

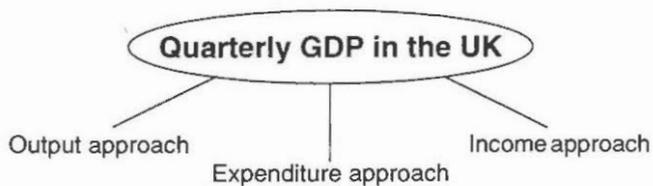
QUARTERLY NATIONAL ACCOUNTS IN THE UNITED KINGDOM: OVERVIEW OF UK APPROACH

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Introduction

The CSO has just published a methodological paper on 'Data sources for the quarterly national accounts'; this article outlines the main points from that paper. This article is, of necessity, much briefer than the methodological paper, which runs to 20 pages. Readers requiring more information should obtain a copy of the methodological paper from the contact given at the end of this article.

Summary



The UK Central Statistical Office produces, each quarter, GDP with its income, expenditure, and output components at current prices (income and expenditure components) and constant prices (output and expenditure components) and at factor cost and market prices. Current, capital, and financial accounts for seven institutional sectors are also produced. All the accounts are fully integrated and, in effect the overseas sector account is based on the quarterly balance of payments accounts. A preliminary estimate of GDP, derived from output data is released 3 1/2 weeks after the end of the quarter, with fuller breakdowns at 8 and 12 weeks after the end of the quarter.

Current and constant prices; seasonal adjustment

Both current and constant price estimates are compiled for expenditure components of GDP each quarter; income components are compiled on a current price basis whilst output components are available only in volume index format. In the presentation of quarterly GDP and current and capital accounts estimates for sectors, the emphasis is placed on seasonally adjusted series. Seasonally adjusted financial accounts have recently been introduced to allow a confrontation of the financial surplus or deficit from seasonally adjusted current and capital accounts for sectors against the sum of seasonally adjusted financial transactions.

Quarterly alignment of GDP estimates from the income, output, and expenditure approaches

The output approach to GDP is considered to provide the best estimates of quarter-to-quarter movements, so the income and expenditure totals are adjusted to reflect the movements in the output components. These adjustments are made to stockbuilding (in the expenditure analysis) and company profits (in the income analysis). These components are used as they are believed to have the widest error margins. These quarterly adjustments, known as alignment adjustments, sum to zero across a year.

Timing of GDP first releases

Estimates of GDP are published quarterly. The first estimate for the

latest quarter is based on output information and is published 3 weeks after the end of the quarter to which it relates. 8 weeks after the end of the quarter a broader based set of GDP estimates is published, giving the main output, expenditure and income components showing growth into the latest quarter; estimates for earlier periods are not revised. 12 weeks after the end of the quarter, the full set of GDP estimates is published, including revisions to earlier quarters. This full set of estimates is published in March, June, September, and December. Gross national product (GNP) and gross national disposable income are also estimated quarterly, and published together with the current, capital and financial accounts for seven institutional sectors (central government, local authorities, public corporations, financial companies and institutions, industrial and commercial companies, the personal sector, and the overseas sector).

Publication practices

National accounts data are published initially via pre-announced 'First Releases' which are distributed to the press and are available to the public. First Releases are also available via fax and pre-recorded telephone message. At the same time that First Releases are published a full set of accounts, including long-run series, are available in computer readable form through the CSO's Databank. Monthly, quarterly, and annual paper publications follow to meet reference and other user needs. These contain analyses of the data along with articles describing latest developments and methodology. 'UK Economic Accounts : a quarterly supplement to Economic Trends' provides the latest quarterly economic accounts.

The relationship between annual and quarterly GDP

The UK produces income, output, and expenditure based estimates of GDP. The quarterly output-based data are regarded as yielding the best short-term measure of changes in GDP, while input-output tables provide a coherent definitive measure of the annual level of GDP. The level of GDP for the annual figures for years subsequent to the input-output reconciliation are determined by the growth of the aggregates of expenditure, income, and output components of GDP. The quarterly path within these years is that derived from the output approach.

