

Article

Annual improvements to gross fixed capital formation source data for Blue Book 2017

Summary of changes affecting annual estimates of gross fixed capital formation for the UK National Accounts: Blue Book 2017.



Contact:
Claire Evans
gcf@ons.gsi.gov.uk

Release date:
16 February 2017

Next release:
To be announced

Table of contents

1. [Summary](#)
2. [Introduction](#)
3. [Introduction of new survey questions used in the estimates of GFCF](#)
4. [Changes to methodology affecting the transfer costs asset](#)
5. [Changes to the assets considered intellectual property products](#)
6. [Other changes to GFCF for Blue Book 2017](#)
7. [Conclusion](#)
8. [References](#)

1 . Summary

This article summarises annual improvements to gross fixed capital formation (GFCF) source data, which will be introduced when estimates are published as part of the UK National Accounts: Blue Book 2017. Some of these improvements will change the total level of the current price (CP) and chained volume measures (CVM) of gross domestic product (GDP), whilst other changes will only affect the sector breakdowns. This article does not provide an assessment of the impact of these changes; the impact on current price data can be found in the associated article [Impact of Blue Book 2017 changes on gross domestic product \(GDP\) current price annual estimates, 1997 to 2012](#).

2 . Introduction

2.1 Article scope

The purpose of this article is to provide an overview of a range of annual improvements to gross fixed capital formation (GFCF) source data and methodology, which will be introduced when estimates are published as part of the UK National Accounts: Blue Book 2017. It does not provide a numerical assessment of the impact of these changes; the impact on current price data can be found in an associated article: [Impact of Blue Book 2017 changes on gross domestic product \(GDP\) current price annual estimates, 1997 to 2012](#).

Another article: [Changes to the Gross Fixed Capital Formation methodology and compilation](#) (McLaren and Murphy, 2017a) summarises further improvements to GFCF. These changes will also impact data published in Blue Book 2017 when methodological changes are implemented for 1997 to 2015. However, changes will first be implemented for Quarter 1 (Jan to Mar) 2016 through to Quarter 3 (July to Sept) 2016 as part of the [Business investment in the UK: Quarter 4 \(Oct to Dec\) 2016 provisional results](#) release due to be published on 22 February 2017.

2.2 Summary of changes

Section 3 reviews the harmonisation of 3 business surveys, which are used in the estimates of GFCF. Data from the Quarterly Acquisitions and Disposals of Capital Assets Survey (QCAS) has largely been taken on in the UK National Accounts since Quarter 1 2015, but new questions have continued to be quality-assured and it has been concluded that data from these questions will not be included in GFCF estimates. The process has provided an enhanced understanding of the asset breakdown and how companies report expenditure on certain assets, which can be utilised in our estimation of GFCF in the future. Section 3 also explains the inclusion of new data from the Annual Business Survey (ABS) following the redesign of that survey.

Section 4 outlines the changes to sources affecting the transfer costs asset (sometimes referred to as costs of ownership transfer) with the introduction of costs associated with player transfers in the sports industries and a new Housing Price Index (HPI) methodology. Alongside this article, a review of transfer costs is published ([McLaren and Murphy, 2017b](#)) and this provides more detail on the framework and potential future improvements to transfer costs. For example, a new sector breakdown and the removal of the negative series will be implemented for Blue Book 2017; the impact of which will be shared in future articles.

Section 5 explains an improvement to remove double-counting in the purchased software series and new data for entertainment, literary and artistic originals, which will impact the intellectual property products asset.

Section 6 then outlines further changes to GFCF for Blue Book 2017, including producing separate estimates of households and non-profit institutions serving households; the reclassification of private-registered providers of social housing and the new GFCF estimation system.

Transfer costs and intellectual property products (IPPs) are where the majority of changes are found for Blue Book 2017 so a conceptual overview of these assets is first presented in Section 2.3.

