

Business Investment QMI

Quality and Methodology Information for business investment, detailing the strengths and limitations of the data, methods used and data uses and users.

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1 . Methodology background

- National Statistic: yes
- Frequency: quarterly
- How compiled: Sample-based surveys and administrative sources; further information on surveys and administrative sources can be found in [Section 6: Methods used to produce the Business Investment data](#)
- Geographic coverage: UK
- Last revised: 11 August 2023

2 . About this Quality and Methodology Information report

This quality and methodology report contains information on the quality characteristics of the data (including the European Statistical System five dimensions of quality) as well as the methods used to create it.

The information in this report will help you to:

- understand the strengths and limitations of the data
- learn about existing uses and users of the data
- understand the methods used to create the data
- help you to decide suitable uses for the data
- reduce the risk of misusing data

3 . Important points

- Business investment is a quarterly publication that measures net capital expenditure by UK businesses on non-financial assets.
- The publication also includes gross fixed capital formation estimates at broad-sector level and asset type for the whole economy; business investment is a sub-component of gross fixed capital formation.
- On average business investment contributed approximately 10% to the levels of gross domestic product (GDP) for the expenditure approach since 2018; business investment and wider gross fixed capital formation contribute to the expenditure approach to measuring GDP.
- Estimates are available in current prices and chained volume measures, seasonally adjusted and unadjusted; chained volume measures should be used when looking to make comparisons over time.
- Business investment headline and asset estimates are usually available from 1997 onwards, however, additional challenges, linked to the introduction of the improved GFCF system, have meant delays in producing data on the new, improved, basis; we plan to reintroduce these outputs as part of our Blue Book 2023 suite of publication outputs.
- Headline-level gross fixed capital formation estimates are available from 1948 on an annual basis and from 1955 on a quarterly basis.
- Business investment estimates are available from 1965 onwards while data prior to 1997 are to be regarded as indicative only, because of the basic method of calculation and other limitations in the methods used for compiling this dataset; more information on these limitations can be found in the [pre-1997 dataset](#).

4 . Quality summary

Overview

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 and are produced quarterly. The estimates cover business investment by both private and public corporations. Examples of capital expenditure include spending on computer hardware, machinery, transport equipment, software, and new building work. Business investment excludes expenditure on dwellings and the costs associated with the transfer of ownership of non-produced assets and capital expenditure by local and central government.

Business Investment estimates are published twice each quarter – [provisional Business Investment estimates](#) are published alongside the First Quarterly Estimate of GDP; [revised estimates of Business Investment](#) are published alongside the Quarterly National Accounts.

Business Investment estimates also feed into gross fixed capital formation estimates updated each year as part of the [Annual National Accounts](#) and usually published in July or October each year (estimates published in the UK National Accounts, the Blue Book, are subject to a process of annual reconciliation).

Uses and users

Business Investment as part of the UK National Accounts, provides the basis for analysing the economic performance of the country, and is used throughout business and research communities, education, media, and the general public. The accounts are major inputs to HM Treasury (HMT) and Bank of England decisions on fiscal and monetary policy and the forecasts produced by the Office for Budget Responsibility (OBR).

Recent improvements

Continuous improvement is a priority for the Business Investment release. As a part of The Blue Book 2022, several changes were implemented, which can be found in the latest [Gross fixed capital formation supplementary tables](#). These changes include:

- improved estimation method for own-account construction of dwellings using data from the Homebuilder and Renovating Self-build Market Report, House Price Index (HPI), HM Revenue and Customs (HMRC), Average Weekly Earnings (AWE)
- improved estimates for Insurance and Pensions using information from the Financial Survey of Pension Schemes (FSPS)
- incorporation of revised Annual Business Survey benchmarks for 2019 and new data for 2020

Details of changes from previous periods can be found in the Gross fixed capital formation tables of [previous Blue Book releases](#). Changes implemented over these periods, listed with the most recent first, include:

- [double deflation](#) methods were implemented for GDP – under double deflation, for every industry, the current price estimate of its output is deflated by a price index for output and the current price estimate of its inputs is deflated by an input price index; it is widely recognised as the best approach to producing volume estimates of GVA
- prior to the implementation of double deflation, the SUT framework was only used for balancing current price estimates while since the extension of these volume measures and implementation of double deflation, this has meant that the expenditure and production estimates are now confronted at a lower industry and product level than previously used; further information is available on [specific impacts by industry](#), and the [changes in Blue Book 2021](#).
- update of the reference and base year for chained volume measure (CVM) estimates to 2019
- implementation of chain-linked business prices for consistency with other price indices

5 . Quality characteristics of the business investment data

This section provides a range of information that describes the quality and characteristics of the data and identifies issues that should be noted when using the output.