Input-output tables

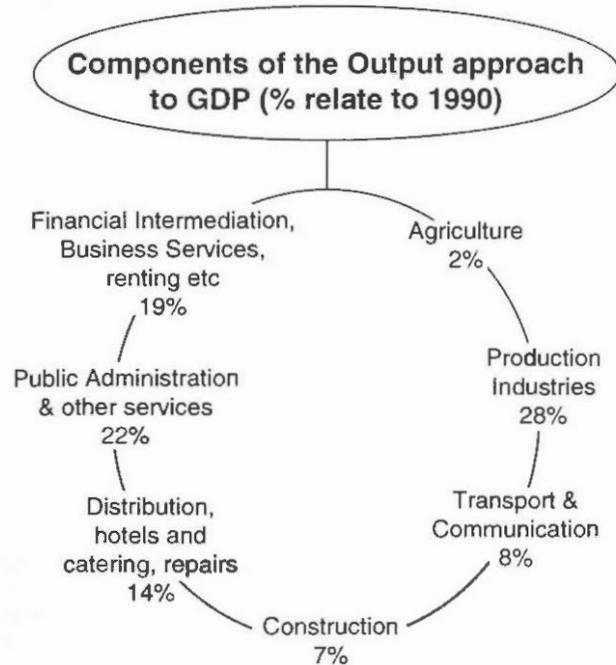
Value added at factor cost is obtained from the CSO's Input-Output balance at current prices. The balance gives a fully articulated analysis of transactions in products in the economy. All of the components of output, income and expenditure are reconciled in the building of the tables. The process of producing the balance is used to resolve the inevitable discrepancies in the component data. The Input-Output balance for 1990 involved the consideration of estimates for one hundred and twenty-three separate industries and products.

In year T the annual national accounts figures for year T-1 are published in 'United Kingdom National Accounts' (the CSO 'Blue Book'). Input-output tables for year T-2 are calculated and are used to reconcile the GDP components for that year.

Annual dataset

The annual Blue Book publication contains the definitive annual estimates plus some information which is only compiled annually. The annual dataset also contains more industrial analysis than the quarterly datasets. From 1995 the production of the annual dataset will be accelerated so that it is combined with the June quarterly release and made available from the Databank at the end of June..

OUTPUT APPROACH TO GDP



General Approach

GDP measured by the output approach is presented in seasonally adjusted index number form with the base year equal to 100. Quarterly series are calculated for a large number of industry groups and published for eight industry groups: agriculture, hunting, forestry and fishing; mining and quarrying; electricity, gas and water supply; manufacturing; construction; distribution, hotels and catering, repairs; transport and communication; financial intermediation, renting, business services etc; public administration etc, and other services. The indices for the different industries are currently combined using, as weights, estimates of value added at factor cost in 1990 obtained from the input-output tables.

Conceptually, net output at constant prices should be estimated by deflating separately the gross outputs and the gross inputs and subtracting one from the other. Because of the difficulties of obtaining the large amount of data necessary for this double-deflation, constant price net output is estimated by projecting base year value added by volume indicators. Gross output at constant prices is the most frequently used proxy, and will generally be broadly satisfactory for short-term movements. Total GDP is the sum of the projections of the base year net output for each individual industry.

Gross output is collected for reasonably homogenous industries, defined by a four-digit activity heading of the (1992) UK Standard Industrial Classification. The quarterly indicators for services, where deflated sales are progressively replacing productivity-adjusted employment proxies and other data, are in some cases benchmarked

to annual estimates. For the output of the production industries monthly indicators are used.

EXPENDITURE APPROACH TO GDP



Consumers' expenditure

Private consumption is defined to include household expenditure on durable and non-durable goods, services and final expenditure by private non-profit bodies serving persons. For the most recent quarters some estimates are based upon projections until the firm source data (e.g. Family Expenditure Survey) become available. The total estimate for each quarter is built up commodity by commodity both in current and constant prices. Over 100 groups of goods and services are distinguished in the quarterly calculations, which are then aggregated to the 13 groups published each quarter.