2.3 Main concepts

2.3.1 Gross fixed capital formation

GFCF is used in the compilation of the UK National Accounts' expenditure approach to measuring GDP. It is an estimate of net capital expenditure (acquisitions less disposals) of non-produced, non-financial assets, which are used continuously or repeatedly in production for more than one year.

2.3.2 Transfer costs

One element of GFCF is that of transfer costs (sometimes referred to as costs of ownership transfer), which is defined as the fees and taxes incurred as the result of the ownership of an asset being transferred from one owner to another. Further conceptual detail about transfer costs can be found in the Review of costs of ownership transfer and treatment in the UK National Accounts ([McLaren and Murphy, 2017b](#)).

2.3.3 Intellectual property products

Intellectual property products (IPPs) are intangible assets, which include estimates of GFCF in research and development (expenditure on work to increase the stock of knowledge); mineral exploration and evaluation (expenditure on searching for petroleum and other minerals); computer software and databases; entertainment, literary and artistic originals (such as original films, sound recordings and manuscripts); and other intellectual property products (such as architectural or engineering plans and designs) (Eurostat, 2013: 183).

3 . Introduction of new survey questions used in the estimates of GFCF

3.1 Background

In recent years the UK updated 3 of its business surveys to reflect changes made to the fixed asset categories specified in the European System of Accounts (ESA) 2010 (Eurostat, 2013) to which the UK National Accounts comply:

- the Annual Business Survey (ABS)
- the Quarterly Acquisitions and Disposals of Capital Assets Survey (QCAS)¹
- the Annual Acquisitions and Disposal of Capital Assets Survey (ACAS)

These surveys are the main primary data source for estimates of gross fixed capital formation (GFCF).

ABS and ACAS were updated in line with the improvements suggested for QCAS². Therefore, as a result of these changes, we have harmonised data requirements across the 3 business surveys in question, ensuring consistency between the questions. Changes to the surveys included providing a more detailed breakdown for some of the questions; and including additional questions to capture information about intellectual property products (IPPs) and transfer costs (specifically those associated with player transfers in the sports industries). The cognitive testing work on the questionnaire has also provided a greater understanding of concepts and asset breakdowns, and shown areas where companies were previously misreporting their expenditure.

Returns from the new ABS (to which QCAS is benchmarked) have been received since 2014 and returns from the redeveloped QCAS questionnaire since Quarter 1 (Jan to Mar) 2015.

3.2 Review of new survey questions: IPP and transfer costs

Where applicable, data from QCAS has been used in quarterly estimates of GFCF, but in line with the UK's National Accounts revisions and quality assurance policies, the new questions on transfer costs and IPPs were piloted and tested before introduction. However, further quality assurance has shown that companies have not been able to provide this information for national accounts purposes. Consequently data from the new IPP and transfer costs questions will not be used in estimates of GFCF in Blue Book 2017. Instead, existing models will be used for IPP estimates (Section 3.2.1) and an alternative method has been proposed for estimating costs associated with the transfer of sports players (Section 4).

3.2.1 Intellectual property products

Data for IPP is collected through a range of sources. For example, results of research and development are collected through the Business Enterprise Research and Development Survey (BERD) and the Government Enterprise Research and Development Survey (GovERD) (see Ker, 2014), whilst purchased computer software and databases estimates are collected via QCAS (since 2001), as too is mineral exploration and evaluation (since 2004). Estimates for own-account computer software and databases are modelled using a sum-of-costs approach, primarily based on data from the Annual Survey of Hours and Earnings (ASHE). Similarly, entertainment, literary and artistic originals are modelled using a sum-of-costs approach, where estimates are based on work completed by Imperial College London (Goodridge, Haskell, and Wallis, 2014).

As an alternative source to the current modelled estimates, the updated QCAS and ABS questionnaires were re-designed to collect information on own-account software and entertainment, literary and artistic originals. For own-account software returns show an annual level of £4 billion from QCAS in 2015 and £4 billion from ABS in 2014, whilst the current modelled estimate is nearer to £11 billion. Similarly, in 2015 the net value from the QCAS survey on entertainment, literary and artistic originals is £0.1 billion for the private sector, whilst the modelled data shows an estimate of £3.2 billion for the same period.

