists" are computed on the basis of current data from the National Health Insurance Institution on the social insurance offices' expenditure for medical care and physical therapy, respectively. For the consumption group hospital care, the volume index for private hospitals is based on the number of hospital beds etc.

For computing private expenditure on public transportation, accounting figures are used for several of the consumption groups.<sup>3)</sup> A volume indicator in the form of, inter alia, the number of passenger-kilometres is used for transport by taxi and a combination of accounting data and the number of net ton-kilometres is used for the group "moving expenses and freight" in the final accounts. Accounting data from the Post Office and the Norwegian Telecommunications Administration serve as basis for computing the values of postage and telephone and telegram.

With regard to public entertainment etc., figures on value for cinema attendance exist based on ticket receipts, while expenditure for theatre attendance and other entertainment must be computed on the basis of employment data and other estimates. Accounting data provide value indices for the groups television and radio licences and lotteries etc. Expenditure for services of photographers is computed by using a volume index which is also based on employment.

A volume index for school fees is constructed by using various data from education statistics (the number of teachers, the number of pupils according to the institution's type of ownership etc.). Employment data are used as a basis for the volume index used for the consumption group hairdressing and beauty care. A set of indicators are used for expenses on restaurants, cafés etc. and expenses at hotels, boarding-houses etc., (the number of litres of beverages consumed and the number of guest-nights etc.). The volume indices used for life insurance services etc., services of business, professional and labour associations and services of religious and cultural organizations are based on employment figures, but in the final accounts accounting figures are at least available from the Insurance Supervisory Board. Finally, there is a miscellaneous item "other services" where many different indicators are used, but also current value figures on fees from the government accounts for public sector activities.

The correction items direct purchases abroad by resident households and direct purchases in Norway by non-resident households are computed on the basis of current data in the balance of payments based on primary material from the Bank of Norway as well as from shipping statistics specifying

1) Control data are found for 10 of the food categories, for liquid fuels and for petrol and oil. Statistics from the Norwegian Board for Testing and Approval of Electrical Equipment allow for the possibility of specifying the supply of electrical household equipment and thus for checking the volume indices for seven consumption groups in the national accounts. Finally, for newspapers and magazines, figures on circulation are available from the information offices of newspapers and the weekly press.

2) Employment is most often used as a volume indicator (inflated by the consumer price index) in the final accounts as well, for those production sectors where data from accounts are not available.

3) Railway transport, tramway and subway transport, transport by boat and ferry, air transport and bus transport.

Norwegian seamen's expenditure abroad.

In conclusion, it must be noted that with the methods of estimation followed, the consumption of all commodities within each consumption group will at first show the same movement. When final supply figures become available, the relationship between the commodities may generally be shifted, although usually the sum of the commodities in the consumption group are maintained.

In the national budget model MODIS, private final consumption expenditure is computed endogenously based on price and income changes, price and income elasticities and estimates for the marginal propensity to consume for different income groups. The results arrived at in the accounts are often compared with the computed results of MODIS.<sup>1)</sup>

### 5.3.2. Government final consumption expenditure

Government final consumption expenditure comprises goods and services used by central government (including social insurance administration) and local government (including municipal enterprises) for current administration purposes. The item is computed net inasmuch as deductions are made for goods and services which the central and local government have provided to the private sector against fees and charges.

A distinction is made between military and civilian government consumption expenditure. Military government consumption expenditure covers the remuneration of military personnel as well as acquisitions and construction for the defence. "Military investments" are considered government final consumption expenditure, with the exception of military family dwellings which are recorded as gross fixed capital formation under "residential buildings".

Civilian government consumption expenditure covers remuneration to personnel in central government (including social insurance administration) and local government, consumption of fixed capital in general government, as well as other current expenditure for general government.<sup>2)</sup> The remuneration to government administrative personnel includes contributions to social security schemes and pension funds.

Section 5.2.9 above on producers of government services described the new recording principles for the production accounts of government services. On the cost side, gross output appears as the sum of compensation of employees, consumption of fixed capital and intermediate consumption (purchases of goods and services), while the income side consists of charges and fees (sales of goods and services) and government final consumption expenditure. It may be said that government final consumption expenditure consists of compensation of employees, consumption of fixed capital and net purchases of goods and services in the government sector.

Government consumption expenditure is entered directly from the production accounts to consumption accounts which are classified according to purposes with a consumption account for each purpose. A single production sector can deliver to several consumption accounts, whereas each consumption account can receive items from several production sectors. The introduction of the classification by purpose entails that each of the items on the production accounts must be classified by purpose.

The basic source for computing government consumption expenditure is the government accounts. In order to arrive at a classification of the items in the accounts which is suitable for the national accounts, it has been necessary to reclassify the accounts. The regrouping of central government's appropriations account, which forms the main basis for computing production and consumption, is essentially processed by the computer. The Treasury's special accounts and the accounts for several pension and social security schemes are also processed. The economic classification adopted for the local government sector is carried out in local government statistics inasmuch as each municipality must prepare a separate accounting form with the prescribed classification.

Fees are treated as payments for goods and services with separate commodity numbers recorded in the commodity accounts of the national accounts.<sup>3)</sup> One result of the changeover to the new SNA is

1) In general, a close approximation between the actual increase and the computed increase from one year to the next has been registered. 2) Capital outlays for the acquisition of buildings and construction works, vehicles, machinery and equipment are treated as part of the country's gross capital formation and are later depreciated. 3) Central government fees are split up into four categories depending on whether those paying them are business enterprises, private consumers, other countries or public institutions. In the local government accounts, sales and rental income are distributed between fees for intermediate consumption, fees for private consumption expenditure and fines, confiscation etc.

a transfer of some fees to indirect taxes and/or fines, confiscation etc. If business enterprises pay them, the payments are classified as indirect taxes, while otherwise classified under fines, confiscation etc. (considered as transfers from private consumers to general government).

### 5.3.3. Gross fixed capital formation

Gross fixed capital formation comprises acquisitions of general government fixed assets and acquisitions of fixed assets in private and public enterprises in the course of the period of account. Dwellings are also included. The classification of gross fixed capital formation used in the national accounts contains 34 different types of capital goods.

A number of boundary problems exist for gross fixed capital formation, particularly in relation to increase in stocks and intermediate consumption. The general rule is that acquisitions of assets with a lifetime of at least one year shall be included in gross fixed capital formation.<sup>1)</sup> Repair and maintenance expenses are generally counted as intermediate consumption, but are considered gross fixed capital formation if the repairs or maintenance work are so sizeable that the lifetime of the asset is expected to be extended or result in higher productivity. Expenses for major land improvement in agriculture and forestry are considered capital formation; similarly, all expenses for oil drilling and oil exploration are included as gross fixed capital formation in Norway. The part of the change in livestock which relates to breeding stock, draught animals, dairy cattle and the like is covered by gross fixed capital formation, while the rest of the change in livestock (livestock raised for slaughter) is considered increase in stocks.

Gross fixed capital formation is valued in purchasers' values. The value of the acquisitions refers to the actual expenses including investment levies accruing in the period without regard to when payment takes place. Own-account capital formation is valued at accrued costs.

Acquisitions of second-hand machinery and transport equipment are in principle included, while sales of second-hand machinery etc. are deducted.<sup>2)</sup> Net sales of fixed property from enterprises to general government are included under gross fixed capital formation for general government and deducted for enterprises.

In addition to the distribution according to type of capital goods, gross fixed capital formation is classified by kind of economic activity. It may be most practical to present the description on the actual computations by referring to this classification, since the data sources used largely consist of statistics for the various kind of activities.

#### General government

General government fixed capital formation consists, first, of civilian building and construction projects financed over central government and local government budgets. Further, it comprises vehicles and machinery etc. for civilian use and equipment for buildings. Military buildings and construction are not included inasmuch as all goods and services used by the public sector for military purposes are included in government final consumption expenditure.

The basis for computing capital formation in central government is accounting and budgeting figures from the central government accounts. The computer listings for the basic material of the central government appropriations' account provide a distribution among capital formation sectors and a distribution by type of capital goods, i.e. new buildings, new construction, purchases of ships and purchases of equipment. In addition, net purchases of fixed property are specified. In the national accounts, the capital expenditures are distributed further among nine types of capital goods.<sup>3)</sup>

The basis for computing local government fixed capital formation is data collected on the form for the national economic classification of expenditure and revenue in local government accounts for the year of account. As long as the figures from the accounts are not available, information from a corresponding form for budgets is used. Net purchases of fixed property are also included. The

1) Such acquisitions are in practice often recorded as intermediate consumption when the value is small.  
2) The value of second-hand tonnage purchases from other countries is included while sales of Norwegian tonnage abroad are deducted. 3) In addition to the capital expenditures in the appropriations' account, expenditure in other central government accounts must be included.

figures in the basic material are distributed further on capital formation types in the national accounts.

#### Agriculture, forestry and fishing

The data base for fixed capital formation in agriculture is primarily found in the Agricultural Budgeting Board's annual publications. The investment figures of the Budgeting Board also include repairs and maintenance, but this is corrected for in the national accounts. The figures for agricultural buildings are based on a bench-mark for 1970 compiled on the basis of building statistics, prices per square metre from the Government Bank of Agriculture and other sources, while the volume and price indices for years after 1970 are based on the development in the number of applications to the Government Bank of Agriculture. The figures for land reclamation and land clearance are based on information on government subsidies. The aggregate account and the Directorate of Roads are the sources used for the estimates on motor vehicle expenditures, while investment in machinery and equipment (including tractors) are based on supply figures from domestic production and from imports.

Fixed capital formation in forestry is computed on the basis of the censuses of forestry and sample surveys for this sector. Expenditure on forest conservation is based on detailed figures from the Forestry Directorate.<sup>1)</sup> Among other capital outlays in the forestry sector, it should be mentioned that outlays for forest roads are computed on the basis of information from the Ministry of Agriculture, and that the basis for computing motor vehicles, machinery and equipment is the censuses of forestry, the sample survey for forestry in 1975 and the current sample surveys which provide investment data from forest-owners.

Gross fixed capital formation in respect of fishing gear and fishing vessels is computed on the basis of industrial and external trade statistics. The current computations are otherwise carried out with support in the periodic censuses of fisheries.<sup>2)</sup>

#### Mining and quarrying

The data base for mining and quarrying, excluding oil and gas production, is the same as for manufacturing.

All capital outlays on the Norwegian continental shelf are in principle treated as capital formation in Norway. Operators on the Norwegian sector of the shelf must have a licence and are obliged to establish a Norwegian subsidiary. These operators submit information on planned and realized acquisitions of fixed assets in the investment statistics and the annual industrial statistics. The production fields stretching across the shelf border are treated in a special way, using distributional percentages between the countries. The operators of such fields must submit a supplementary form specifying capital outlays on the Norwegian side of the shelf border.

#### Manufacturing

The annual industrial statistics serve as the data base for computing gross fixed capital formation in the final accounts. Detailed investment data are collected for all large establishments, while small establishments are covered by a sample of establishments which fill in simpler forms specifying, inter alia, total figures for capital outlays. These sources provide a basis for data on total acquisitions and purchases less sales of second-hand fixed assets for large and small establishments in mining and quarrying and manufacturing. Supplementary computations are made for investments in sole proprietorships.

In the first two versions of the preliminary accounts, the data base consists of statistics on planned and realized acquisitions given in the quarterly investment statistics where data are collected from a large sample of establishments in oil and gas production, other mining and quarrying, manufacturing, electricity, gas and water.

1) Only parts of these outlays are reckoned as gross fixed capital formation (ditching and some planting and fertilizing). 2) New acquisitions of fishing vessels are computed in the national accounts as the sum of the commodity groups boats, engines and other equipment.

Beginning with the final accounts for 1978, the national accounts' investment estimates for mining and quarrying and manufacturing will be specified at the same sector level as for production. The statistical base will then be utilized considerably better both for the final and preliminary accounts.

#### Electricity, gas and water

The statistical base for electricity and gas is the annual electricity statistics which comprise all distribution plants and power-producing electricity stations with a machine capacity of more than 100 kW. In addition, the statistics include electric power stations owned and operated by establishments in other industries if the machine capacity is at least 500 kW. The quarterly investment statistics are used for the preliminary accounts.

In the case of water supply, the investment data for use in the final accounts are obtained from the local government accounts.

#### Construction

Capital outlays on non-residential buildings, motor vehicles, machinery and equipment etc. in the construction sector are computed on the basis of construction statistics. Summary data are collected from all establishments with at least five employees plus specified capital formation figures from establishments with 10 or more employees. A bench-mark estimate has been established for the year 1974 on the basis of figures in the census of establishments and with additions for sole proprietorships.

Construction statistics also serve as the data base for fixed capital formation in the oil drilling sector. All establishments in this sector are covered by these statistics. The quarterly investment statistics are used for the preliminary accounts.

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

The statistical base in these sectors is extremely poor since the only figures available relate to the total supply of fixed assets, providing no basis for distinguishing between fixed capital formation in the various service sectors. Adjustments in level are made, however, by incorporating the results of the censuses of establishments. Buildings owned and used by wholesale and retail trade and by restaurants and hotels are entered as commercial buildings (a sector within real estate), so that fixed capital formation in these sectors is limited to motor vehicles etc., machinery and equipment.

