

Economic Commission for Europe
Statistical Division

CONFERENCE OF EUROPEAN STATISTICIANS

**INVENTORY OF NATIONAL PRACTICES
IN ESTIMATING HIDDEN
AND INFORMAL ECONOMIC ACTIVITIES
FOR NATIONAL ACCOUNTS**



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Introduction

The Work Session on Statistics of the Hidden and Informal Economy, held by the United Nations Economic Commission for Europe (UN/ECE) in Geneva on 16-18 September 1991, decided to carry out an inventory of national practices in the collection and compilation of statistics on the hidden and informal economy for GNP purposes in ECE-member countries.

Accordingly, on 4 February 1992 the Director of the ECE Statistical Division wrote to the Statistical Offices in member countries requesting detailed explanations of how the hidden and informal economic activities are reflected in the countries' national accounts. The EC-member countries were asked to provide the secretariat with the relevant parts of the Eurostat inventory of sources and methods of GNP calculations relating to adjustments made for the hidden and informal economy.

The replies of the countries, received by the ECE secretariat and published in the present volume, do not relate exclusively to the hidden and informal activities. They cover a broader area of the estimates and imputations made in national accounts for those components for which existing statistical systems provide insufficient information.

Estimates of hidden and informal activities in the Austrian National Accounts

Introduction

This paper presents the methods and techniques which allow, although partially and implicitly, to take account of hidden and informal activities in compiling National Accounts for Austria. It also describes the methods of imputing those components of national accounts which are not measured directly by the statistical system. The paper provides first a general overview of the Austrian National Accounts. It then gives a detailed description of the estimation of GDP by the output, expenditure and income approaches. Attached are the methodological summary published in the United Nations National Accounts Yearbook (Appendix 1), and the note on statistical surveys of small and medium-size enterprises (SME) prepared in response to the request of EUROSTAT (Appendix 2).

General overview

1. The official annual estimates of the Austrian National Accounts (ANA) are prepared by the Austrian Central Statistical Office (ACSO). Based on the most recent ANA, the quarterly accounts and the first quick estimates are compiled and published by the Austrian Institute of Economic Research (WIFO) in close cooperation with ACSO.
2. The ANA follow the SNA definitions and standards in principle and in almost all relevant details. This is particularly so for the classifications used. National accounts tables for Austria are regularly published by national and international agencies (UN, OECD). A summary methodological description is provided in the United Nations National Accounts Yearbook; further details are available in the national publications.
3. Statistical data base in Austria is well developed as regards production statistics. A system of quinquennial benchmark surveys (economic censuses) covers the whole of the business sector. Annual census-type or sample surveys cover manufacturing, construction, utilities (electricity, gas and water), wholesale and retail trade, and some parts of the business and personal market-type services. In addition, there is a range of monthly and quarterly commodity statistics in manufacturing, monthly statistics in foreign trade, statistics from company reports, tax statistics etc. VAT statistics have a particular importance for ANA. The statistical unit addressed is establishment rather than enterprise. This explains a number of peculiarities of ANA.
4. In view of the existing statistical data base, the primary method of calculating GDP/GNP draws on activity data (GDP by output approach). A full complementary set of estimates is prepared using the expenditure approach. The income approach is also applied. However, because of the relatively poor data base on income, other than wages and salaries, it has no significant impact on the level of GDP.
5. The reconciliation of the output and expenditure estimates of GDP results in a statistical discrepancy which is reduced, to the extent possible, using the data on changes in stocks. GNP is derived from GDP by referring to the balance of net property and entrepreneurial income with the rest of the world in the balance of payments (BOP). The similar balance of wages and salaries is assumed to be zero.
6. No comprehensive statistical framework has been developed so far to quantify the hidden and informal activities in the ANA. Tentative investigations made in the past showed the relative

importance of the hidden activities in some branches of the economy. It should be noted that the existing statistical methodology in Austria covers, although implicitly and to a certain extent only, some hidden economic activities. More details of conceptual character are provided below, particularly in the section on manufacturing.

7. The present document takes into account the recommendations contained in the Eurostat Inventory Guide (document EUROSTAT/B1/CPNB/002-e) and consists of three major parts:

- A. Output estimates of GDP (origin of GDP)
- B. Expenditure estimates of GDP (final use of GDP)
- C. Income estimates of GDP (distribution of national income)

In each of the parts the description is further split into five sections:

- (1) general description of the existing problems and the applicability of the concepts of the hidden and informal economy to the area under consideration;
- (2) statistical sources; they are described to the extent necessary to understand the methodology of dealing with the current topic in various contexts;
- (3) ANA methods of estimating the hidden and informal economy activities;
- (4) expected revisions;
- (5) outlook.

Cross references are made in the text to avoid overlapping descriptions. For more information see Diagram 1 below.

Diagram 1. Presentation of information in the paper

	Present Situation			Outlook (5)
	General description (completeness, applicability) (1)	Sources (2)	Methods (3)	
Origin of GDP (output approach) 1 . m Specific questions (according to Inventory 2.2)	- Answers are standardized and combined where possible - Level of detail as suitable (i.e. more detailed if necessary for the purpose)			
Distribution of National Income (Income approach) 1 . n GNP/GDP Specific questions (according to Inventory 2.4)				
Final use of GDP (expenditure approach) 1 . 0 Specific questions (according to Inventory 2.3)				

A. OUTPUT ESTIMATE OF GDP

Agriculture and Forestry

1. The estimation of output in monetary terms has always been difficult in agriculture and forestry, if possible at all. The distinction between formal and informal/hidden economy in this branch is problematic for conceptual reasons. On the other hand, some of the physical indicators used in agricultural statistics allow to overcome omissions from the start. This is particularly relevant for agricultural area under cultivation and for crops. It is much more difficult to fully cover output in the livestock sector. It should also be pointed out that such measures of agricultural policy as favorable lump-sum or zero taxation of agricultural income and exemptions from the value added tax (VAT) create almost no incentives to hide revenues originated in this part of the economy. Of course, there are some special cases like vine-growing, for example. In the compilation of the value added of farms, explicit provisions for the elements of the informal economy are made only for the farmers' own-account production (production for own use). This is also done for own-account production of fruits and vegetables by non-agricultural households.

2. No explicit estimates are made for the informal production of crops and vegetables. Rough estimates are made for own use of animal products (milk, eggs and meat) and for farm sales outside the market. The MZ¹ occasionally includes additional questions about certain types of own-account production of private households (fruits, vegetables, etc.).

3. The estimates are based on physical indicators. Standardized market prices of agricultural products, of milk and grain in particular, are used for valuing output. Average prices collected for agricultural price statistics are used otherwise. Producer prices are used to value the farmers' own-account production. Own-account production of the non-farm households is valued at consumer prices. The two components are not identified separately in the case of the farms.

4. The estimates are subject to the general periodic revision.

5. Collection of the original price information may become important in the future because of the forthcoming abolition of the market regulation system. Additional, so far possibly omitted, elements of value added are sometimes suggested to be accounted for to reflect sales through informal channels, like "selling on the street", farmers' markets, "green" production, serving young wine on own premises.

Mining (not relevant)

Manufacturing

1. This is a broad area where hidden activities must be taken into account with respect to both formal producers (registered enterprises) and households engaged in the non-registered production. In the first case, the sale "off-the-records" (OR) is a typical example. In the second it is "moonlighting" (ML). The OR activities involve the use of labour not registered by the social security system (SSS). It should be pointed out that (1) both OR and ML can be expected only in certain branches and with respect to certain products, the nature of which usually suggests

¹ Micro census representing a quantity sample survey with a standard and an additional varying sets of questions.

collusion of suppliers and final consumers; and (2) big enterprises are usually not involved in the hidden activities.

Informal activities may take place in private households. In view of the negligible importance of these activities, no account has been made for them so far in the ANA, despite the strict SNA rules in his respect. It should be noted that the argument is valid for own-account production and not for ML.

The availability of comprehensive and regular manufacturing statistics allows to compile this sector's accounts on the basis of the information on output by type of activity in monetary terms, such as sales values. There is no need to use indirect methods, like valuing physical indicators, or any other substitute (for example, information from the users) to compile accounts for the manufacturing sector. "Tests of omissions" represent one way of ensuring completeness. They are conducted together with the quinquennial economic census-type surveys and are based on a combination of the VAT and employment statistics obtained from the SSS. The tests yield adjustment coefficients used to gross up underestimated census levels of employment. Adjustments are made to all segments covered by the business register (this is further discussed below). The hidden economy activities which are neither captured by the VAT nor by the employment statistics are not accounted for.

2. Main general sources of data include:

- yearly census-type surveys of large-scale manufacturing addressing the units with more than 20 employees;
- yearly sample surveys of small-scale units; the sample frame is maintained within the general business register regularly updated on the basis of the information provided by the Chamber of Commerce;
- monthly/quarterly detailed commodity output statistics are used to make estimates for recent years by extrapolation before the census/sample data become available.

None of these sources addresses the hidden or informal activities directly. There is no other available source of statistical information which could provide data on the hidden and informal activities in manufacturing.

3. No estimates are made to take account of the hidden and informal activities in the total output in manufacturing.

4.

5. Adjustments for own-account production and for motor vehicle repairs by ML are envisaged for the next revision of output in manufacturing. The latter will be done on the basis of information provided by drivers organizations. An estimate of this type was introduced for the first time in the 1983 Input-Output Table.

Utilities (not relevant)

Construction

1. A first distinction regarding the hidden and informal activities in this sector is made between the civil engineering, on one hand, and building construction, maintenance and repairs, on the other. The civil engineering is left out because of the big size of the owners, firms and projects involved. The discussion below refers to building construction only.

It is also useful to make a distinction between general and special trade contractors, between building construction and repairs and maintenance, and between large and small projects.

No hidden or informal activities are assumed for big projects of general contractors. As for small projects, like construction of family houses, the owners themselves frequently do a lot of building work in an informal way, without their work being recorded in any statistical report. It is also very common that help is provided by friends and neighbours or by professional workers on the ML basis. The existence of building permits which describe physical characteristics of the projects allows to value these activities. They account for about 13 per cent of the total net output in construction of one- or two-family houses. Only those components which contribute to the stock -- that is, new buildings and major repairs -- are imputed and included in the output. Current maintenance, including indoor repairs, carried out on own account of the owners are included in FHCE (material component). It should be pointed out that the coverage of repairs and maintenance work in statistics is much poorer. The situation is even worse as regards delimitation of this type of output from the final consumption expenditure (in the case of "do-it-yourself" work, for example). Therefore, it is hard to produce reliable estimates of such output which then could be included in GDP.

Own-account construction in agriculture is another important element of imputation.

2. The following statistical sources are used:
 - (a) Output statistics:
 - yearly census-type surveys of building construction;
 - monthly building activity statistics (sample survey);
 - the survey mentioned in the section on manufacturing, which covers small-scale units and which is also used for specialized trade contractors.
 - (b) Statistics on house construction:
 - statistics on building construction permits and buildings completed (physical data);
 - statistics on total costs of buildings completed.
 - (c) Additional sources of information, such as production of building materials and sales of structures, components and tools are used to make specific estimates and checks (for example, regarding repairs).
 - (d) Housing census (decennial).
 - (e) Household surveys.
3. The estimates of the hidden and informal activities are based on the data derived from the house construction statistics (2(b) above). The estimates yield quite good results but refer only to new projects and major repairs for which permits are required. Other maintenance and repair activities carried out by private households on their own account, including small landowners, are poorly covered by regular statistics and seem to be underestimated (see also 5 below).
4. Minor revisions are made periodically. More important adjustments usually become necessary after the decennial housing censuses (2(d)) to reconcile discrepancies.
5. Detailed commodity flows calculations made for the 1983 Input-Output Table showed that the traditional estimates of the informal own-account output, based on data on consumption of

certain building materials often used for gardens, garages, etc., may be undervalued. Respective adjustments in the current accounts are envisaged for the next large revision. It is also expected to impute current own-account repairs (materials plus work) and include them in the construction output. The method of calculating construction output and related production is explained in Diagram 2.

Diagram 2. Construction and related production

1. Gross output of the construction industries (ISIC 5), registered production
2. minus: non-characteristic output of the construction industries
- 3.(1-2) Construction industries' construction output proper
4. Construction output of the non-construction industries
5. Labour input by households in residential construction activities, including moonlighting production (new buildings and major repairs only)
6. Labour input by farmers in agricultural building construction activity (new buildings and major repairs only)
7. Construction material provided directly by the investor (private consumption expenditure on materials for indoor repairs excluded)
8. Production of the non-construction industries, usually used for construction and civil engineering work (for example, output of architects)
- 9.(3+4+5+6+7+8) Total construction and related civil engineering production
10. minus: current expenditure on repair and maintenance of buildings and other civil engineering work (intermediate consumption of producers, private consumption expenditure on registered construction production)
- 11.(9-10) Construction investment including major repairs

Wholesale and retail trade

1. It is considered that the importance of the hidden and informal activities in the wholesale trade is negligible. This is definitely not so in the retail trade, particularly when small businesses are involved and when private households purchase (OR sales). As in manufacturing, the statistical system addresses respective business units to collect turnover statistics and the possibility to grasp hidden activities is very limited. Therefore, no adjustments are made in the accounts to reflect OR sales. The coverage of the hidden activities in the retail trade sector could be better, if household expenditure surveys were taken regularly.

2. The main sources are:

- monthly statistics on turnover and goods received (sample survey);
- additional yearly data on stocks, employment, etc.;

- VAT statistics (annual).

Household expenditure surveys, carried out every ten years, yield unsatisfactory results as regards control totals. There are no specific sources of statistical information on the hidden and informal activities in this sector.

3. The census-type surveys provide benchmark estimates which are then extrapolated using the current turnover statistics.
4. Usual general revisions.
5. Although non-registered output may exist in certain branches of the sector, no actions to reflect in the sector's accounts are foreseen for the time being.

Hotels, restaurants, cafeteria and travel agencies (HORECA TA)

1. This sector is of particular importance in a tourist country like Austria. Several groups of units may be distinguished with respect to their possible involvement in the hidden activities:
 - (a) large hotel units;
 - (b) units operating under formal arrangements precluding hidden activities (for example canteens);
 - (c) small-scale units mainly engaged in tourism;
 - (d) small-scale units mainly providing services to the local population;
 - (e) private room letting;
 - (f) tourism agencies/operators.

Items (a), (b) and (f) may be left out from the consideration. On the contrary, the presence of hidden activities is obvious in items (c), (d) and (e). However, the present statistical system does not provide data on the basis of which estimates could be made in a comprehensive and explicit way to take account of the hidden activities in these fields. Tips should be mentioned separately. According to SNA, they should be fully reflected in the accounts. In Austria only their legally acknowledged lump sum -- that is, 10 per cent of the turnover -- is covered.

2. VAT statistics represent the only available source of direct statistical information about the sector. Short-term rough estimates are also made on the basis of such indicators as beer production and tourist overnight stays. Important checking totals are: receipts on the travel account in the balance of payments, employment figures and overnight stays in tourism statistics, price index information derived from the CPI, and certain tax receipts (for example, beverage and alcohol taxes). Benchmark census-type data about the sector become available quinquennially.

Statistics on tourist overnight stays in comparable accommodations are used to estimate the number of private rooms let.

3. The methodology used reflects the unsystematic data base described above. This explains why estimates obtained by arbitrary "fine tuning" procedures are very approximative and do not represent reliable statistical information. For the time being, no explicit and valid estimates can be made for the hidden activities in this field.
4. Revisions of the accounts take place from time to time, but because of the peculiarities

of the methodology and data sources, they do not address the hidden activities directly.

5. It is expected to introduce explicit adjustments for the hidden activities as regards:
 - the number of nights spent in small-scale units and private accommodations;
 - turnover components not fully covered;
 - more complete coverage of tips.

Such adjustments will have to be based on a very sensitive statistical information obtained mainly by means of various household surveys. A comprehensive synoptic review of all possible sources of this type would be needed in the first place. Because of the possible quantitative importance of the adjustments, they could be made only within benchmark year revisions.

Real estate and dwellings

1. Apart from subletting, there are probably no other major hidden activities in this sector. No estimates are presently made for subletting. It should be noted that subletting is ambiguously treated in SNA.

Usual difficulties are encountered in valuing own-account dwellings (imputed rent), in distinguishing current maintenance from major repairs, and in identifying FHCE on durables for housing purposes. This, however, should not be confused with the hidden or informal activities.

2. Main statistical sources include:
 - the decennial housing census;
 - current statistics on housing construction (addressing the investors);
 - current microcensus information on rents paid by private households.

Additional information on composition of gross rents, and particularly on current maintenance and operation, is drawn from large home owners statistics (for example, in Vienna). On the whole, the data base seems to be relatively good.

- 3-4. See above.

5. There is no intention to change the present methodology.

Transport and communication

1. The hidden and informal activities can a priori be assumed as non-existing in the air and railway transport. On the contrary, they may well exist in other areas like transport by road, taxi, and supporting service activities to transport.

As regards trucks operations (freight transport by road), the present methodology does cover some hidden activities, although roughly and not explicitly. No estimates are made for other branches of the sector.

2. Main sources (the branches not prone to the hidden activities are excluded):
 - quinquennial censuses (benchmark data);
 - current transport statistics (in physical terms);
 - number of registered motor vehicles;

- VAT statistics;
- consumption of diesel oil;
- information provided by large companies.

3. Short-term extrapolation is based on the freight-ton-km information which, in turn, draws on stock of trucks data and on consumption of diesel oil. The valuation is made with reference to railway tariffs. The most important extrapolating component is turnover according to VAT statistics. Official transport statistics is notoriously incomplete. Generally, the method used to estimate the hidden activities in this sector is synthetic, flexible and somewhat arbitrary.

4. Usual periodic revisions.

5. No specific changes are presently envisaged.

Financial services (not relevant)

Business services

1-5. Since these activities usually suggest transactions between businesses rather than between businesses and private individuals or households, no hidden activities are assumed to be present. Turnover statistics is considered to be sufficient as the primary source. It should be noted that some of business service activities are exempted from the economic statistics surveys (for example, free lance professions), but they are covered by VAT statistics.

Personal market services

1. The involvement of individuals and private households suggests that this sector's transactions are particularly prone to hidden activities. Good examples are services provided by barber and beauty shops or physicians and dentists. OR sales may be expected in any transactions except the cases when payments are made by intermediary actors, like insurance companies or social security institutions. ML activities may also occur in certain branches, although on a lesser scale. The present statistical basis is too weak to make explicit estimates of the hidden activities possible, but this may change in the future. Short-term indicators estimated before VAT statistics become available are often particularly poor.

2. Main sources include:

- quinquennial (benchmark) census-type surveys;
- yearly sample surveys in certain branches (for example, yearly sample surveys of small-scale units in manufacturing);
- VAT statistics;
- branch-specific information, like social security expenditure;
- employment statistics;
- CPI subindexes;
- income tax and some other statistics (see business services above).

3. No corrections reflecting hidden activities in this sector have been attempted in the accounts so far. It is also unlikely that the present statistical system captures the hidden activities implicitly.

4. Revisions are quite frequent and significant because of the weakness of the estimates prepared before VAT statistics appear.

5. Personal services represent one of the sectors where methodological changes and corrections should be introduced in the future. Time budget surveys in combination with household expenditure surveys are seen as potentially good sources of information on the hidden and informal activities in this sector.

Private non-profit services (other than domestic services)

1. Traditionally only a few segments of this sector have been taken into account, namely:
- religious services;
 - political parties and trade unions;
 - various associations.

Other activities of this sector are totally omitted from statistics. Even for the segments covered, the data base is unsatisfactory. The population census data (people employed in this sector) represent the only official statistics which can be referred to.

Non-profit activities in such fields as health, social care and education are covered, for the lack of their proper identification, by statistics of their respective market counterparts. No coverage of private informal activities carried out outside the institutional framework is intended.

2. The sources of data are:
- population censuses;
 - closed accounts of various organization.
3. The following estimating technique is usually used. Figures from different statistical reports, which are considered reliable and related to different fields of the sector, are grossed up by means of appropriate indicators.
4. Almost no revisions are made because of the lack of control figures.
5. No specific actions are envisaged. However, it is considered that establishing official statistics directly addressing these activities would be highly desirable.

Domestic services

1-5. Only those units are taken into account which figure as such in the SSS (employees). The valuation is made using the rates paid in Vienna.

Government services (not relevant)

Below is a summary of imputations made in estimating GDP by the output approach.

Explicit imputations are made for:

Agriculture:

- own-account production of farm households and certain farm sales outside the market;

- own-account production of food and vegetables by non-farm households;

Construction:

- own-account construction;
- own-account major repairs;

Housing:

- imputed rents of owner-occupied dwellings.

Implicit imputations are made for:

Agriculture:

- crops estimated on the basis of area under cultivation;

Transport:

- the use of diesel oil consumption figures as control totals.

B. EXPENDITURE ESTIMATE OF GDP

I. Private Consumption Expenditure (PCE)

The PCE is regularly calculated for about 300 expenditure categories (commodity groups). The commodity-flow method is used as a standard approach. The main data sources include:

- commodity statistics (production, foreign trade);
- turnover statistics (VAT, retail trade);
- energy statistics (electricity, gas, steam heating, solid and liquid fuels);
- tourism statistics;
- passenger transport statistics;
- motor vehicle statistics (new registrations, stocks);
- housing and rents statistics;
- consumer price statistics and some other.

Regular references are also made to the decennial household expenditure surveys.

Household production for own final consumption, like cooking, cleaning, and the labour component of "do-it-yourself" work is not taken into account. The non-registered marketed production of households (sales of services "off-the-records", "moonlighting" and illegal production), not reflected in the commodity flows, is not covered either.

Special remarks

Own-account production. If part of the output is consumed by the producing household, it is included in production and in PCE. For the purposes of consistency, the valuations on the supply and on the demand side are made in producers' prices. Special estimates are made to account for the farmers' production of fruits, vegetables, potatoes, milk, eggs, meat, oils and fats, alcoholic beverages and some other products for own use. The main source of data is the household expenditure survey, which provides information on the quantities consumed from own production including production of fruits and vegetables in private gardens. The extrapolated benchmark year data (number of persons in the farmers' households, per-capita quantity consumption index) are valued at producers' prices (including VAT).

Imputed rents. The housing census and quarterly microcensuses provide a number of useful figures, like number of dwellings, number of rooms per dwelling, size of the communities

where the dwellings are located, construction period, facilities, square metres of usable surface, gross rents and current operation costs for rented dwellings.

The stratification criteria used to impute gross rents for owner-occupied dwellings take into account: facilities (5 categories), age of the houses (6 categories) and the number of rooms per dwelling (5 categories). In each group the average gross rent (including VAT) per square metre is applied to the total surface of the corresponding owner-occupied dwellings. No gross rents are presently imputed for weekend houses and vacant dwellings.

Domestic services. The compensation of employed domestic staff is taken into account only for persons registered in the social security system files. It is to note that the household expenditure surveys have shown substantially higher expenditures on domestic services.

Indoor repairs. Household expenditure surveys constitute the main data source to estimate expenditures on indoor repairs including the use of materials and services. Therefore, an element of "moonlighting" in production of repair services is included in PCE, but not in GDP. This inconsistency will be removed in the next revision.

Car repairs. Apart from the household expenditure surveys, the Austrian Touring club estimates of the current operation costs for about 400 types of cars are used as the main source to value car repair services for the PCE purposes. No distinction is made between the official (registered) production and "moonlighting". Thus, the hidden component is partly covered in PCE but not in GDP.

Tips. Tips for services, for example in restaurants, are not included in the output of the respective branches and therefore are excluded from household expenditure.

II. Gross fixed capital formation (GFCF)

GFCF and its main components (transport equipment, electrical and non-electrical equipment, construction) are estimated yearly by the commodity-flow method at purchase values including investment for own use estimated at producer costs. The main data sources include:

- commodity output statistics;
- census-type surveys (yearly, quinquennial, and special surveys of GFCF);
- closed accounts of government services;
- housing censuses and statistics on total construction costs of buildings completed.

As described in A (construction industry), an important part of unregistered production in construction is explicitly included in gross output and value added of the construction industry and also in GFCF (residential and agricultural buildings). These estimates cover the labor input (own-account production and 'moonlighting') in the construction of new residential and agricultural buildings and in major repairs.

III. Changes in stocks

Changes in stocks are estimated for divisions 0-7 of ISIC, Rev.2. No estimates are made for ISIC 8 and 9. The main sources are: yearly census-type surveys of large-scale enterprises in ISIC 1-5 and quinquennial census-type surveys for ISIC 6 and 7. Additional sources include sample surveys in wholesale and retail trade where the opening and closing stocks of purchased

goods for resale are surveyed once a year, and also the balance sheet accounts of big enterprises in the transport sector. Regarding small-scale enterprises in ISIC 2-5, the missing stock information is estimated on the basis of the corresponding branch-specific key figures collected for the observed production units (stocks/output ratios).

IV. External trade

The balance of payments and foreign trade statistics constitute the main sources of data for estimating external transactions. To reconcile foreign trade statistics with the corresponding balance of payments data, the changes in trade credits/debts are taken into account. Special surveys are conducted for this purpose. Direct outflow and inflow of valuta spent by tourists without being officially registered as foreign exchange represent a special case of unregistered transactions in the field of international tourism. For example, an Austrian tourist pays in Hungary in Austrian shillings which are later spent by Hungarian tourists abroad. The tourism balance becomes undervalued. Estimates based on the information exchanged between some national central banks are therefore made. A special statistical model is also used to correct national accounts figures for this type of undervaluation.

C. INCOME ESTIMATE OF GDP

Compensation of employees

1. The existence of the "hidden" compensation of employees can be assumed in certain economic activities. These activities are carried out mainly by households in the form of non-registered production, also called "moonlighting" (see manufacturing in section A). The borderline between the inclusion and non-inclusion of these activities in national accounts depends on the legal regulations with respect to the income tax and compulsory social insurance contributions. For instance, such income components as fringe benefits and tips should be included if they are part of the income taxed. Employed persons have to be insured by the social security system, if their income exceeds a certain lower limit which is at present about 2.800 AS a month. Income of those workers who earn below this level does not enter into the official statistics. A possibility of splitting up the total salary into the official component (for tax and insurance) and a "black supplement" can also be mentioned in this respect.

2. Main sources:

- closed accounts of federal, state and local governments;
- closed accounts of social insurance funds.

3. All employers, except the federal, state and local governments, have to contribute to the equalization fund used for family allowances. The contributions are fixed at 4.5 per cent of the total payroll. The total sum of these contributions is used to calculate the main part of the item "gross wages and salaries". The remaining part of "gross wages and salaries" is calculated using the figures of the closed accounts of those government units which do not pay the contributions.

In addition to "gross wages and salaries", the employers' social insurance contributions (actual and imputed) and contributions to private pension schemes are also taken into account to arrive at "compensation of employees". Figures for social security contributions are taken from closed accounts of the social insurance funds and other governmental bodies (in case of the

closed accounts of the social insurance funds and other governmental bodies (in case of the unfunded pension scheme). Contributions to private pension schemes are estimated.

4. Revisions are usually necessary only for the "reference year minus 1". They involve replacing preliminary data by the figures which become available from the closed accounts.

5. No specific changes are envisaged.

Gross operating surplus

1-5. Gross operating surplus, being a residual item on the production account, would include any imputation for the hidden economy activities introduced into national accounts by the output approach estimates (see the general overview section; note the lack of enterprise statistics).

Taxes linked to production and to imports less corresponding subsidies

1. The possibility of tax evasion cannot be neglected. However, no adjustment is made to take this into account.

2-3. Both the data for taxes and subsidies are taken in a 1:1 proportion from the closed accounts of government units.

4. Usual revisions of preliminary estimates and their replacement by the closed accounts figures.

5. No specific changes are envisaged.

Transition from GDP to GNP

1-5. The balance of payments serves as the main source here. However, the balance of payments statistics reflect only the flows of property and entrepreneurial income to and from the rest of the world. Because similar information is not available for "compensation of employees", the external transactions on this item are assumed to be counterbalancing, and consequently, their impact on the GDP-GNP derivation is zero.

Additional National Accounts information

1. The ANA provide data which allow not only the calculation of the aggregates used to estimate GDP by the income approach, but which may also be helpful for calculating the distribution of national income. Two particularly interesting sets of data should be mentioned in this respect:

- data on property and entrepreneurial income by sector (corporations, government, households) and by type of income (interest, dividends, rents, etc.);
- data in the income and outlay account of private households.

The respective calculations are based on various official statistics and do not take into account any "hidden" component, like non-reported interest income, for example. Compared with the basic "output approach" the residual character of the "income approach" is reflected in item "income from industry and trade" which includes the "uncovered" part and the statistical discrepancy.

Appendix 1. Methodological summary from the United Nations National Accounts Yearbook

Austria

General note. The preparation of annual national accounts statistics in Austria is undertaken by the Austrian Central Statistical Office, Vienna. The official estimates are published annually in 'Oesterreichs Volkseinkommen', (Austrian Central Statistical Office, Beiträge zur Oesterreichischen Statistik). The concepts, definitions, sources of basic statistics and methods of estimation are described in the 1964-1977 and 1970-1980 issue of the above mentioned publication. The estimates are generally in accordance with the classifications and definitions recommended in the United Nations System of National Accounts (SNA). Input-output tables have been published for the years 1961, 1964 and 1976. The following tables have been prepared from successive replies to the United Nations national accounts questionnaire. When the scope and coverage of the estimates differ for conceptual or statistical reasons from the definitions and classifications recommended in SNA, a footnote is indicated to the relevant tables.

Sources and methods :

(a) **Gross domestic product.** Gross domestic product is estimated mainly through the production approach.

(b) **Expenditure on the gross domestic product.** The estimates of government final consumption expenditure are derived from production accounts compiled on the basis of the accounting records of the various authorities. The values of private expenditure on goods are mostly obtained by means of the commodity flow method, either by multiplying the quantity data by average consumer prices or by adding distributive margins and turnover tax and indirect taxes to the value of goods produced domestically or imported. The sources of data include statistics on agricultural produce, industrial output data by commodities, data on energy and foreign trade by commodities, motor vehicle registration statistics, closed accounts for public transportation enterprises, communication, insurance and others. For price data the consumer price index is largely referred to. In addition, decennial household surveys provide bench-mark information on average prices. Own account consumption is valued at producers' prices, for use of owner occupied dwellings the corresponding market rents are imputed. For private expenditure on services, the estimates are mostly based on value added tax statistics. The data on increase in stocks are based on regular stock surveys covering almost all branches, those that are not covered are included in statistical discrepancy. For gross fixed capital formation in machinery and electrical equipment, the value of domestic production plus imports minus exports is adjusted to include transport costs, trade margins, customs duties, etc. The estimates of transport equipment are based on registration statistics and are obtained by multiplying the quantity by the current prices. For construction, the gross value is derived from data on characteristic gross output, with additions for material supplied, non-characteristic construction (including own account-construction, e.g. residential buildings). The estimates of exports and imports of goods and services are based on foreign trade statistics and the balance of payments. Constant price estimates of government final consumption expenditure are based on deflation for intermediate consumption and non-commodity sales. Compensation of employees is in certain activities also deflated, for others quantum indicators are used. For private consumption expenditure, direct revaluation at base-year prices is used where information is available on quantities of commodities consumed. Otherwise, the current estimates are deflated by appropriate price indexes. This same method is used for increase in stocks, exports and imports of goods and services and for gross fixed capital formation.