The most likely explanation for the magnitude in differences is due to a mismatch between how respondents view the capitalisation of IPP compared with national accounts concepts. Essentially national accounts require companies to estimate the figure they return in a similar way to the current modelled estimates (using a sum-of-costs approach, which also takes into consideration aspects of production like hours worked, the cost of equipment used and mark-up costs if the product were to be sold for profit), but businesses wouldn't necessarily keep records of this type of information.

Consequently data from the new IPP questions (that is, own account software and databases, and entertainment, literary and artistic originals) will not be taken on in the UK National Accounts at Blue Book 2017³. The questions will be removed from the questionnaires and instead the current models will continue to be used and reviewed. Section 5 contains further information about new and revised data points for artistic originals and an improvement to the purchased software estimate.

3.2.2 Costs associated with the transfer fees of players in the sports industries

Contracts and fees for player transfers was a brand new question on both QCAS (from 2015) and ABS (from 2014) questionnaires. It represented a new sub-asset of transfer costs, which was introduced to meet the requirements of the fixed asset categories recommended by ESA 2010. A version of the QCAS survey, with this new question included, was sent to respondents in the sports industries.

The returned values and question were further reviewed as data was received from respondents and it has been found that companies' returns do not match national accounts concepts. Therefore an alternative method for estimating this component has been proposed (see Section 4).

3.3 Annual Business Survey

The ABS is the main resource for understanding the detailed structure, conduct and performance of businesses across the UK. Data from the ABS contribute to the UK National Accounts, including estimates of GFCF, as it provides annual benchmarks for the QCAS survey. In 2014 the ABS was updated in line with the improvements also made to QCAS (and ACAS).

2014 data from ABS would usually have been taken on at Blue Book 2016, but, given the updates undertaken across the surveys, for GFCF this was postponed to allow for further quality assurance. At Blue Book 2017 ABS data for 2014 and 2015 will be taken on. The new data incorporate relevant changes made to the surveys in the recent periods (that is, we will continue to benchmark to related assets, whilst data for the new problematic questions will not be included).

Notes for Introduction of new survey questions used in the estimates of GFCF:

1. Formerly known as the Quarterly Survey of Capital Expenditure.
2. ACAS provides new source data for updated products splits that have been used in the recently developed GFCF compilation system (see 'Changes to the Gross Fixed Capital Formation methodology and compilation' – McLaren and Murphy, 2017), so they will not be discussed in detail in this article.
3. To date, 'other intellectual property products' have not been estimated as a distinct component of IPP, but a separate question was added to the redeveloped questionnaires. Given the issues with the related own-account and IPP questions, data from this question will not be taken on at Blue Book 2017.

4 . Changes to methodology affecting the transfer costs asset

4.1 Addition of "costs associated with the transfer fees of players in the sports industries"

To meet the requirements of the fixed asset categories recommended by the European System of National Accounts (ESA) 2010 (Eurostat 2013) – to which the UK National Accounts comply – from Blue Book 2017 an additional element of transfer costs will be measured in the UK National Accounts: transfer costs associated with the buying and selling of players in the sports industries¹. This includes club and agent's fees and any taxes associated with the buying and selling of players from one sports club to another. It is important to distinguish this from the transfer fee itself (that is, the monies paid from one sports club (the seller) to another sports club (the buyer)²).

From Blue Book 2017, estimates of the costs associated with the transfer fees of players in the sports industries will be modelled using publicly available data from a variety of web sources. The model does not cover all sports industries and clubs and instead it is based on what is likely to be the only significant contributor to this asset – English Premier League football clubs. The model is based on real data from 1997 onwards, but where data could not be obtained, values have been modelled by applying the growth rates from those data which are available. Based on discussions with experts, a proportion has been calculated to estimate for an associated levy, which is also taken into consideration in the model.

