

Article

# A short guide to gross fixed capital formation and business investment

This article provides a useful background of how to interpret, compare and analyse statistics regarding gross fixed capital formation and business investment.

Contact:  
Alison McCrae  
gcf@ons.gsi.gov.uk  
+44 (0)1633 455250

Release date:  
25 May 2017

Next release:  
To be announced

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# 1 . Understanding the data

Gross fixed capital formation (GFCF) is used in the compilation of the UK National Accounts' expenditure approach to the measurement of gross domestic product (GDP) in the [second estimate of gross domestic product \(GDP\)](#) at month 2 and the [Quarterly National Accounts \(QNA\)](#) at each calendar quarter. It is an estimate of net capital expenditure by both the public and private sectors. Examples of capital expenditure include spending on plant and machinery, transport equipment, software, new dwellings and other buildings, and major improvements to existing buildings and structures, such as roads. The additional assets, research and development, and military weapons systems were introduced in the [Quarter 2 \(Apr to June\) 2014 revised results release](#), published November 2014, consistent with the European System of Accounts 2010 and with the UK Annual National Accounts (Blue Book) 2014.

Business investment estimates are a short-term indicator of net capital expenditure by businesses within the UK, at current prices and chained volume measures, both seasonally and non-seasonally adjusted. Business investment is one component of GFCF. Business investment estimates exclude expenditure on dwellings and the costs associated with the transfer of ownership of non-produced assets, and capital expenditure by local and central government.

## Interpreting the data

When making comparisons it is recommended that you focus on chained volume, seasonally adjusted estimates as these show underlying movements rather than seasonal movements, and have the effect of changes in prices removed.

## Use of the data

Estimates from the latest release are used by the Office for National Statistics (ONS) in the [compilation of the UK National Accounts](#), and by the Bank of England and Her Majesty's Treasury to monitor economic performance and to inform monetary and fiscal policy decisions. Business investment is also used by other government departments, such as the Department for Business, Energy and Industrial Strategy. In addition, these estimates are frequently used by the business, education and research communities, the media and the general public.

# 2 . Definitions and explanations

## Current prices (CP)

Current prices are the actual or estimated recorded monetary value over a defined period. They show the value for each item expressed in terms of the prices of that period.

## Deflation and chained volume measure (CVM)

Investment is measured across several time periods. The values measured will include both the change in the volume of investment and the effect of the change of prices over the period. Deflation is the process whereby the effect of price change is removed from a set of values.

Deflation can be done simply by dividing a current price estimate by a deflator, which measures the movement in prices. Doing this creates a constant price series. For deflators to accurately measure the movement in prices they need to accurately reflect changing investment habits. We do this by rebasing deflators.

Rebasing deflators has a significant effect on a constant price series and would cause significant revisions to the investment data. To avoid this it has been the standard to not rebase deflators annually. This, however, means the deflators are not accurately measuring price changes.

To resolve this we estimate volumes using chained volume measures, which are derived by linking together (compounding) movements in volumes; calculated using the prices of the previous financial year; and applying the movements to the current price estimates of the reference year. This allows us to remove both the effect of prices and rebasing.

## **Seasonally adjusted (SA)**

Seasonal adjustment aids interpretation by removing effects associated with the time of the year or the arrangement of the calendar, which could obscure movements of interest. For example, retailers typically hold more inventories in the run up to Christmas and government organisations tend to spend more in Quarter 1 of each year at the end of the financial year. The data is seasonally adjusted to give a better.

**Table 1: Assets for short guide**

Published Asset	Includes	Definition	Examples (N.B. not exhaustive)
Dwellings	Dwellings	Dwellings are buildings, or designated parts of buildings, that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences	Houses, mobile homes and caravans. However, it should be noted that dwellings does not include prisons, boarding schools or hospitals
Transport	Transport equipment	Transport equipment consists of any equipment used to move people and objects.	Motor vehicles, trailers, ships, trains, trams, aircraft, motorcycles, and bicycles
Intellectual property products (IPP)	Research and development	This is the value of expenditure on creative work to increase the stock of knowledge, which developers can market or use for their own benefit when producing goods and services.	Development of software programs or design for a new aircraft
	Mineral exploration	This is the value of expenditure on exploration for petroleum and natural gas and for non-petroleum deposit and the subsequent evaluation of the discoveries made.	License and acquisition costs, appraisal costs, costs of test drilling and boring
	Software and Databases	Software consists of computer programs and supporting systems for both systems and application software.	Packages such as Microsoft Office and VLC Media Player
	Entertainment	This consists of the original films, recordings, manuscripts, tapes, etc which drama performances, radio, television programmes, sporting events and etc are recorded and embodied.	Films, tapes, recordings, radio and television programmes and books
Other buildings and structures and transfer costs	Other buildings	Other buildings are buildings that are not dwellings, industrial buildings, commercial buildings, educational buildings and health buildings.	Schools, hospitals, prisons, religious, sport, amusement and community buildings
	Transfer costs	Transfer costs, sometimes known as cost of ownership transfer, are the costs associated with buying or selling an asset	Transportation costs, legal fees and stamp duty.
Information and communication technology equipment (ICT) and other machinery and equipment	ICT	This mainly consists of computer hardware and telecommunications equipment such as computers and mobile phones	Computers, laptops, mobile phones and gaming consoles
	Other machinery and equipment including weapons	Other machinery and equipment consists of all equipment and machinery that is for general or special use. General use machinery includes engines, turbines, ovens, etc. Special use machinery includes machinery for mining, domestic appliances, agricultural equipment, etc	Typically large electronic equipment (e.g. equipment used in the production of goods and services)
	Cultivated	Cultivated assets are livestock for breeding (including fish and poultry)	Livestock not for slaughter, orchards, vineyards, dairy draught