Three main types of statistics are used in the calculation namely (1) statistics of supply (eg tobacco and alcohol); (2) sample surveys of consumers' expenditure (eg Family Expenditure Survey); and (3) statistics of sales by retail shops and other outlets (eg retail sales inquiry).

Central and Local Government final consumption

The statistical base for quarterly final consumption by central government is fairly good. Expenditure by government departments is obtained from a quarterly analysis of expenditure charged to their accounts with the Paymaster General.

Less complete quarterly data exist for local government. There is, however, full coverage of wages and salaries paid in England, Wales and Scotland. Compensation of employees accounts for about 70 per cent of local authorities' current expenditure on goods and services.

Gross Fixed Capital Formation

There are two alternative methods for estimating fixed capital formation. The expenditure method, which uses information on the purchases of capital goods, and the commodity flow or supply approach which uses information on production and imports less exports of capital goods. In the UK the expenditure approach has been dominant. The supply approach is used mainly for short-term projections.

For the *manufacturing, energy, distributive and service industries*, the estimates are based on statutory quarterly sample surveys. The estimates from the inquiries account for about one-half of total gross fixed capital formation.

In the case of *private dwellings* an important statistical source is the quarterly survey of building output from a sample of contractors. This enquiry gives information on the institutional sector of the investor and type of building.

Different mixes of all the sources are used for estimating gross fixed capital formation by sector, type of asset and type of activity. The estimates of machinery, equipment and vehicles are then compared with estimates based on the supply of these capital goods and adjustments are made if appropriate.

Increase In Stocks

Information is collected from companies on the current 'book value level of stocks' (ie stocks valued at the price at which they were bought) for various activity groups. It is assumed that stocks are valued according to the FIFO (First In - First Out) principle. For each group the level of stocks is revalued to constant prices by dividing by the 'book value stocks price index' (which measures changes in the historic cost of stocks). The change in the constant price level of stocks over the period is calculated by taking the constant price level of the previous period from the constant price level for the current period and aggregating across activity groups.

For each activity group the constant price value of the physical increase in stocks is revalued to current prices using the 'current price stocks price index' (which measures changes in the current replacement cost of stocks). Stock appreciation is taken as the difference between change in stock at book value and the value at average current prices of the physical change.

For *manufacturing and energy industries* the statistical information is obtained from the CSO's monthly and quarterly stock inquiries. They are statutory and cover about three-quarters of the total of manufacturing stocks with larger enterprises being more than proportionately represented. The calculations of stock changes in *retail and wholesale distribution* are also based on quarterly statutory sample inquiries.

Quarterly changes in stocks for *agriculture and forestry* are obtained by interpolation and extrapolation of the annual data. For the construction industry stock changes are based on data from the Department of Environment for building work other than dwellings. To these are added estimates of work in progress on dwellings and of completed but unsold dwellings. Estimates for construction and motor trades are to be based on new quarterly inquiries.

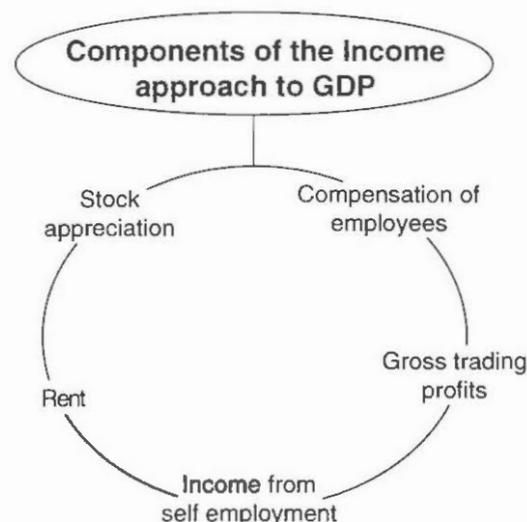
Exports And Imports of Goods And Services