#### Transport, storage and communication

The statistical base for estimating fixed capital formation in railway transport is data from the Norwegian State Railways in the form of accounting figures for the final accounts and budgeting figures for the preliminary accounts. Computations of capital outlays for scheduled road transport are based on data from the Directorate of Roads, which are based on the Motor Vehicle Registry's figures for new registrations of motor vehicles distributed by type of vehicle and industry, as well as information on prices for the most common types of vehicles. The data base for tramway and subway transport is annual reports for the tramway companies as well as data from the Planning Office for the subway. Figures from the Directorate of Roads based on the Motor Vehicle Registry also serve as the data base for outlays on motor vehicles etc. in the sectors taxis and other unscheduled passenger transport by road, unscheduled freight transport by road and supporting services to land transport. Investment in roads are included in general government capital formation.

The principle that only capital outlays made on Norwegian territory and in the Norwegian sector of the continental shelf shall be counted as fixed capital formation in Norway, is violated for the oil and gas pipeline transport sector. The three pipelines that are fully owned by Norwegian companies are considered Norwegian capital in the accounts, even though parts of the pipelines are located in the zones of other countries. Data from investment statistics, which are complete for this sector, are used for both the preliminary and final accounts.

The statistical material for ocean transport is obtained from industrial statistics and import statistics for the category ships, while capital outlays on buildings are included with commercial

buildings. The investment figure for ships comprises imports of new and second-hand ships, ships delivered from Norwegian shipyards to Norwegian owners, as well as conversions of older merchant vessels at Norwegian and foreign yards. The source here is the shipping statistics' form. In addition are estimated deliveries of various equipment from Norwegian establishments to the merchant fleet. For supporting services to ocean transport, local government statistics provide accounting figures for local government harbour offices.

For the air transport sector, capital outlays of the Scandinavian companies SAS and Scanair are treated in a special way. Norwegian investments are stipulated as two sevenths of SAS and Scanair's total capital outlays plus the capital outlays of Norwegian aviation companies. Import and export statistics along with data from the aviation companies represent the data base.

The censuses of establishments are the only source for computing capital outlays in the sector services allied to transport and storage.

Information on capital outlays for postal services and telecommunications is obtained from the accounts of the Postal Service and the Telegraph Service.

#### Financing, insurance and real estate

Figures on capital outlays for the banking sector are available from banking statistics distributed on buildings and equipment for large commercial and savings banks, which are inflated to total figures by means of balance sheet data for all banks. The Bank of Norway provides separate reports. Capital outlay figures for insurance are computed by examining the changes in the balance sheet figures for buildings and equipment.

Investments in dwellings have for some time constituted about one sixth of the total gross fixed capital formation. Building statistics, which cover all new buildings with at least one room and kitchen, represent the main statistical base. The average of building area starts and completions in the course of the year is used as a measure of invested total area. Another important source is the annual report from the Norwegian State Housing Bank containing information on the part of house-building being financed by the Housing Bank. The annual report of the Agricultural Bank provides corresponding information for those residential buildings which are financed by this bank. Privately-financed dwellings are computed by assuming the same price per square metre as for dwellings financed by the Housing Bank. Supplements for extensions and rebuilding as well as garages financed by the Housing Bank and the Agricultural Bank are computed based on information from the respective banks. Finally, it might be mentioned that the computations for capital outlays on summer cottages etc. are based on a bench-mark figure from a leisure home survey in 1970, extrapolated with an estimated annual growth of 10 per cent.

The investment sector commercial buildings comprises capital outlays on buildings for the production sectors wholesale and retail trade, restaurants and hotels, business services and other private services. A bench-mark is determined on the basis of the latest census of establishments, while the development in the volume from one year to the next is computed on the basis of figures in building statistics. The input price index for non-residential buildings in the construction sector is used as a price index.

#### Community, social and personal services

The description given above for general government applies to general government fixed capital formation, the description given for commercial buildings applies to capital outlays on non-residential buildings and the description given for wholesale and retail trade, restaurants and hotels applies to other fixed capital formation.

#### 5.3.4. Increase in stocks

Increase in stocks is part of gross capital formation, since stocks are part of the country's real capital.

In the national accounts, increase in stocks comprises the change in stocks of goods, change in work-in-progress and change in feedstocks, livestock and timber fellings. The clearly most important

category is the change in stocks of goods which consist of raw materials and finished goods. Work-in-progress relates to large capital goods which at the end of the period are still in the process of being produced. In Norway, this item includes work-in-progress on ships and oil production platforms, as well as work-in-progress known from the annual industrial statistics. The boundary line between increase in stocks and gross fixed capital formation is not always easy to draw in practice. Such boundary problems also exist for livestock, where Norway follows the SNA's recommendation to record breeding stock, draught animals, dairy cattle and the like as fixed assets and other livestock as stocks. Change in timber fellings is included in the figures for increase in stocks, but not the change in standing timber which was previously included under gross fixed capital formation.

One of the most distinctive features of the Norwegian national accounts is the determination of change in stocks by commodity as residuals in the input-output tables. This means statistical sources only indirectly play a part in the computations.<sup>1)</sup>

Residually-computed figures for increase in stocks are checked and adjusted during the work on distributing the commodities. This work requires 2-3 man-months for each year of final accounts. The figures on stocks from the annual industrial statistics are used as support during this evaluation of estimates for changes in stocks. The supply, expenditure and increase in stocks for each of the approximately 1 750 NA-commodities are checked. The estimates of the increase in stocks are recorded in basic values, i.e. no attempts have been made to distinguish between the different types of increase in stocks in terms of value concepts.

### 5.3.5. Exports and imports

Exports and imports consist of the transactions in goods and services of the residents of Norway with the rest of the world in the course of the accounting period. Included among exports are merchandise exported from Norway, consumption by non-resident households in connection with stays in Norway and services which in the course of the period are provided to other countries by residents. Imports consist of goods and services which Norway has received from other countries in the course of the period. Included are merchandise imported to Norway, expenditure of Norwegians in connection with stays abroad and services provided to Norway by non-residents.

In the SNA, it is recommended that merchandise exports and merchandise imports are registered in accordance with the general trade principle, i.e. registered when the goods cross the country's geographic boundaries including via bonded warehouses. This principle is mainly followed inasmuch as external trade statistics cover exports of Norwegian and foreign goods directly and from bonded warehouses and goods imported directly for use in the country and goods which are placed in bonded warehouses, respectively.

In the national accounts, all transactions shall in principle be registered on a change-of-ownership basis, but this will imply deviations from the practice in the external trade statistics which register the objects when they physically cross the customs boundaries of the country.<sup>2)</sup>

Merchandise exports are valued fob at Norwegian port of entry or customs frontier, possibly at the operation area in the Norwegian part of the continental shelf. The fob-prices include any export levies and costs connected with loading, irrespective of whether these are paid by the exporter or importer. Merchandise imports are valued correspondingly at cif-prices. These include all freight and insurance connected with the imported goods, irrespective of whether the payments are made to Norway or abroad. Ships are considered imported, respectively exported, when the ships in accordance with the Register of Ships in the Ministry of Commerce are registered as taken over by a Norwegian owner, respectively foreign owner. Imports of ships do not include Norwegian-owned ships registered abroad.

The national accounts specify 15 different accounts for exports and 21 different accounts for imports under accounts for current transactions with rest of the world. The majority of the accounts relates to services of various types. Separate accounts have been introduced for merchandise covered by the external trade statistics and those not covered by these statistics, exports and imports of new ships and exports and imports of second-hand ships.

The entire range of NA-commodities is represented in the export and import groups of merchandise, covered by the external trade statistics. The classification in the external trade statistics is based

1) We have thus far not succeeded in adjusting the statistics on stocks to arrive at total stocks for specific commodities. 2) In principle, it should therefore be necessary to have a correction item for this difference. However, even though this is recommended be introduced for the total, it has not been possible to accomplish.

on the United Nations Standard International Trade Classification (SITC, Rev. 2). The most detailed classification of commodities also follows the Customs Co-operation Council Nomenclature (CCCN).<sup>1)</sup> Recoding files exist which transform these codes to NA-commodities.

Statistics on external trade are based on information collected by the customs authorities with copies sent to the Central Bureau of Statistics. Information on imports and exports of special equipment, inter alia, ships, electric current and imports or exports falling outside the Customs area, like equipment imported directly to the Norwegian part of the continental shelf or crude oil and gas exported by pipeline from the shelf, are based on special questionnaires and reports.

Complete figures for imports directly to the Norwegian part of the continental shelf are, however, not available from the foreign trade questionnaires. These figures are only used to supplement the commodity estimation for the national accounts. Direct imports for oil activities consist of deliveries of goods from abroad which have not passed through a Norwegian customs station or a bonded warehouse in Norway, as well as services which are delivered from companies registered abroad. The quarterly investment statistics and the annual industrial statistics which are used as data sources for computations in the sector "crude petroleum and natural gas production" provide figures on the share of intermediate consumption and capital formation in the North Sea which are imported directly. These statistics, however, do not provide a distribution of goods and services in the manner desired for the national accounts. The data base for imports to the pipeline sector entails similar problems concerning the distribution of imports by goods and services as for the oil extraction sector.

Crude oil is exported directly from the fields in the North Sea either through pipelines or by ship. Natural gas is exported directly by pipeline. Exported quantities of oil and gas are registered on the basis of monthly information from the Oil Directorate. Supplementary information for oil transport by ship is collected by the customs authorities. Shiploads to abroad from Statfjord are treated as exports and/or foreign deliveries according to the actual Norwegian ownership of the shiploads. This also applies to Statfjord imports and domestic deliveries from Statfjord. Gas export values are calculated, inter alia, by use of information found in British and West German import statistics. The cif-values (St. Fergus and Emden) are reduced by the pipeline and terminal costs. The value of oil exports is computed by means of norm prices, i.e. prices fixed quarterly for administrative (mainly tax) purposes. These prices are fixed ex post with the purpose to reflect observed market prices. Crude oil is valued fob at the production site (e.g. Ekofisk, Statfjord etc.), but has to be adjusted as the norm price is based on sales prices from the terminal (fob-price) at Teesside (Ekofisk oil) and cif-price North Sea harbour (Statfjord oil). Terminal and transport costs thus are deducted from the norm prices.

Equipment delivered from Norway to ships and oil platforms under construction for Norwegian account abroad is included in the statistics. When the ships and platforms are taken over by the owner, this equipment is recorded in the import value (which is to full value). The principle is basically the same with regard to oil exports. Norwegian-produced crude oil which is shipped back, e.g. from Teesside, is recorded in the statistics as imports from the United Kingdom.

Oil and gas fields stretching across the Norwegian and British parts of the continental shelf are divided according to ownership.<sup>2)</sup> In general, however, the territorial principle is used as the criterion for delimitation in respect of other countries in the national accounts and, inter alia, in the external trade statistics. This means the introduction of a correction item to take care of the discrepancy between the Norwegian ownership share and the actual share territorially.<sup>3)</sup> If the Norwegian ownership share is greater than that used on the Norwegian side, a (positive) delivery of imports (equal to the difference) must be added to the goods as an adjustment item. In the opposite case, the adjustment is made with a (positive) export delivery.

1) CCCN has 4-digit positions. A fifth and sixth digit correspond mainly to a joint Nordic commodity classification, while a seventh digit allows for a national breakdown. 2) The so-called "SAS solution", already described in sections 5.2.2 and 5.2.7 above. 3) Due to the uncertain data on actual consumption of goods and services in the Norwegian sector of the shelf border, we have in the case of direct imports been forced to refrain from computing adjustment for intermediate consumption.

Among the commodity groups which are included in the accounts for exports and imports of goods not covered by the external trade statistics, we find besides the items already mentioned, operating and investment expenditure for unspecified intermediate consumption in connection with the extraction of oil and gas and for unspecified intermediate consumption for oil and gas transport.<sup>1)</sup>

As a result of the increasing importance of oil activities in the North Sea for the Norwegian economy, the need for additional specifications in the national accounts has also increased. Special export sectors have been introduced for gross receipts from oil and gas exploration and drilling, and gross receipts from oil and gas pipeline transport, respectively. Special import sectors have been introduced for current and repair expenditures abroad in connection with oil and gas exploration and drilling, for imports of services for oil production (current and investment expenditure), for investment payments to foreign oil drilling companies for oil production and, finally, for current and repair and investment expenditures abroad for oil and gas pipeline transport.

The most important sources for computing exports and imports of services are described in the section on balance of payments and in the sections dealing with the calculations of production for ocean transport and air transport as well as other service sectors.

#### 5.4. Components of the gross domestic product etc.

##### 5.4.1. Compensation of employees and employment

###### Compensation of employees

Compensation of employees comprises all payments made by resident producers to their employees engaged in production on Norwegian territory. Employees consist of all persons employed, excluding the proprietors of unincorporated businesses and their unpaid family members.

Total compensation of employees is specified in six components in the national accounts:

(i) wages and salaries in cash, (ii) wages and salaries in kind, (iii) other outlays to benefit employees, (iv) employers' contributions to the National Insurance Institution, (v) employers' contributions to other social security schemes and (vi) transfers from the Low Wages Fund, net.

Wages and salaries in cash include wages and salaries for time worked, i.e. hourly, weekly or monthly wages and salaries etc., and payments for time not worked, i.e. wages and salaries for public holidays, holiday pay, sick pay etc. Other cash payments are also included under this item, such as cash payments for food or lodging, cash payments for housing or cash grants for rent etc.

Wages and salaries in kind comprise contractual payments in kind valued at what they cost the employer. For military personnel, the value of food and clothing is included. Free work clothing is as a rule not included.

Other outlays to benefit employees include expenditure relating to the work force which is not intended to be direct remuneration for work performed.<sup>2)</sup>

Employers' social security contributions cover the contributions employers are obligated to pay to the National Insurance Institution for wages and salaries and other remuneration to their employees.