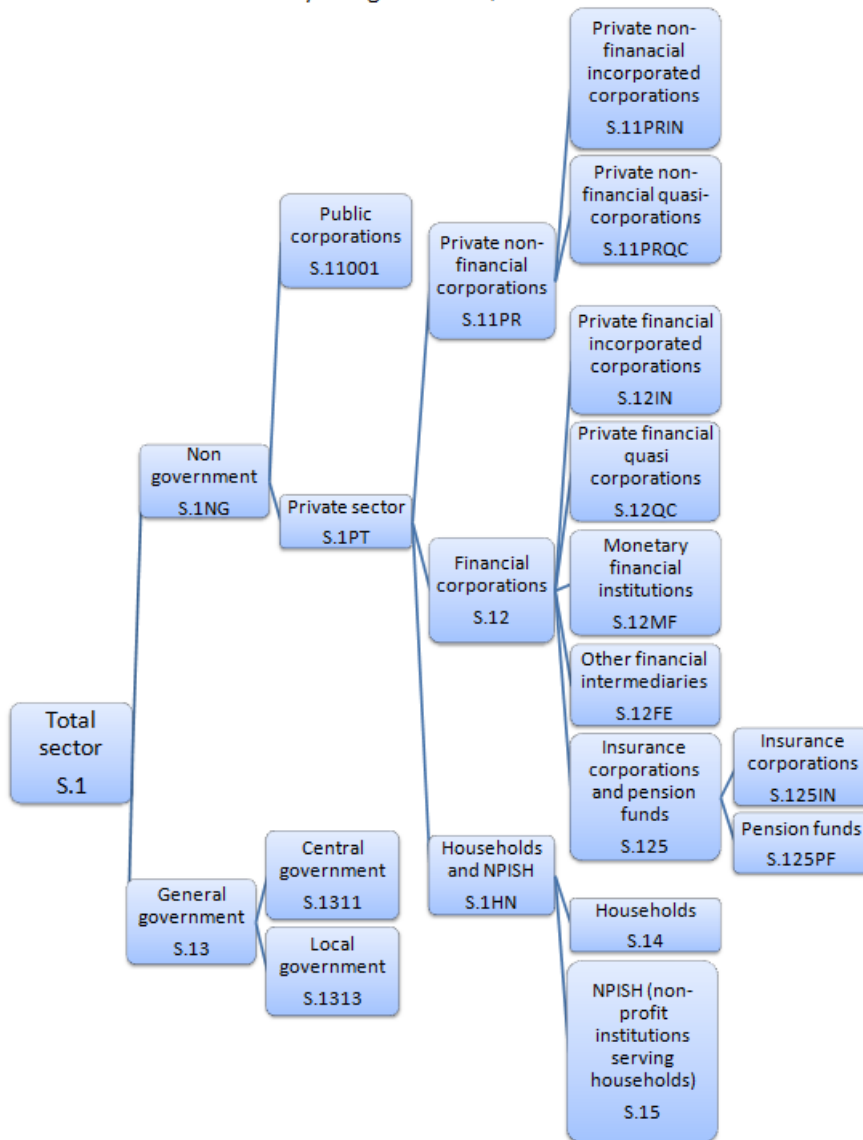
Source: Office for National Statistics

### 3 . Asset and sector hierarchies

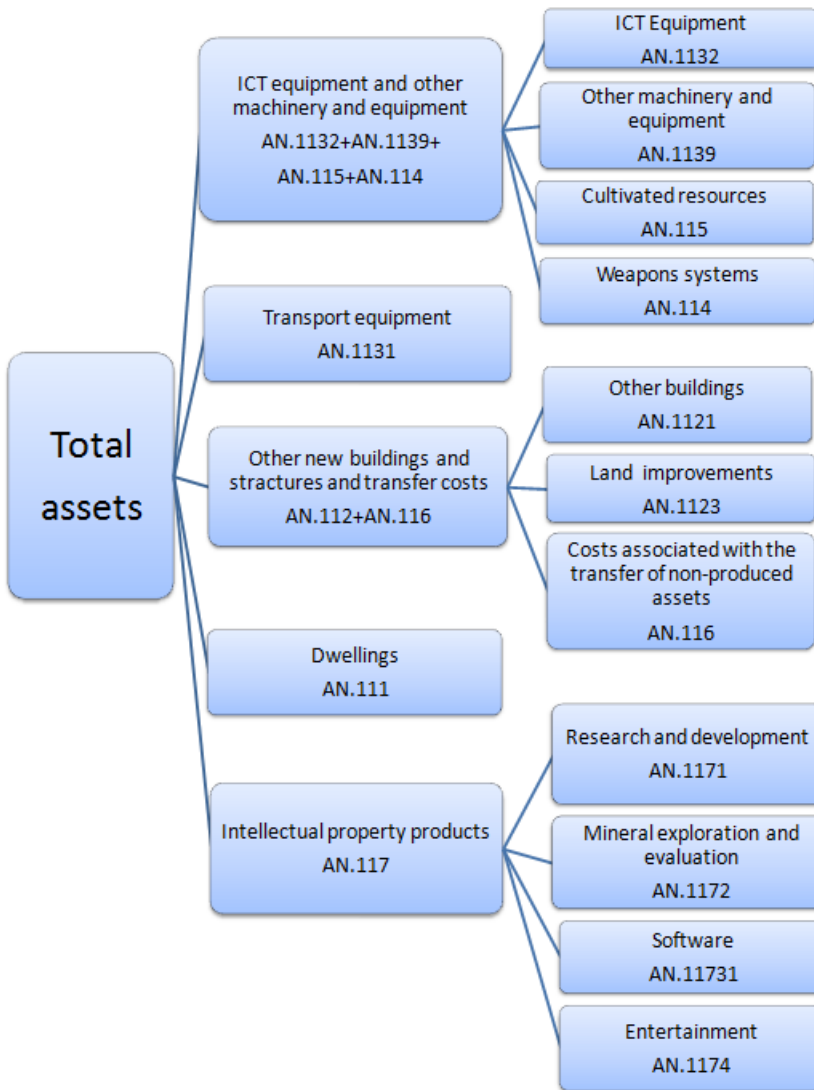
The diagrams show the institutional and sector hierarchies for gross fixed capital formation (GFCF), as set out by the European System of Accounts 2010. The asset hierarchy for business investment is also set out. Business investment is not an internationally defined concept, and the UK's estimates cannot be compared with those of other countries due to definitional differences. A full list of sector codes, for example, S.11001 equals public corporations, is available in the datasets.