4.2 Update to the House Price Index methodology

Gross fixed capital formation (GFCF) uses the Office for National Statistics's (ONS's) House Price Index (HPI) as part of the calculation of current price transfer costs data. In 2014, it was agreed that a new, single official HPI could be produced jointly by the current producers of official house price statistics (ONS, Land Registry, Registers of Scotland (RoS) and Land and Property Services Northern Ireland (LPSNI)). The new HPI has been formulated to take advantage of the best available data, specifically taking into account the floor space of a property and it also aligns more closely with international guidelines. (Further information is available in the article on the [Development of a single Official House Price Index](#) (ONS et. al., 2016)). The new HPI methodology (with an associated back series) was introduced in 2016 and data based on this new methodology will be used in the compilation of GFCF for Blue Book 2017.

4.3 Further improvements to the transfer costs asset

In annual Blue Books published since 2000, GFCF includes negative transfer cost data for non-produced non-financial assets in 4 institutional sectors: financial corporations, public corporations, central government and local government. As outlined in the Review of costs of ownership transfer and treatment in the UK National Accounts ([McLaren and Murphy, 2017b](#)), this is conceptually impossible as transfer costs should only be capitalised by the buyer, should include both the costs of the buyer and the seller, and as a result they must be positive.

In order to address this conceptual anomaly, a new method will be used in Blue Book 2017 to estimate the breakdown of transfer costs by institutional sector, replacing the current method, which is based on historical proportions. The new method assumes that those components where administrative sources are used (for example, Land Registry fees and Stamp Duty) are proportionally assigned to institutional sectors based on the pattern of acquisitions of dwellings and other buildings and structures.

Notes for Changes to methodology affecting the transfer costs asset:

1. Given this change is associated with sports industries it will only affect public non-financial corporations' data.
2. This is in line with the System of National Accounts (2008: 391) definition, which distinguishes the “transfer fee” (which is a non-produced asset) from the “transfer costs” associated with the transfer (which is GFCF):

Although human capital is not recognised as an asset in the SNA, there are cases where a contract that entitles the Holder to limit the ability of a named individual to work for others may be regarded as an asset. The most prolific and lucrative contracts may be for sports players where, for example, a football club can “sell” a player to another. In fact they are not selling the person; they are selling the exclusive right to have that person work for them. Similar contracts exist for the rights to publish literary works or musical performances. All such contracts are treated as assets of the type entitlement to goods and services on an exclusive basis within the asset class of contracts, leases and licences – that is, non-produced assets.

5 . Changes to the assets considered intellectual property products

5.1 Purchased software

As communicated in the Business investment release since September 2016, following a quality review of the measurement of software in gross fixed capital formation (GFCF), analysis has shown that elements in the estimates of purchased software have been double-counted from 2001.

From 2001, the Quarterly Survey of Capital Expenditure (CAPEX – now known as the Quarterly Acquisitions and Disposals of Capital Assets Survey (QCAS)) began to specifically ask for acquisitions and disposals of purchased software, but prior to this it had been modelled by industry as a percentage of capital expenditure on hardware. In 2001, purchased software data from CAPEX was taken on, but the modelled value of purchased software was not discontinued, leading to an element of double-counting.

Analysis of this double-counting also uncovered a discrepancy in the modelled data prior to 2001, which will also be amended for Blue Book 2017. The new survey data should have been evaluated in relation to the modelled estimates at the joining point in 2001 as part of the process of discontinuing the modelled data. As this was not completed, the analysis has been retrospectively undertaken and an average of the growths for the preceding years will be used to better represent how the joining point would have looked if the modelled data had been removed.

5.2 Entertainment, literary and artistic originals

The IPP asset will also be impacted as a result of updated data for entertainment, literary and artistic originals. Revised data is available between 2007 and 2009, and new estimates have been sourced for 2010 and 2011, which replace current forecasted data. Data for later years have also been revised in line with these changes.