(c) **Cost-structure of the gross domestic product.** Estimates of compensation of employees are based on contributions paid by employers to government funds and wage statistics. Direct information is available on compensation of government employees. Operating surplus is basically derived as a residual item. Further

breakdown is based on income tax statistics for unincorporated enterprises, independent professions and property. Corporate balance sheets and tax statistics are used for undistributed profits of corporations; for agriculture and forestry income is derived from the production account. In the case of the public sector, data are obtained from the accounting records of public bodies. Depreciation estimates of stocks are obtained either by using the perpetual inventory concept or, in some instances, are extrapolated by net output at constant prices and inflated by national accounts' price index for fixed capital formation. Indirect taxes and subsidies are obtained directly from the records of the various governments.

(d) **Gross domestic product by kind of economic activity.** The table of GDP by kind of economic activity is prepared at market prices, i.e. producers' values. The production approach is used to estimate value added of nearly all industries. The income approach is used to estimate value added of public administration and defense. The value added of agriculture is obtained by deducting the cost of all non-factor inputs from the gross value of production, which include an imputation for produce consumed on the farms. The calculations are based on production statistics for quantities, and on agricultural price surveys. Mining and quarrying, electricity, gas and water as well as large-scale manufacturing are surveyed by annual over-all censuses while small-scale manufacturing is surveyed annually by samples. Bench-mark estimates have been prepared for 1964, 1971, 1976 and 1983. When necessary extrapolation is based on output statistics, sample survey and turnover statistics. For construction, census type data on gross output and input have been available annually since 1968, own account construction is imputed for housing and agriculture. The estimates of turnover in retail and wholesale trade are based on the 1964, 1976 and 1983 census of non-agricultural establishments, the 1971 census of turnover and, since 1973, an annual sample survey. Estimates of restaurants and hotels are based on the 1964 industrial census and on a special survey in 1972, and 1976 and 1983 Censuses. For the intermediate years, value added tax and turnover tax statistics as well as other suitable indicators (private accommodation) are used. For railways and air transportation and communication, value added is derived from the accounts of concerned enterprises. For the other activities of the transport sector, bench-mark data have been provided by the 1964, 1976 and 1983 industrial censuses, extrapolated by various indicators. From 1973 onward, value added tax statistics provide the output indicators for most transportation other than large enterprises mentioned before. For the financial institutions, value added is derived from accounting records for banking, and other financial institutions from statistics of the supervisory board for insurance. Data on real estate are obtained from decennial housing censuses and micro-census data on housing and rents. In the case of owner-occupied dwellings, rents paid for comparable dwellings are applied. The value added of government services is estimated by adding the cost items obtained from accounting records. The estimates of other services are based on annual turnover statistics, value added tax statistics and various net to gross ratios obtained from the 1964 and 1976 census of non-agricultural establishments. The value of domestic and health services is calculated by means of VAT, social security and wage statistics. For the constant price estimates, double deflation is used, but not invariably, for agriculture, electricity, gas and water, construction, transportation and ownership of dwellings. In manufacturing, a combination of double deflation and fixed net ratios is applied. The turnover of wholesale and retail trade is deflated by appropriate price indexes. For the producers of government services, partly quantum indicators, partly suitable price (wage) indexes are used. For most of the remaining activities, value added is mostly calculated by deflation.

1.1 Expenditure on the Gross Domestic Product, in Current Prices

Thousand Million Austrian schillings

	1970	1975	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1 Government final consumption expenditure	55 22	113 05	165 96	178 70	195 24	214 30	226 89	237 76	255 00	270 65	280 44	289 07
2 Private final consumption expenditure	206 29	368 26	511 72	552 53	596 50	640 19	694 84	733 18	775 53	803 17	835 09	874 78
3 Gross capital formation	111 69	170 59	244 76	282 89	278 18	260 23	283 74	303 90	315 57	328 50	354 89	402 16
A Increase in stocks ^a	14 51	-4 33	12 82	27 43	10 24	-2 65	-5 81	20 98	11 16	5 32	14 10	33 04
B Gross fixed capital formation ^b	97 18	174 92	231 94	255 46	267 94	262 88	269 55	282 92	304 41	323 18	340 79	369 12
Residential buildings	18 58	35 88	47 05	52 56	58 27	60 84	61 58	62 34	62 49	65 01	68 84	76 52
Non-residential buildings	34 90	63 62	78 85	82 42	83 75	79 18	83 41	86 26	90 85	97 71	106 67	114 52
Other construction and land improvement etc	43 70	62 85	92 79	106 00	110 55	107 35	107 98	116 07	131 81	140 06	144 42	155 36
4 Exports of goods and services ^c	116 75	209 02	327 69	366 24	404 51	431 24	449 69	497 64	549 13	522 97	527 18	566 76
5 Less imports of goods and services ^c	113 07	204 81	331 59	385 66	418 47	412 44	433 93	495 71	546 81	509 80	519 83	582 14
Statistical discrepancy	-	-	-	-	0 01	0 01	-	-	-	0 01	-	0 01
Equals: Gross Domestic Product	375 88	656 11	918 54	994 70	1055 97	1133 53	1201 23	1276 77	1346 42	1415 50	1477 77	1570 64

a) Item 'Increase in stocks' includes breeding stock, draught animals and a statistical discrepancy.
 b) Item 'Gross fixed capital formation' includes value added tax on investments of investors not entitled to deduct invoiced value added tax. This component is not included in the sub-items. For years 1973-1975, 1977 and 1978 of the current prices table, special investment tax is included.

These estimates are shown separately as Statistical discrepancy in tables 2.7, 2.8, 2.9, 2.10 and 2.11.
 c) The estimates on transit trade are on a net basis.

Appendix 2. Statistical surveys of small and medium-size enterprises

1. The system of small- and medium-size enterprise (SME) statistics in Austria cannot be described separately from the general framework of the activity statistics because most of the existing data collection instruments do not address SME separately. Branches are determined in terms of activity rather than size. However, some of the existing data collection instruments are not exhaustive as regards the coverage of the branches or their delimitation. This is due to the fact that they are based on institutional characteristics (membership in certain organizational sections of the Chamber of Commerce and Trade). In practice the use of such institutional criteria has proved quite efficient with respect to the comprehensiveness and updating. It is, therefore, an important advantage of SME statistics also.

2. Establishment has always been the unit of observation in Austrian economic statistics. In fact, there is a 1:1 correspondence between establishment and enterprise in most cases. This has two consequences for SME statistics:

- the enterprise level is a second derivative of the data primary surveyed. The establishment data are synthesized on the basis of the information collected on the links within enterprises;

- the activity pattern derived for the establishment level may not fully coincide with that obtained for the enterprise level.

3. Another peculiarity of the Austrian statistical system is its differentiation regarding the frequency of the surveys, branches and the size of the economic units surveyed:

- yearly census-type surveys are carried out only for the industrial sector, which includes mining and manufacturing establishments (generally, but not exclusively, with more than 20 employees) and also establishments of the same size in construction, engineering (excluding special trade contractors which are covered by the handicraft and selected services surveys), and electricity branches. Therefore, in this sector small enterprises (with less than 20 employees) would generally not be covered. On the contrary, the majority of big enterprises (with 20-499 employees) will be surveyed;

- yearly sample surveys with similar characteristics are taken on that part of the above-mentioned branches that remains uncovered by the yearly census because of the size criterium or for some other reasons (for example, because of the application of specific institutional criteria for building and engineering or because some selected services have been historically treated as non-industrial manufacturing by the Chamber of Commerce).

In the wholesale and retail trade sector the yearly surveys yield incomplete data, although useful for calculating margins and updating the sample frame for monthly turnover statistics.

All other branches are statistically observed on a quinquennial basis only by means of a census-type survey. It is clear that a complete picture of the whole business economy is thus obtained every five years only.

As in many of these branches the SMEs are particularly important, their complete, reliable and detailed statistical picture becomes available only at five-year intervals. The gaps between benchmark years may be bridged by using various indicators, and particularly the VAT statistics, as it is done in national accounts. It should be stressed, however, that such techniques are rarely available for the SME segment proper.

4. Further details are provided in the table below.

Overview of the Austrian system
of statistics by type of activity

UN (ISIC Rev.2)

1.....

National Classification

1.....

A n n u a l	Census- type surveys	Mining and Manufacturing - Industry Section - Handicraft Section Electricity Construction - Industry Section	
	Sample surveys	Construction - Small-scale Handicraft and Selected services	
monthly		Wholesale and retail trade	
Q u i n q u e n n i a l	Census type	Wholesale and retail trade HORECATA Transport Financial Services Business and Personal Services	

Pratiques nationales en matière d'économie souterraine dans la comptabilité nationale de la Belgique

Introduction

Ce document contient les extraits de l'inventaire Eurostat au sujet du traitement de l'économie souterraine dans les comptes nationaux belges. Par "économie souterraine" on entend **l'économie au noir** (entreprises clandestines et activités dissimulées) et **les activités illégales**.

En Belgique le calcul du P.N.B. s'effectue en recourant aux trois approches: production, répartition et affectation. Les mesures du PNB-production et du PNB-dépenses ne prévoient pas d'ajustements pour fraude et évasion fiscales à l'exception de quelques activités de services mineures. Les méthodes de calcul donnent donc lieu à des résultats qui comprennent implicitement une partie du travail au noir. En revanche, la mesure du PNB-répartition comporte d'importants ajustements explicites affectant la rémunération des salariés, le revenu des travailleurs indépendants et les bénéfices réservés des entreprises.

Partie de l'inventaire: Rémunérations du secteur privé et des entreprises publiques

Domestiques et gens de maison (Estimation: Comptes nationaux). Pour l'emploi domestique en Belgique, il existe trois catégories de personnes: (1) le personnel soumis à la sécurité sociale parce qu'il ne remplit pas les conditions d'exemption; (2) le personnel non assujéti à la sécurité sociale sauf pour la branche des accidents de travail; (3) le personnel non déclaré.

Le point de départ du calcul des rémunérations des domestiques et gens de maison est l'estimation du nombre total de l'emploi domestique. Pour estimer ce chiffre, on admet que la moitié de l'augmentation en % du nombre des polices d'assurance pour les accidents de travail fournit un indicateur de l'évolution du nombre total de l'emploi domestique. On applique cette méthode en partant d'une estimation de l'emploi total qui a été établie pour l'année 1948.¹ Voici les calculs pour l'estimation 1988:

Emploi domestique estimé en 1948:	277.420
Nombre de polices d'assurance 1948:	104.343
1988:	180.233
Indice (1948 = 100):	173
Indice retenu:	137
Estimation 1988:	380.065

Les nombres des catégories 1 et 2 étant connus, il est possible compte tenu de l'estimation du nombre total de déduire le nombre estimé de la catégorie 3. Jusqu'en 1976, on possédait les renseignements de la sécurité sociale sur les deux premières catégories, à savoir: les rémunérations brutes; les cotisations patronales; les primes d'assurance pour les accidents de travail. A partir de 1977, les mêmes renseignements existent toujours pour la catégorie 1 soumise à l'O.N.S.S. (l'Office nationale de la sécurité sociale) tandis que pour la catégorie 2, seules les primes d'assurance sont encore connues.

¹ Pour l'estimation de 1948 voir I.N.S. Compt. Nat., Méthode de calcul, Etudes statistiques et économétriques No.4, pp.25 et 26.

Pour la troisième catégorie, l'estimation est basée sur une méthode d'évolution $l_q \times l_p$ (l'estimation de base étant le nombre \times la rémunération moyenne): l_q - calculé sur l'estimation du nombre; l_p - indice des prix à la consommation, rubrique personnel domestique. On a pu revoir pour cette catégorie l'estimation de la rémunération moyenne en 1970 à partir d'une enquête socio-économique.

Jusqu'en 1976, les rémunérations des catégories 1 et 2 étaient estimées à partir des renseignements de la sécurité sociale. A partir de 1977, en raison du défaut d'information, l'estimation des rémunérations de la catégorie 2 repose également sur une méthode d'évolution $l_q \times l_p$, en prenant comme chiffre de base les derniers chiffres disponibles de la sécurité sociale.

Pour des raisons de commodité, les estimations des rémunérations des catégories 2 et 3 sont calculés à partir de l'année de base du calcul à des prix constants en appliquant: les l_q calculés sur les nombres pour obtenir les valeurs à des prix constants; l' l_p de la rémunération du personnel domestique pour obtenir les estimations à des prix courants. Les rémunérations de la catégorie 1 sont estimées à partir des renseignements comptables de l'O.N.S.S.

Le total des rémunérations des trois catégories, y compris les primes d'assurance pour les accidents de travail, constituent: la valeur ajoutée des services domestiques (chiffre de la rubrique 8, G - tableaux origine du P.N.B.); et la consommation privée des services domestiques (chiffre de la rubrique 8, A de la consommation privée). Le chiffre de rémunérations pour les services domestiques est moins élevé parce que l'on déduit du chiffre total les rémunérations brutes et les charges patronales du personnel domestique assujetti à l'O.N.S.S. (ces chiffres sont déjà compris dans les chiffres de l'O.N.S.S.) et les primes d'assurance pour les accidents de travail (ces chiffres sont inclus dans la rubrique 3, C de la masse salariale).

Travailleurs frontaliers (Estimation: Comptes nationaux). Des résidents de l'économie belge vont travailler dans les quatre pays voisins. A partir de 1970, on a revu les estimations et créé de nouvelles séries. Cependant celles-ci n'ont pas été utilisées pour leurs valeurs absolues mais appliquées en évolution aux estimations obtenues en 1970.

Revenus de prisonniers. Chiffres fournis par l'administration pénitentiaire.

Compléments du double pécule de vacances des ouvriers, des marins et des mineurs (Estimation: Comptes nationaux). Pour les ouvriers, les marins et les mineurs, le complément du double pécule de vacances est attribué en fonction d'un coefficient légal appliqué au montant du pécule ordinaire de vacances. Les tableaux de la branche vacances annuelles de la sécurité sociale fournissent le chiffre total des péculs ordinaires versés aux ouvriers, aux marins et aux mineurs. L'estimation consiste à appliquer le coefficient légal à ce moment. A partir du 1er janvier 1989, le complément du double pécule de vacances est intégré au pécule ordinaire. Ce chiffre est donc repris dans la valeur des rémunérations qui inclut les vacances annuelles.

Doubles péculs de vacances des employés du secteur privé et compléments du double pécule (Estimation: Comptes nationaux). Le double pécule de vacances des employés est attribué en fonction d'un coefficient légal appliqué à la rémunération brute du mois des vacances. L'estimation de la comptabilité nationale est effectuée en prenant comme base un douzième des rémunérations brutes annuelles des employés du secteur privé et en appliquant à celle-ci le coefficient légal. Au chiffre obtenu, on ajoute l'estimation du complément du double pécule qui s'obtient en appliquant un deuxième coefficient légal au montant estimé du double pécule de vacances.

Correction des rémunérations des travailleurs de la pêche maritime (Estimation: Comptes nationaux). Les rémunérations déclarées pour les travailleurs de la pêche maritime sont comprises dans le total des rémunérations O.N.S.S. et sont établies sur des bases forfaitaires. Pour tenir compte de leur sous-évaluation, on reprend comme correction 75% du montant des rémunérations déclarées. Ce coefficient provient d'une étude de la Commission du revenu national.

Correction des rémunérations des travailleurs rémunérés au pourboire ou au service (Estimation: Comptes nationaux). Les rémunérations de ces travailleurs sont également calculées sur des bases forfaitaires. Le coefficient de correction est de 100% et provient également de l'étude de la Commission du revenu national.

Correction pour les rémunérations de l'agriculture (Estimation: Comptes nationaux). Rémunérations brutes de l'agriculture: estimation établie par l'Institut économique agricole. Rémunérations brutes déclarées du secteur agricole: source O.N.S.S. La différence est l'estimation.

Rémunérations complémentaires des marins. Source: Sécurité sociale. Ces chiffres reprennent les compléments de rémunération des marins relatifs aux avantages en nature et aux heures supplémentaires.

Rémunérations des travailleurs des organismes centraux de la Sécurité sociale. Source: Sécurité sociale. Les chiffres recueillis sont les rémunérations pour l'ensemble du personnel des organismes centraux de la sécurité sociale. Pour estimer la part des travailleurs temporaires qui vient en déduction à la rubrique 4, J, on ventile les rémunérations totales au prorata de l'emploi (estimation: Comptes nationaux).

Correction générale (Estimation: Comptes nationaux). L'estimation de la correction générale repose sur une méthode d'évolution. La base de l'estimation remonte à l'année 1953. Le point de départ du calcul est une enquête effectuée à partir de la production industrielle. Celle-ci a permis de déterminer pour l'année 1953 que les éléments de revenu exclus de la base d'imposition représentaient environ 4% des rémunérations brutes déclarées de l'industrie. On a alors considéré que les rémunérations non déclarées (travail au noir) pourraient être estimées à 1% du même montant. La base de l'estimation de la correction générale est, en consolidant les deux estimations et en généralisant les résultats obtenus à l'ensemble de l'économie belge: 5% des rémunérations brutes déclarées, soit 5.073 millions pour l'année 1953.

L'estimation pour les années suivantes est obtenue par une méthode d'évolution par application d'un indice de valeur. Celui-ci est la moyenne arithmétique de deux indices, l'un calculé à partir des rémunérations brutes déclarées à l'O.N.S.S. et au F.N.R.O.M., l'autre à partir des bénéfices des sociétés par actions (série des comptes nationaux). L'estimation de la base multipliée par l'indice de valeur n'est pas l'estimation retenue parce que l'on essaie de tenir compte également du changement de l'importance relative des rémunérations non déclarées, dû à la conjoncture et aux modifications structurelles de l'économie. A cet effet, on multiplie l'indice de valeur par un coefficient variable dont les valeurs sont généralement inférieures à l'unité.

Lorsque les valeurs des coefficients restent inchangées, l'estimation des revenus non déclarés dépend de l'indice et du niveau absolu atteint par le coefficient. Lorsque les valeurs du coefficient diminuent, la part des revenus non déclarés par rapport aux rémunérations brutes déclarées diminue presque toujours. Lorsque les valeurs du coefficient augmentent, c'est la relation inverse qui s'observe. Voici les résultats des calculs pour les années 1986 à 1989:

	1986	1987	1988	1989
I, rémunérations brutes déclarées (1953 = 100)	1.277,2	1.301,5	1.354,8	1.455,5
I, bénéfices des sociétés par actions (1953 = 100)	1.631,1	2.014,2	2.382,4	3.121,1
I, moyen	1.454,2	1.657,9	1.868,6	2.288,3
Coefficient	0,8	0,9	0,95	0,75
I, retenu	1.163,4	1.492,1	1.775,2	1.716,2
Estimation	59.019	75.694	90.056	87.063
En % des rémunérations brutes déclarées	4,6%	5,7%	6,6%	5,9%

On remarque que les pourcentages obtenus ne sont pas éloignés du 5% établi en 1953. Généralement, les calculs montrent que l'estimation des revenus non déclarés est plus importante en haute conjoncture qu'en basse conjoncture.

Avocats, avoués, notaires

Détermination du revenu moyen de l'entreprise

A) La statistique des revenus imposés au titre de la taxe professionnelle (= statistique fiscale) a fourni les données suivantes au sujet des revenus de l'année 1957:

Avocats et avoués	
- Statistique des personnes	
- Nombre	2.563
- Revenu imposé	406.537.200 FB
- Revenu imposé moyen	158.618 FB
- Statistique des ménages (déclarations)	
- Nombre	2.488
- Revenu imposé	416.547.600 FB
- Revenu imposé moyen	167.423 FB

Notaires	
- Statistique des personnes	
- Nombre	1.176
- Revenu imposé	505.544.200 FB
- Revenu imposé moyen	432.426 FB
- Statistique des ménages (déclarations)	
- Nombre	1.183
- Revenu imposé	511.559.850 FB
- Revenu imposé moyen	432.426 FB

La statistique des revenus imposés au titre de la taxe professionnelle (= statistique fiscale) a fourni les données suivantes sur les revenus de l'année 1959:

Avocats et avoués	
Statistique des personnes - Revenu imposé moyen	161.900 FB
Notaires	
Statistique des personnes - Revenu imposé moyen	463.800 FB

Les revenus imposés moyens par déclaration pour 1959 ont alors été estimés en appliquant également l'évolution, de 1957 à 1959, des revenus imposés moyens des personnes aux revenus imposés moyens par déclaration pour 1957. Ainsi, les revenus imposés moyens par déclaration pour 1959 ont été estimés de la façon suivante: $167.423 \times 161.900 / 148.618 = 170.900$ FB pour les avocats et avoués imposables, et $423.426 \times 463.800 / 429.885 = 466.600$ FB pour les notaires.

Pour les années postérieures à 1959, les revenus imposables moyens par déclaration ont été estimés en appliquant au revenu imposable moyen de l'année précédente un indice censé traduire l'évolution du revenu imposable moyen. Ces indices ont été calculés à partir d'échantillons prélevés dans la statistique fiscale, les revenus imposables totaux d'un même groupe de personnes étant comparés entre eux sur deux années successives. Pour toutes les années postérieures à 1959, cette méthode à indices a été appliquée pour déterminer les revenus imposables moyens.

En procédant ainsi, on a pu déterminer pour chaque année le revenu imposé moyen par déclaration pour les avocats et avoués, d'une part, et pour les notaires, de l'autre. Le revenu dont il est question dans le calcul du revenu national, c'est-à-dire le revenu de l'entreprise, devait alors être déterminé en ajoutant à ce revenu imposable moyen:

- la taxe professionnelle acquittée au cours de l'année précédente;
- les montants versés aux caisses de compensation des allocations familiales;
- les pertes d'exploitation subies durant les deux exercices précédents.

En l'absence de données sur l'ampleur des pertes d'exploitation, on a supposé que celles-ci étaient pratiquement nulles pour les professions libérales, de sorte que ce poste n'a pas été pris en considération. La taxe professionnelle acquittée au cours de l'année précédente a été estimée séparément. Les montants versés au titre des allocations familiales ont également fait l'objet d'une estimation distincte, du moins jusqu'en 1967 inclusivement.

En ajoutant au revenu imposable moyen les trois (en pratique les deux) postes mentionnés ci-dessus, on obtenait en principe le revenu moyen de l'entreprise. Le calcul était donc essentiellement fondé sur la statistique fiscale. On s'est néanmoins demandé dans quelle mesure cette statistique s'approchait de la réalité. En effet, un certain nombre de facteurs pouvaient donner lieu à une sous-estimation fiscale du revenu de l'entreprise. Le rapport de la Commission du revenu national renvoyait, à cet égard, au commentaire accompagnant l'examen du revenu de l'entreprise des commerçants et artisans indépendants. Pour cette catégorie d'indépendants, le rapport énumérait des facteurs suivants pouvant engendrer une sous-estimation du revenu de l'entreprise:

- l'utilisation de bien prélevés sur l'entreprise;
- l'utilisation de voitures pour le ménage et l'entreprise;
- la déduction d'indemnités pour les aides familiaux;
- le souci de l'administration fiscale d'assurer une perception aussi souple que possible des impôts, ce qui oblige le fisc à tenir compte, dans une certaine mesure, de la psychologie du

contribuable, et ce d'autant plus qu'en raison de l'absence généralisée de toute comptabilité, il était très difficile de déterminer exactement les bénéficiaires.

Compte tenu de ces éléments, le rapport de la Commission du revenu national a appliqué, sur les revenus de l'entreprise calculés, une majoration pour sous-estimation fiscale de 43% pour les avocats et avoués imposables, et de 17% pour les notaires. Ces pourcentages n'ont plus été modifiés depuis.

B) Pour les années postérieures à 1959, le revenu de l'entreprise des avocats, avoués et notaires imposables a été déterminé comme suit:

$$\begin{aligned} & (1 + \text{pourcentage de sous-estimation} / 100) \\ \times & \\ & \text{Revenu imposable moyen} \\ + & \text{impôt acquitté sur le revenu de l'année précédente} \\ + & \text{cotisation actuelle au titre des allocations familiales} \end{aligned}$$

Cette méthode a été utilisée pour déterminer les revenus moyens de l'entreprise jusqu'en 1962 inclusivement.

Les revenus imposés moyens des avocats et avoués imposables, d'une part, et des notaires de l'autre, s'élevaient pour 1959, comme il a été dit plus haut, à respectivement 170.900 et 466.000 FB. Les indices d'évolution par rapport à l'année précédente, obtenus à l'aide des sondages fiscaux, étaient pour 1960, 1961 et 1962, respectivement les suivants: 100, 106 et 105 pour les avocats et les avoués, 109, 103 et 102 pour les notaires. En conséquence, les revenus imposés moyens des années 1960, 1961 et 1962 ont été estimés, pour les avocats et les avoués, à 170.900 FB pour 1960, à 181.200 FB pour 1961 et à 190.300 pour 1962; pour les notaires, les estimations correspondantes étaient de 508.600 FB pour 1960, de 523.9000 FB pour 1961 et de 534.400 FB pour 1962.

On pouvait déduire du revenu de l'entreprise de 1962 la taxe professionnelle payée sur le revenu de 1961. Les revenus de l'entreprise de 1961, nous l'avons vu plus haut, avaient été estimés à 181.200 FB et 523.900 FB. Pour calculer les impôts sur ces montants, on a utilisé le barème fiscal applicable au contribuable ayant une personne à charge. Selon ce barème, un revenu de 150.000 FB donnait lieu, en 1961, à un impôt de 26.126 FB. Pour cette même année, un revenu de 500.000 FB était grevé d'un impôt de 127.500 FB. L'impôt dû sur un revenu de 181.200 FB a alors été calculé comme suit: $26.125 \text{ FB} + \text{l'impôt sur } 181.200 - 150.000 = 31.200 \text{ FB}$. Sur la base, cette fois encore, du barème fiscale applicable, cet impôt a été estimé à $0,2613 \times 31.200 = 8.153 \text{ FB}$, de sorte que l'impôt total dû sur 181.200 FB était égal à $26.125 + 8.153 = 34.178 \text{ FB}$.

Pour un revenu moyen de 523.900 FB, le calcul de l'impôt a été effectué comme suit: $127.500 \text{ FB} + \text{l'impôt sur } 523.900 - 500.000 = 23.900 \text{ FB}$. Sur la base du barème fiscal applicable, cet impôt a été estimé à $0,325 \times 23.900 = 7.768 \text{ FB}$, de sorte que l'impôt total dû sur 523.900 FB était égal à $127.500 + 7.768 = 135.268 \text{ FB}$.

Pour 1962, les revenus imposables moyens + la taxe professionnelle déductible des revenus de 1961 s'élevaient donc à $190.300 + 34.728 = 224.578$ pour les avocats et avoués imposables, et à $523.400 + 135.268 = 669.688 \text{ BF}$ pour les notaires.

A partir de 1963, suite à l'entrée en vigueur d'une réforme fiscale, la taxe professionnelle n'est plus déductible. Il s'ensuit qu'à compter de cette même année, la taxe professionnelle était

déjà englobée dans le revenu imposé repris dans la statistique fiscale, de sorte que cette taxe ne devait plus être ajoutée séparément pour dériver du revenu imposé le revenu de l'entreprise. L'indice d'évolution de 1963 par rapport à 1962, calculé à partir d'échantillons prélevés dans la statistique fiscale et adapté à la réforme mise en oeuvre, a été dès lors appliqué au revenu imposé moyen obtenu ainsi qu'il a été dit ci-dessus, majoré de la taxe professionnelle acquittée pour 1962.

Pour 1963, les indices d'évolution étaient les suivants: 106 pour les avocats et les avoués, 105 pour les notaires. Ces indices ont été appliqués aux montants de 224.578 et 669.668 pour arriver aux revenus imposés moyens suivants pour 1963: 238.050 FB pour les avocats et les avoués, et 703.150 FB pour les notaires. Ces revenus imposés moyens de 1963 ont ensuite servi de base pour l'estimation, par le biais d'indices d'évolution, des revenus imposés moyens pour 1964 et pour les années suivantes. Aux revenus imposés ainsi obtenus, il fallait encore toujours ajouter les cotisations au titre des allocations familiales et de la sous-estimation fiscale afin d'obtenir le revenu moyen de l'entreprise des deux catégories examinées ici.

Ainsi qu'il a été dit plus haut, les cotisations au titre des allocations familiales étaient toujours estimées séparément. A partir de 1968 est entré en vigueur un statut social des indépendants. On dispose, à compter de cette même année, par le biais de l'Office nationale de la sécurité sociale des indépendants, des cotisations sociales moyennes annuelles effectivement versées par les indépendants. Il s'agit toutefois de la cotisation moyenne de tous les indépendants, et donc pas uniquement de celles des avocats, avoués et notaires. En dépit de cette imperfection, le montant communiqué par l'INASTI a été utilisé pour le calcul des revenus moyens de l'entreprise des avocats, avoués et notaires.

La méthode de calcul utilisée, à partir de 1963, pour déterminer le revenu moyen de l'entreprise des avocats, avoués et notaire peut donc être résumée comme suit:

$$\begin{array}{r} \text{Revenu moyen de l'entreprise} = 1,43 \text{ x ou } 1,17 \\ \times \\ \text{Revenu imposé moyen} \\ + \\ \text{Cotisations sociales annuelles moyennes effectivement versées} \end{array}$$

le revenu imposé moyen étant obtenu en appliquant des indices d'évolution par rapport à l'année précédente. Pour ces calculs, on part des revenus imposés moyens pour 1963, estimés à 238.050 et 703.150 FB. Les indices d'évolution sont obtenus en comparant le total des revenus contenus dans l'échantillon pour un même groupe d'avocats et d'avoués et pour un même groupe de notaires sur deux années consécutives.

C) Le revenu moyen de l'entreprise réalisé à titre d'activité principale par les commerçants et artisans indépendants non imposables a été estimé, dans le rapport de la Commission du revenu national, à 42.000 FB pour 1948, soit le minimum vital estimatif pour un ménage avec deux enfants.

Pour 1948, le revenu moyen de l'entreprise des avocats et avoués non imposables a été assimilé à celui des commerçants et artisans indépendants décrits ci-dessus. Son montant -de 42.000 FB - a été utilisé comme point de départ pour l'estimation des revenus moyens de l'entreprise pour les années postérieures à 1948. On a en effet laissé évoluer le revenu moyen des non-imposables de la même façon que le revenu moyen des avocats et avoués non imposables, majoré de la sous-estimation fiscale.