Employers' contributions to other social security schemes include the employers' contributions to the State Pension Fund, the Pension Scheme for Pharmacists, the Pension Scheme for Seamen, the Pension Scheme for Fishermen and the Pension Scheme for Forestry Workers.

From 1980 an arrangement was established for the workers organized in the Norwegian Federation of Trade Unions, whereby funds were transferred from high-paid to low-paid employees. This arrangement is named "The Low Wages Fund". The employer pays to this Fund a fixed amount per hour worked, which is transferred to low-paid employees in other establishments. The amount of transfer to the establishments less the amount paid to the Fund is recorded in the national accounts as "transfers from the Low Wages Fund, net".

1) All total, there are close to 50 NA-commodities under exports and 10 NA-commodities under imports not covered by the external trade statistics. 2) This includes, inter alia, employers' premiums and contributions to private pension funds, private health and accident insurance, non-contractual grants in connection with occupational accidents and pensions paid directly over the establishment's accounts.

The practical organization of calculations on compensation of employees is dependent on the manner in which the primary statistics are available. Figures for compensation of employees are computed for more than 170 of the production sectors in the national accounts, organized into four groups characterized by the statistical material used. Group 1 consists of industries which have accounting data on the total compensation of employees.<sup>1)</sup> Group 2 consists of industries for which the total compensation of employees is computed as a share of the value of gross output.<sup>2)</sup> Group 3 relates to industries covered by production statistics with data on contractual wages and salaries, including mining and quarrying, manufacturing, electricity, gas supply and construction including oil drilling. Group 4 comprises the remaining production sectors where the level for contractual wages and salaries is determined on the basis of a wage index and a volume index for employees in the sector.

The computations are carried out in the following sequence: (1) total compensation of employees or contractual wages and salaries is specified for each sector, (2) employers' contributions to other social security schemes and net transfers from the Low Wages Fund are distributed by sector, (3) other outlays to benefit employees are computed by sector, (4) employers' contributions to the National Insurance Institution are distributed by sector and (5) wages and salaries in kind are computed by sector, and, in this way, wages and salaries in cash are given by sector.

The most important sources of data for computing wages and salaries are central government accounts, local government accounts, industrial statistics, censuses of establishments, electricity statistics, construction statistics, scheduled road transport statistics, data from the accounts of different industries (see above), credit market statistics, the Central Bureau's annual wage statistics and the Norwegian Employers' Confederation's quarterly statistics on wages and salaries. Central government expenditure on wages and salaries is distributed among the producers of government services by computer. Compensation of employees for local government is computed by production sector based on the national summary for local government accounts. Wages and salaries for the production sectors within mining and quarrying and manufacturing are obtained from the main file of industrial statistics. The censuses of establishments form the basis for the bench-mark estimates in some service sectors. The wage and salary rates or the change in wage and salary rates during the year, which are used for group 4 above, are computed on the basis of the Central Bureau's wage statistics and in part the wage statistics compiled by the Norwegian Employers' Confederation. It is the change in wage and salary rates for time worked, hourly rates or average monthly wages and salaries which is computed and combined with changes in the number of employees according to the national accounts production sectors.

The pension and insurance schemes outside the National Insurance Institution are financed by employers' contributions and membership premiums. The total income from the accounts of the respective schemes is distributed among the production sectors of the national accounts by using distributional keys. The estimates of net transfers from the Low Wages Fund have so far been based on information from the Norwegian Federation of Trade Unions, but information will also be obtained through regular official statistics of relevance to this item, (industrial statistics, wages statistics etc.).

The data base for other outlays to benefit employees varies considerably. For mining and quarrying and for manufacturing, figures from industrial statistics for voluntary expenditure in accordance with agreements are used. In 1969, the Norwegian Employers' Confederation made a survey of the establishments' indirect personnel costs in 1968, with calculations of all other wage and salary expenditure as a percentage of wages and salaries for time worked. The expenditure components which fall under the category "other outlays to benefit employees" are incorporated in the national accounts computations.

The national insurance contribution is generally based on wage and salary payments included in the concept "contractual wages and salaries", which may be assumed useful as a basis for distributing total accrued contributions by sector of production.

1) Group 1 includes producers of government services, water supply, railways, air transport, postal services, telecommunications, financial institutions and non-life insurance. 2) Group 2 comprises financial services and domestic services. In addition, it includes - with regard to the determination of bench-mark - fishing, education and research and scientific institutes, health services, welfare institutions, business, professional and labour associations and, finally, other social and related commodity services.

Accrued employers' national insurance contributions are computed on the basis of data from the National Insurance Institution on payments of employers' contributions by month and year. The distribution of the accrued total figure by industry became more complicated in 1975 when the rate for computing the employers' national insurance contribution was differentiated, i.e. different rates were introduced in different municipalities. An attempt has been made to incorporate this in the national accounts by computing average "statutory" rates by sector on the basis of the figures in industrial statistics on contractual wages and salaries by municipality and, in the case of other sectors, on the basis of figures in the population census on employees by industry and municipality for 1970, as well as the census of establishments in 1974.

With regard to the basis for computing wages and salaries in kind, it may be mentioned that figures from the accounts are available for ocean transport (supplies), while the number of employees and the consumer price index are used as indicators for most of the other industries for which wages and salaries in kind are computed.

When computing the compensation of employees for the preliminary national accounts, we use the same procedure as described above for the final accounts, although the data base is different. The most important sources of data are the central government budget, the local government budgets, the Central Bureau's wage statistics and the quarterly statistics of the Norwegian Employers' Confederation. Contractual wages and salaries are computed for most production sectors by means of indices for changes in contractual wages and salaries from the preceding year and changes in the number of employees. Changes in wage and salary rates are computed on the basis of the most recent wage statistics with additional calculations for the effect of subsequent wage agreements and possible index settlements, and with estimates for wage drift. The change in the number of employees by sector is based on the labour force sample surveys. Preliminary figures for the employers' national insurance contributions are computed on the basis of monthly data on contributions paid. Employers' contributions to other social security schemes are compiled from budget figures. Other outlays to benefit employees and wages and salaries in kind are computed by industry from level of the preceding year and the development in the number of employees and the consumer price index. In the last preliminary version before the final accounts, however, the data base is considerably better than outlined above.

There are possibilities for checking the computed total wages and salaries in the national accounts. As mentioned previously, the employers' national insurance contributions will account for a nearly fixed percentage of contractual wages and salaries and this has generally been the case.<sup>1)</sup>

### Employment

In close connection with the computation of compensation of employees, the national accounts also contain employment figures in the form of computed man-years by kind of economic activity for employees and the self-employed. The man-year figures cannot be computed in the same way for all production sectors because the employment statistics are often compiled for purposes other than national accounting. The number of man-years is computed either from statistics on the use of labour measured in man-hours (e.g. agriculture), or as the number of persons employed the entire year with additions for part-time employees and persons employed parts of the year, or as the average number of people employed during the year on the basis of monthly figures, quarterly figures etc. (e.g. labour market statistics and industrial statistics) or as the number of people employed at the time of a census (e.g. population censuses).

The most important sources for computing employment have been population censuses, labour market statistics, industrial statistics and labour force sample surveys. The population censuses contain information about the number of economically active persons by detailed industrial groups according to the Norwegian Standard Industrial Classification, with a distribution of the economically

1) Comparisons are also made with the income statistics for selected years and with the census of establishments in 1974.

active population by employees, self-employed and family workers. The labour market statistics, which were discontinued on 1 January 1971, were compiled on the basis of the insurance offices' membership file which contained a detailed industrial specification for employees as well as the self-employed by main groups. Industrial statistics provide average annual figures for employees in mining and quarrying and manufacturing distributed by wage-earners, salaried employees and owners.<sup>1)</sup> The labour force sample surveys were initiated to replace the labour market statistics and contain considerable information about the interviewed person's status on the labour market in a reference week each quarter.<sup>2)</sup>

In addition to the main sources described above, a number of other statistical sources are used which provide information on employment for certain industries. This relates, inter alia, to figures from the Agricultural Budgeting Board and the municipal fishery boards, regional employment statistics, electricity statistics, construction statistics, wholesale and retail trade statistics, transport and communications statistics, scheduled road transport statistics and employment data for seamen and postal services and telecommunications. Other more uncertain indicators are used for a number of the service sectors.

#### 5.4.2. Operating surplus

Operating surplus in the national accounts comprises income from capital and from the self-employed. The item has the nature of being a residual figure and can be defined as gross output less intermediate consumption, compensation of employees, consumption of fixed capital and net indirect taxes. Operating surplus is a gross concept in the sense that direct taxes have not been deducted. Operating surplus of the producers of government services, where gross output is defined as equivalent to the cost of production, will by definition be equal to zero.

In practice, operating surplus can be computed either through a direct or an indirect method. The direct method requires appropriate income or financial statistics; at the same time a number of adjustments in the primary statistics, when available on the enterprise (institutional) level, are necessary to fulfil the functional definitions of the national accounts. In addition, it would be necessary to adjust for differences in the valuation of consumption of fixed capital in the financial statistics and the national accounts.

In the Norwegian national accounts, with a far stronger tradition in the use of production statistics than financial statistics, it has always been natural to compute operating surplus by using the indirect method, which thus consists of deducting compensation of employees, consumption of fixed capital and indirect taxes less subsidies from value added of each production sector and then by aggregation to arrive at operating surplus for the entire economy. Only in connection with the main revisions of the national accounts has the (gross) operating surplus in the national accounts been confronted with corresponding measures in financial statistics.

#### 5.4.3. Real capital and consumption of fixed capital

Consumption of fixed capital shall in principle express the value of real capital used up during the period of account as a result of normal wear and tear, foreseen obsolescence and the normal rate of accidental damage. Unforeseen obsolescence, main catastrophies and the depletion of natural resources are not taken into account.

The national accounts estimates on consumption of fixed capital are derived or computed in the sense that they are not the result of a simple rearrangement of primary statistics. Instead conventionally fixed routines of estimation play an important role. The consumption of fixed capital figures thus might deviate considerably from the recorded depreciation in business accounts.

There are two main paths to take when determining the consumption of fixed capital in the national accounts. The most direct of the two methods starts with depreciation figures in business accounts, and from these figures the necessary adjustments are made for national accounting purposes. This often relates to converting historical costs to current replacement costs, although other adjustments must also be made from the nature of the basic data available.

1) The number of employees is obtained as an average of the number of employees on the payroll the last pay-day in five months of the year. 2) The figures from the labour force sample surveys are difficult to use in a national accounting context since the figures on detailed levels might vary considerably from one quarter to the next due to sampling errors.

The second method is described in international terminology as "the perpetual inventory method", whereby consumption of fixed capital is computed indirectly, based on long time-series for gross fixed capital formation expressed at constant prices. This method is used in Norway as in a number of other countries. In Norway, the calculations are organized within a computer programme called BERKAP. The BERKAP results for fixed capital and fixed capital consumption at constant prices are later converted to current prices by using the price indices for the acquisition of fixed capital according to type and sector.

Investment figures are used as input in the BERKAP computations. Gross fixed capital formation flows of the national accounts are aggregated to some 80 groups classified, inter alia, by type and sector.<sup>1)</sup>

As part of the computations, estimates on average lifetimes for capital are introduced for all specifications in BERKAP. The average lifetime for a capital type shall express the number of years it is expected to be used for production purposes. No good statistical basis exists for determining reasonable estimates of these key parameter values. The lifetimes for the various groups are therefore largely based on published results from studies made in other countries. It shall none the less be emphasized that attempts to evaluate lifetimes are made at various intervals based on different types of information available in Norway. For the BERKAP computations three different alternatives were initially drawn up for the lifetimes of each item, of which the intermediate version was chosen for the national accounts. Over the last ten years some adjustments have been made in these lifetimes.

In BERKAP an investment with a lifetime of  $n$  years is depreciated by  $\frac{1}{n}$  of the (constant price) value every year (linear depreciation) recorded by 31/12 each year. The new value of real capital at the end of the year is determined as the sum of this and preceding years' gross fixed capital formation which has not previously been entirely depreciated. When the new value of the various capital specifications has been determined, consumption of fixed capital in the year of calculation is computed as the new value of the capital in the year of calculation divided by the number of years specified by the relevant lifetime.

Each type of capital is depreciated 100 per cent over the lifetime. One exception is made, two-thirds depreciation over the lifetime has been introduced for most passenger cars.<sup>2)</sup> BERKAP also compute figures for written-down fixed capital, which at the end of the year of calculation are equal to the sum of depreciated gross investments for this and earlier years.

The lifetimes range from 90 years for residential houses and certain types of construction down to one year for dry wells in oil drilling. Even though the assets of government construction as well as water supply are specified as having lifetimes of 90 years, consumption of fixed capital for such public works (bridges, roads, dams etc.) is not computed for practical reasons on the assumption that these have an unlimited lifetime if well maintained. Oil drilling and other expenses for oil exploration are listed among the types of capital in the Norwegian national accounts. This entails a full capitalization of expenses for oil drilling and oil exploration under gross fixed capital formation.<sup>3)</sup> One consequence is that capitalized expenses for oil drilling and oil exploration are depreciated over one year if the drilling does not result in finds of oil and natural gas which are commercial (dry wells).<sup>4)</sup>

The constant-price estimates are inflated by means of price indices for the corresponding groups of gross fixed capital formation. This is justified on the grounds that fixed assets shall be valued at the cost of replacing the assets. With regard to the selection of such price indices for investments, see section 5.5.3. The system entails that both fixed capital, gross fixed capital formation and consumption of fixed capital are deflated (really inflated from constant-price estimates) by the use of the price indices for gross fixed capital formation.