Relevance

The degree to which statistical outputs meet users' needs.

The primary purpose of the business investment release is to publish estimates of spending on capital investment by UK businesses in more detail than is available in the quarterly or annual national accounts releases. Although, unlike much of the rest of the national accounts publications, this is not a European Union legal requirement, publication of these detailed breakdowns is in response to requests by important customers, such as the Bank of England (BoE), the Office for Budget Responsibility (OBR) and HM Treasury (HMT). The estimates are used by these customers for analysis and forecasting, and to inform monetary and fiscal policy decisions.

In addition, estimates published in the release are used widely by other government departments, the international research community, business and business consultants, and by the media for commentary on economic trends.

For more detailed breakdowns, please email your request to gcf@ons.gov.uk. These can be delivered if they meet the required standards for quality and disclosure control. Customers may be charged for special analysis work, in accordance with the Office for National Statistics' charging policy. A list of datasets already created in response to customer requests is also available.

Accuracy and reliability

The degree of closeness between an estimate and the true value.

Some common pitfalls in interpreting series are:

- expectations of accuracy and reliability in early estimates are often too high
- early estimates are based on incomplete data
- revisions are an inevitable consequence of the trade-off between timeliness and accuracy

Very few statistical revisions arise as a result of “errors” in the popular sense of the word. Most revisions reflect either the adoption of new statistical techniques or the incorporation of new information, which allows the statistical error of previous estimates to be reduced. Only rarely are there avoidable “errors” such as human or system failures and such mistakes are made quite clear when they do occur.

The business investment estimates are quality assured using a variety of standard practices, such as movement analysis at sector, industry, and asset level. Any atypical movements are investigated so that the data quality is assured, and movements are understood.

All sample survey estimates are subject to statistical error. This refers to the uncertainty in any process or calculation that uses sampling, estimation, or modelling. The statistical accuracy is dependent on effective sample design and sample size. The sample design for the Quarterly Acquisitions and Disposals of Capital Assets Survey (QCAS) is regularly reviewed. The sample size of the survey (24,500) represents a trade-off between improved quality for larger samples and costs, both in terms of the burden on respondents and the financial costs of running the survey. Short-term indicators, which are produced several times a year, tend to have smaller sample sizes than annual surveys for these reasons.

The statistical accuracy of the business investment estimates is also dependent on the QCAS response rates. The response rate for the provisional results is lower than that for the revised results, because not all businesses will have responded by the time of publication. Hence, the provisional results are usually less accurate than the revised results. As a result of lower response rates at the provisional release, incoming data is often lower, and therefore we have upwards revisions at revised results. To counteract this, we implement a bias adjustment to minimise the revisions seen at revised results. This bias adjustment is calculated by using the average revision of the previous three-year period, with the greatest weighting applied to the most recent year.

Revisions are a consequence of the trade-off between timeliness and accuracy. Business investment estimates are subject to revision because of:

- the timing of responses to the QCAS, as described previously
- later availability or revisions to other data sources
- revisions to seasonal adjustment factors, which are re-estimated every quarter
- the annual update to the Inter-Departmental Business Register from which the QCAS is sampled; this usually occurs in Quarter 1 (Jan to Mar) and has the greatest impact on the results published in May

Not all public corporations data are available in time for the provisional release, so some are nowcast (meaning that some describe present conditions). In the revised release, these nowcast data are replaced with returned data.

The reliability of the business investment estimates is assessed through analysis of the revisions. The size of the revisions shows how close the values of early estimates are to the revised estimates. The results of these analyses are published in [revisions triangles in our Business investment dataset](#). For business investment, two analyses are made: firstly, between the provisional business investment estimates and the revised business investment estimates; and secondly, between the revised business investment estimates and the equivalent estimates published three years later.

Revisions to the business investment estimates are made in accordance with national accounts revisions policy.

Coherence and comparability

Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain, for example, geographic level.

Business investment is not an internationally recognised concept and therefore, it cannot be used to make international comparisons. GFCF, however, is an internationally recognised concept in the [European System of Accounts](#) (ESA) and the [System of National Accounts](#) (SNA) and is therefore internationally comparable.