Pour 1948, ce revenu moyen, tel que calculé dans le rapport de la Commission, était de

153.282 FB. Mais dans la pratique, cette méthode fondée sur l'évolution des revenus n'utilisait pas toujours 1948 comme année de départ, celle-ci étant régulièrement modifiée afin d'éviter d'avoir à renvoyer à une année se situant dans un passé trop lointain. Actuellement, la méthode "évolutive" est appliquée par référence à 1970, année pour laquelle le revenu moyen de l'entreprise obtenu était de 624.209 FB pour les avocats et les avoués imposables, et de 170.100 FB pour les avocats et avoués non imposables. Etant donné que, pour le calcul, l'année de référence était régulièrement modifiée, et qu'en outre, les revenus moyens de l'entreprise obtenus pour les non-imposables étaient toujours arrondis à la centaine, le résultat utilisé dans la pratique pour 1970 n'est pas exactement pareil à $42.000 \times 624.209 / 153.282 = 171.036$ FB. Cet écart s'explique donc en réalité par les effets de l'arrondissement des montants.

Autres professions libérales

Contenu. Dans les comptes nationaux de la Belgique, le Produit intérieur est réalisé par les branches d'activité appartenant aux trois grands secteurs suivants: Entreprises, Administrations publiques et Particuliers (en tant qu'employeurs de Domestiques et gens de maison). La valeur ajoutée nette au coût des facteurs des branches d'activité se compose des rémunérations octroyées aux moyens de production utilisés par les branches d'activité. Ces rémunérations consistent notamment en Salaires, Intérêts et Loyers. La valeur ajoutée nette au coût des facteurs, réalisée par les administrations publiques et les particuliers, se définit directement par le biais des revenus de facteur mentionnés ci-dessus. Les branches d'activité relevant du secteur Entreprises engendrent encore un revenu de facteur supplémentaire, à savoir le Revenu de l'entreprise, c'est-à-dire celui qui reste après que les autres charges - salaires, intérêts et loyers - ont été déduites de la valeur ajoutée nette au coût des facteurs.

Le Revenu de l'entreprise, réalisé par les branches d'activité appartenant au secteur des Entreprises, peut en outre être considéré selon la nature des entreprises qui engendrent ce revenu. Le Revenu de l'entreprise résultant de l'activité indépendante correspond au revenu des entreprises n'ayant pas le statut juridique de société. Relèvent de cette catégorie les indépendants et les associations de fait composées des membres de la famille ou d'autres aidants. Le Revenu de l'entreprise des indépendants dont il est question ici comprend la rétribution du travail de l'entrepreneur et des membres non salariés de son ménage ou du groupe de personnes travaillant en commun, ainsi que la rémunération du capital d'exploitation propre investi dans l'entreprise. Etant donné qu'il est pratiquement impossible de faire, pour les entreprises évoquées ici, la distinction entre le revenu du ménage ou du groupe d'aides et le revenu de l'entreprise, il a été décidé de considérer la totalité du Revenu de l'Entreprise comme échéant à des particuliers.

Dans les comptes nationaux de la Belgique, le revenu de l'entreprise réalisé par les branches d'activité Agriculture et Sylviculture est enregistré sous une rubrique distincte. Les "autres" revenus de l'activité indépendante sont encore subdivisés en deux catégories, selon qu'il s'agit du Revenu de l'entreprise réalisé par les Commerçants et Artisans indépendants, d'une part, et par les Professions libérales, de l'autre. Dans les comptes nationaux de la Belgique, les Professions libérales sont encore subdivisées en: Médecins et dentistes; Pharmaciens; Avocats, avoués et notaires; Autres professions libérales. Le présent rapport concerne le Revenu de l'entreprise tiré de leur activité indépendante par les Autres professions libérales.

Le Revenu de l'entreprise examiné ici a été étudié pour la première fois par la Commission du revenu national dans un rapport publié en décembre 1955 et intitulé "Le Revenu national belge de 1948 à 1954". Parmi les hypothèses et/ou les résultats avancés dans ce Rapport de Commission, certains sont encore utilisés dans la méthode de calcul actuelle, de sorte que le Rapport peut être considéré comme une importante source de données de base. Lorsque certains

éléments de ce Rapport sont encore utilisés aujourd'hui, le présent rapport se bornera à en commenter le calcul dans ses grandes lignes. Pour plus de détails, on pourra le cas échéant consulter le Rapport de la Commission mentionné plus haut.

Sources:

- Rapport de la Commission du revenu national, publié en décembre 1955, sous le titre: "Revenu national belge de 1948 à 1954";
- Statistique des revenus imposés au titre de la taxe professionnelle (statistique fiscale) relative aux revenus de l'année 1957;
- Statistique fiscale, Exercice 1976 (revenus de 1975): Nombre de déclarations faites par les professions libérales autres que les avocats, notaires, médecins et dentistes;
- Statistique fiscale des exercices 1976 et suivants: Nombre de personnes classées dans la catégorie "Autres professions libérales" selon les codes de profession attribués par le fisc aux déclarations individuelles;
- Communications de l'Institut national d'assurances sociales pour travailleurs indépendants (INASTI) concernant la cotisation annuelle moyenne effectivement versée au titre de la sécurité sociale des indépendants (à partir de 1968);
- Indices d'évolution faisant apparaître l'évolution du revenu moyen imposé des "Autres professions libérales" par rapport à l'année précédente, et ce à partir de l'évolution de 1958 par rapport à 1957.

Mode de calcul. Le Revenu de l'entreprise des "Autres professions libérales" est calculé en multipliant le nombre de personnes exerçant les "Autres professions libérales" par le revenu moyen de l'entreprise de ces catégories de professions libérales. Il convient donc de déterminer: (a) le nombre de personnes exerçant les "Autres professions libérales"; et (b) le revenu moyen de l'entreprise par personne.

Dénombrement. La statistique des revenus imposés au titre de la taxe professionnelle (= statistique fiscale) contenait la rubrique "Autres professions libérales". Pour cette rubrique, la statistique fiscale donnait le nombre de déclarations imposées et le montant total des revenus imposés, ce qui a permis de déterminer un revenu imposé moyen. Cette rubrique "Autres professions libérales" contenait également les Avoués, qui sont repris dans les Comptes nationaux de la Belgique avec les Avocats et les Notaires. Après exclusion des Avoués, on a pu déterminer le nombre de déclarations imposées, le total des revenus imposés et les revenus imposés moyens des "Autres professions libérales, à l'exclusion des avoués". Sur la base de la Statistique fiscale de l'exercice 1958 (revenus 1957) on a pu ainsi établir que pour 1957, le nombre de déclarations imposées était de 22.830.

Ce même nombre, arrondi à 22.800, a également été maintenu pour les années 1958 à 1965 inclusivement. Sur la base de la Statistique fiscale de l'exercice 1970 (revenus de 1969), on a pu établir à 21.175 le nombre des déclarations imposées pour les "Autres professions libérales", tandis que la statistique selon les personnes (au contraire de la statistique selon les déclarations) a fourni pour 1969 un nombre de 25.898. Pour 1967, on ne disposait que de la statistique des personnes qui, pour cette même année, donnait un nombre de 26.676. Le nombre de déclarations imposées a été estimé, pour 1967, à $21.175 \times 26.676 / 25.898 = 21.810$. Le nombre de déclarations imposées a été estimé, pour 1966 et 1968, par interpolation entre 1965 et 1967 (résultat: 22.300), et entre 1967 et 1969 (résultat: 21.490). Le nombre pour 1969 - 21.175 - a été maintenu également pour 1970. Les Statistiques fiscales des exercices 1972, 1974 et 1976 ont donné, comme nombre de déclarations imposées, respectivement 20.500, 20.092 et 23.088. Ces nombres ont donc été utilisés pour les années 1971, 1973 et 1975. Pour 1972 et 1974, les nombres ont de nouveau été dérivés par interpolation entre les deux années les plus proches, ce

qui a donné pour 1972 et 1974 les nombres de 20.300 et 21.590 (Dans la pratique, on a utilisé pour 1974 le nombre de 21.950, probablement suite à une faute de copie). Pour 1975, on a donc opté pour 23.088 déclarations imposées. Le fisc attribue aux revenus de l'activité indépendante indiqués dans les déclarations, pour chaque personne mentionnée dans celle-ci, un code-profession fourni par une nomenclature des professions et activités élaborée sur la base de la NACE. Le fisc n'utilise pas effectivement toutes les rubriques figurant dans la nomenclature. Les professions non codées sont regroupées sous un code 000, tandis que les cas inconnus sont réunis sous un code 999. Ces codes-profession permettent de répartir les déclarations, par personne et selon les professions effectivement codées, en un certain nombre de grands groupes, parmi lesquels se retrouvent les Professions libérales. Lorsque la statistique fiscale d'un exercice déterminé est clôturée, on dispose donc du nombre de personnes classées dans la catégorie des Professions libérales. On connaît également le nombre d'avocats, notaires, médecins et dentistes compris dans cette catégorie, ce qui permet de déterminer le nombre de personnes qui sont classées dans la catégorie "Autres professions libérales". Cette méthode a permis, d'établir pour 1976 (revenus de 1975), le nombre de ces personnes à 15.587. Nous avons vu que le nombre de déclarations imposées avait été arrêté, pour l'exercice 1976, à 23.088. On part alors de l'hypothèse que, pour les exercices fiscaux postérieurs à 1976, le nombre de déclarations imposées suit la même évolution que le nombre de personnes classées dans la catégorie "Autres professions libérales".

Calcul des revenus moyens de l'entreprise.

A) La statistique des revenus soumis à la taxe professionnelle (= statistique fiscale) comportait la rubrique "Autres professions libérales". Pour cette rubrique, la statistique fiscale fournissait le nombre de déclarations imposées et le montant total des revenus imposés, de sorte qu'il a été possible de calculer un revenu imposé moyen. Cette rubrique "Autres professions libérales" englobait les Avoués qui, dans les Comptes nationaux de la Belgique, sont repris avec les Avocats et les Notaires. Après exclusion des Avoués, on a pu déterminer le total des revenus imposés et les revenus imposés moyens pour les "autres professions libérales, à l'exclusion des avoués". La statistique fiscale de l'exercice 1958 (revenus de 1957) a permis d'établir ainsi, pour 1957, le revenu imposable moyen à 85.700 FB.

Pour les années postérieures à 1957, les revenus imposés étaient estimés en appliquant aux revenus imposés moyens de l'année précédente un indice censé traduire l'évolution du revenu imposé moyen. Les indices étaient calculés sur la base d'échantillons tirés de la statistique fiscale, les revenus imposables totaux d'un même groupe de personnes étant comparés entre eux sur une période de deux années consécutives. Cette méthode à base d'indices a été utilisée pour toutes les années postérieures à 1957 pour déterminer les revenus moyens imposables.

On a pu ainsi établir pour chaque année un revenu imposé moyen. Le revenu dont il est question pour le calcul du Revenu national brut, c'est-à-dire le revenu de l'entreprise, devait alors être déterminé en ajoutant à ce revenu imposable moyen:

- la taxe professionnelle acquittée au cours de l'année précédente;
- les cotisations versées aux caisses de compensation pour allocations familiales;
- les pertes d'exploitation subies au cours des deux exercices précédents.

En l'absence de données sur l'ampleur des pertes d'exploitation, on a supposé que celles-ci étaient, pour les professions libérales, pratiquement nulles, de sorte que ce poste n'a pas été pris en considération. La taxe professionnelle acquittée au cours de l'année précédente a été estimée séparément. Pour ce qui est des montants versés au titre des allocations familiales, on a également procédé à une estimation séparée, du moins jusqu'en 1967 inclusivement.

En ajoutant au revenu imposable moyen les trois (en pratique les deux) postes mentionnés ci-dessus, on obtenait en principe le revenu moyen de l'entreprise. Le calcul était donc essentiellement fondé sur la statistique fiscale. On s'est néanmoins demandé dans quelle mesure cette statistique s'approchait de la réalité. En effet, un certain nombre de facteurs pouvaient donner lieu à une sous-évaluation fiscale du revenu de l'entreprise. Le rapport de la Commission du revenu national renvoyait, à ce sujet, au commentaire formulé à l'occasion de l'examen du revenu de l'entreprise des commerçants et artisans indépendant. Pour cette catégorie d'indépendants, le Rapport de la Commission énumérait les facteurs suivants pouvant engendrer une sous-évaluation du revenu de l'entreprise:

- l'utilisation de biens prélevés sur l'entreprise;
- l'utilisation de voitures pour le ménage et l'entreprise;
- la déduction d'indemnités pour les aidants membres de la famille;
- le souci de l'administration fiscale d'assurer une perception aussi souple que possible des impôts, ce qui implique que le fisc tient compte, dans une certaine mesure, de la psychologie du contribuable, et ce d'autant plus qu'en raison de l'absence généralisée de toute comptabilité, il était très difficile de déterminer exactement les bénéfices.

Compte tenu de ces éléments, le Rapport de la Commission a appliqué, sur les revenus moyens de l'entreprise calculés, une majoration pour sous-évaluation fiscale de 50%. Ce pourcentage n'a plus été modifié depuis.

B) Pour les années postérieures à 1957, le revenu moyen de l'entreprise des "Autres professions libérales" a donc été déterminé comme suit:

(1 + pourcentage de sous-évaluation / 100)
x
Revenu imposable moyen
+ impôt acquitté sur le revenu de l'année précédente
+ cotisation annuelle au titre des allocations familiales

Cette méthode a été utilisée pour déterminer les revenus moyens jusqu'en 1963 inclusivement.

Le revenu imposé moyen des "Autres professions libérales" était, nous l'avons vu, de 85.700 FB. Les indices d'évolution, calculés sur la base des échantillons fiscaux, étaient, par rapport à l'année précédente, de 107 pour 1958, de 97 pour 1959, de 106 pour 1960, de 110 pour 1961 et de 102 pour 1962. Pour les années 1961 et 1962, les revenus imposés moyens ont donc été évalués respectivement à 103.600 et 105.700 FB.

Les taxes professionnelles acquittées sur le revenu de 1961 étaient déductibles du revenu de l'entreprise de 1962. Nous avons vu plus haut que pour 1961, le revenu de l'entreprise était de 103.600 FB. Pour calculer les impôts grevant ce montant, on a utilisé le barème fiscal applicable aux contribuables ayant une personne à charge. Sur un revenu 1961 de 103.600 FB, l'impôt dû était de 14.900 FB. Pour 1962, le revenu imposable moyen plus la taxe professionnelle déductible sur le revenu de 1961 était donc de 105.700 + 14.900 = 120.600 FB.

A partir de 1963, en raison de l'entrée en vigueur d'une réforme fiscale, la taxe professionnelle n'est plus déductible. Il s'ensuit qu'à compter de cette même année, la taxe professionnelle était déjà englobée dans le revenu imposé repris dans la statistique fiscale, de sorte que cette taxe, acquittée, ne devait plus être ajoutée séparément pour dériver du revenu imposé le revenu de l'entreprise. L'indice d'évolution de 1963 par rapport à 1962, calculé à partir d'un échantillon tiré de la statistique fiscale et adapté à la réforme mise en oeuvre, a été alors

appliqué au revenu imposé moyen obtenu majoré de la taxe professionnelle acquittée pour 1962.

Pour 1963, l'indice d'évolution était de 110. Il a été appliqué de 120.600 FB pour arriver au revenu imposé moyen suivant pour 1963: 132 700 FB. Ce revenu imposé moyen de 1963 a ensuite servi de base pour l'estimation, à l'aide d'indices d'évolution, des revenus imposés pour les années 1964 et suivantes. Aux revenus imposés ainsi obtenus, il fallait encore toujours ajouter les cotisations au titre des allocations familiales et de la sous-évaluation fiscale afin d'obtenir le revenu moyen de l'entreprise des "Autres professions libérales".

Ainsi qu'il a été dit plus haut, les cotisations payées au titre des allocations familiales étaient estimées séparément. A partir de 1968 est entré en vigueur un statut social des indépendants. On dispose, à compter de cette même année, par le biais de l'Institut national d'assurances sociales pour travailleurs indépendants, des cotisations sociales moyennes annuelles effectivement versées par les indépendants. Il s'agit toutefois de la cotisation moyenne de *tous* les indépendants, et donc pas uniquement de celles des "Autres professions libérales". En dépit de cette imperfection, le montant communiqué par l'INSATI a été utilisé pour le calcul des revenus moyens de l'entreprise des "Autres professions libérales".

La méthode de calcul utilisée, à partir de 1963, pour déterminer le revenu moyen de l'entreprise des "Autres professions libérales" peut donc, à partir de 1970, se résumer comme suit:

$$\begin{array}{r} \text{Revenu moyen de l'entreprise} = 1,50 \\ \times \\ \text{Revenu imposé moyen} \\ + \\ \text{Cotisations sociales annuelles moyennes effectivement versées} \end{array}$$

le Revenu imposé moyen étant obtenu en appliquant des indices d'évolution par rapport à l'année précédente. Pour ces calculs, on se base sur le Revenu imposé moyen de 1963, estimé à 132 700 FB. Les indices d'évolution sont obtenus en comparant le total des revenus inclus dans l'échantillon pour un même groupe d'"Autres professions libérales" sur deux années consécutives.

Partie de l'inventaire: Répartition du produit national brut de la Belgique

Commerçants et artisans indépendants

Calcul des revenus moyens de l'entreprise

A) Le rapport de la Commission indiquait la méthode utilisée pour déterminer, pour la période 1948-1954, les revenus moyens de l'entreprise pour les commerçants et artisans indépendants (**profession principale**) imposables.

Dans la rubrique "Bénéfices commerciaux et industriels" de la statistique des revenus imposés au titre de la taxe professionnelle (= statistique fiscale), on pouvait trouver les données suivantes:

- nombre de déclarations imposables;
- total des bénéfices imposés.

A l'aide de ces données, on pouvait donc déterminer, pour chaque année pour laquelle on disposait de la statistique fiscale, un revenu imposé moyen par déclaration. Le revenu dont il est question pour le calcul du revenu national, c'est-à-dire le revenu de l'entreprise, devait alors être déterminé en ajoutant à ce revenu imposable moyen:

- la taxe professionnelle payée au cours de l'année précédente;
- les cotisations versées aux caisses de compensation pour allocations familiales;
- les pertes d'exploitation subies au cours des deux exercices précédents.

En l'absence de données sur l'ampleur des pertes d'exploitation, on a supposé qu'en temps normal, celles-ci étaient faibles, de sorte que ce poste n'a pas été pris en considération. La taxe professionnelle acquittée au cours de l'année précédente a été estimée séparément. Pour ce qui est des montants versés au titre des allocations familiales, on a utilisé les cotisations annuelles moyennes effectivement payées telles qu'elles étaient communiquées par la Caisse mutuelle nationale des allocations familiales.

En ajoutant au revenu imposable moyen les trois (en pratique les deux) postes mentionnés ci-dessus, on obtenait en principe le revenu moyen de l'entreprise. Le calcul était donc essentiellement fondé sur la statistique fiscale. On s'est néanmoins demandé dans quelle mesure cette statistique s'approchait de la réalité. En effet, un certain nombre de facteurs pouvaient donner lieu à une sous-évaluation fiscale du revenu de l'entreprise.

Le rapport de la Commission du revenu national énumérait les facteurs suivants pouvant engendrer une sous-évaluation du revenu de l'entreprise:

- l'utilisation de biens prélevés sur l'entreprise;
- l'utilisation de voitures pour le ménage et l'entreprise;
- la déduction d'indemnités pour les aidants membres de la famille;
- le souci de l'administration fiscale d'assurer une perception aussi souple que possible des impôts, ce qui implique que le fisc tient compte, dans une certaine mesure, de la psychologie du contribuable, et ce d'autant plus qu'en raison de l'absence généralisée de toute comptabilité, il était très difficile de déterminer exactement les bénéficiaires.

Compte tenu de ces éléments, le rapport de la Commission a appliqué, sur les revenus moyens de l'entreprise calculés, une majoration pour sous-évaluation fiscale de 80% pour 1948, de 70% pour 1949, de 60% pour 1950 et de 50% à partir de 1951.

En pratique, la méthode décrite par le rapport de la Commission a été appliquée jusqu'en 1957, exception faite de l'année 1956. En effet, après 1955, il y a eu une certaine période au cours de laquelle les statistiques fiscales n'étaient plus dressées annuellement, mais tous les deux ans, ce qui a donc aussi été le cas pour 1957, par exemple.

Pour 1957, la rubrique "Bénéficiaires commerciaux et industriels" de la statistique des revenus imposés au titre de la taxe professionnelle a fait état de 320.223 déclarations imposées pour un bénéfice total imposé de 28.117 million de FB. Le revenu moyen imposable des commerçants et artisans indépendants (profession principale) imposables a donc été estimé, pour 1957, à $1.000.000 \times 28.117 / 320.223 = 87.800$ FB. La taxe professionnelle déductible et les cotisations au titre des allocations familiales ont été estimées, pour 1957, respectivement à 12.400 et 1.220 FB, de sorte que le revenu moyen de l'entreprise a été calculé comme étant de $87.800 + 12.400 + 1.220 = 101.420$ FB. Après majoration pour sous-évaluation fiscale, on a obtenu finalement un revenu moyen de l'entreprise de $1,5 \times 101.420 = 152.130$ FB.

Pour les années pour lesquelles on ne disposait pas de statistique fiscale, les revenus moyens imposables ont été estimés en appliquant au revenu imposable moyen de l'année précédente un indice censé traduire l'évolution du revenu imposable moyen. Ces indices ont été calculés à l'aide d'échantillons prélevés dans la statistique fiscale, le total des revenus imposables d'un même groupe de personnes étant comparés sur deux années successives. Cette méthode

fondée sur des indices a donc été utilisée pour 1956 et, en principe, pour toutes les années après 1957, pour lesquelles on ne disposait pas de statistique fiscale. En pratique, toutefois, le calcul visant à établir les revenus imposables moyens s'est fait, pour les années après 1957, exclusivement au moyen d'indices.

B) Le rapport de la Commission précisait la méthode utilisée, pour la période 1948-1954, pour calculer les revenus moyens de l'entreprise pour les commerçants et artisans indépendants (**profession accessoire**).

Dans la rubrique "Cumul des salariés et bénéficiaires" de la statistique des revenus imposés au titre de la taxe professionnelle (statistique fiscale), on pouvait trouver les données suivantes:

- nombre de déclarations imposées;
- montants totaux imposés;
- dont bénéficiaires.

A l'aide de ces données, on pouvait donc déterminer, pour chaque année pour laquelle la statistique fiscale était disponible, un bénéfice moyen par déclaration imposée. Le revenu de l'entreprise a été, ici aussi, calculé en ajoutant à ce bénéfice moyen:

- la taxe professionnelle acquittée au cours de l'année précédente;
- les cotisations versées aux caisses de compensation au titre des allocations familiales;
- les pertes d'exploitation subies au cours des deux derniers exercices.

Tout comme pour les commerçants et artisans indépendants (profession principale) imposables, il n'a pas été tenu compte des pertes d'exploitation déductibles. La taxe professionnelle payée au cours de l'année précédente a été estimée séparément. En ce qui concerne les cotisations acquittées au titre des allocations familiales par les commerçants et artisans (profession accessoire) imposables, on a pris en considération la moitié du montant versé. Enfin, on a tenu compte, ici aussi, de la sous-évaluation fiscale. Les pourcentages de sous-estimation utilisés à cette fin sont les mêmes que ceux utilisés pour les commerçants et artisans (profession principale) imposables.

Dans la pratique, la méthode décrite dans le rapport de la Commission du revenu national a été appliquée jusqu'en 1954 inclusivement. Pour la période 1955-1957, le bénéfice imposable moyen a été estimé en le laissant évoluer de la même façon que le revenu imposable moyen des commerçants et artisans indépendants (profession principale) imposable. Après 1957, le bénéfice imposé moyen a été calculé en appliquant un indice d'évolution au bénéfice imposé moyen de l'année précédente. L'indice utilisé à cet effet était le même que celui ayant servi à déterminer le revenu imposé moyen des commerçants et artisans indépendants (profession principale).

Pour 1954, la rubrique "Cumul des salaires et bénéficiaires" de la statistique des revenus grevés de la taxe professionnelle faisait état de 161.407 déclarations imposées pour un bénéfice total de 5.623,1 millions de FB. Les bénéficiaires imposés moyens des commerçants et artisans à titre accessoire imposables ont donc été estimés, pour 1954, à $1.000.000 \times 5.623,1 / 161.407 = 34.800$ FB. Les revenus imposés moyens des commerçants et artisans indépendants (profession principale) imposables ont été estimés à 82.700 FB pour 1954, à 85.100 pour 1955, à 88.500 FB pour 1956 et à 87.800 FB pour 1957. Les indices de ces revenus moyens par rapport à l'année précédente étaient donc : 103 pour 1955, 104 pour 1956 et 99 pour 1957. Les bénéficiaires imposés moyens de 1955 en multipliant 34.800 par 1,04 = 36.200 FB et ceux de 1957 en multipliant 34.800 par 0,99 = 34.452 FB. Pour 1957, la taxe professionnelle déductible a été estimée à 7.000 FB. Les cotisations au titre des allocations familiales ont été estimées pour 1957 à $1.220 / 2 = 610$ FB. Le revenu moyen de l'entreprise a donc été estimé pour 1957, à $34.452 + 7.000 + 610$

= 44.410 FB. Majoré de 50% pour sous-estimation fiscale, le revenu moyen de l'entreprise finalement obtenu était de $1,5 \times 44.410 = 66.615$ pour les commerçants et artisans indépendants (profession accessoire) imposables.

C) Pour 1957, on a obtenu les résultats suivants pour ce qui est du revenu moyen de l'entreprise des commerçants et artisans indépendants (profession principale) imposables (1) et des commerçants et artisans indépendants (profession accessoire) (2).

Montants en FB	(1)	(2)
Revenu imposé moyen	87.800	36.800
Taxe professionnelle versée	12.400	7.000
Cotisations allocations familiales	1.220	610
Total	101.420	44.410
Sous-évaluation fiscale (50%)	50.710	22.205
Revenu moyen de l'entreprise	152.130	66.615

Pour les années après 1957, les taxes professionnelles payées par les deux catégories de commerçants et artisans ont toujours été estimées séparément. La Caisse mutuelle nationale des allocations familiales communiquait toujours les cotisations annuelles moyennes effectivement versées au titre des allocations familiales. Pour les professions accessoires, on prenait toujours la moitié de ce montant. Pour les deux catégories, la sous-estimation fiscale était maintenue à 50%.

Ainsi qu'il a été dit plus haut, les revenus imposés moyens ont été estimés, pour les années après 1957, en appliquant des indices d'évolution obtenus à partir d'échantillons tirés de la statistique fiscale. Les indices calculés en vue de déterminer les revenus imposés moyens pour les années 1958 à 1962 inclusivement ont été successivement: 100,5 103 104 104 et 104. Par le biais de ces indices, on a obtenu pour les années mentionnées les revenus imposés moyens suivants:

- activité principale: 88.200 90.800 94.400 98.200 102.100;
- activité accessoire: 37.000 38.100 39.600 41.200 42.900.

Pour 1961, les revenus imposables moyens ont donc été établis à 89.200 pour les "professions principales" et à 41.200 pour les "professions accessoires". Les barèmes du calcul fiscal ont fait apparaître que l'impôt sur un revenu de 98.200 FB s'élevait à 12.753 FB pour un contribuable ayant 2 personnes à charge. Dans la pratique, il a été présumé que, dans 10% des cas, ce montant de l'impôt avait été effectivement payé. Il a été supposé en outre que, dans 10% des cas, le montant de l'impôt payé était égal à 110% du montant prévu par le barème. Enfin, il a été supposé que, dans 80% des cas, le montant de l'impôt payé était égal à 120% du montant prévu par le barème. La raison pour laquelle cette méthode de travail a été adoptée est inconnue, du fait que l'on n'a pas retrouvé d'information à ce sujet. Quoiqu'il en soit, l'impôt payé sur 98.200 FB était supposé être de: $12.753 \times ((0,1 \times 1,0) + (0,1 \times 1,1) + (0,8 \times 1,2)) = 14.900$ FB (chiffre arrondi). Dans le cas d'un contribuable ayant deux personnes à charge le barème fiscal donnait comme impôt sur $98.200 - 41.200 = 57.000$ FB un montant de $4.662 = 8.091$ FB, chiffre arrondi à 8.090 FB. Les impôts calculés payés sur les revenus de 1961 pouvaient être déduits des revenus de 1962 en vue de déterminer les revenus imposables de cette année.

On a ainsi obtenu pour 1962 les résultats suivants, exprimés en FB, pour les commerçants et artisans indépendants (profession principale) (1) imposables et pour les commerçants et artisans indépendants (profession accessoire) (2):

Montants en FB	(1)	(2)
Revenu imposé moyen	102.100	42.800
Taxe professionnelle versée	14.900	8.090
Cotisations allocations familiales	1.700	8.50
Total	118.700	51.740
Sous-évaluation fiscale (50%)	59.350	25.870
Revenu moyen de l'entreprise	178.050	77.610

A partir de 1963, en raison de l'entrée en vigueur d'une réforme fiscale, la taxe professionnelle n'est plus déductible. Il s'ensuit qu'à compter de cette même année, la taxe professionnelle était déjà englobée dans le revenu imposé repris dans la statistique fiscale, de sorte que cette taxe ne devait plus être ajoutée séparément pour dériver du revenu imposé le revenu de l'entreprise. L'indice d'évolution de 1963 par rapport à 1962, calculé à partir d'un échantillon tiré de la statistique fiscale et adapté à la réforme mise en oeuvre, a été alors appliqué au revenu imposé moyen obtenu majoré de la taxe professionnelle acquittée pour 1962.

Pour 1963, l'indice d'évolution était de 105. Il a été appliqué aux montants de 102.100 + 14.900 = 117.000 et de 42.800 + 8.090 = 50.890 pour arriver aux revenus imposés moyens suivants pour 1963: 122.900 pour les commerçants et artisans (profession principale) imposables et 53.400 pour les professions accessoires. Ces revenus imposés moyens de 1963 ont ensuite servi de base pour l'estimation, par le biais d'indices d'évolution, des revenus imposés moyens pour 1964 et pour les années suivantes. Aux revenus imposés ainsi obtenus, il fallait encore toujours ajouter les cotisations au titre des allocations familiales et de la sous-évaluation fiscale afin d'obtenir le revenu moyen de l'entreprise des deux catégories examinées ici.

Ainsi qu'il a été dit plus haut, les cotisations payées au titre des allocations familiales étaient communiquées par la Caisse mutuelle nationale des allocations familiales. A partir de 1968 est entré en vigueur un statut social des indépendants. On dispose, à compter de cette même année, par le biais de l'Institut nationale d'assurances sociales pour travailleurs indépendants, des cotisations sociales moyennes annuelles effectivement versées par les indépendants. Il s'agit toutefois de la cotisation moyenne de *tous* les indépendants, et donc pas uniquement de celles des commerçants et des artisans. En dépit de cette imperfection, le montant communiqué par l'INASTI a été utilisé pour le calcul des revenus moyens de l'entreprise des commerçants et artisans indépendants.