It is possible to check the figures on capital computed by the abovementioned method against fire insurance values specified in the censuses of establishments and other figures on capital from

1) For more than 60 groups input is arrived at by aggregation. 2) This special treatment entails that passenger cars for commercial purposes are desinvested in the household sector after 4 years (3 years for taxis). 3) Alternatively, these expenses might be recorded as intermediate consumption up to the time a decision on whether or not the discovery shall be exploited is made. 4) The lifetime is fixed at 15 years for capital tied to other oil activity (aside from pipelines which are assumed depreciated over 20 years.

sectors in the economy which are not covered by the censuses of establishments. However, some uncertainty is attached to these figures.

After the computations of fixed capital and consumption of fixed capital are carried out in BERKAP at constant prices and later inflated to current values, the figures for consumption of fixed capital are converted to cover all production sectors in the national accounts.

#### 5.4.4. Indirect taxes and subsidies

All taxes levied on sales, production, imports and purchases of working capital are considered indirect taxes. They cover the value added tax (earlier the general purchase tax), the investment levy, other commodity taxes based on production, imports or domestic sales, customs duties, local government taxes and other taxes which are not directly linked to specific goods and services.

All current grants from government to the private sector in the capacity of business enterprises are considered subsidies. These comprise subsidies aimed at reducing prices (including refund schemes for the value added tax), subsidies to stimulate certain types of investment and subsidies with the aim of improving profitability in certain industries.

With the change-over to the present SNA, special commodity accounts have been introduced to provide information on tax and subsidy elements included in the market values of the various commodities. Primarily, this was introduced from the desirability of having input-output tables excluding commodity taxes and commodity subsidies, i.e. expressed in approximate basic values. In the present system, indirect taxes and subsidies can be divided into two different categories: (i) commodity taxes and subsidies and (ii) other indirect taxes and subsidies. Indirect taxes and subsidies belonging to the former category are included in the commodity accounts. In principle, these should be limited to indirect taxes and subsidies which vary proportionally with quantity or value of the commodities produced or sold.<sup>1)</sup>

All total, 62 indirect taxes are specified, of which 32 are commodity taxes and 30 are other indirect taxes. The latter's share in value, however, is not higher than 10-15 per cent. Similarly, 32 subsidies are specified in the accounting system of the national accounts, i.e. 12 commodity subsidies and 20 other subsidies. The value of other subsidies as a share of total subsidies has increased sharply during the last ten years and now amounts to some 70 per cent.

The commodity taxes can be divided into general commodity taxes and special commodity taxes. General commodity taxes comprise in a limited sense the value added tax since 1970 and the general purchase tax in earlier years. In a somewhat broader sense, it is reasonable to add the investment levy as a general commodity tax, particularly since it was intended to fill "gaps" after the general purchase tax was replaced by VAT.<sup>2)</sup>

The treatment of the general commodity taxes in the national accounts has become considerably more complex since the change-over to the value added tax. Previously, the general purchase tax could in principle be recorded in the accounts in the same manner as for special taxes. Value added tax affects most transactions in the input-output tables of the national accounts. This implies that the treatment of VAT has been assigned an important role in the computational work in the national accounts.

In connection with the treatment of VAT, we are in principle confronted with a choice between recording the tax gross or net. Norway has chosen a (modified) gross recording of VAT. Gross recording implies that the VAT element is explicitly expressed in both gross output and intermediate consumption as well as final uses of goods and services in the commodity flows. In other words, VAT is included in all relevant commodity flows in addition to the fact that accrued VAT values are computed for each production sector as a component of value added. The gross system is modified by recording exports and relevant supply figures excluding VAT. Other final uses of goods and services which are exempt from VAT (for example investments) are corrected under way. By the gross recording, accrued VAT per sector can be computed as the difference between output VAT on gross output and refundable input VAT on intermediate consumption. In the net recording method, only net accrued figures are specified on the supply side and non-refundable VAT values on the user side.

1) In practice, the size and how clear the rules for computing the various taxes and subsidies are set out, will also play a role in delimiting the two categories. 2) Actually, only investment levy on gross fixed capital formation is considered a general commodity tax. Investment levy on repairs, auxiliary materials etc. is grouped as other indirect taxes.

The treatment of VAT in the national accounts can be set out in five steps: 1) A VAT catalog determines the VAT rate to be used for the different commodity flows. 2) VAT values are computed on the user side (as components of the purchasers' values). 3) VAT values are computed on the supply side. 4) Accrued VAT is computed for the various production sectors and 5) VAT matrices are set up for control and for special VAT data.

The VAT catalog provides information on the VAT rate of each main commodity in the national accounts and also specifies the receiving sectors which represent exceptions from the ordinary tax provisions. It gives the administrative provisions in a well-defined form for the national accounts.<sup>1)</sup>

For the work on computing detailed values for indirect taxes and subsidies with the national accounts commodity flows as a basis of calculation, a systematic registration has been made of goods and services which are subject to taxes/receive subsidies, sectors who pay the taxes/receive the subsidies, the tax rates levied on the commodities, commodity flows and in particular commodity uses which are subject to taxes/receive subsidies and how large a share of the various commodity flows are subject to taxes/receive subsidies (relative tax base). Circulars from the Directorate of Excise Taxes and the Director of Tax Authorities etc. contain the tax and subsidy provisions which are in effect at any one time with information about rates, tax base etc.

Before proceeding with the description of the value added tax in the accounts, we must mention an aid designated as "commodity mark-up cards", one for each commodity flow. On these cards are given coefficients or ratios between the different value components of each commodity flow. A set of 8 coefficients is linked to each commodity flow on the user side. The first four relate to the decomposition of the producer's value into basic value, value added tax, other commodity taxes and commodity subsidies. The last four coefficients relate to the composition of the gross trade and transport margin into basic value in wholesale and retail trade (basic trade margin), value added tax in wholesale and retail trade, respectively other commodity taxes and commodity subsidies in wholesale and retail trade.<sup>2)</sup>

By using the commodity mark-up cards with the corresponding commodity flows containing separate sets of values in producer's value and gross trade and transport margin, values for VAT are computed for all commodity flows by use. On the basis of these computations, total estimated VAT accruing to each commodity is obtained as an aggregate.

The next phase of calculation deals with VAT on the supply side in the commodity accounts. The computations on the supply side assume the nature of "shifting" the computed VAT values from the user side in the input-output table. A direct calculation of VAT on domestic production by main commodity would not have given the desired result since, for example, we do not know from production statistics the share of production which is exported.

The VAT calculations according to industry are based on the abovementioned VAT accounts in the input-output table. By sorting the detailed commodity flows according to the receiving sector and the production sector, direct information can be obtained on input VAT and output VAT, respectively. Since accrued VAT by sector is computed as the difference between output VAT and refundable input VAT, input VAT on intermediate consumption must be split up into refundable input VAT and non-refundable input VAT.<sup>3)</sup> All total, about 55 of the 190 production sectors have accrued VAT equal to zero, moreover, there are negative values for accrued VAT in a number of manufacturing sectors with a strong element of production for export (VAT exempt), while input VAT is refunded in the VAT establishments registered in this way.

For the sake of clarity as well as for prediction purposes, the different VAT calculations have

1) The catalog specifies the main commodities of the national accounts with three alternative tax rates: ordinary VAT 20 per cent, no VAT 0 per cent, or special VAT rates (varying with the use of current weights or special fixed VAT rates). Two (or more) different main commodities have been constructed for many of the service sectors, one which applies to production subject to VAT and one which applies to production exempt from VAT. About 180 main commodities are covered by the ordinary VAT rate of 20 per cent, about 140 are exempt from VAT, while close to 30 main commodities are subject to special VAT rates. Exceptions have also been provided for receiving sectors in this respect. 2) All coefficients are measured in relation to the producer's value except that the value added tax in wholesale and retail trade is most appropriately expressed in relation to gross margin excluding the tax itself. 3) The latter is estimated at some 10 per cent of total input VAT.

at various times been combined in the form of aggregated VAT matrices.<sup>1)</sup>

For the determination of values for gross fixed capital formation, special solutions of recording the items have been introduced. Since gross fixed capital formation on the buyer's level is generally valued in purchasers' values including the investment levy and excluding VAT, the same principle of valuation should preferably be applied on the producer's level as well. In the national accounts, we have allowed the producers (and importers) to value the investment including VAT, and thereafter made two total corrections on gross domestic product (two dummy sectors) to obtain total gross fixed capital formation balanced at a value excluding VAT and including the investment levy. It may be noted that such a solution does not entirely satisfy the desire for a logically correct distribution of the gross domestic product by industry, but does not influence the industrial distribution of factor income. Gross domestic product valued at market values also means that similar additions (dummy sectors) must be included for VAT on imports, customs duties and other special excises on imports.

Besides investments, goods used in production are also subject to the investment levy. This applies to repairs and maintenance as well as some other intermediate consumption (auxiliary materials etc.). The consideration for the computation of accrued VAT, with deductions for input VAT, has implied that the purchaser's value of such intermediate consumption in the commodity accounts is valued including VAT and excluding the investment levy, i.e. the opposite of the solution chosen for gross fixed capital formation.

Special commodity taxes are defined as taxes levied on special goods and services.<sup>2)</sup> Altogether, these constitute some 25 per cent of total indirect taxes. Most of the special taxes are levied on consumer goods; private consumers thus account for more than 70 per cent of the total amount. The commodity subsidies mainly relate to various types of food and to residential and social welfare buildings.<sup>3)</sup>

For the special commodity taxes and subsidies, it has been natural to link the tax and subsidy specifications directly to the detailed commodity flows, inasmuch as only a relatively small number of commodities are affected. In the rules, taxes are to a large extent differentiated by user sector, while differentiation by supplying sector does not play an important role. An attempt is made to construct the tax rates in such a manner that they to the greatest possible extent enable a direct application of the rates stipulated by the rules.<sup>4)</sup>

The system of methods for calculating commodity taxes primarily involves the use of exogenously given tax rules (rates etc.) on a basis that consists of commodity flows in the national accounts. Four different methods are applied: 1) The value-rate method; the tax rate is a given percentage of the current value basis for calculation. 2) The volume-rate method; the tax rate is computed with reference to quantities, as the ratio between tax per unit in the year of calculation and price per unit in the base-year. 3) The relative tax base-fixed yield method; the tax rate is computed implicitly, while tax base and total yield are exogenously given. 4) The rate-fixed yield method; the tax base is computed implicitly, while tax rate and total yield are exogenously given. The value-rate method is clearly the most important in numerical terms, while most commodity subsidy rates are determined from known yields by using method 3. The first two methods give estimated tax values which in principle deviate from recorded payments and are described here as accrued tax values. The last two methods, on the other hand, fulfil the identity of accrued tax values equal to recorded tax values.

Accrued values shall in principle be used in the new accounts. This means that the figures for government revenue and expenditure in the national accounts deviate from corresponding figures in the government accounts. The deviations between accrued and recorded values can be due to several factors. Presumably, the most important is the time-lag a payment deadline defines.

1) One type of matrix has reference to the commodity accounts which either for a rough commodity classification or for all goods and services combined shows, on the one hand, VAT figures distributed by imports and aggregated production sectors and, on the other hand, VAT figures distributed by the main classification of uses. Another type of matrix can be drawn up based on the pattern of a commodity x commodity input-output table. As a basis for predictions a third type of VAT account has been established. 2) In the Norwegian tax system, these have in recent years included spirits, wine, beer, soft drinks, tobacco, motor vehicles, petrol, mineral oil, chocolate and sugar confectionary, cosmetics, public lotteries, imported grain, herring meal, herring oil, radio and television sets and electric power. 3) Also covered are fertilizer, concentrated feed, oil products, fish, herring, herring oil, herring meal and fishing gear. 4) In quite a few cases the tax rules are formulated in such a way that they cannot be linked to the national accounts' commodity flows without a corrective, which is most often incorporated in the relative tax base.

In the accounting system, the various detailed types of indirect taxes and subsidies are distributed among functional sectors of origin. The totals are carried over to aggregate accounts for indirect taxes and subsidies, respectively, and thereafter linked to special distribution accounts.<sup>1)</sup> Indirect taxes and subsidies are then carried from the distribution accounts to institutional sectors of receipt (central government appropriations' account, other central government accounts, social insurance administration and local government). As a result of the fact that accrued values are used in the production and commodity accounts, a special sector has been introduced for general government - a sector for tax collection - which registers the difference between accrued values and book (recorded) values. An accrued tax may therefore partly go, for example, to the central government appropriations' account and partly to the sector for tax collection. The latter's share will normally be less than 10 per cent of the total value. The central government appropriations' account clearly dominates in size with regard to institutional sector of receipt for indirect taxes and subsidies, accounting for more than 90 per cent of total indirect taxes and 70 per cent of total subsidies.

## 5.5. Constant-price estimates

### 5.5.1. Deflating system

The annual input-output tables serve as a starting-point for compiling constant-price estimates. Figures at current prices for each commodity are as a rule deflated by suitable price indices in order to obtain constant-price estimates for the detailed commodity flows. In principle, the estimates at constant prices show the commodity flows in the accounting year valued at prices in a selected base-year. Ordinarily, the base-year is replaced every 5th - 10th year. The Norwegian national accounts have hitherto had the following four base-years since World War II: 1955, 1961, 1970 and 1975.