**Figure 1: Institutional sector hierarchy**

Business investment is solely non-government, S.1NG

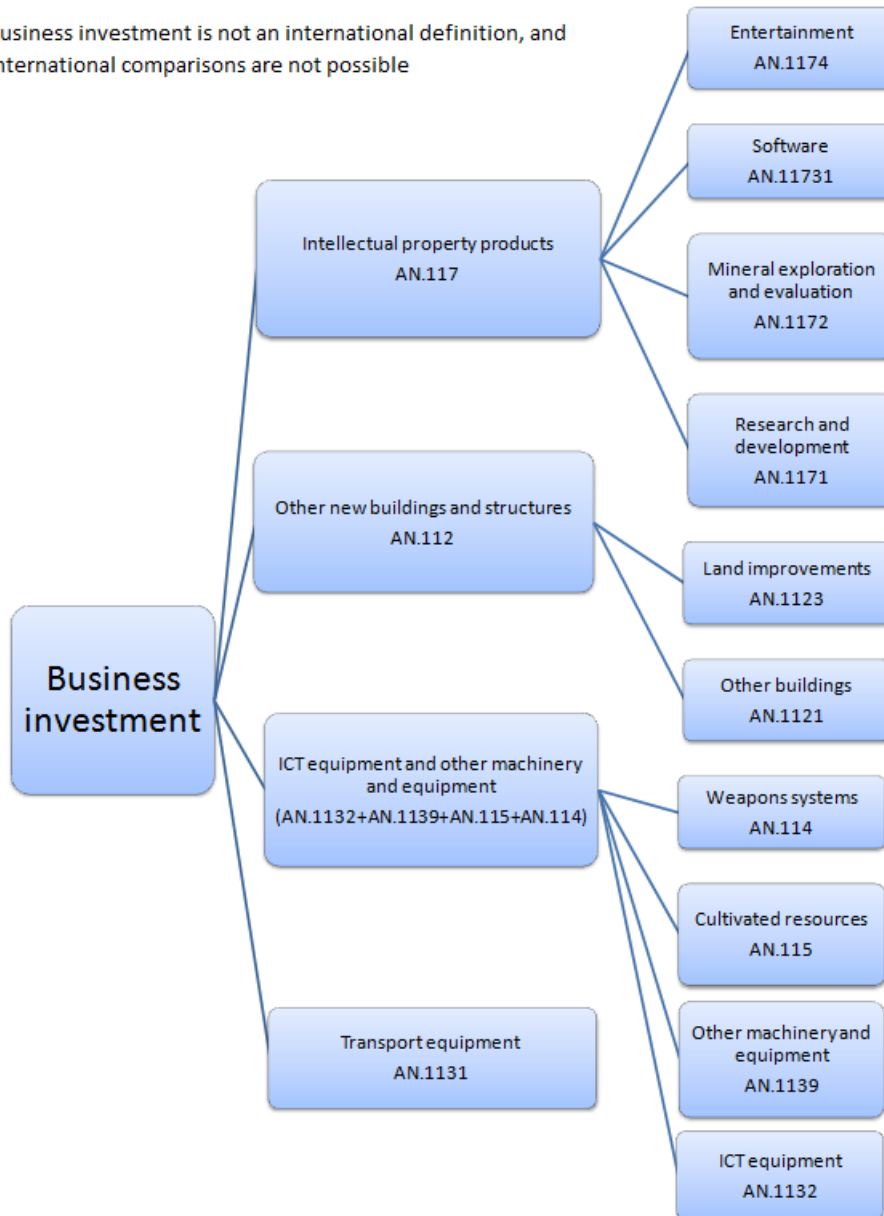


**Figure 2: Gross fixed capital formation asset hierarchy**



**Figure 3: Business investment by asset**

Business investment is not an international definition, and international comparisons are not possible



## 4 . British Nuclear Fuels Ltd (BNFL)

In April 2005, nuclear reactors were transferred from British Nuclear Fuels Ltd (BNFL) to the Nuclear Decommissioning Authority (NDA). BNFL is classified as a public corporation in national accounts and the NDA as a central government body. The capital formation estimates in the latest release reflect this transfer from the public corporations manufacturing category. The value of the transfer was negative £15.6 billion. The negative value reflects the fact that the reactors are at the end of their productive lives and have large decommissioning and clean-up liabilities. This shows up as a prominent trough in Quarter 2 (Apr to June) 2005 in the general government series and a complementary peak in Quarter 2 of the business investment series, which includes investment by public corporations (except dwellings and transfer costs). A more detailed explanation about the transfer can be found in the [December 2006 Business investment release](#).

## 5 . Other relevant sources of data

International business investment comparisons are not available on a like-for-like basis, as the compilation of European statistics on business investment differs from the data provided within the latest release. However, European estimates of business investment provided by Eurostat, the European statistical office, can be found on the [Eurostat website](#).

Business investment in the UK accounts for over half of total gross fixed capital formation (GFCF).

The [GSS Business Statistics – interactive user guide](#) is an interactive tool to help you find what business and economic statistics are available, and choose the right data for your needs.

We publish the following statistical releases, which provide complementary information on UK business and economic performance:

- [Profitability of UK companies](#) – quarterly data on capital employed by private non-financial corporations (PNFCs); contains annual, net and gross rates of return (expressed as percentages) on capital used by PNFCs
- [Quarterly national accounts](#) – includes UK data on GFCF and changes in inventories
- [UK Economic Accounts](#) – quarterly detailed estimates of national product, income and expenditure, UK Sector Accounts and UK Balance of Payments, including data on GFCF
- [UK National Accounts: the Blue Book](#) – annual publication of the UK National Accounts, including data on GFCF
- [Retail sales](#) – monthly estimate of UK retail sales
- [UK manufacturers' sales by product \(PRODCOM\)](#) – annual output by manufacturers
- [Labour market statistics](#) – monthly data on employment, unemployment, economic inactivity, claimant count, average earnings, labour productivity, vacancies and labour disputes
- [Business demography](#) – annual statistics on UK business births, deaths and survival

## 6 . Feedback

We welcome your feedback on the business investment release and data. Please contact [gcf@ons.gsi.gov.uk](mailto:gcf@ons.gsi.gov.uk). You can also engage in discussion about business investment and share information with other users or producers of financial and economic statistics by visiting the Financial and Economic Statistics User Group on the Royal Statistical Society's [StatsUserNet](#) discussion forum.