Le pourcentage utilisé pour le calcul de la sous-évaluation fiscale était de 50% à partir de 1951. Ce pourcentage a été maintenu jusqu'en 1964 inclusivement. Pour les années 1965 à 1969 inclusivement, on a utilisé un pourcentage de sous-évaluation de 45%, qui a été ramené à 40% à partir de 1970. Il n'a pas été possible de recueillir des informations sur les raisons de ces modifications.

La méthode de calcul utilisée, à partir de 1963, pour déterminer le revenu moyen de l'entreprise des commerçants et artisans indépendants (profession principale) imposables et celui des commerçants et artisans indépendants (profession accessoire) imposables peut donc, à partir de 1970, se résumer comme suit:

$$\begin{array}{l}
 \text{Revenu moyen de l'entreprise} = 1,4 \\
 \times \\
 \text{Revenu imposé moyen} \\
 + \\
 \text{Cotisations sociales annuelles moyennes effectivement versées}
 \end{array}$$

le revenu imposé moyen étant obtenu en appliquant des indices d'évolution par rapport à l'année précédente. Les indices d'évolution sont les mêmes pour les deux catégories d'indépendants. Pour ces calculs, on part des revenus imposés moyens pour 1963, estimés à 122.900 et 53.400 FB. Les indices d'évolution sont obtenus en comparant le total des revenus contenus dans l'échantillon pour un même groupe de commerçants et artisans indépendants sur deux années consécutives.

D) Le revenu moyen de l'entreprise réalisé à titre d'activité principale par les commerçants et artisans indépendants à titre d'activité principale non imposables a été estimé, dans le rapport de la Commission du revenu national, à 42.000 FB pour 1948, soit le minimum vital estimatif pour un ménage avec deux enfants.

Pour 1948 et 1949, le revenu moyen de l'entreprise des commerçants et artisans (profession principale) imposables s'élevait, avant majoration pour sous-évaluation fiscale, respectivement à 70.500 et 69.200 FB. L'évolution, de 1949 par rapport à 1948, de ce revenu moyen a été appliquée au revenu moyen des non-imposables en 1948 afin d'évaluer le revenu moyen de 1949, qui a ainsi été estimé à $42.000 \times 69.200 / 70.500 = 41.200$ FB.

En ce qui concerne les commerçants et artisans indépendants (profession principale) imposables, les revenus moyens de l'entreprise ont atteint en 1949 et 1950, après majoration de respectivement 70% et 60% pour sous-évaluation fiscale, les montants de 117.640 FB pour les premiers, et de 126.880 FB pour les seconds.

Si ces montants étaient calculés avec une majoration de 50% pour sous-évaluation fiscale, on obtiendrait des revenus moyens de l'entreprise respectivement 103.800 et 118.950 FB. Sur la base de la statistique fiscale, le nombre de commerçants et artisans indépendants (profession principale) a été établi à 376.096 pour 1949, et à 318.610 pour 1950. Le revenu total de l'entreprise des commerçants et artisans imposables serait donc, si l'on tient compte d'une sous-évaluation fiscale de 50%, respectivement de 39.039 et de 37.899 pour 1949 et 1950.

Le nombre de commerçants et artisans non imposables a été établi, pour 1949 et 1950, à 134.804 et 188.390. A raison d'un revenu moyen de 41.200 FB pour 1949, le revenu total des non imposables serait, pour 1949, de 5.554 millions de FB. Pour 1949, le revenu total des commerçants et artisans (profession principale) serait donc égal à $39.039 + 5.554 = 44.593$ millions de FB. D'un échantillon tiré de la statistique fiscale, on a déduit que le revenu total imposable a augmenté de 16% de 1949 à 1950, ce revenu total de 1950 a été ramené à 51.335 millions de FB. Ce montant englobait, ainsi qu'on l'a calculé ci-dessus, 37.899 millions de FB du chef des indépendants imposables. Le reste, soit 13.436 millions de FB, a été imputé aux 188.390 commerçants et artisans indépendants (profession principale) non imposables. En 1950, ceux-ci réalisaient donc un revenu moyen de l'entreprise de 71.300 millions de FB.

L'adoption de ce calcul spécial pour 1950 s'explique par le fait que le minimum a été substantiellement augmenté à partir des revenus de 1950, ce que l'on peut d'ailleurs constater en comparant le nombre d'imposables et de non-imposables pour les années 1949 et 1950. Le revenu moyen de l'entreprise obtenu pour 1950 pour les commerçants et artisans indépendants (profession principale) non imposables, c'est-à-dire 71.300 FB, a servi de base à l'évaluation des revenus moyens de l'entreprise pour les années après 1950. On a en effet laissé évoluer le revenu moyen des non-imposables de la même façon que le revenu moyen, majoré de la sous-évaluation fiscale, des commerçants et artisans (profession principale) imposables. Ainsi qu'il a été dit précédemment, ce revenu moyen était, pour 1950, de 126.880 FB. Mais dans la pratique, cette méthode fondée sur l'évolution des revenus n'utilisait pas toujours 1950 comme année de départ,

celle-ci étant régulièrement modifiée afin d'éviter d'avoir à renvoyer à une année se situant dans un passé trop lointain. Actuellement, la méthode "évolutive" est appliquée par référence à 1970, année pour laquelle le revenu moyen de l'entreprise obtenu était de 304.027 FB pour les commerçants et artisans (profession principale) non imposables. Etant donné que, pour le calcul, l'année de référence était régulièrement modifiée, et qu'en outre, les revenus moyens de l'entreprise obtenus pour les non-imposables étaient toujours arrondis à la centaine, le résultat utilisé dans la pratique pour 1970 - c'est-à-dire 168.712 FB - n'est pas exactement pareil à $71.300 \times 126.880 = 170.847$ FB. Cet écart s'explique donc en réalité par les effets de l'arrondissement des montants.

Bénéfices non distribués des sociétés par actions

Méthode de calcul

Bénéfice net corrigé des sociétés belges exerçant leur activité principale en Belgique

La Statistique du rendement de l'INS donnait le bénéfice total et les pertes totales des sociétés belges exerçant leur activité principale en Belgique jusqu'à l'année de distribution des dividendes 1977. Dans le Rapport de la Commission, les bénéfices nets des sociétés par actions belges exerçant leur activité principale en Belgique, tels qu'ils ressortaient de la Statistique du rendement, étaient ventilés selon l'année de clôture du bilan. Il s'est avéré que 75% des bénéfices nets - c'est-à-dire bénéfices moins pertes - enregistrés dans la Statistique du rendement pour 1953 provenaient de sociétés qui clôturaient leur bilan en 1952, les 25% restants provenant de sociétés qui clôturaient leur bilan en 1953. Sur la base de cette constatation, il a été décidé d'estimer les bénéfices nets réalisés au cours d'un exercice, et d'y ajouter 75% des bénéfices nets ressortant de la Statistique du rendement pour l'année suivante. Bien que cette hypothèse fût basée sur les données relatives aux années 1952-1953, cette méthode a été, par la suite, maintenue inchangée dans les Comptes nationaux de la Belgique.

Les Statistiques du rendement de l'INS ont donc permis de faire des estimations des bénéfices nets des sociétés considérées ici, et ce par exercice. Cet exercice ne coïncidait donc pas nécessairement avec l'année de la Statistique du rendement, qui correspondait à l'année au cours de laquelle les dividendes étaient distribués.

Le Rapport de la Commission faisait, à partir d'un échantillon aléatoire, une comparaison entre les bénéfices nets selon les Statistiques du rendement, d'une part, et selon les statistiques fiscales, de l'autre, et ce pour les exercices fiscaux 1951 à 1953 inclusivement. Cette comparaison faisait l'objet, dans le Rapport de la Commission, de commentaires assez étendus, et diverses explications possibles y étaient avancées concernant les différences constatées. Pour de plus amples informations à ce sujet, on consultera le Rapport de la Commission. Nous nous bornerons ici à indiquer que, à la suite de cette comparaison, il a été décidé d'apporter aux bénéfices nets par exercice, tels qu'ils ressortaient des Statistiques du rendement, une correction pour sous-évaluation fiscale. Celle-ci consistait à augmenter les bénéfices nets de 35%, après quoi on en déduisait le montant payé par les sociétés au titre de l'Impôt national de crise. Ce montant était fourni par le Ministère des finances. Cet impôt a été supprimé à compter de 1963. Pour l'exercice 1962, on a calculé, sur la base des statistiques du rendement, des bénéfices nets de 22.354 millions de FB. La multiplication de ce montant par le facteur 1,35 ayant donné un montant de 30.178 millions de FB, on a déduit de celui-ci l'impôt de crise de 1.803 millions de FB. On a obtenu ainsi les "bénéfices nets corrigés", soit 28.375 millions de FB. Lorsqu'on compare ces bénéfices nets corrigés pour 1962 avec les bénéfices nets tirés de la Statistique du rendement, on constate qu'en fait, ces derniers ont été augmentés de 27% ($28.375 / 22.354 =$

1,27). A partir de 1962, on n'a plus tenu compte de l'Impôt national de crise dans les calculs, de sorte que la correction pour sous-évaluation fiscale apportée précédemment ne pouvait plus être poursuivie de la même façon. C'est pourquoi il a été décidé de corriger les bénéfices nets par exercice pouvant être extraits des Statistiques du rendement en leur appliquant le facteur 1,27 au lieu du facteur 1,35 utilisé précédemment, et ce à partir de l'année 1963.

A partir de cette même année, on a donc calculé les bénéfices nets corrigés comme s'établissant à $1,27 \times$ bénéfices nets non corrigés, les bénéfices nets non corrigés pour l'année t étant calculés comme suit:

$$\begin{aligned} & 0,25 \times \text{Bénéfices nets Statistique du rendement année } t \\ + & 0,75 \times \text{Bénéfices nets Statistiques du rendement année } t + 1. \end{aligned}$$

Cette méthode a été utilisée jusqu'aux calculs pour l'année 1975 inclusivement. La Statistique du rendement ne reprend plus, à partir de 1973, la Société nationale de crédit à l'industrie, la Banque nationale de Belgique et la Sabena. Les bénéfices nets selon les Statistiques du rendement 1972 et 1973 ne pouvaient donc plus être simplement combinés entre eux pour déterminer les bénéfices nets non corrigés pour 1972. Toutefois, on a apporté les corrections nécessaires pour palier à cette difficulté. Ces corrections n'ayant pas eu d'incidence sur les calculs pour les années postérieures à 1972, il n'y a pas lieu de s'y arrêter plus longtemps.

A partir des calculs pour 1976, la méthode a été quelque peu modifiée. Le facteur de correction 1,27 a été appliqué aux bénéfices selon la Statistique du rendement. Les bénéfices nets par année de distribution des dividendes ont alors été déterminés en déduisant de ces bénéfices corrigés les pertes ressortant de la Statistique du rendement. Les bénéfices nets corrigés pour l'exercice t et en y ajoutant 75% des bénéfices nets pour l'année $t + 1$. Les bénéfices nets non corrigés ont alors été estimés en divisant les bénéfices nets par 1,27. Les bénéfices nets non corrigés ne sont pas utilisés pour déterminer les bénéfices non distribués des sociétés par actions, mais pour certains autres calculs des Comptes nationaux de la Belgique (en l'occurrence dans le cadre des rémunérations).

Pour les années postérieures à 1977, l'INS n'a plus dressé de Statistique du rendement. La méthode décrite plus haut n'a donc pu être utilisée que jusqu'en 1976 inclusivement pour le calcul des bénéfices nets corrigés (et non corrigés). C'est pour cette raison qu'à partir de 1978, les bénéfices nets par année de distribution des dividendes ont été estimés en appliquant chaque fois aux bénéfices nets de l'année précédente un indice d'évolution. A l'aide des estimations ainsi obtenues, on a pu poursuivre après 1976 la méthode de calcul ordinaire.

Pour quelques 700 sociétés, réparties en 8 groupes selon la constitution de leur capital, le total des bénéfices nets a été déterminé au cours de deux années consécutives. Pour chaque groupe, on a ainsi pu établir un indice d'évolution des bénéfices nets par rapport à l'année précédente. On a ensuite calculé une moyenne pondérée de ces 8 indices d'évolution, le poids de chaque groupe étant déterminé à partir de la dernière Statistique du rendement disponible. Le Service d'étude de la Kredietbank a lui-même procédé à des estimations de l'évolution des bénéfices nets. La moyenne de cette évolution telle qu'estimée par la Kredietbank et de l'évolution dérivée de l'"échantillon" d'environ 700 sociétés est alors en principe adoptée comme indice d'évolution permettant d'estimer, sur la base de la dernière Statistique du rendement disponible, les bénéfices nets des sociétés belges par actions exerçant leur activité principale en Belgique. Cette moyenne n'est cependant pas toujours adoptée comme indice d'évolution. Le Produit national brut de la Belgique est déterminé en prenant la moyenne de trois estimations en principe indépendantes, à savoir selon les optiques Origine, Répartition et Affectation. Selon

l'importance des écarts entre ces trois optiques, on décide parfois qu'il est nécessaire de réviser quelque peu à la hausse ou à la baisse les calculs d'une ou de plusieurs de ces optiques. C'est généralement le cas dans les rubriques dont les calculs peuvent être considérés comme les plus incertains. Lorsqu'il s'avère nécessaire de réviser l'optique Répartition, une des rubriques entrant en ligne de compte pour cette révision est celle des "Bénéfices non distribués des sociétés par actions". Les corrections à apporter éventuellement dans cette rubrique le sont alors généralement par le biais d'une modification des indices d'évolution des bénéfices nets. C'est ainsi qu'il arrive que l'on n'adopte pas la moyenne des deux indices d'évolution disponibles, mais un seul de ces indices. Il arrive aussi que l'on prenne un indice n'ayant pas directement trait aux deux indices disponibles, mais qui est choisi parce qu'il améliore la comparabilité des trois optiques calculées. Il n'y a donc pas de règles absolues en la matière.

Versements effectués par des sociétés belges exerçant leur activité principale en Belgique

Les versements à déduire des bénéfices nets corrigés consistent en:

- dividendes;
- tantièmes;
- gratifications imposables octroyées au personnel;
- dons aux particuliers et aux institutions sans but lucratif au service des particuliers.

Les dividendes distribués par les sociétés visées ici étaient donnés par les Statistiques du rendement jusqu'à l'année de distribution 1977. Pour les années 1978 et suivantes, les dividendes distribués sont estimés à l'aide d'indices d'évolution. Le rapport "Revenus des particuliers provenant de dividendes distribués par des sociétés par actions belges exerçant leur activité principale en Belgique" décrit la façon dont est déterminé le total des dividendes distribués. Toutefois, les dividendes visés dans ce rapport englobent également les dividendes, calculés séparément, de la Société nationale de crédit à l'industrie et de la Banque nationale de Belgique.

Ces dividendes, qui à partir de 1973 ne sont plus repris dans la Statistique du rendement, ne doivent pas être englobés, à partir de 1973, dans les dividendes distribués à déterminer ici. On ne peut donc pas simplement reprendre les dividendes concernés tels qu'ils sont déterminés dans le rapport mentionné ci-dessus; il convient de se limiter aux dividendes repris dans les Statistiques du rendement. Pour estimer ces dividendes pour les années 1978 et suivantes, on utilise les mêmes indices d'évolution que ceux qui servent à déterminer les dividendes échéant aux particuliers. Ces indices sont toutefois appliqués à un montant de dividendes pour 1977 qui n'englobe pas les dividendes de la SNCI et de la BNB. Il s'agit, en d'autres termes, du montant de dividendes extrait de la Statistique du rendement 1977.

Le rapport "revenus des particuliers provenant de tantièmes versés par des sociétés par actions belges exerçant leur activité principale en Belgique" décrit la façon dont ces tantièmes sont calculés sur la base des Statistiques du rendement et à l'aide d'indices d'évolution. Ce rapport précise en outre qu'une correction est encore apportée, à l'aide du facteur 1,5 aux tantièmes ainsi déterminés. Ces tantièmes corrigés, qui constituent un revenu pour les particuliers, sont ceux qui font partie des bénéfices distribués considérés dans le présent rapport.

Le Rapport de la Commission précisait que les gratifications imposables octroyées en 1948 au personnel étaient estimées, sur la base de données de la Statistique du rendement, à 250 millions de FB. Pour la détermination des gratifications au cours des années postérieures à 1948, le Rapport de la Commission posait en hypothèse que la part des bénéfices consacrée aux gratifications était déterminée en partie par l'importance des bénéfices et présentait en partie la fixité des salaires, et qu'il y avait donc là un certain parallélisme. Dans la pratique, il en résultait

que l'on faisait évoluer les gratifications, d'année en année, selon l'évolution moyenne des bénéfices nets corrigés, d'une part, et de l'enveloppe salariale déclarée à la Sécurité sociale, de l'autre.

Cette méthode a effectivement été appliquée dans la pratique. Pour les calculs jusqu'en 1962 inclusivement, on n'a pas retrouvé d'informations plus précises. Toutefois, à partir de 1961, le calcul des gratifications faisait apparaître que l'on n'utilisait pas toujours les données de base les plus récentes (bénéfices nets corrigés et enveloppe salariale déclarée), et ce jusqu'aux calculs pour 1975 inclusivement. Cette imprécision a été paliée à partir du calcul des gratifications pour 1976. Il s'ensuit que les gratifications pour les années 1976 et suivantes ont bien été calculées sur la base des résultats les plus récents concernant les bénéfices nets corrigés et l'enveloppe salariale déclarée. En outre, le point de départ de ces calculs corrects était le montant des gratifications pour 1969. Ces gratifications ont été estimés à 1.000 millions de FB. Mais ce montant 1969, on l'a vu plus haut, avait été obtenu à partir de données de base, qui entre-temps, avaient éventuellement été modifiées.

C'est pourquoi on calcule les évolutions par rapport à l'année précédent, d'une part pour les bénéfices nets corrigés, et d'autre part pour le montant des enveloppes salariales déclaré à la Sécurité sociale. On établit une série moyenne à partir de ces deux séries d'évolutions, calculées à partir des évolutions de 1970 par rapport à 1969. Ces évolutions moyennes par rapport à l'année précédente sont alors appliquées chaque fois aux gratifications calculées pour l'année précédente afin d'estimer celles des années considérés, et ce sur la base des gratifications pour 1969, estimées à 1.000 millions de FB. Les enveloppes salariales déclarées reprises dans ces estimations sont tirées du calcul de la rubrique Revenus "A. Rémunérations des salariés". Il s'agit ici de la somme des rémunérations des ouvriers déclarées à l'Office national de la Sécurité sociale et au Fond national de retraite des ouvriers mineurs, et les rémunérations des employés déclarés à l'ONSS, à l'exclusion de ceux qui sont exclusivement assujettis à la réglementation relative aux soins de santé.

Dans le Rapport de la Commission, les dons aux particuliers et aux institutions sans but lucratif au service des particuliers ont été estimés, faute de données, à 2% des bénéfices nets corrigés. Cette méthode de calcul est encore appliquée actuellement.

Bénéfices non distribués des sociétés par actions

Les bénéfices non distribués des sociétés par actions sont finalement déterminés par différence entre le total des bénéfices nets et le total des bénéfices distribués.

Estimates of hidden economic activities and other imputations in the Finnish National Accounts

Introduction

1. The present paper does not focus on the hidden economy in the strict sense of the word because the real hidden economy is not very big in Finland. However, there are areas in the Finnish economy that are insufficiently described by statistics and for which estimates need to be made when calculating GDP figures. The paper describes data sources and methods used for estimating these areas and activities, rather than describing the methods used for estimating the hidden economy as such. The presentation of the material in the paper follows the Eurostat Inventory Guide, particularly as regards the demand side estimates.

2. In the Finnish national accounts GDP is compiled by the output approach. GDP at basic prices is the sum total of the gross value added of the various branches. Commodity taxes, net, are added to arrive at GDP at purchasers' value. The industrial classification used is based on ISIC, Rev.2. It will be changed in the near future to correspond closely to NACE.

3. The input-output method is not used to produce annual figures. Estimates of GDP by the expenditure approach (final use) are compiled separately. The difference between total resources (GDP plus imports) and total final use (consumption expenditure plus gross fixed capital formation plus exports) appears as a statistical discrepancy.

4. The income approach in estimating GDP is not used. This means that sectoral production accounts are not compiled. However, income and outlay accounts and capital and financial accounts are prepared for the institutional sectors.

5. The main data sources for the annual calculation of production accounts include industrial statistics (manufacturing), building construction statistics, trade statistics, financial statements statistics (manufacturing, construction, trade, part of transport and communication), bank statistics, etc. Statistics on material production are good, but there is a lack of service statistics. Research work has been done in recent years to improve service statistics.

6. The national accounts are prepared by a group of about 25 persons, each of whom is in charge of individual industrial branches or institutional sectors. The data processing system APL is used to compile, analyze and prepare tables for publication.

I. Estimating GDP by the output approach

7. This section describes only those branches which are not well covered by data sources or which may include hidden economic activities. In Finland, basic statistics or other reliable data sources cover agriculture, forestry, manufacturing and related establishments (employing at least five persons), a large part of construction, wholesale and retail trade, part of transport, communication, banking and insurance, and the public sector. Statistics on business services are improving.

1. Manufacturing and related industries

8. **Small establishments in manufacturing and related industries.** This subsector consists of manufacturing establishments not covered by industrial statistics. Usually these establishments

employ less than five persons. Accounting for small establishments starts with estimating the levels of employment by kind of activity. Next, production is estimated and, finally, the components of value added.

9. The employment estimates for small establishments are made on the basis of the difference between the enterprise register data and industrial statistics on the number of employees in establishments with less than ten employees. The data on the production accounts of the water supply branch are supplemented with statistics from the National Board of Waters and the Environment.

10. Employed persons are divided into employees and self-employed on the basis of data obtained from industrial statistics, the enterprise register and the labour force survey. Hours actually worked are estimated from industrial statistics data on the average working hours of employees and self-employed persons.

11. Gross output is calculated on the basis of the difference between the enterprise register data and industrial statistics concerning the turnover of establishments with less than ten employees. The reliability of the results by kind of activity is examined by means of the number of employed persons relative to production. Corrections are made, if necessary.

12. Gross output is divided into intermediate consumption and value added in the same proportions as in industrial statistics calculations. Wages and salaries are estimated from industrial statistics data on average wages and salaries by kind of activity. The production at constant prices of small establishments is calculated using the price indices of industrial production.

13. **Ancillary units.** This subsector consists of a group of non-manufacturing establishments not covered by industrial or any other statistics. Such establishments include, for example, district and sales offices.

14. The employment levels of ancillary units are estimated on the basis of the difference in the number of employees between the ancillary units in the enterprise register and the head offices in industrial statistics.

15. The accounting estimates for ancillary units do not include production; they only include employed persons, hours worked, wages and salaries, employers' contributions to social security schemes, and the (negative) operating surplus. It is supposed that industrial statistics data also include the production of ancillary units. Wages and salaries are estimated from industrial statistics data on the wages and salaries of clerical employees by kind of activity.

2. Transport and communication

16. It is easy to calculate production for such transport activities as rail, bus, water and air transport. Finland has good basic statistics or other data sources on these activities. Communication too, is covered well by statistics.

17. The data sources on taxi operation and on road transport of goods are not satisfactory. The income from these activities can partly be hidden from the authorities. The activities themselves are not hidden because they are allowed to be carried out by licensed persons only.

18. As regards taxi operation, the number of vehicles registered for professional use is obtained from the Central Motor Vehicle Register. The Finnish Taxi Association calculates the cost of taxi

services per vehicle on the basis of the average number of kilometres driven. For benchmark years, gross output is calculated by multiplying the number of vehicles by costs (plus a hypothetical percentage of profit) per vehicle. In the annual calculations the volume of taxi operation is estimated from the number of vehicles and the data on the use of taxi services obtained from the Finnish Taxi Association. The price component is based on the consumer price index for taxi fares. The intermediate consumption is estimated using the cost calculations of the Finnish Taxi Association. The main problem in calculating output in taxi operation is to correctly estimate the value level of output in benchmark years because data on driving costs do not describe the actual turnover.

19. In the professional road transport of goods each vehicle must also be licensed, which makes the number of vehicles known. However, in this field too, it is difficult to estimate the correct value of output for benchmark years. To improve the quality of estimates, a special study was carried out in 1975 for a group of trucking companies on the basis of data collected by the division of enterprise statistics of Statistics Finland. Today the level of value of output is estimated in cooperation with the Finnish Trucking Association. Income and employment data from the population census are also used.

20. In the annual calculations the volume of gross output is estimated on the basis of the index compiled from data on the transport capacity of the professional lorry stock and from the employment data provided by the Finnish Trucking Association. Every second year, quantities transported by lorries are also studied by the Finnish National Road Administration. The price component is based on the Trucking Association data on the rates of licensed road transport services. The annual calculation of the intermediate consumption of lorries is based on the volume index of gross output and the price index obtained from the price index road transport cost factors.

3. Business services

21. The population census data on employment and earnings are used to estimate output in business services for benchmark years. Every second year from 1986 on, the turnover information in the register of enterprises and establishments is used as checking data. From 1990, Statistics Finland publishes financial statements statistics covering major part of business services. However, non of statistics takes account of self-employed persons providing business services.

22. The change in turnover is used as an indicator of the change in value. Reliable information on turnover is now obtainable from financial statements statistics. Before, when reliable data were not available, different sources of information were used.

23. Use has been made of the data collected by various associations from their members by means of surveys (architectural, engineering and other technical activities; computer and related activities; advertising; market research and public opinion polling). The data relate mainly to big enterprises with the coverage of about 40 per cent.

24. Another source of information is the data base on computer companies maintained by the Technical Research Centre of Finland. The data are collected by enquiries. The data base also covers manufacture of computers. This source has been used to estimate output of computer and related services. The service sector enterprises account for more than 50 per cent of the number of enterprises covered by the data base. In computer and related services, the volume of output is calculated using the change in value and price components.

25. The change in wages and the change in the price of intermediate consumption typical of the

kind of economic activity (e.g. electricity, telephone, mail, rent, services, car maintenance, travel, paper) have been used to determine the price component. The wage index and the consumer price index have been used as the data source. For the time being, there are no appropriate reliable data on the actual producers' prices for these services.

4. Real estate services

26. The benchmark year estimates of total rents are obtained from the population and housing census. They are calculated from data on the floor space and on monthly rent per square meter. The floor space data of company-type real estate units are used for annual estimates of the volume of renting own or leased non-residential property. These units cover 50 per cent of the whole branch. The indicator is not very satisfactory because it does not take into account the variation in floor space of other than company-type rented non-residential real estate. It is expected to replace this indicator by a better one.

27. Building construction statistics are used to obtain information on the completion of new company-type buildings. These statistics cover all new buildings completed in Finland. Non-residential real estate converted from the owner-occupied to the company type is also transferred to this branch. However, it is difficult to estimate the floor space of these real estate units. The value of the biggest sales of such real estate from year to year is obtained from the register of real estate sales prices. The change in these values is used as an indicator of transfer.

28. There are no exhaustive rent statistics to estimate the price component. The available data relate to the biggest cities only. The number of sales arranged by real estate agencies is used to estimate the volume. These estimates are reliable and cover 30 per cent of the sales arranged by the agencies.

29. The price component is estimated by means of the price index of old flats. The information is obtained from special price statistics covering all sales of dwellings. This procedure is not the best possible because it does not take into account the change in fees, which are defined as a percentage of the sales price. The number of sales and the sum total of fees of the biggest agencies are used for comparisons. The population census data on employment and earnings are used for benchmark year estimates.

30. Regarding real estate management on a fee or contract basis, the management costs of apartment and town houses are used as benchmark year estimates. They are determined on the basis of floor space and costs per square meter. This information obtained by the annual sample survey is used to estimate the output of the whole branch. However, this procedure does not include the management of real estate other than dwellings. The data on the floor space of apartment and town houses are used to determine the annual change in volume. The change in price is calculated from the change in value and volume. The management costs of apartment and town houses are used to estimate the change in value. The data cover nearly 80 per cent of the whole of the real estate management.

5. Other private services

31. Very few basic statistics are available on private profit-making personal services, such as private education and health services, business associations, amusement and recreational services, and other personal and household services. Information for calculations has to be collected from a variety of data sources. Sectoral data are estimated by different methods depending on the quantity and quality of the basic statistics. For benchmark years, the level of output is estimated

from the population census data on employment and income and from the household budget survey data on consumption expenditure. The enterprise and establishment register data on the number of these activities have recently become available.

32. Examples of data sources for the annual estimates include statistics on health services from the Social Insurance Institution; data on driving tests taken from the Central Motor Vehicle Register; data on radio and TV broadcasting and on lotteries from financial statements. The change in prices is calculated by means of wages and salary indices and consumer price indices.

6. Non-profit institutions (NPI)

33. In the Finnish national accounts, the data on producers of non-profit services are estimated separately and are published as a separate sector. The output of non-profit private services is broken down into ten separate branches, three of which pose particular problems.

34. **Research.** This branch includes foundations and funds for scientific sponsoring and scholarship granting. Institutions of this type play an important role in the Finnish economy. They own shopping centres, newspapers, shares of large companies and may be involved in speculative transactions with land.

35. Only fund-raising and scholarship-granting activities of these institutions should be included in GDP estimates. This means that all profit-making activities of this branch should be estimated in the production accounts of those branches that the production actually belongs to. Though simple in theory, this is difficult to achieve in practice.

36. **Miscellaneous civic activities.** This branch is very heterogeneous. It includes political parties, temperance movements, student associations, etc. The basic information consists of the yearbooks and annual accounts of the most important organizations in the branch. Because of the great number and variety of units, the branch can be surveyed in detail only for benchmark years. In the annual calculations most figures are estimated drawing on more general information. The indicators used include for instance wage and salary indices and estimates of employment.

37. **Sport, culture and entertainment activities.** The number of units engaged in these activities is enormous compared with the size of the country's population and economy. Most of them belong, however, to parent organizations publishing yearbooks and producing other useful sources of statistical data. In many respects, what was said about the miscellaneous civic activities is also valid here.

38. Hidden economic activities are rare in the production of non-profit services by foundations, trade unions or free religious movements. However, voluntary unpaid work carried out by these organizations can play an important role in Finland.

II. Estimates of final use (GDP by the expenditure approach)

39. GDP by the expenditure approach, or the use side of the balance of resources and uses, consists of private and public consumption, private and public gross fixed capital formation, changes in stocks, net exports, and the statistical discrepancy between resources and uses.