In principle, the figures at current prices for each of the 1 750 NA-commodities could be deflated with one price index if the commodities could be assumed to be homogenous and if price discrimination did not occur. These assumptions are not met. In practice, therefore, several price indices are normally used to deflate each commodity flow. Thus, a price index for imports, a price index for exports and a price index for total deliveries from domestic production are used for each NA-commodity. Since the constant-price estimates are made within the framework of a sector-commodity, commodity-sector table, the sum of the constant-price estimates for imports and domestic production of a commodity defines the constant-price estimate of the supply of the commodity in question. With certain exceptions (due to shift effects) this number is conventionally fixed as the constant-price estimate for the total use of the commodity. The commodity's total domestic expenditure at constant prices is determined as the difference between the total supply of the commodity and exports. The domestic expenditure at constant prices is further distributed among the various uses proportional to the distribution at current prices. This implies that the same price index is used for deflating all domestic uses of the commodity, including change in stocks.

In order to facilitate the deflating work, the computations have not been carried out in detail for all 1 750 commodities, but rather at the 3-digit level (for main commodities). Three separate sets of price indices have been computed for each main commodity based on price indices for the detailed NA-commodities.

The constant-price estimates for imports and exports of commodities according to external trade statistics are obtained by aggregating primary data from external trade statistics both at current and constant prices, by using the implicit unit price indices (current data divided by constant-price data).<sup>2)</sup>

For deflating domestic production, a price index is used for the total production of each NA-commodity, computed from price data collected for calculating the wholesale price index, the consumer price index and unit price data computed on the basis of production statistics and external

1) Three sectors for indirect taxes (general commodity taxes, other commodity taxes and customs duties and other indirect taxes) and two sectors for subsidies (commodity subsidies and other subsidies).

2) The price indices for the representative commodities of external trade will express average price changes per physical unit of commodities imported to or exported from Norway. The volume indices thus express changes in both quantity and quality.

trade statistics.<sup>1)</sup>

Price data for the wholesale price index is collected each month and are specified excluding value added tax. This index indicate price movements for Norwegian commodities for first-hand transactions domestically. Annual averages (unweighted average of the monthly indices) are used for deflating purposes. Price data for the consumer price index are used to deflate certain services. For some commodities unit price calculations are used based on value and quantity data being available. When gross output is determined from the cost side, input price indices usually are constructed, based on current average weights of the prices on intermediate consumption, consumption of fixed capital and labour (compensation of employees). These indices are used for gross output in lack of production price indices. In some cases, labour is the only input used. Then the input price index is in general a pure wage index. The input price indices are not adjusted for improvements in productivity, e.g. account is not taken of greater efficiency of input units over time due to better education, organization, technology etc.

Implicit price indices are used for services from some service sectors. In these cases the constant-price estimates are based on volume indices, often constructed from quantity indicators.<sup>2)</sup>

Figures at constant prices are initially computed for commodity flows valued in basic values. In order to compute the other value components, a set of "base percentages" for each NA-commodity in the base-year is established. These numbers specify trade and transport margins, commodity taxes and commodity subsidies as percentages of basic values in the base-year. The trade and transport margins, commodity taxes and commodity subsidies at constant prices are computed on the user side of the input-output table, by employing the "base percentages" from the base-year on constant-price estimates for commodity flows measured in basic values. The deflating process is also carried out on the supply side of the input-output table for each sector and commodity.<sup>3)</sup>

When computing the national accounts figures at constant prices, we want to preserve the definitional relationships, i.e. total supply equals total disposition of each commodity. Problems related to other shift effects occur, however, due to price discrimination.<sup>4)</sup>

Quality changes, products which disappear and the introduction of new products also create serious problems for index calculations.

For a limited number of commodities we find considerable price differences which cannot be due to differences in quality. For these commodities we want the constant prices on the supply side to be realized average prices in the base-year and on the expenditure side prices which were obtained on the various markets in the base-year. In this way, there will be a difference between the supply of commodities at constant prices and the disposition of commodities at constant prices. In order to ensure that constant-price estimates on the supply and expenditure sides are identical, correction items are introduced which yield constant-price estimates for gains/losses due to price discrimination.<sup>5)</sup>

On the expenditure side, price expressed at purchasers' prices exist for exports and private final consumption expenditure. For deflating the current exports figures, export price indices are used to compute constant-price estimates in purchasers' values. By using the "base percentages", a computation is then made of the respective value components in each commodity's purchaser's value, so that the constant-price estimates for exports in basic values are obtained indirectly.

1) For sectors where price data for gross output do not exist, prices of factor inputs or calculations of quantity (implicit price indices) are used instead. 2) This applies, inter alia, to services from the transport and communication sectors where the volume indices are constructed from indicators such as net ton-kilometres etc., and employment indicators in other service sectors. 3) In balancing the value components for each commodity, balancing items are established for components other than for basic values and basic values in wholesale and retail trade. 4) In most cases shift effects due to price discrimination will likely be of minor importance compared with statistical errors associated with constant-price estimates. 5) The positive and negative correction items will balance in the base-year, but may be positive or negative in other years. If, for one of these commodities where this method of estimation is followed, there is a shift in the number of units sold on the various markets from the base-year to the current year, the estimated correction items for "gains or losses" at constant prices will be recorded as a delivery from a dummy sector on the supply side. Similarly, estimated figures for "gains or losses" at constant prices which are due to shifts on the supply side may be recorded as a delivery to a dummy sector on the expenditure side. The net figure for "gains or losses" due to price discrimination will result in corresponding adjustments for gross domestic product at constant prices.

For private final consumption expenditure, possibilities also exist for checking the figures against price statistics. In the national accounts, purchasers' prices indices may be incorporated for the various consumption groups corresponding to respective sub-indices in the official consumer price index. A deflating programme is being introduced for purchasers' values in private final consumption expenditure similar to that being used for exports. This will give better numerical control of the computations of private consumption expenditure than previously obtained.

#### 5.5.2. Gross domestic product by kind of economic activity at constant prices

The choice of method for computing constant-price estimates for the contribution of the production sectors to gross domestic product should be determined on the basis of quality considerations. Value added for a production sector cannot be divided up into a price component and a volume component as easily as for the commodity flows, since value added is a residual and does not represent a clearly defined commodity flow. Value added at constant prices must therefore be defined as the difference between gross output at constant prices and intermediate consumption at constant prices. Value added at constant prices may be obtained by means of the double-deflation method, i.e. by deflating gross output and intermediate consumption separately and obtaining the result as the residual.<sup>1)</sup>

In Norway, the double-deflation method is employed separately for each production sector. This is a natural consequence of the fact that the computations of gross output and intermediate consumption by commodities are organized within the framework of integrated input-output tables in the national accounts. A description of the nature of the price indices used for gross output of important main commodities by industry is provided in the following. Price indices for intermediate consumption flows are in general not discussed.

#### Agriculture, forestry and fishing

For agriculture, forestry and fishing gross output at constant prices will for most commodities appear as the result of valuing the current quantity data at base-year prices. This implies that unit price indices based on value and quantity data for domestic production are used for deflation. Import price indices are used for agricultural products with a negligible domestic production. For commodities where deliveries to domestic consumption account for a small share, export price indices are often used. Agriculture's own-account fixed capital formation, silviculture, letting of production factors to construction, as well as own-account investment on machinery etc. in fishing are deflated by means of wage indices based on hourly earnings data. Both wage indices and unit price indices are employed for agricultural services.

#### Mining and quarrying

For gross output in mining and quarrying excluding the extraction of crude oil and natural gas, unit price indices, export price indices and import price indices are used depending on the NA-commodities in question. Export price indices are used to deflate gross output of crude oil and natural gas.<sup>2)</sup>

#### Manufacturing

A number of different types of price indices are used for deflating manufacturing production. Some of the price indices used give a poor indication of the price movements in the respective commodity groups, since the selection of quoted prices or unit prices which are included in the computations in part are limited.<sup>3)</sup>

Wholesale price indices are those most frequently used for deflating sheltered manufacturing groups. For the time being more than 60 per cent of the gross output in these manufacturing activities is deflated by using wholesale price indices. Wholesale price indices are also used for about one third

1) In cases where the statistical data are incomplete or not sufficiently reliable, the alternative will most often be computing value added by means of the same volume index as for gross output or intermediate consumption (single deflation). 2) The determination of the export value of oil starts with the norm prices, while the Central Bureau's export price index is computed fob Ekofisk. For further information, see sections 5.2.2 and 5.3.5. 3) It is particularly difficult to find representative commodities for technically complicated capital goods.

of gross output in manufacturing activities exposed to competition. To a certain extent wholesale price indices are also used for deflating capital goods.

The gross output of export-oriented manufacturing activities is primarily deflated by means of unit price indices, for some 40 per cent of gross output by using export price indices and for close to 30 per cent by unit price indices based on value and quantity data for domestic production. Close to 20 per cent of gross output in import-competing manufacturing groups is likewise deflated by use of these two types of unit price indices. For this group, however, it is almost as common to use main commodity price indices, i.e. price indices constructed from a sample of NA-commodities and weighted together to obtain representative price indices for domestically produced main commodities.

For a number of categories in the capital goods industry due to the lack of price index information, deflation by means of input price indices is the only possible deflation method. This implies that the price of production generally is assumed to follow the prices of the input factors, since no statistical basis exists for adjusting the input price indices for productivity improvements for most groups of this commodity type.

In recent years we have had a new type of price statistics in the producers' price index. The producers' price index intends to measure price changes for production in mining, manufacturing and power supply. The index is linked to the industrial classification and not, as for the wholesale price index, to a commodity classification.

It should be pointed out that certain control possibilities are incorporated in the manufacturing's constant-price estimates. Changes in the values added at constant prices are compared with volume indices derived from the annual industrial statistics and the data are evaluated in each case. In the preliminary accounts, this form of checking entails an attempt to make the index of production for manufacturing consistent with the constant-price estimates.

#### Electricity, gas and water

Electricity production is deflated by a price index arrived at by weighing the consumer price index and price index for electricity. A weighted price index is also used for gas supply and water supply, while own-account fixed capital formation and letting of production factors to construction are deflated by means of wage indices.

#### Construction

As for many of the groups in the capital goods industry, gross output in the construction sector is deflated by means of input price indices based on information concerning inputs of goods, services and labour as well as consumption of fixed capital. An input price index is also used for the oil drilling sector.

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

Gross margins in wholesale and retail trade are not included in the ordinary system for computing constant-price estimates. Margins measured at constant prices are instead obtained by using a set of coefficients constructed for each commodity flow in the base-year.<sup>1)</sup>

Relevant consumer price indices and an implicit sector price index are used for deflating gross output in the sector of restaurants and hotels. The implicit sector price index is computed from the value of production and quantity data (quantity of beer, wine and spirits served at restaurants).

#### Transport, storage and communication

For deflating gross output for passenger transport, we use price data collected in connection with the calculations of the consumer price index. In the absence of price statistics, wholesale price indices based on value and quantity data (net ton-kilometres etc.) are used as deflators for the transport of goods. A similar method also applies to oil and gas pipeline transport. The production of services for ocean transport is deflated by using an implicit sector price index where the volume

1) Gross margins are computed on the basis of the basic values at constant prices and the "base percentages" on a detailed commodity level and are thereafter aggregated up to a total margin.

indicator is determined on the basis of ship size, type of ship and type of contract. Wage indices are used to deflate own-account fixed capital formation, letting of production factors to construction, production of shipping agent services, harbour administration, loading and unloading, other supporting services to water transport, services of travel agencies and other services in connection with transport and storage.

Consumer price indices are used to deflate postal and telecommunication services; own-account investment work on machinery and letting of production factors are deflated by means of wage indices, while services from the Post Office to the Postal Giro and the Post Office Savings Bank are computed at constant prices by means of implicit price indices based on value and quantity data.

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

The consumer price index for dwellings is used for dwellings and rental of other buildings. Price statistics are also collected for consumer price calculations for certain services within non-life insurance. It has been decided to allow the constant-price estimates for most other services to follow changes in employment. However, wage indices are used for deflating leasing of machinery and equipment to industry and for certain types of business services.

#### Community, social and personal services

Special problems arise in connection with price index computations for services delivered from general government because there are no observable market prices. A small share of the output of government sectors is sold, but the payment received (fees) often has no clear relationship with the costs of producing these services. Special input price indices are used for fees based on data on inputs of goods, services, labour and consumption of fixed capital.

The value of gross output of services from general government is computed at current prices as the sum of the cost components intermediate consumption, compensation of employees and consumption of fixed capital. Similarly, the value of gross output at constant prices is computed as the sum of deflated values of the same components by using price indices computed for intermediate consumption, compensation of employees and consumption of fixed capital, respectively. Constant-price estimates for inputs of goods, services and repairs are computed by deflation within the framework of the input-output tables in the national accounts. Consumption of fixed capital at constant prices is computed in connection with the calculations of real capital. A price index for each of the government production sectors is computed for the compensation of employees. This index is computed on the basis of changes in wage and salary rates in the government pay scales with employment by sector and grade in the base-year as weights.

Gross output of private service sectors is deflated by using a number of different types of price indices. Consumer price indices are used for some medical services, advertising film, most services in the recreation sector, repair of motor vehicles, household equipment etc., laundering and cleaning, domestic services, hairdressing and beauty care as well as services of photographers. Wage indices based on central and local government pay scales are used for deflating services from the educational sector, home nursing, as well as services from various associations and other social and related community services. Wage indices based on hourly earnings data are furthermore used for sanitary and similar services, other personal services including part of the repair services etc. Implicit sector price indices are used for deflating services from welfare institutions and part of the health services.