Time series for business investment estimates are available on a quarterly and annual basis from 1997 onwards. However, we have also produced a longer time series dataset in containing estimates of business investment from 1965 onwards. This can be found in our [business investment headline data pre-1997 dataset](#). The pre-1997 data are to be regarded as indicative only because of the basic method of calculation and other limitations in the methods used for compiling this dataset. In-depth seasonal adjustment reviews are completed annually for business investment, but shorter reviews can also be completed as the need arises.

The data sources and methodology used in the production of the Business investment statistical bulletin are consistent with those used in the expenditure measure of gross domestic product (GDP), published in the Quarterly national accounts statistical bulletin. Information on QCAS methodology can be found in the [Quality and Methodological Information for QCAS](#).

To ensure that a time series remains consistent, changes to methodology are applied to the whole time series where possible. However, as changes to one component of the national accounts can have an impact on other components, the [national accounts revisions policy](#) has been developed to manage this. The revisions policy is designed to give users a clear understanding of which periods are open for revision at each data release and why incorporating revisions from a single source is not a simple matter. This means that not all revisions can be taken on at any time.

Further explanation around coherence, compatibility and balancing form a major part of the article [Monitoring the quality of the National Accounts \(2008\) \(PDF, 338KB\)](#).

Accessibility and clarity

Accessibility is the ease with which users are able to access the data, also reflecting the format in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the release details, illustrations and accompanying advice.

Our recommended format for [accessible content](#) is a combination of HTML web pages for narrative, charts and graphs, with data being provided in usable formats such as CSV and Excel. We also offer users the option to download the narrative in PDF format. In some instances, other software may be used, or may be available on request. Available formats for content published on our website but not produced by us, or referenced on our website but stored elsewhere, may vary. For further information, please contact us via email at gcf@ons.gov.uk.

For information regarding conditions of access to data, please refer to:

- [terms and conditions](#)
- [copyright and reuse of published data](#)
- [pre-release access](#)

In addition to this Quality and Methodology Information report, basic quality information can be found in our article, [A short guide to gross fixed capital formation and business investment](#).

The Business investment statistical bulletin and time series datasets are available to download free from the National Statistics website at 9.30am on the day of publication.

The Business investment statistical bulletin conforms to the standards set out in the UK Statistics Authority's Code of Practice for Official Statistics. Time series used in the Business investment statistical bulletin and time series datasets carry unique identifiers for ease of use. The Business investment statistical bulletin includes commentary on the dataset in addition to relevant graphs and tables.

Timeliness and punctuality

Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the gap between planned and actual publication dates.

Provisional business investment estimates are published around six weeks after the end of the reference quarter, on the same day as the UK National Accounts' Second estimate of gross domestic product (GDP) release. Revised business investment estimates are published around 12 weeks after the end of the reference quarter, on the same day as the quarterly national accounts. The [Blue Book](#)-consistent dataset is published either in June or September, six or nine months after the reference period.

The lapse of time between publication and the period to which the data refer is a trade-off between quality and detail, and timeliness. The provisional results are published only six weeks after the collection period, to allow customers an early view of the data. The quality is improved in the revised results, published the following month. At this time, the Quarterly Acquisitions and Disposals of Capital Assets Survey, which is the primary data source for the business investment estimates, will have reached its target response rate. As a quarterly indicator, business investment lacks the level of detail available in annual surveys, such as the Annual Business Survey, which has a larger sample size and consequently, a longer processing time, but is instead intended to provide a timely quarterly time series.

For more details on related releases, the [ONS release calendar](#) is available online and provides 12 months' advance notice of release dates. In the unlikely event of a change to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the [Code of Practice for Official Statistics](#).

Concepts and definitions (including list of changes to definitions)

Concepts and definitions describe the legislation governing the output and a description of the classifications used in the output.

Business investment estimates as a component of Gross fixed capital formation (GFCF) estimates are compiled using [UK Standard Industrial Classification 2007: SIC 2007](#), used for the first time at Blue Book 2011, replacing the previously used [SIC 2003](#). The introduction of [SIC 2007](#) was in keeping with EU regulations and adapted the classifications to changes in the structure of the economy.

Important changes in SIC 2007 include several new sections giving more service sector detail while the detail in manufacturing is substantially reduced, reflecting the move towards more services-based economies over the past 20 years. For further information on the introduction of SIC 2007, see [Implementation of Standard Industrial Classification 2007: December 2009 update, Economic and Labour Market Review, December 2009, Volume 3, No. 12](#).