40. Private final consumption expenditure estimates are based on production statistics, import and export statistics, wholesale and retail trade margins, and on service production accounts or other data on services. The private consumption expenditure consists primarily of the final consumption

expenditure of households (96%). The rest of the expenditure relates to consumption of private non-profit institutions.

41. Gross fixed capital formation estimates for construction are compiled using data on the construction branch. These include building construction statistics and data on investment. The data on investment in machinery and equipment are based on market prices and are obtained from investors. The investment data are controlled by the commodity flow method, which takes into account the production, exports and imports of investment goods plus tax and wholesale margins.

42. The increase in stocks figures are obtained by a separate calculation. The estimates have to be adjusted quite often in determining the levels of total supply and use. The data on public consumption and capital formation are obtained from public sector calculations and are considered to be reliable. The main source of exports and imports data is foreign trade statistics.

1. Final consumption expenditure of households

43. Supply data are used to prepare the annual accounts. Information on the use side is obtained primarily from the household budget survey at five-year intervals. Additional information on sales and on the use of some products is available from separate sources. Sales statistics of the retail trade cannot be used because of the lack of data classified by goods.

44. Household consumption expenditure on goods is generally estimated using the commodity flow method: production + imports - exports constitutes the net supply, from which the industrial use of raw materials is deducted in the case of food and beverages. There is little information grouped by goods on the intermediate consumption in other than manufacturing industries and on other components of use (government final consumption expenditure, changes in stocks). Certain fixed figures on consumption relative to the net supply are used in calculations. There is no accurate information on the preparation of the net supply used for consumption. Consequently, consumption figures obtained by using data on consumption relative to the net supply should be regarded as indicators of change. The levels of household final consumption are mainly determined on the basis of the household budget survey.

45. Consumption figures obtained from commodity flow calculations are expressed in basic values. Commodity taxes and trade and transport margins have to be added. These distribution margins, grouped by goods are based on studies of the levels for 1985 and partly for 1980. The consumption figures for food and beverages include products used for intermediate consumption in restaurants and for government consumption. The shares of these products are estimated using fixed coefficients based on a separate study undertaken in 1985. They are then subtracted from the consumption figures.

46. The estimates of household consumption expenditure on goods are primarily based on the commodity flow and on the data on consumption relative to the net supply. Final consumption expenditure on services is estimated on the basis of production accounts by branches. At the main consumption category levels, information on the consumption of food, beverages and tobacco is obtained, apart from the commodity flow method, from several sources including agricultural statistics, statistics on excise taxes, statistics of various organizations. Data on the consumption of clothing and footwear, furniture, furnishings, and household appliances are obtained from the commodity flow.

47. Regarding the transport category, the lack of information on the purchases, sales and stocks of second-hand cars causes uncertainty about consumption figures. Likewise, it is difficult to

distinguish between spare parts and accessories and repairs of private transport equipment. Estimates of the consumption expenditure on books on the basis of the commodity flow have proved unsatisfactory. Data on a large part of recreational equipment and all "goods n.e.c." are also obtained from the commodity flow.

48. To sum up, uncertainty in accounting for household final consumption expenditure is partly caused by insufficient information on consumption relative to the net supply and on trade margins. Furthermore, the classification of supply data by industry of origin (and material) does not correspond to the classification of goods by purpose. This causes difficulties in comparing them with the nomenclature of the household budget survey.

49. **The value of food produced and consumed by farm households.** The main data source to calculate the value of food produced and used for human consumption on farms is provided by the sample surveys of the National Board of Agriculture. The surveys provide information on the quantities of food used for farm consumption. The value of food consumed by farm households at current prices is calculated by multiplying the quantities by basic prices.

50. The estimate of own consumption of vegetables, fruit and berries is based on the following formula:

$$\text{Quantity of own consumption} = (\text{total yield} - \text{industrial consumption}) \times \text{proportion of farm consumption}$$

The value is calculated by multiplying the quantities by basic prices. The sources are: the horticultural enterprise register for data on total yield; industrial statistics for data on industrial consumption; and the household budget survey for data on the proportion of farm consumption. The value of food produced and used by farm households at constant prices is calculated by multiplying the quantities by the basic prices of the base year.

51. **The imputed rent of owner-occupied dwellings.** The gross-rent procedure is used to impute rent of owner-occupied dwellings. The rent of similar rental dwellings is used as the basis for imputing the rent of owner-occupied dwellings. The household budget survey is used as the data source for benchmark year estimates of gross rents. The gross-rent method used in the survey is consistent with the SNA. In other words, the market rent depends on the age and equipment of the dwelling. Rent statistics are used as the data source for market rents. There is a validity problem concerning single-family houses: their proportion in the stock of rental dwellings is small, which means that the rent information is not very representative.

52. Single-family houses and housing corporation flats are treated differently when calculating gross rents. The gross rent of flats includes heating, but that of single-family houses does not. The estimates draw on the data from the household budget survey.

53. **Domestic services.** Domestic services produced by households as employers of paid domestic staff include the services of private child minders, domestic servants and other persons (e.g. cleaners) employed by households. The final consumption figure is the same as the gross output of domestic services. In benchmark years (every fifth year) gross output is calculated from the household budget survey data.

54. In the annual accounts the volume component of the output of private child minders is estimated on the basis of the number of children aged 0-6 years. A supplementary labour force survey includes a small sample for studying how children aged 0-6 are cared for in different forms of day care. The number of children in private family day care can be estimated from the resulting

data. The estimate of the number of children in the care of one child minder comes from the special study, which enables to estimate the number of private child minders. The price component is calculated from the change in the price of child care in the consumer price index. The gross output of private family day care services is the same as the wages of child minders.

55. No social security contributions are calculated because private family day care is regarded as a hidden activity. In fact, a large part of it is no longer hidden. The tax authorities are aware of this activity and treat persons engaged in it as self-employed. The treatment of private child minders will change accordingly in the national accounts in near future.

56. The gross output of other domestic services is estimated annually using the wage index of social services and the estimate of the number of domestic servants. The estimate is based on the hypothesis that their number is declining slowly. The gross output is the sum of the wage estimate referred to above and the social security contributions calculated as a percentage of wages.

2. Gross capital formation

57. **Major maintenance work.** In principle, all major renovations of buildings are subject to a special permission. In practice, however, much renovation work is done without permits. Like construction of new buildings, the renovation work is included in building construction statistics, which are compiled on the basis of data on building permits. Since renovation work is also carried out without permits, statistics on this type of activity are compiled drawing on the special study undertaken by the Technical Research Centre of Finland. In the national accounts the value of renovation is estimated as part of the gross output of building construction. On the demand side, it is part of the gross capital formation of buildings.

58. The value of renovation is calculated from building construction statistics by inflating the fixed price value in building statistics by the building price index. Normally this index follows the cost of building construction (the official building cost index corrected by the wage index). However, under unusual conditions - when there is a boom or depression in construction, for instance - the cost index does not describe the actual change in construction costs. Therefore, it has to be corrected by using information about the actual prices of buildings. This information is obtained from the housing authorities and from building industry organizations.

59. **Gross fixed capital formation of households.** As regards the use of GDP, the gross fixed capital formation of households is included in the capital formation of industries by branch as investment of unincorporated enterprises or housing investment. It is not estimated separately. Only in the capital account of the household sector this indicator is estimated from the aggregated figures by branch.

60. The fixed capital formation of households includes practically the whole of the respective investment in agriculture, a significant part in forestry and logging, and the investment in taxi-cabs and lorries in transport. Dwellings owned by households constitute the largest item in the total capital formation of households. Investment of unincorporated enterprises is also included in the capital formation of other branches, but not to the same extent as in the branches just mentioned.

61. The data sources and methods by branches are as follows:

- agriculture, forestry and fishing: the main data sources are building construction statistics, the sales of agricultural machinery statistics, and the Finnish Forest Research Institute data;
- taxi-cabs: estimates are based on the registration data from the Central Motor Vehicle Register and on price data;

- lorries: estimates are based on the number of lorries registered for professional use multiplied by prices;

- residential buildings: the volume of dwellings is obtained from building construction statistics. The value is calculated by multiplying the volume by the price index, which is based on the cost index adjusted for the changes in market prices. Brokerage margins and major repairs are added. The market price adjustment is estimated when there are unusual price developments. Major repairs are estimated using building construction statistics;

- investment in non-residential and residential buildings includes investment in saunas, garages and other auxiliary buildings. The data on these buildings are obtained from building construction statistics.

62. **Increase in stocks.** Calculations are made separately for agriculture, manufacturing and related industries, trade, departmental enterprises serving the government and departmental enterprises serving the public. The first three are the most important.

63. The data on stocks in agriculture are obtained from the National Board of Agriculture. They include the stores of grain and the changes in livestock. The increase in the stock of grain stores is calculated by type of grain. The calculations are based on the data on the flow of grain from growers to the domestic market from January to July in the year after the crop year. The crop is considered to be in the stores of the growers at the end of the year. The increase in stocks for the calendar year can be obtained by subtracting the amount of the stocks for the previous year calculated in the same way. The increase in stocks at constant and current prices is calculated by multiplying the changes in volumes by average grain prices for the base year and by average grain prices for the year in question.

64. The estimate of the change in livestock is based on data on livestock numbers and on their changes during the year.

65. In the preliminary accounts, data on manufacturing industries are based on the quarterly stock statistics of manufacturing enterprises. For the final accounts data are taken from industrial statistics (on establishments). In the final accounts the estimates are made by kind of activity (33 branches) and by type of stock. The stocks at the beginning and the end of the year are valued at average prices for the year. The indices used in the transformation process are sub-indices of the basic price index for domestic supply or the producer price index for manufactured products.

66. The quarterly stock statistics of the retail and wholesale trade constitute the source of data on stocks in trade for preliminary accounts. In the final accounts, financial statements statistics are used as an additional data source. Calculations follow the formula used for manufacturing industries. The indices used are also the same. The data on stocks in trade are not considered to be very reliable. Changes in stocks in trade are often adjusted as part of the adjustment of the balance of resources (supply and demand).

3. Foreign trade

67. **Trade in goods.** The Finnish Board of Customs publishes figures on imported and exported goods. Statistics Finland evaluates them at constant prices. The Customs figures are adjusted to account for the following items not included in customs statistics:

- Finnish fuel for foreign aircraft and ships (and vice versa);
- private small scale imports and exports of such goods as antiques and motor vehicles;
- smuggling;
- duty-free imports by seamen and airline personnel;

- commodities imported or exported for the installation and preoperational adjustment of equipment only. This is reflected in the value of the respective activities.

The total value of all these items is about one per cent of the imports or exports.

68. **Trade in services.** Transport and insurance figures are based on the enterprise questionnaire data and are thought to be quite reliable. The tourism balance is estimated by the Bank of Finland mainly on the basis of the information derived from the "purpose codes" of the currency exchange transactions. These estimates are not reliable.

69. There are considerable difficulties in estimating output in foreign transportation of goods by semi-trailers. There is a great variety of both domestic and foreign trailers and trucks operating in different combinations under various rental and leasing systems. The coverage of this activity in the transport balance is inadequate.

70. There is also an important problem in estimating insurance services imported directly by the final customer without intermediaries. The reason is that the survey of imports and exports of insurance services is taken on the sample of Finnish insurance companies only.

71. **Balance of payments and national accounts.** The balance of payments and the rest of the world accounts in the Finnish national accounts are harmonized to the extent possible. This means, for example, that reinvested earnings are included in both the balance of payments and in GNP in the national accounts.

III. Transition from GDP to GNP

72. The transition from GDP to GNP in the Finnish national accounts is achieved by adding factor incomes from the rest of the world, net, to GDP at purchasers' prices. These factor incomes are obtained from the balance of payments calculations.

Estimates of hidden and informal economic activities in the Hungarian National Accounts

General overview

1. The compilation of national accounts in the Hungarian statistical system has been changed in 1968. The main purpose of the change was to create possibilities for compiling two different types of accounts. The primary data sources which existed at that time allowed the statisticians to compile some major SNA accounts. Using the same sources the MPS figures were also compiled until 1988. National accounts are compiled by the CSO once a year. For the time being quarterly accounts are not compiled at all.
2. The methodology used is heavily dependent on the available data sources, and particularly on the financial reports of enterprises. This is the main reason why the Hungarian accounting system is based on the institutional units and not on establishments. It is true for all accounts of the system that the actual application of methodological principles is largely determined by the form, content and details of the available data sources.
3. For insitutional reasons the compilation of national accounts was to some extent easier in the past two decades than it is now. Because of the high level of concentration of production, the output was exhaustively covered by the data obtained from large enterprises. The detailed administrative regulation of their bookkeeping allowed the experts compiling the national accounts to influence directly the concepts and contents of enterprises' accounts.
4. The present system of estimating GDP is based on three different approaches. The production, expenditure, and income measures are estimated separately. The definitive measure of GDP is then derived by linking the three estimates in such a way that none of the approaches is exclusively relied on.
5. The resources side of the production account is estimated on the basis of three main categories: gross output, intermediate consumption and the difference of these two -- that is, gross domestic product. From a theoretical point of view the concepts of production used in Hungarian National Accounts correspond to the recommended international standards. However, the specificity of the Hungarian economy, as compared with the developed market economies, explains some differences in the practical implementation of the concepts.

Estimates of the hidden and informal activities

6. Only those hidden and informal economic activities are accounted for in national accounts which are reflected in statistics on the economic units. The activities not captured by the existing statistical system (for example illegal trade of drugs, prostitution, money exchange on the black market etc.) are not included in national accounts.
7. It is considered that informal economic activities in Hungary generally relate to small businesses and households and are concentrated in services and agriculture. Until the middle of the eighties services and agriculture were the only two sectors in which private businesses were allowed. The rest of the economy was represented by several hundreds of state-owned enterprises.
8. Before 1989, the output of private businesses was estimated on the basis of the normative figures provided by experts of the professional associations of craftsmen and private retail dealers.

The role of these small businesses has increased considerably in recent years. A great number of new economic units has been established both with and without legal registration. By the end of 1991, about 400 000 economic units were registered. The method used before has become insufficient. The estimates of the contribution of private business to GDP is now based on the tax data provided by the Tax Office.

9. Two principles are followed in estimating hidden economy: (i) income from tax evasion is estimated in the Hungarian national accounts only when some additional information is available indicating the level of concealed income; (ii) it is assumed that small partnerships and individuals not keeping double-entry accounts can more easily avoid taxes than big enterprises with detailed accounts.

10. In the case of non-financial enterprises, the data provided by them to the Tax Office are used. A few missing figures not available in the enterprises' financial reports are estimated. The existing data are left untouched. Gross output of small businesses without legal entity is taken to be equal to their sales receipts. The intermediate consumption of these businesses differs from that of enterprises in the sense that instead of use, purchases are recorded in their annual reports (cash accounting).

11. For sole proprietors who pay personal income tax, the output and intermediate consumption are determined on the basis of their tax reports. Their sales receipts are taken for gross output.

12. Taxes can be avoided by: (i) reporting sales receipts lower than actually realized; or by (ii) showing higher production costs. Sales receipts are corrected if the data sources used to estimate final consumption indicate a gap between goods and services produced and consumed. This was the case in the construction of dwellings, where the value of houses built (derived from investment surveys and from data on purchases of building materials) exceeded the reported output of the enterprises and small businesses in the construction industry. Since the assumption was made that the accounts of big enterprises are correct, the difference was considered as concealed sales of small businesses. The output of the construction industry was thus increased by about 10 per cent.

13. It is generally accepted that the costs of small businesses are significantly overestimated. One reason for this may be that the goods and services purchased by the owners of these businesses are often destined for their private use but recorded as intermediate consumption (for example cars used for personal purposes). Special technological coefficients are used to correct the overreported intermediate consumption of small businesses and individuals which do not keep double-entry accounts. These coefficients are derived referring to small-scale enterprises operating in the same industries and which are obliged to keep double-entry books. The adjustments made for 1990 increased the level of the value added of the relevant units by about 10-15 per cent. However, these adjustments cover only part of the tax evasion.

14. The hidden economy not only influences the level of GDP but also causes serious imbalances in national accounts. In the past years major imbalances appeared between incomes and savings of households. A very high savings ratio may have resulted from the fact that, at the level of the total household sector, it is much easier to conceal incomes than savings. On the other hand, household consumption was rapidly decreasing in the past two years in Hungary. Corrections could be made in the production accounts to eliminate discrepancies, if additional information on the distribution of income in industries were available.

A summary of adjustments made in the Irish GNP estimation for hidden and informal economic activities

The definitive measure of GNP in the Irish National Accounts is a combination of income and output (the output approach being used for Agriculture and Rent of Dwellings) and is compiled by aggregating the various elements of value added at factor cost. A separate expenditure based measure is forced to balance with the income based total by deriving, at the aggregate level, Personal Consumption as a residual. Any hidden economy adjustments in the Irish GNP calculations are, therefore, made directly or indirectly to the income estimates.

The adjustments made for hidden economy activities are summarized below. The explicit adjustments identified amount to about 3 per cent of GNP. In addition, some of the GNP compilation procedures (Output approach to gross value added in Agriculture, Labour supply estimate of residual remuneration, etc.) implicitly capture other hidden economy activities but the amounts involved cannot be measured.

Remuneration of employees. The Census of Population and the annual Labour Force Surveys (LFS) provide control totals for the number of employees classified by sector of activity. The remuneration estimates are primarily based on direct statistical surveys which are grossed to these employment controls. In this way hidden economic activity is implicitly captured in the remuneration estimates by ensuring that an income is attributed to all employees in the labour force. However, the amount of black economy labour captured in this way is not quantifiable.

A problem with the present approach is that only a single wage is assigned to each employee recorded in the LFS. No specific allowance is made for part-time workers or for persons with multiple employments. The recently enhanced LFS will permit further refinements of the estimates in this area.

Value Added in Agriculture. Agricultural gross value added is calculated as the difference between Gross Output and Intermediate Consumption. Output levels for livestock are estimated as Domestic Slaughtering + Net Exports + Stock Changes. Net Exports are adjusted to include illegal cross-border livestock movements not recorded in the official foreign trade statistics. This adjustment can be positive or negative depending on the relative advantages to be gained arising from the operation of the EC Common Agricultural Policy. No other adjustment is made for hidden activity as the output approach is considered to be exhaustive.

Corporate profits. The basic data for estimation of the gross operating surplus of corporate enterprises is derived almost exclusively from fiscal sources. Details of trading profits of companies are extracted from a sample of the company accounts submitted for corporate tax purposes. These are adjusted to national accounting concepts by a special statistical unit located within the Office of the Revenue Commissioners. Aggregate results are provided to the Central Statistics Office (CSO) who add 10 per cent to the net operating surplus of small companies. This 20 per cent adjustment, which amounted to about half of one per cent of GNP in 1988, is a judgemental grossing intended to cover the underreporting of profits by small concerns. No adjustment is made to the profits of bigger companies where the declared incomes are considered reliable.

Unincorporated profits (self-employed incomes). The basic data for the estimation of gross operating surplus of unincorporated enterprises is again derived from fiscal sources. Estimates of gross and net operating surplus are compiled by the Revenue Commissioners and provided on

magnetic disk.

Two adjustments for hidden economic activity are made to these data by the CSO. The first is a global adjustment for underreporting where the adjustment to net profits is +20 per cent. Capital allowances are not adjusted as they are unlikely to be understated by the self-employed.

A further upward adjustment is made in order to attribute profit figures to the self-employed not captured in the tax system. Grossing factors are applied at individual NACE/CLIO R44 activity level. Control totals for the numbers of self-employed in each activity are derived from the Census of Population and the annual Labour Force Surveys. These are compared to the numbers of tax cases in each activity group and the fiscal based profits are grossed accordingly.

The effect of the combined adjustments to self-employed incomes (i.e. +20 per cent added to net incomes and numbers grossed to COP/LFS based control totals) was to increase the fiscal based estimate of gross profits of unincorporated enterprises in 1988 by an amount in excess of two and a half per cent of GNP.

Compiling Dutch Gross National Product (GNP): Summary report on the final estimates after the revision in 1992

1. Introduction

The sources and methods used for compiling the final estimate of Dutch GAP before the revision of the national accounts in 1992 are described in Gorter (1990a, 1990b). The present report summarises estimation methods applied after the revision in 1992. Particular attention is paid to grossing-up procedures and adjustments for underreporting.

The architecture of the Dutch national accounting system is described in section 2. The relation between continuity and up-to-date levels is discussed in section 3. The estimation of value added by the production approach is presented in section 4. The expenditure approach is explained in section 5. The sources and methods of the income approach are dealt with in section 6. The integration process determining the ultimate estimate of GNP is discussed in section 7. Compliance with the recommendations of ESA (European System of Integrated Economic Accounts; Eurostat, 1980) is touched upon in section 8. Conclusions are drawn in section 9.

The following topics are only briefly referred to in this report:

- the calculation of value added of insurance companies and financial institutions;
- the transition from GDP to GNP;
- the estimation of the imputed services of owner-occupied dwellings;
- agriculture;
- taxes and subsidies.

These topics will be discussed in more detail in the forthcoming extended description of the Dutch compilation methods after the revision.

2. The architecture of the system

The three main features of the Dutch compilation method of GNP are:

- (1) the use of an extensive General Business Register in coordinating surveys of establishments;
 - (2) the availability and use of numerous annual base statistics on production, income, final consumption and capital formation;
 - (3) integration in a detailed supply- and use framework at current and constant prices.
- These features are further discussed in the paper.

The revision of the Dutch National Accounts in 1992 has improved the estimate of GNP in several respects. Now more and mostly new data sources are used:

- several new surveys of the production of services are employed in estimating value added in service industries;
- the retail trade statistics and the household budget survey are used to estimate final consumption by households;
- survey-based statistics on fixed capital formation are used to estimate fixed capital formation.

The integration process has also been improved by the use of detailed make and use tables. Before the revision more aggregate input-output tables were used as the framework for integration.

The revision involved several changes in bookkeeping, most of which do not affect the estimate of GNP. These are for example changes from gross to net basis in registration of production of old peoples's homes and temporary employment agencies and consumption of this output. Changes that do affect the estimate of GNP are for example the gross registration of dividends received from and paid to the Rest of the World (see section 6) and the registration of VAT on accrual basis (see subsection 4.4.). The revision increased the estimate of Gross Domestic Product at market prices in 1987 by 10.4 billion guilders, that is by 2.4 per cent, and that of Gross National Product by 10.0 billion guilders. Table 1 shows the calculation of GNP market prices for 1988 after the revision.

Table 1. Dutch GNP and its components in 1988 (in million guilders).

Gross Domestic Product at market prices	457,410
=	
+ Output of goods and services (excl. VAT)	839,080
- Intermediate consumption	425,130
+ VAT on accrual basis	37,450
+ Special levy on investment (SIR)	420
+ Net taxes on imports	5,590
=	
+ Final consumption by households	271,640
+ Final consumption by the government	70,200
+ Gross fixed capital formation	97,390
+ Change in stocks	310
+ Net exports	17,870
Gross National Product at market prices	453,910
=	
+ Gross Domestic Product at market prices	457,410
+ Net compensation of employees with ROW	-10
+ Net property and entrepreneurial income with ROW	-3,490

3. The strategy of continuity

The data in the National accounts are required to be both up-to-date and continuous. The former requirement means that estimates must comply with the most recent findings and the latter - that the data from different reference periods must be comparable. These two requirements come into conflict when definitions, data sources or estimation methods change.

Data sources may change for a number of reasons. For example, new basic statistics may become available for a particular field. Or one of the existing sources may no longer be used and alternative ways of measurement have to be found. The composition of statistical units from which samples are drawn may also change. This may happen when the register of units is revised. The adoption of new definitions, changes in data sources or the use of improved calculation methods would result in up-to-date figures which are correct with regard to the level, but which would show year to year fluctuations that do not correspond to real changes in variables.

In the Netherlands, a compromise has been adopted to cope with this dilemma. In compiling the annual figures, the continuity aspect was given priority. The result is that levels are not up-to-date in some cases. However, the data are revised at certain intervals to bring the whole series in line with the updated level for a specific base year. The 1988 revise figures represent not only up-to-date changes, but also up-to-date levels.

4. Production approach

4.1 Introduction

This section describes the estimate of Gross Domestic Product (GAP) from the production side. The coordinating role of the Central Business register is the topic of subsection 4.2. Data sources and estimation procedures are discussed in subsection 4.3 for five groups of classes of economic activity. Subsection 4.4 describes the estimation procedure for Value Added Tax.

4.2. Establishments and the Central Business Register

Statistics on the production process use the establishment as a statistical unit. An establishment is taken to be an enterprise, a part of an enterprise or a number of legal units grouped together, the activity of which is as homogeneous as possible and which can be described in full. Grouping of legal units occurs when some legal units exit for fiscal reasons only. 'Homogeneity' is, of course, a relative concept. The benchmark for measuring the homogeneity of an establishment is the three-digit level of the SBI - the standard industrial classification used by the CBS. In designing the SBI both the activity classification of the European Community (NACE) and the United Nations industrial classification (ISIC) were taken into account. Originally, the SBI discerned four levels: economic branches, classes, groups and sub-groups. Later a fifth digit was added. The criterion 'can be described in full' suggests the availability of all data necessary to describe the production process.

In practice, establishments are first sought among enterprises - i.e. natural persons, legal persons or associations of such persons trading on their own account. If an enterprise does not meet the establishment criteria because it exercises more than one activity, it is split into two or more parts, each as homogeneous as possible, provided necessary descriptive information is available. In fact splitting is attempted only if the activities are relatively important and if the respondent cooperates. For some enterprises it is not possible to describe the production process in full. If this is because the units are administered together with other enterprises, grouping is carried out. Such a group can sometimes be split again into homogenous units. The establishment as it is made operational in the CBS statistics fully complies with the definition of 'establishment-type unit' in the UN System of national accounts (SNA). However, in view of the small size of the Netherlands, no account is taken of the regional aspect as discussed in the SNA. Establishments are real organizational units and thus more institutional in character than the homogenous production unit defined in section 265 of the ESA.

The criteria for distinguishing establishments in the general government sector are largely the same as for private enterprises. For the classification by sector in the system of accounts and in determining the value added, it is important to make a distinction between the producers of government services and market enterprises. This is done in line with the standards set out in section 304 and seq. of the ESA. In the Netherlands, all subsidized education is regarded as belonging to the general government sector.

The Central Business Register (ABR) is an important instrument in ensuring consistent surveys of establishments and comprehensive estimates for the national accounts. Double counting and omissions can be avoided by a consistent use of the universe of units in the ABR. The production and value added of establishments are not counted twice, as all establishments are uniquely classified as pertaining to only one industry. In conducting integral surveys and drawing samples, the ABR is always the universe of reference. Data sources on production, compensation of employees and value added are compared by first ensuring their consistency with the ABR.

Supplementary information, such as annual business reports, data of wage administrations and fiscal data frequently do not use the establishment as statistical unit. Therefore, establishing consistency with the ABR may require translation of information from these data sources into the terms of the ABR. Otherwise data sources can be compared only imperfectly and omissions and doublecounting may occur.

Some years ago, the ABR comprised 706,000 establishments covering all economic activities, including general government but excluding agriculture. It covered 95 per cent of all establishments in the Netherlands. Recently, the ABR was extended to include units in agriculture. In the surveys on agriculture, the ABR is however not yet used.

Enterprises are not obliged to register with the CBS. The records are mainly based on the register maintained by the Chambers of Commerce and Industry which included about 650,000 units. In the Netherlands, companies must register with the Chambers of Commerce and Industry. There are exceptions for agriculture and certain specific professions. The register of the Chambers of Commerce and Industry is supplemented by information from the executive bodies of the social security system (100,000 legal entities). The latter cover all enterprises with employees. The CBS also organizes specific censuses of units engaged in particular activities. The grouping results in 50,000 fewer statistical units than companies; splitting generates 6,000 establishments.

The ABR is fairly exhaustive and may only exclude a few businesses without employees and fully illegal production units, like for example sweatshops in textile production or drug trafficking. The data recorded in the ABR include: name and address; legal form; main activity according to the CBS standard industrial classification; size category in terms of man-years employed. These characteristics are updated monthly which represents 400,000 changes annually. Additions and deletions are made once a year. This concerns approximately 50,000 firms.

4.3 Five groups of estimation procedures and data sources

4.3.1 Introduction

This subsection discusses the estimation procedures by class of economic activity. Five groups are distinguished for this purpose:

- classes of economic activity with production statistics;
- classes of economic activity with good quality data sources from supervisory bodies;
- classes of economic activity which are (partly) estimated functionally;
- classes of economic activity which are estimated from the cost side;
- other classes of economic activity.

These groups are discussed in subsections 4.3.2-4.3.6. Special attention is paid to the adjustments for missing units and underreporting. The relative importance of the five groups is shown in table 2. It shows that the overage of the Dutch value added by good quality institutional data sources reaches 78 per cent.

The CBS also compiles a system of labour accounts which aim to give full information about the Dutch labour market (number of jobs, hours worked, persons with unemployment benefits, wages, wage-rates, etc.). It integrates labour market statistics obtained from persons (by the labour force survey), social security institutions (statistics on paid working days and gross wages and salaries) and enterprises (e.g. survey of wages and salaries and statistics on employed persons). Differences in the sources and goals cause discrepancies between the populations and definitions in the national accounts and the labour accounts. Figures on compensation of employees and

employment may differ. However, information from the labour accounts and the labour market statistics plays an important role in compiling national accounts.

Table 2. Five groups of compilation procedures (production approach)

Compilation method	Classes of econ. act.	Value added ^{a)} %	Good-quality inst. data sources %
Production statistics	Manufacturing Public Utilities Construction Trade, Hotels, ... repair of consumer goods Transport and storage Part of business services	51.3 ^{b)}	51.3 ^{b)}
Good-quality data sources from supervisory bodies	Banking, finance, insurance	5.1	5.1
Estimated (partly) functionally	Agriculture Operation of dwellings	12.7	
Estimated from the cost side	General government Subsidized education Social services	14.5	11.4
Other	Mining and quarrying	16.5 ^{b)}	10.4
Total		100.0	78.1 ^{b)}

a) The concept of value added employed to calculate the percentages differs in some respects from Domestic product at market prices (see table 3).

c) Approximately.

The labour market information is used to complete the information from the production statistics (see subsection 4.3.2). For some service activities, it is even employed as the main data source in estimating production and value added (see subsection 4.3.6). The labour accounts information is also used to check the plausibility of the information from the production statistics. Finally, the labour accounts provide information on the relation between the number of employees (jobs) measured ultimo September and the volume of employment (full-time equivalents). This information is used in transforming the job figures from the production statistics into full-time equivalents published in the Dutch national accounts.

4.3.2 Classes of economic activity with production statistics

This subsection provides a description of the compilation procedures for classes of economic activity covered by production statistics. The scope and content of the production statistics are discussed first. The grossing up procedures are presented in the second part of this subsection. Other compilation procedures, including adjustments for underreporting and units absent in the ABR, are described at the end of the subsection.