#### 5.5.3. Expenditure on the gross domestic product at constant prices

In the description of the deflating system in section 5.5.1 it was indicated that constant-price estimates for domestic deliveries of commodities are normally obtained as residual items in connection with the balancing of commodities at constant prices. The same implicit price index is thus used for deflating all domestic deliveries of the main commodities, including changes in stocks. In the following, supplementary information is given on the computation of constant-price estimates for each category of expenditure.

### Private final consumption expenditure

Private final consumption expenditure is the only category of domestic expenditure for which we have the possibility of establishing purchasers' values at constant prices directly. The computed constant-price estimates in purchasers' values based on the ordinary deflating routines thus may be replaced by constant-price figures computed by means of price statistics on purchasers' prices. Purchasers' prices indices corresponding to the relevant sub-indices in the official consumer price index are used in this respect for private final consumption expenditure by consumption groups.<sup>1)</sup> Volume indicators exist for some consumption groups which can be used to check the constant-price estimates.<sup>2)</sup>

### Government final consumption expenditure

Government final consumption expenditure is obtained as a residual figure on the production accounts for general government. Constant-price estimates are obtained by adding up for each production sector constant-price estimates for purchases of goods and services, consumption of fixed capital and compensation of employees, and this sum is then distributed between (i) charges and fees and (ii) government final consumption expenditure in proportion to the current figures for these two categories. A description of how constant-price figures for each of the cost components are prepared is provided in section 5.5.2 on deflating methods for community, social and personal services.

### Gross fixed capital formation

Price statistics are not collected on purchasers' prices for domestic categories of expenditure other than for private final consumption expenditure. This implies that the price indices used for gross fixed capital formation are of an approximative nature, i.e. it is assumed that the prices of many capital goods change in step with other suitable magnitudes for which statistics exist. For residential buildings, non-residential buildings and construction, we use input price indices based on inputs of goods and services and labour, except for oil and gas pipelines for which an import price index is used. Input price indices and import price indices are most often employed for transport equipment. This is, however, dependent on the import share of the different purchases of transport equipment. Machinery and equipment cover a number of commodities with a wide range of price indices for deflating purposes.<sup>3)</sup>

### Increase in stocks

Constant-price estimates are particularly uncertain for changes in stocks. Corrections are often made for this item which break the link between the residually-determined change in stocks at current prices and the residually-determined change in stocks at constant prices.

### Exports and imports

Exports and imports are deflated directly by means of export price indices and import price indices. Constant-price estimates for exports and imports of commodities which are included in the external trade statistics, are co-ordinated with the calculations of the official indices for changes in price and volume in external trade statistics. In the selection of representative goods for the index calculations of external trade, an important consideration has been to arrive at a broad representation of both the various index groups in external trade and the NA-commodities. The export price indices and the import price indices are categorized as unit price indices and express the average changes in price per physical unit of commodities exported from or imported to Norway.

Special price indices are constructed for deflating exports and imports of ship. An implicit price index is used for gross freight earnings where the volume indicator is determined on the basis of ship size, type of ship and type of contract. Different import price indices are used for deflating operating expenditure abroad. Direct purchases abroad by resident households are deflated by using an average of consumer price indices for certain countries. Direct purchases in Norway by non-resident

1) For consumer goods with relatively reliable price indices it is often assumed that a deviation between computed and directly deflated purchasers' values can be traced to incorrect estimates of margins at current prices. 2) These groups primarily consist of beverages and tobacco, electrical household equipment, radio and television sets and personal transport equipment. Volume indicator for the last group is data on new registration of motor vehicles. 3) The most common types of price indices are import price indices, input price indices, wholesale price indices and main commodity price indices (price indices for representative goods).

households are deflated by means of the total consumer price index in Norway.

#### 5.5.4. Other constant-price estimates

In addition to constant-price estimates for the items in the production and commodity accounts which are described in sections 5.5.2 and 5.5.3 above, constant-price estimates are available for consumption of fixed capital and real capital. Constant-price estimates for consumption of fixed capital and real capital are computed in connection with the computations of real capital.<sup>1)</sup>

The flows in the national accounts can, based on the question of which flows should be deflated, be divided in two: (i) flows for which an integrated system of price and volume components can be specified and (ii) income and financial flows for which such a breakdown does not make much sense. The values of the former group can be interpreted as a product-sum of prices and quantities (or volumes). It is not possible to do this conceptually for income items such as share dividends, direct taxes, saving, disposable income and other items which can only be measured in kroner. Such items can, however, be expressed at "constant prices" by dividing them with a suitable price index for a sample of real transactions. The choice of price index must be conventional and dependent on the purpose of the conversion. The national accounts therefore provide no constant-price estimates for income and financial flows.

Indirect taxes and subsidies which are directly linked to the commodity flows in the accounts might be decomposed into price and volume components. This has been done in the Norwegian accounts through the computation using the previously described "base percentages". The volume component for commodity taxes will consist of the quantity of the goods subject to tax, while the price component will either consist of tax per unit or the tax rate multiplied by the commodity price. By recording value added tax gross, the accounts provide a system for computation of constant-price estimates for input and output VAT within the detailed commodity accounts.<sup>2)</sup>

#### 5.6. Income and outlay and capital finance accounts

##### Introduction

In connection with the change-over of the national accounts to the new SNA, it has been the aim to expand the accounts with complete income and outlay and capital finance accounts as well as balance sheet accounts. These accounts show the income created in the production process and how it is distributed and used, how the financial transactions are distributed and the distribution of assets, liabilities and net worth at the beginning and end of the period. For institutional sectors, income and outlay accounts, capital finance accounts, revaluation accounts and balance sheet accounts are drawn up. These accounts show changes in and holdings of both tangible and financial assets for the institutional sectors.

The links between the production and commodity accounts and the income and outlay and capital finance accounts are as follows: 1) The components of value added specify incomes created in the production sectors. These incomes are transferred to the income and outlay and capital finance accounts. 2) Private final consumption expenditure is disposition of commodities and is the counterpart to the disposition of income for one of the institutional sectors. 3) Gross capital formation is also disposition of commodities which is entered in the capital finance accounts. 4) Exports and imports are disposition and supply of commodities, respectively, and they are entered in current account of the balance of payments.

A comprehensive accounting system has been drawn up for the entire national accounts, including the income and outlay and capital finance accounts and balance sheet accounts, constructed in accordance with the guidelines specified in the summary matrix of the new SNA (table 2.1).

However, few computations has been done within these parts of the system. The most extensive computational results thus far were published in 1975.<sup>3)</sup> Aside from these experimental-type tables,

1) See section 5.4.3 about the BERKAP computer programme. 2) It has not been found expedient, however, to publish the constant-price estimates of commodity taxes and commodity subsidies in tabular form. 3) See Working Paper IO 75/7 from the Central Bureau of Statistics with reconciled figures for the years 1967 - 1969 for, inter alia, disposable income, accumulation and net lending by institutional sector for general government, financial institutions, State enterprises, other Norwegian sectors and the rest of the world, as well as balance sheets for the same sectors. In this work, "other Norwegian sectors" were further sub-divided into private incorporated enterprises and households, including private unincorporated enterprises.

more traditional income tables are published each year in "Economic Survey" and in the national accounts publication. These tables show factor incomes by distributive shares, disposable income for Norway, private income and expenditure, general government income and expenditure and increase in national wealth.

Even though we do not have current computations of the complete income and outlay and capital finance accounts, a general programme for such computations has been prepared. A brief general description of the computational programme for the income and outlay and capital finance accounts as well as a more detailed discussion of the computations for the 1967 - 1969 tables will be provided below.

#### Computational programme

In the system which has been drawn up for integrating the income and outlay and capital finance accounts with the production and commodity accounts, the work will consist of (i) reclassification of certain items from the production and commodity accounts, (ii) use of primary statistics for institutional sectors such as credit market statistics and (iii) special calculations, inter alia, based on fixed keys of distribution.

An important part of the integration is transfer of the components of value added to the income and outlay and capital finance accounts. Routines which distribute operating surplus institutionally and which establish aggregate and distribution matrices for consumption of fixed capital, indirect and direct taxes and subsidies, should particularly be mentioned. In the work on distributing operating surplus, use is made of reclassified data from income statistics, the census of establishments, industrial statistics and statistics of accounts for manufacturing. The computational programme further involves the establishment of wage matrices and other matrices linked to the income accounts for the institutional sectors. Saving will appear as a balancing item on each of the income accounts for the institutional sectors. Large parts of "other Norwegian sectors" must be computed residually, since the sector classification in the reconciled financial balances in credit market statistics is closed with "other Norwegian sectors" as a residual sector. A main task is the splitting up of types of income and expenditure in "other Norwegian sectors" into the household sector and the corporate sector. This is to be done by means of fixed keys of distribution, primarily based on income and wealth statistics.

The system also contains an extensive computational routine which reconciles the capital finance account, and also reconciles the income and outlay account with the capital finance account.<sup>1)</sup> The revaluation of tangible assets is expressed in the changes of holdings which are due to price changes of existing capital. Similarly, the transactions in financial assets and revaluations of financial assets are computed. The transactions are specified by form of income and institutional sector with the household sector as a residual sector (private enterprises are distinguished by means of statistics of accounts). Undistributed saving plus statistical discrepancies in "other Norwegian sectors" are spread among financial objects by the use of keys. The computations must start with the credit market statistics' general balances, which provide reconciled balances in nominal values. To obtain market values, conversions must be made for bearer bonds and shares, for which it generally is a difference between nominal values and market values.

#### Experimental computations

In the set of tables which was presented as the result of reconciled income and outlay and capital finance accounts for the years 1967 - 1969, we find income and outlay accounts and changes in holdings for a set of institutional sectors. The change in tangible assets is expressed through fixed capital formation and the change in financial assets and liabilities through net acquisitions of financial assets. Figures on holdings of financial assets and liabilities are also available, but not holdings of tangible assets. The greatest problem in the calculations concerned the attempt to link income and outlay flows for each sector to the changes that could be found in holdings. The differences are reflected in the item discrepancies which is specified for each sector.

1) With regard to tangible assets, the total figures are carried over from the commodity accounts, distributed on institutional sectors with "other Norwegian sectors" as a residual sector and further split up into sub-sectors by means of fixed keys.

Credit market statistics, statistics of accounts, income statistics and figures from government accounts were used as the main statistical sources for the computations. Credit market statistics contain annual data on holdings with reconciled financial balances for a number of sectors. Statistics of accounts relate to enterprises in mining and manufacturing with an average of 100 (later 50) employees or more. Income statistics are based on tax assessment material and are consequently influenced by the tax assessment rules and practices.

The figures for general government were based on government accounts. The statistical sources for financial institutions and central government enterprises did not present any great problems of reconciliation. For the rest of the world the income and outlay figures were obtained from the balance of payments and the balance sheet figures from credit market statistics. Holdings and changes in these for "other Norwegian sectors" were also obtained from credit market statistics.<sup>1)</sup>

The category "other Norwegian sectors" was split up into the sub-sectors (i) private incorporated enterprises and (ii) households including unincorporated enterprises. The main principles followed in this split were, on the one hand, to use special distributional keys to distribute types of income and outlay as well as fixed capital formation and, on the other hand, to determine the levels directly for one of the sub-sectors with the other as a residual.<sup>2)</sup> Operating surplus (and net capital formation) were distributed by using distributional keys, prepared on the basis of the income statistics in 1967, industrial statistics, the census of establishments in 1963 and the register of establishments and enterprises. The basis for preparing the keys was relatively weak inasmuch as the difference between operating surplus in the national accounts and net operating income from the income survey was rather sizeable. Interest and share dividends were distributed through keys based on the income statistics in 1967. The same material was applied to construct keys for net casualty insurance premiums and casualty insurance claims. Both saving and net acquisitions of financial assets in the corporate sector were determined as the difference between the magnitudes in "other Norwegian sectors" and the household sector and subsequently distributed by financial assets by means of, inter alia, the Central Bureau's statistics of accounts, while the same distribution for the household sector was determined residually.

Figures were also computed for revaluations. These included changes in price differences for shares and bearer bonds, changes in value as a result of exchange rate changes for financial assets issued in foreign currency, recorded write-ups and write-downs of financial assets in those sectors for which accounts were available, price gains on tangible assets and other revaluations.

Finally, it should be mentioned that in the abovementioned publication the income and outlay account of the household sector has been divided up into sub-accounts for three socio-economic groups, i.e. unincorporated enterprises, employees and social security recipients, pensioners etc.<sup>3)</sup> By using distributional keys and totals, disposable income is arrived at for each of the three socio-economic groups.

### 5.7. Balance of payments

The balance of payments is a statement of the country's economic transactions with the rest of the world and is fully integrated in the national accounts. The International Monetary Fund defines the balance of payments as "a statistical statement for a given period showing (a) transactions in goods, services and income between an economy and the rest of the world, (b) changes of ownership and other changes in the economy's monetary gold, special drawing rights (SDRs) and claims on and liabilities to the rest of the world, and (c) unrequited transfers and counterpart entries that are needed to balance any entries for the foregoing transactions and changes which are not mutually offsetting". The general principles and definitions which are recommended for the compilation of the balance of payments are set forth in the fourth edition of the IMF's "Balance of Payments Manual" which was published in 1977.

The balance of payments shall cover transactions between residents and non-residents. See

1) Several items were computed by deducting figures for each of the other sectors from totals and allocated to "other Norwegian sectors". 2) Items which were recorded directly for the household sector comprised compensation of employees, private final consumption expenditure, transfers to private consumers, direct taxes paid by personal taxpayers etc. as well as transfers to and from abroad not recorded over government budgets. Similarly, payments of share dividends etc. were carried to the corporate sector. 3) See Working Paper IO 75/7 part 2: Distribution of Income in the household sector.

chapter 2 for definitions of residents (and Norwegian territory). Tangible assets cannot be owned in other countries according to the accounting principles so that residents can only have financial claims on foreigners.