Business investment estimates as a component of Gross fixed capital formation (GFCF) estimates are compiled using the [European System of Accounts 2010](#): ESA 2010 is the latest internationally compatible EU accounting framework for a systematic and detailed description of an economy. It set down the harmonised methodology to be used for the production of national accounts data in the EU. ESA 2010 is in turn consistent with the United Nations System of National Accounts 2008 ([System of National Accounts 2008](#)). The SNA 2008 is the recent update of [System of National Accounts 1993](#) and led in turn to the revision of [European System of Accounts 1995](#) forming [European System of Accounts 2010](#), which has subsequently been implemented in the UK National Accounts, as well as those of all other EU member states. This methodological rulebook ensured that statistics on member states' economies are compiled in a consistent, comparable, reliable and up-to-date way. ESA 2010 is internationally compatible, making it possible to describe the total economy of a region, country or group of countries, in a way that is reliably comparable with other economies.

6 . Methods used to produce the Business Investment data

The business investment estimates are based primarily on the results of the Quarterly Acquisitions and Disposals of Capital Assets Survey (QCAS), which collects data from UK businesses. Further information on the methods used in QCAS can be found in the [Quarterly Acquisitions and Disposals of Capital Assets Survey QMI](#). In Quarter 1 (Jan to Mar) 2015, the QCAS replaced the Quarterly Survey of Capital Expenditure (CAPEX). This is outlined in the business investment, Quarter 4 (Oct to Dec) 2014 revised results bulletin and in [Changes to the Annual Business Survey, the Quarterly Survey of Capital Expenditure and the Survey into Business Spending on Capital Items, in 2015](#).

The parameters used in this process are reviewed on an annual basis. The chained volume estimates are derived by taking the current estimates and adjusting to remove the impact of price changes using a combination of Producer Price Indices, Import Price Indices, Service Producer Price Indices and Construction Output Price Indices.

As the business investment estimates are used in the production of the gross domestic product (GDP) expenditure estimate and are produced according to the national accounts framework, they are subject to [National Accounts revisions policy](#). They are also subject to adjustments arising from balancing the three approaches to measuring GDP, that is, expenditure, production, and income. GDP may apply "[coherence adjustments](#)" to the business investment estimates. These coherence adjustments are undertaken through consultation with our data experts, which are applied where there is known [data uncertainty](#). Coherence adjustments are published in [measuring the data as part of our regular GDP releases](#).

Business investment data is released in both current prices and chained volume measures. Business investment in current prices reflects the effects of inflation as well as changes in value terms. Business investment in chained volume measures excludes any inflationary issues and reflects the changes in volume terms. Using chained volume measures makes use of more up-to-date weights and is therefore more relevant. We have published an article that shows [the chain-linking methods in UK national accounts](#).

The headline estimates of quarterly business investment are seasonally adjusted (non-seasonally adjusted versions are available in our [Gross fixed capital formation – by sector and asset tables](#)). Seasonal adjustment is the process of removing the variations associated with the time of year, or the arrangement of the calendar, from a data time series. Business investment estimates, as for many data time series, are difficult to analyse using raw data because seasonal effects dominate short-term movements. Identifying and removing the seasonal component leaves the trend and irregular components.

These data are subject to many layers of vigorous quality assurance, from clarity and confirmation of individual unit data direct from the business contact to scrutiny of data at the macro level.

Statistical disclosure control is applied to business investment data. This ensures that information attributable to an individual or individual organisation is not identifiable in any published outputs. The Code of Practice for Official Statistics, and specifically the Principle on Confidentiality, set out practices for how individuals' and businesses' data are protected from disclosure. The Principle includes the statement that ONS outputs should "ensure that official statistics do not reveal the identity of an individual or organisation, or any private information relating to them, taking into account other relevant sources of information." More information can be found on our [Statistical disclosure control methodology page](#).

7 . Other Information

Output quality trade-offs

Trade-offs are the extent to which different dimensions of quality are balanced against each other.

There is a trade-off between accuracy and timeliness. Provisional outputs are timely, but less firmly based.

Estimates may be revised during intermediate stages. These are explained under the section "How the output is created".

8 . Related links

[A short guide to gross fixed capital formation and business investment](#)

Article | Released 25 May 2017

A useful background of how to interpret, compare and analyse statistics regarding gross fixed capital formation and business investment.

[UK national accounts - a short guide](#)

Article | Released 6 March 2020

An introduction to the concepts and underlying principles of national accounting and the various publications available.

9 . Cite this methodology

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