Scope and content of production statistics. Table 3 shows classes of economic activity for which estimates are mainly based on production statistics. It shows for example that for petroleum industry (code 28):

- there are production statistics on oil refineries and not on manufacturing of petroleum and coal products (the third column);

Table 3. The classes of economic activity (SBI's) with production statistics and other good-quality institutional data sources (value added in million guilders).

SBI	Class/(sub) group of economic activities	Annual Production statistics after revision	Not before the revision	Value added 1988 mg		Covered by other good-quality ^{a)} Instit. sources	Total
				Total	Covered by by Prod. stat. a)		
01,02,03	Agric., hort., forestry and fishing			17955 (4%)	(0%)	(3%)	
11,12,19	Mining and quarrying	192 Salt mining		12504 (3%)	(0%) ^{b)}		
20-39	Manufacturing			85896 (20%)			
201-217	Food, beverage and tobacco industry	201-217 ^{c)}		10495 (2%)	10495 (2%)		
221-243	Textile, wearing apparel and leather ind.	221-243		2969 (1%)	2969 (1%)		
25,32	Wood, furniture and building materials	25,32		5752 (1%)	5752 (1%)		
26,27	Paper, paper products, printing and publ.	26,27		9741 (2%)	9741 (2%)		
28	Petroleum industry	281 Oil ref. (= not 282 Manuf. petr. and coal products)		5766 (1%)	(1%) ^{b)}		
29,30,31	Chemical, rubber, artificial mat. proc.	29,30,31		18869 (4%)	18869 (4%)		
33,34	Metal industry	33,34		10309 (2%)	10309 (2%)		
35-39	Industrial manufacturing n.e.c.	35-39	38,39 (Manuf. of instr.)	21995 (5%)	21995 (5%)		
40	Public utilities	40 excl. 403 Water		7999 (2%)	(2%) ^{b)}		
5	Construction	5		24724 (6%)	24724 (6%)		
61-68	Trade, hotels, c&rest., rep.of cons.goods	61-66 Trade	61-66	66738 (15%)	(13%) ^{b)}		
67	Hotels, cafes & restaurants	67					
68	Repair of cons. goods excl.	68					
684-689	Repair of clocks, jew., electr. cons. goods, mus. instr.	684-689					
71-76	Transport and storage	71-76		20231 (5%)	20231 (5%)	(2%)	
77	Communication			8910 (2%)			
8,9	Other services and n.e.c.			21845 (5%)	(0%)	(5%)	
81,82	Banking, finance and insurance			36624 (8%)	(0%)		
83	Operation of dwellings			28559 (7%)	(6%) ^{b)}		
84,85,86	Business services, renting of machinery and holding and auxiliary bodies	84 excl. 841 Legal services excl. 844 Services of eng.	84 excl. 841 excl. 844				
85	General government	85		30285 (7%)	(0%)	(7%)	
90	Government: subsidized education			18994 (4%)	(0%)	(4%)	
91,929,94,97	Social services	9291 Driving Schools		13155 (3%)	(0%) ^{b)}		
93	Health and veterinary services			23181 (5%)	(0%)	(5%)	
95,96	Cultural, sports and recreational services	9569 Renting of videos	9569	6493 (2%)	(0%) ^{b)}		
98	Other services	98 excl. 981 Cleaning, disinf	98 excl. 981	5799 (1%)	(0%)		
99	Private households with wage-earning staff			1510 (0%)	(0%)		
Total				431402 (100%)	(51%) ^{b)}	(27%)	(78%)
	Imputed banking charge			-17650			
	Import duties and subsidies on imports			5587			
	Other indirect taxes on imports			36250			
	Levies on capital formation			419			
	Difference between VAI at accrual basis and at approx. accr. basis			1194			
	Gross Domestic Product at market prices			457402			

a) Covered by production statistics indicates that for that class of economic activity, there is a production statistic. The values and percentages given pertain to the total size of that class of economic activity, irrespective to whether adjustments are to be made for the absence of small establishments.
 b) Approximately.
 c) In some instances, alternative data sources are preferred to the production statistics (see subsection 4.3.6).
 d) 'Good-quality' refers only to the reliability of the data source in terms of estimating value added. For the meaning of 'coverage': see note a).

- that these production statistics were also used before the revision (the fourth column);
- that the value added of the petroleum industry was 5766 million guilders in 1988, which is 1 per cent of the total domestic value added. This implies that the quantitative importance of the part of the petroleum industry not covered by production statistics (i.e. the manufacturing of petroleum and coal products) is relatively small (the sixth column).

Production statistics are compiled by the CBS on the basis of annual surveys. In manufacturing, all establishments with 20 employees or more are surveyed. In construction, the integral survey is taken for enterprises with 50 or more employees; samples are drawn for establishments with 1-49 employees. For service industries, like trade, there is an integrated survey of establishments with more than 20 employees. A sample is used for other establishments. Transport and storage are surveyed fully; only in some specific subclasses, a sample is used for establishments with less than 20 employees. For public utilities, there is no need in making additional estimates for small establishments as they are absent in this class of economic activity (see table 4).

Table 4. Main features of the surveys for production statistics

		Size classes in terms of full-time employees					
		0	1-9	10-19	20-49	50 or more	Integral (%) ^{d)}
20-39	Manufacturing	-	Sample ^{a)}	Sample ^{a)}	Integral	Integral	89%
40	Public utilities	(non-existent)			Integral	Integral	100%
5	Construction ^{b)}	-	Sample	Sample	Sample	Integral	48%
61-68	Trade, hotels, c&rest. repair of consumer goods	Sample	Sample	Sample	Integral	Integral	31%
71-76	Transport, storage	Sample	Sample	Sample	Integral	Integral	43%
84, 85	Business services, renting of machinery	Sample	Sample	Sample	Integral	Integral	53%
98	Other services	Sample	Sample	Sample	Integral	Integral	65%

a) The survey of small establishments in manufacturing: the major difference with other samples (e.g. in trade) is that its results are not included in production statistics. The production statistics on manufacturing include the results of the integral surveys only.

b) Establishments are asked for their domestic constructing activities only. The exports of construction services are taken from the cash flow figures of the Dutch Central Bank (DNB).

c) There are integral surveys for the following SBI activities: 71, 7211, 7212, 7222, 7243, 7310, 7320, 7333, 7334, 7339, 7422, 7423, 7510 and 7520.

d) This column indicates the relative importance of the integral surveys in terms of value of production (construction), value added (manufacturing, transport) or number of employees (trade, business services, other services).

In the case of non-response, people from CBS visit the establishment. They try to persuade the non-respondent to cooperate, point out the legal obligation to provide information and in some cases help filling in the survey form. If this does not help, the information provided by the establishment in the preceding year is extrapolated on the basis of the information on establishments of similar size in the same class of industry. In the case of a sample survey, the grossing-up for non-sampled units would include non-respondent units.

On the basis of the information in the survey form, gross value added can be calculated as the difference between the value of production and intermediate consumption. The value of production is equal to the aggregate of (the numbers in brackets refer to the codes in the survey form):

- + Sales of own produce (036)
- + Net change in stocks of own produce (038-032)
- + Own-account capital formation
 - Machines, instruments, etc. (092)
 - Buildings and other construction (094)
- + Trade margin on goods (and services) produced by others = Sales (056) - Purchases (054) + Net change in stocks (058-052)
- + Sales of other goods and services (e.g. rental) (076)
- + Other revenues excluding royalties, etc., but including revenues from overhead activities (941)

Intermediate consumption is equal to the sum of:

- + Purchase of raw materials, etc. (014)
- + Net change in stocks of raw materials, etc. (012-018)
- + Purchase of other goods and services (074)
- + Net change in stocks of other goods and services (072-078)
- + Expenditure on energy (101)
- + Other expenditure on production (901).

The survey also provides important information on:

- Compensation of employees (321..301);
- Number of employees (397..389);
- Capital consumption by type of capital goods (430..468);
- Income taxes paid (852);
- VAT on sales and imports (581..589);
- Other expenditures on production (rent, repair, insurance premiums, costs of marketing, etc. (901..931).

Establishments can only be part of an enterprise. The overhead costs of the parent company, which are not explicitly charged to individual establishments, are recorded in the special class of industry called Holding and auxiliary bodies (86).

Grossing-up procedures. As the regular production statistics for manufacturing do not cover establishments with less than 20 employees, an additional estimate has to be made for smaller units. For units without employees (i.e. for self-employed), an additional estimate is made on the basis of the number of such units recorded in the ABR multiplied by the value added per employee ratio for the larger units. For example, if this ratio is 100 thousand guilders and the number of units is 30, the adjustment is 3 million guilders. Same adjustment is also made for units without employees in construction.

To estimate production of establishments with 1 to 20 employees in manufacturing, statistics on paid working days and gross wages and salaries are used. These statistics are made available by the integrated survey of all employees insured under the Health Insurance Act. The data cover 80 per cent of total wages and salaries. Civil servants and self-employed persons are excluded from the survey. The results of the survey can be fully linked to the classification of establishments by economic activity in the ABR and are therefore very appropriate for grossing-up. An additional estimate is made on the basis of gross wages and salaries from these statistics and of the output per unit of wage or salary as derived from production statistics. The figures on production and intermediate consumption by type are obtained from production statistics.

Before 1987, production statistics in manufacturing were collected by the integral survey of all establishments with 10 or more employees. In 1983, the survey of small establishments in manufacturing was set up to provide information on the establishments excluded from the integral surveys. Before 1987, the establishments with 1-9 employees were surveyed on a sample basis; since 1987, the samples are taken on establishments with 1-19 employees. This new survey provides the same general information as the integral surveys (see above) and is used together with statistics on paid working days and gross wages and salaries. The major sampling characteristics of this survey are presented in table 5.

Table 5. Sample and population sizes of the survey of small establishments in manufacturing, 1988.

Size class (number of full-time employees)	Sample size	Population size	Sample size/ Population
1	2188	5940	0.37
2,3,4	2758	6516	0.42
5-9	2959	4567	0.65
10-19	2966	3562	0.83
Total	10871	20585	0.53

Note: Samples are drawn for the SBI-classes 20-29, 31-39 and subclasses 20.8, 25.3, 25.7, 27.1, 32.6, 34.4, 34.9 and 38.1. The samples are stratified by SBI-(sub)class and by size.

The information from the survey of small establishments in manufacturing cannot always be directly used for grossing-up. In some cases this survey provides information at the aggregation level higher than used in compiling national accounts (e.g. two-digit instead of three-digit classes of economic activity).

The information obtained from this survey is not always reliable. This can be seen when comparing the estimates of the levels of output and value added over a long period of time. The estimates appear to be rather unstable showing in some years implausible increases or decreases of over than 10 per cent or the absence of any trend. They may also be rejected as contradicting the data on paid days and wages (for example, when the estimates indicate substantially lower wages). Another important check of the validity of the sample survey results is the comparison with output and value added per employee ratios and with the growth rates output and value added in the integral surveys. For example, if the integral survey shows a zero growth rate and, the sample survey indicates 10 per cent growth or more, the latter is regarded as suspect. However, if the sample survey results pass these tests, there is a reason to believe that they are of good quality and can be used in compiling national accounts.

The lack of reliability of some of the sample survey results is not surprising because of the changing population of the samples. Each year different establishments are involved. In a heterogeneous class of economic activity, like chemicals, this would cause more problems than in a more homogeneous class of economic activity (e.g. bakeries). The sample size may be too small to capture such heterogeneity. Furthermore, the establishments are not used to respond to the questionnaire. This can result in non-response or in a large number of errors in the questionnaire. However, even if the sample surveys are not sufficiently reliable for direct estimate of output and value added, ratios obtained from the survey data may still be useful for indirect estimation. Examples of such ratios are: output/intermediate consumption (by commodity), output/employee and value added/employee.

The procedure of grossing-up production statistics for manufacturing depends on the results of plausibility checks, like those described above. In most cases statistics on paid days of work and wages are used for this purpose. Data of the integral surveys and the survey of small establishments are also used to calculate output, operating surplus and value added for small-size enterprises.

The adjustments made for establishments in manufacturing in the size classes not surveyed in production statistics for 1988 are:

- 1.2 billion Dfl for establishments without full-time employees;
- 4.3 billion Dfl for establishments with 1-9 full-time employees;
- 3.6 billion Dfl for establishments with 10-19 full-time employees.

The total adjustment of 9.1 billion Dfl represented 11 per cent of value added in manufacturing in that year. In construction the adjustment for establishments without full-time employees amounted to 1.0 billion Dfl.

In compiling production statistics for construction (SBI 51), the sample results are grossed up by multiplying the ratio of value added per employee from the sample by the total number of employees in that size class. The latter is obtained from statistics on paid days of work and wages. For example, if the value added per employee from the sample is 100 thousand guilders and the total number of employees in the size class is 5000, the estimate will be 500 million guilders.

In compiling production statistics for building installation (SBI 52), trade, transport, business and other services, the sample survey results are grossed up by the number of units in the same size class in the ABR. For example, if the value of production from the sample is 100 million guilders and 40 per cent of the units in the ABR are sampled, the estimate for the population would be 250 million guilders.

Other statistical procedures. For most classes of economic activity, the level of value added is estimated first. This estimate is independent of the general benchmark year 1987. The estimated level is cross-checked by comparing it with data from other sources, such as statistics on paid working days and gross wages and salaries, labour accounts, annual reports, other CBS statistics and external investigations. A case in point is construction. In addition to production statistics and statistics on paid working days and gross wages and salaries, the following information is also used:

- building permits guaranteed, building starts reported and completions reported by project (information on all projects exceeding Dfl 50,000 should be reported to municipalities);
- earth-moving works, road-building and hydraulic engineering (a quarterly survey provides information on the value of work, the total amount of work and the part completed during the reporting period);
- CBS statistics on capital formation (see section 5.5).

Attention is also paid to changes at constant prices. Changes in current prices may seem plausible, but those in constant prices or the price change itself may indicate possible errors.

These checks can be regarded as a first stage of integration carried out at a very disaggregated level by class of industry. The second stage is integration by commodity group. At this stage, information about expenditure is systematically used and all estimates are checked for their consistency at the national level (see section 7).

Production, intermediate consumption and value added are deflated using the CBS statistics on producers' prices supplemented by unit values from the production statistics. The monthly CBS

statistics on producers' prices provide price indices for domestic sales, exports and imports for some 3000 commodity groups. The valuation is based on producers' or free domicile value which includes the cost of transportation and insurance up to the establishment of the purchase.

There are production statistics for the whole of the food and beverage industry. Other data sources are usually considered more reliable or exhaustive. Reliability may be a problem when there is substantial subsidizing (dairy) or when vast deliveries exist between establishments of the same economic activity (they are recorded net in production statistics). Exhaustiveness is at stake when small establishments are important. In bakeries for example, only 40 per cent of value added is covered by the sample. Some other important data sources include the information provided by Commodity Boards on prices and quantities and the information from foreign trade statistics.

Adjustments for units absent in the ABR and for underreporting. The information collected by the surveys for production statistics may be incomplete, because of the units absent in the ABR and underreporting. The missing units as it was discussed in section 4.3.2, do not present a problem in the Netherlands. A few minor adjustments are made for underreporting when estimating value added. Compared with underreporting of fiscal data, underreporting in the CBS surveys is much less of a problem. People reporting in establishments to the fiscal authorities and to the CBS are usually not the same. Fiscal information is submitted by accountants and fiscal specialists, while the much more detailed information required by the CBS for production statistics is provided by internal administrators. Moreover, there is no real motive for supplying underestimated figures to the CBS, because it is generally known in the Netherlands, that information provided to the CBS is not transferred to the fiscal authorities. The latter is part of the CBS policy of strengthening its independence.

Since the revision, an explicit adjustment has been made for illegal textile production. It amounted to 0.2 billion for 1988. The need for adjustment was prompted by the report presented to the Minister of Social Affairs in February 1992. The report suggested an important substitution of the reductions in imports of textile processing by the increases in illegal textile production. Adjustments were estimated on the basis of detailed comparisons of various data on the supply and use of textile over several years. No adjustment was necessary for 1987, as the figures indicated that the illegal textile production in the Netherlands has indeed been mainly a recent phenomenon.

For hotels, restaurants, cafes, adjustments are made for underreporting (mainly underreported turnover on beer sales) and tips. Both adjustments are based on specific industry-wide investigations into fraud by the Fiscal Intelligence and Investigation (FIOD). The total adjustment amounted to 1.7 billion Dfl in 1988.

Adjustments for unreported income are also introduced for car repairs and trade in second-hand cars. 'Black' car repairs are calculated on the basis of the total number of registered cars multiplied by:

- the estimated costs of regular maintenance multiplied by the percentage of people that do not employ official car repair establishments for this purpose (20 per cent for large and 40 per cent for small maintenance services; the percentages are derived from the investigation by the Organization of Car Selling and Repairing Enterprises);
- the estimated costs of average damage repair multiplied by the percentage of people that do not use official car repair establishments for this purpose (40 per cent).

In 1988, the total adjustment amounted to over 1 billion Dfl. In fact, this adjustment may have led to an overestimation of GNP, because do-it-yourself work may have been included.

Adjustments are also made for some subgroups of other services. For hair-dressing an adjustment for underreporting is again made on the basis of an industry-wide investigation into fraud by the FIOD. The revenues from charwomen are estimated on the basis of the labour accounts and more specifically drawing on the data from the labour force survey. An adjustment of 0.5 billion Dfl was made for 1988. Whether or not these revenues are reported to the fiscal authorities, they are always included in the estimate of GNP.

As part of the revision of 1977, a sensitivity analysis was made for various business services and social services, for example services of accountants, dentists and lawyers. For each group, the sensitivity of data sources to various types of fraud and evasion (underreporting of sales and income, overreporting of intermediate consumption, etc.) were investigated. This resulted in 'guestimates' for underreporting which since then have been used in estimating output, value added and operating surplus.

4.3.3 Classes of economic activity with good-quality data sources from supervising bodies

Money creating banks and insurance companies are supervised by special bodies. For banks, this is the Netherlands National Bank; for insurance - Chamber of Insurance. The information provided to these bodies represent the main source for calculating value added. Supplemented by information compiled by the CBS (for example by means of full survey of the operating data of mortgage banks, building funds and investment institutions), the coverage of the data sources is fairly complete. No adjustments are made for fraud or underreporting. In 1988, this category accounted for 5 per cent of the Dutch value added.

4.3.4 Classes of economic activity that are (partly) functionally estimated

The classes of economic activity that are (partly) functionally estimated include:

- 01, 02, 03 Agriculture, horticulture, forestry and fishing;
- 83 Exploitation of and trade in real estate (including the imputed services of owner-occupied dwellings).

In 1988, this category amounted to 13 per cent of the Dutch value added.

The estimation procedures for these classes of economic activity will be dealt with in detail in separate reports. The present paper focuses on adjustments for value added not covered by the major data sources used.

An important role in estimating agricultural production is played by the agricultural census, which is taken annually by the CBS in cooperation with the Ministry of Agriculture, Nature Conservation and Fisheries. The census is very comprehensive and covers all (approximately 130,000) agricultural and horticultural enterprises. Not only establishments with agriculture as their main activity but all establishments with agricultural activities of any significance are covered. One of the purposes of this census is to provide a good basis for the CBS sample surveys of agricultural output.

Agricultural output is calculated on the basis of harvest estimates, which give figures of the total yield in tons by products. A group of experts from the CBS and Ministry of Agriculture makes annual estimates of yield per hectare on the basis of the information obtained from some 66,000 respondents. The CBS grosses up the figures according to the level recorded by the agricultural census.

The estimates for vegetables and fruit are based on figures from auctions. In addition, the Commodity Board for Fruit and Vegetables makes an estimate for vegetables and fruit not sold at auctions.

Many other sources are used to estimate value added in agriculture and horticulture. They include foreign trade statistics, data from the Commodity Board for Arable Crops, production statistics of the food industry, slaughtering statistics, dairy statistics and data on consumption of energy in agriculture and horticulture.

Adjustments for units absent in the ABR and for underreporting.

The use of functional methods of estimation results in the implicit inclusion of illegal and unreported incomes from agriculture or horticulture in the estimate of GNP. Thus for example, the existence of illegal labour (no social contributions are paid and no wages are reported) in Dutch horticulture would probably not affect the reliability of the estimate of output and value added in this branch, although it will affect the distribution between compensation of employees and operating surplus.

The estimates for fishing include revenues from "grey" catch of fish - that is, fishing not reported for the EC fish quotas, but reported to the tax authorities.

The estimate of real and imputed rents of dwellings is made drawing on the stock of dwellings estimated on the basis of the results of the General Census of Dwellings carried out in 1971. Changes in the stock are calculated annually using the data of the integral survey of municipalities (housing statistics). The changes include the construction of new dwellings, transfers of dwellings from owner-occupied to rented (or vice versa) and demolition. The annual CBS rent survey (12,1000 respondents) is used to calculate the rent of rented dwellings. This survey provides information on rents of dwellings by type and year of construction. The imputed rent is calculated on the basis of the estimate made by independent brokers in 1976 (from a sample of 1200 dwellings). Corrections are made for the annual rent increases and for improvements in the quality of owner-occupied dwellings. The estimate of the rents of dwellings obtained with this procedure does not depend on whether or not the income is reported to the fiscal authorities.

4.3.5 Classes of economic activity that are estimated from the cost side

The value added of these classes of economic activity is estimated as the sum of compensation of employees and consumption of fixed capital (plus VAT). Good-quality data on these two components of value added is therefore sufficient for a reliable estimate of the level of GNP. This category of activities, the total value added of which is about 15 per cent of Dutch value added, includes:

- 86 Holding and auxiliary bodies (non-financial);
- 90 General government;
- 921-928 Government: state and non-state subsidized education;
- 91, 94, 97 Social services.

The class "Holding and auxiliary bodies (non-financial)" comprises non-financial holdings and auxiliary bodies not grouped together in the ABR with units which carry out different main activities. Legal units established for tax purposes only are excluded from the estimate. These are "empty" units not involved in any activity. The determination of the population and transactions of such units is very difficult and does not worth the time and effort spent. In determining value added of the class "Holding and auxiliary bodies (non-financial)" it is assumed that any operating

surplus has already been included in the estimates for the members of the group which are controlled by such units.

The estimates of the compensation of employees in other subgroups of this category are mainly based on government accounts, municipalities accounts and on statistics on paid days of work and gross wages and salaries. These sources provide good information on net value added.

Capital consumption is calculated by the Perpetual Inventory Method. In compliance with ESA, no capital consumption is estimated for such infrastructures as bridges, roads and dikes.

4.3.6 Other classes of economic activity

This category, which accounts for about 17 per cent of Dutch value added, is a mixed one. It includes:

- 11, 12, 19 Mining and quarrying;
- 77 Communication;
- Part of business services:
 - 841 Legal services
 - 844 Services of engineers, architects, etc;
- 929 Other education excluding 9291 Driving Schools;
- 93 Health and veterinary services;
- 95, 96 Cultural, sports and recreational services;
- 981 Cleansing and sanitary departments;
- 99 Private households with wage-earning staff.

For estimating the compensation of employees, statistics on paid working days and gross wages and salaries are often the most important data source.

Value added of class 12 "Crude petroleum and natural gas production" is estimated on the basis of the general industrial statistics, foreign trade statistics, price statistics, statistics on paid working days and gross wages and salaries, of the information available in the annual publication by the Ministry of Economic Affairs on natural gas in the Netherlands and in the North Sea (contains data on the exploitation permits granted) and in the annual report of Gasunie. Gasunie is a subsidiary which buys natural gas from the Netherlands Natural Gas Company, exploiting the resources, and distributes it in the Netherlands and abroad.

For class 77 "Communication" no production statistics exist. Estimates are based on the information provided directly by the enterprises concerned. In fact, the class is dominated by one company - PTT - from which good-quality data are obtained.

In estimating value added for class 93 "Health and veterinary services" the use is made of:

- the annual CBS statistics on costs and financing of health care. This source provides information on costs and revenues of health care institutions. These statistics are compiled on the basis of statistics on intermural health care (see below), annual reports of institutions and central government and accounts of municipalities. Special estimation models are also used;
- a summary of financial statistics, prepared annually by the National Hospital Institute on the basis of full reports by all recognized institutions;
- annual CBS statistics on intramural health care, collected by an integral survey of all recognized institutions;
- budget survey data (see subsection 5.4).

For the non-recognized institutions an additional estimate is made.

The main data sources for classes 95 and 96 "Cultural, sports and recreational services" include statistics on paid working days and gross wages and salaries, statistics on incomes and expenditures of the general government in the field of social work, culture and recreation. Additional sources, like the annual Report of the Government Commissioner for Broadcasting and the CBS statistics on persons occupied are also used.

Value added of private households with wage earning staff (charwomen, gardeners, baby-sitters, etc.) is estimated mainly on the basis of the budget survey. The labour accounts compiled from the data of the labour force survey are used as an additional data source to estimate the value added of charwomen.

Adjustments for underreporting are made for legal services, services of engineers, general practitioners and dentist on the basis of specific industry-wide investigations by FIOD into tax evasion. Results of the sensitivity analysis of underreporting are also used.

4.4 Estimation of value added tax

As part of the integration process (see section 7), value added tax on the accrual basis is estimated by combining official VAT rates with the estimates of taxes on the use of commodities. In the Dutch National Accounts, VAT on the approximate accrual basis (i.e. cash basis with a delay of two months) is also recorded. The difference between VAT on the accrual basis and VAT on the approximate accrual basis is caused not only by fraud, but also by exemptions, remissions of tax debts, fines and differences in timing.

For 1988, paid VAT on the accrual basis was estimated at 37.45 billion guilders (1987 - 36.42), while the received VAT on the approximate accrual basis was 1.19 billion (1987 - 1.72) less. The registration of VAT as VAT paid on the accrual basis, has been introduced in the recent revision. This has led to an increase of GNP at market prices.

5. Expenditure approach

5.1 Introduction

This section describes the estimation of GDP from the expenditure side. Imports and exports are discussed in subsection 5.2, final consumption is the topic of subsection 5.3 and 5.4 and the estimation of capital formation is described in subsection 5.5.

5.2 Imports and exports

The foreign trade statistics compiled by the CBS represent the principal source of information about imports and exports of merchandise. The foreign trade statistics are based on customs documents which register almost all goods that cross the national borders. Monthly values and volumes of merchandise imports and exports are published for over 9600 items with a breakdown by country/region of provenance, origin or destination. The level of detail provided by foreign trade statistics is important for a successful application of the supply and use method.

The foreign trade statistics are not fully exhaustive with respect to imports and exports of merchandise. Supplementary estimates have to be made for:

- small consignments with a value below Dfl. 1100 for which estimates are made on the

basis of a periodical sample survey from which the ratio of the value of small consignments to the total value of consignments is derived;

- cross-border sales which are estimated on the basis of data on purchases of foreign currencies by banks in the frontier zone;
- sales and purchases of ships and aircraft derived from the registers of shipping and aircraft;
- export of fish caught by Dutch fishermen and landed directly at foreign ports for which there are no customs documents. A small adjustment to the export value is made on the basis of data on fisheries collected by the CBS.

The totals for imports and exports of services are largely derived from the Balance of Payments on cash basis. However the totals are adjusted to the definitions and valuation criteria of the national accounts. The Balance of Payments on cash basis is compiled by the Dutch National Bank.

The DNB estimates are made possible by the obligation of residents to use authorised financial institutions for their financial transactions with non-residents. A report must be submitted by these institutions for all transactions above the limit of Dfl 5000. In turn, this enables the institution to explain to the central bank the changes in their accounts. The total amounts from the submitted reports must correspond to the changes in the foreign accounts for each currency. In addition, residents are allowed to use accounts in non-resident banks or giro institutions provided they comply with the central bank's requirement to report on their transactions.

The DNB also estimates travel expenditures by residents abroad and non-residents in the Netherlands. At the National Accounts Department these expenditures are then split into expenditures of households, businesses and the government.

For a number of transactions, the national accounts do not use the balance of payments data but refer to other sources provided by the CBS, for example:

- imports and exports of transport services (information from the production statistics of transport enterprises);
- subcontracted labour imported and exported (information from production statistics);
- processing to order transactions.

The current external balance figure of the Dutch National Bank may therefore differ from that of the Dutch National Accounts. The latter is generally considered to be more reliable because it is derived in a much wider integration framework. Before the revision the differences were counterbalanced as imports/exports of services n.e.c.

To improve the registration of international trade in services, the CBS has recently incorporated specific questions on imports and exports of services into most of the surveys in production statistics. The classes of economic activity involved are manufacturing, construction and business services. New figures are mainly available for 1991 and later years only.

5.3 Final consumption by government

Final consumption expenditure by the government is equal to the government's gross value added plus the expenditure on goods and services by the government minus the sales by the government. In subsection 4.3.5, the estimate of value added by the government was already explained. The expenditure on goods and services purchased and the sales are estimated using various official accounts, for example government accounts and accounts of municipalities. Some

additional sources like statistics of electricity and gas supplies are also used.

5.4 Final consumption expenditure by households

Table 6 summarizes the methods of estimation of the final consumption expenditure by households for 1987.

Table 6. Estimation methods for final consumption by households

Estimation method	Level of 1987	
	Value	%
I. Direct estimates		
a. Combination of sales from retail trade statistics and market shares from the budget survey	83.0	31.0
b. Budget survey	44.6	16.6
c. Estimate of fuel consumption on the basis of statistics on ownership and use of private cars Sales figures from production statistics Other direct sources of data	7.2	2.7
d. Estimate as the value of production	93.5	39.4
I. Total	228.3	85.2
II. Commodity-flow method	39.6	14.8
Total	267.9	100.0

Before the revision, the major part of the final consumption expenditure was estimated by the commodity flow method. Final consumption at producers' prices (or at cif in the case of imports) was estimated as the balance between the supply (production, imports, decrease in stocks) and use (intermediate consumption, exports, fixed capital formation and increase in stocks) by commodity group. Final consumption at producers' prices was then transformed into final consumption at market prices using the estimates of trade and transport margins and VAT rates. Since the revision, the compilation procedure has largely become based on the budget survey and retail trade production statistics.

The budget survey (an annual sample with 2000 and 2800 households surveyed in 1988 and 1990 respectively) has clearly some limitations as a data source for estimating the level of final consumption expenditure by households. The budget survey's sample size is relatively small and not fully representative. Purchases of some goods and services are probably systematically underreported. The grossing-up of the budget survey information to national totals is difficult because of the absence of a complete register of households. Also, the budget survey does not provide information on expenditures of people living in institutional households and on expenditures of foreigners in the Netherlands. It should be noted that there is enough information on persons, but the budget survey addresses households.

The retail trade production statistics constitute an important source for estimating the households final consumption expenditure. However, some goods or services such as health services, are never distributed by the retail trade. Consumption of these goods and services is estimated differently (see below). Different methods of estimation are used for commodities that are not exclusively distributed by retail traders (for example cheese sold directly at farms).