The most common transactions in the balance of payments are those in which economic values are provided or received in exchange for other economic values.<sup>1)</sup> As with other parts of the national accounts, the principles for double-entry book-keeping form the basis for entries in the balance of payments. Capital transactions may involve both a change in ownership of existing claims and liabilities and the establishment of new or cancellation of old ones.<sup>2)</sup>

Like the principles applied in the national accounts, the transactions in the balance of payments shall be valued at market prices. The practical implementation of this principle, however, raises a number of problems.

The Norwegian balance of payments is prepared and published each month in the Monthly Bulletin and the Weekly Bulletin of the CBS. The balance of payments consists of four parts: (i) the current account, (ii) changes in international reserves and other assets and liabilities not created by transactions, (iii) the capital account and (iv) specifications which deal more closely with international reserves and other foreign exchange reserves, net borrowing abroad for shipping and net capital inflow from abroad. Balance of payments tables are also included in the annual national accounts publication.

The balance of payments consists of a current account and a capital account.

The current account consists of two parts, covering goods and services and interest and transfers, respectively. The first part is the most important and consists of exports and imports. The entries in the balance of payments are very aggregated compared to the commodity flows of the national accounts. The balance on the first part of the current account gives the export surplus (or import surplus) for the country. The other part on interest and transfers etc. can be considered an income account vis-a-vis the rest of the world. It consists of three main items: interest, share dividends etc. and transfers.<sup>3)</sup> The balance makes up the surplus/deficit on the interest and transfers part of the current accounts. By adding the two balances, we arrive at the surplus or deficit on the current account of the balance of payments.

However, changes in assets and liabilities will also be due to exchange rate changes and factors other than the direct transactions. The full change in Norway's net foreign debt will thus consist of the surplus/deficit on current account, allocation of special drawing rights, changes in assets and liabilities due to exchange rate changes and other revaluations.

Each transaction in the current account has its financial counterpart in the capital account. In addition, pure financial transactions are included in the capital account. The capital account is divided up into long-term and short-term capital transactions. In principle, long-term transactions are those with a contract period of one year or more. Moreover, a break-down is made of capital transactions according to institutional sector and according to financial assets/liabilities in accordance with the credit market statistics. The net sum of long-term and short-term capital transactions shows the total net capital inflow from abroad. This figure is equal to the surplus or deficit on the current account with the opposite sign. This is not fulfilled in practice due to statistical errors and omissions and the use of various sources for computing the figures. A supplementary item has therefore been included under short-term capital transactions for other short-term capital transactions and statistical errors and omissions (unexplained difference) in order to balance the accounts.

Foreign exchange reserves are particularly specified in the balance of payments since the capital which is tied here is meant to have an important function within the framework of international transactions. In Norway, international reserves and other foreign exchange reserves consist of (i) the Bank of Norway's net international reserves, (ii) net foreign exchange reserves of commercial and savings banks,<sup>4)</sup>

1) In some cases when items are given away rather than exchanged or recorded one-sided for other reasons, special entries are made in order to furnish the required offsets. 2) In connection with the allocation or cancellation of special drawing rights only one party is involved, but a change in the country's assets abroad is none the less registered. A similar item relates to monetary gold which changes from being a commodity to a financial object. 3) Interests and share dividends etc. also include other capital incomes, as well as taxes and wages and salaries to and from abroad, and transfers include all other income transfers (inheritance, gifts etc.). 4) Net foreign exchange reserves of commercial and savings banks consist of bank deposits abroad less short-term foreign currency loans abroad and foreign deposits in Norwegian kroner in the commercial and savings banks.

and (iii) net foreign exchange reserves of other sectors. This is an unusually broad definition of foreign exchange reserves. The more narrow definition of foreign exchange reserves often designated official international reserves consists of gold, reserve position in the IMF, special drawing rights in the IMF and bank deposits abroad and foreign securities. In order to arrive at the Bank of Norway's net international reserves, foreign deposits in Norwegian kroner in the Bank of Norway must be deducted from the official international reserves.

The most important sources for computing the items on the current account are the Central Bureau's external trade statistics and shipping statistics and the Bank of Norway's foreign exchange statistics. The latter statistics register foreign exchange transactions with the rest of the world for a given period through a reporting system from the banks to the Bank of Norway. The computation of exports and imports is described in more detail in section 5.3.5.

Interests, share dividends etc. and transfers are computed on the basis of the central government accounts and the foreign exchange statistics.

The statistical material which the Central Bureau of Statistics receives from the Bank of Norway includes a summary showing main categories of foreign exchange payments to and from abroad. The Bank of Norway also collects data for foreign exchange reserves.<sup>1)</sup>

Foreign exchange statistics from the Bank of Norway are the main source for computing the items on the capital account. Other sources are the monthly statistics for the banks and the Central Bureau of Statistics' financial census. The financial census is an annual census providing balance sheet information regarding the country's claims on and debts to the rest of the world at the end of the year, based on reports from all Norwegian persons whom the Central Bureau knows have financial transactions with other countries. In the work on the balance of payments the financial census is mainly used to compute some trade credits and advances to and from abroad.

In addition to the statistical material from the Bank of Norway, the Central Bureau's external trade statistics, the financial census and the monthly statistics for the banks, the calculations in the balance of payments are based on the following supplementary sources: the Central Bureau of Statistics' shipping statistics, central government accounts with information on transfers abroad, figures on infrastructure and other grants to the Defence, and figures for central government borrowing abroad and interest and repayments of loans, figures on imports of insurance services from the Insurance Supervisory Board and the national accounts sector calculations for, among others, air transport and the oil sectors.<sup>2)</sup>

#### 5.8. National accounts by county

National accounts by county have been prepared for the years 1965, 1973 and 1976 and are published in the following publications from CBS: "Regional National Accounts 1965", "National Accounts by County 1973" and "National Accounts by County 1976". The national accounts by county are used for various planning and research purposes. The Central Bureau of Statistics also has developed a regional model based on national accounts figures by county to serve as a means in the planning process.

National accounts by county are mainly allied to the commodity accounts. Accounts have not been constructed for each of the 19 counties in Norway on the basis of primary statistics by county, but are obtained by allocating each national flow to counties by means of distributional keys. By distributing gross output and intermediate consumption of the production sectors, a distribution by county is also obtained for the values added and for gross domestic product. The components of value added are also allocated among the counties. On the user side, private final consumption expenditure, government final consumption expenditure and gross fixed capital formation are distributed among the counties.

The distributional keys are constructed on the basis of indicators which are as close to the national accounting flows as possible and for which county figures are available. Many flows, however, are difficult to distribute.<sup>3)</sup>

1) Changes and holdings of gold and foreign exchange reserves from banks, shipping companies, insurance companies, oil companies and others entitled to keep foreign exchange reserves. 2) A more detailed review of the source material for computing the items related to oil activities in the North Sea is provided, inter alia, in the section on exports and imports above. 3) Distributional errors may arise due to different prices in the counties when volume data are used to distribute figures on value. Errors may also arise when employment figures are used as indicators etc.

The primary statistics do not always provide a basis for distribution indicators by county. In such cases a recording method has been used that places unallocated supply and use figures in an extra county. This relates, *inter alia*, to activities where the various counties' shares cannot be identified and to activities taking place outside the counties. Among the supply figures, imports, ocean transport production, oil activities in the North Sea, the production of coal on Svalbard, air transport, railway transport and telecommunications as well as the dummy sectors are placed in this extra county. On the user side, the extra county incorporates exports, increase in stocks, intermediate consumption in the production sectors mentioned above and some consumption expenditure and gross fixed capital formation in central government.

The accounts by county do not specify commodity flows between the counties. The output of the production sectors in the county and the uses in the county as intermediate consumption and final uses are, however, shown for each commodity group. Deliveries for own use in a county are not separated from deliveries to other counties and the rest of the world, nor is it separated between uses of goods produced in the county and goods delivered from other counties and the rest of the world.

The actual distribution of gross output and intermediate consumption by county is carried out on the main commodity level. The figures are published for 44 sectors, 58 commodity groups and 20 counties (19 ordinary counties plus the extra county).

The production of the various commodities in agriculture is primarily distributed on the basis of data by county found in agricultural statistics on production, while intermediate consumption is distributed in proportion to the total output in each county.<sup>1)</sup> The value of roundwood cut by county from forestry statistics is employed for distributing gross output and intermediate consumption in forestry. Gross output and intermediate consumption in fishing are mainly allocated in proportion to the value of the catch according to the county of landing based on fishery statistics.

Gross output and intermediate consumption for mining and quarrying and manufacturing are distributed by county by means of distributional keys computed from industrial statistics. The distributional keys for gross output are devised on the basis of producers' values excluding value added tax.<sup>2)</sup> The figures for power and water supply are mainly distributed in proportion to the production figures in electricity statistics (based on the power stations' county codes) and information submitted from the gas works. Gross output and intermediate consumption for water supply are allocated on the basis of information from local government accounts. The distributional keys for construction are computed on the basis of the location of use for the production in the sector.

Gross trade and transport margins by industry and county are distributed according to wholesale and retail trade statistics and margin rates in the industries computed from the 1974 census of establishments. The distribution of margins among main commodities is made by giving the margins on main commodities the same distribution as the margin in the industry in which the main commodity is primarily sold. Intermediate consumption in wholesale and retail trade is distributed like gross output. Sales figures from the register of establishments and enterprises are used to distribute gross output in the hotel and restaurant sector. Gross output and intermediate consumption for railway transport, air transport, ocean transport and telecommunications are placed in the extra county. These sectors (and fishing) also produce the constructed commodity "hire of production factors between counties".<sup>3)</sup> Various types of primary statistics are used for other service sectors. Most important are scheduled road transport statistics, different annual reports of transport companies, the census of taxis in 1972, sales and employment figures based on the register of establishments and enterprises, other employment figures, county figures in credit market statistics, the consumer expenditure survey of 1973 and the census of dwellings in 1970.

For central government each of the items in the central government accounts is distributed by county according to the location of the institutions. Items which are placed in the extra county include outlays in connection with the foreign service and defence. The county distribution for local

1) For livestock production, the latest census of agriculture is used as well, and the production of milk in each county is fixed equal to the inputs in the dairy sector according to industrial statistics. 2) The figures for value added excluding VAT in the accounts coincide closely to the figures for value added given in industrial statistics. 3) In the ordinary counties, gross output and value added are equal to the compensation of employees in these sectors, while value added in the extra county is equated to the sectors' values added for the entire country less the total compensation of employees.

government is based on county summaries of the local government accounts.

In the work on national accounts by county for 1973, results from the consumer expenditure survey of 1973 was used as a basis for allocating private final consumption expenditure among the counties. The distribution of the privately-financed share of private final consumption expenditure in the 1976 version of the national accounts by county is carried out in several operations. First, total consumption expenditure is computed in each county on the basis of disposable income per household.<sup>1)</sup> It is assumed that the ratio between disposable income per household and total consumption expenditure per household is the same in each county that belong to the same trade region (the county is divided in four trade regions). The consumer survey from 1976 gives consumption expenditure per household distributed on 37 commodity groups and the number of persons per household in each trade region. For computing the consumption of the various commodities in each county, the average consumption of the various commodity groups by the household in each trade region is compiled. To this is added the product of the income elasticity for the commodity group and the average consumption of the commodity group multiplied by the ratio between computed total consumption expenditure per household in the county and average total consumption expenditure per household in the trade region. The consumption of each commodity group per household is "inflated" to give consumption in each county. The share of private final consumption expenditure paid by the government sector is distributed by county on the basis of information in the central government and local government accounts.

Data by county from industrial statistics are employed for allocating gross fixed capital formation in mining and quarrying and manufacturing. For many of the other capital formation sectors, building statistics are used as a basis for distributing capital expenditure on buildings. The capital formation figures distributed by county are otherwise based on various types of primary statistics. The data base for transport sectors, as an example, includes the Directorate of Roads' distribution by county of the number of motor vehicles for commercial use. General government fixed capital formation is distributed by county on the basis of information from the local government accounts and from the previously mentioned county distribution of items in the central government accounts. About one fourth of gross capital formation, including increase in stocks, is placed in the extra county.

In many sectors, the consumption of fixed capital is allocated among counties according to gross output. Consumption of fixed capital for government sectors is distributed in proportion to the sum of compensation of employees and intermediate consumption. Fire insurance values are used for distributing the consumption of fixed capital by county for mining and quarrying, manufacturing and wholesale and retail trade.

Distributional keys for commodity taxes and other indirect taxes for mining and quarrying and manufacturing are obtained from industrial statistics. The commodity taxes for other sectors are allocated according to the production of the commodities to which the taxes are applied. The other indirect taxes are partly distributed on the basis of special information, partly according to gross output of the relevant sectors. The value added tax follows the county distribution for gross output and intermediate consumption. Corresponding methods are employed for subsidies.

The distributional keys for the compensation of employees are obtained from industrial statistics for mining and quarrying and manufacturing. For wholesale and retail trade and some other service sectors, compensation of employees is distributed according to gross output. Compensation of employees in central government is distributed on the basis of information from the Ministry of Finance, while local government accounts are the source for allocating the compensation of employees in local government.

Operating surplus is obtained as a residual item for each sector and each county.