6 . Other changes to GFCF for Blue Book 2017

6.1 The separation of households and non-profit institutions serving households

Following recommendations in the European System of National Accounts (ESA) 2010 (Eurostat, 2013) there is a requirement to present households (S.14) and non-profit institutions serving households (S.15) data within the Blue Book as separate entities. As elsewhere in the UK National Accounts, estimates of gross fixed capital formation (GFCF) for households and non-profit institutions serving households are currently published as a combined entity (S.1HN). From Blue Book 2017, these sectors will be split out using a variety of methods appropriate to the capital asset in question. Further information about this methodological change will be published in an article in June 2017.

6.2 Reclassification of private registered providers of social housing

In October 2015, we reviewed the statistical classification of private registered providers of social housing in England (PRPs) to establish whether PRPs should continue to be recorded as private non-financial corporations in our economic statistics or if the recording should change following legislative and regulatory changes brought about through the Housing and Regeneration Act 2008 (HRA 2008).

We concluded that PRPs are public, market producers and should be reclassified to the public non-financial corporations' sector for the purpose of national accounts and our other economic statistics. The classification applies with effect from 22 July 2008; the date of enforcement of the HRA 2008.

As data from PRPs feeds through to GFCF from the private and public sectors, this reclassification will not impact total levels of GFCF, but it will change the sector estimates for public corporations and private non-financial corporations. Further information about this methodological change will be published in an article in June 2017.

6.3 New GFCF estimation system

In addition to the changes outlined in this article, at Blue Book 2017, data will also be based upon the new GFCF estimation system, which has recently been developed in line with the [5-year strategy for the UK National Accounts, 2015 to 2020](#) (Drew and Chesson, 2015). This follows recommendations from independent reports, including the [Independent Review of Economic Statistics](#) (Bean, 2016) and the [National Statistics Quality Review of the National Accounts and Balance of Payments](#) (Barker and Ridgeway, 2014). More information about this suite of changes can be found in [Changes to the Gross Fixed Capital Formation Methodology and Processing](#) (McLaren and Murphy, 2017a).

7 . Conclusion

This article has provided an overview of a range of annual improvements to gross fixed capital formation (GFCF) source data and methodology, which will be introduced when data is published as part of Blue Book 2017. These include:

- a review of the revamped Quarterly Acquisitions and Disposals of Capital Survey (QCAS) and Annual Business Survey (ABS)
- the introduction of costs associated with player transfers in the sports industries to the transfer costs asset
- use of a new House Price Index (HPI)
- addressing an issue of double-counting in the purchased software series
- taking on new data for entertainment, literary and artistic originals
- additional changes to GFCF that will be covered in our other publications (that is, a new sector breakdown for transfer costs; the separation of households and non-profit institutions serving households; the reclassification of private registered providers of social housing and the new GFCF estimation system).

The article does not provide a numerical assessment of the impact of these changes, but these will be communicated in associated articles to be published in 2017.

8. References

Barker, K. and Ridgeway, A. (2014) National Statistics Quality Review: National Accounts and Balance of Payments

Bean, C. (2016) Independent Review of UK Economic Statistics

Drew, S. and Chesson, A. (2015) National Accounts Strategy, 2015 to 2020.

European Communities, International Monetary Fund, Organisation for Economic Co-operation Development, United Nations and World Bank (2009) System of National Accounts (SNA 2008)

Eurostat (2013) European System of National and Regional Accounts, 2010 (ESA 2010)

Goodridge, P. and Haskell, J. and Wallis, G. (2014) Estimating UK investment in intangible assets and intellectual property rights

Ker, D. (2014) Changes to National Accounts: Measuring and Capitalising Research and Development

McLaren, C.H. and Murphy, J. (2017a) Changes to the Gross Fixed Capital Formation Methodology and Processing

McLaren, C.H. and Murphy, J. (2017b) Review of costs of ownership transfer and treatment in the UK National Accounts

Office for National Statistics, Land Registry, Registers of Scotland, and Land and Property Services Northern Ireland (2016) Development of a single Official House Price Index