Adjustments are made for such commodities. On the other hand, the retail trade partly includes sales to enterprises, which is excluded from the household final consumption expenditure.

The problem of the existence of more than one distribution channel for some commodities is overcome by combining the information from each of the sources. It is asked in the budget survey where the goods and services are bought - in a supermarket, grocery, flower shop, department store, abroad, obtained as income in kind, etc. This information on distribution channels can then be used to calculate market shares. The underlying assumption is that information on the relative importance of distribution channels is less vulnerable to the limitations of the budget survey. This assumption was tested by comparing the ratios for 1985 and 1986. The ratios were indeed stable.

The method of combining consists of the following steps:

1. Sales figures by commodity from the retail trade production statistics are adjusted for sales to enterprises, persons in institutional households (like old peoples's homes) and non-residents.
2. The adjusted sales figures are then divided by the market shares the subgroups of suppliers derived from the budget survey. For example, if the budget survey shows that households purchase 80 per cent of their total purchases of milk at a specific subgroup of the retail trade, the sales figures of this subgroup for milk should be multiplied by $10/8$ to arrive at an estimates of total purchases of milk by households.
3. Estimates of final consumption by people in institutional households and non-residents are added.
4. An estimate of VAT is added.
5. Final consumption by commodity group as distinguished in the retail trade statistics is transformed and aggregated (disaggregated) to arrive at the commodity classification of the National Accounts. This aggregation (disaggregation) is based mainly on ratios derived from the budget survey. Some commodity groups are also split to distinguish between direct sales by producers and sales via retail trade.

The application of this method is possible if there is a clear link between the commodities distinguished in the retail trade statistics, in the budget survey and the commodity classification of the national accounts. For goods and services classified under "Other goods and services", the method of combining is therefore not used. The respective estimates are based on the budget survey. None of these methods are used for commodities sensitive to the small size of the sample or the lack of representativeness. This sensitivity was tested by comparing figures for several years. In such cases the commodity-flow method is used (see below).

The final consumption of fuel is estimated on the basis of the CBS statistics on ownership and use of private cars. These statistics are collected by a panel survey, in which car owners are asked for the number of kilometres driven, average fuel consumption per kilometre, type of fuel and the purpose of driving (private, travelling to the workplace, or for business purposes). The results of the survey are grossed up by means of the CBS statistics on automobiles.

The production method is used to estimate consumption of:

- second-hand goods from desinvestment and imports;
- imputed services of owner-occupied dwellings;
- organized travels (to distinguish organized travels from transport services);
- health services (because these are mainly paid by the public or private insurance companies);
- services of life insurance companies and pension funds;

- social services (because they are frequently subsidized).

The commodity-flow method is used to estimate consumption of:

- various commodity groups in "other products", like other textile products, fashion articles, other chemical products, other metal products and other electrical products;
- repair of consumer durables and cleaning services;
- materials for construction and maintenance of houses and gardens;
- services of hotels, cafes and restaurants;
- directly paid bank services (charges for administration, etc.);
- business services;
- services of casualty insurance companies.

5.5 Capital formation

Fixed capital formation before the revision was estimated on the basis of information on the supply of capital goods in production and foreign trade statistics. Since the revision, a separate estimate is made for the demand for capital goods by type and by class of economic activity actually using the capital good (in contrast to owning). The most important data sources are:

- CBS statistics on fixed capital formation in mining and quarrying, manufacturing, public utilities and construction. These statistics are based on CBS surveys which ask establishments about their use of capital goods, whether leased or not;
- CBS production statistics on trade and business services;
- CBS statistics on capital formation in transport, storage and communication (based on a CBS survey);
- CBS statistics on the accounts of municipalities;
- CBS statistics on government finance;
- CBS statistics on capital formation in intramural health care;
- information on capital formation in agriculture and fishing collected by Institute for Agricultural Economics;
- annual reports of banks and insurance companies;
- CBS statistics on automation;
- information of production organizations on leasing of cars;
- CBS business finance statistics used for plausibility checking purposes only;

The data from these sources are adjusted for differences in definitions (for instance, purchases of land should be excluded), differences in timing when the reporting period does not coincide with the calendar year and for the absence of small establishments. Thus, an adjustment of 1.4 billion Dfl is made for statistics on fixed capital formation in mining and quarrying, manufacturing, etc. on the basis of statistics on Paid working days and gross wages and salaries.

There are not enough data on demand for capital goods by type for some classes or sub-classes of economic activity. Capital formation in dwellings may serve as an example. In such cases estimates are made using supply information available in production statistics. In all other cases estimates are made on the basis of the ratio of capital formation to output for similar classes or sub-classes of economic activity. This latter procedure is applied for only 2 per cent of total capital formation.

The estimates of fixed capital formation from the demand and supply sides are then compared and integrated. In 1988, the estimate made on the basis of the CBS statistics on fixed capital formation in mining and quarrying, manufacturing, etc. led to the increase of 0.7 billion Dfl in the final estimate of fixed capital formation. After the integration the value amounted to 23.2

billion Dfl.

Changes in stocks are estimated on the basis of production statistics. During the revision the supply and use of oil and related chemical products were thoroughly investigated for years 1985, 1986 and 1987. This allowed to improve considerably the estimate of the change in stocks in these products. The difference with the estimate before the revision was 2 billion Dfl.

6. Income approach

Several data sources on income received and distributed are used to compile national accounts and to estimate GNP at market prices. Production approach discussed in section 4 involves the use of data on compensation of employees from production statistics. In grossing-up and checking the compensation of employees figures from production statistics, statistics on days of work and wages are used. Information on income from annual reports is also used for additional checks. In fact, the Dutch "production approach" already encompasses the income approach.

In the integration process, data from business finance statistics (SFO) are used. These CBS statistics are based on a survey of incorporated non-financial enterprises with assets of 10 million guilders and more (excluding rented dwellings). The unit for these statistics is the financial administrative unit. The data collected relate only to the part located in the Netherlands. The survey provides for a detailed breakdown of the profit-and-loss account and of the balance sheets.

In addition to the SFO, statistics from the annual reports of major individual firms are used to produce estimates of business income. These estimates serve as plausibility checks at the sectoral level. Usually, this procedure does not lead to a change in the estimate of total value added.

The balance of payments on cash basis (compiled by the Dutch Central Bank, DNB) contains data on compensation of employees and other primary income flows to and from other countries. However, in contrast to the DNB's balance, dividends received from and paid to abroad are registered gross - that is including taxes to be paid on dividends. This gross registration decreases GNP at market prices by more than one billion guilders.

7. Integration process

Value added from the production side is estimated using a number of different sources including production statistics, statistics on employment and compensation of employees and also, in some cases, data on expenditure. Thus, the estimate from the production side results partly from a combination of the three basic approaches.

In the integration process, information on production, value added, intermediate consumption and final expenditure is checked and made consistent at a very disaggregated level. Information about 260 classes of economic activity and 800 commodity groups is integrated by means of supply and use tables. The integration is done in current and constant prices.

A general theoretical discussion of a simultaneous integration is provided in De Boer and Broesterhuizen (1986). In practice, the procedure of integration follows a rather standard sequence. The inconsistencies between supply and use for each commodity group are removed by taking the following steps:

1. First, an attempt is made to find solutions which do not affect the value added by industry and the total value by final expenditure category. This involves:

- adjustments for items estimated using fixed proportions, because they are not adequately described in statistical sources;
 - other adjustments within the total intermediate consumption of goods and services;
 - adjustments in the estimates of expenditure on consumption by households;
 - adjustments in the estimates of gross fixed capital formation by establishments;
 - adjustments in data on imports and/or exports of goods.
2. If the first step does not give a solution, the possibility to adjust the estimate of changes in stocks is explored.
 3. If this is not possible either, an attempt is made, in view of the problems encountered, to adjust the total figures for household consumption and/or the total for gross fixed capital formation.
 4. After that, consideration can be given to adjusting total intermediate consumption by industry. Industries for which the estimates are thought to be least reliable are considered first. The relative size of the original difference between supply and demand also plays a role. An adjustment in intermediate consumption should in principle lead to a change in the estimate of value added. However, it is sometimes preferred to adjust gross output of the industry in question, thus leaving the estimate of value added unchanged.
 5. In exceptional cases, when all other possibilities have been exhausted, the gross output of an industry is adjusted with a concomitant adjustment of value added.

The integration at a very low level of aggregation allows to check human errors (for example, typing errors like filling in 100 million instead of 1 billion or compilation errors like omissions or double counting). It also provides for checking the reliability of statistical adjustments introduced for small establishments or fraud, for example. Higher level of aggregation would preclude most of these checks, as errors would be cancelled by each other and their causes could not be traced. In some cases, the integration process may even lead to rechecking the figures in individual survey forms.

The consequences of the integration process are more important for the distribution of components of GNP than for its absolute level. In 1988 for instance, the integration resulted in the reduction in the estimate of value added from the production side by 2 billion guilders, and in the increase in the estimate from the expenditure side by 1.3 billion. This was the result of:

- the increase in fixed capital formation by 1.1 billion;
- the reduction in the balance of imports and exports of services recorded by the DNB by 1 billion (less imports);
- the reduction in the consumption expenditure by households by 0.5 billion;
- the reduction in the changes in stocks by 0.3 billion.

The rest remained unchanged. GDP at market prices equalled 457.4 billion guilders in 1988, so that the size of these adjustments was relatively small.

8. Compliance with the EC guidelines (ESA)

In principle, the Dutch estimate of GNP at market prices complies with ESA concepts. There are, however, some minor imperfections in estimating procedures on which further work is needed. Although many explicit adjustments for underreporting are presently made in national accounts, there are cases of underreporting for which adjustment methods still need to be developed. Also, no estimates are currently made for Dutch ownership of dwellings abroad and of foreign ownership of Dutch dwelling (for example, holiday homes of Germans). Finally, there is no full gross registration of wages with the rest of the world; the IMF guidelines are followed in this respect.

9. Conclusions

The estimation procedure of GNP at market prices in 1988 has been described in this report. Its main features are:

- the estimation from the production side is very well developed due to the existence of an elaborate system of good-quality base statistics on production (production statistics, government finance statistics). Yearly data are available on outputs and inputs. A very comprehensive general business register is used as the universe of reference in drawing samples and coordinating base statistics;
- since the revision, the estimation based on the expenditure method has also become well developed. Good-quality data sources are available on imports and exports of merchandise, on the demand of capital goods, on changes in stocks and on final consumption expenditure by households (budget survey, retail trade statistics);
- no separate estimate is made using the income approach. However, data on income are used in estimating GDP by the production approach. Production statistics contain information on compensation of employees;
- the estimates from the production and expenditure sides are integrated by means of very detailed supply and use tables, both in constant and current prices;
- in several cases explicit adjustments are made for underreporting (for car repairs and cafes and restaurants for example), and for the absence of units (charwomen and illegal textile production).

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Problems in covering hidden and informal economic activities in Romanian statistics

1. The estimation of the hidden and informal economic activities suggests a careful study of this phenomenon. Means and data sources, usually indirect, should be first identified to enable the statisticians to evaluate the hidden economy.
2. Attempts to estimate the hidden economy had been made long before December 1989. For example, income declarations constituted one of the data sources to estimate production of private handicraftsmen operating in the industrial sector. As income was underdeclared, the calculations had to be made on the basis of the number of registered private handicraftsmen and on the average productivity of handicrafts working in the conditions similar to those existing in the private sector. Within the transport sector, the hidden output of private taxi drivers was estimated by comparing the income information obtained from the fiscal authorities with the expenses on this type of services reported by consumers for the family budget survey. To determine the intermediate consumption and value added of these activities comparisons were made with some state-owned units.
3. Production of food and non-food products for sale to households on the market constitute another area where hidden and informal activities are very important. Production of flax, hemp, cotton and clothes, processing meat and milk, production of wine, preservation of fruits, wood processing and production of other goods sold to households on the peasant markets were estimated using the data supplied by experts in agriculture, and the information of the special surveys carried out in this field.
4. In construction the approaches to estimate hidden and informal activities, especially in house repairing and maintenance, were similar to those used in the transport sector.
5. Recent political and economic changes have led to the increase in the hidden and informal activities in the Romanian economy. The liberalisation of prices and economic activities, the stimulation of private initiative, the existence of huge imbalances in demand and supply in many sectors of the economy gave rise to different activities, which are often very hard to describe statistically. At the same time, the existing legislation which is still incomplete and needs to be further developed, leaves many possibilities to enterprises and particularly to small businesses to evade taxes or operate in a hidden or informal way. The possibilities of the fiscal authorities to control the enterprises' compliance with the tax regulations are also limited.
6. The increase in the importance of the hidden activities in various sectors of the economy cannot be ignored by statisticians. Techniques to estimate the size of the hidden economy should be found in cooperation with other institutions. It is expected that comparing data which could be obtained from various statistical sources with the information from the fiscal authorities would allow to make some estimates of the hidden economy and its influence on the level of GDP.
7. The following sectors are aimed at: agriculture, trade, transport (auto and animal traction), construction (house repairs and maintenance, other construction), industrial services (repairs of transport means, production and repairs of clothes and footwear, repairs of electric, electronic and other domestic appliances), tourism, hotels and restaurant services, education and health services.
8. The hidden economy consists of two parts: fraud and tax evasion on one hand and "black market" on the other. For the time being, there are no obvious sources which would allow to make accurate estimates of the "black market" activities. Some estimates of fraud and tax evasion can be

produced by comparing information from different sources. For example, comparison of data on the private persons income from the family budget surveys with the income information from tax declarations available at the fiscal bodies could give a rough estimate of tax evasion. Such estimates could be made for hidden activities in trade services and in transport.

9. Before 1990, estimates of the hidden economy were generally made with respect to the private sector only. In the state sector the centrally-planned character of the economy allowed to control incomes and expenses more easily. It should be stressed that estimates of the hidden activities can be very approximative.

10. The family budget survey represents one of the existing data sources which permits some estimates of production originating from the hidden activities of individual enterprises. These estimates can be accounted for the calculation of macro-economic aggregate indicators.

11. Some useful data on the hidden activities of private persons is collected by means of keeping a diary to record incomes and expenditures in both monetary terms and in kind for the family budget survey. The diary is supposed to capture data on purchases of food and non-food products and payments for services from the population and private units, on a monthly and yearly basis. The data collected are then compared with the information from fiscal sources. The family budget survey is carried out on a sample of 9000 families. The results of the survey are used to make estimates for the whole population.

12. Before the end of 1992, it is expected to have a more systematic inventory of the hidden and informal activities of private and small businesses and of financial institutions. It is also envisaged to improve the cooperation between statisticians and fiscal bodies.

13. It is expected to introduce in 1993 a better system for collecting data on the national revenue, individual incomes and family budgets. It should in principle allow better coverage of the hidden and informal activities in the Romanian economy.

14. The population and dwelling census, conducted in the beginning of 1992 provides some data on the hidden economy. These data can in principle be used to make estimates for previous years as well. The information on the number of private handicraftsmen, farmers, builders and private tradesmen, data on private dwellings (to calculate the imputed rents), compared with the data contained in fiscal sources, may prove to be useful in preparing such estimates.

Estimates of the hidden and informal economy in Turkey

Introduction

National income estimates in Turkey are mainly based on the production method. Estimation techniques have been improved for most sectors in recent years. Since 1990, GNP estimates are prepared quarterly. The base year has been changed from 1968 to 1987. The coverage of GNP has been broadened to include some new subsectors of the economy previously not accounted for in annual GNP estimates. Better use has been made of current questionnaires, business accounts of establishments and institutions, technical coefficients derived from 1968, 1973 and 1985 input-output tables. 1987 weights are now used. The old GNP series has been revised back to 1968.

GNP estimates have been extended to include previously uncovered subsectors of floral production and poplar wood production. The value of floral production has been calculated using the production data provided by Provincial Organizations of the Ministry of Agriculture and by cooperatives of florists. This value has been added to the output of the agricultural sector. Value added in poplar wood production has been estimated from the data provided by Directorate of Forestry. It has also been added to the value added in the agricultural sector. Attempts have been made to cover illegal firewood cutting in the forestry sector.

Some new estimates have been made to reflect previously unrecorded activities in the industrial sector. Estimates of homemade production and of certain activities of small-scale enterprises (employing nine workers or less) have been attempted in manufacturing industry. The numbers employed and average weekly working hours were obtained from Household Labour Force Surveys. Value added in the household sector was then estimated by applying the estimate of value added per person to numbers employed.

The comparison of the results of Household Labour Force Surveys and Industry Surveys have shown that work of 263 023 persons had not been included in the value added of small-scale enterprises in manufacturing industry. The value added for this sector has been adjusted accordingly.

Differences in present and previous GNP estimates

Agriculture. Value added in the agricultural sector is calculated by the production approach. It is composed of value added in farming, livestock, fishing and forestry.

Data on crop production are obtained from Provincial Organizations of the Ministry of Agriculture. A different estimation method was used in previous annual GNP calculations to estimate the value of crop output. Support purchase prices were used as average prices for those crops for which support schemes were used. For other crops prices were obtained by extrapolating base year prices with SIS wholesale price indices. The value of vegetable production was calculated using a single price.

In the present GNP estimates producer's prices are used to calculate the value of crops output. Prices received by farmers are compiled monthly by the Provincial Organizations of the Ministry of Agriculture. Wholesale and Stock Exchange prices are also used. Producer's prices are obtained by subtracting transportation costs and commissions. Individual monthly producer's prices are used to value production of different crops.

The value of floral production, not included in previous GNP estimates, has been calculated using production data from Provincial Organizations of the Ministry of Agriculture and from cooperatives of florists. It has been added to the sector's value added.

In contrast to previous calculations, production net of losses is now accounted for. New loss ratios have been obtained from the results of the Agricultural Products Marketing Research for the 1987-1988 agricultural year. Previously, 1973 loss ratios were used.

Poplar wood production and illegal firewood cutting have been included in the forestry sector output.

Value added in livestock sector is now estimated quarterly. It is composed of value added generated in meat, milk, wool, hair, mohair, hide, fertilizer, egg, honey and silkworm cocoons production. The Ministry of Agriculture provides information necessary to calculate value added in production of all these products except meat. For the latter prices obtained from the Meat and Fish Organization are used. To facilitate the compilation of quarterly data for this sector, 1985 input-output ratio has been assumed to be constant for each quarter. In addition, production of meat and hide during the Feast of the Sacrifice is taken into account in calculating the value of output.

Fish production was previously estimated by multiplying quantity by average weighted price of fish. Present estimates are obtained by applying prices by type of fish to corresponding quantities.

Industry. Value added in mining, manufacturing, electricity, gas and water subsectors used to be estimated by applying annual production growth rates, obtained by the Establishments Survey, to the previous year's value added. Today, value added is calculated on the basis of data from the annual surveys of mining, manufacturing, gas and water subsectors.

Estimates of homemade production and of some previously unrecorded activities of small-scale enterprises in manufacturing have been added to the sector's output. These estimates are made on the basis of the Household Labour Force Survey.

Additional estimates of sand, pebble, brick, tile and other building materials production have been added to the quarrying sector output. Data provided by the State Planning Organization was used.

Construction. Public sector. Data collected from state economic enterprises, consolidated budget, revolving funds, special provincial administrations, municipalities and other public organizations by the quarterly Questionnaire on Fixed Capital Formation are used to estimate the value of construction investment in the public sector.

Private sector. The floor space (m²) of completed construction is estimated quarterly drawing on building and occupancy permits. The average unit cost of completed floor space is then applied to the total floor area completed to make an estimate of construction gross output. Previously, the average unit cost was calculated by using the weighted average prices of about 15 construction items. In the present accounts, average unit cost of construction is calculated using the weighted average prices of approximately 120 construction items. Value added is estimated by applying the value added/output ratio to gross output. 25 per cent of gross output is added to the value added as profit margin.

Trade. Ratios from the 1973 input-output table were used in previous annual accounts to calculate value added in the trade sector. In present accounts, ratios from 1968, 1973, 1979 and 1985 input-output tables are used. Time series have been revised back to 1968.

Data on income from providing services related to tourism (hotels, restaurants, etc.) are available in Tourism Receipts Statistics of the Ministry of Tourism. Income in this subsector is estimated using information from the input-output tables and indicators of growth of other service sectors.

Transportation and communication. For transportation by road, income per vehicle calculated on the basis of the 1985 input-output table is multiplied by transportation index to estimate annual income generated in this subsector. Previously, the 1973 input-output table was used to calculate the shares and value added/output ratios for road and maritime freight transport. Presently, the values from 1973, 1979 and 1985 input-output tables are used for this purpose.

Financial institutions. This sector's value added was calculated by expanding 1973 value added with an index of imputed bank service charges obtained by annual surveys. In the present accounts, both the value added and the value of imputed bank services are estimated drawing on the annual financial statements of institutions. The coverage of the sector has also been enlarged by including the estimates of value added of the institutions trading in foreign exchange and shares.

Owner-occupied dwellings. Annual imputed values of owner-occupied dwellings in rural and urban areas were previously estimated by applying consumer price index to 1968 rent values. Average rent values obtained from 1987 Household Income and Expenditure Survey are used now.

Government services. Data on wage and salary payments by general and local state administrations are used to estimate value added of government services. Payments in kind, social aid transfers and depreciation values of government-owned buildings are also taken into account. In contrast to the budgetary forecast previously used, actual budgetary outturn data are now employed to estimate value added of government services.

Import tax. Information on taxes is provided by the Ministry of Finance and Customs. Receivable values used in the former accounts have been replaced by realized values. In addition to the price stabilization fund allowances, other components of the import tax are now taken into account.

"Evasion adjustment" in United Kingdom National Accounts

Introduction

1. The present paper includes parts of Chapters 1 and 13 of the UK inventory of sources and methods used to compile GNP estimates supplied to EUROSTAT. These chapters contain a description of the "evasion adjustment" which is incorporated in UK national accounts estimates of income.

2. The "evasion adjustment" is an estimate of the value of factor incomes which are not included in the income statistics but which nevertheless correspond to expenditure covered in the expenditure method. The evasion adjustment thus covers an important part of the hidden economy but not the whole of it: it does not cover concealed expenditure, for example on prostitution or illegal drugs.

3. A full description of CSO's measurement of UK hidden economic activity appeared in an article in the February 1980 issue of *Economic Trends* by Kerrick MacAfee entitled "A glimpse on the hidden economy in the national accounts".¹

4. Description of the scope of the hidden economy sometimes includes (though MacAfee's article does not) the activities of units which are below the threshold for statistical reporting. For these units the UK practice is to impute estimated incomes and expenditure, and to routinely include them in income/expenditure aggregates before calculation of the "evasion adjustment".

I. General description of United Kingdom National Accounts

An overview

5. The United Kingdom's GDP is estimated to have been £509 billion in 1989, expressed at market prices. The UK has a population of 56 million and some 1.7 million individual businesses are registered for Value Added Tax. The economy is dominated by the service industries whose output, including non-market services, represents 62.8 per cent of GDP at factor cost (1988). The service sector includes a highly developed banking and financial services industry. Manufacturing activities constitute 23.7 per cent of national income, construction work 6.5 per cent and the energy industries 5.6 per cent. Agriculture contributes about 1.4 per cent of national income.

6. Government first drew up estimates of national income and expenditure during the Second World War and some summary estimates were published. After the war the increasing elaboration of national income estimates was reflected in a fairly full set of national accounts estimates appearing in the first "CSO Blue Book" in 1952. The early development of national accounts in the UK meant that UK experts also took an active role in early development of the UN system of National Accounts and today the UK system and the current UN system are still well aligned conceptually, though their emphasis may differ.

¹ This article was reprinted in the United Nations Economic Commission for Europe "Guide-book to statistics on the hidden economy" published in September 1992.

7. The UK accounts have always been produced primarily for Government's benefit and to assist Government management of economic monetary and taxation policies. Their development has therefore followed economists needs to analyse, understand and forecast the economy. Recognition of the importance of monetary developments on economic behaviour led to the development of the associated sector financial accounts during the 1960s. On the other hand input-output tables have never played a central role because macro-economic policy developments have never demanded a fully integrated description of the production process.

8. The United Kingdom's national accounts today focus, therefore, on measurement of GDP and describing it in terms of components of demand and value added and on drawing up complete sets of institutional sector accounts. For each sector there is an income and expenditure account which shows how the financial surplus or deficit of a sector is financed by transactions in financial assets and liabilities. In the United Kingdom the term "national accounts" is taken to embrace the widest range of macro-economic accounts which are compiled compatibly. This includes the financial accounts and the balance of payments accounts which are constructed on a fully integrated basis. The compilation of the balance of payments accounts in this way means incidentally that, unlike many other countries, balance of payments data for trade in goods and services can be included in GDP estimates without adjustment.

9. The structure of the UK accounts may best be seen by examination of the table overleaf which comes from the CSO Blue Book, 1989 Edition (see below).

10. Another feature of the UK accounts to be noted is the complete integration of annual and quarterly estimates which are part of one system produced by one group of people. This helps users of the accounts who are able to rely at all times on a full set of consistent annual and quarterly data ranging over a very long period of years. It also reflects the importance which the Government attaches to having a full description of the UK economy for the recent past as soon as possible.

The GDP measures

11. The definitive measure of GDP for the United Kingdom is the average measure, GDP (A), which is derived as the average of the expenditure estimate GDP (E), the income estimate GDP (I) and the output estimate GDP (O). It is CSO's advice that the average measure usually provides a more appropriate basis for continuing assessments, both of levels of economic activity and of changes over periods of a year or more, than the individual measures based on expenditure, on income or on output data.

12. In concept, all approaches to measuring total economic activity should yield identical assessments. But problems of measurement lead inevitably to some divergences in the estimates made, especially when figures are first published. The average estimates, which employ all the available data, are considered the best central estimates and are given the greatest prominence in CSO publications.

13. The average measure GDP (A) at current factor cost is calculated in base years as the simple average of the income and expenditure measures of GDP at current factor cost. For years between the base years, GDP (A) estimates are based not only on GDP (E) and GDP (I) at current factor but also movements in the output measure.

14. To take into account the output measure, which is compiled as an index at constant factor, the GDP(O) index has to be converted to current money terms. This is done by setting GDP(O)

Table A : Summary analysis by sector, 1988

£ million

	Personal sector	Industrial and commercial companies	Banks and building societies	Other financial institutions	Public corporations	Central government	Local authorities	Overseas sector	TOTAL
CURRENT TRANSACTIONS	D								A
Factor incomes:									
Income from employment	249 775	-	-	-	-	-	-	-	249 775
Income from self-employment	42 617	-	-	-	-	-	-	-	42 617
Gross trading profits, etc	-	73 033	-2 791	-	7 286	-506	436	-	77 458
Rent	19 513	3 052	1 099	-	583	152	3 065	-	27 464
Imputed charge for capital consumption less stock appreciation	-722	-5 165	-	-	-229	1 265	1 629	-	-3 408
Inter-sector transfers:								C	
Earnings on direct investment overseas	69	11 341	1 295	-	-	-	-	-12 705	-
Earnings due abroad	-8	-6 565	-805	-	-	-	-	7 378	-
Dividends and interest:									
receipts	45 339	7 285	81 826	-	966	9 140	1 099	42 529	188 184
payments	-28 767	-28 914	-62 734	-	-2 953	-17 351	-4 644	-42 821	-188 184
Taxes on income	-43 923 ²	-14 941	-2 143	-	-116	61 123	-	-	-
Social security contributions	-31 686	-	-	-	-	31 686	-	-	-
Social security benefits	43 331	-	-	-	-	-43 787	-	-	-
Other current grants by government:									
receipts	10 876	-	-	-	-	2 119	23 376	4 932	41 303
payments	-	-	-	-	-	-34 334	-4 850	-2 119	-41 303
Other current transfers:									
receipts	1 836	-	-	-	-	382	-	1 963	4 181
payments	-2 316	-161	-47	-	-	-	-	-1 657	-4 181
Royalties and licence fees on oil and gas production	-	-820	-	-	-	820	-	-	-
Factor cost adjustment:									B
Taxes on expenditure	-	-	-	-	-	56 612	18 417	-	75 029
Subsidies	-	-	-	-	-	-5 050	-833	-	-5 883
Expenditure:	E								
Consumption	-293 569	-	-	-	-	-55 721	-36 126	-	-385 416
Exports of goods and services	-	-	-	-	-	-	-	-108 533	-108 533
Imports of goods and services	-	-	-	-	-	-	-	125 194	125 194
Balance = Saving²	12 879	38 145	15 700	5 537	6 550	1 569	14 617	94 997	
CAPITAL TRANSACTIONS									
Gross domestic fixed capital formation	-25 496	-40 308	-12 277	-	-4 882	-3 675	-2 113	-	-88 751
Value of physical increase in stocks and work in progress ³	-383	-4 263	-	-	-47	322	-	-	-4 371
Taxes on capital	-3 258	-1 099	-403	-	-	4 760	-	-	-
Other capital transfers:									
receipts	2 003	1 020	-	-	934	20	949	-	4 926
payments	-81	-131	-	-	-147	-3 987	-560	-	-4 926
Balance = Financial surplus or deficit	-14 336	-6 636	3 020	1 395	3 990	-175	14 617	1 875	
FINANCIAL TRANSACTIONS⁴	G				F				
Notes and coin	1 164	-124	390	4	-3	-1 476	-	45	-
Sterling treasury bills and government securities	-2 118	-587	-553	-1 370	116	3 595	23	894	-
National savings and tax instruments	1 437	-324	-687	1	116	-545	2	-	-
Issue Department's transactions in commercial bills	-	-618	649	-646	-	434	-	181	-
Other government domestic transactions	-6	-63	-636	-273	629	-768	1 117	-	-
Government overseas transactions	-	-	167	-1 415	-	3 283	-	-2 035	-
Local authority debt	-638	-66	-847	58	-56	4 871	-3 314	-8	-
Public corporations' debt	-13	-	-523	-30	111	716	48	-309	-
Deposits with banks:									
Sterling sight	8 139	1 894	-12 178	-	107	83	-108	83	-
Sterling time	8 390	4 405	-36 259	11 715	880	94	1 732	13 463	-
Foreign currency	177	216	-23 047	200	3	-98	8	20 301	-
Deposits with building societies	20 163	-90	-20 747	-	-	-	-	474	-
Bank lending (excluding public sector)	-12 689	-30 356	73 137	-10 587	-	-	-	-19 505	-
Other lending	-41 242	-1 232	35 614	6 926	-11	477	-273	-259	-
Trade and retail credit	-284	1 403	-	300	-1 108	7	-	-318	-
UK and overseas securities and unit trust units	99	5 616	-3 997	12 860	-74	-6 192	116	-8 428	-
Other domestic instruments	21 612	-4 984	174	-21 562	207	-813	-188	5 554	-
Other overseas instruments	8	6 623	-610	1 975	49	-246	-	-7 799	-
Accruals adjustments	1 680	818	-533	-2 060	-161	-21	277	-	-
Total financial transactions	5 879	-17 469	9 514	-3 904	805	3 401	-560	2 334	-
BALANCING ITEM	-20 215	10 833	-2 590	590	589	385	12 283	1 875	

1 Excluding tax credits.

2 After providing for stock appreciation but before providing for additions to dividend and tax reserves.

3 A positive figure indicates a decrease in stocks.

4 For detailed analysis by sector and type of asset see table 11.1.

at current factor cost equal to GDP (A) at current factor cost in base years (1975, 1980, 1985 etc) and then projecting GDP (O) forward using the product of the GDP (O) index and the deflator implied by the ratio of GDP (E) at current factor cost to GDP (E) at constant base year factor cost.