## 5.9. Preliminary accounts and quarterly accounts

### 5.9.1. Preliminary accounts

The description of the statistical sources and methods used in the national accounts presented hitherto applies mainly to the final accounts. A systematic review of the sources and methods used in

1) Computed on the basis of tax statistics by county and information concerning various tax-free transfers.

the preliminary accounts is not included in this publication. The description that follows is therefore limited to certain main characteristics with regard to the system for the presentation of the preliminary accounts which are compiled in three different versions before the final accounts can be established.

The computations for the preliminary accounts deviate from the computations for the final accounts mainly in three respects. First, the data base is considerably poorer in the preliminary accounts. Secondly - as a result of this - indicators are used to a great extent for computing preliminary national accounts figures in areas where value figures are available for use in the final accounts. A third main feature is that figures in current values are obtained by inflating figures expressed in last year's prices, entailing that the commodity balances are first reconciled at constant prices. In the final accounts the situation is reversed. Commodity balances are first reconciled at current prices and then the figures are deflated by suitable price indices to arrive at figures expressed at base-year prices. The third version of preliminary accounts, however, has much more similarities to the final accounts than the two preceding versions of preliminary accounts.

The most important statistical indicators for use in the preliminary accounts are the monthly index of industrial production, the value index of retail sales, the consumer price index, the wholesale price index, the index of producers' prices, wage indices, monthly statistics on external trade (exports and imports), building statistics, quarterly investment statistics for the industrial sectors and results from the labour force surveys. In addition, it must be noted that budget figures are used for central government, local government and for other sectors, as well as monthly figures from the balance of payments etc.

The three versions of preliminary accounts have been given the following "designations": "Economic Survey accounts", "March accounts" and "November accounts". The fourth version results in final accounts.<sup>1)</sup> More detailed information on each version of preliminary accounts is given in section 1.3 above.

### 5.9.2. Quarterly accounts

The work on quarterly accounts was suspended in 1971, but will hopefully be resumed in the near future. Quarterly estimates back to 1966 according to the new SNA are now in process.<sup>2)</sup> Quarterly national accounts calculations have had a low priority in times of shortages of resources. A contributory cause for this has been that the users' need for quarterly accounts figures has been less than for annual accounts figures.<sup>3)</sup>

One of the most important uses of quarterly accounts would be for the short-term model developed in the Central Bureau of Statistics. The sector breakdown which has been proposed in the new system is constructed in such a manner that it does not contradict the sector breakdown of the short-term model (about 50 industry sectors are specified). Due to technical restraints, it has been necessary to introduce more aggregated classifications than shown in the existing accounting system of national accounts.

## 6. COMPUTERIZED SET-UP

### 6.1. The use of EDP

The work on national accounts of the type we have today started by the Central Bureau of Statistics in 1946. During the first few years the entire national accounts were processed manually and a considerable share of the data was only available in the form of hand-written working tables. In the mid-1950s attempts were made to use key-punches. The aim was to achieve a swift and reliable transition from primary statistics to national accounts figures, a rapid processing of the accounts and to have the detailed results presented in a form which made it possible to satisfy the demand for data.

1) Figures from final accounts, however, are normally revised in connection with main revisions which incorporate new levels from censuses every ten years or so. 2) The former series of quarterly figures went as far as 1970 and two quarters into 1971. 3) Cyclical fluctuations in Norway have been more subdued in the 1970s than in many other countries and have not created special urgent needs for quarterly national accounts.

When the Central Bureau of Statistics acquired its first electronic computer at the end of the 1950s, the possibilities were opened for operating the work on the national accounts by automation further, and a system for electronic data processing - the fundamental features of which are still in use - was then gradually developed. Continuous efforts are made to further develop and improve the EDP routines for the national accounts.

COBOL is used as the main programming language for the computerization of the main body of the national accounts. The programme for the reclassification of the central government accounts and the presentation of the factor income accounts are prepared in DATSY<sup>1)</sup>, while calculations of consumption of fixed capital are programmed in FORTRAN. The listing is effected by using the so-called NATBLES<sup>2)</sup> programmes.

## 6.2. Flow chart for the annual accounts

Thus far, the routines for the preliminary accounts and the final accounts have not differed much in principle. In the following, some of the main routines for compiling final accounts at current prices are presented.

The presentation of the detailed final national accounts on a 7-digit commodity level is a time-consuming task, especially the evaluation of the distribution of commodities. The work is usually completed in September the second year following the year of account. Final accounts are published for the first time in "Economic Survey" some two years after the end of the year of account.

The flow chart for final accounts is set forth in figure 1 above. Numbered points from 1-6 are marked in the diagram. These points sum up important stages in the calculations:

- Point 1: Computation of the supply of each commodity in producers' values excluding value added tax.
- Point 2: Computation of the uses of each commodity in purchasers' values.
- Point 3: Decomposing the uses in purchasers' values.
- Point 4: Balancing of commodities.
- Point 5: Computation of the supply of each commodity in decomposed values.
- Point 6: Balancing the ledgers.

### Supply figures (point 1)

Circle 1 in the flow chart represents the total supply of commodities in producers' values excluding the value added tax. Routines and results which precede the total supply of commodities are presented to the left of this circle. The supply side can be divided into three groups: starting from the top we have (i) imports, (ii) gross output in mining and quarrying and manufacturing and (iii) gross output in other industries and general government.

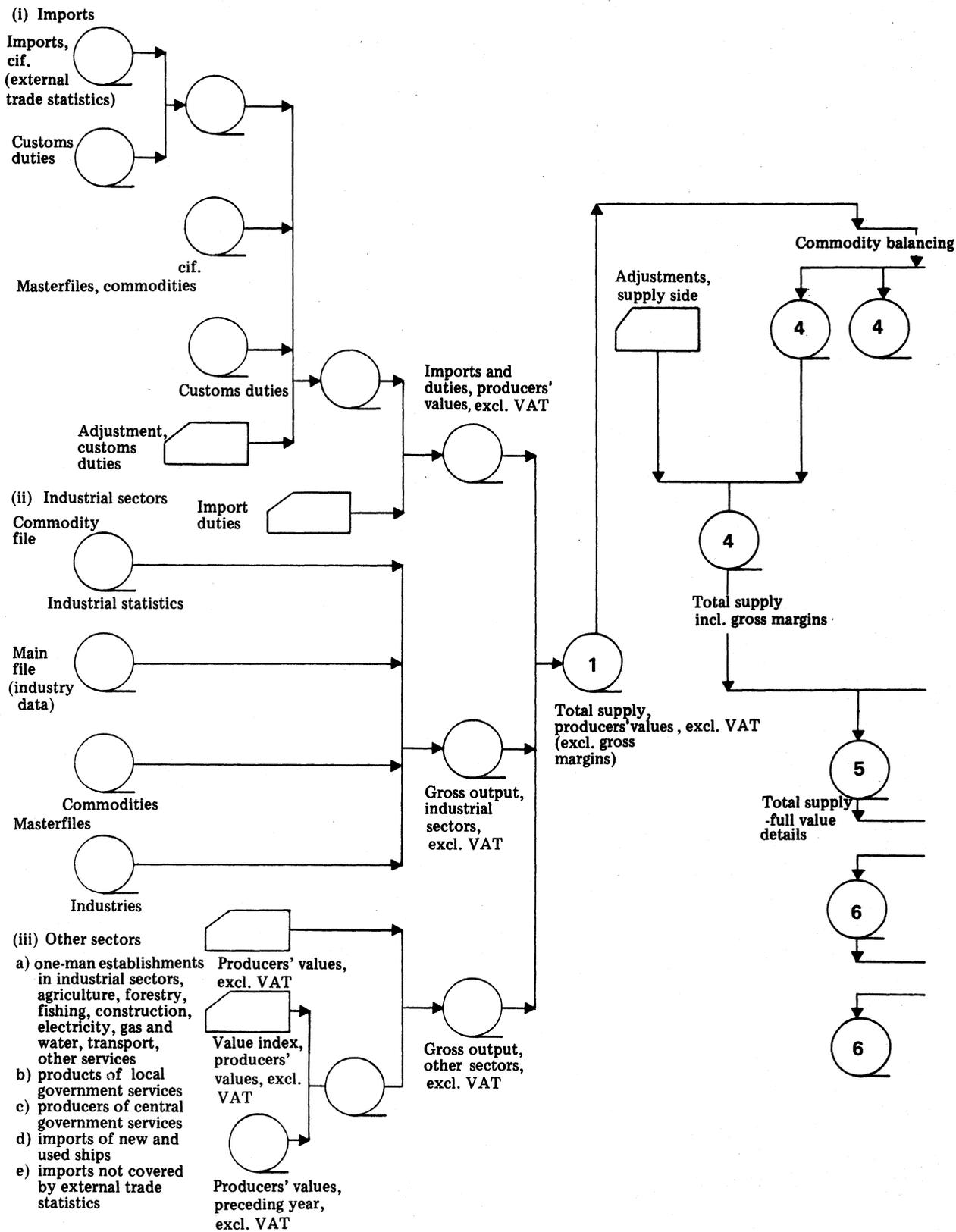
Data on imports and customs duties are available from the Central Bureau of Statistics' division for external trade statistics. Imports are measured cif and customs duties normally computed on the basis of duty rates. By means of a master file, these figures are transferred to the commodity codes of the national accounts. The figures for duties are adjusted so that the total figures agree with recorded duties from the central government accounts. Computed figures for special import duties are also entered, giving as a result figures for imports and customs duties in producers' values excluding the value added tax.

For mining and quarrying and manufacturing the national accounts division receives information on magnetic tape from the Central Bureau of Statistics' division for industrial statistics. Data on value by commodity and by industry are recoded to national accounting codes for commodities and sectors. Figures on value from industrial statistics are valued excluding the value added tax.

1) DATSY (DATA Treatment SYstem) is a user- and problem-oriented programme system which is developed by the Norwegian Computing Centre in co-operation with the Central Bureau of Statistics. DATSY is a data manipulation language developed for solving large economic models. 2) NATBLES is a programme system developed for the production of edited tables etc.

Figure 1. Flow chart, national accounts final estimates

**SUPPLY**





For production in other industries and general government, for imports not covered by external trade statistics etc., inputs are entered either as actual values or as sets of value indices which are used together with corresponding data in producers' values for the preceding year. This data mass also excludes the value added tax.

#### Figures on uses (point 2)

The calculation of figures for total uses is rather parallel to the method of arriving at total supply. To the very right of the flow chart are presented three categories of uses, i.e. exports, intermediate consumption in mining and quarrying and manufacturing, and other uses.

Data on exports are available on magnetic tape from the external trade division in the Central Bureau and are recoded for national accounting purposes.

As for gross output, data on intermediate consumption in mining and quarrying and manufacturing are available on magnetic tape from the division of industrial statistics in the Central Bureau. The figures are given in purchasers' values excluding the value added tax. These are recoded for national accounting purposes. Then the purchasers' values are computed by using a special catalogue containing information on VAT rates according to commodity and receiving sector.

For other uses inputs are entered with purchasers' values or value indices which are used along with the preceding year's purchasers' values by commodity and by sector. Other uses consist of intermediate consumption in industries other than mining and quarrying and manufacturing, intermediate consumption in central government and local government, private final consumption expenditure, gross fixed capital formation, repairs and maintenance and unspecified intermediate consumption and exports not covered by external trade statistics. Increase in stocks is not determined at this stage.

#### Decomposing the figures on uses (point 3)

Uses in purchasers' values are decomposed into producers' values and gross trade and transport margins, and within each of these further into basic values, value added tax, other commodity taxes and commodity subsidies. The conversion is handled by computer, and figures of the preceding year are used to prepare distributional keys. The distributional keys are corrected for changes in tax and subsidy rates (from the preceding year to the year of calculation).

#### Balancing of commodities (point 4)

For each commodity, total accrued value added tax is determined as VAT computed from the user side. The part of the value added tax which is computed from the producers' values is distributed for each commodity among suppliers based on market shares in producers' values excluding VAT. In this way, the total supply in producers' values can be computed for each supplier. Gross output in wholesale and retail trade distributed by commodity is determined from the gross margins on the user side.

Based on figures for supply and uses available in producers' values, increase in stocks is computed as the difference between the supply and use of each commodity. Supply, uses and increase in stocks for each commodity are checked and adjusted, a process normally requiring 2-3 man-months. Figures on stocks in annual industrial statistics and data collected from large manufacturers and wholesalers are used as support in the evaluation work concerning the changes in stocks.

#### Decomposing supply figures (point 5)

Based on the decomposed and adjusted figures on uses, decomposed values are also computed on the supply side. The allocation of total indirect taxes and subsidies for each commodity among the various production sectors and imports primarily occurs on the basis of each supplier's share of the total supply of each commodity. The basic value is determined residually. Gross output in wholesale and retail trade is also decomposed in accordance with decomposed and adjusted figures on uses.

### Balancing the ledgers

Values added are obtained as balancing items when the accounts for production (and imports, private final consumption expenditure, government final consumption expenditure, gross capital formation and exports) are balanced. The listing of the detailed figures in the sector-commodity and commodity-sector matrices is referred to as the ledgers of the national accounts. They comprise virtually the entire production, consumption expenditure and capital formation accounts (excluding the components of value added). The ledgers give gross output and intermediate consumption distributed by commodity and value added for each production sector as well as gross domestic product, private final consumption expenditure by commodity, central government consumption expenditure by purpose, local government consumption expenditure by purpose, gross fixed capital formation according to type of capital goods, increase in stocks according to commodity and imports and exports by commodity.

The ledgers for the commodity flows exist in both a detailed version ("10-17 accounts") and one version specifying commodity flows in producers' values and gross trade and transport margins. The listing is produced in two editions, the one classified according to supplier and the other by user.

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