The estimates of *exports and imports of goods* which are incorporated in the national accounts follow the same concepts as the United Kingdom Balance of Payments. The starting point for the estimates is the monthly Overseas Trade Statistics, which have to be adjusted to Balance of Payments concepts with regard to the valuation of imports and the coverage of both exports and imports. By far the largest set of adjustments are those which translate the imports figures from a "cost, insurance, freight" (c.i.f.) basis to a "free on board" (f.o.b.) basis. The allowances for freight and insurance are based on a variety of sources, such as freight rates for a sample of commodities, data from oil companies and customs documentation. A wide variety of coverage adjustments are made, including (for example) estimates for returned goods and goods for processing and repair, second-hand ships and aircraft, new ships delivered abroad and exports by letter post. Sources for these include data compiled

by HM Customs and Excise, the General Register of Shipping and a sample inquiry conducted by the Post Office.

Exports and imports of services rely on a wide variety of sources, which are described more fully in the methodological paper.

INCOME APPROACH TO GDP



Compensation of Employees

The main source for the wages and salaries is annual Inland Revenue information based on returns to tax offices. A quarterly path is constructed from Employment Department monthly and quarterly surveys of numbers in employment and the quarterly survey of average earnings.

Gross Trading Profits

The estimates are made separately for private companies (ie industrial and commercial companies, and financial companies and institutions), public corporations and other public enterprises. The quarterly calculations of the *gross trading profits of private companies* are based on a quarterly statutory inquiry of about 1,500 large company groups, which account for about two thirds of total profits. The larger *public corporations*, including National Health Service (NHS) Trust hospitals since their creation in April 1991, provide quarterly data on their sources and uses of funds.

Income From Self-Employment

Quarterly estimates of *income from self-employment of farmers* is obtained by interpolation and projection of annual estimates of income from the Ministry of Agriculture Fisheries and Food. Quarterly estimates of *other self-employed income* are based on Inland Revenue actual and projected annual data based on tax returns and adjusted to a national accounts basis. Interpolation and projection is used to obtain a quarterly path.

Rent

The quarterly estimates of income from rent are generally obtained by interpolation and projection of annual data. The annual figures include both paid and imputed rent.

Stock Appreciation

Stock appreciation is calculated as the difference between the change in stock at book value and the value (at average current prices) of the physical change in stock.

SECTOR ACCOUNTS

INTRODUCTION

In the UK a detailed set of quarterly sector accounts are compiled for current, capital, and financial transactions, and for seven institutional sectors : central government, local authorities, public corporations, financial companies and institutions, industrial and commercial companies, the personal sector, and the overseas (rest-of-the world) sector.

The sector accounts are published 12 weeks after the end of the quarter as part of the full national accounts and balance of payments accounts and are fully articulated with the other accounts. The initial pre-publication estimates for national income, sector accounts and balance of payments are prepared and then scrutinised together at a series of arbitration meetings each quarter to ensure consistency and coherence.

The sector accounts draw on the information used in the calculation of GDP. The interest and dividend flows between sectors are obtained from direct sources (eg general government) or are modelled by applying interest rates to the stock of capital assets. These calculations are carried out in the derivation of the Dividends and Interest Matrix (DIM) .

The sector accounts are published quarterly via the monthly 'Financial Statistics' and in 'UK Economic Accounts : A quarterly supplement to Economic Trends'. They are also released via the CSO databank service. More detail on the data sources for the sector accounts is given in the methodological paper.

FURTHER INFORMATION

CSO Methodological paper number 3 'Data sources for the quarterly accounts' (ISBN 0 903834 83 9) is available, price £12.99, from the CSO Library, Room 1.001, Government Buildings, Cardiff Road, Newport, Gwent, NP9 1XG. Tel 01633 812973

For further information on the UK quarterly accounts, please contact David Caplan on 0171 270 6102.