15. This estimate of GDP (O) at current factor cost is then taken together with the estimates of GDP (E) and GDP (I) at current factor cost to calculate GDP (A) at current factor cost, in the intervening years between base years, as a simple average of GDP (E), GDP (I) and GDP (O), each expressed at current factor cost.

16. It will be clear to readers by now that GDP estimates by the expenditure, income and output methods are not entirely independent. The output measure is largely independent as far as estimates of change are concerned but not in respect of estimates of levels since GDP (O) at current prices is constrained to GDP (A) in base years and GDP (A) in turn is calculated as the average level of GDP (E) and GDP (I) in base years. The levels of GDP (E) and GDP (I) are also, in the long term, linked through calculation of the evasion adjustment included in GDP (I).

17. The main source of information on factor incomes is Inland Revenue data obtained in the course of collecting taxes: such information will under-record income to the extent that it is concealed from the Inland Revenue. The expenditure measure, which is derived mainly from a wide range of business and household surveys designed specifically for statistical purposes, and from government accounting data, includes most, though perhaps not quite all, of the expenditure which corresponds to incomes not declared to the Inland Revenue.

18. To keep the income and expenditure measures of GDP consistent, therefore, the Central Statistical Office includes in the income measure an estimate of those factor incomes which, though they themselves are omitted from the basic statistics, nevertheless correspond to expenditure which is covered by the expenditure data. This estimate is called the "evasion adjustment".

19. Evasion adjustments in the national accounts are based on the trend of the "initial residual differences" (IRD) between the expenditure measure of GDP and the unadjusted total of factor incomes. During the last twenty years the evasion adjustment has fluctuated between 1 1/4 per cent and 3 per cent of GDP with the lowest percentages occurring in recent years. The adjustments have been allocated mainly to self-employment incomes, with much smaller adjustments to wages and salaries and to company profits.

20. A further but minor qualification on the independence of the three measures relates to items where the same data are used in two or three GDP measures. Examples are the imputed rent of owner occupied dwellings and non-trading capital consumption where the same estimates are used in all three measures.

The sector accounts

21. The institutional sector accounts do not play a major role in the determination of GDP estimates though their completion may lead statisticians to query items which have entered GDP estimates. A common example is to question whether changes in the financial surplus/deficit of industrial and commercial companies, which cannot be explained in terms of changes in their financial assets and liabilities, indicate that estimates of gross trading profits of capital formation are incorrect.

22. In the monetary sector there is a closer interrelationship between the sector accounts and the estimated contribution of monetary institutions to GDP. Data collected from these institutions on their operating surplus includes net receipts of interest which must be removed in order to estimate the operating surplus in national accounting terms for inclusion in GDP estimates. These same interest flows, using the same data source, also feed into the appropriate account of the monetary sector.

23. Input-output tables do not play a significant role in GDP estimates made four years after the event. Input-output tables are nevertheless produced every five years, most recently in respect of 1984. These tables are drawn up to be consistent with the aggregate income and expenditure estimates appearing in the CSO Blue Book, in particular with the 1987 Edition in the case of the 1984 input-output tables.

24. The structure of the 1984 input-output table is however being used in conjunction with quarterly estimates of production and trade trends to draw up estimates of the supply of different commodities to assist the compilation of some quarterly national accounts estimates for recent periods, in particular the recent estimates of gross domestic fixed capital formation.

Versions of the accounts

25. There is no fixed number of versions of the accounts that are produced for any given year. All estimates are always subject to revision. Nevertheless major revisions to estimates, because of new data, are unusual later than September of the fourth year (n+4) after the year to which they relate. Changes due to the adoption of new concepts or changes in practice may be made later than this, since the CSO has always aimed to make available complete sets of GDP statistics for all years on a consistent basis and without any discontinuities.

26. Taking GDP estimates for the year 1989, as an example, initial estimates, based on the sum of quarterly data, appeared in a CSO Press Notice on 19 March 1990. A second set of GDP estimates for 1989 appeared in a CSO Press Notice on 22 June 1990 which also presented initial estimates for the first quarter of 1990. A third set, including much more detailed analysis than previously will appear in the CSO Blue Book in the first half of September 1990 and a fourth set in the third week of December 1990. Further revised GDP estimates for 1989 will appear at further three month intervals until September 1992, following which revisions will generally be made only once a year each September when CSO Blue Books appear.

27. Some new sets of GDP estimates will contain substantial revisions, other sets only minor revisions or none at all. On the basis of past experience significant revisions may be expected to GDP estimates for 1989 in June 1990, September 1990, September 1991 and September 1992. The occurrence of revisions maily each September reflects the release of the CSO Blue Book in this month when data collected for the quarterly accounts are replaced by more comprehensive annual data (often called "benchmarking").

28. Amongst the main components of GDP (E) consumers' expenditure estimates finally settle down in September of the year (n+3) where n is year to which they relate. Fixed capital formation, stockbuilding and general government final consumption estimates are benchmarked in September of the year (n+2) and the balance of payments estimates settle down about the same time too.

29. Amongst GDP (I) components estimates of employment income are benchmarked in September of the year (n+2); of self-employment income in September of the year (n+3); of

industrial and commercial company profits in the year (n+3); and banks in the year (n+1).

30. It should be pointed out here that when new benchmark estimates are used for a particular year this will lead a reappraisal of estimates for later years. For example, benchmark estimates of industrial and commercial companies' profits for 1985 appearing in the CSO Blue Book, 1988 Edition, led to a reappraisal of profits estimates based on quarterly data for 1986 and 1987.

Dissemination of national accounts estimates

31. UK national accounts estimates are made available to users in a variety of ways, by press releases, statistical publications and through the CSO Databank. The principal statistical publications are "Economic Trends", which includes a special article with latest quarterly estimates four times a year, and "United Kingdom National Accounts", otherwise known as the "CSO Blue Book", which is an annual publication giving annual estimates, in very considerable detail, for the previous 11 years and some summary data for 22 years. Also "United Kingdom Balance of Payments", otherwise known as the "CSO Pink Book", is an annual publication with a similar timescale of data for the balance of payments accounts. There is also the CSO Databank which carries very detailed data for the last 25 years and many major economic aggregates as far back as 1948. Sources and method used in the national accounts are described in "United Kingdom National Accounts: Sources and Methods" with changes in sources and methods since the third edition issued in 1985 described in the latest CSO Blue Book. "Economic Trends" contains occasional articles describing various aspects of the accounts including descriptions of important developments when they occur.

32. An overview of the data flows for use in the national accounts is provided in Charts 1 to 4 which show the data sources for the three GDP measures, in the case of the expenditure measure with separate charts for consumers' expenditure and gross domestic fixed capital formation.

II. The detailed estimates of GDP

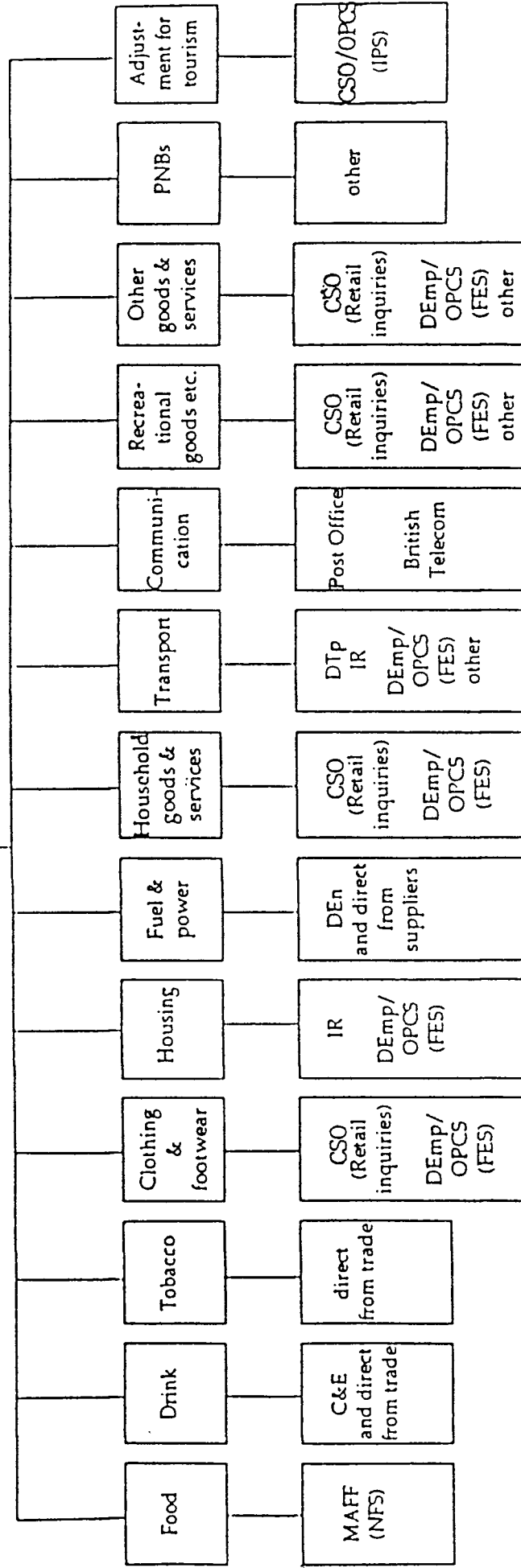
33. The first stage of the detailed estimates is the calculation of the "evasion adjustment" in order to estimate the value of factor incomes which are not included in the income statistics but which nevertheless correspond to expenditure covered in the expenditure measure. These calculations are set out in Annex A to this paper.

34. The second stage is the calculation of GDP (O) at current factor cost by application of the product of movements in the GDP (O) index at constant prices and movements in the GDP (E) deflator, to the average of GDP (E) and GDP (I) in successive base years. This detailed calculation is set out in Annex B.

35. The final stage is the calculation of GDP (A) at current factor cost as the average of GDP (E), GDP (I) and GDP (O) each at current factor cost. This is shown in Annex C which also shows the calculation of the statistical discrepancies between the GDP measures. Figures in the Annexes are shown rounded but actual calculations use unrounded estimates.

Chart 1. Consumers' expenditure

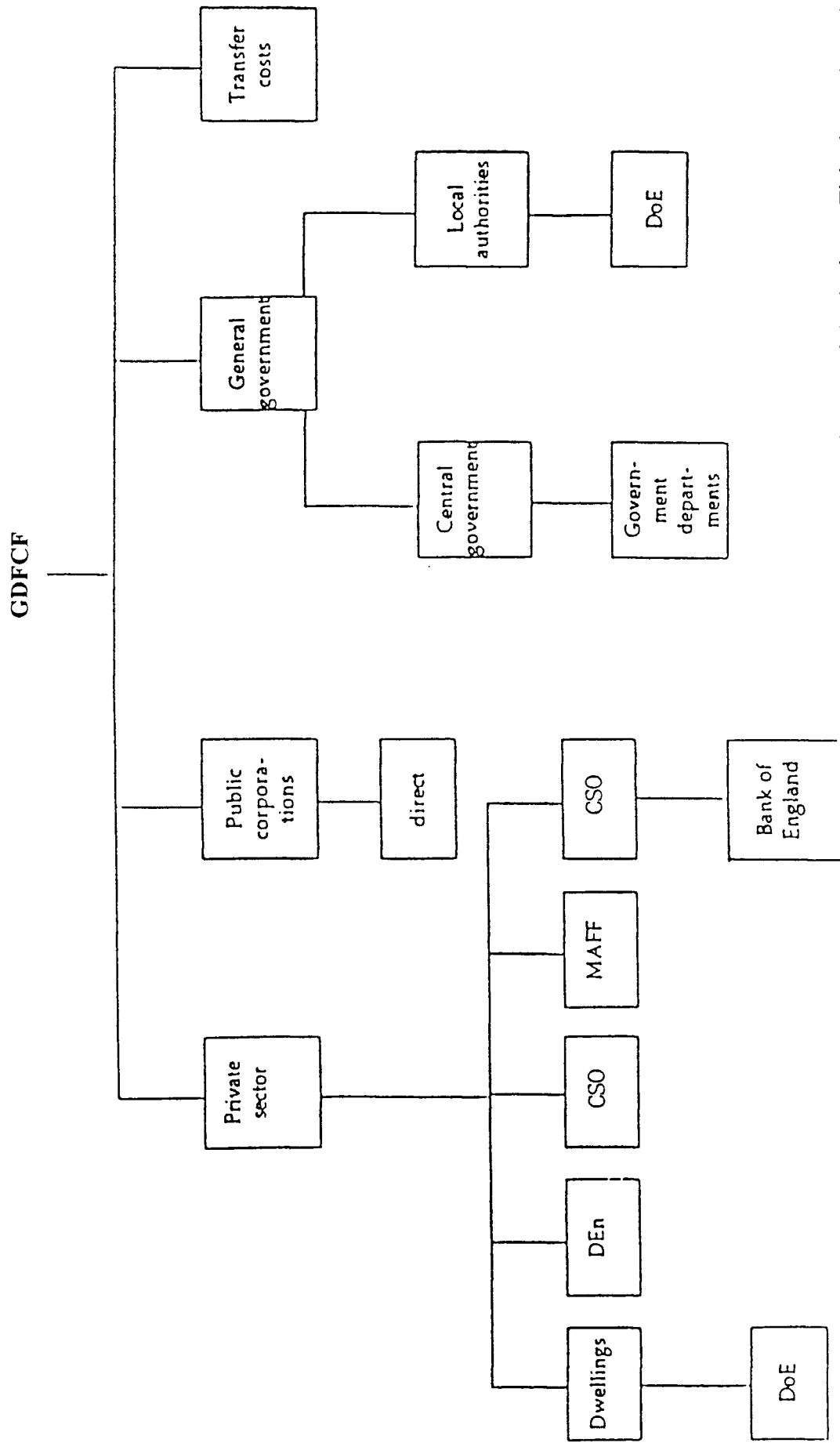
Consumers' expenditure



NFS - National Food Survey
 FES - Family Expenditure Survey
 IPS - International Passenger Survey

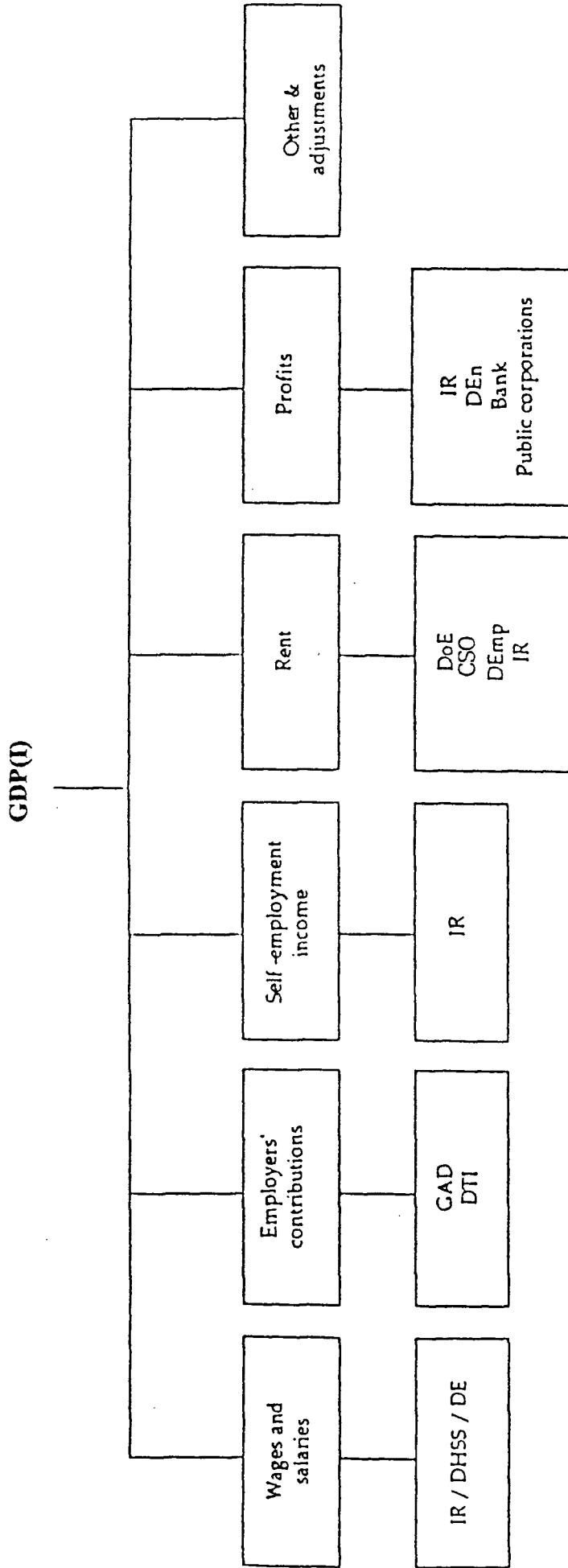
MAFF - Ministry of Agriculture, Fisheries and Food
 CSO - Central Statistical Office
 C & E - Her Majesty's Customs and Excise
 DE - Department of Employment
 DEn - Department of Energy
 DoE - Department of Environment
 IR - Board of Inland Revenue
 OPCS - Office of Population Census and Surveys
 DTP - Department of Transport

Chart 2. Gross Domestic Fixed Capital Formation (GDFCF)



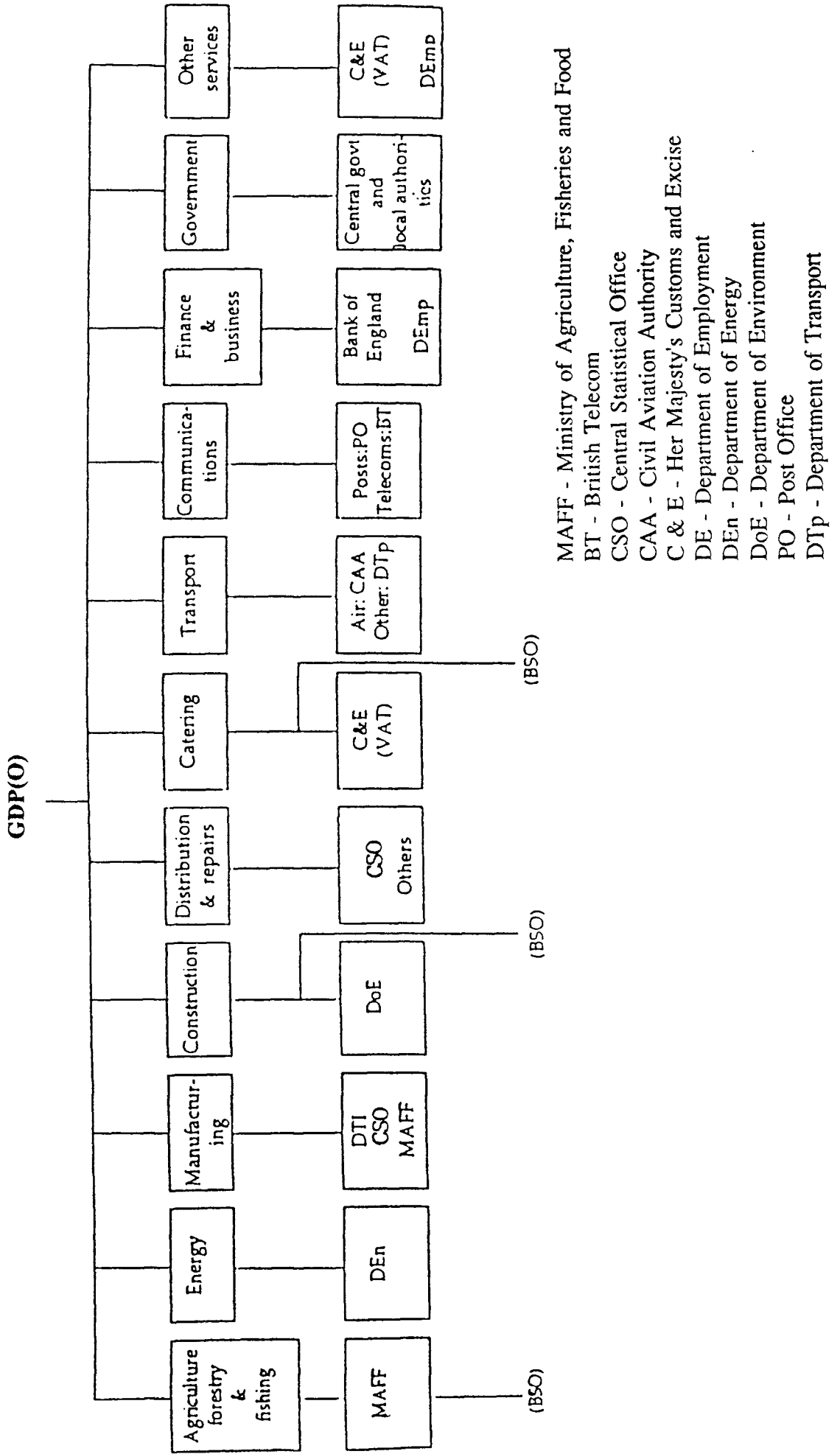
MAFF - Ministry of Agriculture, Fisheries and Food
 CSO - Central Statistical Office
 DEn - Department of Energy
 DoE - Department of Environment

Chart 3. GDP (I)



- CSO - Central Statistical Office
- DE - Department of Employment
- DEn - Department of Energy
- DoE - Department of Environment
- GAD - Government Actuary's Department
- DHSS - Department of Health and Social Security
- IR - Board of Inland Revenue

Chart 4. GDP (O)



Annex A. The evasion adjustment: detailed calculations

The detailed calculations are shown in Table 1.

Column (1) shows the income measure of GDP at current factor cost obtained by the addition of all the income components, except the amounts specifically referred to as "evasion adjustments".

Column (2) shows the expenditure measure of GDP at current factor cost obtained from the expenditure components.

Column (3) shows the "initial residual difference" which is calculated as the expenditure measure (column 2) less the income measure evasion adjustment (column 1).

Column (4) expresses the "initial residual difference" (column 3) as a percentage of the expenditure measure (column 2).

Column (5) is an adjustment column which is used to dampen the impact of "outliers". In particular the initial residual difference amounting to 6.5 per cent of the expenditure measure in 1976 is considered to be atypical and is adjusted downwards by 2 per cent.

Column (6) incorporates the adjustment in the previous column to produce an adjusted "initial residual difference" expressed as a percentage of the expenditure measure of GDP.

Column (7) is a 6 point centred moving average of the adjusted "initial residual difference" and is calculated as:

$$(IRD_{t,3}+2(IRD_{t,2}+IRD_{t,1}RD_t+IRD_{t+1}IRD_{t+2})+IRD_{t+3}) /12$$

where IRD is the "initial residual difference" in year t expressed as a percentage of the expenditure measure.

Column (8) is the "evasion adjustment" finally used, expressed as a percentage of the expenditure measure of GDP. Broadly this follows the trend of the "initial residual difference" though there is some abatement, especially for the 1970's, discounting the abrupt widening of the "initial residual difference" at that time which may have been associated with the prices and incomes policies then in force.

Column (9) is the "evasion adjustment" in £ million.

Column (10) is GDP (I) including the evasion adjustment calculated as column (1) plus column (9).

Table 1. Calculation of evasion adjustment

Year	(1) GDP excl Evasion Adjust- ment	(2) GDP (E)	(3) IRD	(4) IRD/ GDP (E) %	(5) Adjus- tment	(6) IRD/ GDP (E) (adjus- ted)%	(7) Centred 6 point moving average	(8) Evasion Adjust- ment as % GDPE	(9) Evasion Adjust- ment	(10) GDP (I) incl Evasion Adjust- ment
1970	43513	44129	616	1.40	NA	1.40	2.35	2.00	881	44394
1971	48551	50235	1684	3.35	NA	3.35	2.46	1.99	1002	49553
1972	55164	56114	950	1.69	NA	1.69	2.91	2.00	1120	56284
1973	63915	65646	1731	2.64	NA	2.64	3.46	2.49	1633	65548
1974	72254	76210	3956	5.19	NA	5.19	3.77	2.69	2048	74302
1975	91673	96455	4782	4.96	NA	4.96	4.01	2.88	2777	94450
1976	107115	114558	7443	6.50	2.00	4.50	4.22	2.98	3411	110526
1977	124993	130099	5106	3.92	NA	3.92	4.01	2.77	3600	128593
1978	144027	150055	6028	4.02	NA	4.02	3.57	2.40	3600	147627
1979	168012	172914	4902	2.83	NA	2.83	3.11	2.00	3500	171512
1980	196257	201276	5019	2.49	NA	2.49	2.65	1.75	3500	199757
1981	214287	219558	5271	2.40	NA	2.40	2.24	1.50	3300	217587
1982	234547	238115	3568	1.50	NA	1.50	1.89	1.25	3000	237547
1983	257358	261094	3736	1.43	NA	1.43	1.65	1.25	3300	260658
1984	274957	279112	4155	1.49	NA	1.49	1.42	1.25	3500	278457
1985	302054	305864	3810	1.25	NA	1.25	1.24	1.25	3800	305854
1986	320400	324187	3787	1.17	NA	1.17	NA	1.25	4100	324500
1987	351251	354614	3363	0.95	NA	0.95	NA	1.25	4400	355651
1988	389706	392731	3025	0.77	NA	0.77	NA	1.25	4900	394606

Annex B. The output measure of GDP at current factor cost: detailed calculations

The detailed calculations are shown in Table 2.

Column (1) shows the GDP (O) index at constant factor cost which is described in Chapter 12.

Column (2) shows the average of the expenditure and income measures of GDP in each base year. (These are the base years for the GDP (O) index and for the measurement of GDP (E) and GDP (I) at constant prices.)

Column (3) shows the GDP (E) factor cost deflator: that is the ratio of GDP (E) at current factor close to GDP (E) at constant factor cost.

Column (4) gives a projection of GDP (O) at current factor cost obtained for year t from the formula:

$$\begin{aligned}
 & (\text{Average of GDP(E) and GDP(I) in previous base year}) \times \\
 & \times \{(\text{GDP(O) index year t} / \text{GDP(O) index previous base year})\} \times \\
 & \times \{(\text{GDP(E) deflator year t} / \text{GDP(E) deflator previous base year})\}
 \end{aligned}$$

Column (5) gives scaling factors to be applied to the projections of GDP (O) at column 4. These scaling factors reflect the imposition of a requirement that the £ million GDP (O) values in successive base years should be the average of the expenditure and income based estimates. They constrain cumulative growth in GDP (O) between successive base years to that of the combined expenditure and income estimates. Thus the level of GDP (A) in base years and its growth over the intervening period in total are determined by the income and expenditure measures. The profile of GDP (A) between the base years, however, pays regard to movements in GDP (O) as well as GDP (E) and GDP (I).

The scaling factor is calculated for year t as follows:

$$\text{Ratio} \quad \frac{(\text{Average of GDP (E) and GDP (I) in subsequent base year})}{\text{-----}} \\
 \quad \quad \quad (\text{projected GDP (O) in subsequent base year})$$

raised to the power of

$$(\text{Number of years between previous base year and year t}) / 5$$

For years subsequent to the latest base year this scaling factor is set to one since for this period there is no reason to constrain the GDP (O) projections.

Column (6) is calculated as the product of column (4) and column (5).

Table 2. Calculation of GDP(O) at current factor cost

	(1)	(2)	(3)	(4)	(5)	(6)
	GDP (O) index number	Average of GDP (E) & GDP (I) at current factor cost	GDP (E) factor cost deflator	Proj- ected GDP (O)	Scaling factors	GDP (O) at cost current factor cost
1970	77.706	44301.5	19.076	43819	1.0110	44302
1971	78.825		21.183	49903	1.0048	50144
1972	81.285		23.320	56650	1.0097	57199
1973	86.021		25.192	64763	1.0146	65706
1974	84.743		29.419	74509	1.0195	75958
1975	83.138	95452.5	37.503	93181	1.0244	95453
1976	84.836		42.986	111645	1.0007	111725
1977	87.227		48.260	128874	1.0014	129060
1978	90.236		54.089	149423	1.0022	149746
1979	92.931		60.979	173487	1.0029	173987
1980	90.288	200516.5	72.282	199796	1.0036	200517
1981	89.048		79.548	217643	0.9991	217446
1982	90.961		85.167	238020	0.9982	237589
1983	94.048		90.029	260150	0.9973	259444
1984	96.560		94.917	281600	0.9964	280581
1985	100.000	305859.0	100.000	307248	0.9955	305859
1986	102.992		102.665	323406	1.0000	323406
1987	108.094		107.799	356400	1.0000	356400
1988	113.143		114.727	397025	1.0000	397025

Annex C. The average measure of GDP: detailed calculations

GDP (A) at current factor cost is calculated as a simple average of GDP (E), GDP (I) and GDP (O) each at current factor cost as shown in the table below. The table also shows the statistical discrepancy (expenditure adjustment) and statistical discrepancy (income adjustment) the former calculated as GDP (E) less GDP (A) and the latter as GDP (I) less GDP (A). The residual error is also shown and this is calculated as GDP (E) less GDP (I) which equates to the statistical discrepancy (income adjustment) less the statistical discrepancy (expenditure adjustment).

	GDP (E)	GDP (I)	GDP (O)	GDP (A)	Statistical discrepancies		Residual error
					Expenditure adjustment	Income adjustment	
1970	44209	44394	44302	44302	93	-92	-185
1971	50366	49553	50144	50021	-345	468	813
1972	56316	56284	57199	56600	284	316	32
1973	65646	65548	65706	65633	-13	85	98
1974	76210	74302	75958	75490	-720	1188	1908
1975	96455	94450	95453	95453	-1002	1003	2005
1976	114558	110526	111725	112270	-2288	1744	4032
1977	130099	128593	129060	129251	-848	658	1506
1978	150055	147626	149746	149142	-913	1516	2429
1979	172914	171512	173987	172804	-110	1292	1402
1980	201276	199757	200517	200517	-759	760	1519
1981	219558	217587	217446	218197	-1361	610	1917
1982	238115	237547	237589	237750	-365	203	568
1983	261094	260658	259444	260399	-695	-259	436
1984	279112	278457	280581	279383	271	926	655
1985	305864	305854	305859	305859	-5	5	10
1986	324187	324500	323406	324031	-156	-469	-313
1987	354614	355651	356400	355555	941	-96	-1037
1988	392731	394606	397025	394787	2056	181	-1875

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